SET NO.

MARION UTILITIES SERVICE BOARD

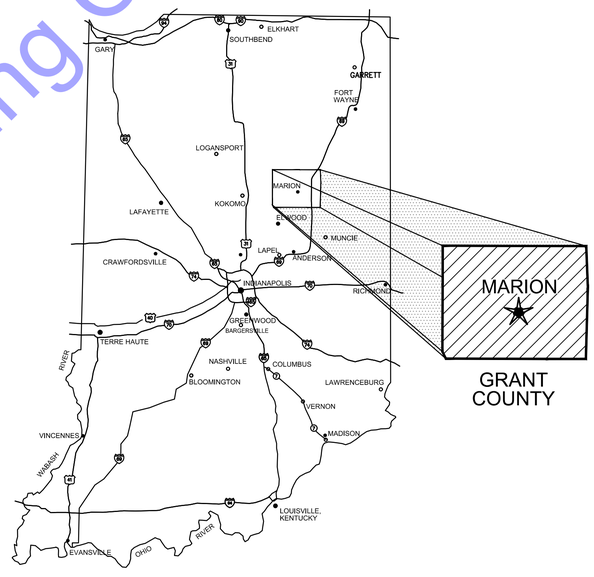
GRANT COUNTY, INDIANA

CSO 009 LTCP IMPROVEMENTS
JULY 2025

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UTILITIES SERVICE BOARD

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GENERAL LOCATION MAP

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QA/QC BY : DARREN WELLS, P.E., BCEE, ENV SP — **DATE :** 7/31/2025

CERTIFIED BY : Brian Wilson — **DATE :** 7/31/2025

BRIAN WILSON
INDIANA PE No. 11900866

BRIAN KREED WILSON REGISTERED No. PE11900866 STATE OF INDIANA PROFESSIONAL ENGINEER

CONTRACT NO. : S24146

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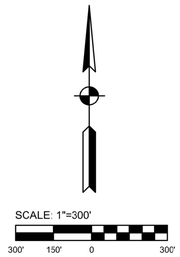
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PROJECT ADDRESS: 2002 S. CLARK STREET, MARION, IN 46953

VICINITY MAP

SCALE: 1"=300'-0"



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BRIAN KREED WILSON
REGISTERED
No. PE11900866
STATE OF INDIANA
PROFESSIONAL ENGINEER

Signature 7/31/2025 Date

MARION UTILITIES SERVICE BOARD
GRANT COUNTY, INDIANA

CSO 009 LTCP IMPROVEMENTS

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No.	Submittal / Revision	By	Date

Designed By:	Drawn By:	Checked By:
BKW	BW	DW
Issue Date: 7/2025	Project No: S24146	Scale: AS SHOWN

VICINITY MAP AND INDEX TO SHEETS

Drawing No: G2

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ABBREVIATIONS

AB	ANCHOR BOLT
ADF	AVERAGE DAILY FLOW
AFF	ABOVE FINISH FLOOR
ALT	ALTERNATE
ALUM	ALUMINUM
@	AT
ATT	AERATION TANK TRANSFER
AUTO	AUTOMATIC
AVG	AVERAGE
BLDG	BUILDING
BM	BENCH MARK
BOT	BOTTOM
BRG	BEARING
CFM	CUBIC FEET PER MINUTE
CL	CENTERLINE
CO	CLEAN OUT
COL/C	COLUMN
CONC	CONCRETE
COP	COPPER
CJ	CONSTRUCTION JOINT
CY	CUBIC YARD
DIA	DIAMETER
DIM	DIMENSION
DI	DUCTILE IRON PIPE
DL	DEAD LOAD
DS	DOWN SPOUT
DWG	DRAWING
EA	EACH
EF	EACH FACE
EFFL	EFFLUENT
EL	ELEVATION
EW	EACH WAY
EXF	EXHAUST FAN
EX,EXIST	EXISTING
EXP JP	EXPANSION JOINT
FCA	FLANGED COUPLING ADAPTER
FCAR	FLANGED COUPLING ADAPTER, RESTRAINED
FD	FLOOR DRAIN
FDN	FOUNDATION
FH	FIRE HYDRANT
FLD	FILTRATE DRAIN
FLG	FLANGE
FL	FLUSHING LINE
FLR	FLOOR
FRP	FIBER REINFORCED PLASTIC
FT	FEET OR FOOT
FTG	FOOTING
GALV	GALVANIZED
GEN	GENERAL
GRD	GROUND OR GRADE
HB	HOSE BIBB
HORIZ	HORIZONTAL
HP	HORSEPOWER
ID	INSIDE DIAMETER
IJ	ISOLATION JOINT
INV	INVERT
IP	IRON PIN
LAV	LAVATORY
LB	POUND
LL	LIVE LOAD
LLV	LONG LEG VERTICAL
LTG	LIGHTING
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MGD	MILLIONS GALLONS PER DAY
MH	MANHOLE
MIN	MINIMUM, MINUTE
MJ	MECHANICAL JOINT
NC	NORMALLY CLOSED
NG	NATURAL GAS
NIC	NOT IN CONTACT
NO	NORMALLY OPEN
NO.	NUMBER
OC	ON CENTER
OD	OUTSIDE DIAMETER
OPG	OPENING
OPP	OPPOSITE
PB	PULL BOX
PDF	PEAK DAILY FLOW
PE	POLYETHYLENE EXP. JT. MATERIAL
POJ	PUSH ON JOINT
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
R	RADIUS OR RISER
RAD	RADIUS
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
REINF	REINFORCING
REQ'D	REQUIRED
RS	RETURNED SOLIDS
R/W	RIGHT-OF-WAY
SAN	SANITARY
SAS	SANITARY SEWER
SCH	SCHEDULE
SECT	SECTION
SF	SQUARE FEET
SHT	SHEET
SL	SAMPLE LINE
SQ	SQUARE
STD	STANDARD
S STL, SS	STAINLESS STEEL
STL	STEEL
SUP	SUPERNATANT
SY	SQUARE YARD
TOS	TOP OF SLAB
TOW	TOP OF WALL
TW	TERTIARY WATER
TYP	TYPICAL
V	VACUUM OR VALVE
VAR	VARIES
VERT	VERTICAL
W/	WITH
W/O	WITHOUT
WC	WATER CLOSET
WH	WATER HEATER OR WALL HYDRANT
WSE	WATER SURFACE ELEVATION
WWF	WET WEATHER FLOW
YH	YARD HYDRANT

LEGEND

- NEW SANITARY/STORM STRUCTURE
- NEW FORCE MAIN
- NEW SANITARY/STORM SEWER
- NEW WATER MAIN
- NEW FENCE
- NEW BOLLARDS AROUND STRUCTURES
- NEW AMERICAN ARBORVITAE TREES
- NEW FIRE HYDRANT
- NEW WATER VALVE
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY SEWER
- EXISTING SANITARY SEWER TO BE PLUGGED
- EXISTING SANITARY/STORM SEWER TO BE ABANDONED/FILLED
- EXISTING SANITARY/STORM SEWER TO BE REMOVED
- EXISTING FORCE MAIN
- EXISTING STORM SEWER
- EXISTING STORM SEWER TO BE PLUGGED
- EXISTING STORM MANHOLE
- EXISTING CATCH BASIN/ROUND INLET
- EXISTING WATER MAIN
- ABANDONED EXISTING WATER MAIN
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING GAS METER
- EXISTING WATER SPIGOT
- EXISTING FIBER OPTICS
- EXISTING FIBER OPTICS BOX
- EXISTING ELECTRIC BOX
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING POST
- EXISTING FENCE
- EXISTING GUARDRAIL
- EXISTING DECIDUOUS TREE
- EXISTING EVERGREEN TREE
- EXISTING SHRUB/BUSH
- EXISTING TREE LINE
- EXISTING MAJOR CONTOUR LINE
- EXISTING MINOR CONTOUR LINE
- APPROX. RIGHT-OF-WAY
- APPROX. PROPERTY LINE
- EXISTING POST
- EXISTING WATER METER
- EXISTING GAS LINE
- EXISTING GAS VALVE
- EXISTING LIGHT POLE
- EXISTING POWER POLE W/ GUY WIRE
- EXISTING OVERHEAD ELECTRIC
- EXISTING BURIED TELEPHONE
- EXISTING TELEPHONE CONTROL BOX
- EDGE OF DRIVE
- EXISTING SPOT ELEVATION
- CONTROL POINT
- TEMPORARY BENCH MARK
- GRASS RESTORATION (PROFILES AND SECTIONS ONLY)
- GRANULAR BACKFILL (PROFILES AND SECTIONS ONLY)
- NEW ASPHALT PAVEMENT (PLAN) AND STRUCTURE TOP PLAN
- ABANDONED IN PLACE (PLAN ONLY)
- STONE DRIVE (PLAN) GROUT (PROFILES AND SECTIONS)
- CONCRETE DRIVE/SIDEWALK (PLAN) CONCRETE WALL (SECTIONS)
- APPROX. FORMER BUILDING OUTLINE PER RECORD DRAWING (PLAN ONLY)

EXISTING UTILITY NOTES

1. THE EXISTING UTILITY INFORMATION SHOWN ON THESE DRAWINGS CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL-INCLUSIVE. LOCATION, SIZE AND MATERIAL SHOWN ON UTILITIES ARE FROM AVAILABLE RECORDS AND AVAILABLE FIELD MARKINGS, SUPPLIED BY THE RESPECTIVE UTILITY COMPANY. THE INDIANA UNDERGROUND PLANT PROTECTION SERVICE (IUPPS) MUST BE NOTIFIED 48 HOURS PRIOR TO ANY EXCAVATION FOR VERIFICATION OF LOCATION, SIZE AND MATERIAL FOR EXISTING UNDERGROUND UTILITIES (1-800-382-5544).
2. SIZE, MATERIAL, DEPTH AND LOCATION OF KNOWN EXISTING SEWER FACILITIES ARE FROM AVAILABLE HISTORIC INFORMATION AND ABOVE-GROUND INSPECTION AND MEASUREMENT. THE CONTRACTOR SHALL VERIFY ALL SEWER INFORMATION CONTAINED IN THE CONTRACT DOCUMENTS PRIOR TO ANY CONSTRUCTION WHICH WOULD BE IMPACTED BY FACILITIES NOT LOCATED AS SHOWN IN THE CONTRACT DOCUMENTS. THE COST TO CORRECT ANY FACILITIES INSTALLED PRIOR TO VERIFICATION OF EXISTING CONDITIONS BY THE CONTRACTOR SHALL BE AT NO COST TO THE OWNER OR ENGINEER. DIFFERING CONDITIONS DISCOVERED DURING VERIFICATION WILL BE HANDLED PER THE CONTRACT DOCUMENTS.
3. THE LOCATIONS OF UTILITIES AND STRUCTURES, BOTH SURFACE AND SUBSURFACE, ARE SHOWN ON THE PLANS FROM DATA AVAILABLE AT THE TIME OF SURVEY AND ARE NOT NECESSARILY COMPLETE OR CORRECT. DETERMINING THE EXACT LOCATION AND PROTECTING UTILITIES AND STRUCTURES ARE THE RESPONSIBILITY OF THE CONTRACTOR. DURING CONSTRUCTION, THE CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES AND STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. IF DAMAGE IS CAUSED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR AND RESTORATION OF SAME IN ACCORDANCE WITH THE REQUIREMENTS OF THE UTILITY OWNER AND FOR ANY RESULTING CONTINGENT DAMAGE AND COST.
4. IF UTILITY FACILITIES OTHER THAN THOSE SHOWN ARE LOCATED, OR IF UTILITIES ARE LOCATED WHICH ARE NOT IN ACCORDANCE WITH THE LOCATIONS SHOWN ON THE DRAWINGS, THE ENGINEER SHALL BE NOTIFIED TO DETERMINE IF PLAN REVISIONS ARE NEEDED.
5. ALL EXISTING UTILITIES SHOWN IN PROFILE ARE INDICATED AT THEIR ASSUMED ELEVATION. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
6. IN GENERAL, UTILITY SERVICE LINES TO INDIVIDUAL CUSTOMERS ARE NOT SHOWN ON THE PLANS. CONTRACTOR SHALL ASSUME THAT UNDERGROUND SERVICE LINES EXIST TO EACH PROPERTY ALONG THE NEW SEWER ROUTE FOR WATER, SANITARY SEWER, GAS, ELECTRIC, TELEPHONE, AND FIBER OPTIC. THE CONTRACTOR SHALL LOCATE, PROTECT, AND IF DAMAGED BY CONTRACTOR, REPAIR ALL UTILITY SERVICE LINES ENCOUNTERED.
7. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN IN SERVICE ALL EXISTING UTILITIES ENCOUNTERED DURING CONSTRUCTION UNLESS OTHERWISE INDICATED IN THE DRAWINGS. ANY UTILITY WHICH CAN BE REMOVED DURING CONSTRUCTION WITHOUT UNDUE INTERRUPTION OF SERVICE MAY BE REMOVED AND REPLACED BY THE CONTRACTOR WITH THE PERMISSION OF THE OWNER AND THE APPLICABLE UTILITY OWNER.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR/REPLACEMENT TO ALL DAMAGED WATER SERVICES. CONTRACTOR MUST NOTIFY WATER MAINTENANCE AND SERVICE DISPATCHER OF ANY DAMAGES TO THE WATER FACILITIES. DAMAGED WATER FACILITIES MUST BE REPAIRED BY THE CONTRACTOR WITHIN TWO (2) HOURS AT NO ADDITIONAL COST TO THE OWNER. IF WATER MAINTENANCE IS REQUIRED TO MAKE REPAIRS, THE CONTRACTOR WILL BE BILLED. WATER MAIN REPLACEMENT SHALL BE COORDINATED WITH OWNER AND SHALL BE COMPLETED IN CONFORMANCE TO THE CONTRACT DOCUMENTS.
9. THE CONTRACTOR SHALL PROTECT ALL POWER POLES FROM DAMAGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES. WHERE REQUIRED, ALL UTILITY POLES ARE TO BE SUPPORTED IN A MANNER APPROVED BY THE APPROPRIATE UTILITY DURING INSTALLATION OF SEWER PIPE. ALL COSTS ASSOCIATED WITH MAINTAINING ELECTRICAL SERVICE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. ALL COSTS ASSOCIATED WITH THE PROTECTION AND/OR TEMPORARY SUPPORT OF UTILITY POLES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
10. THE CONTRACTOR SHALL MAKE PROVISIONS TO MAINTAIN FLOWS IN ALL SANITARY SEWERS, AND OVERFLOWS ARE PROHIBITED. BYPASS PUMPING OR ALTERNATE PROVISIONS MAY BE REQUIRED AND SHALL BE SUFFICIENT TO CONVEY FLOWS UNDER ALL CONDITIONS. ALL COSTS ASSOCIATED WITH MAINTAINING SAID FLOWS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
11. ALL PROPERTY AND RIGHT-OF-WAY LINES INFORMATION SHOWN IN THE DRAWING SET ARE APPARENT AND SHALL NOT BE DEEMED EXACT LOCATIONS, UNLESS OTHERWISE NOTED, AS PART OF THEIR CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL VERIFY RIGHT-OF-WAY AND PROPERTY LINES PRIOR TO CONSTRUCTION.
12. EXISTING UTILITY INFORMATION SHOWN IN DRAWINGS, MEETS "ASCE 36-02" QUALITY LEVEL C, UNLESS OTHERWISE NOTED.

UTILITY QUALITY LEVEL A: PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES OBTAINED BY THE ACTUAL EXPOSURE (OR VERIFICATION OF PREVIOUSLY EXPOSED AND SURVEYED UTILITIES) AND SUBSEQUENT MEASUREMENT OF SUBSURFACE UTILITIES, USUALLY AT A SPECIFIC POINT. ACCURACY OF LOCATION MATCHES PROJECT SURVEY TOLERANCE.

UTILITY QUALITY LEVEL B: INFORMATION OBTAINED THROUGH THE APPLICATION OF APPROPRIATE SURFACE GEOPHYSICAL METHODS TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION SUBSURFACE UTILITIES. THE RELIABILITY OF THIS INFORMATION IS SURVEYED TO PROJECT CONTROL AND SUBJECT TO ACCURACY LEVELS OF THE GEOPHYSICAL TOLERANCE DEFINED BY THE PROJECT.

UTILITY LEVEL C: INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE ABOVE-GROUND UTILITY FEATURES AND CORRELATING QUALITY LEVEL D INFORMATION.

UTILITY LEVEL D: INFORMATION DERIVED FROM EXISTING RECORDS OF VERBAL RECOLLECTIONS.

DISCLAIMER NOTE:
THIS SHEET REFLECTS TYPICAL INFORMATION, SOME NOTES AND SYMBOLS MAY NOT BE APPLICABLE TO THIS PROJECT.

GENERAL NOTES

1. IF ANY ERRORS OR DISCREPANCIES BECOME APPARENT, THEY SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER PRIOR TO CONSTRUCTION SO THAT CLARIFICATION OR REDESIGN MAY OCCUR.
2. LIMITS OF CONSTRUCTION SHALL BE WITHIN EXISTING RIGHT-OF-WAYS UNLESS OTHERWISE NOTED.
3. FOR AREAS OUTSIDE OF EXISTING RIGHT-OF-WAYS, THE CONTRACTOR SHALL CONFINE ALL WORK TO THE LIMITS OF PERMANENT AND TEMPORARY EASEMENTS OR CONSTRUCTION LIMIT BOUNDARIES AS SHOWN ON THE DRAWINGS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING, AT NO ADDITIONAL COST TO THE OWNER, TEMPORARY EASEMENTS NEEDED FOR STORAGE, STOCKPILING, ACCESS, OR ANY OTHER REASON, OUTSIDE OF ANY EASEMENTS OR RIGHT-OF-WAY PROVIDED.
5. THE CONTRACTOR SHALL COORDINATE THE ACTIVITIES OF THEIR PERSONNEL, SUBCONTRACTORS, AND UTILITIES PERFORMING WORK ON THIS PROJECT. THE CONTRACTOR SHALL ALSO COORDINATE WITH THE OWNER'S OPERATIONS AND MAINTENANCE PERSONNEL WHO MAY BE WORKING IN OR NEAR THE PROJECT AREA.
6. THE CONTRACTOR IS SOLELY AND COMPLETELY RESPONSIBLE FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING EROSION CONTROL AND THE SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND 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.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL LINES, GRADES AND ELEVATIONS. ALL PIPES SHALL SLOPE UNIFORMLY BETWEEN INVERT ELEVATIONS SHOWN.
8. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REMOVE ALL MUD, DIRT, GRAVEL, AND ANY OTHER MATERIALS TRACKED ONTO ANY PUBLIC OR PRIVATE STREETS, PARKING LOTS, OR WALKS. THIS MATERIAL REMOVAL OR SWEEPING OF THE STREETS SHALL BE DONE AS FREQUENTLY AS NECESSARY TO MAINTAIN REASONABLY CLEAN AREAS. THE CONTRACTOR SHALL ALSO CONTROL DUST THROUGH THE USE OF WATERING, APPLICATION OF DUST PALLIATIVE, OR OTHER APPROVED METHODS. NO DIRECT PAYMENT WILL BE MADE FOR ANY SUCH CLEANING WORK OR DUST CONTROL.
9. EXISTING SIGNS TO BE REMOVED AND RESET AFTER CONSTRUCTION SHALL BE COORDINATED WITH THE CITY OF MARION.
10. THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF ALL PERMITS OBTAINED FOR THE PROJECT.
11. THE COST OF ABIDING BY THE PROVISIONS OR PERMITS ISSUED BY VARIOUS AGENCIES SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT. ALL ASSOCIATED BONDING REQUIREMENTS AND COSTS SHALL ALSO BE CONSIDERED INCIDENTAL TO THE CONTRACT.
12. THE CONTRACTOR SHALL PRESERVE AND PROTECT PROPERTY MARKERS, SECTION CORNERS, SURVEY MARKS AND BENCHMARKS, SUCH AS STONES, PIPES, OR OTHER MONUMENTS ENCOUNTERED. IF THE CONTRACTOR MUST DISTURB THE PROPERTY MARKERS OR MONUMENTS, THEIR HORIZONTAL AND VERTICAL LOCATION SHALL BE DETERMINED AND RECORDED BY A REGISTERED LAND SURVEYOR AND THE OWNER NOTIFIED BEFORE DISTURBING. ALL PROPERTY MARKERS AND MONUMENTS DISTURBED DURING CONSTRUCTION SHALL BE RE-ESTABLISHED BY A REGISTERED LAND SURVEYOR TO FINAL COMPLETION.
13. ROADWAY SURFACING AND BASE MATERIALS OR OTHER PROPERTY REMOVED OR DAMAGED, SHALL BE REPLACED OR REPAIRED AS PROVIDED FOR IN THE CONTRACT DOCUMENTS.
14. REGRADE AREAS AS NECESSARY WITHIN THE CONSTRUCTION LIMITS TO ALLOW PROPER DRAINAGE TO EXISTING STORM SEWER STRUCTURES. ANY EXCESS SOIL AND SPOIL MATERIAL SHALL BE DISPOSED OF BY THE CONTRACTOR OFF-SITE.
15. WORK NOT SPECIFIED FOR PAYMENT AS OR PART OF A SPECIFIC PAY ITEM SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT BY THE CONTRACTOR.
16. COORDINATION AND PROPER FIT AND SURVEY OF ALL PROJECT ELEMENTS ARE THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL CONDUCT A PRE-CONSTRUCTION STAKEOUT OF THE PROJECT ELEMENTS TO VERIFY THE COORDINATES PROVIDED.
17. THE CONTRACTOR SHALL VERIFY ALL RIM ELEVATIONS OF PROPOSED STRUCTURES PRIOR TO ORDERING ANY MATERIALS.
18. ADDITIONAL ACCESS ROAD(S) OUTSIDE OF WHAT IS SHOWN ON DRAWINGS, SHALL BE INCIDENTAL TO OTHER PAY ITEMS.
19. ALL NORTHINGS AND EASTINGS PROVIDED FOR NEW STRUCTURES ARE DESIGNATED TO THE CENTER OF THE STRUCTURE UNLESS OTHERWISE NOTED.

PROJECT CONTACTS

ELECTRIC:

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E-MAIL: smmontgomery@aep.com

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FIRE

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301 S. BRANSON ST.
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ALT. PHONE: (765) 662-9981

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SANITARY SEWER:

WATER:

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BRIAN KREED WILSON
REGISTERED
No. PE11900866
STATE OF INDIANA
PROFESSIONAL ENGINEER
Brian Wilson 7/31/2025
Signature Date

MARION UTILITIES SERVICE BOARD
GRANT COUNTY, INDIANA

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Issue Date:	Project No:	Scale:
7/2025	S24146	AS SHOWN

LEGEND, GENERAL NOTES, EXISTING UTILITY NOTES AND PROJECT CONTACTS

Drawing No:
G3
Sheet: 3 OF 59

File: Z:\SHARED\IN CLIENTS M-Z\MARION\S24146 - CSO 009 LTCP IMPROVEMENTS\06 CAD\A CURRENT FILES\1 DRAWINGS\02 - S24146 - VICINITY MAP AND INDEX.DWG
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SCALE: 1"=50'

50' 0 50'

SURVEY CONTROL PLAN

SCALE: 1"=50'-0"

PROJECT COORDINATES ARE BASED ON THE FOLLOWING:

HORIZONTAL - US STATE PLANE COORDINATES: NAD83 (NORTH AMERICAN DATUM) INDIANA WEST ZONE, IN83-WF.

VERTICAL - USGS 1988 NAVD (NORTH AMERICAN VERTICAL DATUM) - PER GPS OBSERVATIONS (NOT VERIFIED BY PHYSICAL LOCATION OF PUBLISHED USGS MONUMENTS).

CONTRACTOR SHALL ESTABLISH TEMPORARY BENCHMARKS ALONG ALIGNMENT AS A PART OF THEIR PRE-CONSTRUCTION SURVEY ACTIVITIES. CONTRACTOR SHALL CONFIRM ELEVATIONS OF PROPOSED ALIGNMENT AND PROVIDE TO OWNER/ENGINEER PRIOR TO CONSTRUCTION.

SURVEY CONTROL SCHEDULE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
7500			805.74	TBM CHISEL "X" SOUTH BONNET BOLT FIRE HYDRANT
7501			803.40	TBM R.R. SPIKE IN PWP
51000	1928161.16	332735.88		HCV MAG SPIKE BFA-CTRL 50' S. DR. AT 2009. EAST OF SOUTH-MOST OVHD DR. AT 2020
51001	1928472.64	332699.62		HCV CHISEL "X" EAST RIM ROUND INLET SOUTHWEST CURVE 20TH/CLARK INTERSECTION
51002	1928191.18	333138.00		HCV 48" REBAR BFA-CTRL 3' EAST EDGE OF PAVEMENT 50' S. R.R. BRIDGE
51004	1927889.07	332708.55		HCV MAG IN SOUTHWEST JOINT AT DRIVE FOR 808 22ND ST

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SURVEY CONTROL PLAN

Drawing No: G4

Sheet: 4 OF 59

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STRUCTURE TABLE

STRUCTURE NAME:	RIM:	STRUCTURE SIZE:	PIPES IN:	PIPES OUT:
101	798.5±	DIVERSION STRUCTURE	48" INV: 787.55 W (IN)	36" INV: 785.50 N (OUT) 48" INV: 787.45 E (OUT)
102	807.0±	72"	36" INV: 784.68 S (IN)	36" INV: 784.18 W (OUT)
103	804.3±	48"	15" INV: 790.56 W (IN)	15" INV: 790.50 S (OUT)
104	804.1±	60"	15" INV: 790.33 N (IN) 6" INV: 799.25 E (IN)	15" INV: 790.33 S (OUT)
105	803.9±	48"	15" INV: 790.25 N (IN)	15" INV: 790.25 E (OUT)
106	804.0±	48"	15" INV: 790.10 W (IN)	15" INV: 790.03 S (OUT)
201	808.2±	72"	12" INV: 796.97 W (IN) 36" INV: 791.77 N (IN)	36" INV: 791.67 SE (OUT)
202	806.8±	72"	36" INV: 791.93 W (IN)	36" INV: 791.93 S (OUT)
203	804.1±	72"	36" INV: 792.23 W (IN)	36" INV: 792.18 E (OUT)
204	803.8±	48"	12" INV: 797.21 W (IN)	12" INV: 797.11 E (OUT)
205	803.7±	48"	12" INV: 797.83 S (IN)	12" INV: 797.62 E (OUT)
206	802.8±	48"	12" INV: 798.09 S (IN)	12" INV: 798.09 N (OUT)
301	804.7±	48"	3" INV: 799.25 N (IN)	3" INV: 799.25 NW (OUT) 3" INV: 799.25 SW (OUT)
302	804.7±	48"	3" INV: 799.25 S (IN)	3" INV: 799.25 NW (OUT) 3" INV: 799.25 SW (OUT)

STRUCTURE TABLE

STRUCTURE NAME:	RIM:	PIPES IN:	PIPES OUT:
SAN 36-2273	799.5±	48" INV: 787.70 W (IN) 24" INV: 791.60 S (IN)	48" INV: 787.70 E (OUT)
SAN 36-2285	802.6±		15" INV: 793.85 S (OUT)
SAN 36-2287	802.3±	48" INV: 784.91 SW (IN) 8" INV: 794.51 SE (IN)	15" INV: 784.71 E (OUT) 15" INV: 785.11 N (OUT)
SAN 36-2288	797.9±	15" INV: 787.90 S (IN) 15" INV: 788.00 SW (IN)	48" INV: 785.70 NE (OUT)
SAN 36-2290	797.6±	15" INV: 789.72 N (IN) 15" INV: 789.72 NE (IN)	15" INV: 789.72 SW (OUT)
SAN 36-2291	797.6±	48" INV: 785.85 SW (IN)	48" INV: 785.85 NE (OUT)
SAN 36-2292	798.0±	48" INV: 786.35 SW (IN)	48" INV: 786.25 NE (OUT)
SAN 36-2294	798.0±	48" INV: 786.25 S (IN) 15" INV: 788.91 NE (IN)	48" INV: 786.20 NE (OUT)
SAN 36-2295	798.1±	48" INV: 786.36 W (IN)	48" INV: 786.30 N (OUT)
SAN 36-6295	798.3±	48" INV: 785.63 SW (IN) 12" INV: 790.53 W (IN) 24" INV: 790.33 S (IN)	48" INV: 785.43 NE (OUT)
SAN 36-9466	803.2±	48" INV: 790.58 W (IN) 18" INV: 795.23 S (IN) 6" INV: 793.83 NW (IN) 6" INV: 793.73 SW (IN)	48" INV: 790.43 E (OUT)
SAN 36-10323	802.7±	15" INV: 789.86 N (IN) 48" INV: 788.66 W (IN) 12" INV: 796.56 NW (IN) 12" INV: 796.46 SE (IN) 6" INV: 796.06 S (IN)	48" INV: 788.66 E (OUT)
SAN 36-10579	803.9±	15" INV: 790.36 W (IN)	15" INV: 790.26 S (OUT)
SAN 36-10580	804.2±	15" INV: 790.76 W (IN) 8" INV: 794.58 NE (IN)	15" INV: 790.71 E (OUT)
STM 36-2264	804.1±	36" INV: 792.54 W (IN)	36" INV: 792.54 E (OUT)

STRUCTURE TABLE

STRUCTURE NAME:	RIM:	PIPES IN:	PIPES OUT:
STM 36-2266	803.4±	36" INV: 792.23 W (IN) 12" INV: 796.73 SW (IN)	36" INV: 792.13 SE (OUT)
STM 36-4940	798.6±	36" INV: 791.07 NW (IN) 24" INV: 791.17 SW (IN)	24" INV: 791.00 NE (OUT)
STM 36-6298	797.4±	24" INV: 790.57 SW (IN) 10" INV: 793.00 NW (IN)	24" INV: 790.47 NE (OUT)
STM 36-6299	797.4±		10" INV: 793.25 SE (OUT)
STM 36-10538	799.0±	36" INV: 791.25 NW (IN)	36" INV: 791.25 SE (OUT)
STM 36-10799	803.5±	6" INV: 801.98 SW (IN) 6" INV: 801.98 W (IN) 6" INV: 801.97 NW (IN)	12" INV: 798.26 N (OUT)
STM 36-10800	803.2±	12" INV: 797.38 S (IN)	12" INV: 797.23 NE (OUT)

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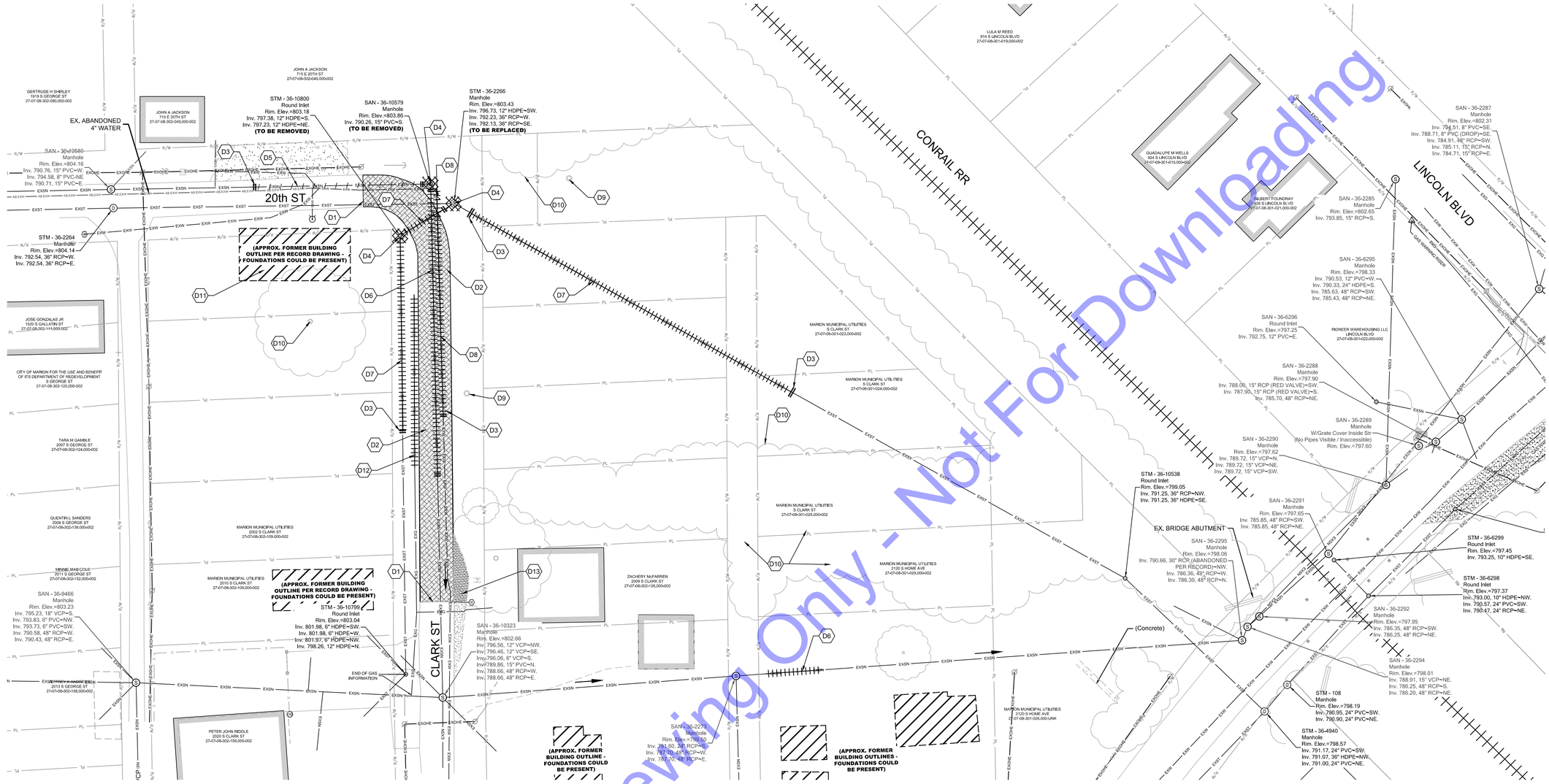
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STRUCTURE DATA SHEET

Drawing No: G5

Sheet: 5 OF 59

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DEMOLITION PLAN

SCALE: 1"=30'-0"

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SPECIAL NOTE:

THE LIMITS OF CONSTRUCTION SHALL BE WITHIN THE RIGHT-0F-WAY.
THE CONTRACTOR SHALL PROVIDE TEMPORARY CHAIN LINK SECURITY FENCING ALONG PERIMETER FOR THE DURATION OF CONSTRUCTION.

SOIL MANAGEMENT PLAN

THE PROJECT SITE CONTAINS CONTAMINATED SOIL.
SEE SPECIFICATIONS - PART 8 - APPENDIX B FOR DISPOSAL REQUIREMENTS.

DEMOLITION KEY NOTES

- D1 CUT EXISTING ASPHALT ALONG THIS LINE TO ACCOMMODATE INSTALLATION OF NEW PAVEMENT AGAINST EXISTING PAVEMENT.
- D2 REMOVE ASPHALT PAVEMENT.
- D3 CUT AND PLUG EXISTING SANITARY SEWER/STORM SEWER/WATER MAIN AT THIS LOCATION.
- D4 REMOVE EXISTING STRUCTURE. IF STRUCTURE IS REMAINING IN PLACE, REMOVE EXISTING SEWER CASTING AND CUT STRUCTURE 5' BELOW GROUND AND FILL WITH FLOWABLE FILL - SEE SPECIFICATIONS.
- D5 PLUG EXISTING SANITARY SEWER PIPE AND FILL WITH FLOWABLE FILL AND ABANDON IN PLACE.
- D6 REMOVE EXISTING SANITARY SEWER PIPE AND LAWFULLY DISPOSE.
- D7 REMOVE EXISTING STORM SEWER PIPE AND LAWFULLY DISPOSE.
- D8 REMOVE EXISTING WATER MAIN AND LAWFULLY DISPOSE.
- D9 REMOVE EXISTING POST AND DEBRIS AS NEEDED FOR CONSTRUCTION.
- D10 CLEAR AND REMOVE EXISTING TREES. SEE SPECIFICATIONS FOR TREE REMOVAL AND REPLACEMENT REQUIREMENTS.
- D11 REMOVE ANY EXISTING BUILDING FOUNDATIONS AND LAWFULLY DISPOSE.
- D12 REMOVE ABANDONED EXISTING GAS LINE. PRIOR TO REMOVAL, COORDINATE WITH THE GAS UTILITY. LAWFULLY DISPOSE.
- D13 REMOVE EXISTING STONE DRIVE

SCALE: 1"=30'

30' 0 30'

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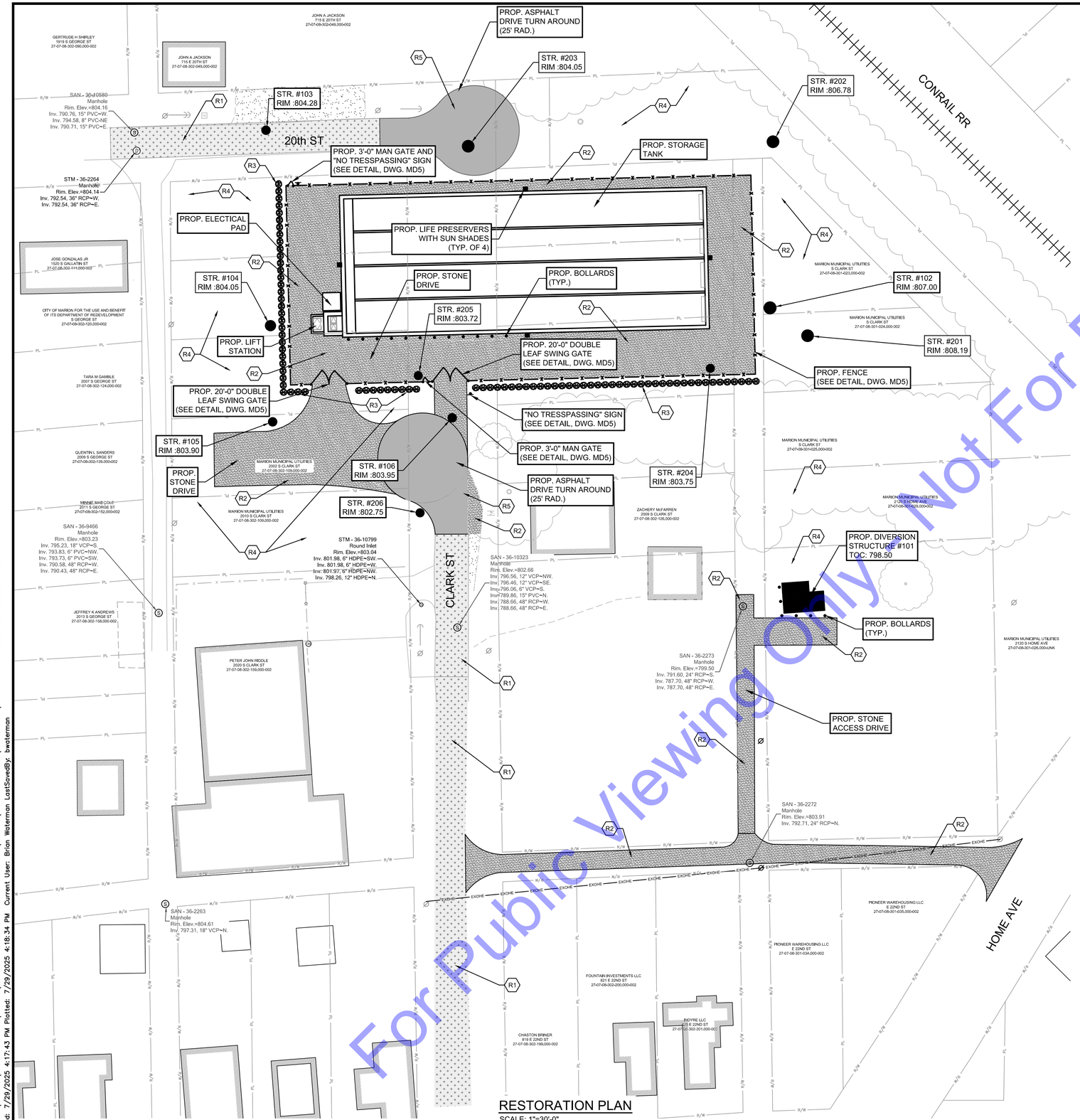
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DEMOLITION PLAN

Drawing No: ST1-1

Sheet: 6 OF 59

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RESTORATION PLAN
SCALE: 1"=30'-0"

SPECIAL NOTE:

THE LIMITS OF CONSTRUCTION SHALL BE WITHIN THE RIGHT-0F-WAY.
THE CONTRACTOR SHALL PROVIDE TEMPORARY CHAIN LINK SECURITY FENCING ALONG PERIMETER FOR THE DURATION OF CONSTRUCTION.

SCALE: 1"=30'

30' 0 30'

RESTORATION KEY NOTES

- R1 — REMOVE AND REPLACE ASPHALT STREET AND MILL 1-1/2" AND RESURFACE WITH 1-1/2" OF HMA SURFACE, TYPE B, 12.5 MM. PROVIDE STRIPING/MARKINGS TO MATCH EXISTING WHERE STRIPING/MARKINGS ARE CURRENTLY PROVIDED.
- R2 — INSTALL NEW STONE SURFACE/ACCESS DRIVE
- R3 — PROVIDE AND INSTALL NEW TREES AROUND PROPOSED TANK. SEE SPECIFICATIONS AND PICTURES THIS SHEET.
- R4 — CONTRACTOR SHALL PROVIDE FINAL GRADING AND SEEDING FOR ALL GRASSED AREAS DISTURBED DURING CONSTRUCTION TO EQUAL OR BETTER CONDITION AS APPROVED BY OWNER.
- R5 — INSTALL NEW ASPHALT DRIVE



AMERICAN PILLAR ARBORVITAE



NORTHERN AMERICAN WHITE CEDAR

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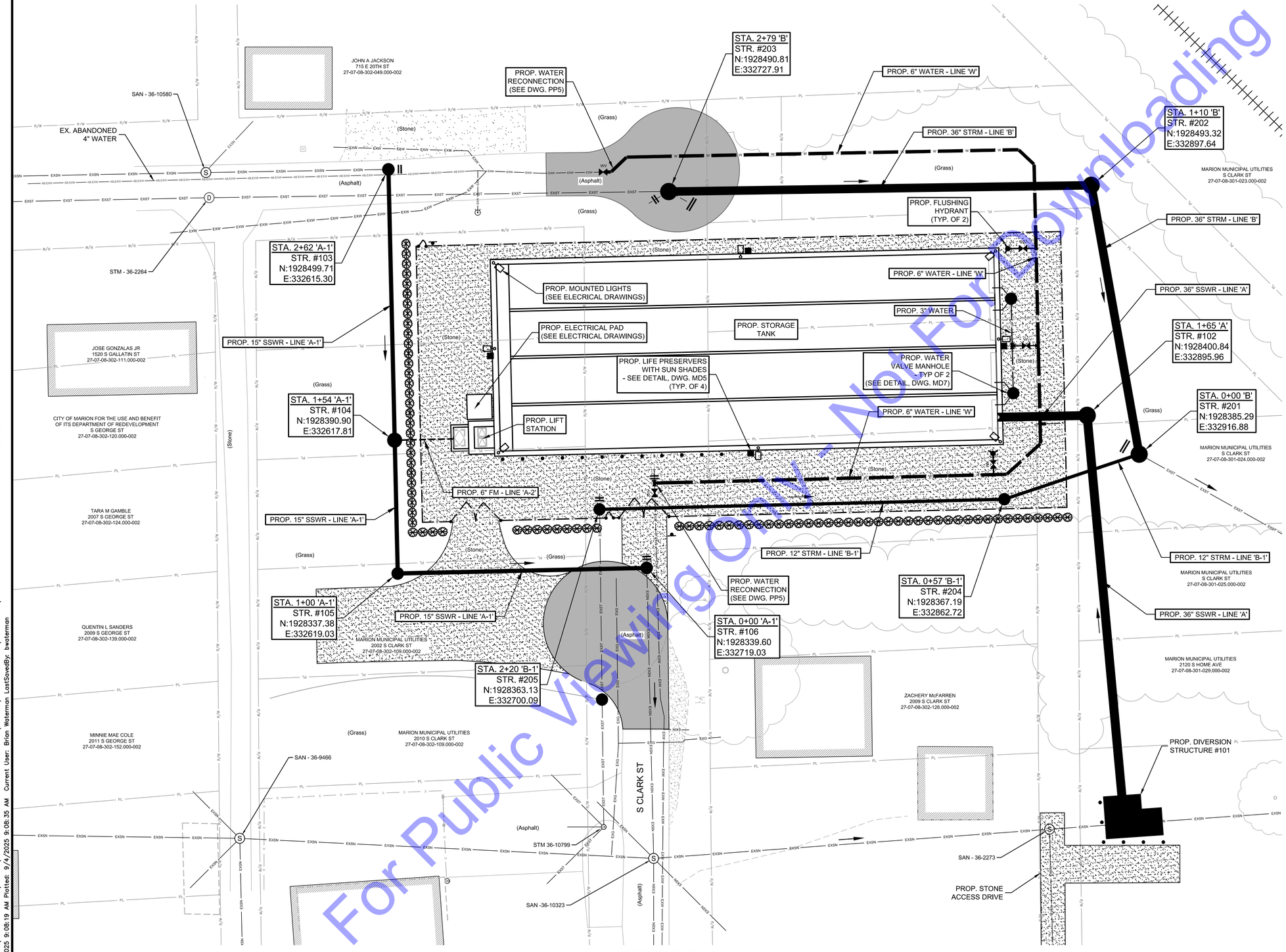
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RESTORATION PLAN

Drawing No: ST1-2
Sheet: 7 OF 59

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SITE PIPING PLAN
SCALE: 1"=20'-0"

SCALE: 1"=20'
20' 0 20'

GENERAL NOTE:

SEE SHEET G5 FOR STRUCTURE INVERTS

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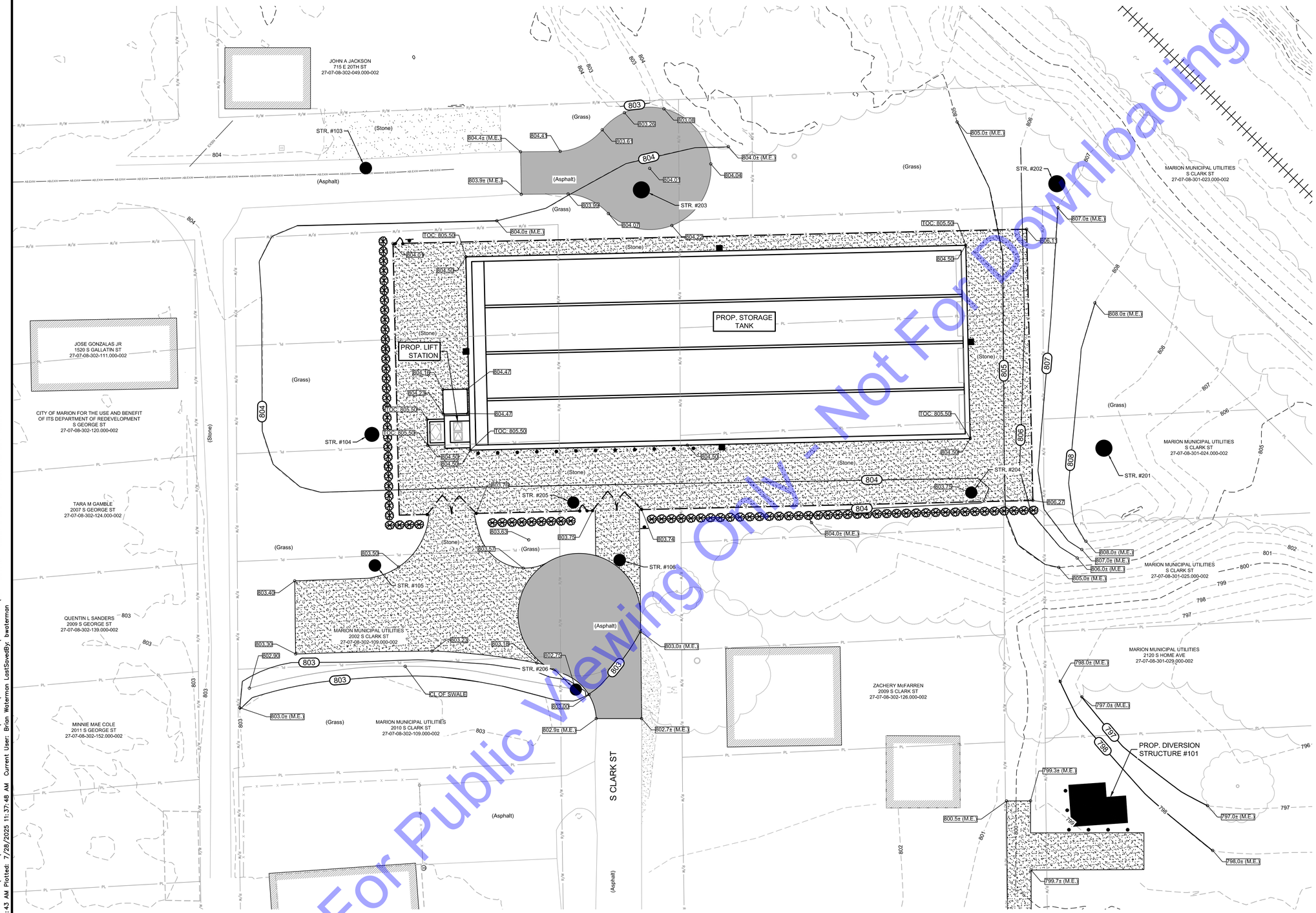
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SITE PIPING PLAN

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ST1-3
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SITE GRADING PLAN

SCALE: 1"=20'-0"

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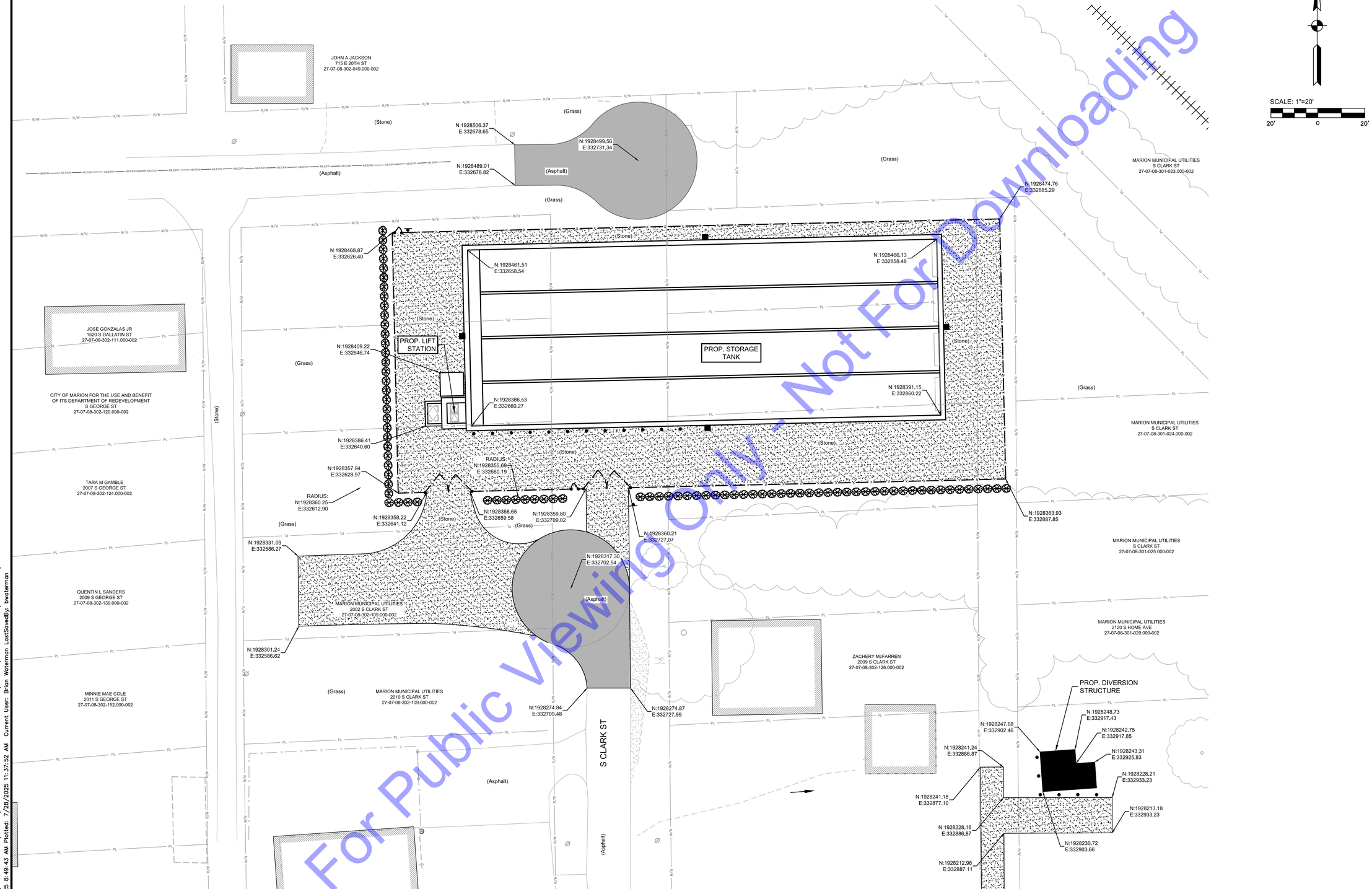
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SITE GRADING PLAN

Drawing No:
ST1-4
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SITE LAYOUT PLAN

SCALE: 1"=20'-0"

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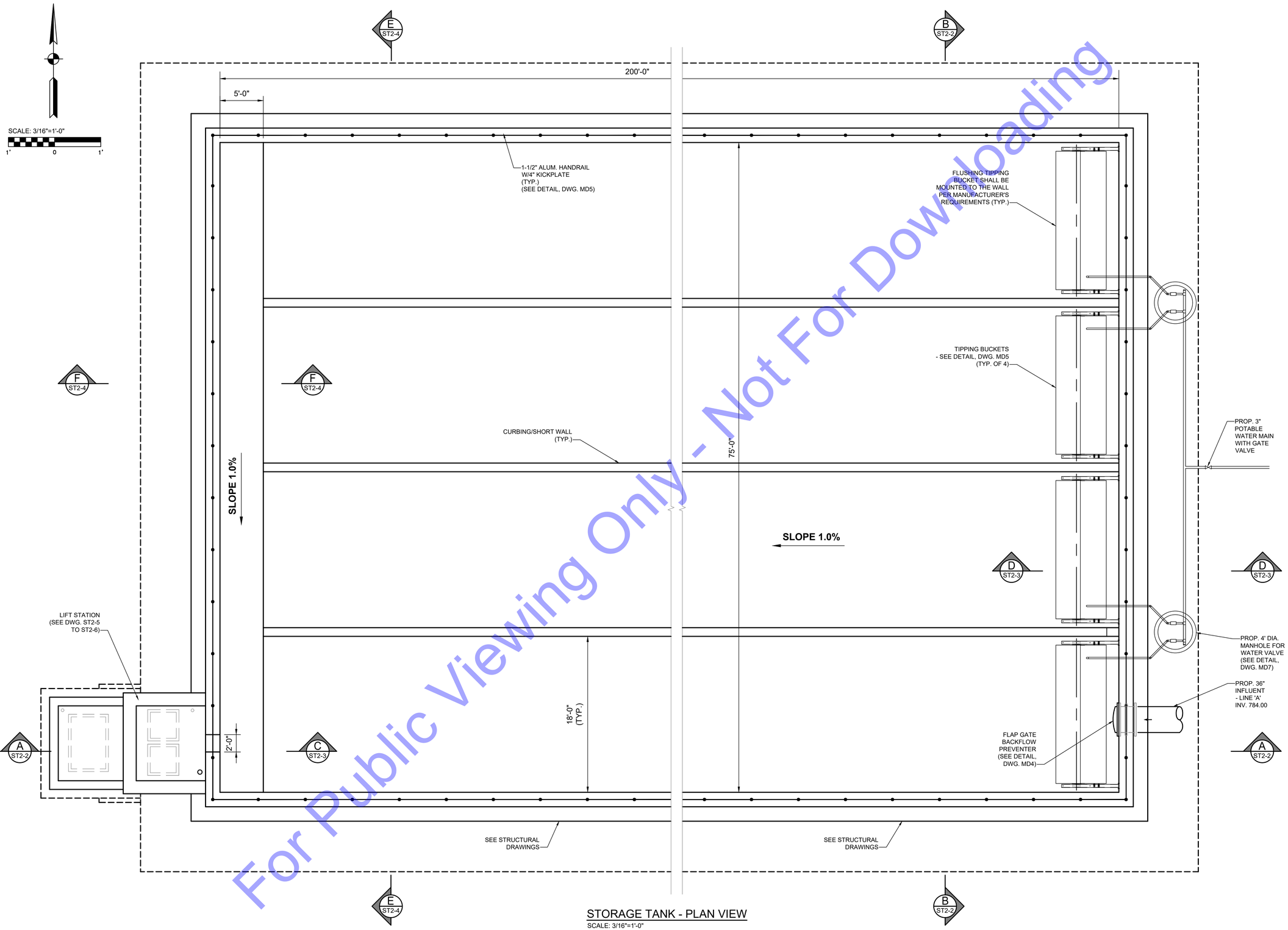
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SITE LAYOUT PLAN

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ST1-5
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STORAGE TANK - PLAN VIEW
SCALE: 3/16"=1'-0"

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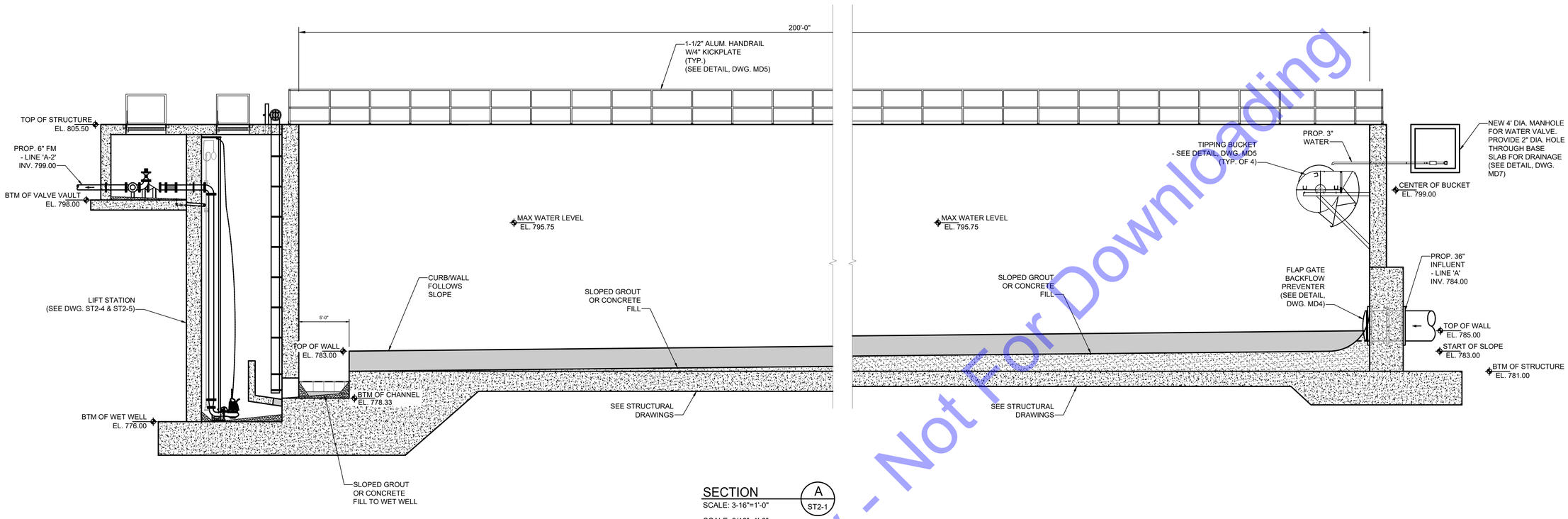
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STORAGE TANK - PLAN VIEW

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Sheet: 11 OF 59

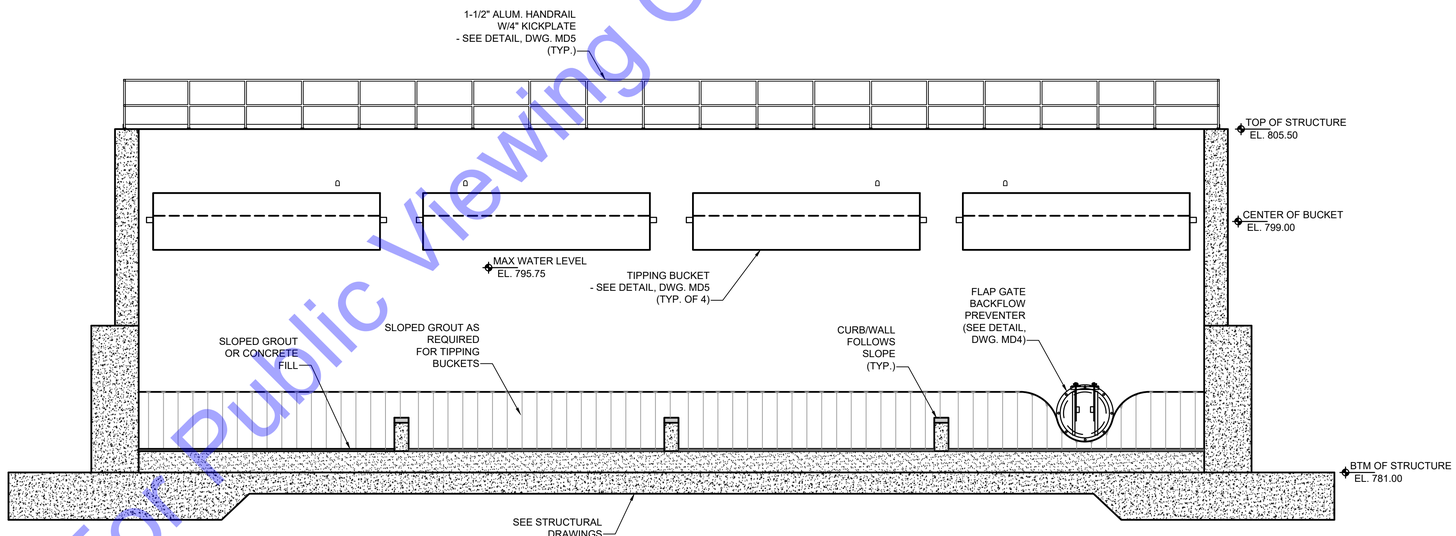
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SECTION A
SCALE: 3-16"=1'-0"
ST2-1

SCALE: 3/16"=1'-0"

1' 0 1'



SECTION B
SCALE: 3/16"=1'-0"
ST2-1

SCALE: 3/16"=1'-0"

1' 0 1'

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REGISTERED
No. PE11900866
STATE OF
INDIANA
PROFESSIONAL ENGINEER

Signature 7/31/2025 Date

MARION UTILITIES SERVICE BOARD
GRANT COUNTY, INDIANA

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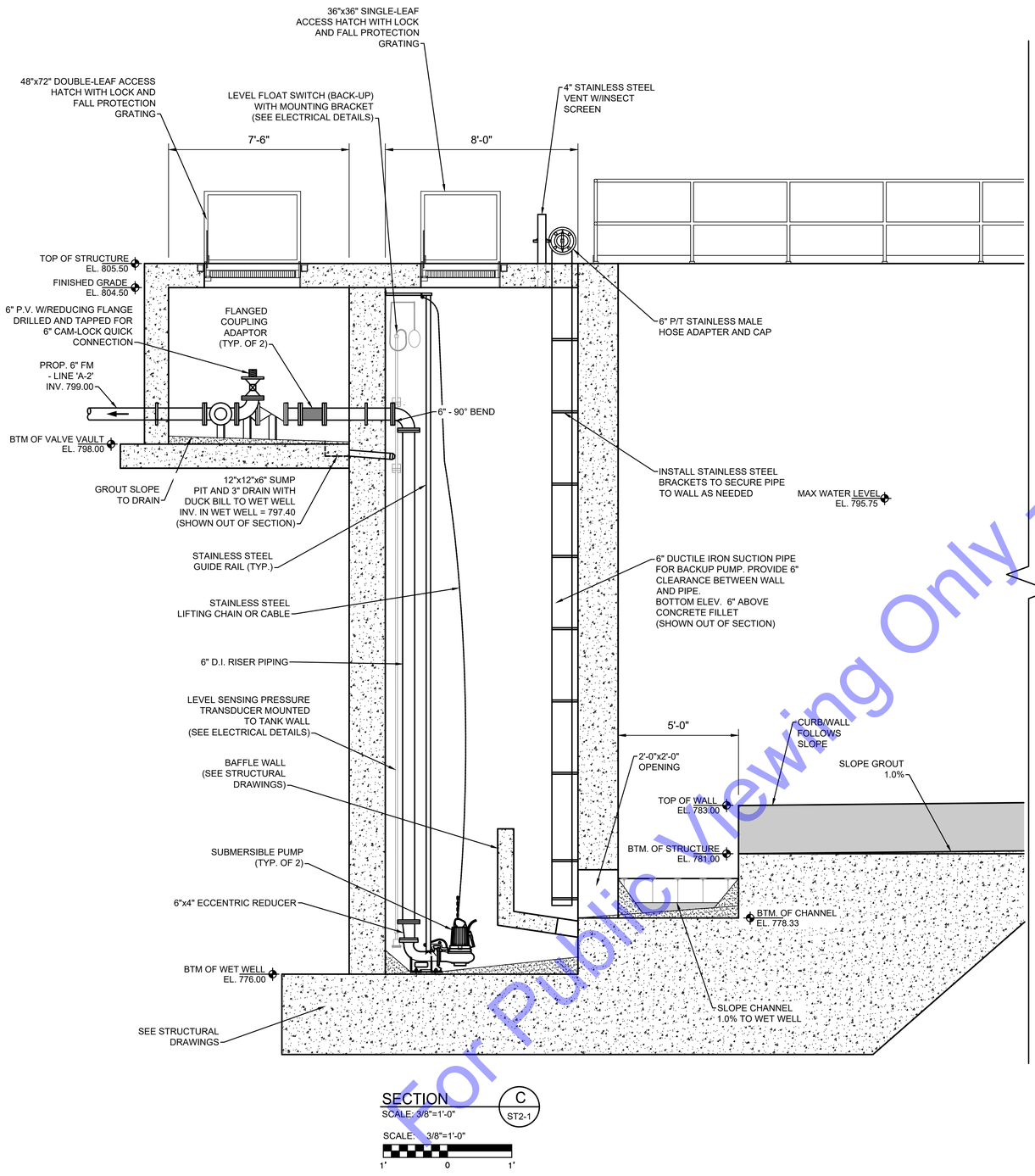
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STORAGE TANK - SECTIONS A AND B

Drawing No:
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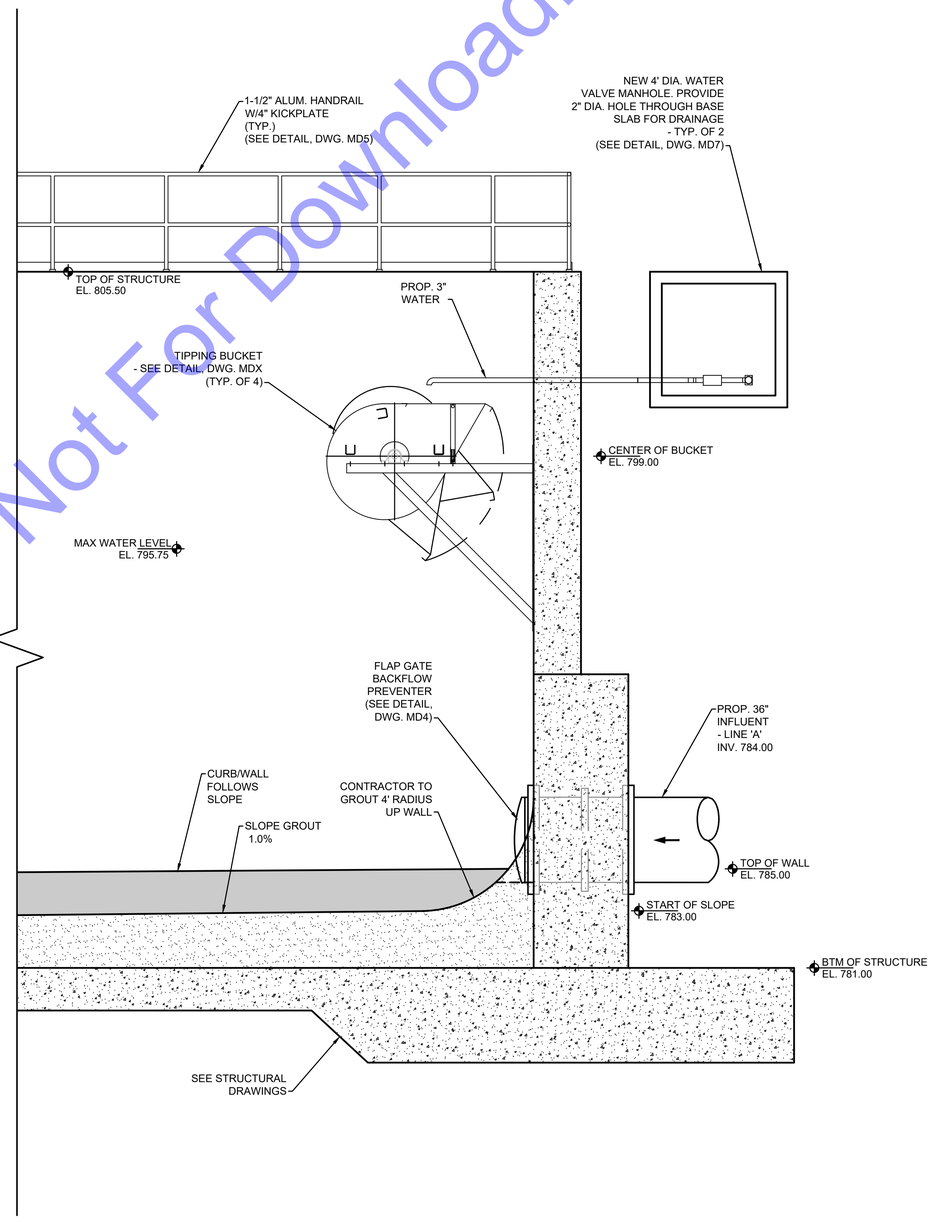
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SECTION C
SCALE: 3/8"=1'-0"
ST2-1

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



SECTION D
SCALE: 3/8"=1'-0"
ST2-1

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

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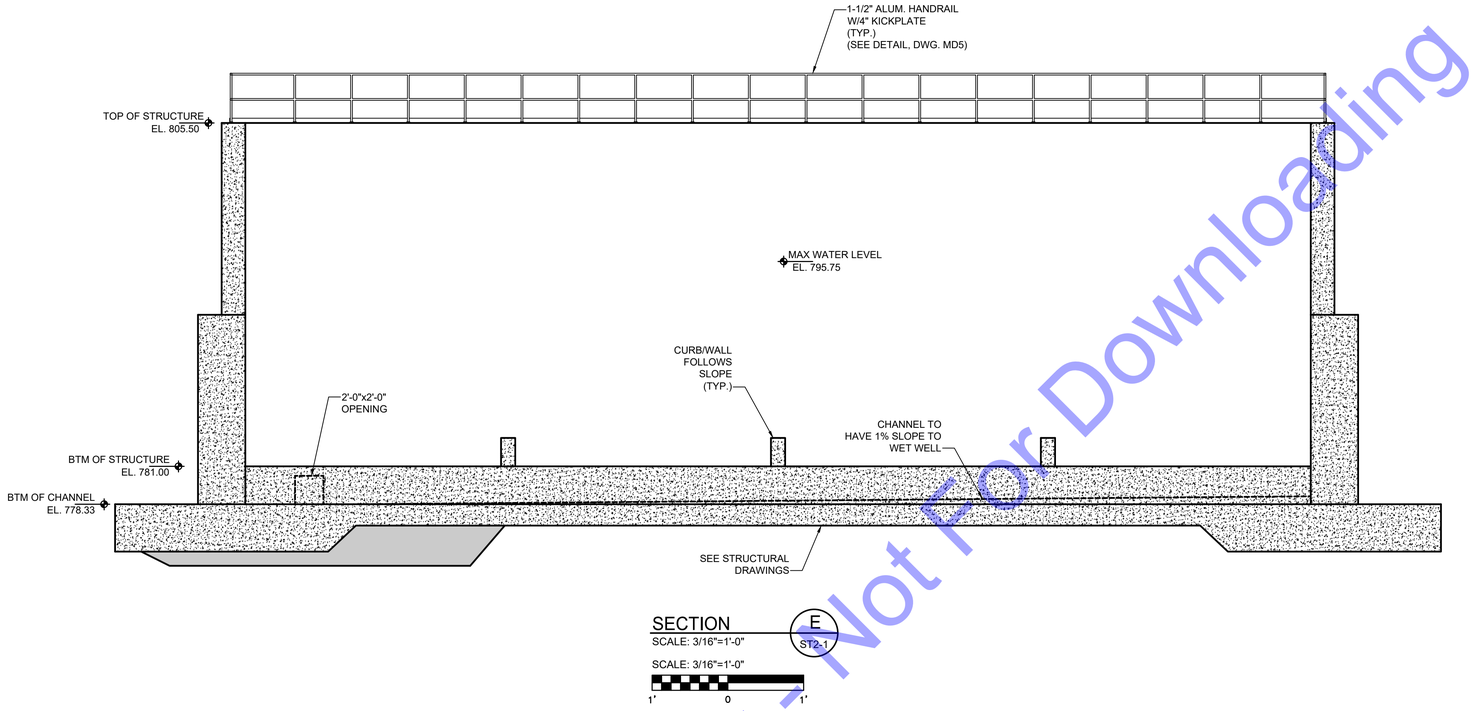
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STORAGE TANK - SECTIONS C AND D

Drawing No:
ST2-3
Sheet: 13 OF 59

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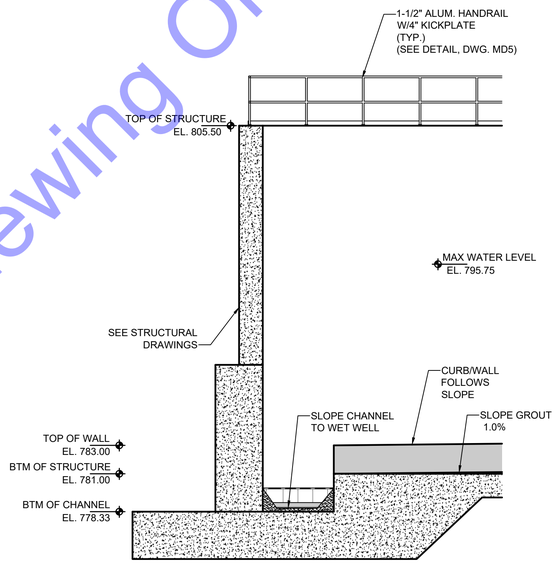


SECTION E
ST2-1

SCALE: 3/16"=1'-0"

SCALE: 3/16"=1'-0"

1' 0 1'



SECTION F
ST2-1

SCALE: 3/16"=1'-0"

SCALE: 3/16"=1'-0"

1' 0 1'

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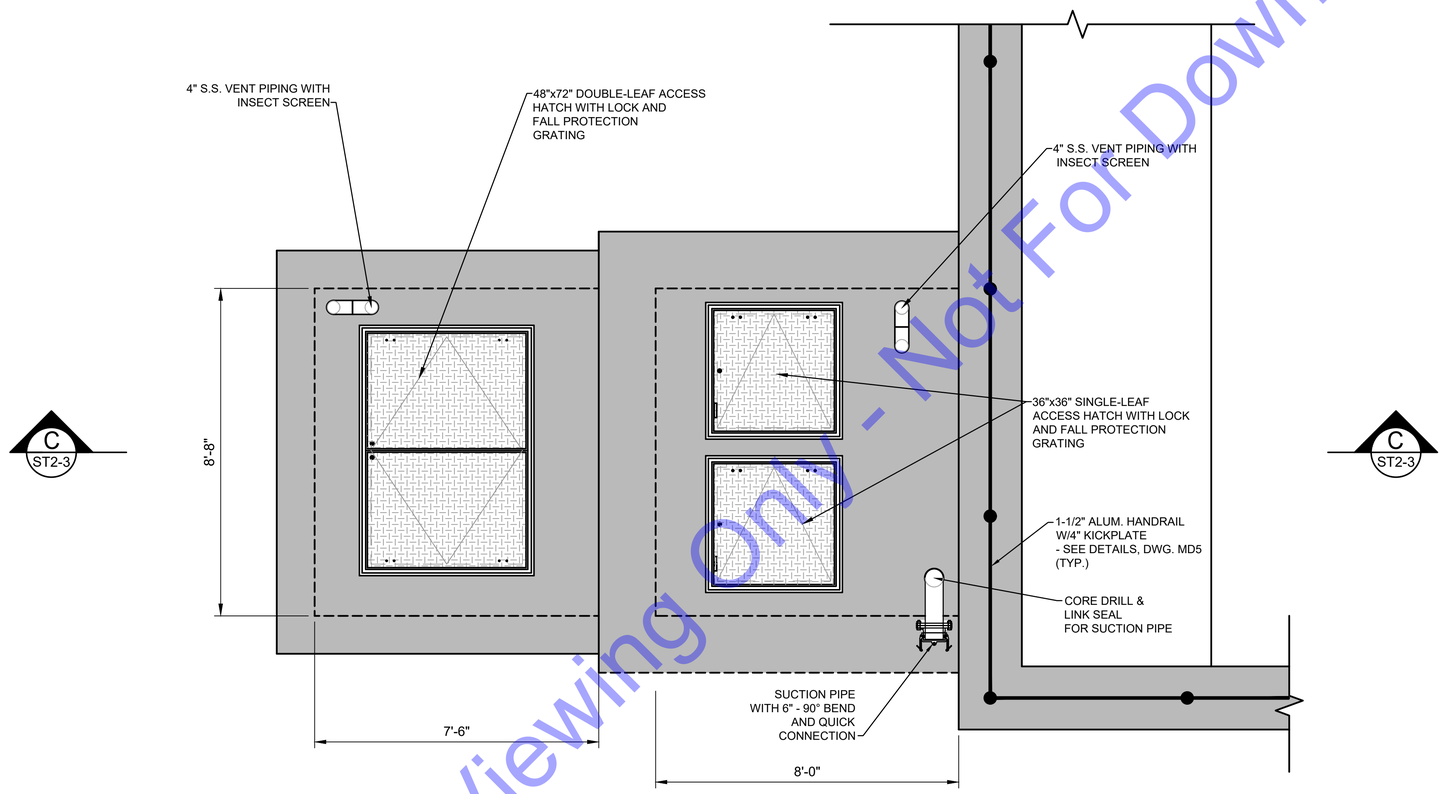
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STORAGE TANK - SECTIONS E AND F

Drawing No:
ST2-4
Sheet: 14 OF 59

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LIFT STATION - UPPER PLAN
SCALE: 1/2"=1'-0"

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

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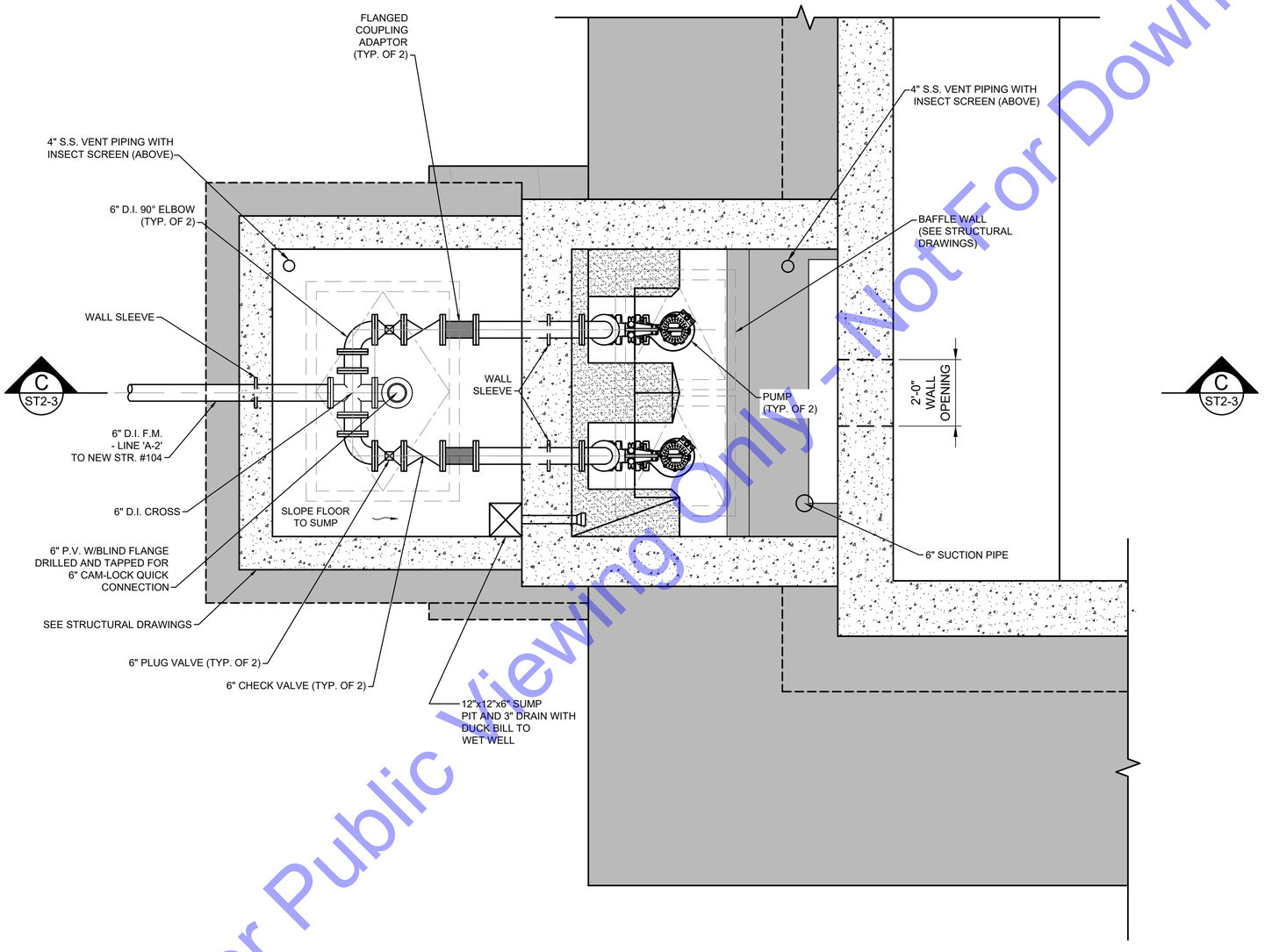
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LIFT STATION - UPPER PLAN

Drawing No:
ST2-5
Sheet: 15 OF 59

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LIFT STATION - LOWER PLAN

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

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

1' 0 1'

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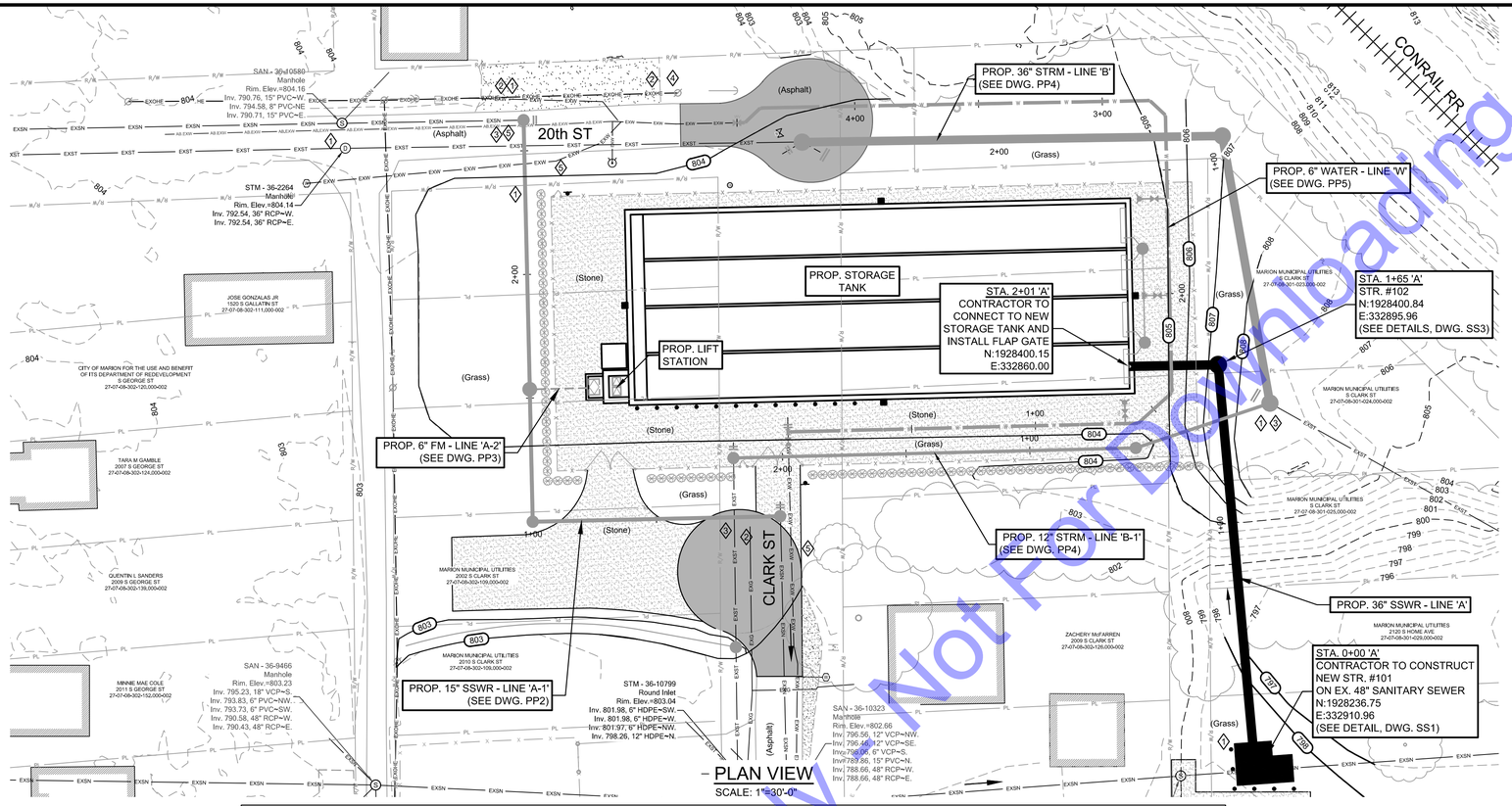
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Issue Date: 7/2025	Project No: S24146	Scale: AS SHOWN

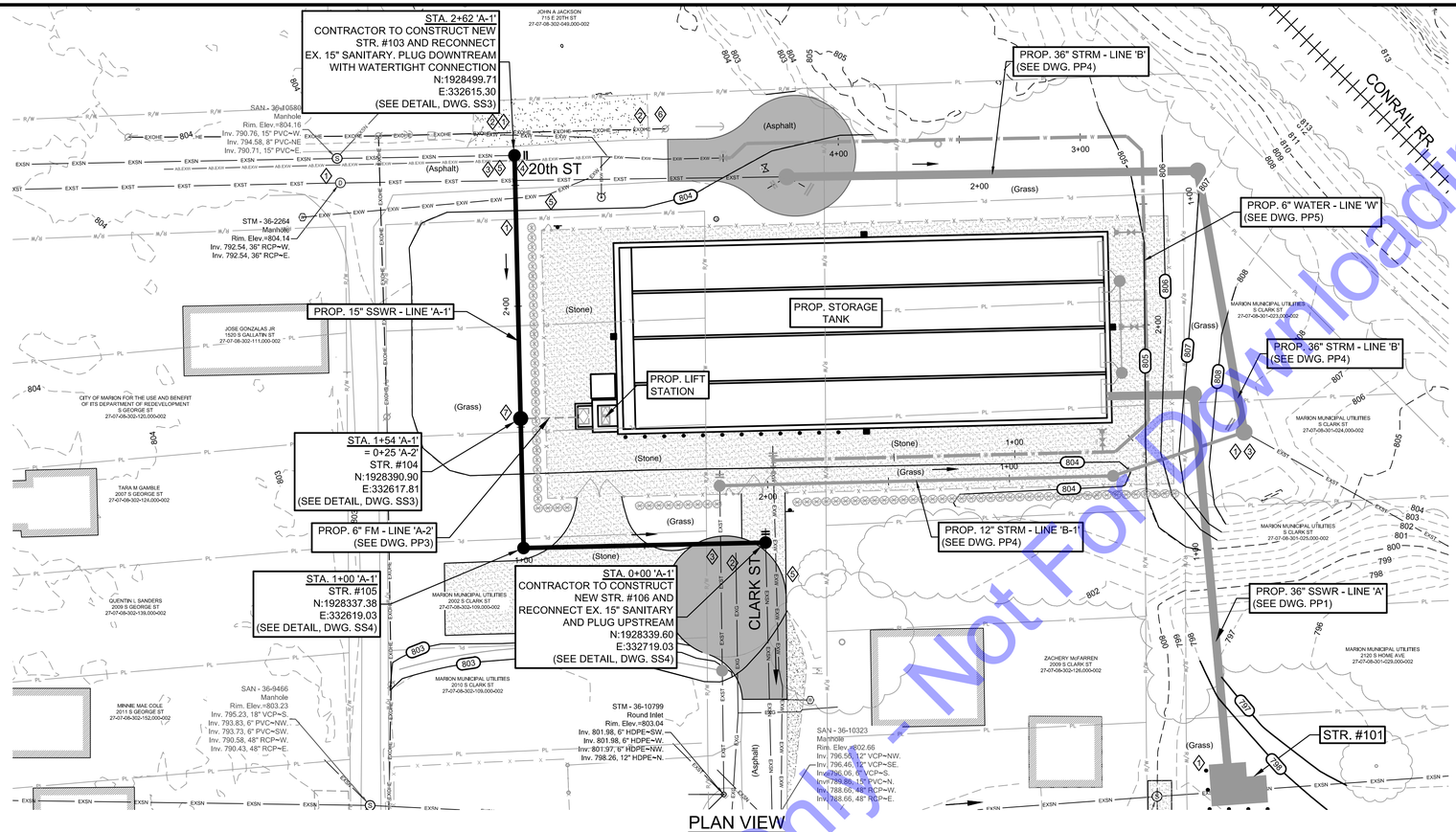
LIFT STATION - LOWER PLAN

Drawing No:
ST2-6

Sheet: 16 OF 59

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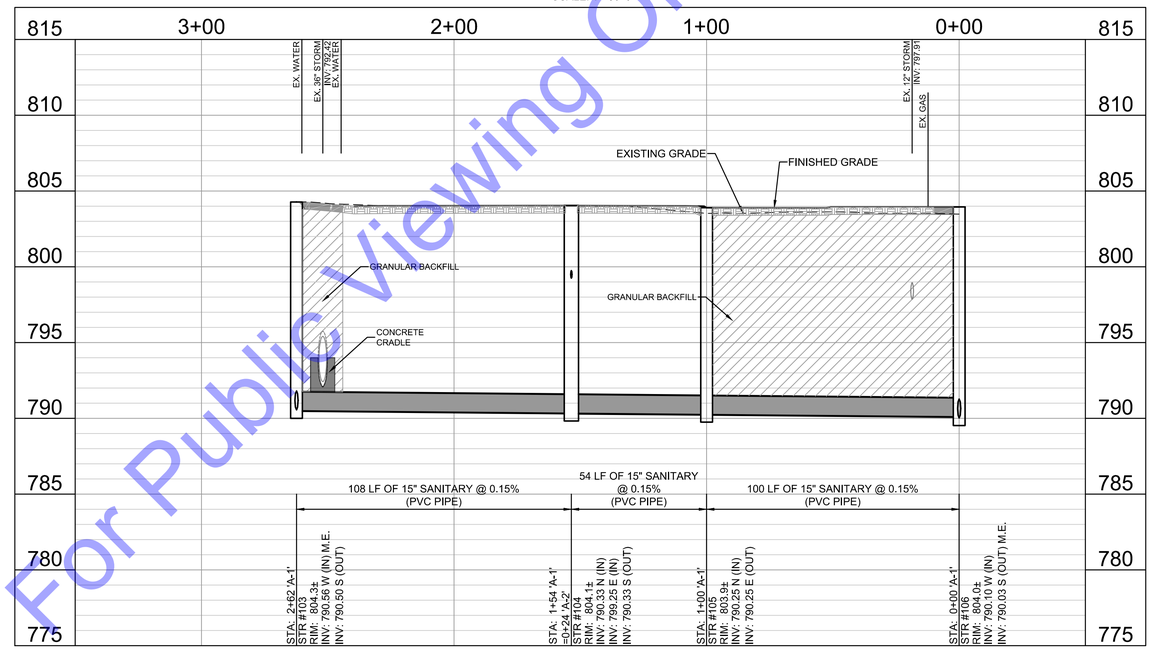

PROP. 36" STRM - LINE 'B' (SEE DWG. PP4)
PROP. 6" WATER - LINE 'W' (SEE DWG. PP5)
PROP. STORAGE TANK
PROP. LIFT STATION
STA. 2+01 'A' CONTRACTOR TO CONNECT TO NEW STORAGE TANK AND INSTALL FLAP GATE N:1928400.15 E:332860.00
STA. 1+65 'A' STR. #102 N:1928400.84 E:332895.96 (SEE DETAILS, DWG. SS3)
PROP. 6" FM - LINE 'A-2' (SEE DWG. PP3)
PROP. 12" STRM - LINE 'B-1' (SEE DWG. PP4)
PROP. 36" SSWR - LINE 'A'
STA. 0+00 'A' CONTRACTOR TO CONSTRUCT NEW STR. #101 ON EX. 48" SANITARY SEWER N:1928236.75 E:332910.96 (SEE DETAIL, DWG. SS1)
PROP. 15" SSWR - LINE 'A-1' (SEE DWG. PP2)
20th ST
CLARK ST
CONRAIL RR
SAN - 36-10580 Manhole Rim. Elev.=804.16 Inv. 790.76, 15" PVC~W. Inv. 794.58, 8" PVC-NE Inv. 790.71, 15" PVC~E.
STM - 36-2264 Manhole Rim. Elev.=804.14 Inv. 792.54, 36" RCP~W. Inv. 792.54, 36" RCP~E.
SAN - 36-9466 Manhole Rim. Elev.=803.23 Inv. 795.23, 18" VCP~S. Inv. 793.83, 6" PVC~NW. Inv. 793.73, 6" PVC~SW. Inv. 790.58, 48" RCP~W. Inv. 790.43, 48" RCP~E.
STM - 36-10799 Round Inlet Rim. Elev.=803.04 Inv. 801.98, 6" HDPE~SW. Inv. 801.98, 6" HDPE~W. Inv. 801.97, 6" HDPE~NW. Inv. 798.26, 12" HDPE~N.
SAN - 36-10323 Manhole Rim. Elev.=802.66 Inv. 796.56, 12" VCP~NW. Inv. 796.46, 12" VCP~SE. Inv. 788.66, 6" VCP~S. Inv. 788.56, 15" PVC~N. Inv. 788.66, 48" RCP~W. Inv. 788.66, 48" RCP~E.
JOSE GONZALAS JR 1520 S GALLATIN ST 27-07-08-302-111.000-002
CITY OF MARION FOR THE USE AND BENEFIT OF ITS DEPARTMENT OF REDEVELOPMENT S GEORGE ST 27-07-08-302-120.000-002
TARA M GAMBLE 2007 S GEORGE ST 27-07-08-302-124.000-002
QUENTIN L SANDERS 2009 S GEORGE ST 27-07-08-302-139.000-002
MINNIE MAE COLE 2011 S GEORGE ST 27-07-08-302-152.000-002
MARION MUNICIPAL UTILITIES 2002 S CLARK ST 27-07-08-302-109.000-002
MARION MUNICIPAL UTILITIES 2010 S CLARK ST 27-07-08-302-109.000-002
MARION MUNICIPAL UTILITIES S CLARK ST 27-07-08-301-023.000-002
MARION MUNICIPAL UTILITIES S CLARK ST 27-07-08-301-024.000-002
MARION MUNICIPAL UTILITIES S CLARK ST 27-07-08-301-025.000-002
MARION MUNICIPAL UTILITIES 2120 S HOME AVE 27-07-08-301-028.000-002
ZACHERY McFARREN 2009 S CLARK ST 27-07-08-302-126.000-002
(Asphalt)
(Grass)
(Stone)
EXSN
EXWW
EXST
EXHOME
EXGAS
EXOHE
EXW
EXGV
EXFH
EXSV
EXCATV
EXBOX
EXTEL
EXTV
EXUGE
EXUGT
EXUGTV
EXUGW
EXUGSN
EXUGSV
EXUGCATV
EXUGTEL
EXUGE
EXUGT
EXUGTV
EXUGW
EXUGSN
EXUGSV
EXUGCATV
EXUGTEL
EXSIGN
EXMB
EXMH
EXCB
EXINL
EXDI
EXSTM
EXSAN
EXSAN
EXSAN



PLAN VIEW
SCALE: 1"=30'-0"

CODED NOTES

1. SEE EC DRAWINGS FOR EROSION CONTROL MEASURES.
2. CONTRACTOR TO VERIFY EX. UTILITY LOCATIONS PRIOR TO ANY CONSTRUCTION. IN THE EVENT OF UTILITY CONFLICTS, CONTRACTOR SHALL NOTIFY UTILITY TO RELOCATE TO AVOID CONFLICTS.
3. CONTRACTOR TO PROTECT ANY EXISTING STORM SEWER AND STRUCTURES AND/OR FIELD TILE ENCOUNTERED DURING CONSTRUCTION. IF ENCOUNTERED AND DISTURBED, CONTRACTOR TO REPLACE TO A CONDITION EQUAL TO OR BETTER.
4. EARLY ACTION: CONTRACTOR SHALL CONFIRM INVERT OF EXISTING 36" STORM PRIOR TO CONSTRUCTION. PROVIDE TO OWNER/ENGINEER.
5. CONTRACTOR TO FIELD VERIFY LOCATION AND DEPTH OF EXISTING WATER MAIN PRIOR TO CONSTRUCTION. MAINTAIN MINIMUM REQUIRED SEPARATION DURING INSTALLATION OF SANITARY AND STORM SEWERS.
6. CONTRACTOR TO SUPPORT ALL POWER POLES AS NEEDED DURING CONSTRUCTION.
7. CONTRACTOR TO LINE NEW STRUCTURE #104. SEE SPECIFICATION.



PROFILE - LINE 'A-1'
HORIZONTAL SCALE: 1"=30'-0"
VERTICAL SCALE: 1"=5'-0"

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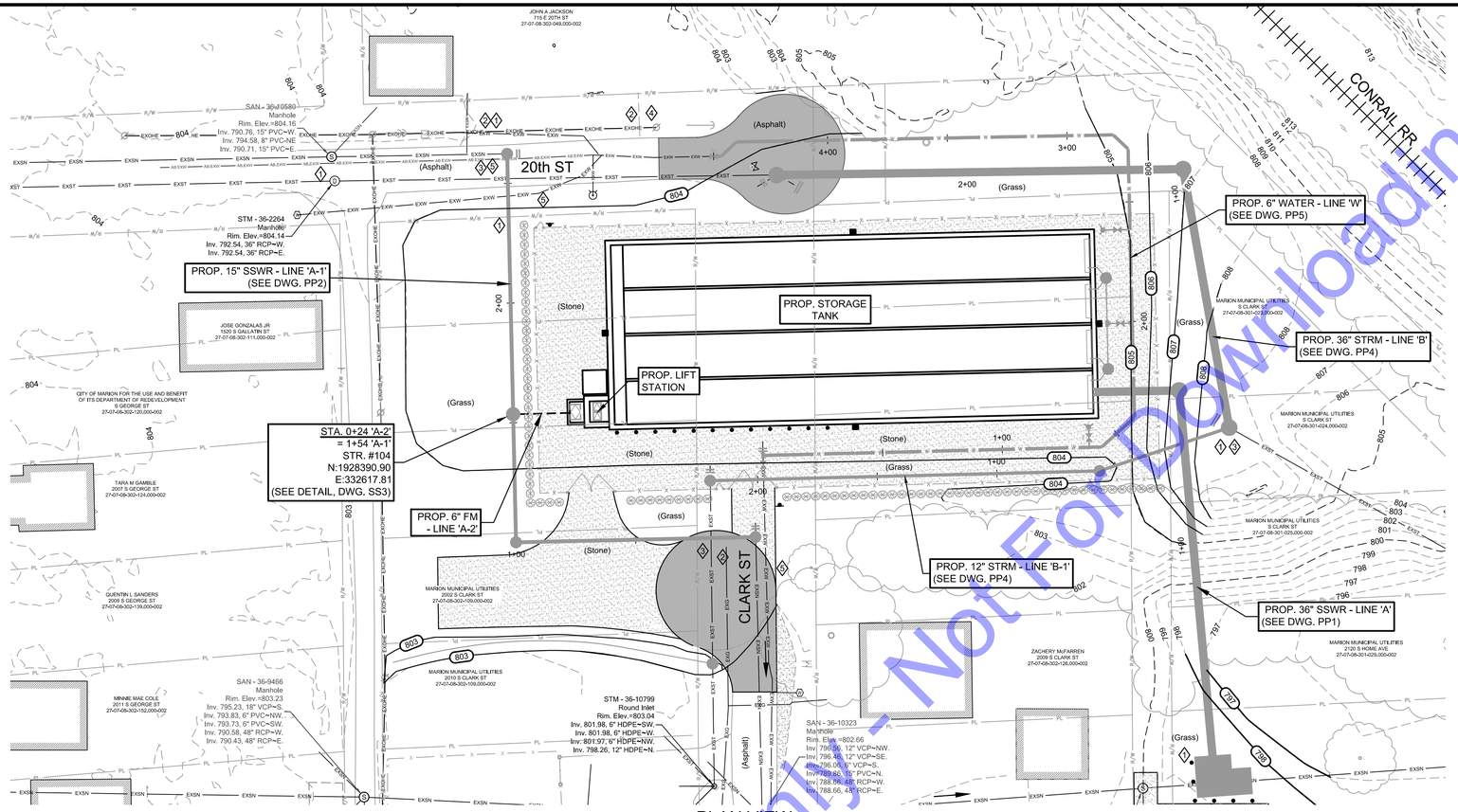
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PLAN & PROFILE - LINE 'A-1' - STATION 0+00-2+62

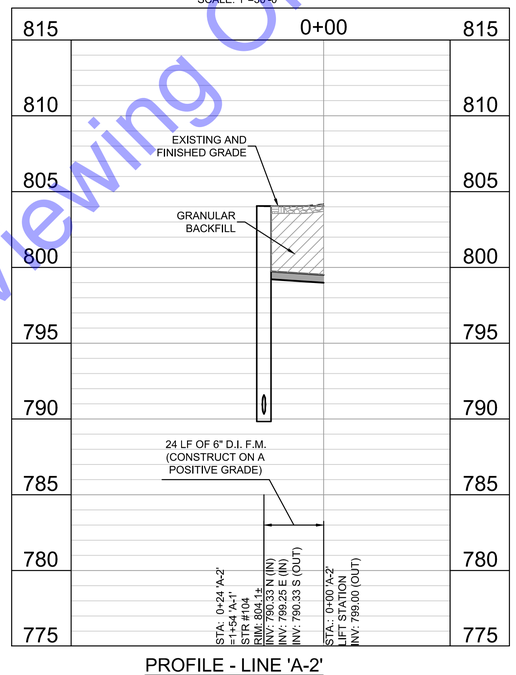
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PLAN VIEW
SCALE: 1"=30'-0"



PROFILE - LINE 'A-2'
HORIZONTAL SCALE: 1"=30'-0"
VERTICAL SCALE: 1"=5'-0"

NOTE:
THE EXISTING AND PROPOSED PROFILE GRADES ARE BASED ON THE ELEVATIONS AT THE CENTERLINE OF THE PROPOSED SANITARY SEWER.

SCALE: 1"=30'
30' 0 30'

CODED NOTES

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4. CONTRACTOR TO SUPPORT ALL POWER POLES AS NEEDED DURING CONSTRUCTION.
5. CONTRACTOR TO FIELD VERIFY LOCATION AND DEPTH OF EXISTING WATER MAIN PRIOR TO CONSTRUCTION. MAINTAIN MINIMUM REQUIRED SEPARATION DURING INSTALLATION OF SANITARY AND STORM SEWERS.

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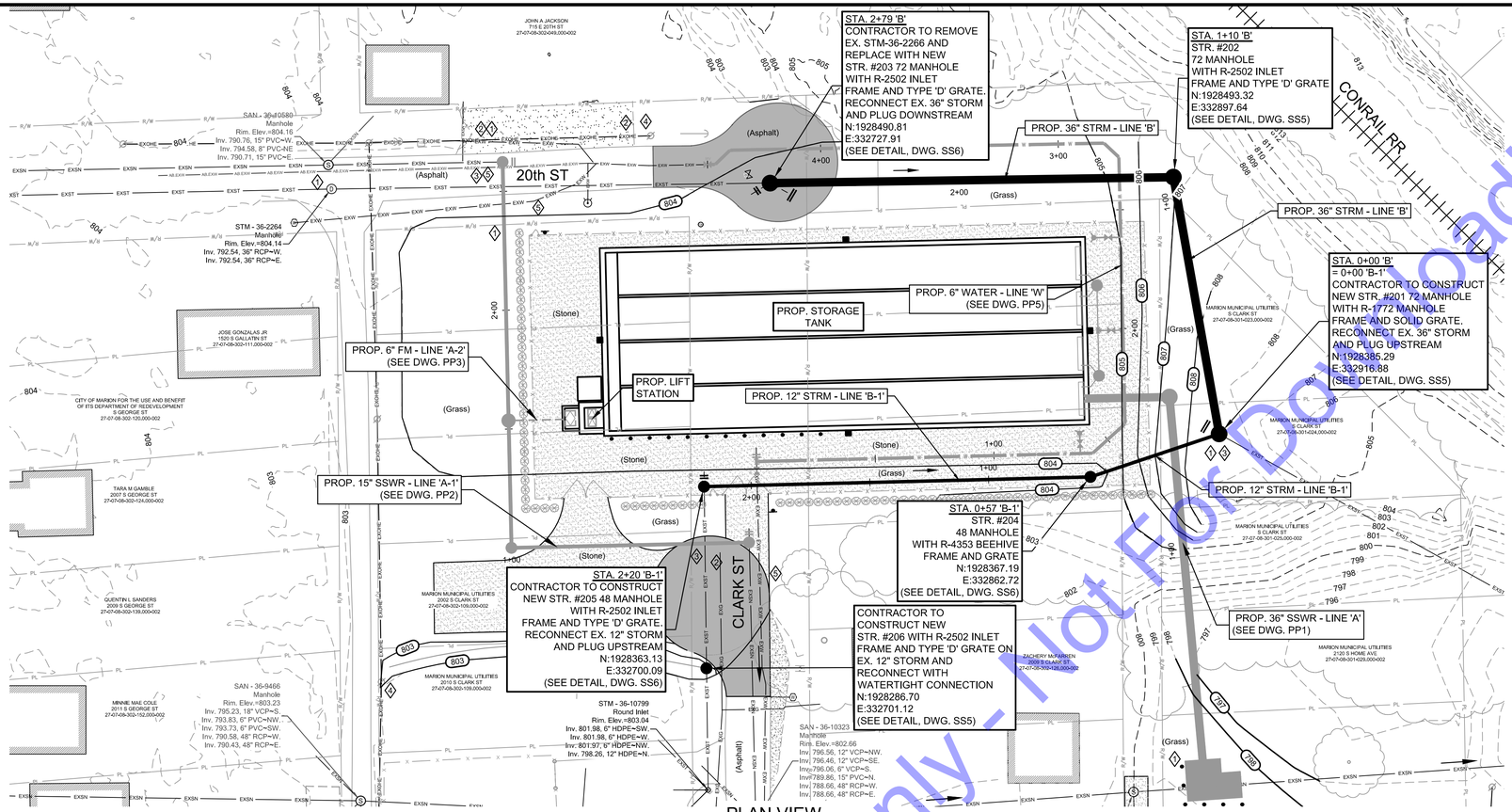
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PLAN & PROFILE - LINES 'A-2' - STATION 0+00-0+24

Drawing No:
PP3
Sheet: 19 OF 59

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PLAN VIEW
SCALE: 1"=30'-0"

PROFILE - LINE 'B'
HORIZONTAL SCALE: 1"=30'-0"
VERTICAL SCALE: 1"=5'-0"

PROFILE - LINE 'B-1'
HORIZONTAL SCALE: 1"=30'-0"
VERTICAL SCALE: 1"=5'-0"

NOTE:
THE EXISTING AND PROPOSED PROFILE GRADES ARE BASED ON THE ELEVATIONS AT THE CENTERLINE OF THE PROPOSED SANITARY SEWER.

SCALE: 1"=30'
30' 0 30'

CODED NOTES

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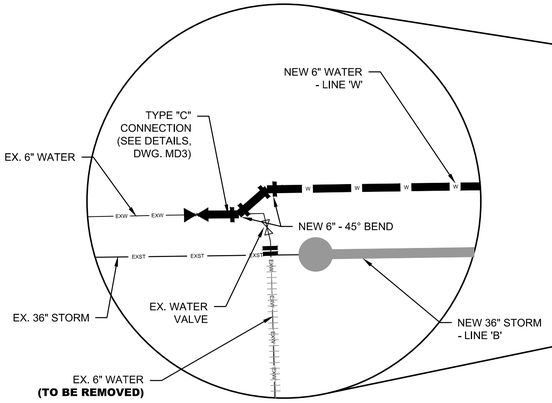
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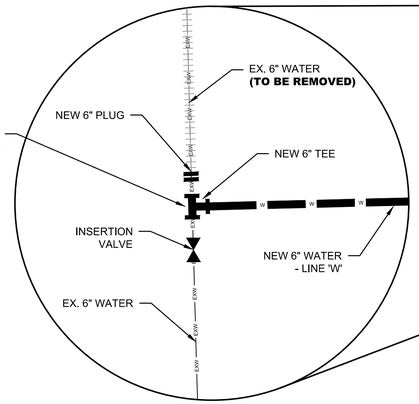
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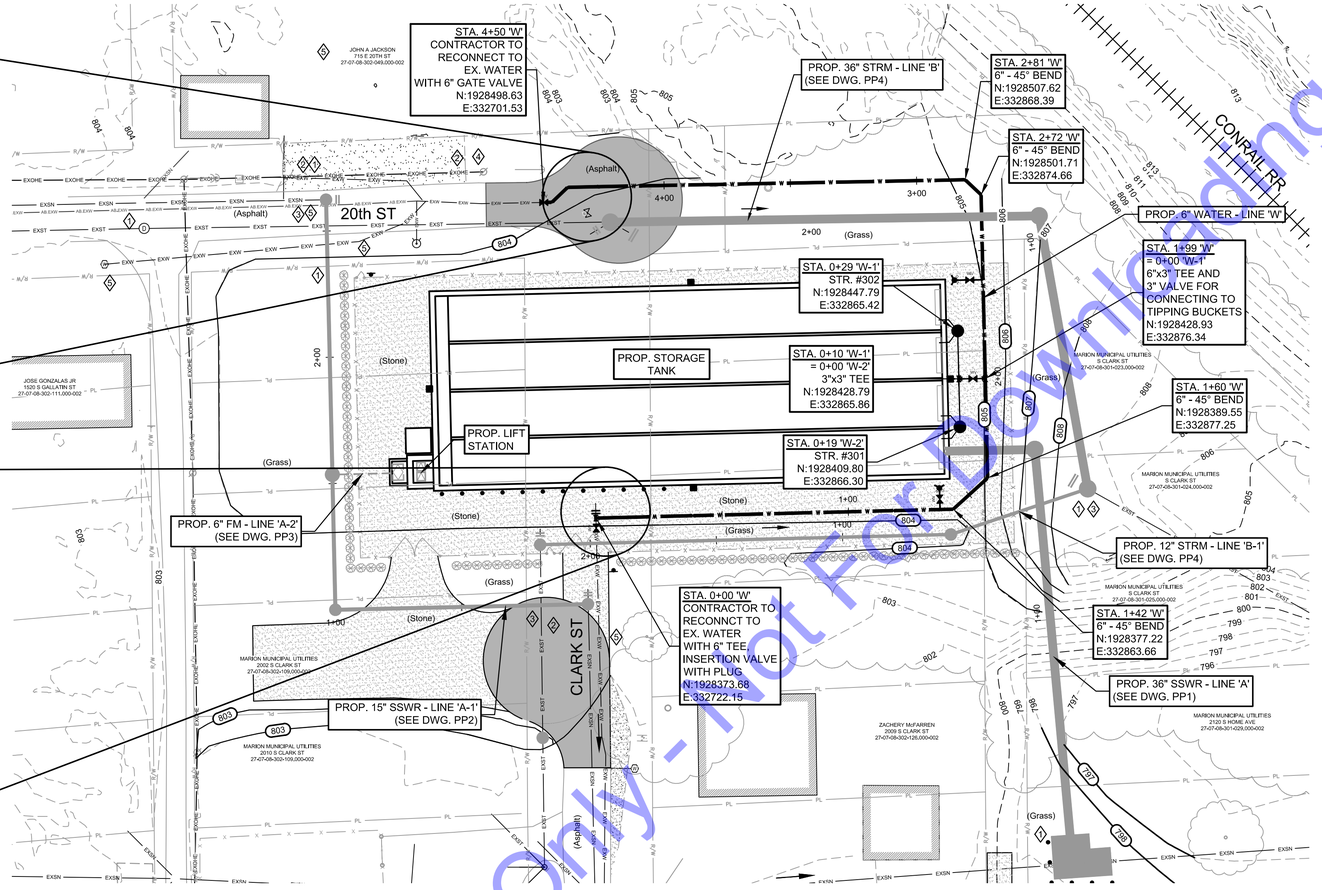
PLAN & PROFILE - LINES 'B' - STATION 0+00-2+79; 'B-1' - STATION 0+00-2+20

Drawing No:
PP4
Sheet: 20 OF 59

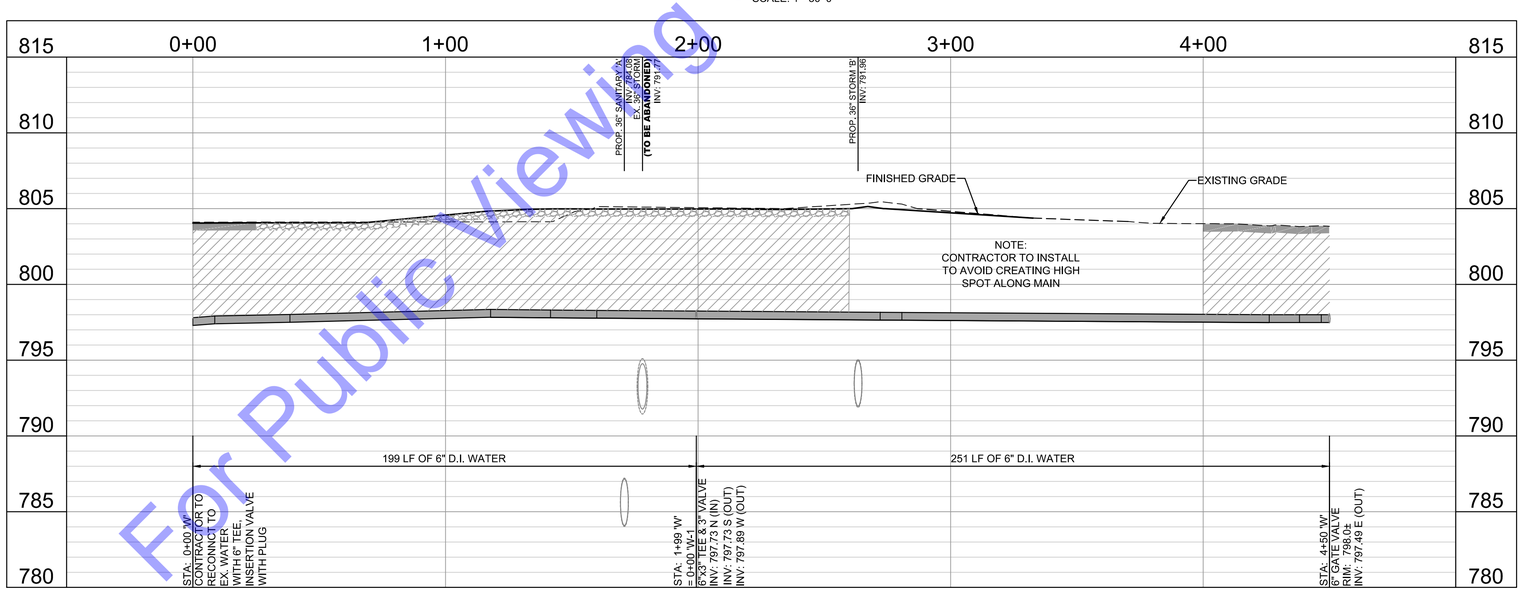
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PLAN VIEW
SCALE: 1"=30'-0"



PROFILE - LINE 'W'
HORIZONTAL SCALE: 1"=30'-0"
VERTICAL SCALE: 1"=5'-0"

SCALE: 1"=30'
30' 0 30'

NOTE:
THE EXISTING AND PROPOSED PROFILE GRADES ARE BASED ON THE ELEVATIONS AT THE CENTERLINE OF THE PROPOSED WATER MAIN.

CODED NOTES

1. SEE EC DRAWINGS FOR EROSION CONTROL MEASURES.
2. CONTRACTOR TO VERIFY EX. UTILITY LOCATIONS PRIOR TO ANY CONSTRUCTION. IN THE EVENT OF UTILITY CONFLICTS, CONTRACTOR SHALL NOTIFY UTILITY TO RELOCATE TO AVOID CONFLICTS.
3. CONTRACTOR TO PROTECT ANY EXISTING STORM SEWER AND STRUCTURES AND/OR FIELD TILE ENCOUNTERED DURING CONSTRUCTION. IF ENCOUNTERED AND DISTURBED, CONTRACTOR TO REPLACE TO A CONDITION EQUAL TO OR BETTER.
4. CONTRACTOR TO SUPPORT ALL POWER POLES AS NEEDED DURING CONSTRUCTION.
5. EARLY ACTION:
   CONTRACTOR TO FIELD VERIFY LOCATION AND DEPTH OF EXISTING WATER MAIN PRIOR TO CONSTRUCTION. CONSTRUCT LINE 'W' WITHOUT CONNECTING TO EXISTING WATER MAIN UNTIL LINE 'W' IS TESTED. ONCE TESTED, CONTRACTOR TO INSTALL INSERTION VALVE AT STATION 0+00 AND TURN OFF EXISTING WATER MAIN. COMMENCE TO MAKE BOTH CONNECTIONS TO EXISTING WATER MAIN IN SAME DAY; NOTIFY HOME OWNERS. MAINTAIN MINIMUM REQUIRED SEPARATION DURING INSTALLATION OF SANITARY AND STORM SEWERS.

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REGISTERED
No. PE11900866
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PROFESSIONAL ENGINEER
Brian Wilson 7/31/2025
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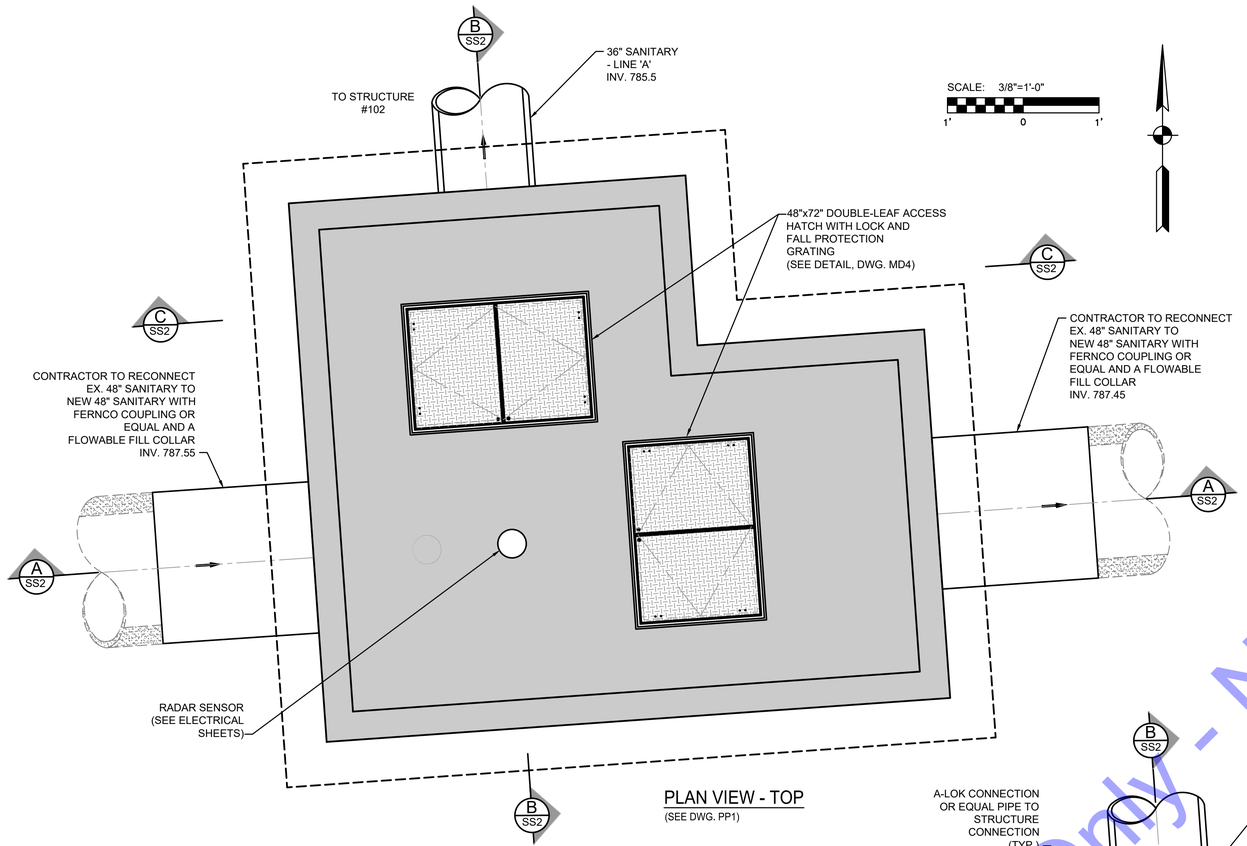
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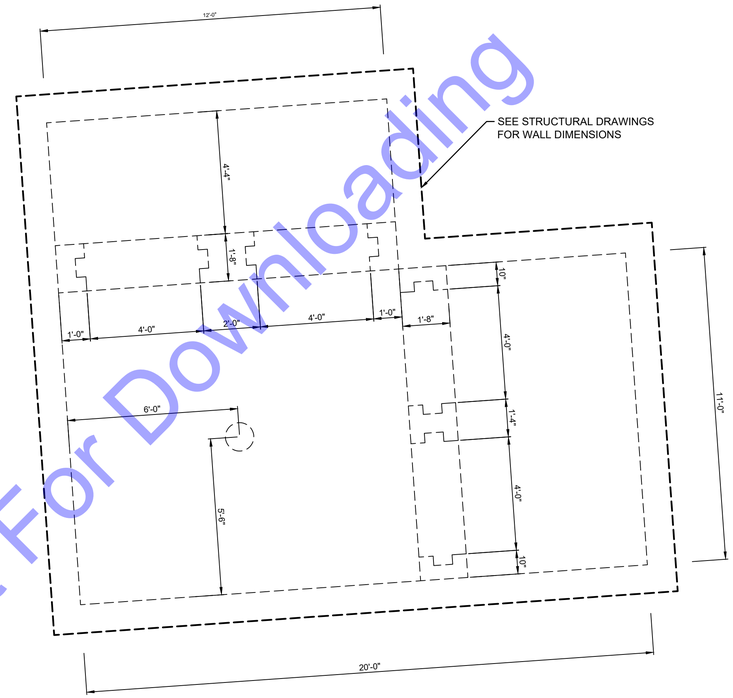
PLAN & PROFILE - LINE 'W' - STATION 0+00-4+50

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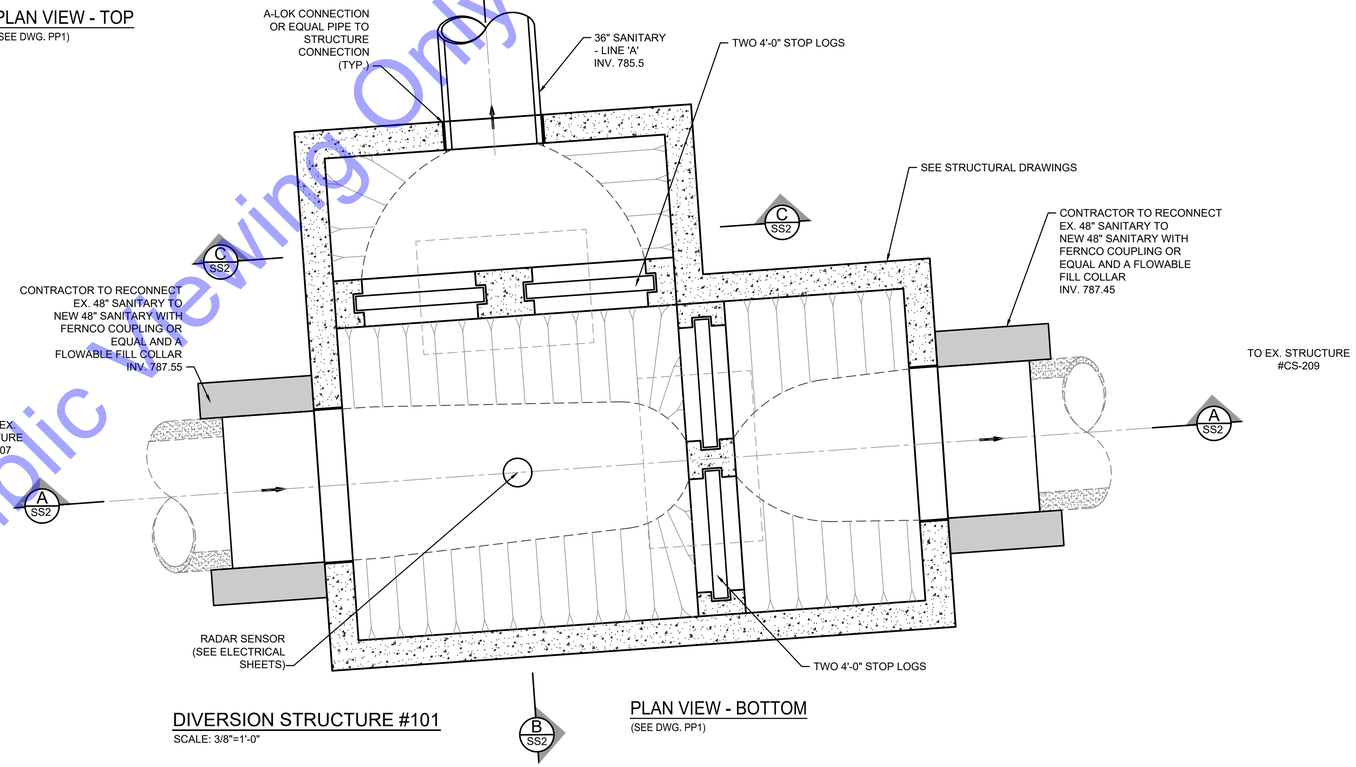
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PLAN VIEW - TOP
(SEE DWG. PP1)



PLAN VIEW - DIMENSIONS



DIVERSION STRUCTURE #101
SCALE: 3/8"=1'-0"

PLAN VIEW - BOTTOM
(SEE DWG. PP1)

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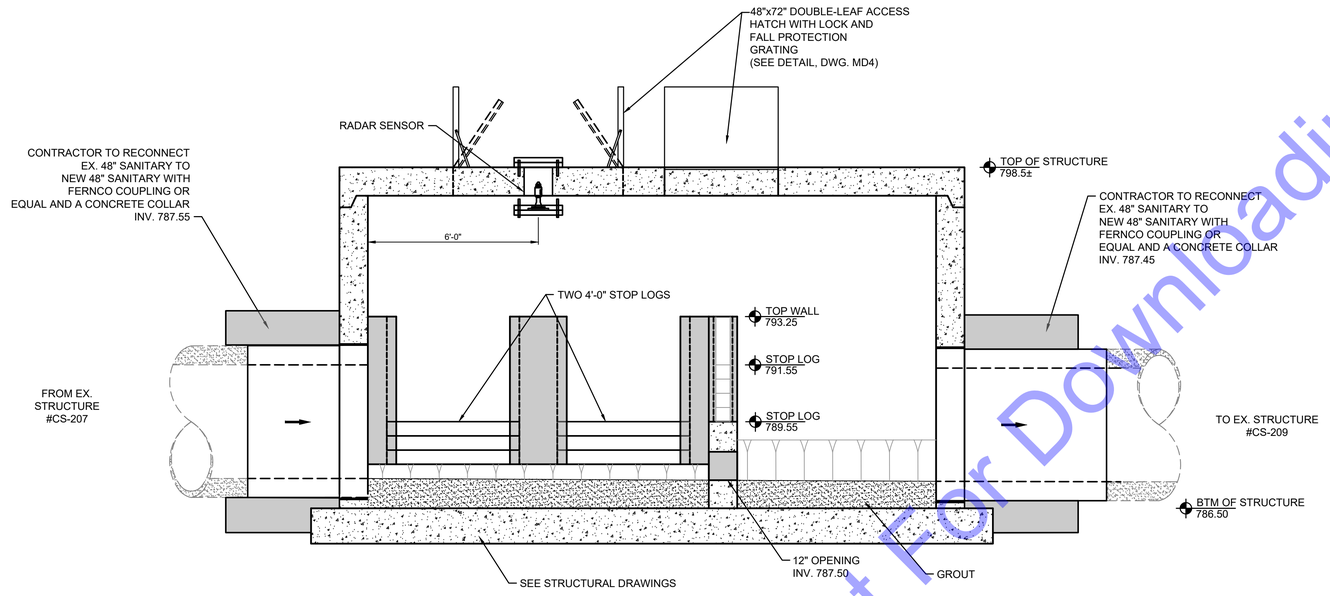
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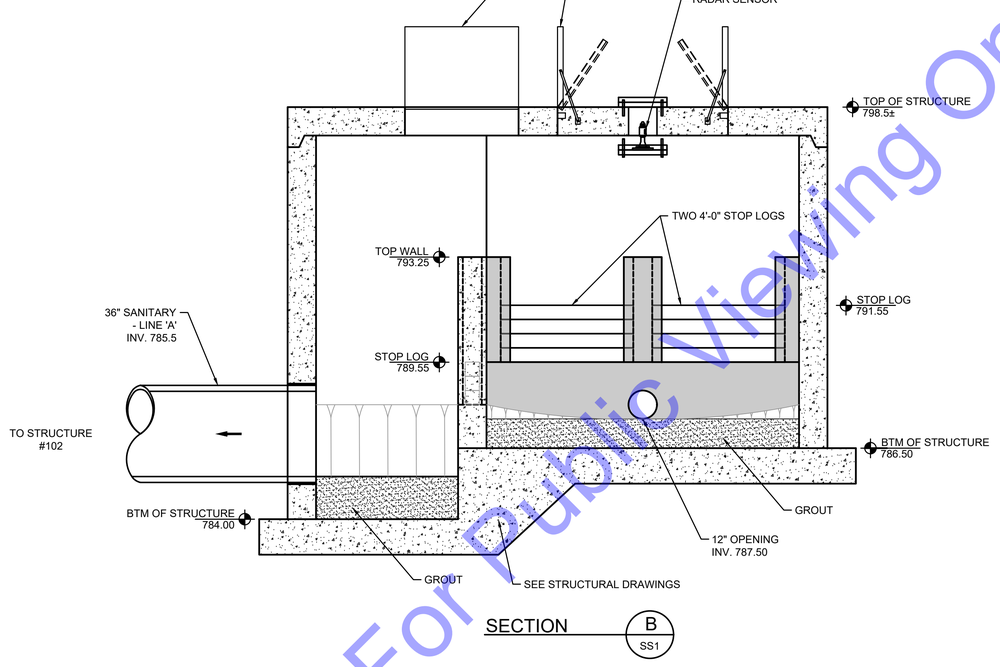
DIVERSION STRUCTURE #101 - PLAN VIEWS

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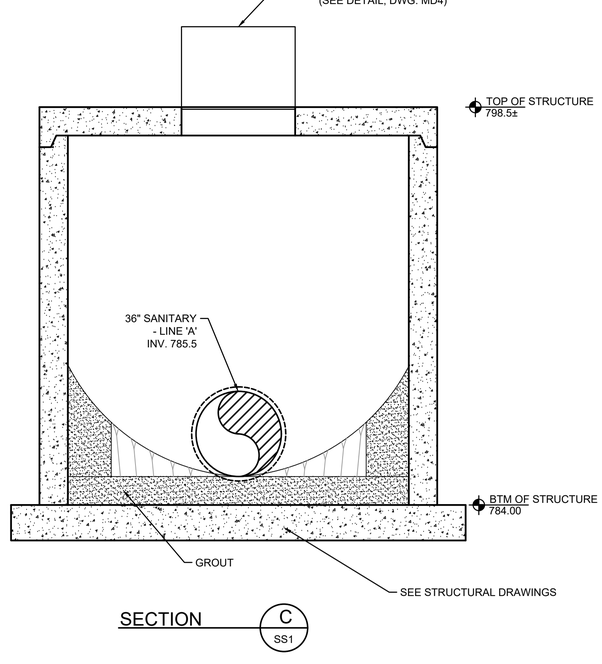
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SECTION A SS1



SECTION B SS1



SECTION C SS1

DIVERSION STRUCTURE #101

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

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

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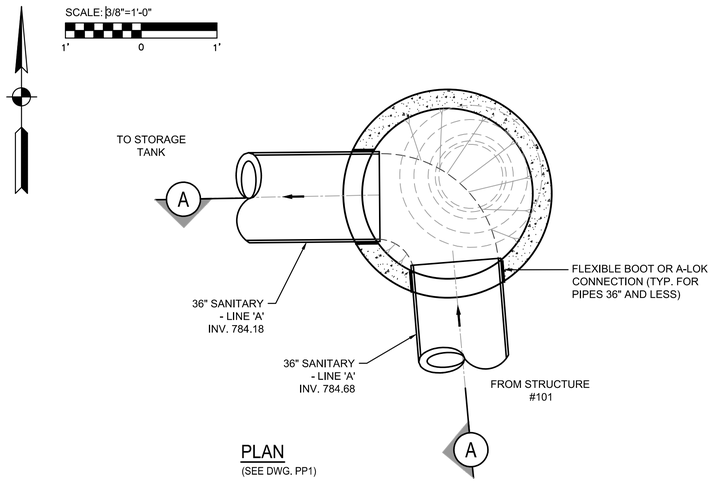
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DIVERSION STRUCTURE #101 - SECTIONS

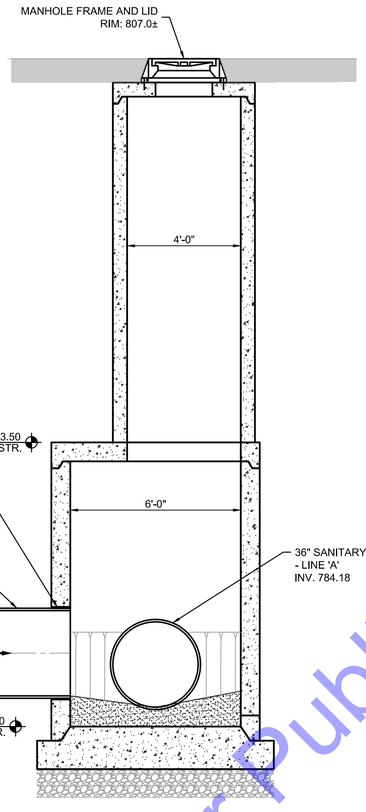
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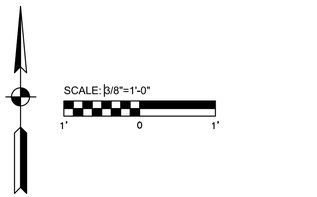


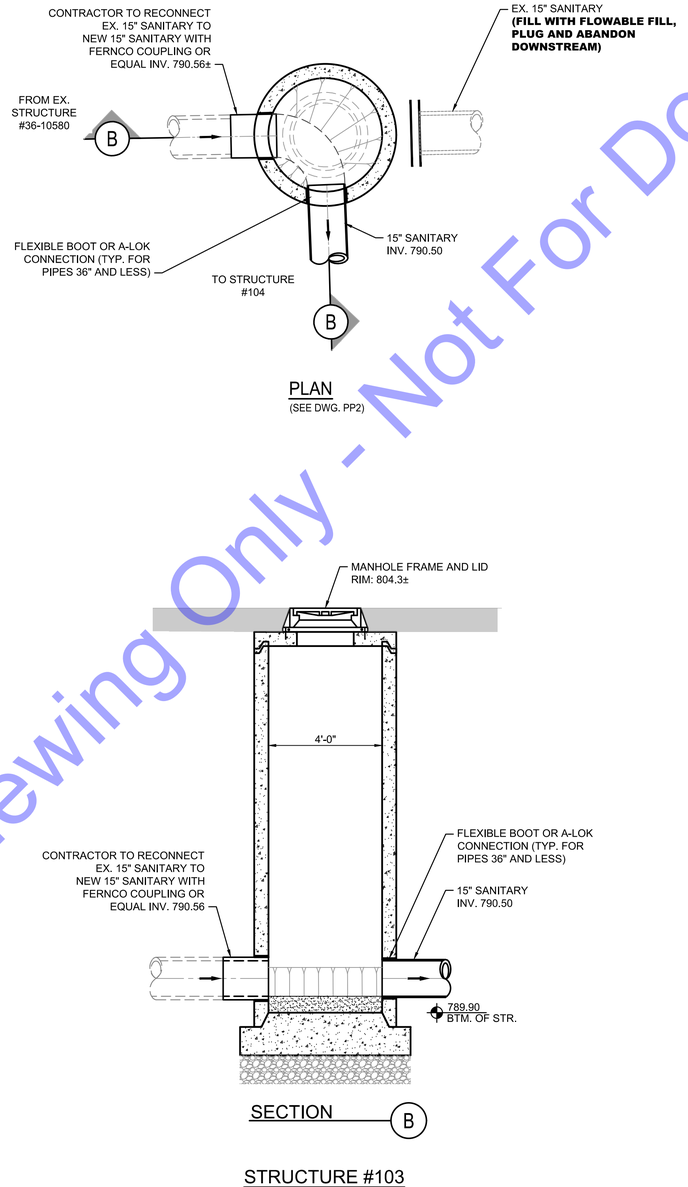
PLAN
(SEE DWG. PP1)



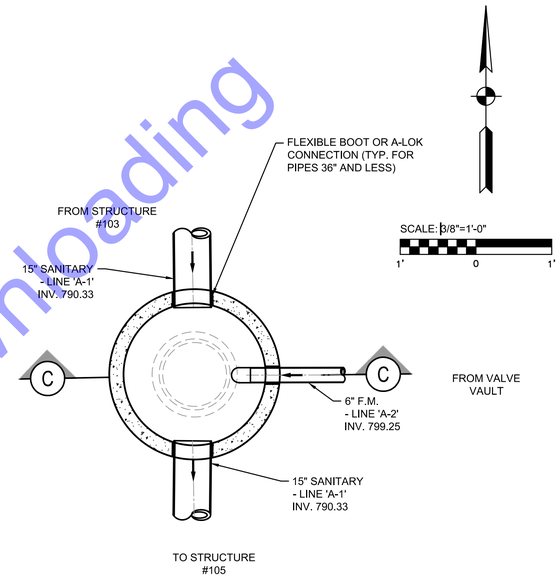
SECTION A

STRUCTURE #102
SCALE: 3/8"=1'-0"





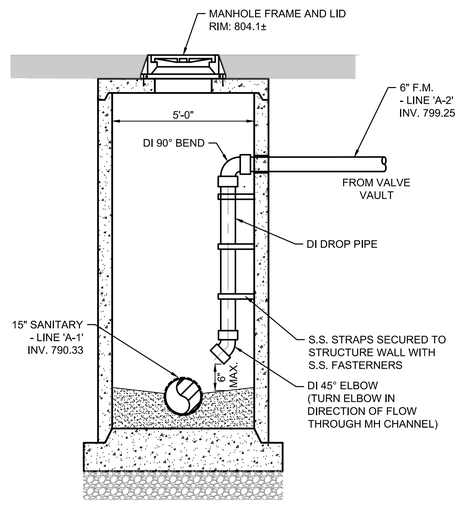
PLAN
(SEE DWG. PP2)



PLAN
(SEE DWG. PP2)

SECTION B

STRUCTURE #103
SCALE: 3/8"=1'-0"



SECTION C

STR. #104 TO BE LINED - SEE SPECIFICATIONS

STRUCTURE #104
SCALE: 3/8"=1'-0"

SHEET NOTE:
SEE DWG. MD2 FOR MANHOLE DETAILS

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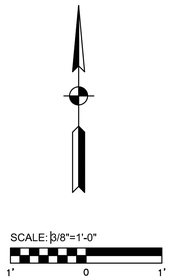
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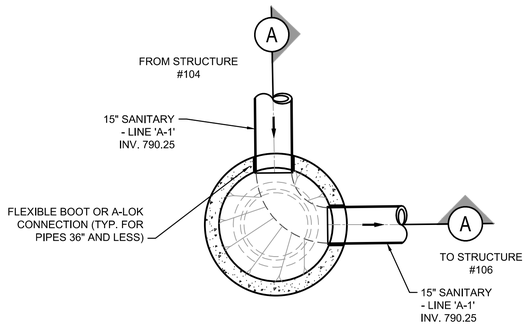
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STRUCTURE DETAILS - #102, #103 AND #104

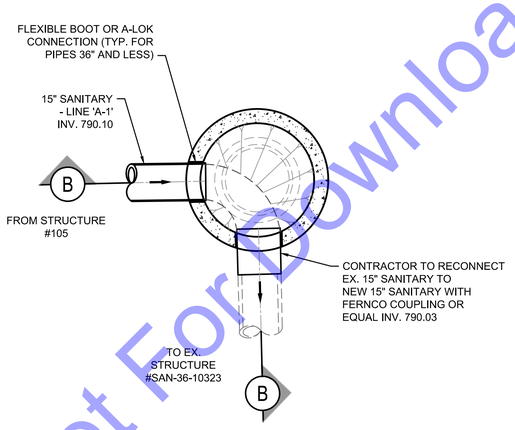
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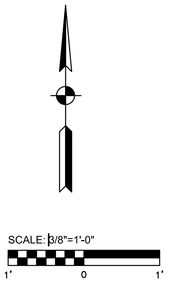


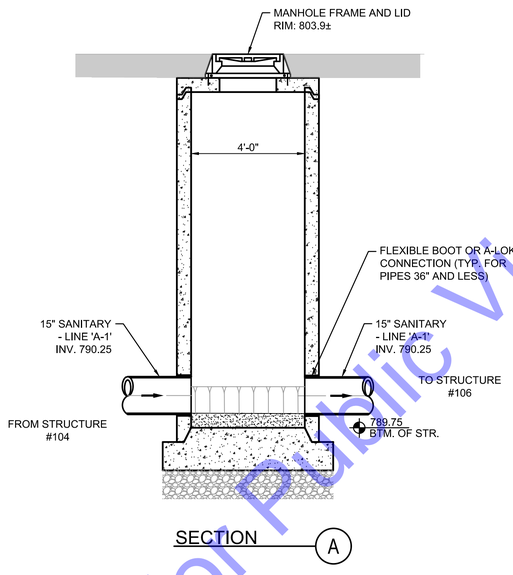


PLAN
(SEE DWG. PP2)



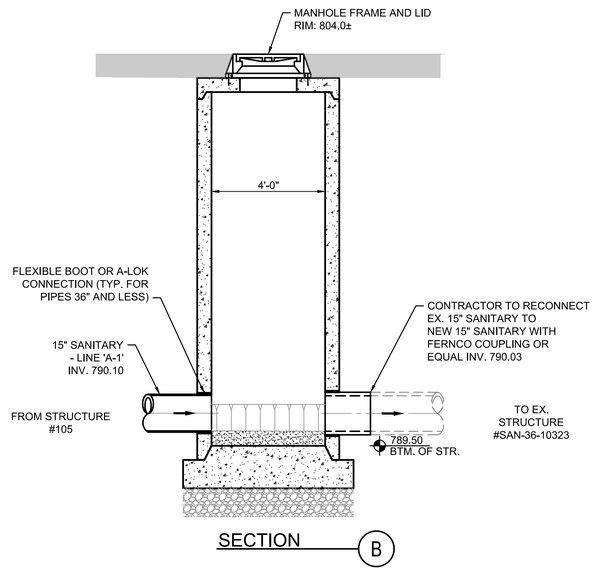
PLAN
(SEE DWG. PP2)





SECTION A

STRUCTURE #105
SCALE: 3/8"=1'-0"



SECTION B

STRUCTURE #106
SCALE: 3/8"=1'-0"

SHEET NOTE:
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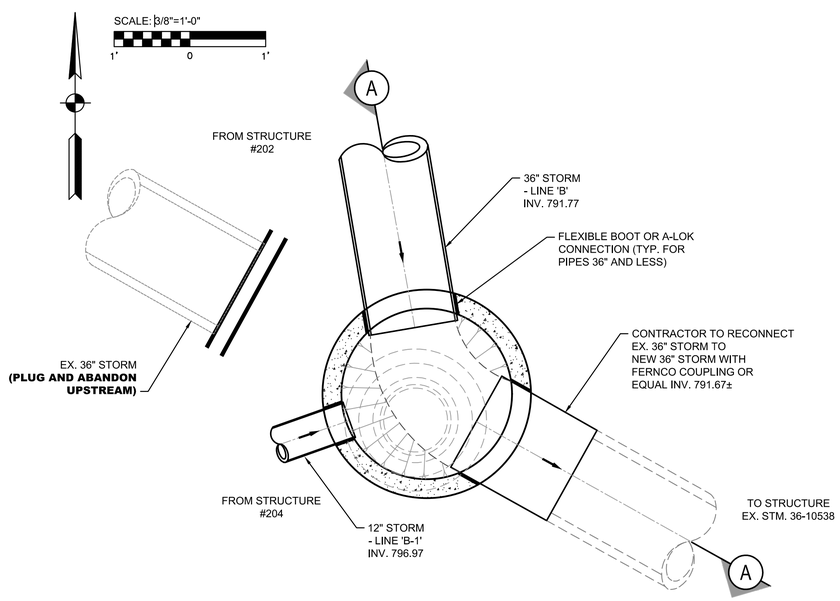
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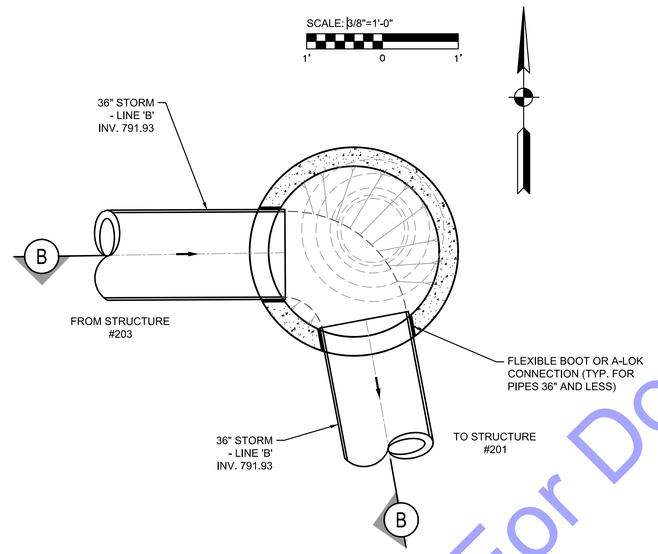
STRUCTURE DETAILS - #105 AND #106

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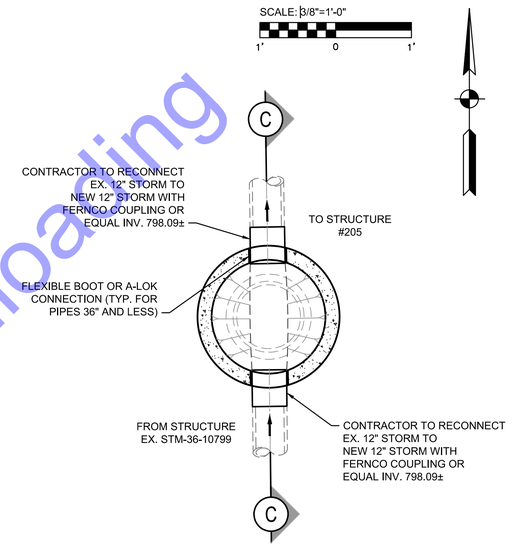
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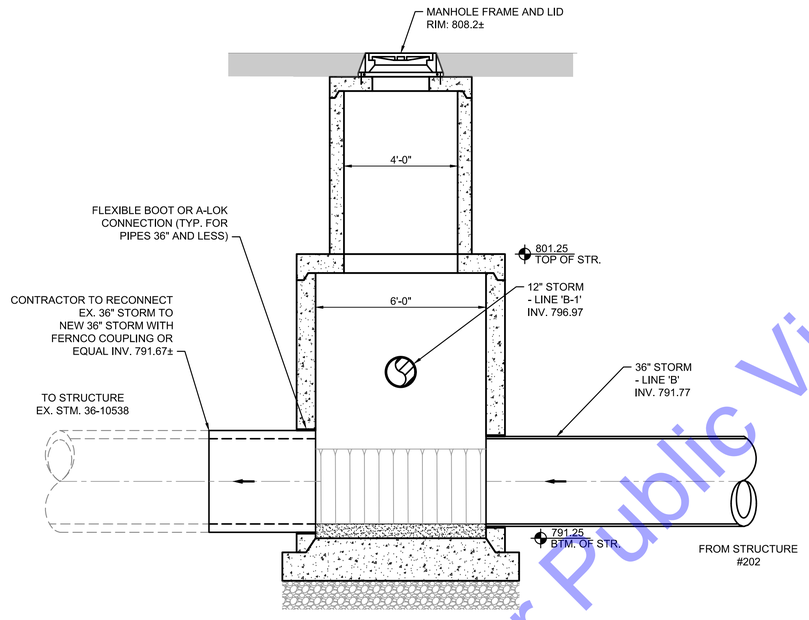
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(SEE DWG. PP4)



PLAN
(SEE DWG. PP4)

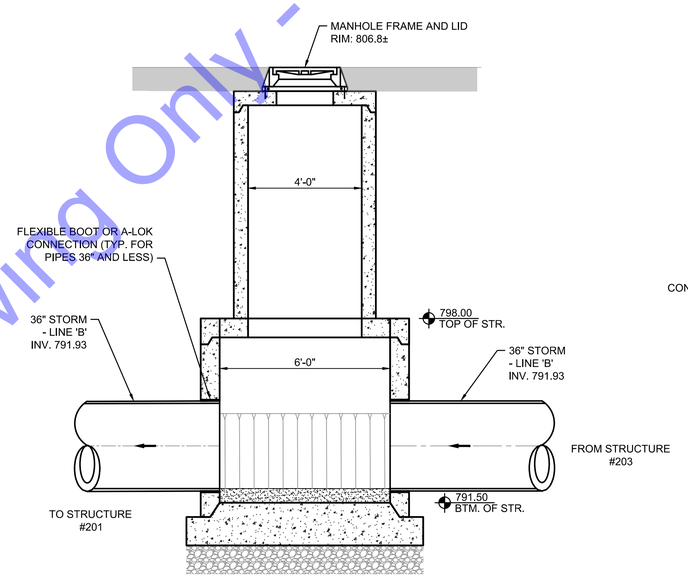


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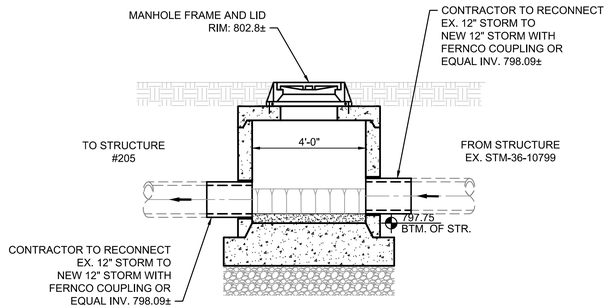
SECTION A

STRUCTURE #201
SCALE: 3/8"=1'-0"



SECTION B

STRUCTURE #202
SCALE: 3/8"=1'-0"



SECTION C

STRUCTURE #206
SCALE: 3/8"=1'-0"

SHEET NOTE:
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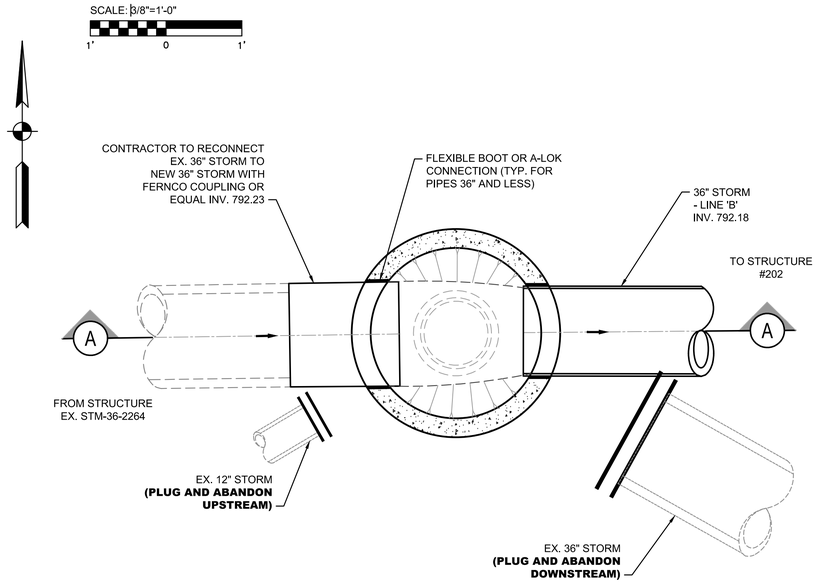
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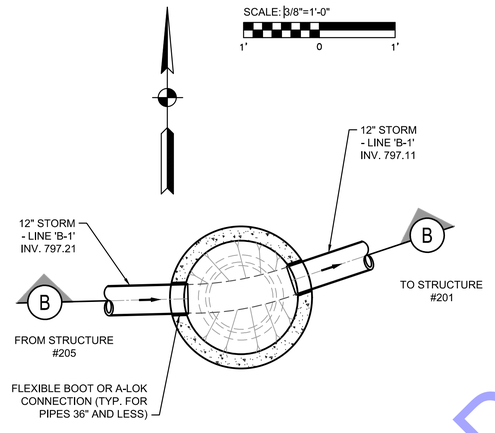
STRUCTURE DETAILS - #201, #202, AND #206

Drawing No:
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Sheet: 26 OF 59

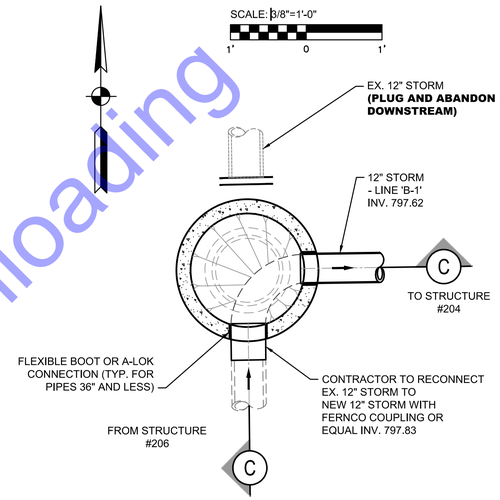
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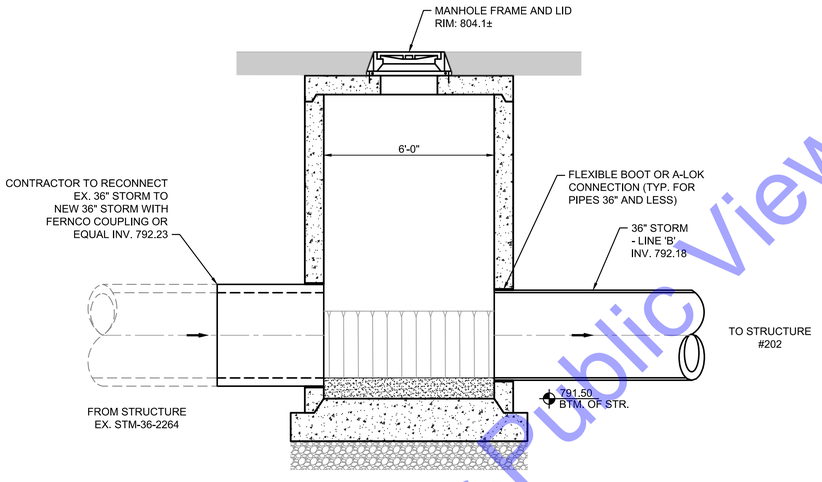
PLAN
(SEE DWG. PP4)



PLAN
(SEE DWG. PP4)

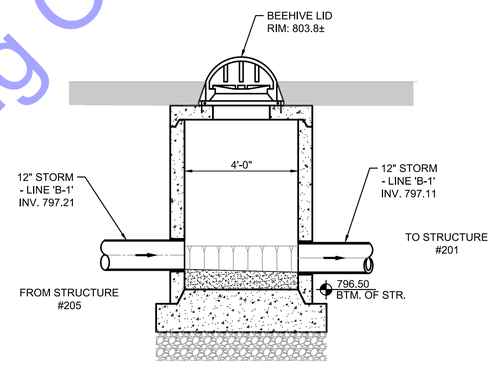


PLAN
(SEE DWG. PP4)



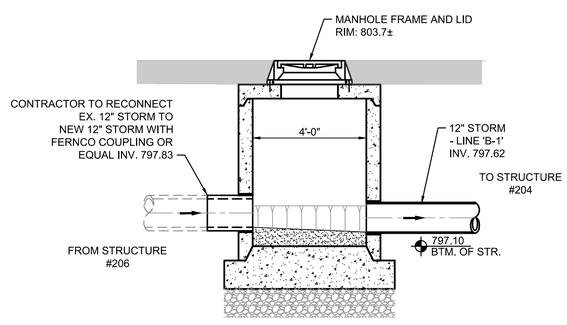
SECTION — A

STRUCTURE #203
SCALE: 3/8"=1'-0"



SECTION — B

STRUCTURE #204
SCALE: 3/8"=1'-0"



SECTION — C

STRUCTURE #205
SCALE: 3/8"=1'-0"

SHEET NOTE:
SEE DWG. MD2 FOR MANHOLE DETAILS

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BRIAN KREED WILSON
REGISTERED
No. PE11900866
STATE OF INDIANA
PROFESSIONAL ENGINEER
Brian Wilson
Signature
7/31/2025
Date

MARION UTILITIES SERVICE BOARD
GRANT COUNTY, INDIANA

CSO 009 LTCP IMPROVEMENTS

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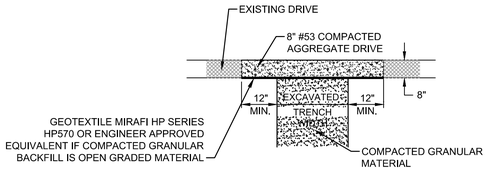
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BKW	BW	DW
Issue Date:	Project No:	Scale:
7/2025	S24146	AS SHOWN

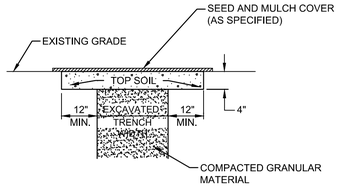
STRUCTURE DETAILS - #203, #204 AND #205

Drawing No:
SS6
Sheet: 27 OF 59

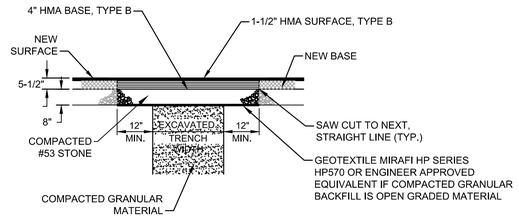
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STONE REPLACEMENT



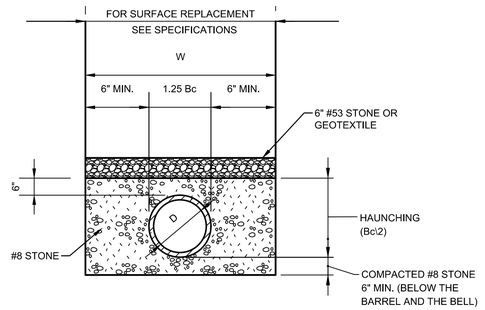
GRASSED AREA



LOCAL ASPHALT PAVEMENTS - ROADS, DRIVES, ALLEYS, AND PARKING AREAS WITHIN PUBLIC RIGHT-OF-WAY

SURFACE REPLACEMENT DETAILS

NO SCALE



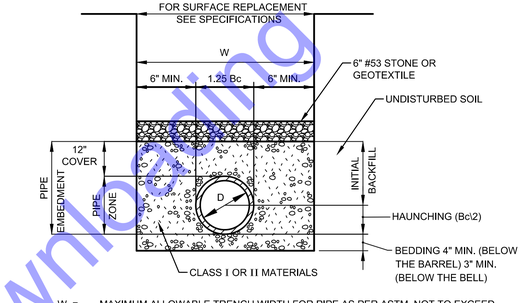
W = MINIIMUM ALLOWABLE TRENCH WIDTH FOR PIPE AS PER ASTM D2321
D = PIPE DIAMETER (INTERNAL)
Bc = PIPE DIAMETER (EXTERNAL)

NOTES:

1. COMPACTED #8 STONE AND HAUNCHING STOP AT 6 INCHES ABOVE THE TOP OF THE PIPE. BACKFILLING ABOVE THIS POINT SHALL BE IN ACCORDANCE WITH THE DETAILED SPECIFICATIONS AND AS REQUIRED HEREIN.
2. WORK FALLING UNDER THE JURISDICTION OF THE INDIANA DEPARTMENT OF TRANSPORTATION (INDOT) SHALL UTILIZE COMPACTED GRANULAR BACKFILL MATERIAL FOR INITIAL AND FINAL BACKFILL ANYWHERE WITHIN 12 FEET OF THE EDGE OF PAVEMENT. FOR ALL OTHER NON-INDOT PAVEMENT AREAS (INCLUDING BOTH HARD SURFACED AND COMPACTED AGGREGATE), COMPACTED GRANULAR BACKFILL MATERIAL SHALL BE USED WITHIN 5 FEET OF THE EDGE OF THE PAVEMENT.
3. COARSE-GRADED, CRUSHED AGGREGATES UTILIZED FOR PIPE BEDDING, INITIAL BACKFILL, AND TRENCH BACKFILL SHALL BE ENVELOPED IN NON-WOVEN POLYPROPYLENE GEOTEXTILE OR 6" OF INDOT #53 STONE TO PREVENT MIGRATION OF FINER SANDS, AGGREGATES, AND NATIVE SOILS INTO THE COARSER CRUSHED AGGREGATES.

TRENCH DETAIL FOR RIGID CONDUITS

NO SCALE



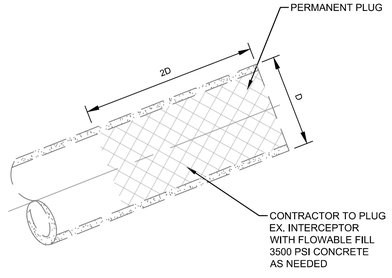
W = MAXIMUM ALLOWABLE TRENCH WIDTH FOR PIPE AS PER ASTM NOT TO EXCEED FOUR (4) FEET FOR 6" THROUGH 24" PIPE NOR SIX (6) FEET FOR 27" THROUGH 48" PIPE
D = PIPE DIAMETER (INTERNAL)
Bc = PIPE DIAMETER (EXTERNAL)

NOTES:

1. COMPACTED INITIAL BACKFILL SHALL EXTEND A MINIMUM OF 12" ABOVE THE TOP OF THE PIPE. FINAL BACKFILL ABOVE THIS POINT SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS AND AS REQUIRED HEREIN.
2. WHEN CLASS I MATERIAL IS USED FOR BEDDING, HAUNCHING, AND INITIAL BACKFILL COMPACTION MAY BE ACCOMPLISHED BY HAND OR MECHANICAL TAMPING, OR BY WALKING TO A MINIMUM OF 85% STANDARD PROCTOR DENSITY.
3. WHEN CLASS II MATERIAL IS USED FOR BEDDING, HAUNCHING, AND INITIAL BACKFILL COMPACTION MAY BE ACCOMPLISHED BY HAND OR MECHANICAL TAMPING TO A MINIMUM OF 85% STANDARD PROCTOR DENSITY.
4. WORK FALLING UNDER THE JURISDICTION OF THE INDIANA DEPARTMENT OF TRANSPORTATION (INDOT) SHALL UTILIZE COMPACTED GRANULAR BACKFILL MATERIAL FOR INITIAL AND FINAL BACKFILL ANYWHERE WITHIN 12 FEET OF THE EDGE OF PAVEMENT. FOR ALL OTHER NON-INDOT PAVEMENT AREAS (INCLUDING BOTH HARD SURFACED AND COMPACTED AGGREGATE), COMPACTED GRANULAR BACKFILL MATERIAL SHALL BE USED WITHIN 5 FEET OF THE EDGE OF THE PAVEMENT.
5. COARSE-GRADED, CRUSHED AGGREGATES UTILIZED FOR PIPE BEDDING, INITIAL BACKFILL, AND TRENCH BACKFILL SHALL BE ENVELOPED IN NON-WOVEN POLYPROPYLENE GEOTEXTILE OR 6" OF INDOT #53 STONE TO PREVENT MIGRATION OF FINER SANDS, AGGREGATES, AND NATIVE SOILS INTO THE COARSER CRUSHED AGGREGATES.

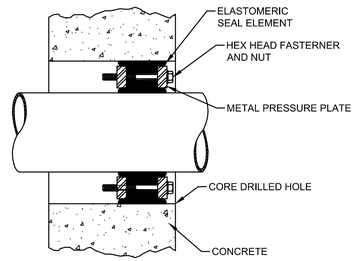
TRENCH DETAIL FOR FLEXIBLE CONDUITS

NO SCALE



PERMANENT PLUG FOR EXISTING SANITARY

NO SCALE



CORE DRILL/WATERTIGHT DETAIL

NO SCALE

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REGISTERED
No. PE11900866
STATE OF INDIANA
PROFESSIONAL ENGINEER
Signature
7/31/2025
Date

MARION UTILITIES SERVICE BOARD
GRANT COUNTY, INDIANA

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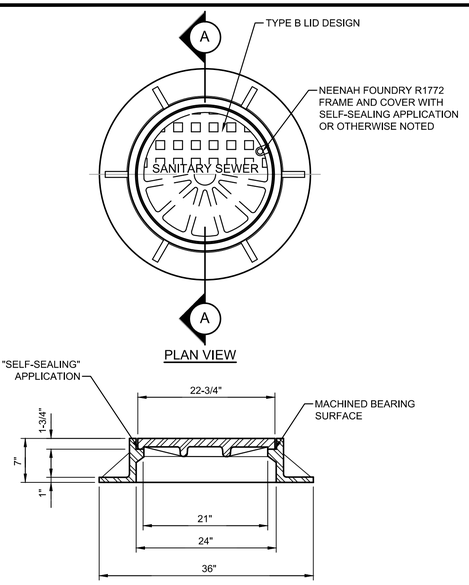
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Issue Date: 7/2025	Project No: S24146	Scale: AS SHOWN

MISCELLANEOUS DETAILS

Drawing No: MD1

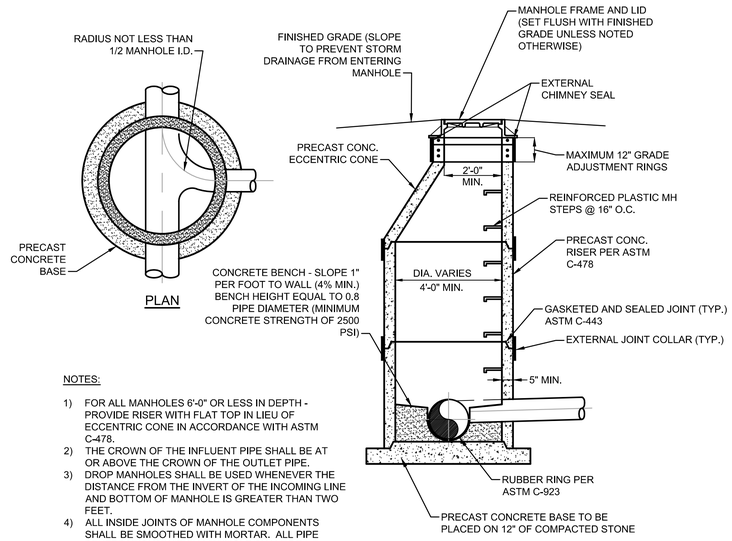
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SANITARY SEWER MANHOLE FRAME AND COVER - STANDARD MANHOLE

NO SCALE

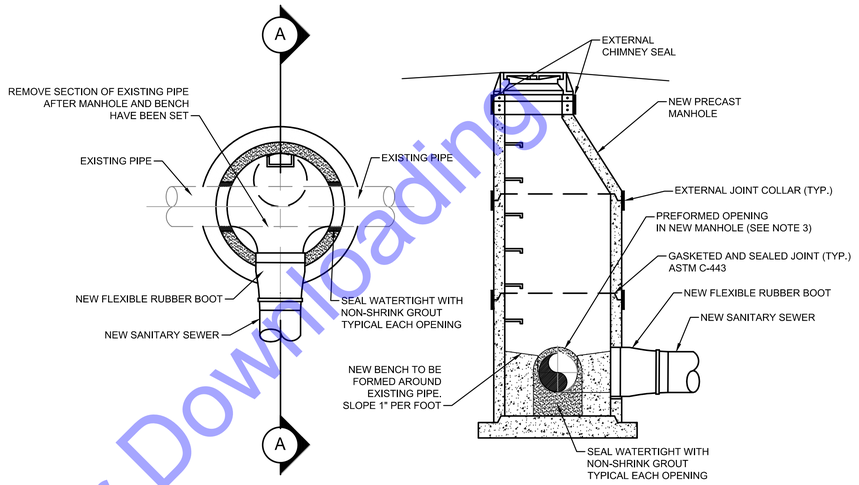


NOTES:

1) FOR ALL MANHOLES 6'-0" OR LESS IN DEPTH - PROVIDE RISER WITH FLAT TOP IN LIEU OF ECCENTRIC CONE IN ACCORDANCE WITH ASTM C-478.
2) THE CROWN OF THE INFLUENT PIPE SHALL BE AT OR ABOVE THE CROWN OF THE OUTLET PIPE.
3) DROP MANHOLES SHALL BE USED WHENEVER THE DISTANCE FROM THE INVERT OF THE INCOMING LINE AND BOTTOM OF MANHOLE IS GREATER THAN TWO FEET.
4) ALL INSIDE JOINTS OF MANHOLE COMPONENTS SHALL BE SMOOTHED WITH MORTAR. ALL PIPE PENETRATIONS WITHIN MANHOLE SHALL BE SMOOTHED WITH MORTAR (MORTAR COLLAR).

STANDARD MANHOLE DETAIL

NO SCALE



GENERAL NOTES:

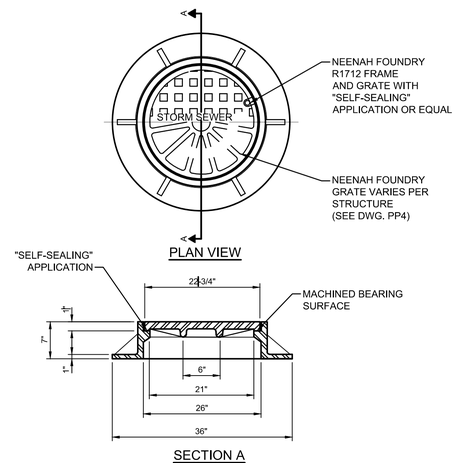
1. NEW "DOG-HOUSE" MANHOLE SHALL BE AS SPECIFIED FOR STANDARD MANHOLES IN WM-9 "STANDARD MANHOLES"

2. ALL REINFORCING SHALL MEET ASTM C-478

3. HOLES IN PRECAST UNITS SHALL BE 4" MIN. TO 8" MAX. LARGER THAN THE OUTSIDE DIAMETER OF THE PROPOSED PIPE

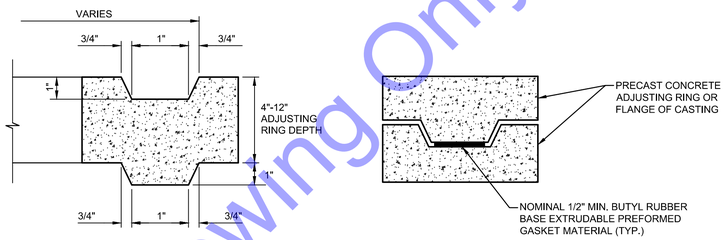
NEW "DOG-HOUSE" MANHOLE OVER EXISTING SEWER DETAIL

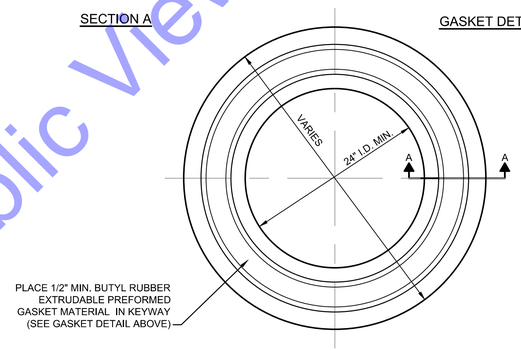
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STORM SEWER MANHOLE FRAME AND COVER - STANDARD MANHOLE

NO SCALE

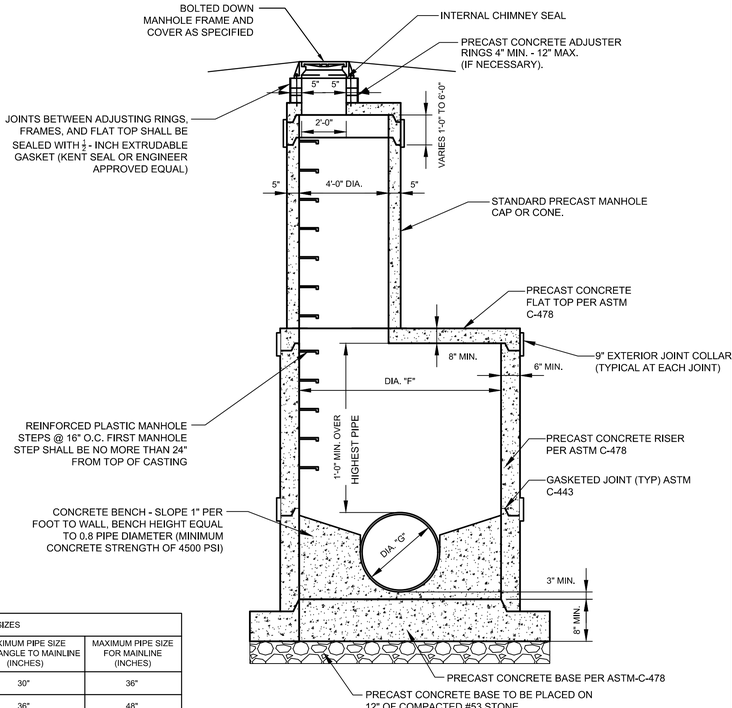




ADJUSTING RING DETAIL

NO SCALE

MANHOLE PIPE SIZES				
TYPE	DIA. "G"	DIA. "F"	MAXIMUM PIPE SIZE RIGHT ANGLE TO MAINLINE (INCHES)	MAXIMUM PIPE SIZE FOR MAINLINE (INCHES)
J	24" TO 36"	5'-0"	30"	36"
K	>36" TO 48"	6'-0"	36"	48"
L	>48" TO 54"	8'-0"	48"	54"
M	>54" TO 72"	8'-6"	66"	72"
N	>72" TO 84"	9'-0"	72"	84"



MANHOLE BASE, RISER AND REDUCER CAP FOR PIPES 24" THRU 84"

SCALE: N.T.S.

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No. PE11900866
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PROFESSIONAL ENGINEER
Brian Wilson
Signature
7/31/2025
Date

MARION UTILITIES SERVICE BOARD
GRANT COUNTY, INDIANA

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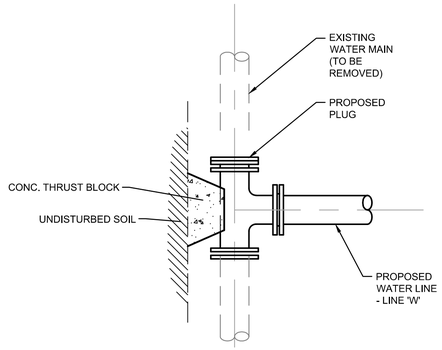
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7/2025	S24146	AS SHOWN

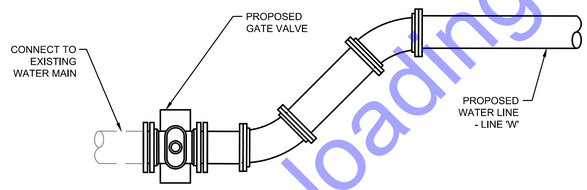
MISCELLANEOUS DETAILS

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Sheet: 29 OF 59

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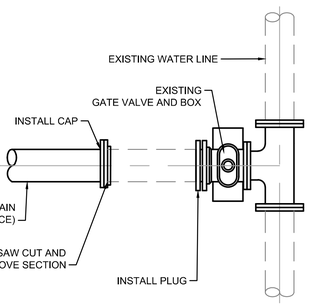


TYPE "B" CONNECTION

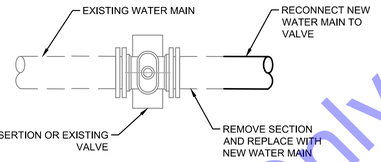


TYPE "C" CONNECTION

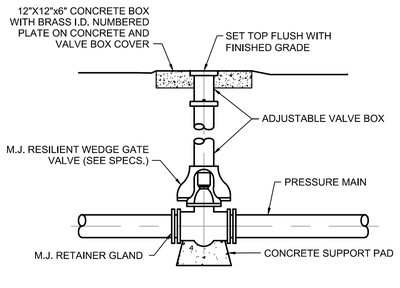
DRY CONNECTION TO EXISTING WATER MAIN
NO SCALE



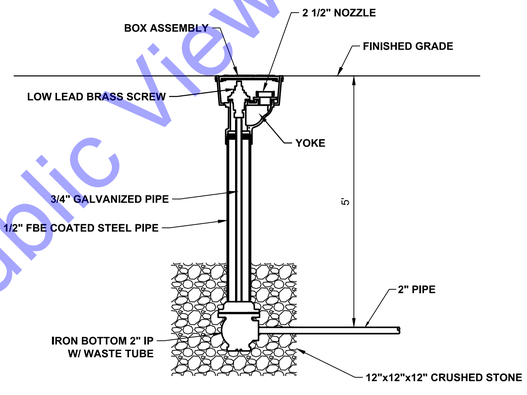
CUT AND CAP/PLUG DETAIL
NO SCALE



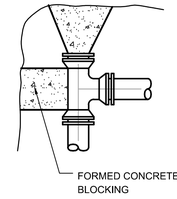
IN LINE CONNECTION DETAIL
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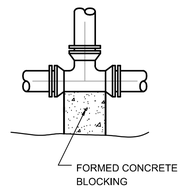
BURIED GATE VALVE AND BOX DETAIL
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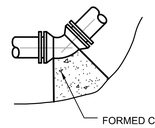
2" FLUSHING HYDRANT DETAIL
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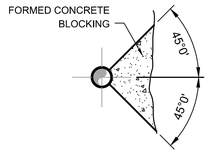
DETAIL A



DETAIL B



DETAIL C



TYP. PROFILE

TABLE OF DIMENSION FOR CONCRETE BLOCKING																							
SIZE	TEE				PLUG					90° BEND				45° BEND				22½° BEND				11¼° BEND			
PIPE	L	T	W	D	L	T	W	D	s	L	T	W	D	L	T	W	D	L	T	W	D	L	T	W	D
4"	18"	12"	12"	8"	18"	12"	18"	18"	2"	24"	12"	24"	8"	18"	8"	12"	8"	18"	8"	12"	8"	15"	8"	12"	6"
6"	18"	12"	12"	8"	18"	12"	18"	18"	2"	24"	15"	24"	8"	18"	10"	12"	8"	18"	10"	12"	8"	18"	10"	18"	6"
8"	30"	12"	24"	8"	30"	18"	30"	24"	4"	36"	16"	30"	8"	24"	12"	18"	8"	24"	18"	18"	8"	24"	12"	18"	8"
10"	36"	18"	30"	10"	36"	18"	36"	24"	4"	48"	20"	36"	10"	30"	14"	24"	10"	30"	14"	24"	10"	24"	14"	18"	8"
12"	48"	18"	36"	10"	42"	18"	42"	24"	4"	54"	24"	48"	10"	36"	16"	30"	10"	36"	16"	30"	10"	30"	16"	24"	10"
14"	54"	24"	42"	12"	48"	18"	48"	30"	6"	60"	28"	60"	12"	42"	16"	42"	12"	42"	16"	42"	12"	33"	16"	27"	12"
16"	60"	24"	48"	12"	54"	18"	54"	30"	6"	66"	32"	63"	12"	48"	18"	48"	12"	48"	18"	48"	12"	36"	18"	30"	12"
18"	66"	30"	54"	14"	60"	24"	60"	36"	6"	66"	36"	66"	14"	54"	18"	54"	14"	54"	18"	54"	14"	39"	18"	33"	14"
20"	72"	30"	60"	14"	66"	24"	66"	36"	8"	72"	40"	69"	14"	60"	20"	60"	14"	60"	20"	60"	14"	42"	20"	36"	14"
24"	84"	36"	72"	18"	78"	30"	78"	42"	8"	84"	48"	75"	18"	72"	22"	72"	18"	72"	22"	72"	18"	48"	22"	42"	18"

NOTES:

1. FOR TEE WITH BRANCH UNEQUAL TO RUN USE TEE TYPE KICKER WITH D, L, AND W DIMENSIONS THE SAME AS THOSE FOR PLUG WITH SAME DIAMETER AS BRANCH OF TEE, SELECT "T" DIMENSIONS FROM TEE TABLE UNDER COLUMN HEADED BY THE SIZE OF THE BRANCH.
2. IF EXACT SIZE PIPE BLOCKING IS NOT SHOWN USE NEXT LARGER SIZE.
3. DEPTH "D" MAY BE GREATER THAN SPECIFIED TO ALLOW WORKING SPACE. BLOCKING MUST BE PLACED AGAINST UNDISTURBED EARTH OR ROCK.
4. CONCRETE BLOCKING SHALL BE CLASS "B".

THRUST BLOCKING DETAIL
SCALE: N.T.S.

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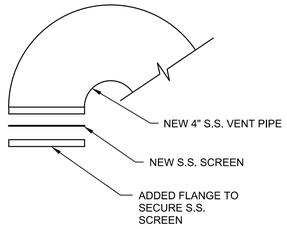
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Issue Date: 7/2025	Project No: S24146	Scale: AS SHOWN

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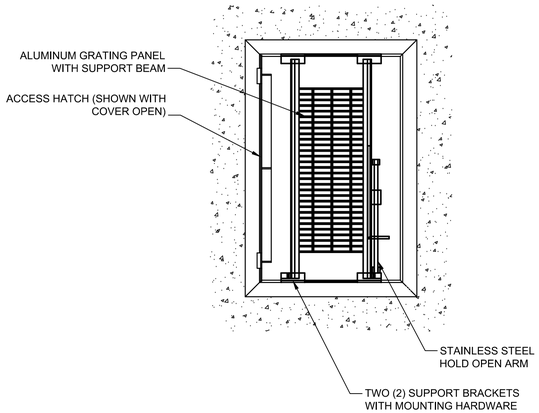
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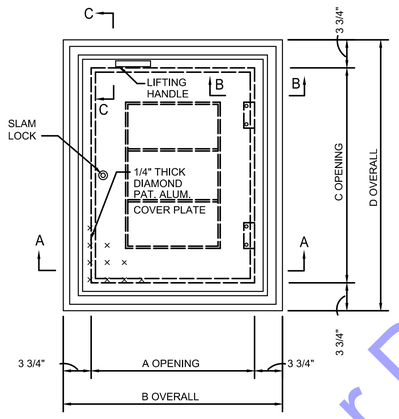
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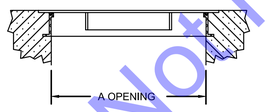
VENT DETAIL
NO SCALE



ACCESS HATCH "FALL PROTECTION GRATING" DETAIL
NO SCALE



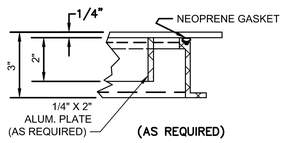
PLAN



SECTION A-A

BASIS OF DESIGN:
"HALLIDAY PRODUCTS";
OR EQUAL

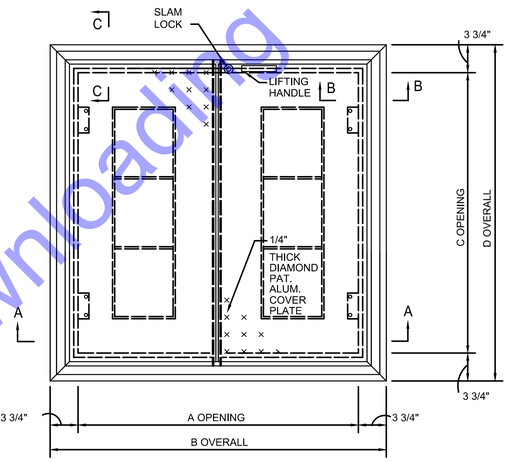
SECTION B-B



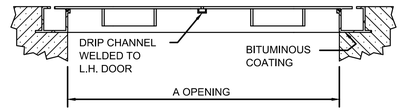
SECTION C-C

NOMINAL OPENING (INCHES)	DIMENSIONS (VARY PER MANUFACTURER)			
	A	B	C	D
36x36	36"	43 1/2"	36"	43 1/2"
36x48	36"	43 1/2"	48"	55 1/2"

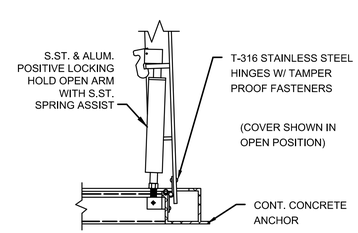
TYPICAL SINGLE LEAF ACCESS HATCH DETAIL
NO SCALE



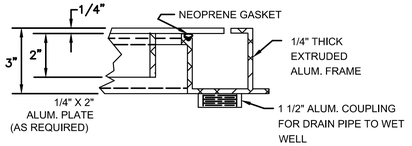
PLAN



SECTION A-A



SECTION B-B

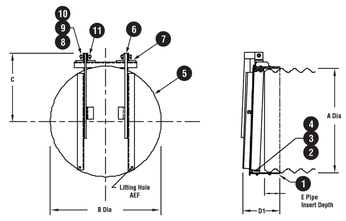


SECTION C-C

NOMINAL OPENING (INCHES)	DIMENSIONS (VARY PER MANUFACTURER)			
	A	B	C	D
48x60	60"	67 1/2"	48"	55 1/2"
72x48	72"	79 1/2"	48"	55 1/2"

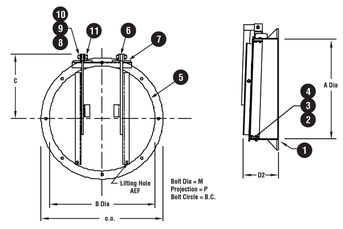
TYPICAL DOUBLE LEAF ACCESS HATCH DETAIL
NO SCALE

SSF-41 STAINLESS STEEL DRAINAGE (FLAP) GATE - SPIGOTBACK RADIAL ARMS



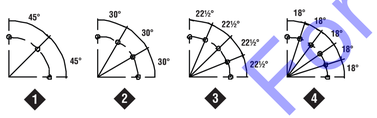
PARTS LIST	
Number	Name
1	Frame
2	Seat
3	Retainer Ring
4	Hex Hd. Bolt / Nut
5	Cover
6	Hinge Arm
7	Pivot Lug
8	Hex Hd. Bolt / Nut
9	Hinge Pin
10	Bushing
11	Washer
12	Spring Pin

SSF-41 DRAINAGE (FLAP) GATE FLATBACK (FLANGEBACK SIMILAR BUT WITH ASA STANDARD FLANGE DIMENSIONS)



1. Add grout pad thickness to anchor bolt projection.
2. Also available with flange and drilling to attach to a 125# standard pipe flange.
3. If grout pad mounting is used, add grout thickness to dimension.

DIMENSIONS IN INCHES										
Gate Size	A	B	C	D2	E	O.D.	B.C.	M	P
36"	37 1/8	38 1/2	24	10 3/16	4 1/2	42 5/8	40 1/4	1/2	1 1/2



BASIS OF DESIGN:
"WATERMAN PRODUCTS";
OR EQUAL

TYPICAL FLAP GATE DETAIL

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BRIAN KREED WILSON
REGISTERED
No. PE11900866
STATE OF INDIANA
PROFESSIONAL ENGINEER
Signature 7/31/2025 Date

MARION UTILITIES SERVICE BOARD
GRANT COUNTY, INDIANA

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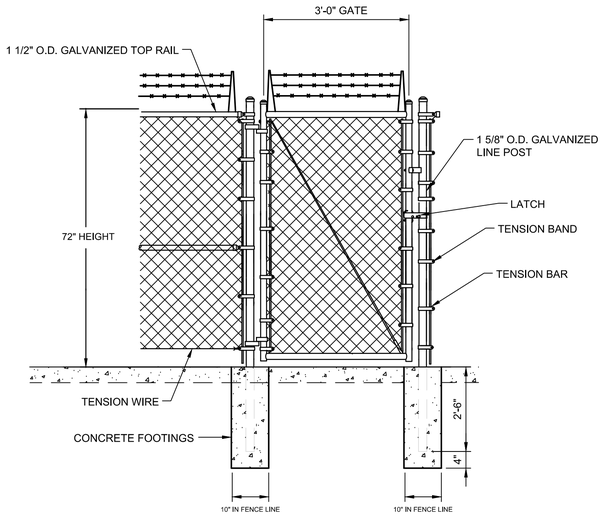
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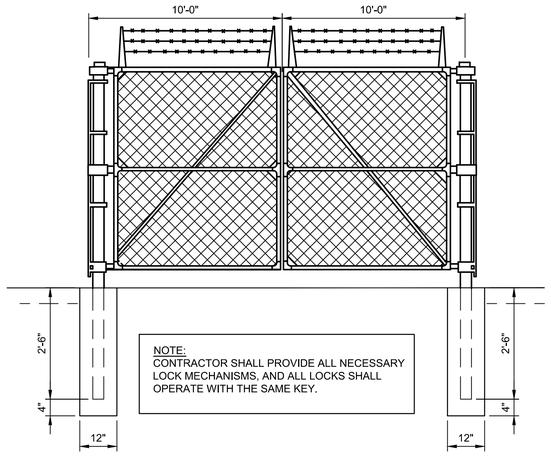
MISCELLANEOUS DETAILS

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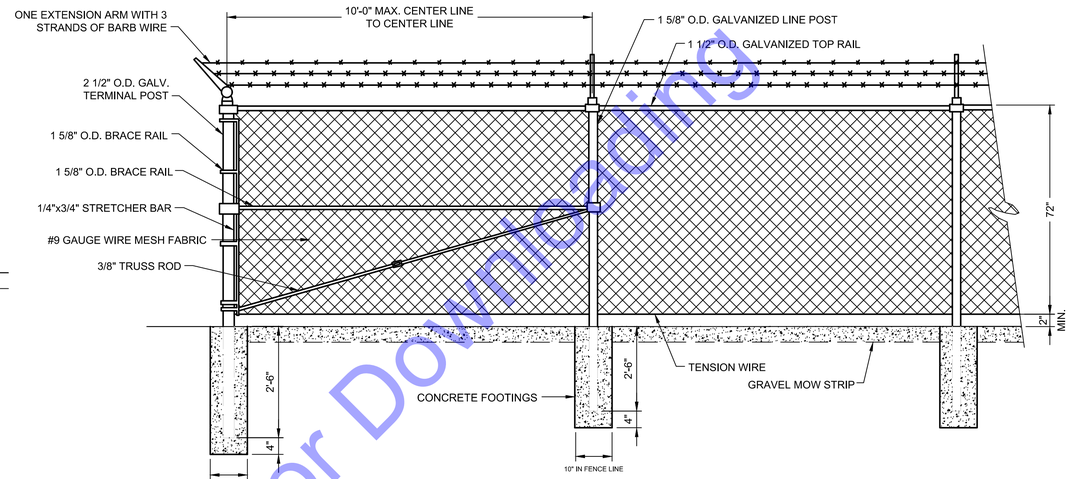
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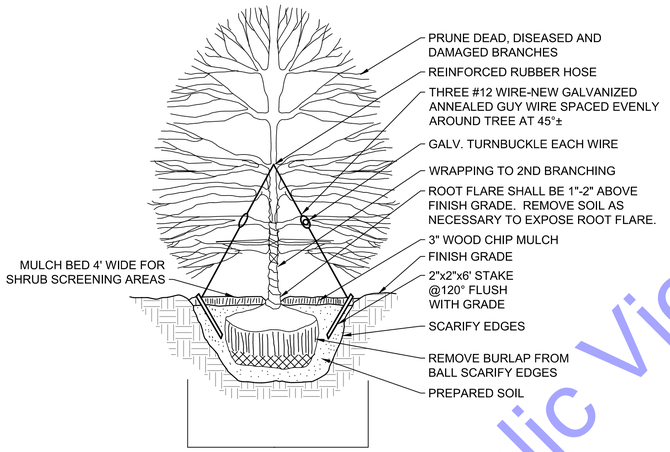
PERSONNEL GATE DETAIL
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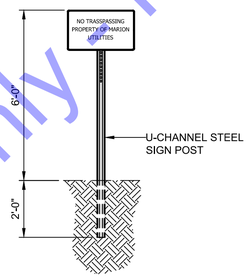
CHAIN LINK SWING GATE FENCE DETAIL
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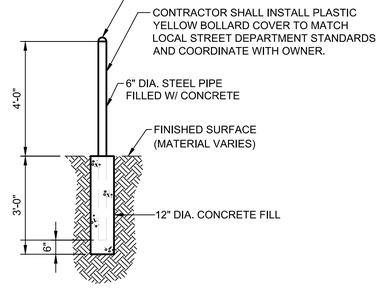
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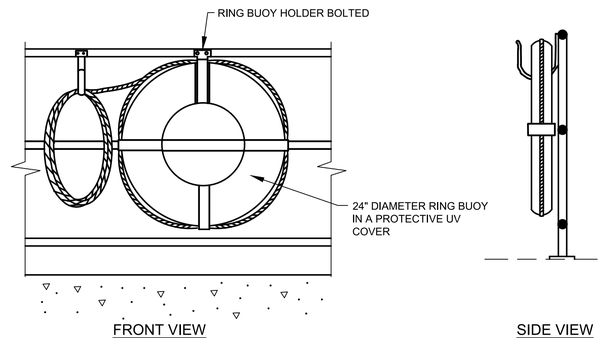
TREE/SHRUB PLANTING DETAIL
NO SCALE



"NO TRASSPASSING" SIGN DETAIL
NO SCALE



BOLLARD DETAIL
NO SCALE



SAFETY FLOTATION DEVICE DETAILS
NO SCALE

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BRIAN KREED WILSON
REGISTERED
No. PE11900866
STATE OF INDIANA
PROFESSIONAL ENGINEER
Brian Wilson 7/31/2025
Signature Date

MARION UTILITIES SERVICE BOARD
GRANT COUNTY, INDIANA

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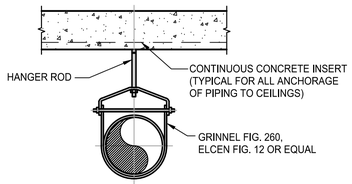
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MISCELLANEOUS DETAILS

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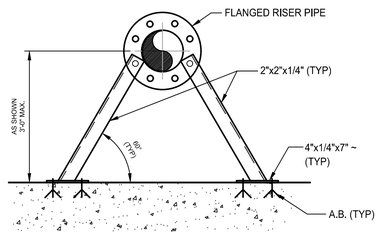


NOTE:

PROVIDE HANGER RODS IN ACCORDANCE WITH THE SPECIFICATIONS. INSTALLATION OF PIPE HANGER SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

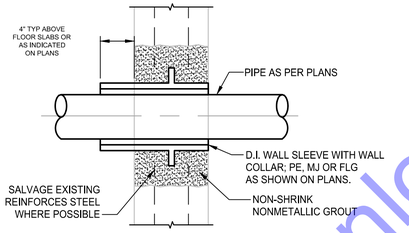
ADJUSTABLE CLEVIS PIPE HANGER DETAIL

NO SCALE

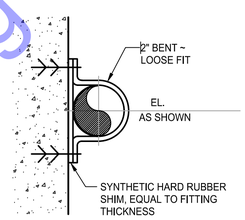


RISER STABILIZER BRACKET FOR VERTICAL, FLANGED PIPING

NO SCALE

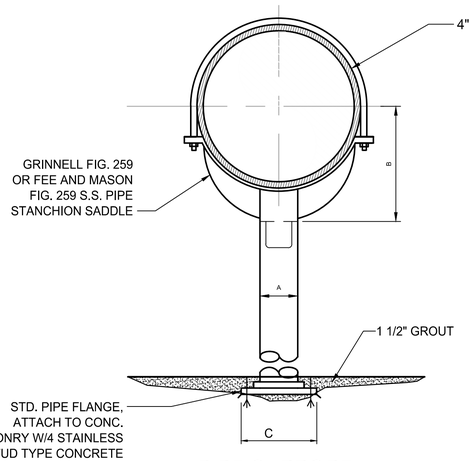


SLEEVE OPENING AT EXISTING WALLS & SLABS FOR 3"Ø OR SMALLER PIPES ABOVE GRADE



CLAMP TYPE SUPPORT FOR PIPING UNDER 4" DIA.

NO SCALE



PIPE SUPPORT

NOTES:

1. PROVIDE HALF ROUND RIGID INSULATION AND INSULATION PROTECTION SHIELD, SIMILAR TO GRINNELL FIG. 167 OR ELCEN FIG. 219, WHERE PIPING IS INSULATED

2. PROVIDE NEOPRENE WAFFLE INSULATION PAD, SIMILAR TO MASON TYPE "W" OR KORKFUND KORPAD 40 UNDER SUPPORT FOOT WHEN PIPING IS ISOLATED OR SUPPORT IS ADJACENT TO MECHANICAL EQUIPMENT.

3. FOR BASE HEIGHT AND FLANGE DIMENSIONS, SEE TABLE

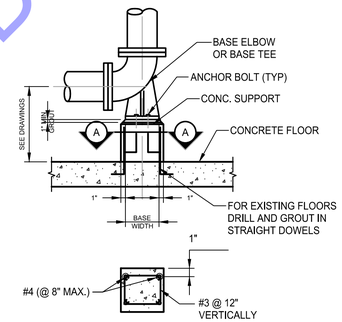
4. PIPE SUPPORTS AND HARDWARE SHALL BE 304 OR 316 STAINLESS STEEL.

DIMENSION TABLE

PIPE SIZE	A	B	C
4"	3"	4-3/16"	9"
5"	3"	4-13/16"	9"
6"	3"	5-7/16"	9"
8"	3"	6-15/16"	9"
10"	3"	8-7/16"	9"
12"	3"	9-15/16"	9"
14"	4"	10-15/16"	11"
16"	4"	12-3/8"	11"
18"	4"	13-7/8"	11"
20"	6"	15-3/8"	13-1/2"
22"	6"	16-5/8"	13-1/2"
24"	6"	17-15/16"	13-1/2"
26"	6"	19-1/8"	13-1/2"
30"	6"	21-5/16"	13-1/2"
32"	6"	22-1/2"	13-1/2"
36"	8"	24-1/2"	16"

PIPE SUPPORT AND TABLE DETAIL

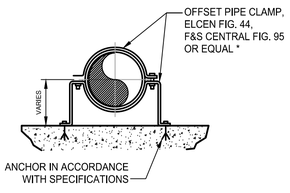
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SECTION A

TYPICAL CONCRETE PIPE SUPPORT DETAIL

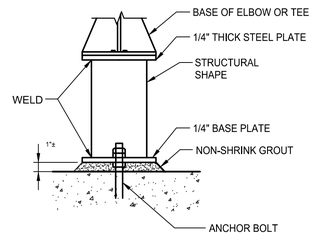
NO SCALE



* FOR PIPE AND CONDUIT "Ø TO 8"Ø

OFFSET TYPE PIPE CLAMP DETAIL

NO SCALE



TYPICAL BASE PLATE SETTING

NO SCALE

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PROFESSIONAL ENGINEER

Brian Wilson
Signature

7/31/2025
Date

MARION UTILITIES SERVICE BOARD
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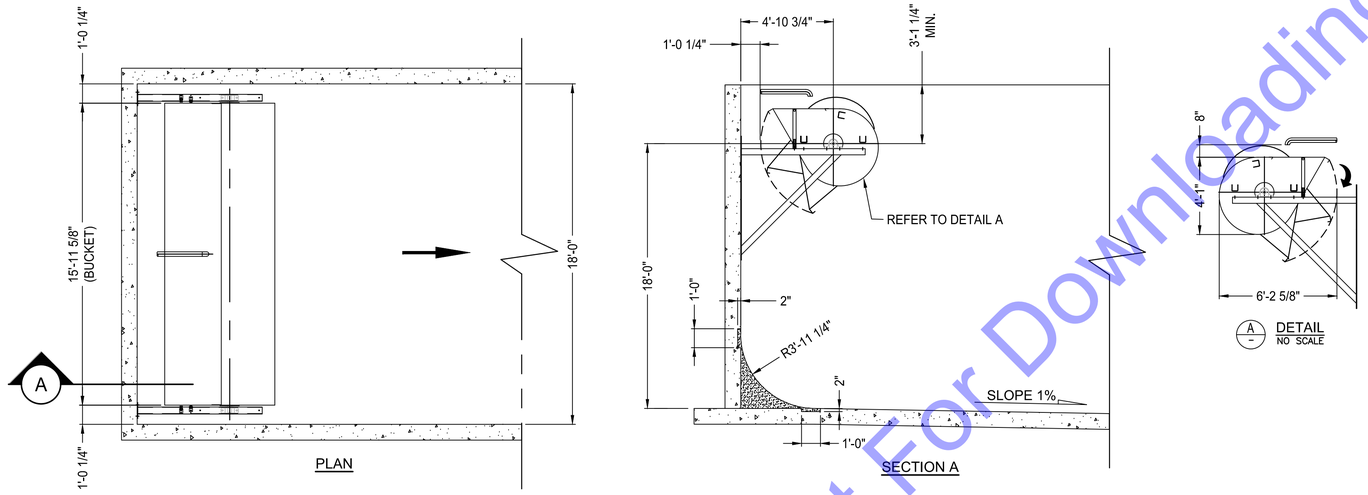
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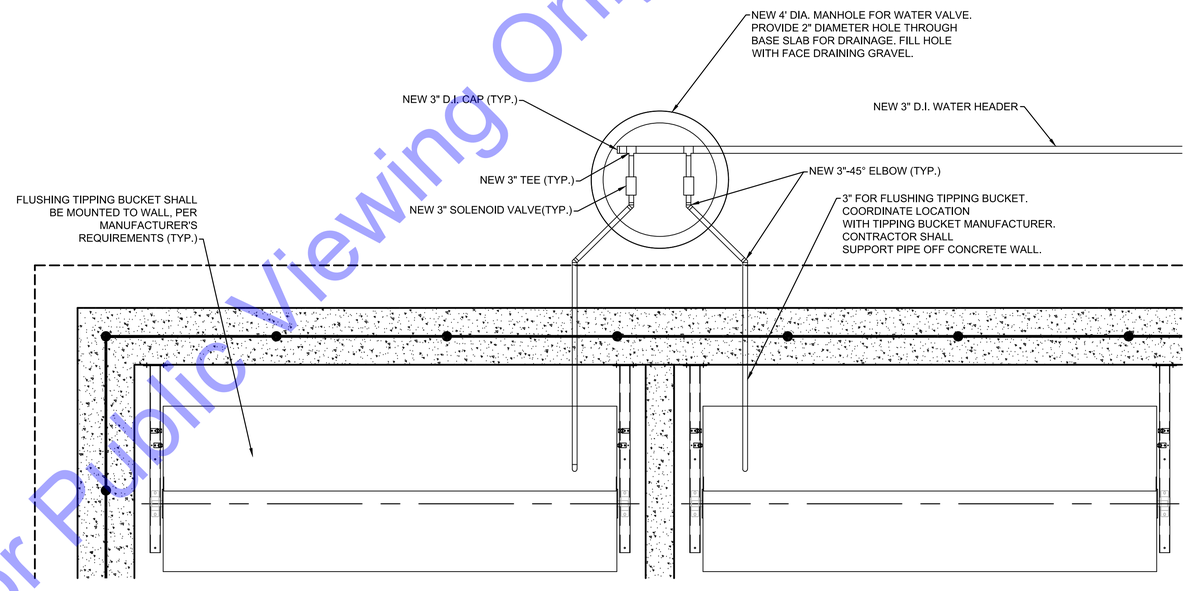
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TIPPING BUCKET DETAILS
NO SCALE



WATER VALVE MANHOLE DETAIL
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No. PE11900866
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INDIANA
PROFESSIONAL ENGINEER
Signature 7/31/2025 Date

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GRANT COUNTY, INDIANA

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MAINTENANCE OF TRAFFIC PLAN
SCALE: 1"=50'-0"

SCALE: 1"=50'
50' 0 50'

SIGN LEGEND:

A
ROAD WORK AHEAD
XW21-4

B
ROAD CLOSED
R11-2
*

C
ROAD CLOSED TO THRU TRAFFIC
R11-4
*

D
DEAD END
W14-1

* ROAD CLOSURE SIGN ASSEMBLY (RCSA)

LEGEND:

- TYPE III BARRICADE
- CONSTRUCTION SIGN
- WORK AREA

GENERAL MOT NOTES:

1. ALL SIGNS, BARRICADES, AND OTHER TRAFFIC CONTROL DEVICES SHALL BE PLACED IN ACCORDANCE WITH THE LATEST EDITION OF THE INDIANA MUTCD AND INDOT STANDARDS.
2. CONTRACTOR IS RESPONSIBLE FOR PROPER IMPLEMENTATION AND MAINTENANCE OF THE TRAFFIC CONTROL PLAN.
3. MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES OR COORDINATE CLOSURE WITHE THE PROPERTY OWNER.
4. UPON COMPLETION OF PROJECT, PLACE A PERMANENT 'DEAD END' (W14-1) SIGN AND POST IN THE APPROXIMATE LOCATION OF EACH 'ROAD WORK AHEAD' SIGN. SET SIGN PER MUTCD PLACEMENT STANDARDS.

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ROBIN LYNN MATHEWS
REGISTERED
PE10100897
STATE OF INDIANA
PROFESSIONAL ENGINEER
Signature 7/31/2023 Date

MARION UTILITIES SERVICE BOARD
GRANT COUNTY, INDIANA

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MAINTENANCE OF TRAFFIC PLAN

Drawing No:
MOT1
Sheet: 35 OF 59

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SECTION A: CONSTRUCTION PLAN GENERAL PLAN COMPONENTS

A1 INDEX OF THE LOCATION OF REQUIRED PLAN ELEMENTS IN THE CONSTRUCTION PLAN:

This document represents the plan index. The content is organized around the Indiana Department of Environmental Management (IDEM) Construction Stormwater General Guidance Permit Construction / Stormwater Pollution Prevention Plan development guidance. Details are specific to the Marion Utilities CSO 009 Improvements Project.

A2 A VICINITY MAP DEPICTING THE PROJECT SITE LOCATION IN RELATIONSHIP TO RECOGNIZABLE LOCAL LANDMARKS, TOWN, AND MAJOR ROADS:

This information has been included and is shown in the plans. Aerial site maps illustrating the approximate extent of the projects are shown in the plans. All construction will take place in existing right of ways or land owned by the City of Marion.

A3 NARRATIVE OF THE NATURE AND PURPOSE OF THE PROJECT:

The CSO 009 Improvements Project is located at one of the combined sewer overflows (CSOs) in the City of Marion's wastewater collection system, which is operated by the Marion Utilities Service Board (MUSB). The improvements to CSO 009 are required to limit the number of overflows set forth in the CSO LTCP to a maximum of five (5) overflows per year to be in compliance with the Indiana Department of Environmental Management (IDEM). The recommended improvements will include the installation of a diversion structure and approximately 250 feet of a thirty-six (36) diameter sanitary sewer. During wet weather events, this will convey flow to a 1 MG active storage tank. To pump water out of the storage tank, a 0.5 MGD Lift Station and 140 feet of a six (6) inch diameter force main will be installed.

A4 LATITUDE AND LONGITUDE TO THE NEAREST FIFTEEN (15) SECONDS:

40°32'34" N and 85°38'59" W

A5 LEGAL DESCRIPTION OF THE PROJECT SITE:

The City of Marion is located in Center Township, Grant County, Indiana. The project is located in Section 08 of Township 24N Range 8E. The approximate latitude and longitude of the center of the project is:
40°32'33" N and 85°38'56" W

A6 11 x 17-INCH PLAT SHOWING BUILDING LOT NUMBERS / BOUNDARIES AND ROAD LAYOUTS / NAMES:

Refer to the plan sheets for the proposed project.

A7 BOUNDARIES OF THE 100-YEAR FLOODPLAINS, FLOODWAY FRINGES, AND FLOODWAYS:

The floodplains, floodway fringes, and floodways located within the project area are shown in Exhibit #1.

A8 LAND USE OF ALL ADJACENT PROPERTIES:

Land use at the project site and the surrounding areas is shown in Exhibit #2. Land use in the project areas and the adjacent properties is entirely low, medium, and high intensity developed land and developed open space.

A9 IDENTIFICATION OF A U.S. EPA APPROVED ESTABLISHED TMDL:

The project area is located within one (1) drainage basin: (051201030511) Boots Creek-Mississinewa River.

A10 NAME OF THE RECEIVING WATER:

The receiving water body in the project area is the Mississinewa River.

A11 IDENTIFICATION OF DISCHARGES TO A BODY OF WATER ON THE CURRENT 303(D) LIST OF IMPAIRED WATER AND THE POLLUTANT FOR WHICH IT IS IMPAIRED.

No portions of the streams within the project areas are on the 303(D) list of impaired waters.

A12 SOILS MAP OF THE PREDOMINATE SOIL TYPES:

The soils map for this project is shown in Exhibit #3.

A13 IDENTIFICATION OF ALL KNOWN WETLANDS, LAKES, AND WATER COURSES ON OR ADJACENT TO THE PROJECT SITE:

See Exhibit #4.

A14 IDENTIFICATION OF ANY OTHER STATE OR FEDERAL WATER QUALITY PERMITS OR AUTHORIZATIONS THAT ARE REQUIRED FOR CONSTRUCTION ACTIVITIES:

No water quality permits are required for this project.

A15 INDENTIFICATION AND DELINATION OF EXISTING VEGETATIVE COVER, INCLUDING NATURAL BUFFERS:

A land use map at the project site and the surrounding areas is shown in Exhibit #2.

A16 EXISTING TOPOGRAPHY SITE TOPOGRAPHY AT AN INTERVAL APPROPRIATE TO SHOW DETAILED DRAINAGE PATTERNS:

Detailed contour lines are shown on the plan sheets to indicate drainage patterns within the construction limits.

A17 LOCATION(S) WHERE RUN-OFF ENTERS THE PROJECT SITE:

Detailed contour lines are shown on the plan sheets to indicate drainage patterns within the construction limits.

A18 LOCATION(S) WHERE RUN-OFF DISCHARGES FROM THE PROJECT SITE PRIOR TO LAND DISTURBANCE:

Detailed contour lines are shown on the plan sheets to indicate drainage patterns within the construction limits.

A19 LOCATIONS OF ALL EXISTING STRUCTURES ON THE PROJECT SITE:

The location of all existing structures within the project site is shown on the plans.

A20 EXISTING PERMANENT RETENTION OR DETENTION FACILITIES, INCLUDING MANMADE WETLANDS, DESIGNED FOR THE PURPOSE OF STORMWATER MANAGEMENT:

There are no manmade retention or detention facilities in the project area.

A21 LOCATION WHERE STORMWATER MAY BE DIRECTLY DISCHARGED INTO GROUND WATER, SUCH AS ABANDONED WELLS, SINKHOLES OR KARST FEATURES:

There are no abandoned wells, sinkholes, or karst features located within the project area.

A22 SIZE OF THE PROJECT AREA EXPRESSED IN ACRES:

The total project area is approximately 3 acres.

A23 TOTAL EXPECTED LAND DISTURBANC EXPRESSED IN ACRES:

The total expected land disturbance for the project is approximately 3 acres.

A24 PROPOSED FINAL TOPOGRAPHY:

The plan sheets show proposed site topography and drainage patterns.

A25 LOCATIONS AND APPROXIMATE BOUNDARIES OF ALL DISTURBED AREAS:

The plans show the locations and boundaries of all disturbed areas / construction limits. See sheets EC1 through EC7 for approximate construction limits.

A26 LOCATIONS, SIZE, AND DIMENSIONS OF ALL STORMWATER DRAINAGE SYSTEMS SUCH AS CULVERTS, STORMWATER SEWER AND CONVEYANCE CHANNEL:

The existing stormwater drainage systems are shown on the plans. All existing stormwater systems will be protected and maintained during construction. If during construction any damage is done to an existing stormwater system, damaged structures will be either repaired or placed to equal or better condition than existing.

A27 LOCATIONS OF SPECIFIC POINTS WHERE STORMWATER AND NON-STORMWATER DISCHARGES WILL LEAVE THE PROJECT SITE:

Locations where stormwater and non-stormwater discharges will leave the project site can be seen on the plans.

A28 LOCATION OF ALL PROPOSED SITE IMPROVEMENTS, INCLUDING ROADS, UTILITIES, LOT DELINEATION AND IDENTIFICATION, PROPOSED STRUCTURES, AND COMMON AREAS:

Location of all proposed site improvements, including proposed utilities, structures, and lot boundaries, are shown on the plans. No off-site construction is anticipated for this project.

A29 LOCATIONS OF ALL ON-SITE AND OFF-SITE SOIL STOCKPILES AND BORROW AREAS:

Stockpiles left inactive for seven (7) days or more shall be stabilized with temporary seed and surrounded by silt fence or other perimeter controls. All stockpiles and borrow areas, if required for the project will be located on-site and the contractor will be required to obtain a permit or release for proper disposal of excavated materials.

A30 CONSTRUCTION SUPPORT ACTIVITIES THAT ARE EXPECTED TO BE PART OF THE PROJECT:

Staging areas, material storage, and concrete washout areas are shown on the plans.

A31 LOCATION OF ANY IN-STREAM ACTIVITIES THAT ARE PLANNED FOR THE PROJECT INCLUDING, BUT NOT LIMITED TO, STREAM CROSSINGS AND PUMP AROUNDS:

No stream crossings are included within the project.

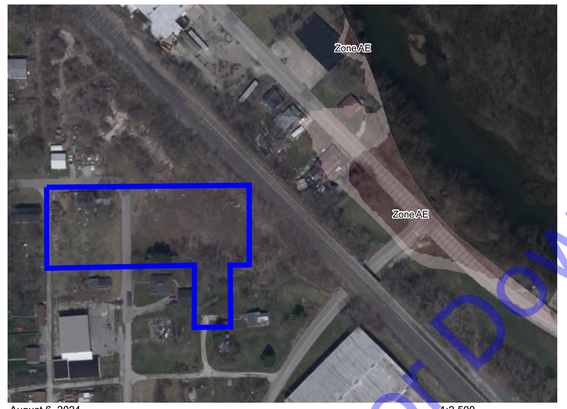


EXHIBIT #1 FLOODPLAINS MAP

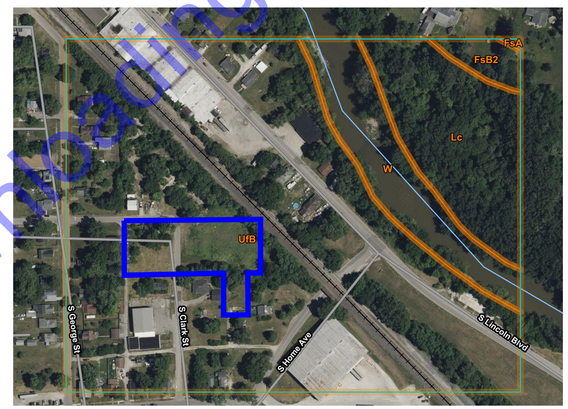


EXHIBIT #3 SOILS MAP

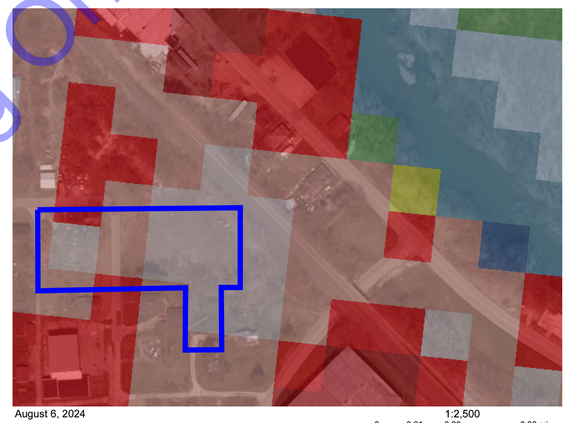


EXHIBIT #2 LAND USE MAP

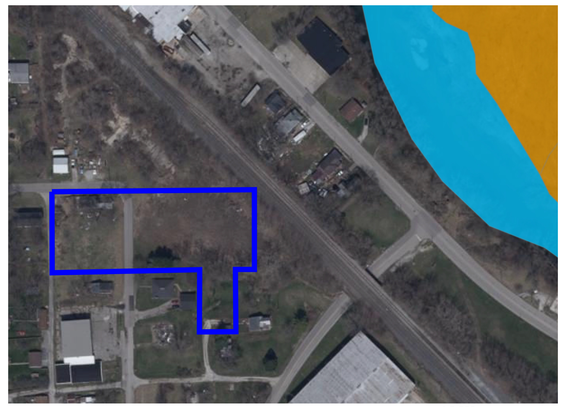


EXHIBIT #4 WETLANDS MAP

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https://commonwealthengineers.com/
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REGISTERED
No. PE11900866
STATE OF INDIANA
PROFESSIONAL ENGINEER
Brian Wilson
Signature
7/31/2025
Date

MARION UTILITIES SERVICE BOARD
GRANT COUNTY, INDIANA

CSO 009 LTCP IMPROVEMENTS

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No.	Submittal / Revision	By	Date

Designed By:	Drawn By:	Checked By:
BKW	BW	DW
Issue Date: 7/2025	Project No: S24146	Scale: AS SHOWN

SWPPP

Drawing No:
EC1
Sheet: 36 OF 59

File: Z:\SHARED\IN CLIENTS M-Z\MARION\S24146 - CSO 009 LTCP IMPROVEMENTS\06 CAD\A CURRENT FILES\1 DRAWINGS\07 - S24146 - SWPPP.DWG
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SECTION B: STORMWATER POLLUTION PREVENTION PLAN – CONSTRUCTION COMPONENTS

Stormwater Pollution Prevention Measures shall be in accordance with the local regulatory authority and the applicable MS4 Stormwater Quality Standards.

B1 DESCRIPTION OF THE POTENTIAL POLLUTANT GENERATING SOURCES AND POLLUTANTS, INCLUDING ALL POTENTIAL NON-STORMWATER DISCHARGES:

Description of Potential Pollutant Sources
POTENTIAL POLLUTANT LIST: sediment from exposed soil, paints and coatings, fuel, diesel fuel, equipment lubricating oil, grease, and concrete.

1. The excavation and clearing activities may allow sediment to enter the storm water runoff. The construction activities include site grading, general excavation, trench excavation, aggregate backfilling, pipe installation, and concrete placement. Runoff from these activities is generally controlled by perimeter storm water quality controls and stabilization techniques.

2. Large machinery used for construction is a potential source of pollutants due to the possibility of leaking fuels, miscellaneous lubricating oils, grease, and antifreeze. The equipment is usually parked in a central location and serviced at that location by a service truck each morning prior to start up. The machinery is greased and checked daily prior to use. Activities to minimize the likelihood of pollutant discharge include locating the central parking area away from storm water conveyances and inspecting equipment daily for leaks. Service trucks shall be equipped with spill containment kits in the event of an oil spill. Any spillage of fuel or maintenance oils shall be promptly cleaned up. If a fuel tank is located on site, appropriate secondary containment will be provided.

3. Other ancillary practices have the potential to impact storm water quality. The following measures shall be followed to minimize their impact:

   a. **Temporary Restroom Facilities**
   Temporary restroom facilities shall be provided as required and shall be located to minimize the likelihood of a spill from exiting the site. These facilities shall not be located within 100 feet or directly up gradient from a storm sewer conveyance or additional controls may be necessary. Any spillage shall be promptly contained, cleaned-up, and disposed of properly.

   b. **Unused Construction Materials**
   Unused construction materials that may contribute pollutants to stormwater shall be promptly disposed of or removed from the site.

   c. **Garbage, Debris, and General Solid Waste Maintenance**
   The Contractor shall maintain good housekeeping practices. All trash and debris shall be placed in appropriate leak-proof trash containers to prevent contamination of stormwater. No debris shall be disposed of in the construction trench. Trash containers shall not be located on steep slopes or adjacent to any storm sewer conveyance.

   d. **Sediment Clearing and Disposal**
   Sediment clearing involves the removal of sediment contained by a stormwater quality measure, or sediment that has been discharged into roads or other areas. Bulk clearing of sediment shall NOT include flushing the area with water. Large amounts shall be shoveled or scraped, followed by sweeping and brushing. Any roads or other structures damaged by the clearing shall be repaired immediately. Cleared sediment shall be redistributed or disposed properly.

B2 STABLE CONSTRUCTION ENTRANCE LOCATIONS AND SPECIFICATIONS:

The most logical location for the construction entrances are existing Town streets located along and adjacent to the job site. Site access and construction entrance locations will be determined by the Contractor.

B3 SPECIFICATIONS FOR TEMPORARY AND PERMANENT STABILIZATION:

Temporary seeding shall be used for temporary surface stabilization in accordance with the Indiana Storm Water Quality Manual.

Temporary Seeding Recommendations

Seed Species *	Rate/Acre	Planting Depth	Optimum Dates **
Wheat or Rye	150 lbs.	1 to 1-1/2 in.	9/15 to 10/30
Spring Oats	100 lbs.	1 in.	3/1 to 4/15
Annual Ryegrass	40 lbs.	1/4 in.	3/1 to 5/1 8/1 to 9/1
German Millet	40 lbs.	1 to 2 in.	5/1 to 6/1
Sudangrass	35 lbs.	1 to 2 in.	5/1 to 7/30

* Perennial species may be used as a temporary cover, especially if the area to be seeded will remain idle for more than a year.
** Seeding done outside the optimum dates increases the changes of seeding failure.

Permanent seeding shall be used for permanent surface stabilization. See Detailed Specifications – Section 13.

B4 SEDIMENT CONTROL MEASURES FOR CONCENTRATED FLOW AREAS:

Rock check dams will be used where necessary. Details are included in the plans.

B5 SEDIMENT CONTROL MEASURES FOR SHEET FLOW AREAS:

Silt fences, straw bales, and sandbags will be used where necessary to control sediment runoff from the construction limits. Details are included in the plans.

B6 RUNOFF CONTROL MEASURES:

In accordance with the Detailed Specification the Contractor shall be required to provide bypass pumping or fluming in order to maintain maximum conveyance during construction.

B7 STORMWATER OUTLET PROTECTION LOCATION AND SPECIFICATIONS:

No stormwater outlets are anticipated to be affected by this project.

B8 GRADE STABILIZATION STRUCTURE LOCATIONS AND SPECIFICATIONS:

N/A - Outlet for existing storm sewers are already established.

B9 DEWATERING APPLICATIONS AND MANAGEMENT METHODS:

If dewatering becomes necessary on site, the following methods will be used:

Equipment operators are prohibited from discharging groundwater or accumulated stormwater that is removed from excavations, trenches, vaults, or other similar points of accumulation, unless such waters are first effectively managed by appropriate control measures.

Examples of appropriate control measures include temporary sediment basis or sediment traps, sediment socks, dewatering tanks and bags, or filtration systems (e.g. bag or sand filters) that are designed to remove sediment. Uncontaminated, not-turbid dewatering can be discharged without being routed to a control.

At a minimum, the following discharge requirements must be met for dewatering activities:

1. Allow no discharge of visible sediment or solids.
2. At all points where dewatering is discharged, utilize velocity dissipation devices.
3. Dewatering practices must involve the implementation of appropriate control measures as applicable (i.e. containment areas for weathering earth materials, portable sediment tanks and bags, pumping settling basins, and pump intake protection.

Additional dewatering requirements are defined in the detailed specifications.

B10 MEASURES UTILIZED FOR WORK WITHIN WATERBODIES:

N/A – No work will be performed within any body of water.

B11 MAINTENANCE GUIDELINES FOR EACH PROPOSED STORMWATER QUALITY MEASURE:

Throughout the duration of construction, the Contractor shall monitor and manage project construction and stormwater activities through the administration of a self-monitoring program (SMP). A trained individual shall submit weekly SMP report and event inspection reports as required within 24 hours of every ½" rain event. Inspection will be provided for all erosion and sediment control structures to ensure integrity and effectiveness. Inspections will also be provided for all disturbed areas that have not achieved final stabilization, and at all points of discharge form the construction site. Refer to DS-04 "Temporary Erosion and Sediment Control" for requirements regarding the SMP reports and project management log.

B12 PLANNED CONSTRUCTION SEQUENCE THAT DESCRIBES THE IMPLEMENTATION OF STORMWATER QUALITY MEASURES IN RELATION TO LAND DISTURBANCE:

1. Mark any tree protection zones determined by the Contractor.
2. Install inlet protection on all storm water inlets within the area to be disturbed.
3. Install concrete washout areas.
4. Continuously clean streets as specified.
5. Stabilize any disturbed surface with seeding as specified.
6. Complete final cleaning of streets.
7. Remove temporary inlet protection measures and concrete washout areas.

B13 PROVISIONS FOR EROSION AND SEDIMENT CONTROL ON INDIVIDUAL RESIDENTIAL BUILDING LOTS REGULATED UNDER THE PROPOSED PROJECT:

All proposed improvements are taking place within right of ways, utility easements, or land owned by the City. The project area and erosion control are depicted in the plans.

B14 MATERIAL HANDLING AND SPILL PREVENTION PLAN:

1. **List of Expected Materials**
   - Pipe
   - Pipe Fittings and Appurtenances
   - Aggregate backfill
   - Sand bedding
   - Diesel fuel
   - Lubricating Oils
   - Grease
   - Steel
   - Concrete (Cast-In-Place, Pre-Cast)
   - Paint, Coatings

2. **Pipe, Pipe Fittings, and Appurtenances**
   Materials such as pipe, pipe fittings, and pre-cast concrete structures are not foreseen to contribute pollutants to storm water runoff.

3. **Stockpiles (aggregate backfill, sand bedding)**
   Sediment could be released from stockpiles of stone, granular backfill, and sand. To minimize the potential for these materials to enter the storm water runoff, the following measures shall be taken:
   a. Stockpile volumes shall be limited to the amount expected to be used in three (3) days. Maintaining larger stockpiles is discouraged and may require additional erosion controls for adequate protection.
   b. Stockpiles shall not be located on a slope steeper than 2:1 and shall be positioned a minimum of fifty (50) feet away from stormwater conveyances.
   c. Silt Fencing shall be placed down gradient of stockpiles as necessary to prevent sediment transport.

4. **Fuel, Lubricating Oils, Grease**
   There is a potential for a release of fuel, lubricating oils, and grease from on-site machinery due to leaks and during routine maintenance activities. To minimize the potential for these materials to enter the storm water runoff, the following measures shall be taken:
   a. Routine equipment maintenance and fueling activities shall be conducted at locations that minimize the impact of potential spill.
   b. Equipment shall be positioned within the serviceable area of nearby storm water quality controls and away from storm water conveyances during routine maintenance.
   c. Equipment shall be checked daily for leaks and repaired immediately.
   d. Spill control kits consisting of the appropriate oil sorbent socks, boom, and mats shall be provided at all fueling and maintenance areas.
   e. Any leakage or spilled oil shall be cleaned up immediately and properly disposed of in accordance with applicable laws.
   f. If a temporary oil or fuel storage tank is located on site, appropriate secondary containment shall be provided to prevent the off-site release of a spill.

5. **Steel**
   Structural steel to be used on this project is not anticipated to contribute pollutants to stormwater runoff.

6. **Cast-in-Place Concrete**
   If there is excess concrete during placement, it can be discarded on site, away from stormwater conveyances and allowed to set-up. It shall be then disposed of or utilized elsewhere.

7. **Paint Coatings**
   There is a potential for a release of paint or other coatings due to leaks, or spills and during transfer. To minimize the potential for these materials to enter the storm water runoff, the following measures shall be taken:
   a. Containers and application equipment shall be positioned within the serviceable area of nearby storm water quality controls and away from stormwater conveyances.
   b. Containers shall be checked daily for leaks and repaired immediately.
   c. Any leakage or spilled materials shall be cleaned up immediately and properly disposed of in accordance with applicable laws.

8. **327 IAC 2-6.1-7 reportable spills; responsibility**
   Sec. 7. Any person who operates, controls, or maintains any mode of transportation or facility from which a spill occurs shall, upon discover of a reportable spill to the soil or surface waters of the state, do the following:
   (1) Contain the spill, if possible, to prevent additional spilled material from entering the waters of the state.
   (2) Undertake or cause others to undertake activities needed to accomplish a spill response.
   (3) As soon as possible, but within two (2) hours of discovery, communicate a spill report to the Department of Environmental Management, Office of Land Quality, Emergency response Section: Area Code 1-888-233-7745 for in state calls (toll free), (317) 233-7745 for out-of-state calls. If new or updated spill report information becomes known that indicates a significant increase in the likelihood of damage to the waters of the state, the responsible party shall notify the department as soon as possible but within two (2) hours of the time the new or updated information becomes known.
   (4) Submit to the Indiana Department of Environmental Management, Office of Land Quality, Emergency Response Section (MC 66-30), 2525 N. Shadeland Ave., Suite 100, Indianapolis, IN 46219-1787, a written copy of the spill report if requested in writing by the department.
   (5) Except from modes of transportation other than pipelines, exercise due diligence and document attempts to notify the following:
      a. For spills to surface water that cause damage the nearest affected downstream water user located within ten (10) miles of the spill and in the state of Indiana; and
      b. For spills to solid ground outside the facility boundary, the affected property owner or owners, operator or operators, or occupant or occupants.

9. **Supplemental Spill Prevention Plan Contact Information**
   Location: Marion Utilities Service Board
   Owner (Individual): Robin Shrader
   Owner (Company): Marion Utilities Service Board
   Address: 1540 N. Washington St., Marion, IN 46952
   Phone: 765.664.2391

   EMERGENCY CONTACTS
   IDEM Spill Line (call within 2 hours of spill): (888) 233 -7745

B15 MATERIAL HANDLING AND STORAGE PROCEDURES ASSOCIATED WITH CONSTRUCTION ACTIVITY:

Fuels, oils, grease, or other petroleum products must be stored in appropriate and approved areas. Preventative maintenance will be required for on-site equipment. Hazardous materials will be required to be stored in a field trailer to avoid any outside storage.

All fuel is to be contained in a mobile service truck or in the construction equipment operating on site. Small containers of oils, grease, and related products may be stored in the Contractor's construction trailer. These items will be required to be inspected regularly to ensure proper storage and handling and to guard against leakage. Defective containers will be removed from the project site immediately.

SECTION C: STORMWATER POLLUTION PREVENTION – POST CONSTRUCTION COMPONENTS

C1 DESCRIPTION OF POLLUTANTS AND THEIR SOURCES ASSOCIATED WITH THE PROPOSED LAND USE:

Potential post construction pollutants will remain the same as potential pre-developed pollutants since the land use is not changing. These potential pollutants include sediment, fluid leaks from automobiles, trash, and debris from surrounding residents.

C2 DESCRIPTION OF PROPOSED POST-CONSTRUCTION STORMWATER MEASURES:

Other than permanent seeding, no permanent stormwater quality measures will be constructed as a part of this project. Permanent seeding is detailed in Part 8 - Detailed Specification 13 of the Contract Book.

C3 PLAN DETAILS FOR EACH STORMWATER QUALITY MEASURE:

Temporary storm water quality measures will be installed prior to any construction activities. Permanent seeding will be used to stabilize disturbed areas following completion of construction activities in the immediately surrounding area. Permanent seeding is detailed in Part 8 - Detailed Specification 13 of the Contract Book.

C4 SEQUENCE DESCRIBING STORMWATER MEASURE IMPLEMENTATION:

Post-construction sequencing measures for this project shall be as follows:

1. Temporary planting will be provided in critical areas devoid of vegetation and subject to erosion. Such temporary plantings may be necessary to protect an area when preparing for winter shut down or to provide cover when permanent seedlings are likely to fail due to an extended period of heat or drought. The intent of these plantings is to provide protective cover while waiting for optimal planting conditions.
2. Removal and cleanup of all temporary erosion control measures including silt fences, inlet and culvert protection areas.
3. The entire construction area is to be inspected and cleaned, including the collection and disposal of construction trash and debris.
4. Permanent seeding and mulching will be installed immediately after achieving final grade or within seven (7) days of inactivity. If necessary, a temporary stabilization practice will be employed until the next prime seeding period.
5. A final site inspection will take place to assure that all requirements of the SWPP, construction drawings, and supporting documentation have been fulfilled.

C5 MAINTENANCE GUIDELINES FOR PROPOSED POST-CONSTRUCTION STORMWATER MEASURES:

All areas receiving permanent seeding will be fertilized and maintained in accordance with the specifications.

C6 ENTITY RESPONSIBLE FOR OPERATION AND MAINTENANCE OF THE POST-CONSTRUCTION STORMWATER MEASURES:

The City of Marion will be responsible for the operation and maintenance of post-construction stormwater measures.

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https://commonwealthengineers.com/

BRIAN KREED WILSON
REGISTERED
No. PE11900866
STATE OF
INDIANA
PROFESSIONAL ENGINEER
Brian Wilson 7/31/2025
Signature Date

MARION UTILITIES SERVICE BOARD
GRANT COUNTY, INDIANA

CSO 009 LTCP IMPROVEMENTS

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No.	Submittal / Revision	By	Date

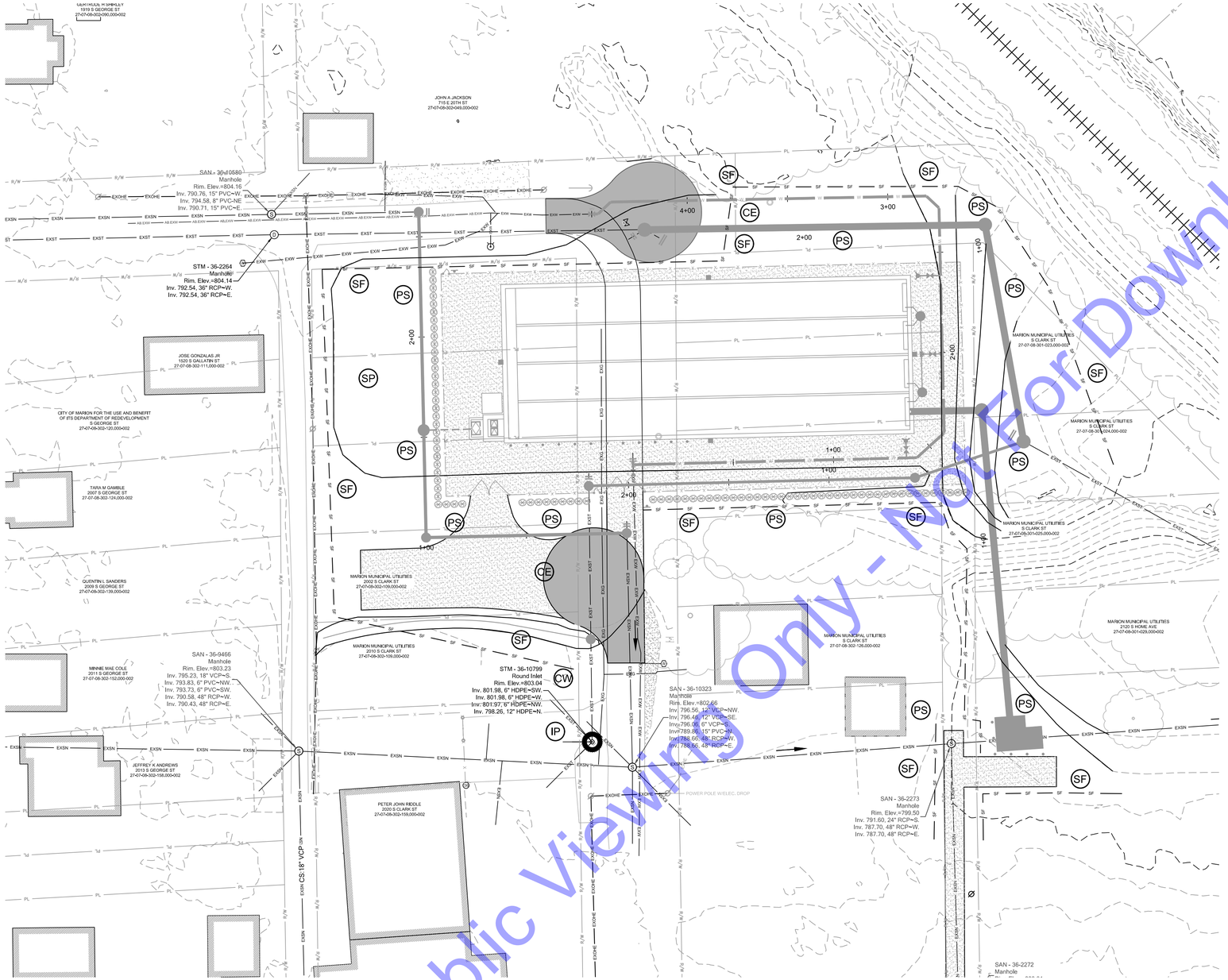
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Issue Date: 7/2025	Project No: S24146	Scale: AS SHOWN

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Drawing No: EC2

Sheet: 37 OF 59

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EROSION CONTROL PLAN
SCALE: 1"=30'-0"

GENERAL EROSION AND SEDIMENT CONTROL NOTES

1. ALL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE IN ACCORDANCE WITH THE INDIANA STORM WATER QUALITY MANUAL FROM THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT.
2. THE NOTICE OF INTENT (NOI) AND PUBLIC NOTICE FOR THE PROJECT SHALL BE POSTED ON A SIGN INSTALLED AT OR NEAR THE SITE CONSTRUCTION TRAILER. THE NOI SHALL LIST THE CONTACT INFORMATION FOR THE SITE CONTACT PERSON. THE SIGN AND INFORMATION SHALL BE MAINTAINED AND REMAIN LEGIBLE THROUGHOUT CONSTRUCTION.
3. A COPY OF THIS EROSION AND SEDIMENT CONTROL PLAN AND THE EROSION AND SEDIMENT CONTROL REPORT SHALL BE AVAILABLE AT THE PROJECT SITE THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD.
4. THE CONTRACTOR SHALL CONTROL WASTE, GARBAGE, DEBRIS, WASTEWATER, AND OTHER SUBSTANCES ON THE SITE SO THEY WILL NOT BE TRANSPORTED FROM THE SITE BY THE ACTION OF WIND, STORM WATER RUNOFF, OR OTHER FORCES. PROPER DISPOSAL OR MANAGEMENT OF ALL WASTES AND UNUSED BUILDING MATERIAL APPROPRIATE TO THE NATURE OF THE WASTE OR MATERIAL IS REQUIRED.
5. PUBLIC OR PRIVATE ROADWAYS SHALL BE KEPT CLEAR OF ACCUMULATED SEDIMENT. ALL SEDIMENT THAT IS CLEARED MUST BE RETURNED TO THE LIKELY POINT OF ORIGIN OR OTHER SUITABLE LOCATION. CLEARING OF LARGE AMOUNTS OF SEDIMENT SHALL NOT INCLUDE FLUSHING THE AREA WITH WATER.
6. MINIMIZE THE EXPOSURE OF BARE EARTH BY LIMITING THE WORK AREA TO THAT NECESSARY TO PERFORM THE WORK, AND BY PROPER SCHEDULING OF MANPOWER AND EQUIPMENT.
7. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED, CLEANED, AND MAINTAINED FOLLOWING EACH STORM EVENT.
8. WHEREVER POSSIBLE, MAINTAIN EXISTING VEGETATIVE COVER, USE NON-VEGETATIVE MATERIAL INCLUDING MULCH, EROSION BLANKETS, OR STONE TO CONTROL EROSION FROM DISTURBED AREAS.
9. A LOG SHALL BE MAINTAINED OF ALL INSPECTIONS (WEEKLY, AND FOLLOWING STORM EVENTS), MAINTENANCE AND REPAIR OF EROSION AND SEDIMENT CONTROL MEASURES. THE LOG SHALL BE MAINTAINED ON SITE AND BE AVAILABLE UPON REQUEST TO THE OWNERS REPRESENTATIVES AND THE OPERATING AUTHORITIES HAVING JURISDICTION OVER THE SITE.

EROSION CONTROL LEGEND

- SF — SILT FENCE
- IP — INLET PROTECTION
- PS — PERMANENT SEEDING/MULCHING
- CW — CONCRETE WASH OUT
- SP — TEMPORARY SOIL STOCKPILE
- CE — TEMPORARY CONSTRUCTION ENTRANCE

SCALE: 1"=30'

30' 0 30'

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BRIAN KREED WILSON
REGISTERED
No. PE11900866
STATE OF INDIANA
PROFESSIONAL ENGINEER

Brian Wilson 7/31/2025
Signature Date

MARION UTILITIES SERVICE BOARD
GRANT COUNTY, INDIANA

CSO 009 LTCP IMPROVEMENTS

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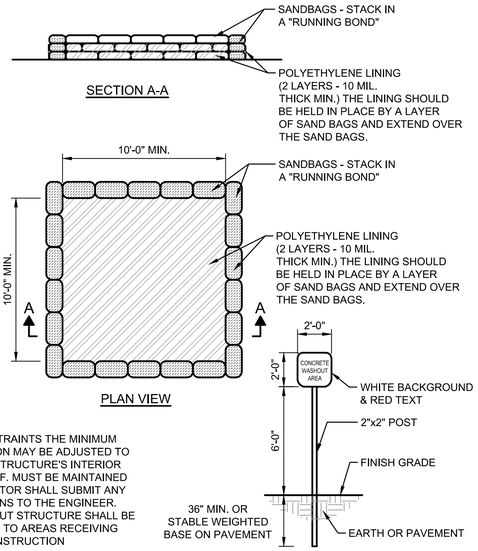
No.	Submittal / Revision	By	Date

Designed By:	Drawn By:	Checked By:
BKW	BW	DW
Issue Date: 7/2025	Project No: S24146	Scale: AS SHOWN

EROSION CONTROL PLAN

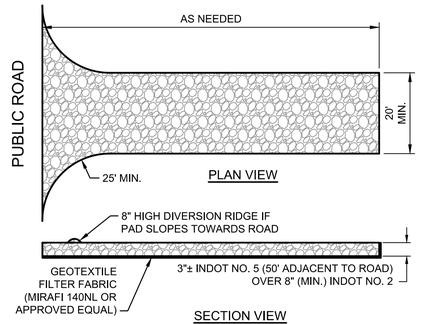
Drawing No:
EC3
Sheet: 38 OF 59

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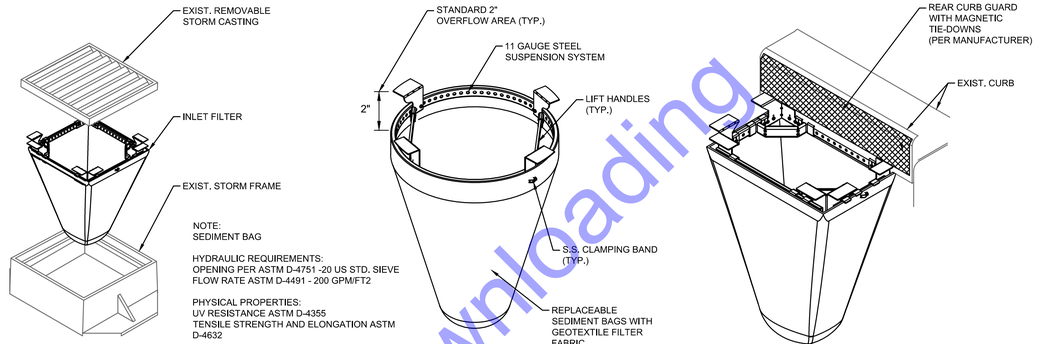
NOTE:
DUE TO SITE CONSTRAINTS THE MINIMUM INTERIOR DIMENSION MAY BE ADJUSTED TO FIT THE SITE. THE STRUCTURE'S INTERIOR FOOTAGE OF 100 S.F. MUST BE MAINTAINED AND THE CONTRACTOR SHALL SUBMIT ANY DESIGN ALTERATIONS TO THE ENGINEER. CONCRETE WASHOUT STRUCTURE SHALL BE RELOCATED CLOSE TO AREAS RECEIVING CONCRETE, AS CONSTRUCTION PROGRESSES.

CONCRETE WASHOUT PIT DETAIL
NO SCALE



MAINTENANCE:
1. INSPECT DAILY AND AFTER EACH STORM EVENT OR HEAVY USE.
2. RESHAPE AS NEEDED FOR DRAINAGE AND RUNOFF CONTROL.
3. TOPDRESS WITH CLEAN STONE AS REQUIRED. MAINTAIN MINIMUM DEPTH THROUGHOUT CONSTRUCTION.
4. IMMEDIATELY REMOVE MUD AND SEDIMENT TRACKED OR WASHED ONTO PUBLIC ROADS BY SWEEPING OR BRUSHING. (DO NOT FLUSH AREA WITH WATER UNLESS WATER IS CONVEYED TO SEDIMENT TRAP.)
5. REPAIR ANY BROKEN PAVEMENT IMMEDIATELY.

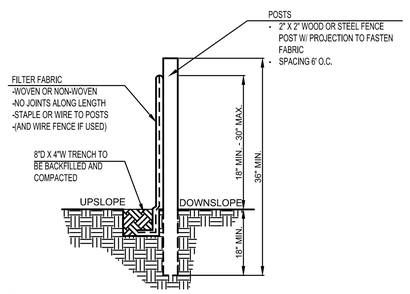
STABILIZED CONSTRUCTION ENTRANCE DETAIL
NO SCALE



GENERAL NOTES:

1. TO BE INSTALLED AT EXISTING STANDARD INLET GRATES IN PAVED AREAS DOWNSTREAM OF EXCAVATION.
2. INSTALL INLET FILTER ONTO LOAD BEARING LIP OF CASTING OR CONCRETE STRUCTURE AND PER MANUFACTURER'S RECOMMENDATIONS.
3. FOR CURB BOX INLETS, CURB BACK MUST HAVE FILTER ATTACHED PER MANUFACTURER'S RECOMMENDATION OR CONTRACTOR MUST CREATE A DAM TO DIRECT RUNOFF INTO THE SEDIMENT BAG.

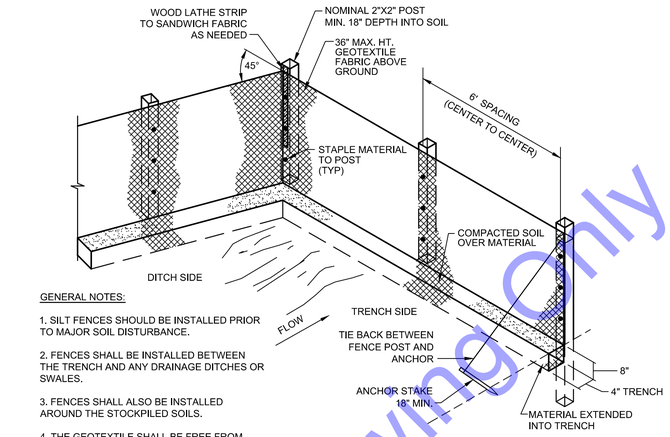
INLET FILTER EROSION CONTROL DETAIL FOR STANDARD SIZED STORM STRUCTURES
NOT TO SCALE



INSTALLATION:
1. THE BOTTOM 1' OF THE FENCE SHALL BE BURIED IN THE TRENCH ON THE UPSLOPE SIDE.
2. FENCE SHALL BE INSTALLED ALONG LEVEL GRADES, NOT ACROSS FLOW CHANNELS.
3. IF OPTIONAL SUPPORT WIRE FENCE IS USED, POST SPACING MAY BE EXTENDED TO 8' O.C.

MAINTENANCE:
1. INSPECT SILT FENCE PERIODICALLY (WEEKLY) AND AFTER EACH STORM EVENT.
2. IF FABRIC IS TORN OR DAMAGED OR IN ANY WAY BECOMES INEFFECTIVE, REPLACE THE AFFECTED PORTION IMMEDIATELY.
3. REMOVE DEPOSITED SEDIMENT WHEN IT REACHES HALF THE HEIGHT OF THE FENCE, OR IT IS CAUSING THE FABRIC TO BULGE.
4. TAKE CARE NOT TO UNDERMINE THE FENCE DURING SEDIMENT REMOVAL.
5. AFTER THE CONTRIBUTING AREA HAS BEEN STABILIZED, REMOVE THE FENCE AND REMAINING SEDIMENT, BRING THE DISTURBED AREA TO GRADE, AND STABILIZE.

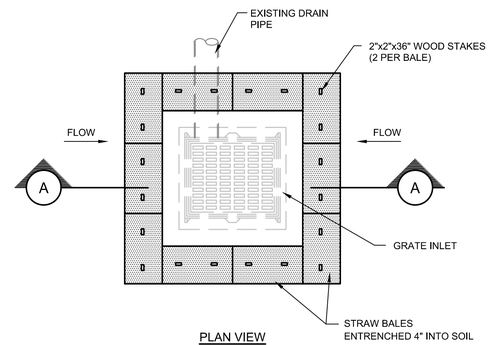
SILT FENCE SECTION
NO SCALE

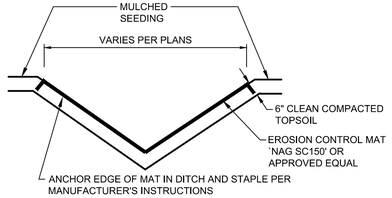


GENERAL NOTES:

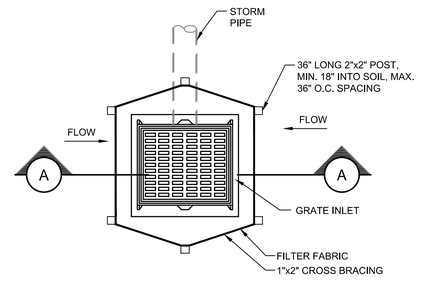
1. SILT FENCES SHOULD BE INSTALLED PRIOR TO MAJOR SOIL DISTURBANCE.
2. FENCES SHALL BE INSTALLED BETWEEN THE TRENCH AND ANY DRAINAGE DITCHES OR SWALES.
3. FENCES SHALL ALSO BE INSTALLED AROUND THE STOCKPILED SOILS.
4. THE GEOTEXTILE SHALL BE FREE FROM DEFECTS, TEARS, PUNCTURES, FLAWS, DETERIORATION OR DAMAGE INCURRED DURING MANUFACTURE, TRANSPORTATION, STORAGE, OR INSTALLATION.
5. TIE BACKS SHALL BE PLACED AS REQUIRED.

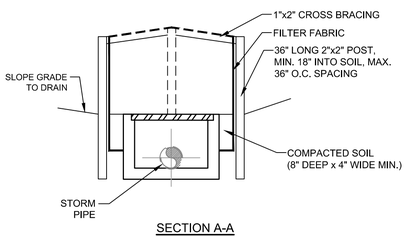
SILT FENCE
NO SCALE



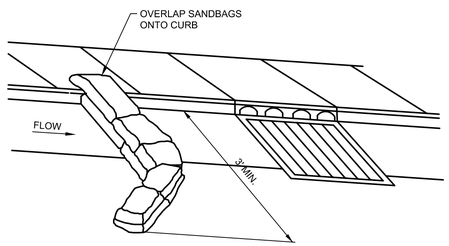


DITCH/SWALE RESTORATION DETAIL
N.T.S.

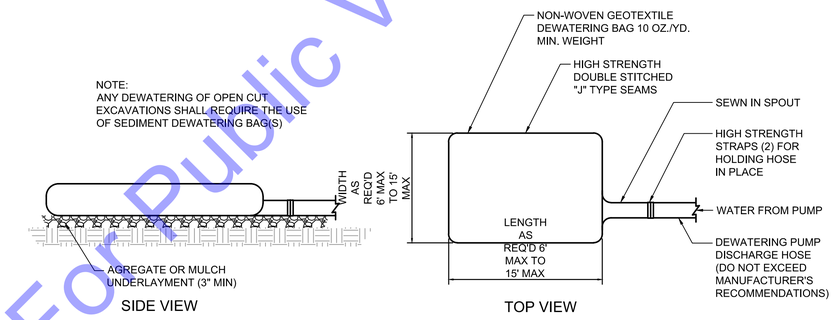




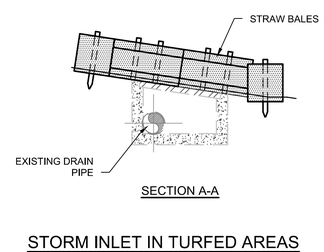
STORM INLET WITH SILT FENCE EROSION DETAIL



SANDBAG DIVERSION AT CURB INLET
NO SCALE



SEDIMENT DEWATERING BAG DETAIL
NO SCALE



STORM INLET IN TURFED AREAS PROTECTION DETAILS
NO SCALE

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BRIAN KREED WILSON
REGISTERED
No. PE11900866
STATE OF INDIANA
PROFESSIONAL ENGINEER
Brian Wilson
Signature
7/31/2025
Date

MARION UTILITIES SERVICE BOARD
GRANT COUNTY, INDIANA

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No.	Submittal / Revision	By	Date

Designed By:	Drawn By:	Checked By:
BKW	BW	DW
Issue Date:	Project No:	Scale:
7/2025	S24146	AS SHOWN

EROSION CONTROL DETAILS

Drawing No:
EC4
Sheet: 39 OF 59

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GENERAL

1. The structure has been designed for the in-service loads only. The methods, procedures, and sequences of construction are the responsibility of the Contractor. Supporting formwork for the concrete construction shall not be removed before the concrete has gained sufficient strength to safely support the dead and superimposed loads which will be subsequently applied. The Contractor shall take all necessary precautions to maintain and ensure the integrity of the structure at all stages of construction.
2. All work shall be performed in accordance with the Indiana Building Code, 2014 Edition (2012 International Building Code, first printing, with Indiana Amendments).
3. Where new work is to be fitted to old work, the Contractor shall check all dimensions and conditions in the field, and report any errors or discrepancies to the Structural Engineer prior to the fabrication and erection of any new members.
4. Do not determine dimensions by "scaling" off the plans. The Contractor shall accept all risk associated with "scaling" and shall be responsible for all inadequate work resulting therefrom. Questions regarding missing or conflicting dimensions shall be directed, in writing, to the Structural Engineer.
5. Existing materials to be removed and reinstalled as part of this contract, but become damaged, shall be replaced with approved new material of equivalent quality and appearance at the Contractor's expense.
6. All work shall be performed without damage to adjacent retained work. Adequate protection of areas nearby work against dust, dirt and debris accumulation shall be maintained at all times.
7. Principal openings in the structure are indicated on the structural drawings. Refer to the architectural, mechanical, electrical, and plumbing drawings for sleeves, curbs, inserts, etc. not herein indicated. Openings in slabs with a maximum side dimension or diameter of 10 inches or less shall not require additional framing or reinforcement, unless noted otherwise. The location of sleeves or openings not shown in structural members shall be approved by the Structural Engineer.
8. The location of sleeves or openings not shown in structural members shall be approved by the Structural Engineer.
9. The Contractor shall relocate all mechanical piping, ducts, equipment, electrical conduits, wiring and plumbing that interfere with the proposed construction. Service shall be maintained to all equipment that is served by mechanical, electrical or plumbing conduit being relocated.
10. The Contractor shall relocate all utilities which interfere with the proposed construction. Service shall be maintained at all times during utility relocation unless otherwise noted.

FOUNDATIONS

1. Exterior footings shall bear 2'-6" minimum below finish grade and shall bear on undisturbed soil.
2. Foundation excavation and all other soils related work shall be performed in accordance with the geotechnical engineering report prepared by SME dated February 20, 2025 and all associated supplements (SME Project Number: 095859.00).
3. Foundation and soils related work shall be performed under the direct supervision of a qualified Geotechnical Engineer.
4. Foundation excavations shall be made to plan elevations. The soil conditions beneath foundations shall then be inspected by a qualified Geotechnical Engineer. If the underlying soils are found to be unacceptable, one of the following procedures shall be followed:
   A. Remove the unacceptable soil and backfill with an engineered structural fill in accordance with the geotechnical engineering report or inspecting Geotechnical Engineer.
   B. Lower the footing to an acceptable soil. Contact the Structural Engineer for potential modifications to the foundation system.
5. Subgrade structural elements subjected to differential lateral soil pressure shall be adequately braced until the structural elements which provide lateral restraint have been placed and allowed to cure for a minimum of 7 days.
6. Excavations for spread footings, combined footings, continuous footings and/or mat foundations shall be cleaned and hand tamped to a uniform surface. Foundation excavations shall be adequately protected against detrimental change in condition from disturbance, rain, freezing, etc. Surface runoff shall not be allowed to enter the excavation.
7. Foundation conditions noted during construction, which differ from those described in the geotechnical report shall be reported to the Structural Engineer and Geotechnical Engineer before further construction is attempted.
8. Center all column and wall footings under the column or wall above unless otherwise indicated.

MICROPILES

1. The micropile system is a self-drilling anchor (SDA). The SDA consists of a fully threaded hollow-core steel bar which can be drilled and grouted into loose or collapsing ground without casing. The SDA acts as a reinforcing element and features a hollow core for transferring the air, water or grout used for drilling. The SDA can be drilled and post-grouted or installed using simultaneous drilling and grouting to create the micropile. The SDA is manufactured with a continuous left-hand thread (Rope or Trapezoidal thread) can be extended by the use of couplings. Standard drilling adapters are used to connect to the rotary percussion drilling equipment. The rotation and impact energy is transferred through the SDA down to the drill bit to advance it through soil or rock.
2. Micropiles shall be spaced no closer than 3'-0" center-to-center. For piles with closer spacing, pile allowable load reductions due to pile group effects must be considered in the pile design. The maximum allowable pile spacing shall be 6'-0" center-to-center. If an obstruction is encountered during pile installation, additional piles shall be installed at offset locations as necessary to maintain proper pile spacing.
3. Centerline of micropiling shall not be more than 2-inches from indicated plan location.
4. Micropiles shall be installed to the inclinations shown on the plans within 2 percent of total-length plan alignment.
5. Top elevation of pile shall be +0.75-inch or -1.75-inch maximum from vertical elevation indicated.
6. Centerline of reinforcing steel shall not be more than 0.75-inch from indicated location.
7. Grout within the micropile verification and proof test piles that shall attain the minimum required 3-day compressive strength of 1500 psi prior to load testing. Previous test results for the proposed grout mix completed within one year of the start of work may be submitted for initial verification of the required compressive strengths for installation. During production, micropile grout shall be tested by the contractor for compressive strength in accordance with ASTM C109 at a frequency of no less than one set of three 2-inch grout cubes from each grout plant each day of operation or per every 10 piles, whichever occurs more frequently. The compressive strength shall be the average of the three cubes tested.
8. The micropiles shall be designed by, and the shop drawings and calculations shall bear the seal and signature of, a registered professional engineer in the State of Indiana.

HELICAL PILES (ALTERNATE)

1. Helical piles shall be spaced no closer than four times the diameter of the largest helical bearing plate center-to-center. For piles with closer spacing, pile allowable load reductions due to pile group effects must be considered in the pile design.
2. Helical piles shall be spaced no closer than 3'-0" center-to-center. For piles with closer spacing, pile allowable load reductions due to pile group effects must be considered in the pile design. The maximum pile spacing shall be 6'-0" feet center-to-center. If an obstruction is encountered during pile installation, additional piles shall be installed at offset locations as necessary to maintain proper pile spacing.
3. Tolerance in position of the helical pile shall be a maximum of 3". Shaft centers shall not be out of plumb by more than 1.5 percent of the helical pile length, nor 2 inches, whichever is less. The Contractor shall consider the effects of positive and negative tolerances to ensure that the piles do not intersect during construction.
4. Centerline of reinforcing steel shall not be more than 0.75-inch from indicated location.
5. The helical piles shall be designed by, and the shop drawings and calculations shall bear the seal and signature of, a registered professional engineer in the State of Indiana.

CONCRETE

1. Reinforced concrete has been designed in accordance with the latest editions of the Building Code Requirements for Reinforced Concrete (ACI 318) and Environmental Engineering Concrete Structures (ACI 350R) by the American Concrete Institute (ACI).
2. Slabs-on-grade shall be constructed in accordance with the latest edition of the Guide for Concrete Floor and Slab Construction (ACI 302.1R).
3. Mixing, transporting, and placing of concrete shall conform to the latest edition of the Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete (ACI 211.1) and the Standard Specifications for Structural Concrete (ACI 301). The special provisions of ACI 211.1 Appendix 5 (Mass Concrete Mix Proportioning) shall be used in proportioning the concrete mixture for the mat foundation to control temperature rise during hydration. In addition, the provisions of ACI 207.1R (Mass Concrete) shall apply. Concrete curing shall conform to the latest editions of the Standard Practice for Concrete Curing (ACI 308) and the Standard Specification for Curing Concrete (ACI 308.1). In case of a discrepancy, the plans and specifications shall govern.
4. Unless noted otherwise, concrete shall have natural sand fine aggregate and normal weight coarse aggregates conforming to ASTM C33, and Type I or III Portland Cement conforming to ASTM C150. Type III Portland Cement shall not be used in mass concrete. The Contractor shall submit a mix design for each proposed class of concrete. Mix designs shall indicate proportions by weight, water-cement ratio, slump, air content, synthetic fiber size and quantity, sieve analyses of fine and coarse aggregates, standard deviation analysis, and required average strength and documentation of average strength verifying compliance with ACI 318. The Contractor shall not vary from the mix design without approval from the Structural Engineer.
5. Unless noted otherwise, fly ash may be used as a pozzolan to replace a portion of the Portland Cement in a concrete mix. Fly ash, when used, shall conform to ASTM C618, Type C (except in mass concrete, ASTM C618, Type F shall be used). Concrete mixes using fly ash shall be proportioned to account for the properties of the specific fly ash used and to account for the specific properties of the fly ash concrete thus resulting. The ratio of the amount of the fly ash to the total amount of fly ash plus cement in the mix shall not exceed 25 percent.
6. For mass concrete, ground granulated blast-furnace slag (GGBFS) may be used to replace a portion of the Type I Portland Cement in a concrete mix. Ground granulated blast-furnace slag, when used, shall conform to ASTM C989, Grade 100. Concrete mixes using GGBFS shall be proportioned to account for the properties of the specific GGBFS used and to account for the specific properties of the GGBFS concrete thus resulting. The ratio of the amount of the GGBFS to the total amount of GGBFS plus cement in the mix shall be between 65 and 70 percent (except for concrete exposed to deicing chemicals the maximum ratio shall be 50 percent).
7. Water-reducing admixtures conforming to ASTM C494 may be used in the concrete mix design. Maximum slump shall be 5 inches for mixes containing water-reducing admixtures and 5 to 8 inches for mixes containing high range water-reducing admixtures.
8. Concrete compressive strength tests shall be performed in accordance with ASTM C39. Copies of the test results shall be forwarded to the Structural Engineer. One set of specimens shall be taken for each day's pour of appreciable size and for each 50 cubic yards (100 cubic yards for mass concrete) in accordance with the latest edition of ASTM C31. Each set shall include one specimen tested at 7 days, 2 specimens tested at 28 days and one specimen retained in reserve. Two additional reserve specimens shall be retained for all mass concrete pours. These test cylinders shall be laboratory cured. For mass concrete pours, these test cylinders shall remain on-site for 48 hours before being transported to the testing lab.
9. When the ambient temperature is expected to fall below 40 degrees during the course of a concrete pour or subsequent curing period, it shall be placed and cured in accordance with the latest edition of Cold Weather Concreting (ACI 306R) and an additional set of concrete test cylinders shall be made. For mass concrete, this set of additional test cylinders shall consist of four specimens for each 200 cubic yards of concrete placed. These cylinders shall be stored immediately adjacent to, and cured under the same conditions as the building concrete. Special curing boxes are not permitted for these test cylinders.
10. Concrete mixed, transported, placed, and cured under conditions of high ambient temperature, low humidity, solar radiation, or high winds shall conform to the latest edition of Hot Weather Concreting (ACI 305R) and an additional set of concrete test cylinders shall be made. For mass concrete, this set of additional test cylinders shall consist of four specimens for each 200 cubic yards of concrete placed. These cylinders shall be stored immediately adjacent to, and cured under the same conditions as the building concrete. Special curing boxes are not permitted for these test cylinders.
11. Slump tests shall be made prior to and following the addition of plasticizers. Where concrete is placed by pumping methods, concrete for test cylinders and slump tests shall be taken at the point of final placement.
12. Water shall not be added to the concrete at the job site. The Contractor is responsible for coordinating a pumpable and workable mix without the addition of water at the job site. The use of plasticizers, retardants and other additives shall be at the option of the Contractor subject to the approval of the Structural Engineer. Follow the recommendations of the manufacturer for the proper use of additives. Use of calcium chloride or other chloride bearing salts is prohibited.
13. Place concrete in a manner so as to prevent segregation of the mix. Delay floating and trowelling operations until the concrete has lost surface water sheen or all free water. Do not sprinkle free cement on the slab surface. Finishing of slab surfaces shall conform to the latest editions of ACI 302.1R and ACI 304R (Guide for Measuring, Mixing, Transporting and Placing Concrete).
14. Where an epoxy adhesive is specified for bonding plastic concrete to hardened concrete, it shall conform to the latest edition of the Standard Specification for Bonding Plastic Concrete to Hardened Concrete with a Multi-Component Epoxy Adhesive (ACI 503.2).
15. Maintain concrete in a moist condition for at least 5 days at ambient temperatures above 70 degrees, and at least 7 days at ambient temperatures above 50 degrees. Curing compounds or moisture retention covers shall be used for all non-formed surfaces. Formed surfaces shall be cured by leaving forms in place. During hot, dry weather, keep forms moist by sprinkling. When forms are removed prior to the end of the curing period, apply curing compound to the exposed surfaces.
16. All interior slabs shall receive a hard "troweled finish". Exterior slabs, sidewalks, and stoops shall receive a "broom (or other type of slip resistant) finish". All formed surfaces not exposed to public view shall receive a "rough form finish", exposed surfaces shall receive a "smooth form finish". Concrete finishes shall be as defined in ACI 301.
17. Protect finished concrete surfaces from damage, rain, hail, running water, other injurious effects.
18. Protect the concrete surface between finishing operations on hot, dry days or any time plastic shrinkage cracks could develop by using wet burlap, plastic membranes or fogging.
19. Horizontal and vertical joints are not permitted in concrete construction except where indicated.
20. Construction joints and/or contraction joints at locations other than where indicated shall be submitted to the Structural Engineer for approval.
21. Construction joints shall be prepared by roughening the contact surface in an approved manner to a full amplitude of approximately 1/4 inch leaving the contact surface clean and free of laitance.
22. Control joints shall be made in concrete slabs-on-grade at major column centerlines, at points of discontinuity, at reentrant corners, and at other locations shown on the plans.
23. Provide 3/4 inch chamfers on all exposed corners of concrete except those abutting masonry.
24. The Contractor shall verify the location of sleeves, openings, embedded items, etc. and shall ensure that they are in place prior to the placement of the concrete.
25. Earth cuts shall not be used as forms ("bank forming") for vertical or sloping surfaces unless otherwise approved by the Structural Engineer. Where bank forming is permitted, the concrete element shall be increased at least 3 inches on all sides exposed to earth to account for possible soil contamination during concrete placement.

CONCRETE SCHEDULE

CONCRETE SCHEDULE

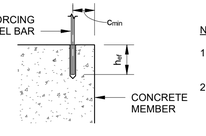
CLASS	f'_c	AIR CONTENT	MIN. CEMENT: LB/CY (SACKS/CY)	MAX. WATER/ CEMENT: RATIO	CONCRETE PLACEMENT	REMARKS
A	4,000 psi	optional	517 (5.5)	0.48	mat foundation	crystalline waterproofing admixture
B	5,000 psi	6% ± 1.5%	611 (6.5)	0.45	tank structural elevated slabs, columns, beams, walls	crystalline waterproofing admixture
C	4,500 psi	6% ± 1.5%	611 (6.5)	0.45	exterior slabs-on-grade, stoops, curbs, & sidewalks exposed to de-icers	synthetic fibers (1.5 lbs/cy)

POST-INSTALLED EXPANSION/ADHESIVE ANCHORS

1. Post-installed anchors shall only be used where specified on the Construction Documents. The Contractor shall obtain approval from the Structural Engineer prior to installing the post-installed anchors in place of missing or misplaced cast-in-placed anchors.
2. Care shall be taken in placing post-installed anchors to avoid conflicts with existing reinforcing steel.
3. Post-installed anchors shall be installed by qualified personnel in accordance with the drawings and specifications.
4. Post-installed anchors shall be installed by qualified personnel in accordance with the Manufacturer's Printed Installation Instructions (MPII), the drawings and specifications. Installation of adhesive anchors shall be performed by personnel trained to install adhesive anchors. Contractor shall submit installer training cards with anchor package.
5. Post-installed anchors shall be HILTI HAS-R 304 SS as manufactured by HILTI Fastening Systems or approved equivalent. Substitution requests must be submitted by the Contractor to the Structural Engineer for review. Provide back-up technical data that demonstrates that the substituted product is capable of achieving the equivalent performance values (minimum) of the specified products using the appropriate design procedure and/or standard(s) as required by the building code.
6. The Contractor shall inspect the masonry or concrete surface at each proposed post-installed anchor location prior to installation. If the anchor locations align with mortar joints or the masonry or concrete is honeycombed, cracked or otherwise unsound, the post-installed anchors shall be repositioned so as to be located in sound material and be in accordance with the manufacturer's minimum spacing and edge distance requirements.
7. Adhesive anchors shall be subject to the following additional requirements:
   A. Anchors shall meet the requirements of ACI 355.2 (mechanical anchors) and ACI 355.4 (adhesive anchors).
   B. Proof loading of adhesive anchors is not required.
   C. Anchors shall not be installed in concrete cured less than 21-days
   D. Anchors shall not be installed until the concrete has reached a minimum compressive strength of 2,500 psi.
   E. Concrete temperature must be greater than 50 °F and less than 80 °F prior to installation of the anchors unless otherwise permitted by the MPII.
   F. Anchors shall be installed in holes drilled with the HILTI Hollow Drill Bit (TE-CD (SDS Plus) or TE-YD (SDS Max)) and HILTI VC 20/40 Vacuum (VC 20-U or VC 40-U). Follow the MPII for size and depth of holes required.
   G. The acceptability of certification other than the ACI/CRSI Adhesive Anchor Installer Certification shall be the responsibility of the Structural Engineer.
   H. Adhesive anchors installed in horizontal or upwardly inclined orientations to resist sustained tension loads shall be continuously inspected during installation by an inspector specially approved for that purpose by the building official. The special inspector shall furnish a report to the licensed design professional and building official that the work covered by the report has been performed and that the materials used and the installation procedures used conform to the approved contract documents and MPII.

REINFORCING STEEL EPOXY DOWEL SCHEDULE

BAR SIZE	#3	#4	#5	#6	#7	#8
STANDED EFFECTIVE EMBED, h_{ef}	3-3/8"	4-1/2"	5-5/8"	6-3/4"	7-7/8"	9"
MINIMUM EDGE DISTANCE, c_{min}	2"	2-1/2"	3-1/8"	3-3/4"	4-3/8"	5"



TYPICAL EPOXY DOWEL

NOTES:

1. EPOXY DOWELS SHALL UTILIZE HILTI HIT-HY 200 ADHESIVE SYSTEM OR APPROVED EQUIVALENT
2. STANDARD EMBED DEPTH AND MIN EDGE DISTANCES PROVIDED IN THIS SCHEDULE APPLY AT ALL LOCATIONS UNLESS OTHERWISE NOTED ON SECTIONS AND DETAILS.

NON-SHRINK GROUT

1. Grout shall be a high early strength, non-metallic, shrinkage resistant (when tested in accordance with the latest edition of ASTM C827 or CRD-C621), premixed, non-corrosive, non-staining product conforming to the requirements of the latest edition of ASTM C1107 and containing Portland Cement, silica sands, shrinkage compensating agents and fluidity improving compounds.
2. Grout compressive strength tests shall be performed in accordance with the latest edition of ASTM C109, with a restraining plate placed over the molds.
3. Grout shall be installed in accordance with the manufacturer's instructions.
4. Grout shall be placed in a non-sag flowable state and shall have forms built around it for confinement. Grout shall be cured according to manufacturer's recommendations.

COORDINATION WITH OTHER TRADES

1. The Contractor shall coordinate and check all dimensions relating to architectural finishes, structural framing, mechanical openings, equipment, etc. The Structural Engineer shall be notified of any discrepancies before proceeding with work in an area under question.

REINFORCING STEEL

1. Reinforcing bar detailing, fabricating, and placing shall conform to the latest edition of the following standards: Specifications for Structural Concrete for Buildings (ACI 301), ACI Detailing Manual (SP66). The latest editions of Concrete Reinforcing Steel Institute's Reinforcing Bar Detailing and Placing Reinforcing Bars may also be used.
2. Provide standard bar chairs, slab bolsters, spacers, etc. as required to maintain concrete protection specified. Reinforcing steel shall be tied to prevent displacement during concrete placement.
3. Reinforcement bars shall not be tack welded, welded, heated or cut unless otherwise indicated or approved by the Structural Engineer.
4. Welding of reinforcement bars, when approved by the Structural Engineer, shall conform to the latest edition of American Welding Society Standard D1.4. Electrodes for shop and field welding of reinforcement bars shall conform to ASTM A233, Class E90XX.
5. Concrete cover over reinforcement, unless otherwise noted, shall be as specified in the latest editions of ACI 318 and ACI 350 with the most stringent requirements governing.
6. Unless noted otherwise, splicing of reinforcing bars shall conform to the latest edition of ACI 318.

CONCRETE REINFORCING STEEL LAP SPLICE SCHEDULE

BAR SIZE	TENSION SPLICE		COMPRESSION SPLICE
	TOP BAR	OTHER	
#3	21"	16"	12"
#4	28"	24"	15"
#5	35"	30"	19"
#6	42"	36"	23"
#7	49"	42"	26"
#8	56"	48"	30"
#9	63"	57"	34"
#10	76"	66"	38"
#11	93"	72"	42"

8. Horizontal bars in walls, masonry bond beams, and continuous wall footings shall be bent at corners and intersections in such a way that continuity is provided through the joint. Separate corner bars of the same size and spacing as the horizontal reinforcing may be substituted for the bent portion of the continuous bars.
9. Unless noted otherwise, provide 2-#5 bars (one each face) around unframed openings and diagonally at reentrant corners of vertical height offsets in concrete walls. Place bars parallel to the sides of the opening and extend 24 inches beyond corners.
10. The Contractor shall prepare detailed working or shop drawings to enable him to fabricate, erect and construct all parts of the work in accordance with the drawings and specifications and shall submit one reproducible copy and one blue line copy to the Structural Engineer for review prior to fabrication. These shop drawings will be reviewed for design concepts only. The Contractor shall be responsible for all dimensions, accuracy, and fit of work.

DESIGN

1. Building Code: Indiana Building Code, 2014 Edition (2012 International Building Code, first printing, with Indiana Amendments).
2. Soil information:

Allowable net bearing pressure:	
Storage Tank and Lift Station	2,000 psf
Diversion Structure	1,500 psf
Unit weight of soil	
Moist unit weight	115 pcf
Buoyant unit weight	55 pcf
Equivalent fluid pressure on tank walls	
At-rest, above groundwater level	55 psf / ft
At-rest, below groundwater level	95 psf / ft

3. Concrete:
   28 day compressive strength (f'c) — See Schedule
4. Reinforcing steel (deformed bars of new billet steel):
   Stirrup and tie — ASTM A615, Grade 60
   Weldable (Low-Alloy) — ASTM A706, Grade 60
   Otherwise — ASTM A615, Grade 60
   Welded wire fabric (smooth) — ASTM A185
5. Non-shrink grout:
   28 day compressive strength — 5,000 psi
6. Risk Category — IV
7. Live loads:
   Lift Station and Diversion Structure Slab: — 100 psf
8. Live Load Deflection Limitation:
   Roof — L/360
9. Snow Loads

Terrain Category	B
Exposure Factor, C_e	0.9
Thermal Factor, C_t	1.2
Importance Factor, I_S	1.20
Ground Snow Load, P_g	20 psf
Flat roof Snow Load P_f	18 psf
Rain-on-Snow Surcharge Load	5 psf
Design Flat Roof Snow Load, P_f	25 psf

10. Wind loads:

Basic wind speed (3-second gust)	120 mph
Importance factor, Iw	1.00
Exposure	B

11. Seismic loads:

Seismic importance factor, Ie	1.5
Mapped Spectral Response Acceleration at Short Periods, Ss	12.1% g
Mapped Spectral Response Acceleration at 1 Second, S1	6.9% g
Site Class	D
Design Spectral Response Acceleration at Short Periods, Sds	12.9% g
Design Spectral Response Acceleration at 1 Second, Sd1	11.0% g
Seismic Design Category	C

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JOHN DAVID TAYLOR
REGISTERED
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STATE OF INDIANA
PROFESSIONAL ENGINEER

Signature 07.28.25 Date

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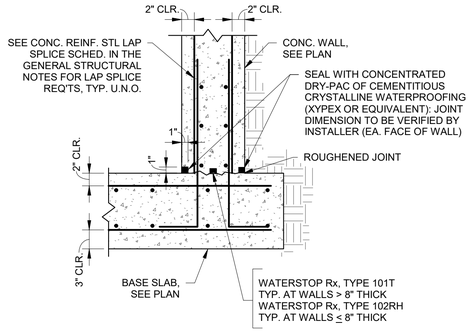
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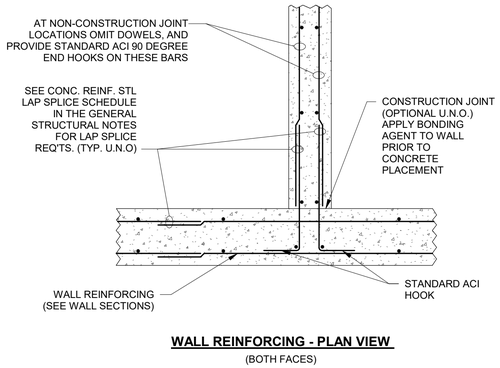
GENERAL STRUCTURAL NOTES

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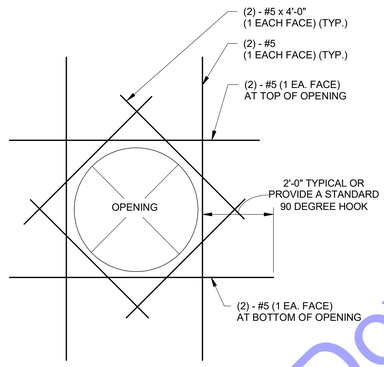
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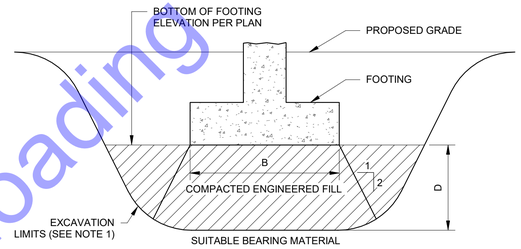
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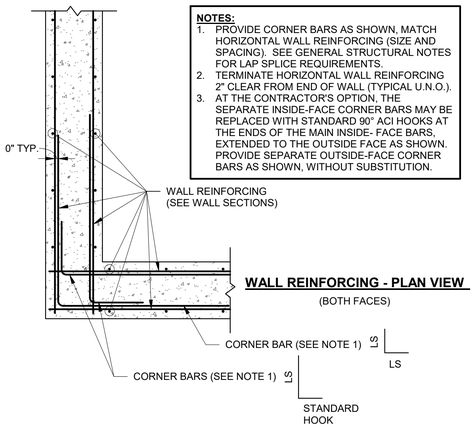
WALL REINFORCING - PLAN VIEW
(BOTH FACES)





NOTES:
1. DEWATER EXCAVATION AS REQUIRED.
2. WIDTH OF EXCAVATION SHALL EQUAL WIDTH OF FOOTING PLUS DEPTH OF UNDERCUT (W=B+D).

8 S0-2 TYP. WALL TO BASE SLAB
1" = 1'-0"

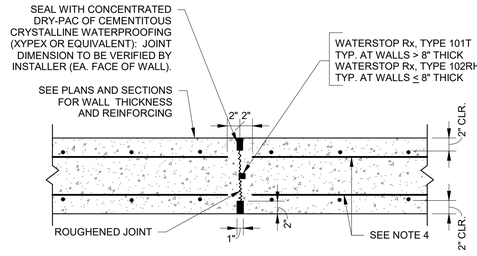


NOTES:
1. PROVIDE CORNER BARS AS SHOWN, MATCH HORIZONTAL WALL REINFORCING (SIZE AND SPACING). SEE GENERAL STRUCTURAL NOTES FOR LAP SPLICE REQUIREMENTS.
2. TERMINATE HORIZONTAL WALL REINFORCING 2" CLEAR FROM END OF WALL (TYPICAL U.N.O.).
3. AT THE CONTRACTOR'S OPTION, THE SEPARATE INSIDE-FACE CORNER BARS MAY BE REPLACED WITH STANDARD 90° ACI HOOKS AT THE ENDS OF THE MAIN INSIDE- FACE BARS, EXTENDED TO THE OUTSIDE FACE AS SHOWN. PROVIDE SEPARATE OUTSIDE-FACE CORNER BARS AS SHOWN, WITHOUT SUBSTITUTION.

WALL REINFORCING - PLAN VIEW
(BOTH FACES)

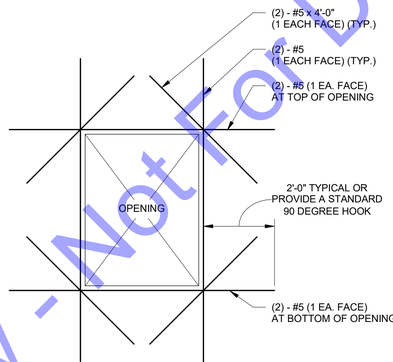
TYPICAL CONCRETE WALL CORNER REINFORCEMENT - PLAN VIEW
9 S0-2 3/4" = 1'-0"

5 S0-2 TYP. CONC. WALL INTERSECTION
1/8" = 1'-0"



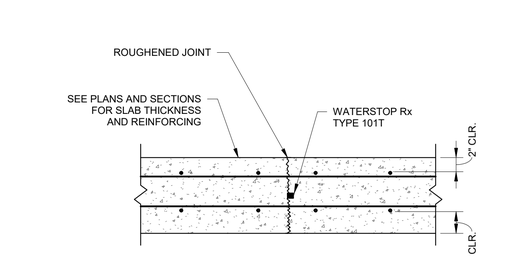
NOTES:
1. CONSTRUCTION JOINTS SHALL BE LOCATED AT JOINTS MARKED CJ.
2. WATERSTOPS AND DRY-PAC REQUIRED AT WATER RETAINING WALLS ONLY.
3. UNLESS NOTED OTHERWISE, CONSTRUCTION JOINT SPACING NOT TO EXCEED 120 FEET.
4. 50% OF THE HORIZ. REINF. STEEL SHALL BE CONTINUOUS THRU JOINT. HORIZONTAL BARS THAT STOP SHORT OF JOINT SHALL BE FABRICATED ACCORDINGLY AND SHALL NOT BE FIELD CUT. CONTINUOUS AND DISCONTINUOUS HORIZ. BARS SHALL BE ALTERNATED ALONG WALL HEIGHT.
5. SEE SPECIFIC DETAILS AT NOTED STRUCTURES WHERE 100% OF THE HORIZONTAL REINFORCING STEEL IS CONTINUOUS THRU JOINT.
6. CONSTRUCTION JOINTS SHALL NOT OCCUR WITHIN 5'-0" OF A CORNER.
7. SEE GENERAL STRUCTURAL NOTES FOR LAP SPLICE REQUIREMENTS.

6 S0-2 TYP. WALL CONSTRUCTION JOINT
1" = 1'-0"



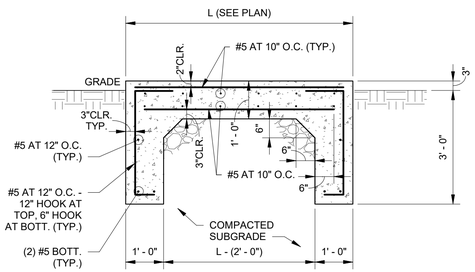
NOTES:
1. WHERE VERTICAL REINFORCING IS INTERRUPTED BY THE OPENING, ONE HALF OF THE INTERRUPTED STEEL SHALL BE ADDED TO EACH SIDE OF THE OPENING. USE FULL LENGTH BARS.
2. THIS DETAIL APPLIES TO ALL OPENINGS IN CONCRETE WALLS UNLESS DETAILED OTHERWISE ON THE PLANS.

3 S0-2 TYP. OPENING IN CONCRETE WALL
1/8" = 1'-0"



NOTES:
1. ALL REINFORCING TO BE CONTINUOUS THRU JOINT.
2. CONSTRUCTION JOINT SPACING NOT TO EXCEED 75'-0".
3. SEE SOIL REPORT FOR UNDERSLAB PREPARATION AND COMPACTION.
4. SEE GENERAL STRUCTURAL NOTES FOR LAP SPLICE REQUIREMENTS.

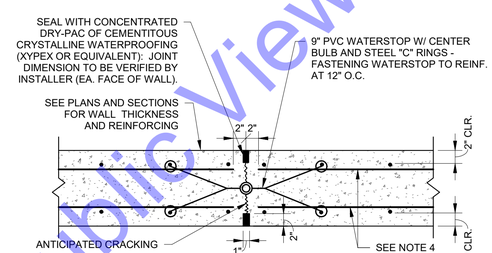
1 S0-2 TYP. FOOTING IN UNDERCUT AREA
1" = 1'-0"



SECTION

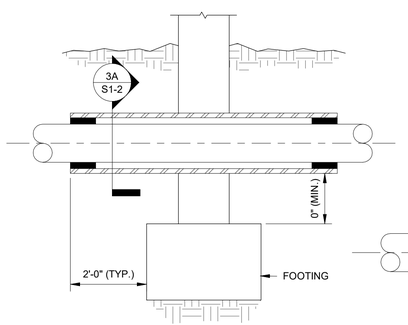
NOTES:
1. TOP OF EQUIPMENT PAD SHALL BE FLAT AND LEVEL.
2. COORDINATE EQUIPMENT PADS WITH THE SELECTED MECHANICAL/ELECTRICAL CONTRACTORS.

10 S0-2 TYP. EQUIPMENT PAD
1/2" = 1'-0"

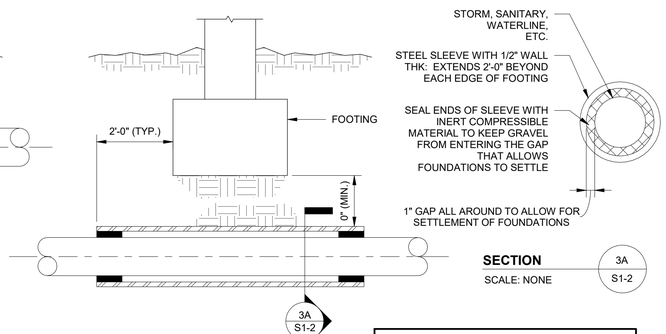


NOTES:
1. CONTRACTION JOINTS SHALL BE LOCATED AT JOINTS MARKED CT.
2. WATERSTOPS AND DRY-PAC REQUIRED AT WATER RETAINING WALLS ONLY.
3. UNLESS NOTED OTHERWISE, CONTRACTION JOINT SPACING NOT TO EXCEED 40 FEET.
4. 50% OF THE HORIZ. REINF. STEEL SHALL BE CONTINUOUS THRU JOINT. HORIZONTAL BARS THAT STOP SHORT OF JOINT SHALL BE FABRICATED ACCORDINGLY AND SHALL NOT BE FIELD CUT. CONTINUOUS AND DISCONTINUOUS HORIZ. BARS SHALL BE ALTERNATED ALONG WALL HEIGHT.
5. SEE SPECIFIC DETAILS AT NOTED STRUCTURES WHERE 100% OF THE HORIZONTAL REINFORCING STEEL IS CONTINUOUS THRU JOINT.
6. CONTRACTION JOINTS SHALL NOT OCCUR WITHIN 5'-0" OF A CORNER.
7. SEE GENERAL STRUCTURAL NOTES FOR LAP SPLICE REQUIREMENTS.

7 S0-2 TYP. WALL CONTRACTION JOINT
1" = 1'-0"



PIPE OVER FOOTING



PIPE UNDER FOOTING

SECTION 3A S1-2
SCALE: NONE

NOTES:
1. COORDINATE THE USE OF THESE DETAILS WITH THE UNDERSLAB PIPING CONTRACTOR.
2. IF THE TOP OF THE SERVICE PIPE IS 2'-0" (OR GREATER) BELOW THE BOTTOM OF THE FOOTING, STEEL SLEEVE IS NOT REQUIRED.

TYP. UNDERGROUND SERVICE PIPE DETAIL AT WALL FOUNDATION
4 S0-2 1/8" = 1'-0"

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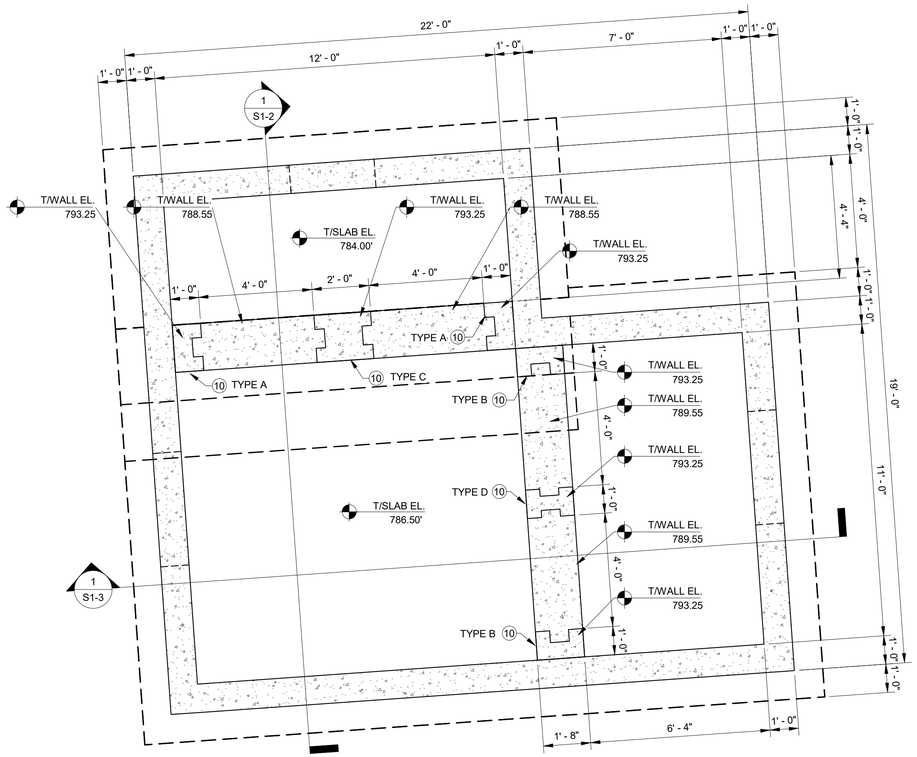
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TYPICAL STRUCTURAL DETAILS - CONCRETE

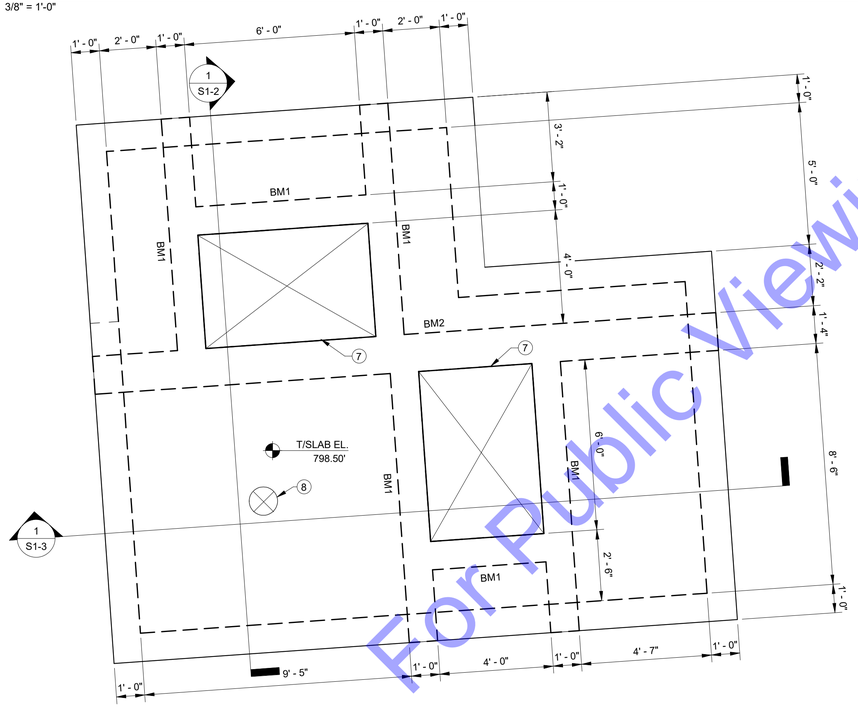
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S0-2
Sheet: 41 OF 59

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1 S1-1 DIVERSION STRUCTURE FOUNDATION PLAN

3/8" = 1'-0"



2 S1-1 DIVERSION STRUCTURE UPPER LEVEL PLAN

3/8" = 1'-0"

FOUNDATION PLAN NOTES

◯ INDICATES NOTE REFERENCED IN PLAN

1. SEE THE S0-SERIES SHEETS FOR GENERAL STRUCTURAL NOTES AND TYPICAL STRUCTURAL DETAILS.
2. GENERAL CONTRACTOR TO COORDINATE ALL OPENING, PIPE SLEEVES, EMBEDDED ITEMS, HANDRAILS, GRATING, ETC. WITH THE PROCESS DRAWINGS.
3. ALL DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED PRIOR TO FABRICATION, CONSTRUCTION OR ERECTION. THE GENERAL CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ANY DISCREPANCIES.
4. SEE SITE PLAN FOR ALL FINAL GRADE ELEVATIONS.
5. SEE GEOTECHNICAL REPORT FOR ALL BACKFILLING AND COMPACTION REQUIREMENTS BEHIND WALLS AND UNDER BASE SLABS.
6. GENERAL CONTRACTOR SHALL SUBMIT A CONSTRUCTION JOINT (CJ) AND CONTRACTION JOINT (CT) LOCATION PLAN TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO CONCRETE PLACEMENT.
7. SEE DETAILS 6/S0-2 AND 7/S0-2 FOR WALL CONSTRUCTION JOINT AND WALL CONTRACTION JOINT REQUIREMENTS.
8. MAINTAIN STRUCTURAL SLAB THICKNESSES AT ALL FLOOR SLOPES AND DEPRESSIONS.
9. SEE PROCESS AND MECHANICAL DRAWINGS FOR LOCATION OF EQUIPMENT PADS.

(10) STOP LOG SUPPORTS, SEE DETAIL 2/S1-3 FOR REINFORCEMENT. COORDINATE WITH PROCESS DRAWINGS.

NOTE - BACKFILL BEHIND DIVERSION STRUCTURE CONCRETE WALLS:

1. THE DIVERSION STRUCTURE HAS BEEN DESIGNED SO THAT CONCRETE WALLS CAN BE BACKFILLED WITHOUT BRACING BEFORE THE TOP SLAB IS IN PLACE. THE CONCRETE WALLS SHALL BE ALLOWED TO CURE AT LEAST 7 DAYS WITH A MINIMUM CONCRETE COMPRESSIVE STRENGTH OF 3,750 PSI.
2. BACKFILL SHALL BE PLACED SIMULTANEOUSLY ON OPPOSING SIDES OF THE RESERVOIR STRUCTURE WHILE BACKFILLING.
3. WALL BACKFILL SHALL BE FREE DRAINING GRANULAR MATERIAL EXTENDING FROM THE BASE OF THE WALL AT A 45-DEGREE ANGLE FROM VERTICAL TO FINISHED GRADE.
4. SEE THE GEOTECHNICAL REPORT FOR BACKFILL COMPACTION REQUIREMENTS.

UPPER LEVEL PLAN NOTES

◯ INDICATES NOTE REFERENCED IN PLAN

1. SEE THE S0-SERIES SHEETS FOR GENERAL STRUCTURAL NOTES AND TYPICAL STRUCTURAL DETAILS.
2. GENERAL CONTRACTOR TO COORDINATE ALL OPENING, PIPE SLEEVES, EMBEDDED ITEMS, HANDRAILS, GRATING, ETC. WITH THE PROCESS DRAWINGS.
3. ALL DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED PRIOR TO FABRICATION, CONSTRUCTION OR ERECTION. THE GENERAL CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ANY DISCREPANCIES.
4. SEE SITE PLAN FOR ALL FINAL GRADE ELEVATIONS.
5. GENERAL CONTRACTOR SHALL SUBMIT A CONSTRUCTION JOINT (CJ) AND CONTRACTION JOINT (CT) LOCATION PLAN TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO CONCRETE PLACEMENT.
6. SEE DETAILS 6/S0-2 AND 7/S0-2 FOR WALL CONSTRUCTION JOINT AND WALL CONTRACTION JOINT REQUIREMENTS.

(7) NEW 48" X 72" ACCESS HATCH, SEE PROCESS DRAWINGS. INSTALL ACCESS HATCH PER MANUFACTURER'S RECOMMENDATIONS.

(8) RADAR SENSOR, SEE PROCESS DRAWINGS AND ELECTRICAL DRAWINGS.

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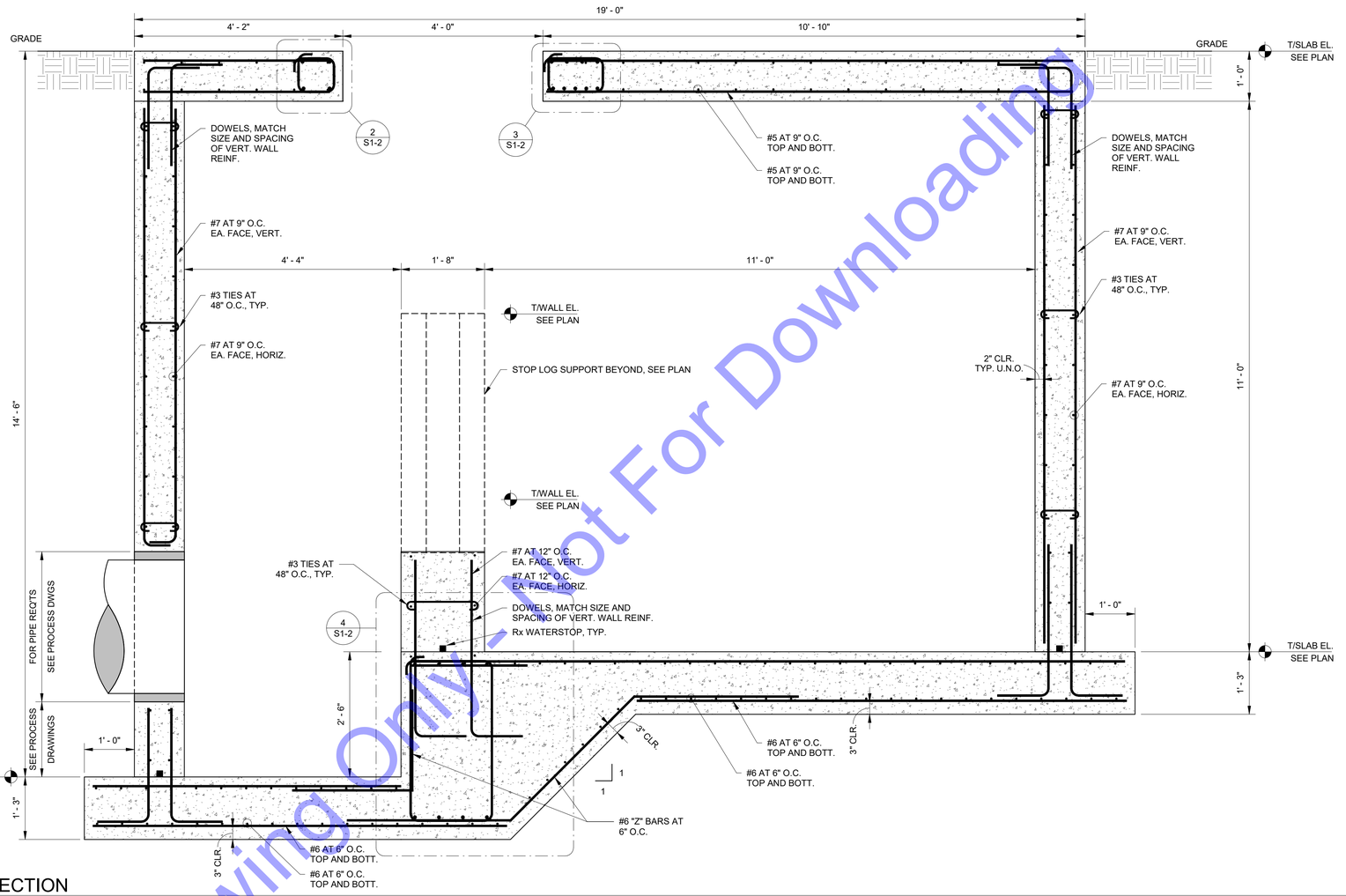
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Issue Date:	Project No:	Scale:
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DIVERSION STRUCTURE UPPER LEVEL AND FOUNDATION PLAN

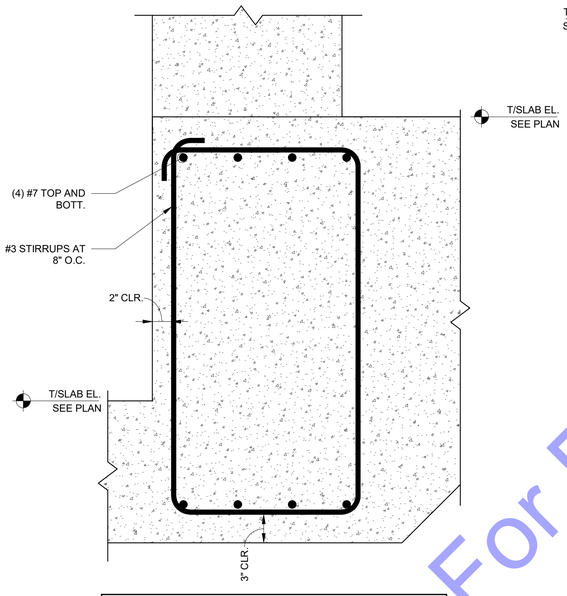
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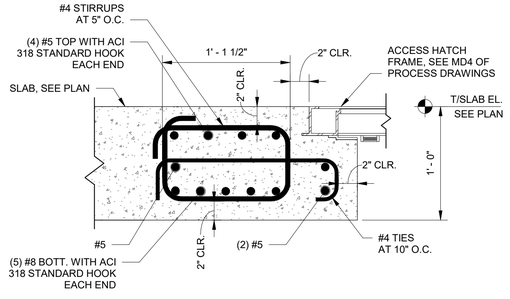


1 S1-2 SECTION
3/4" = 1'-0"



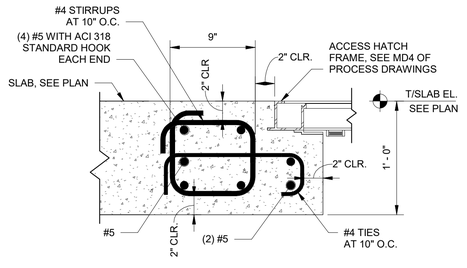
NOTE: PRIMARY SLAB REINFORCEMENT NOT SHOWN FOR CLARITY

4 S1-2 BM3 DETAIL
1 1/2" = 1'-0"



NOTE: PRIMARY SLAB REINFORCEMENT NOT SHOWN FOR CLARITY

3 S1-2 BM2 DETAIL
1 1/2" = 1'-0"



NOTE: PRIMARY SLAB REINFORCEMENT NOT SHOWN FOR CLARITY

2 S1-2 BM1 DETAIL
1 1/2" = 1'-0"

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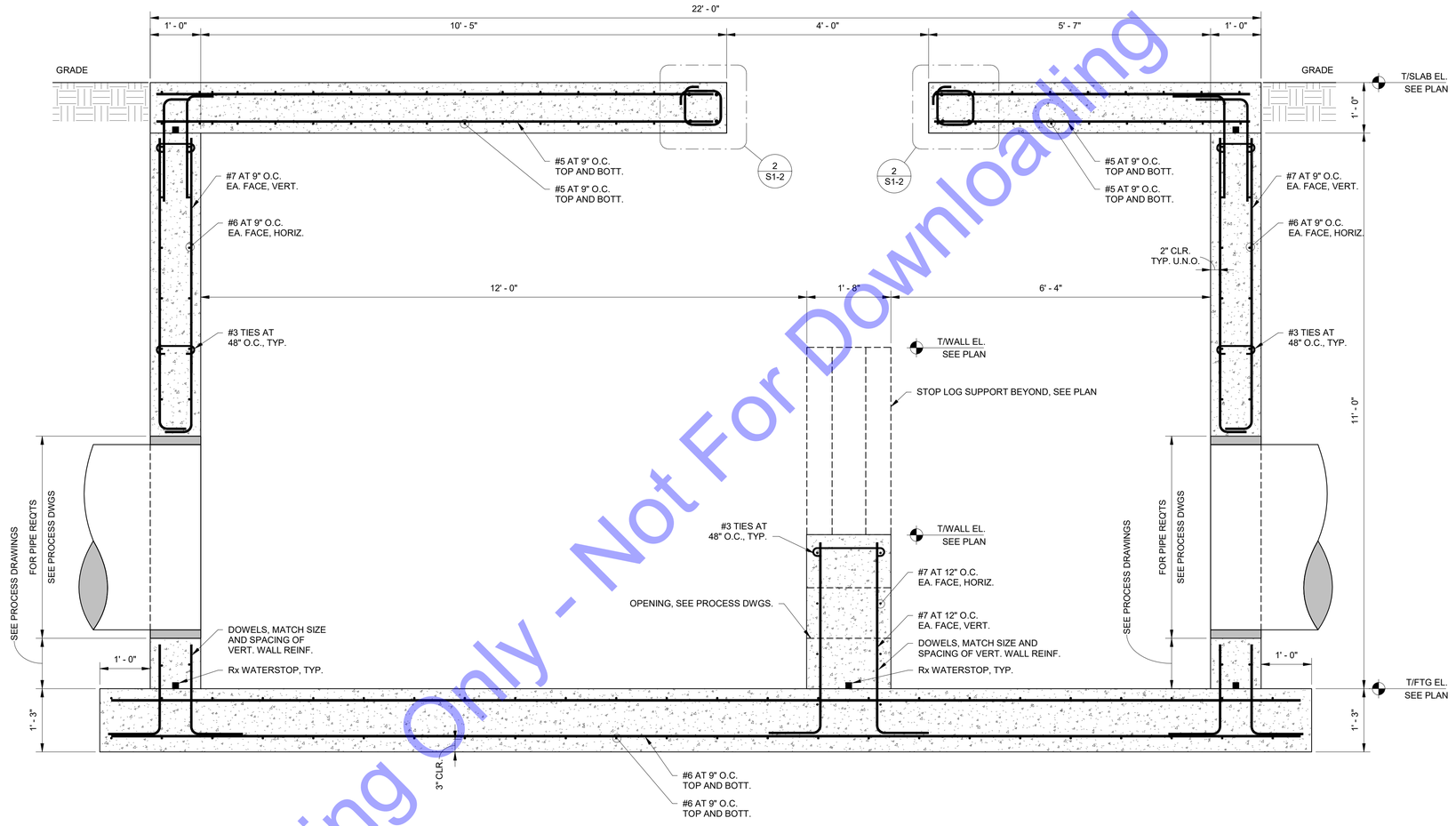
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DIVERSION STRUCTURE SECTIONS AND DETAILS

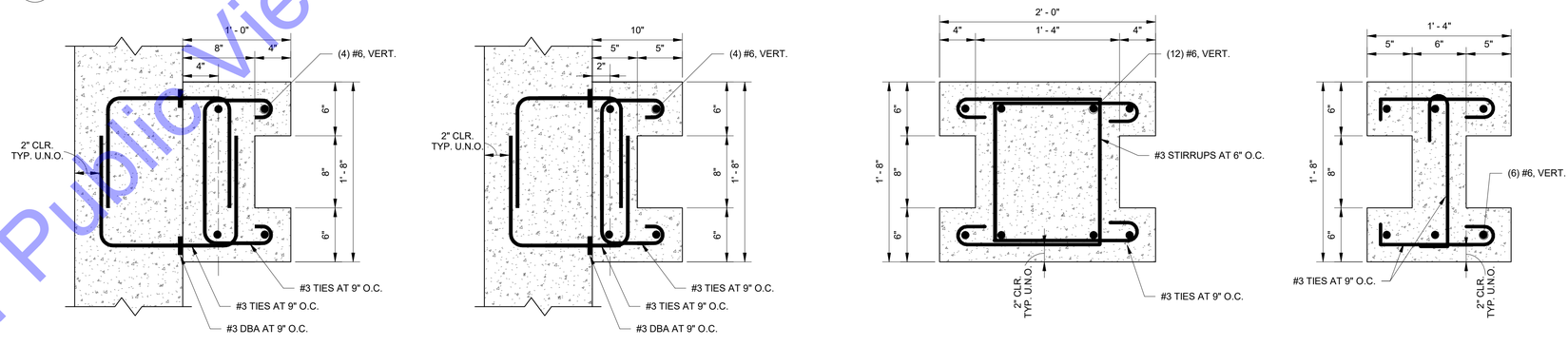
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S1-2
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1 S1-3 SECTION

3/4" = 1'-0"



2 S1-3 STOP LOG SUPPORT DETAILS

1 1/2" = 1'-0"

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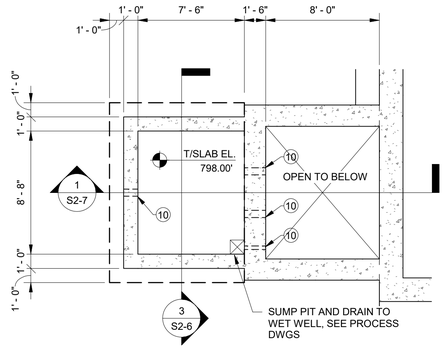
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DIVERSION STRUCTURE SECTIONS AND DETAILS

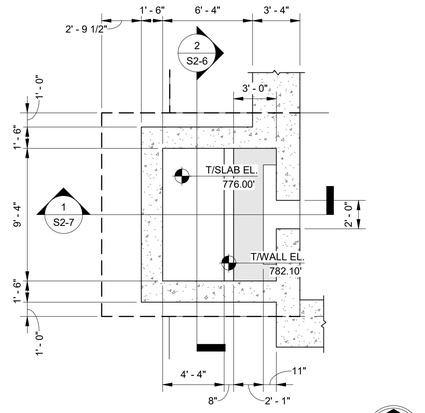
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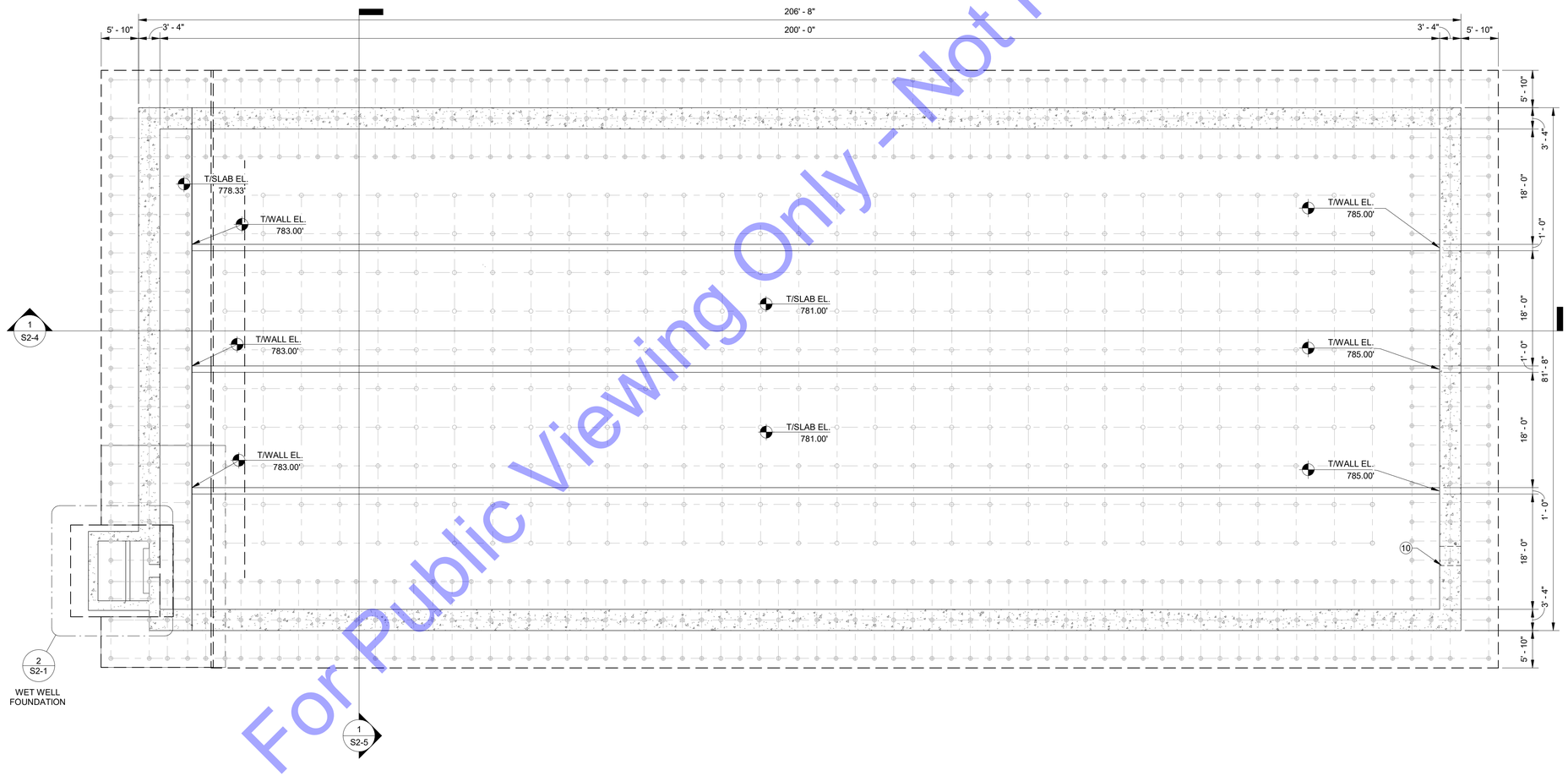
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3 S2-1 VALVE VAULT FOUNDATION PLAN
3/16" = 1'-0"



2 S2-1 WET WELL FOUNDATION PLAN
3/16" = 1'-0"



1 S2-1 STORAGE TANK FOUNDATION PLAN
1" = 10'-0"

FOUNDATION PLAN NOTES

(○) INDICATES NOTE REFERENCED IN PLAN

1. SEE THE S0-SERIES SHEETS FOR GENERAL STRUCTURAL NOTES AND TYPICAL STRUCTURAL DETAILS.
2. GENERAL CONTRACTOR TO COORDINATE ALL OPENING, PIPE SLEEVES, EMBEDDED ITEMS, HANDRAILS, GRATING, ETC. WITH THE PROCESS DRAWINGS.
3. ALL DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED PRIOR TO FABRICATION, CONSTRUCTION OR ERECTION. THE GENERAL CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ANY DISCREPANCIES.
4. SEE SITE PLAN FOR ALL FINAL GRADE ELEVATIONS.
5. SEE GEOTECHNICAL REPORT FOR ALL BACKFILLING AND COMPACTION REQUIREMENTS BEHIND WALLS AND UNDER BASE SLABS.
6. GENERAL CONTRACTOR SHALL SUBMIT A CONSTRUCTION JOINT (CJ) AND CONTRACTION JOINT (CT) LOCATION PLAN TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO CONCRETE PLACEMENT.
7. SEE DETAILS 6/S0-2 AND 7/S0-2 FOR WALL CONSTRUCTION JOINT AND WALL CONTRACTION JOINT REQUIREMENTS.
8. MAINTAIN STRUCTURAL SLAB THICKNESSES AT ALL FLOOR SLOPES AND DEPRESSIONS.
9. SEE PROCESS AND MECHANICAL DRAWINGS FOR LOCATION OF EQUIPMENT PADS.
10. SEE PROCESS DRAWINGS FOR PIPE PENETRATIONS, SIZES, AND LOCATIONS. SEE TYPICAL DETAILS FOR REINFORCING REQUIREMENTS AT PIPE PENETRATIONS.

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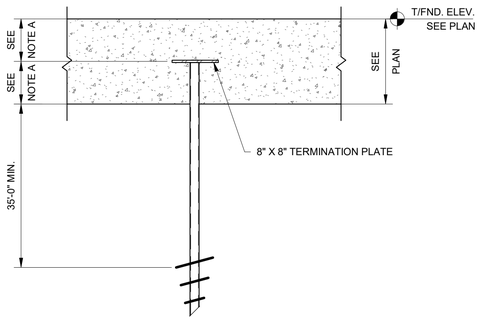
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STORAGE TANK FOUNDATION PLAN

Drawing No: **S2-1**

Sheet: 45 OF 59

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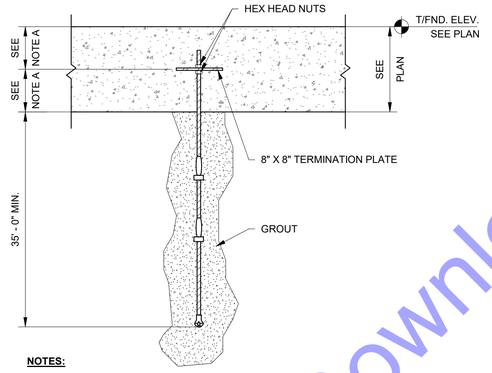
A. UNLESS NOTED OTHERWISE, TERMINATION PLATE SHALL BE CENTERED WITHIN THE DEPTH OF THE SLAB.

3 S2-2 TYP. HELICAL PILE DETAIL (ALTERNATE)
3/4" = 1'-0"

HELICAL PILE PLAN NOTES (ALTERNATE)

○ INDICATES NOTE REFERENCED IN PLAN

1. ALL DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED PRIOR TO FABRICATION, CONSTRUCTION, OR ERECTION. THE GENERAL CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ANY DISCREPANCIES.
2. SEE GEOTECHNICAL REPORT AND SPECIFICATIONS FOR ALL BACKFILLING AND COMPACTION REQUIREMENTS BEHIND WALLS AND UNDER BASE SLABS.
3. ○ INDICATES HELICAL PILE. HELICAL PILES SHALL BE LOCATED AS SHOWN IN THE PLAN AND DETAILS. EACH HELICAL PILE SHALL BE INSTALLED TO SUPPORT A WORKING LOAD OF 50-KIP COMPRESSION / 45-KIP TENSION LOAD (ALLOWABLE LOAD). THE ULTIMATE CAPACITY MUST ACHIEVE 2x THE WORKING LOAD, OR GREATER (I.E. - 100 KIPS COMPRESSION, 90 KIPS TENSION).
4. ● INDICATES HELICAL PILE. HELICAL PILES SHALL BE LOCATED AS SHOWN IN THE PLAN AND DETAILS. EACH HELICAL PILE SHALL BE INSTALLED TO SUPPORT A WORKING LOAD OF 80-KIP COMPRESSION / 60-KIP TENSION LOAD (ALLOWABLE LOAD). THE ULTIMATE CAPACITY MUST ACHIEVE 2x THE WORKING LOAD, OR GREATER (I.E. - 160 KIPS COMPRESSION, 120 KIPS TENSION).
5. IT IS THE RESPONSIBILITY OF THE HELICAL PILE AND GENERAL CONTRACTOR TO FIELD DETERMINE THE EXACT LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO COMMENCING WITH ANY WORK. IF A UTILITY IS LOCATED WHERE THE NEW MICRO PILE IS PROPOSED THE ENGINEER SHALL BE NOTIFIED PRIOR TO PROCEEDING WITH ANY WORK IN THE AREA UNDER QUESTION.
6. PLACE HELICAL PILES THE SAME DAY EXCAVATIONS ARE OPENED. IF THIS IS NOT POSSIBLE, ADEQUATELY PROTECT THE EXPOSED MATERIAL IN THE BASES OF THE FOOTING EXCAVATIONS FROM ANY DETRIMENTAL CHANGE IN CONDITION SUCH AS FROM DISTURBANCE, RAIN, OR FREEZING. SURFACE RUNOFF SHALL NOT BE ALLOWED TO ENTER THE EXCAVATIONS.
7. THE HELICAL PILE CONTRACTOR SHALL PROVIDE DETAILED SHOP DRAWINGS AND SHALL SUBMIT ONE COPY TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO INSTALLATION. THESE SHOP DRAWINGS SHALL SHOW THE DESIGN FORCES, THE HELICAL PILE SIZE, MATERIALS, AND LOCATIONS, AND ALL DETAILS NECESSARY TO INSTALL ALL PARTS OF THE WORK IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS AND SHALL BEAR THE SEAL AND SIGNATURE OF A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF INDIANA. THESE SHOP DRAWINGS WILL BE REVIEWED FOR DESIGN CONCEPTS ONLY.



NOTES:

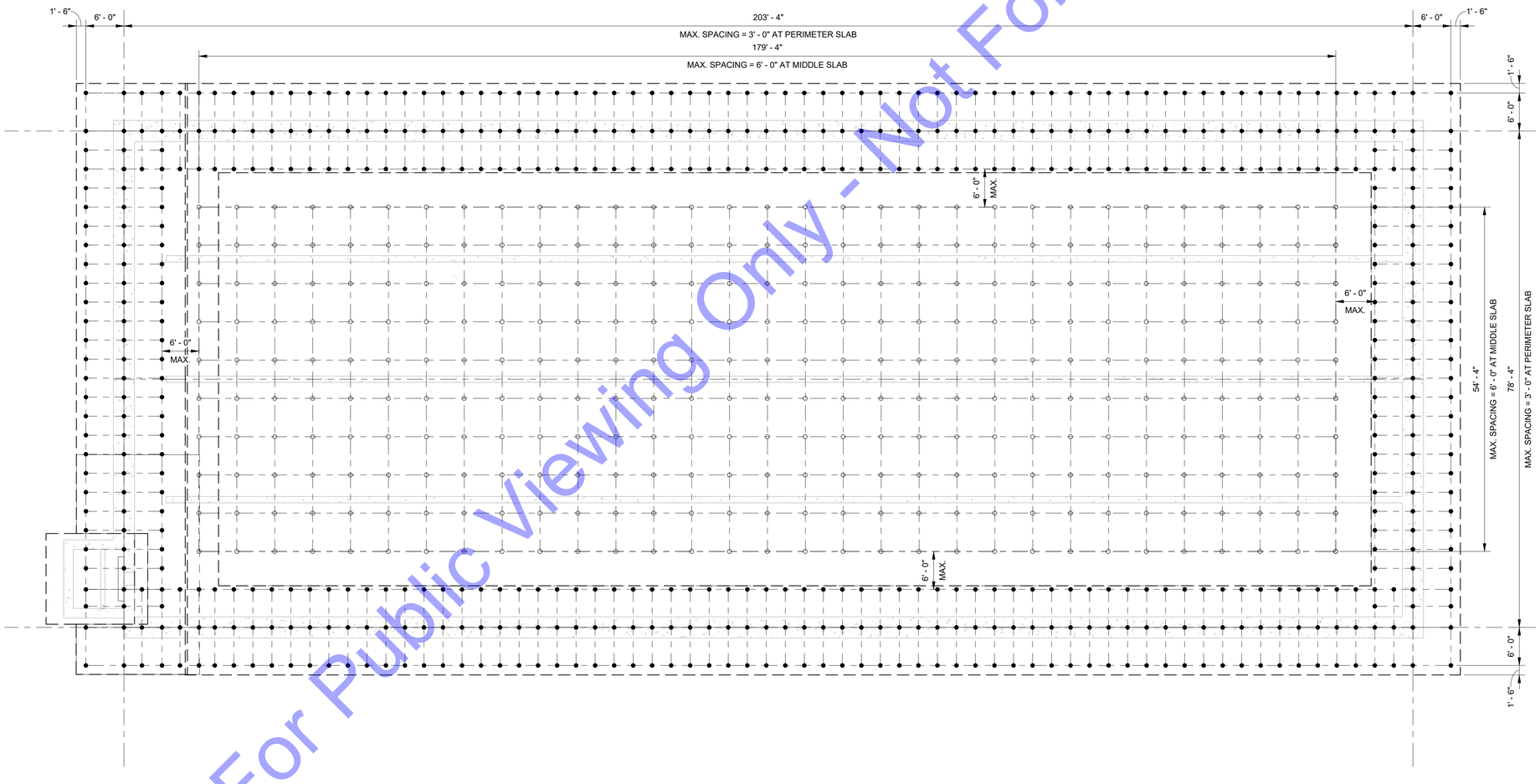
A. UNLESS NOTED OTHERWISE, TERMINATION PLATE SHALL BE CENTERED WITHIN THE DEPTH OF THE SLAB.

2 S2-2 TYP. MICROPILE DETAIL
3/4" = 1'-0"

MICRO PILE PLAN NOTES

○ INDICATES NOTE REFERENCED IN PLAN

1. ALL DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED PRIOR TO FABRICATION, CONSTRUCTION, OR ERECTION. THE GENERAL CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ANY DISCREPANCIES.
2. SEE GEOTECHNICAL REPORT AND SPECIFICATIONS FOR ALL BACKFILLING AND COMPACTION REQUIREMENTS BEHIND WALLS AND UNDER BASE SLABS.
3. ○ INDICATES MICRO PILE. MICRO PILES SHALL BE LOCATED AS SHOWN IN THE PLAN AND DETAILS. EACH MICRO PILE SHALL BE INSTALLED TO SUPPORT A WORKING LOAD OF 50-KIP COMPRESSION / 45-KIP TENSION LOAD (ALLOWABLE LOAD). THE ULTIMATE CAPACITY MUST ACHIEVE 2x THE WORKING LOAD, OR GREATER (I.E. - 100 KIPS COMPRESSION, 90 KIPS TENSION).
4. ● INDICATES MICRO PILE. MICRO PILES SHALL BE LOCATED AS SHOWN IN THE PLAN AND DETAILS. EACH HELICAL PILE SHALL BE INSTALLED TO SUPPORT A WORKING LOAD OF 80-KIP COMPRESSION / 60-KIP TENSION LOAD (ALLOWABLE LOAD). THE ULTIMATE CAPACITY MUST ACHIEVE 2x THE WORKING LOAD, OR GREATER (I.E. - 160 KIPS COMPRESSION, 120 KIPS TENSION).
5. IT IS THE RESPONSIBILITY OF THE MICRO PILE AND GENERAL CONTRACTOR TO FIELD DETERMINE THE EXACT LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO COMMENCING WITH ANY WORK. IF A UTILITY IS LOCATED WHERE THE NEW MICRO PILE IS PROPOSED THE ENGINEER SHALL BE NOTIFIED PRIOR TO PROCEEDING WITH ANY WORK IN THE AREA UNDER QUESTION.
6. PLACE MICRO PILES THE SAME DAY EXCAVATIONS ARE OPENED. IF THIS IS NOT POSSIBLE, ADEQUATELY PROTECT THE EXPOSED MATERIAL IN THE BASES OF THE FOOTING EXCAVATIONS FROM ANY DETRIMENTAL CHANGE IN CONDITION SUCH AS FROM DISTURBANCE, RAIN, OR FREEZING. SURFACE RUNOFF SHALL NOT BE ALLOWED TO ENTER THE EXCAVATIONS.
7. THE MICRO PILE CONTRACTOR SHALL PROVIDE DETAILED SHOP DRAWINGS AND SHALL SUBMIT ONE COPY TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO INSTALLATION. THESE SHOP DRAWINGS SHALL SHOW THE DESIGN FORCES, THE MICRO PILE SIZE, MATERIALS, AND LOCATIONS, AND ALL DETAILS NECESSARY TO INSTALL ALL PARTS OF THE WORK IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS AND SHALL BEAR THE SEAL AND SIGNATURE OF A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF INDIANA. THESE SHOP DRAWINGS WILL BE REVIEWED FOR DESIGN CONCEPTS ONLY.



1 S2-2 STORAGE TANK MICROPILE LAYOUT PLAN
1" = 10'-0"

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Signature
07.28.25
Date

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STORAGE TANK MICROPILE LAYOUT PLAN

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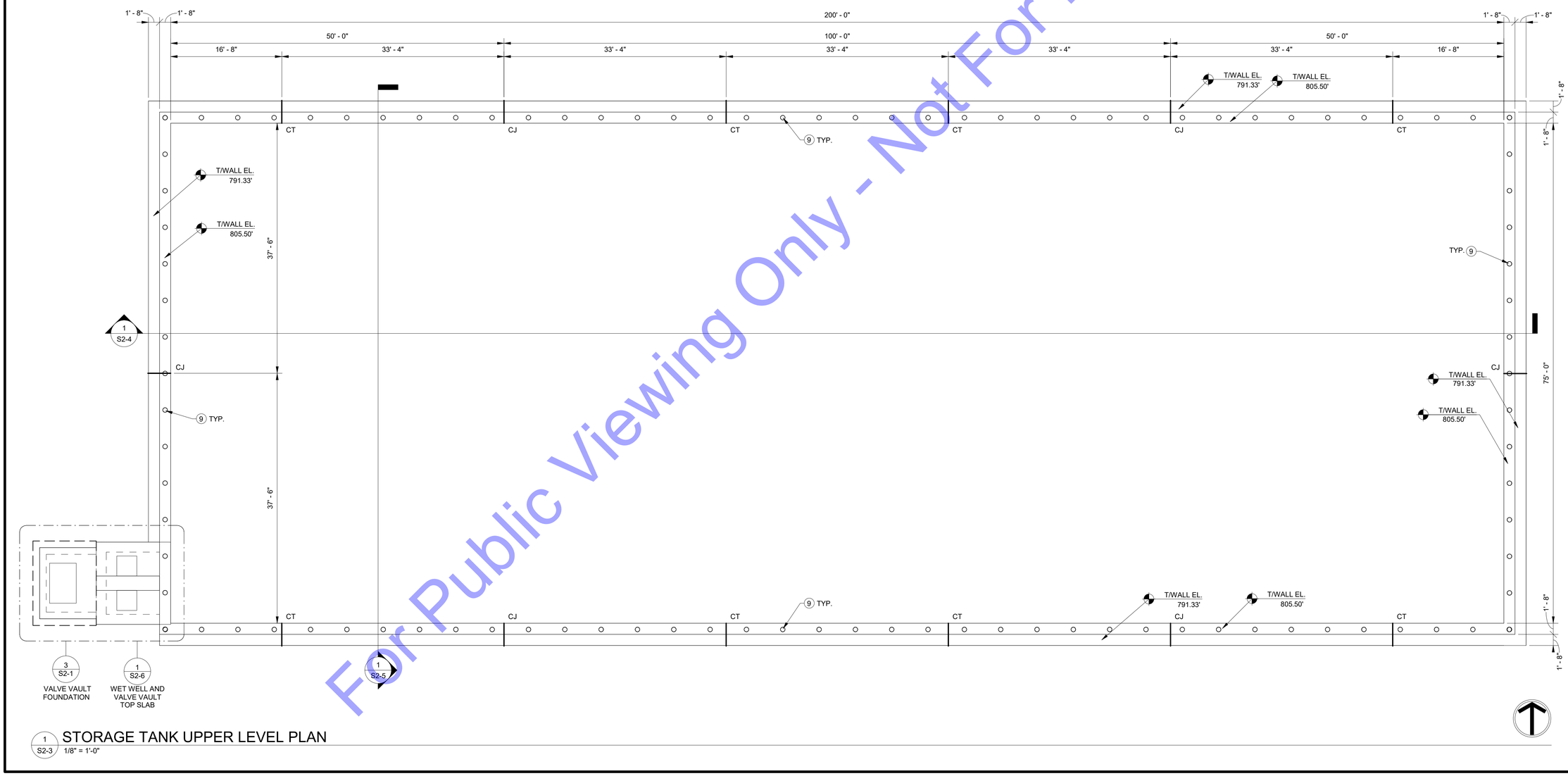
NOTE - BACKFILL BEHIND WET WELL, VALVE VAULT, AND STORAGE BASIN CONCRETE WALLS:

1. THE WET WELL, VALVE VAULT, AND STORAGE BASIN HAVE BEEN DESIGNED SO THAT CONCRETE WALLS CAN BE BACKFILLED TO A HEIGHT OF 13'-0" WITHOUT BRACING BEFORE THE TOP SLAB IS IN PLACE (NOTE: STORAGE BASIN DOES NOT HAVE A TOP SLAB). THE CONCRETE WALLS SHALL BE ALLOWED TO CURE AT LEAST 7 DAYS WITH A MINIMUM CONCRETE COMPRESSIVE STRENGTH OF 3,750 PSI.
2. BACKFILL SHALL BE PLACED SIMULTANEOUSLY ON OPPOSING SIDES OF THE RESERVOIR STRUCTURE WHILE BACKFILLING.
3. WALL BACKFILL SHALL BE FREE DRAINING GRANULAR MATERIAL EXTENDING FROM THE BASE OF THE WALL AT A 45-DEGREE ANGLE FROM VERTICAL TO FINISHED GRADE.
4. SEE THE GEOTECHNICAL REPORT FOR BACKFILL COMPACTION REQUIREMENTS.

UPPER LEVEL PLAN NOTES

○ INDICATES NOTE REFERENCED IN PLAN

1. SEE THE S0-SERIES SHEETS FOR GENERAL STRUCTURAL NOTES AND TYPICAL STRUCTURAL DETAILS.
2. GENERAL CONTRACTOR TO COORDINATE ALL OPENING, PIPE SLEEVES, EMBEDDED ITEMS, HANDRAILS, GRATING, ETC. WITH THE PROCESS DRAWINGS.
3. ALL DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED PRIOR TO FABRICATION, CONSTRUCTION OR ERECTION. THE GENERAL CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ANY DISCREPANCIES.
4. SEE SITE PLAN FOR ALL FINAL GRADE ELEVATIONS.
5. SEE GEOTECHNICAL REPORT FOR ALL BACKFILLING AND COMPACTION REQUIREMENTS BEHIND WALLS AND UNDER BASE SLABS.
6. GENERAL CONTRACTOR SHALL SUBMIT A CONSTRUCTION JOINT (CJ) AND CONTRACTION JOINT (CT) LOCATION PLAN TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO CONCRETE PLACEMENT.
7. SEE DETAILS 6/S0-2 AND 7/S0-2 FOR WALL CONSTRUCTION JOINT AND WALL CONTRACTION JOINT REQUIREMENTS.
8. MAINTAIN STRUCTURAL SLAB THICKNESS AT ALL FLOOR SLOPES AND DEPRESSIONS.
9. HANDRAIL POST, SEE DETAIL 2/S2-4 AND 3/S2-4 FOR ATTACHMENT TO TANK WALL. SEE SHEET MD5 OF THE PROCESS DRAWINGS FOR ADDITIONAL INFORMATION.



1 S2-3 STORAGE TANK UPPER LEVEL PLAN
1/8" = 1'-0"

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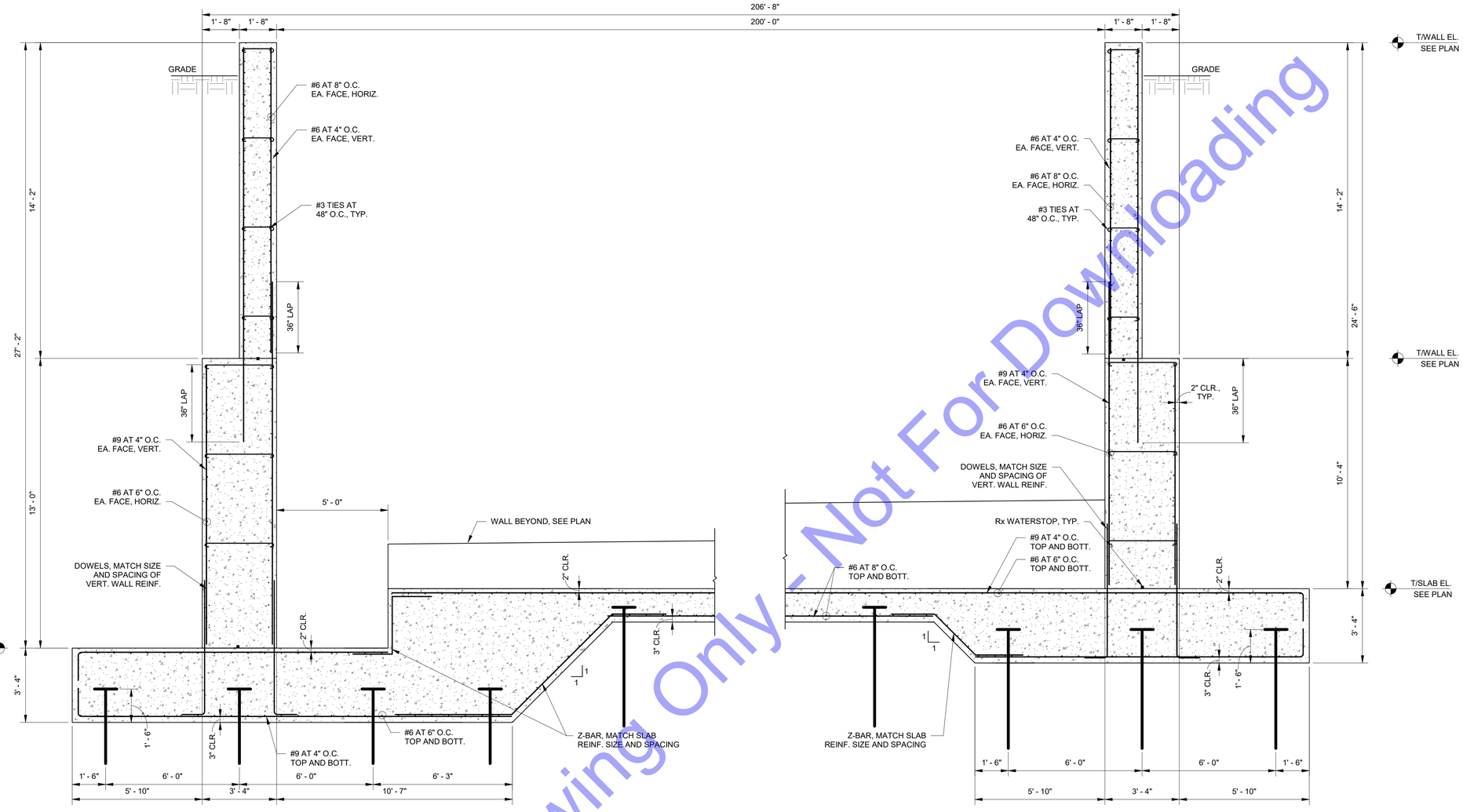
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STORAGE TANK UPPER LEVEL PLAN

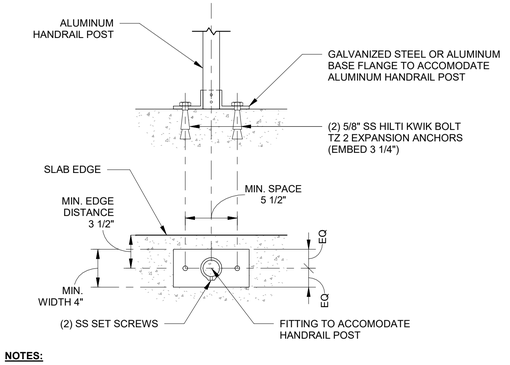
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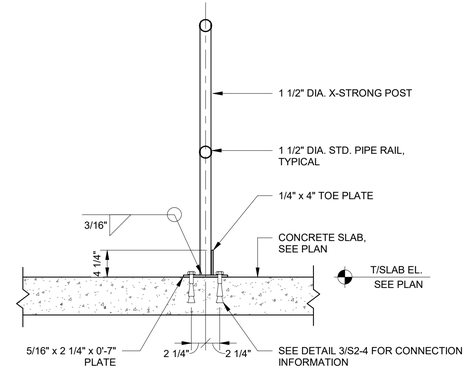
1 S2-4 SECTION
3/8" = 1'-0"



NOTES:

1. ALUMINUM SURFACES IN CONTACT WITH CONCRETE, GROUT, OR DISSIMILAR METALS SHALL BE PROTECTED WITH A COAT OF BITUMINOUS PAINT, MYLAR ISOLATORS OR OTHER APPROVED MATERIAL.

3 S2-4 HANDRAIL BASE FLANGE - AT CONCRETE
1 1/2" = 1'-0"



2 S2-4 HANDRAIL SECTION - CONCRETE ATTACHMENT
1" = 1'-0"

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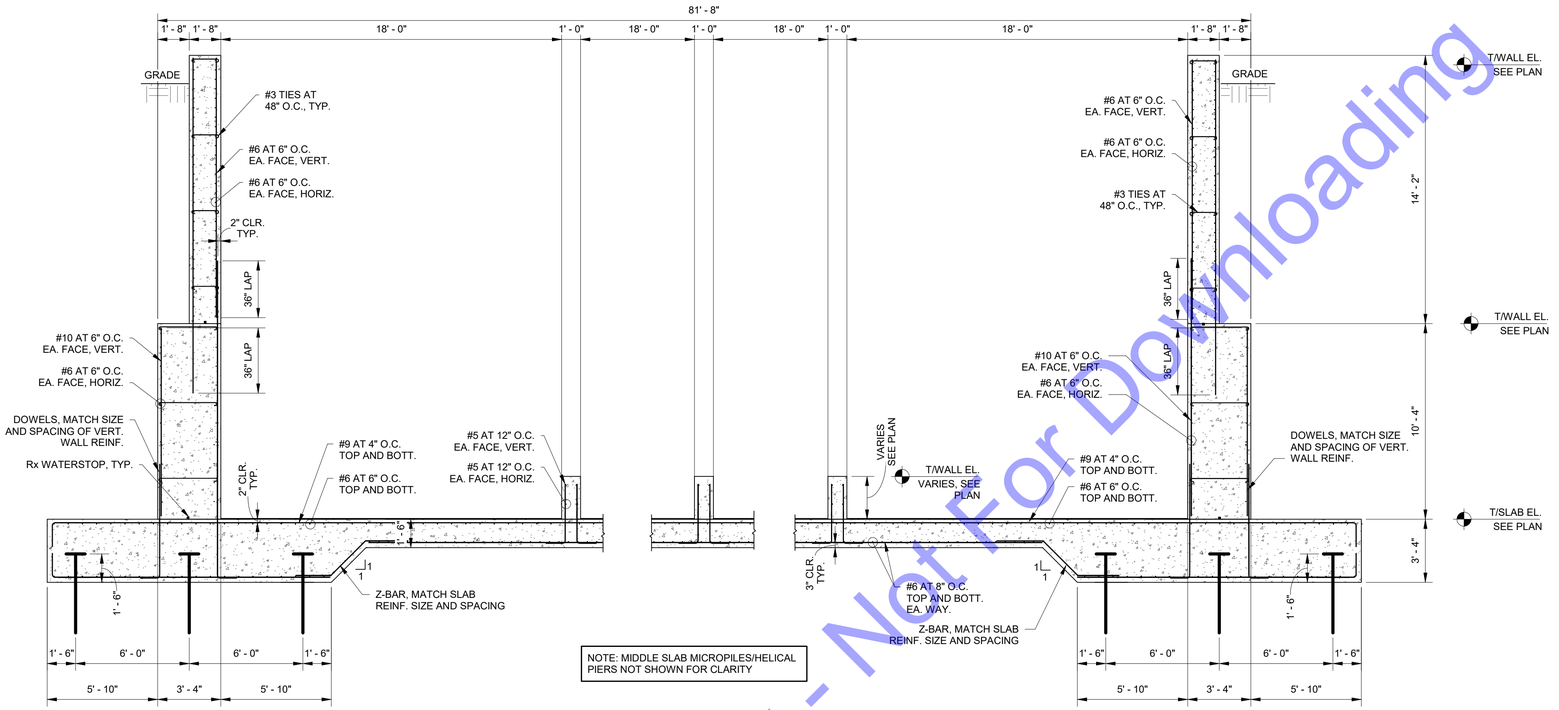
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STORAGE TANK SECTIONS AND DETAILS

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1 S2-5 SECTION

1/4" = 1'-0"

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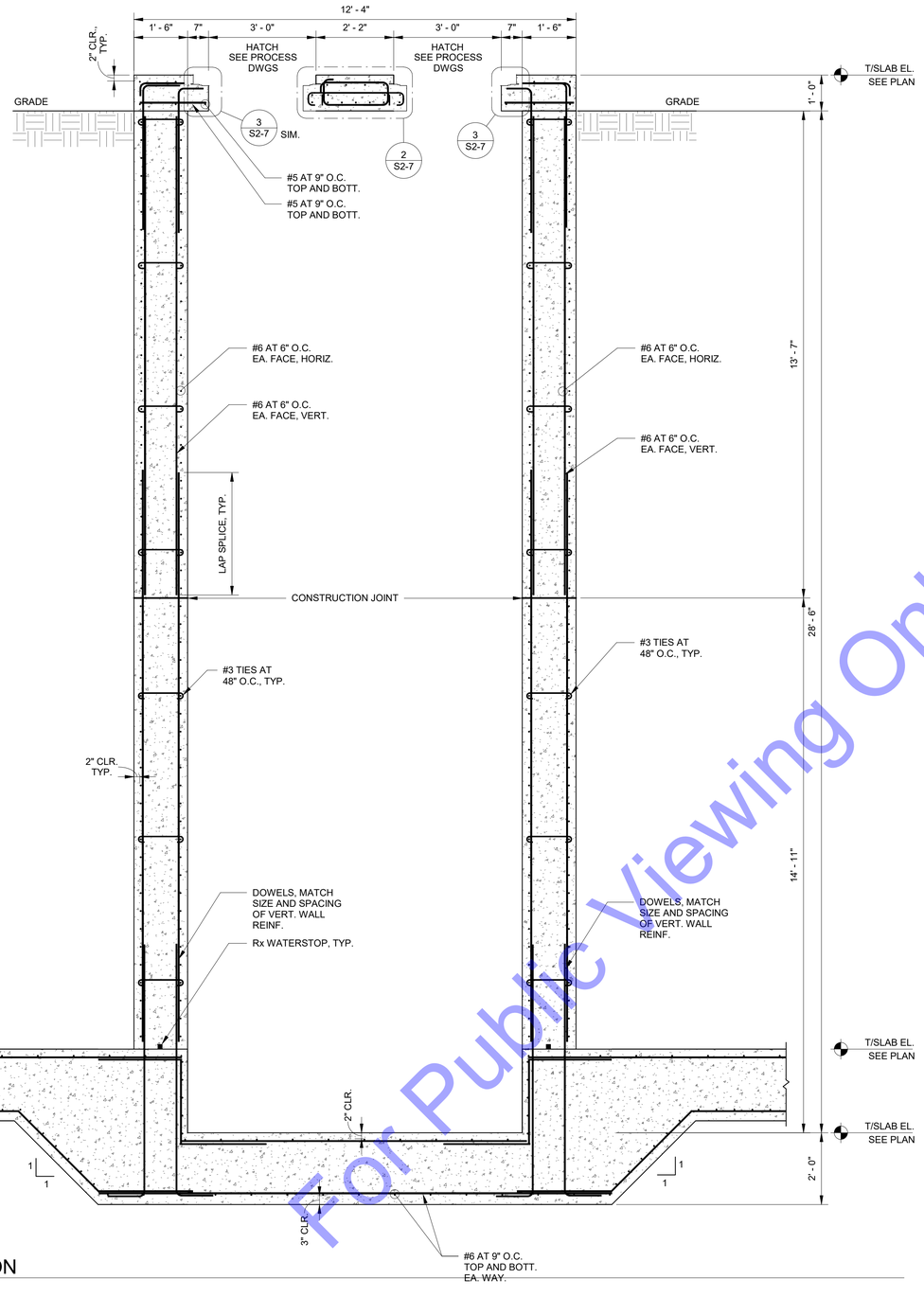
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7/28/25	24-180	1/4" = 1'-0"

STORAGE TANK SECTIONS AND DETAILS

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S2-5
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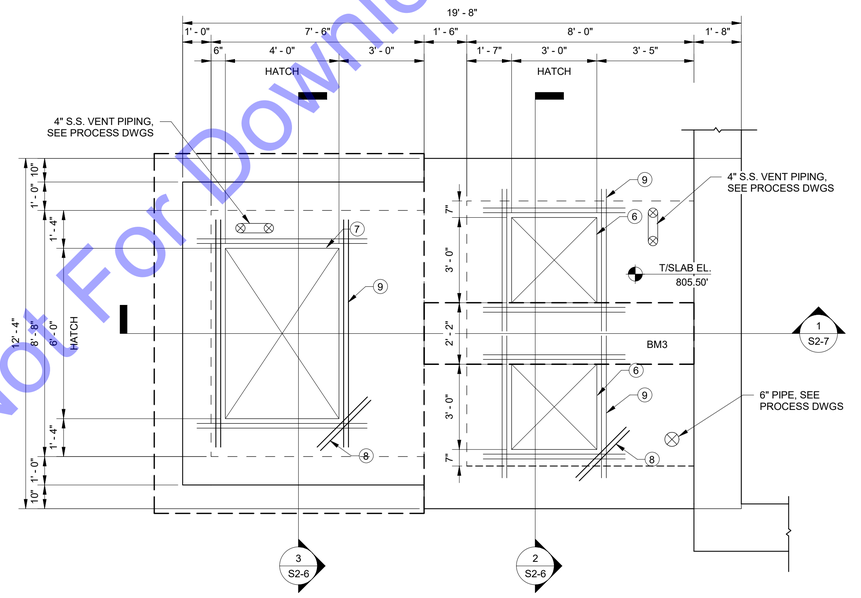


2 S2-6 **SECTION**
1/2" = 1'-0"

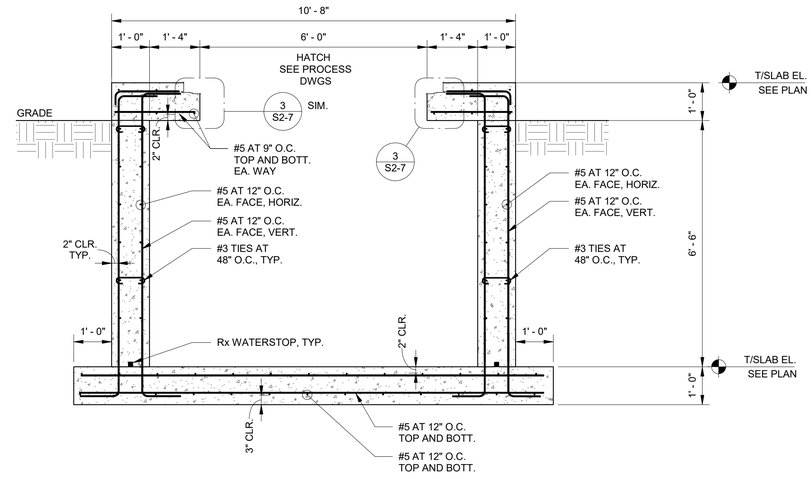
ENLARGED TOP SLAB PLAN NOTES

◯ INDICATES NOTE REFERENCED IN PLAN

1. SEE THE S0-SERIES SHEETS FOR GENERAL STRUCTURAL NOTES AND TYPICAL STRUCTURAL DETAILS.
2. GENERAL CONTRACTOR TO COORDINATE ALL OPENING, PIPE SLEEVES, EMBEDDED ITEMS, HANDRAILS, GRATING, ETC. WITH THE PROCESS DRAWINGS.
3. ALL DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED PRIOR TO FABRICATION, CONSTRUCTION OR ERECTION. THE GENERAL CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ANY DISCREPANCIES.
4. GENERAL CONTRACTOR SHALL SUBMIT A CONSTRUCTION JOINT (CJ) AND CONTRACTION JOINT (CT) LOCATION PLAN TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO CONCRETE PLACEMENT.
5. SEE DETAILS 6/S0-2 AND 7/S0-2 FOR WALL CONSTRUCTION JOINT AND WALL CONTRACTION JOINT REQUIREMENTS.
6. NEW 36" X 36" ACCESS HATCH, SEE PROCESS DRAWINGS. INSTALL ACCESS HATCH PER MANUFACTURER'S RECOMMENDATIONS.
7. NEW 48" X 72" ACCESS HATCH, SEE PROCESS DRAWINGS. INSTALL ACCESS HATCH PER MANUFACTURER'S RECOMMENDATIONS.
8. (2) - #5 (1 EA. FACE) AT RE-ENTRANT CORNERS, TYP.
9. (2) - #5 (1 EA. FACE) AT HATCH OPENINGS



1 S2-6 **ENLARGED WET WELL AND VALVE VAULT PLAN**
3/8" = 1'-0"



3 S2-6 **SECTION**
1/2" = 1'-0"

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JOHN DAVID TAYLOR REGISTERED No. PE19900097 STATE OF INDIANA PROFESSIONAL ENGINEER
Signature 07.28.25 Date
CE Solutions STRUCTURAL ENGINEERS
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MARION UTILITIES SERVICE BOARD
GRANT COUNTY, INDIANA

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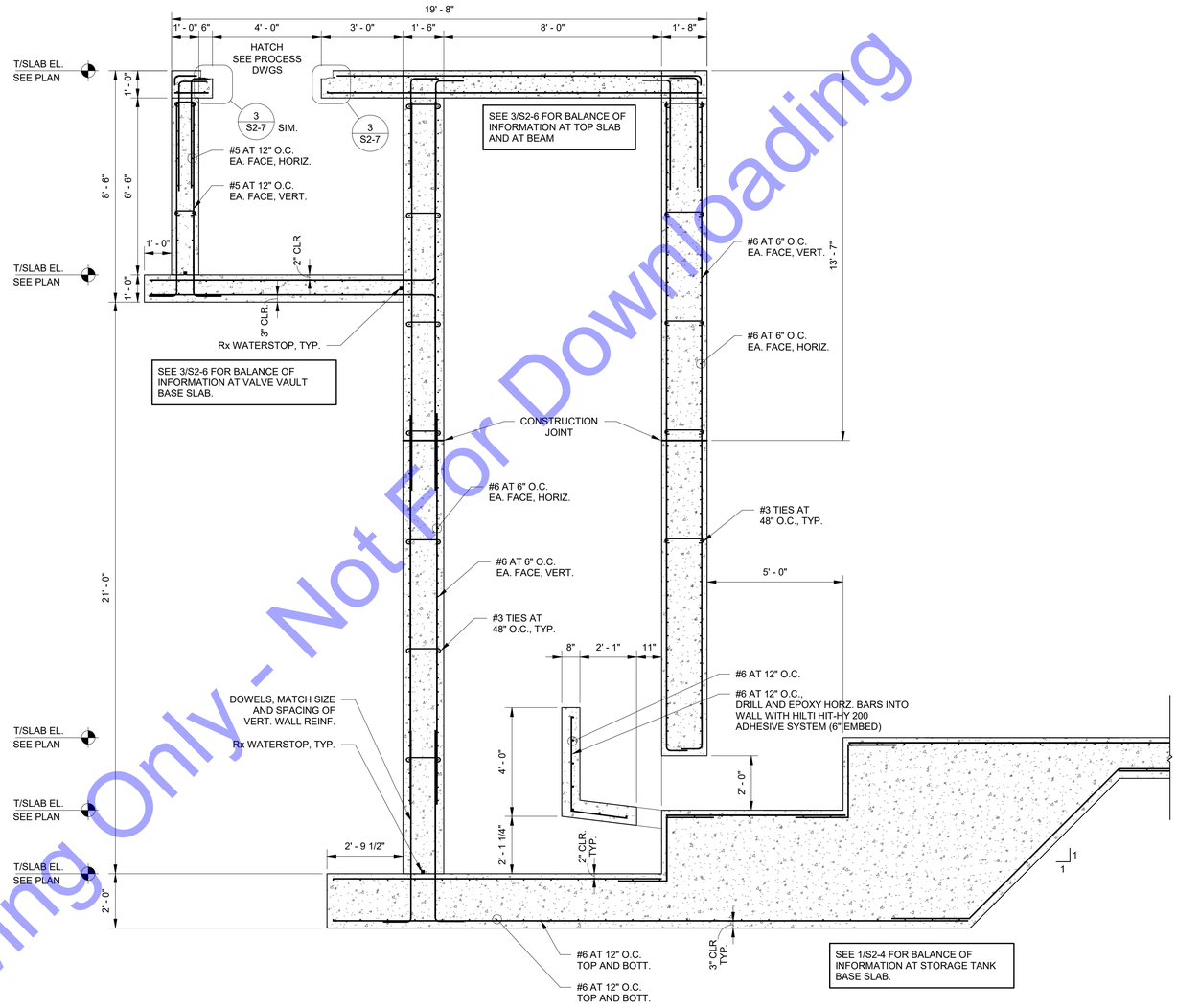
No.	Submittal / Revision	By	Date

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MMK	RMS	JDT
Issue Date:	Project No:	Scale:
7/28/25	24-180	As indicated

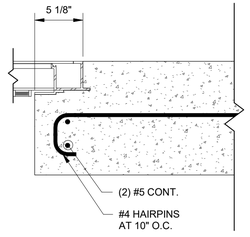
WET WELL & VALVE VAULT ENLARGED PLAN AND SECTIONS

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S2-6
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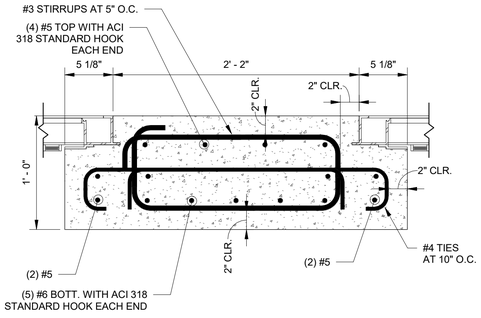


1 S2-7 SECTION
3/8" = 1'-0"



SEE 3/S2-6 FOR BALANCE OF
INFORMATION AT TOP SLAB

3 S2-7 TYP. HATCH SUPPORT DETAIL
1 1/2" = 1'-0"



2 S2-7 BEAM B3 AT HATCH SUPPORT
1 1/2" = 1'-0"

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JOHN DAVID TAYLOR REGISTERED No. PE19900097 STATE OF INDIANA PROFESSIONAL ENGINEER
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LIFT STATION
SECTION

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PROCESS AND INSTRUMENTATION DIAGRAM LEGEND

INSTRUMENT TAG IDENTIFICATION



COMPONENT DESIGNATOR

AREA 035D: BUILDING OR PROCESS AREA NUMBER

TAG TYPE P: FIRST LETTER, SEE ISA TABLE BELOW
AH: SUCCEEDING LETTERS, SEE ISA TABLE BELOW

TAG NUMBER 12: P&ID NUMBER
3: LOOP NUMBER
4: EQUIPMENT NUMBER
A: DEVICE LETTER IF MULTIPLE DEVICES

TAG FUNCTION HOA: TAG FUNCTION ABBREVIATION, SEE LISTING AT RIGHT

(QUANTITY) (2): TOTAL NUMBER OF DEVICES WHERE MORE THAN ONE DEVICE IS REQUIRED. DEVICE NUMBERS ARE SEQUENTIAL BEGINNING WITH THE TAG NUMBER SHOWN. IF QUANTITY IS NOT SHOWN, THEN ONE DEVICE ONLY IS REQUIRED.

COMPONENT DESIGNATOR SEE LISTING AT RIGHT

PLC POINT TYPE

ANALOG INPUT	
ANALOG OUTPUT	
DISCRETE INPUT	
DISCRETE OUTPUT	
NETWORK CONNECTION	

TAG FUNCTION ABBREVIATIONS

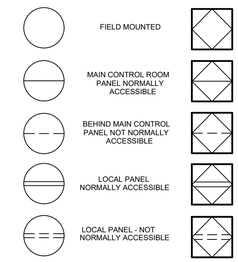
ALT ALTERNATE
C CLOSED(C)
CM COMPUTER-MANUAL
DIFF DIFFERENCE OR DIFFERENTIAL
DO DISSOLVED OXYGEN
F FAIL
F(X) CHARACTERIZED
FOR FOWARD-STOP(OFF)-REVERSE(MAINTAINED CONTACT)
FSR FOWARD-STOP-REVERSE(MOMENTARY CONTACT)
HOA HAND-OFF-AUTOMATIC(MAINTAINED CONTACT)
HOR HAND-OFF-REMOTE(MAINTAINED CONTACT)
II CURRENT TO CURRENT
IP CURRENT TO PNEUMATIC
LL LEAD-LAG(MAINTAINED CONTACT)
LOE LOSS OF ECHO(ULTRASONIC SENSOR FAILURE)
LOR LOCAL-OFF-REMOTE(MAINTAINED CONTACT)
LOS LOCKOUT STOP(LOCKABLE IN "STOP" POSITION MOMENTARY CONTACT)
L/R LOCAL/REMOTE(MAINTAINED CONTACT)
MA MANUAL-AUTOMATIC(MAINTAINED CONTACT)
MOA MANUAL-OFF-AUTOMATIC(MAINTAINED CONTACT)

O OPEN
OA OFF-AUTOMATIC
OCA OPEN-CLOSE-AUTOMATIC(MAINTAINED CONTACT)
OC OPEN-CLOSE(D)(MAINTAINED CONTACT)
OSC OPEN-STOP-CLOSE(MOMENTARY CONTACT SPRING RETURN TO CENTER POSITION)
00 ON-OFF(MAINTAINED CONTACT)
OOA ON-OFF-AUTOMATIC(MAINTAINED CONTACT)
OOR ON-OFF-REMOTE(MAINTAINED CONTACT)
R RUN
SBL SLUDGE BLANKET INTERFACE LEVEL
SP SPEED POT
SQRT SQUARE ROOT
SS START-STOP
SSA START-STOP-AUTOMATIC
SSL START-STOP-LOCK (LOCKABLE IN "STOP" POSITION. MOMENTARY CONTACT)
SUM SUMMMATION
VIB VIBRATION
X MULTIPLY

FWD FOWARD
REV REVERSE
F/R FOWARD/REVERSE(MOTOR STARTER COILS)
ESTP ESTOP(EMERGENCY STOP)
SPD (SPEED POT)
SUSP SUSPEND
ALRT ALERT
RSET RESET
STRT START

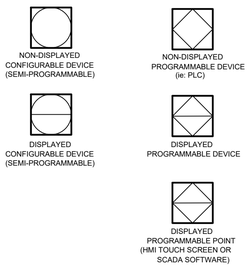
TAG SYMBOLS

HORIZONTAL BAR SYMBOLS FOR PHYSICAL MOUNTING OF DEVICE



CONTROL AND I/O DEVICES DISPLAY

[ADD APPROPRIATE HORZ. BAR(S)]



INSTRUMENT SOCIETY OF AMERICA TABLE

LETTER	FIRST LETTER(S)		SUCCEEDING LETTER(S)		
	PROCESS OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM(W, LOGGING)	ANN(NCIATE	
B	BURNER COMBUSTION		USERS CHOICE(*)	USERS CHOICE(*)	USERS CHOICE(*)
C	USERS CHOICE(*)			CONTROL	CLOSE
D	USERS CHOICE(*)	DIFFERENTIAL			
E	VOLTAGE		PRIMARY ELEMENT		
F	FLOW RATE	RATIO			FEEDBACK
G	USERS CHOICE(*)		GLASS		
H	HAND (MANUAL)				HIGH
I	CURRENT		INDICATE		
J	POWER	SCAN			
K	TIME OR SCHEDULE	TIME RATE OF CHANGE	KEYPAD(DATA ENTRY)	CONTROL STATION	
L	LEVEL		LIGHT(PILOT)		LOW
M	MOTOR	MOMENTARY			MONITORING
N	USERS CHOICE(*)		USERS CHOICE(*)	USERS CHOICE(*)	USERS CHOICE(*)
O	USERS CHOICE(*)		ORIFICE		
P	PRESSURE OR VACUUM		POINT TEST CONNECTION		
Q	QUANTITY	INTEGRATE			
R	RADIATION		RECORD, TREND, LOG		
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSIT	
U	UNIVERSAL/MULTIVARIABLE(*)		MULTIFUNCTION(*)	MULTIFUNCTION(*)	MULTIFUNCTION(*)
V	VIBRATION		VALUE	VALVE	
W	WEIGHT, FORCE, TORQUE		WELL	W	
X	UNCLASSIFIED(*)	X AXIS	UNCLASSIFIED(*)	UNCLASSIFIED(*)	UNCLASSIFIED(*)
Y	EVENT, STATE	Y AXIS		RELAY OR COMPUTE(R)	
Z	POSITION, DIMENSION	Z AXIS		DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT	

(*) WHEN USED, EXPLANATION IS SHOWN ADJACENT TO INSTRUMENT SYMBOL

SPECIAL CASES:
ETM - ELAPSED TIME METER
JBX - JUNCTION BOX
NDX - INDEX #
MS - MOTOR STARTER
MOR - MOTOR OVERLOAD RELAY
MPR - MOTOR PROTECTION RELAY

CONDUIT NOTES

PVC SCHEDULE 40 BELOW GRADE.

RIGID ALUMINUM OR PVC COATED RGS CONDUIT ABOVE GRADE OUTDOORS.

RIGID ALUMINUM OR PVC COATED RGS CONDUIT IN CLASSIFIED AND CORROSIVE SPACES.

NO CONDUIT SHALL BE RAN ON TOP OF A DECK, ON A WALKWAY, OR IN AN AREA THAT MAY POSE A TRIP HAZARD. NO CONDUIT SHALL BE RAN ABOVE A DECK, ABOVE A WALKWAY, OR IN AN AREA THAT IS COMMONLY TRAVELED. ALL CONDUIT IN SUCH AREAS SHALL BE COORDINATED WITH THE OWNER/ENGINEER AND SHALL BE RAN BELOW GRADE OR IN THE CONCRETE DECKING OR PAD. CONDUIT RAN IN CONCRETE DECKING OR PAD SHALL BE AVOIDED WHEN POSSIBLE. IF CONDUIT IS TO BE ROUTED IN A STRUCTURAL CONCRETE DECK, PAD, WALL, ETC. IT SHALL BE COORDINATED AND APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. CONDUIT RAN IN CONCRETE CAN IMPACT THE STRUCTURAL INTEGRITY OF CONCRETE. IT IS THE CONTRACTORS RESPONSIBILITY TO CONFORM TO ANY REQUIREMENTS REQUIRED OF THE STRUCTURAL ENGINEER TO ACCOMMODATE THE INTEGRITY OF THE INSTALLATION AT NO COST TO THE OWNER. FOR A CONDUIT EMBEDDED IN CONCRETE TO BE CONSIDERED IT MUST BE THE ONLY REASONABLE SOLUTION AS DETERMINED BY THE ENGINEER, ALL PROPOSED INSTALLATIONS MUST COMPLY WITH ACI 318 AND BE ENGINEER APPROVED.

ALL UNDERGROUND CONDUITS SHALL BE SEALED AT BOTH ENDS.

NO CONDUIT PENETRATIONS ON THE TOP OF ANY OUTDOOR PANELS/ENCLOSURES.

EMT IS ACCEPTABLE IN CONDITIONED ELECTRICAL ROOMS AND OFFICE/BREAK AREAS ONLY. EMT SHALL BE TRANSITIONED PRIOR TO EXITING NON CORROSIVE SPACES. EMT SHALL NOT BE USED WHEN IT CAN BE EXPOSED TO ANY CORROSIVE GASES.

CONTROL WIRING REQUIREMENTS

EACH ANALOG INPUT REQUIRES AN 18/2 TWISTED SHIELDED PAIR IN 3/4" CONDUIT UNLESS NOTED OTHERWISE.

EACH ANALOG OUTPUT REQUIRES AN 18/2 TWISTED SHIELDED PAIR IN 3/4" CONDUIT UNLESS NOTED OTHERWISE.

EACH DISCRETE INPUT REQUIRES 2 #14's IN 3/4" CONDUIT UNLESS NOTED OTHERWISE.

EACH DISCRETE OUTPUT REQUIRES 2 #14's IN 3/4" CONDUIT UNLESS NOTED OTHERWISE.

CONTROL WIRING OF THE SAME TYPE MAY BE COMBINED INTO THE SAME CONDUIT. EXAMPLES: TWO 4-20MA ANALOG SIGNALS MAY BE COMBINED, TWO 24VDC DISCRETE SIGNALS MAY BE COMBINED, AND TWO 120VAC DISCRETE SIGNALS MAY BE COMBINED.

NOTE: INSTRUMENTS AND CABLE SHALL BE AS REQUIRED BY THE INSTRUMENT MANUFACTURER.

INSTRUMENT POWER

INSTRUMENTS REQUIRING 120 VAC:

1. MAGNETIC FLOW METERS
2. TURBIDITY TRANSMITTERS
3. pH TRANSMITTERS
4. ORP TRANSMITTERS
5. DO TRANSMITTERS
6. ULTRASONIC LEVEL TRANSMITTERS
7. ULTRASONIC FLOW TRANSMITTERS
8. INFLUENT AND EFFLUENT SAMPLERS

NOTE: THIS LIST IS PROVIDED AS A REFERENCE AND IS NOT ALL INCLUSIVE. COORDINATE WITH THE GENERAL CONTRACTOR AND THE EQUIPMENT SUPPLIERS FOR DETAILED WIRING REQUIREMENTS OF INSTRUMENTS, SENSORS, AND EQUIPMENT.

ELECTRICAL GENERAL NOTES

(GENERAL NOTES APPLICABLE TO ALL ELECTRICAL SHEETS)

1. CONTRACTOR SHALL EXAMINE NOT ONLY PLANS AND SPECIFICATIONS FOR ELECTRICAL AND INSTRUMENTATION, BUT PLANS AND SPECIFICATIONS FOR OTHER RELATED SECTIONS. VISIT THE SITE TO BECOME ACQUAINTED WITH ALL PROJECT CONDITIONS INCLUDING EXISTING CONDITIONS. EXECUTION OF CONTRACT IS EVIDENCE THAT THE CONTRACTOR HAS EXAMINED ALL DRAWINGS AND SPECIFICATIONS AND THAT ALL CONDITIONS OF INSTALLING THE WORK IN THIS SECTION ARE VERIFIED. LATE CLAIMS FOR LABOR AND MATERIALS REQUIRED DUE TO DIFFICULTIES ENCOUNTERED, WHICH COULD HAVE BEEN FORESEEN HAD EXAMINATIONS BEEN MADE WILL NOT BE RECOGNIZED.
2. THE DRAWINGS ARE DIAGRAMMATIC AND ARE NOT INTENDED TO INCLUDE EVERY DETAIL OF REQUIRED CONSTRUCTION, EQUIPMENT, AND MATERIALS. PROVIDE ALL MATERIALS AND WORK NOT SPECIFICALLY MENTIONED, SHOWN, OR CAN BE REASONABLY INFERRED ON THE DRAWINGS BUT WHICH ARE NECESSARY TO FULLY COMPLETE THE WORK.
3. WHEN SUBSTITUTING OTHER EQUIPMENT, MATERIALS, AND PRODUCTS THAN SPECIFIED IN THE CONTRACT DOCUMENTS, INCLUDE IN PRICING ALL COSTS FOR OTHER DESIGN CHANGES TO THE PROJECT (ALL DIVISIONS) WHICH WILL RESULT FROM USE OF THE SUBSTITUTED ITEM(S).
4. REVIEW THE CONTRACT DOCUMENTS OF OTHER DIVISIONS, AND COORDINATE ELECTRICAL AND CONTROL WORK WITH THE WORK OF OTHER DISCIPLINES TO AVOID CONFLICTS AND INTERFERENCE.
5. UPON COMPLETION OF THE WORK REQUIRED UNDER THIS CONTRACT, PROVIDE TYPED UPDATED DIRECTORY WITHIN DOOR OF EACH AFFECTED PANELBOARD. LEAVE "SPARE" BREAKERS IN "OFF" POSITION.
6. ALL MOUNTING HEIGHTS INDICATED ON DRAWINGS ARE TO CENTERLINE, UON.
7. PROVIDE LIGHTING FIXTURES COMPATIBLE WITH CEILING CONSTRUCTION. COORDINATE WITH ARCHITECTURAL ROOM FINISH SCHEDULES.
8. IN AREAS HAVING FINISHED CEILINGS, LOCATE CEILING-MOUNTED ELECTRICAL DEVICES AND FIXTURES ACCORDING TO ARCHITECTURAL REFLECTED CEILING PLAN. DO NOT INSTALL CEILING-MOUNTED SMOKE DETECTORS WITHIN 4 FEET OF HVAC SUPPLY DIFFUSERS.
9. IN ELECTRICAL AND MECHANICAL EQUIPMENT SPACES, COORDINATE EXACT LOCATIONS OF LIGHTING FIXTURES WITH CONDUIT BANKS, DUCTWORK, PIPING, STRUCTURE, SUPPORTS, AND OTHER OBSTRUCTIONS. LOCATE FIXTURES SUCH THAT DIALS, GAUGES, METERS, ETC. ARE PROPERLY ILLUMINATED.
10. DO NOT USE ANY LIGHTING FIXTURE AS A RACEWAY FOR CONDUCTORS NOT SERVING THAT PARTICULAR FIXTURE.
11. CONNECT BATTERY-OPERATED EMERGENCY LIGHTING UNITS AND EXIT SIGNS HAVING BATTERY BACK-UP TO UNSWITCHED LEG OF LOCAL LIGHTING CIRCUIT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND NEC SUCH THAT FAILURE OF CIRCUIT TRANSFERS UNIT FROM NORMAL TO EMERGENCY MODE, CAUSING LAMPS TO RE-ENERGIZE.
12. DO NOT INSTALL OUTLET BOXES BACK-TO-BACK IN NON-RATED PARTITIONS. OFFSET AND SEAL, SIMILAR TO REQUIREMENTS FOR RATED PARTITIONS, TO MINIMIZE SOUND TRANSMISSION.
13. COORDINATE ROUTING OF ALL LARGE CONDUITS (2" DIA AND LARGER) AND PULL BOX LOCATIONS WITH GENERAL CONTRACTOR PRIOR TO INSTALLATION TO AVOID CONFLICTS AND TO GUARANTEE REQUIRED CLEARANCE AND ACCESSIBILITY OF ELECTRICAL AND OTHER SYSTEMS.
14. COORDINATE WITH OWNER OR OWNER'S SELECTED VENDOR PRIOR TO ROUGH-IN FOR EXACT LOCATIONS OF SPECIAL PURPOSE OUTLETS DEDICATED TO SPECIFIC EQUIPMENT. VERIFY REQUIRED NEMA CONFIGURATION OF ALL SUCH OUTLETS.
15. PROVIDE APPROPRIATE PULL WIRE IN EACH EMPTY SYSTEMS CONDUIT INCLUDED IN THIS PROJECT.
16. INCLUDE GREEN-INSULATED GROUNDING CONDUCTOR SIZED PER 2002 NEC TABLE 250-122 WITH ALL BRANCH CIRCUIT CONDUCTORS SERVING LIGHTING FIXTURES, RECEPTACLES, MECHANICAL OR OTHER DEVICES INSTALLED AT OR BELOW GRADE.
17. MATCH A.I.C. RATINGS AND OTHER CHARACTERISTICS OF EXISTING DEVICES IN PANELBOARD WHEN ADDING BREAKERS TO EXISTING PANELBOARDS.
18. ALL WORK SHALL BE IN CONFORMANCE WITH THE NATIONAL ELECTRICAL CODE - LATEST EDITION ADOPTED BY INDIANA, THE INDIANA CODE AMENDMENT, LOCAL/MUNICIPAL CODE, AND THE AUTHORITIES HAVING JURISDICTION.
19. ALL CONNECTIONS TO EQUIPMENT SUBJECT TO MOVEMENT OR VIBRATION SHALL BE LIQUID TIGHT FLEXIBLE METAL CONDUIT, NOT LESS THAN 12" IN LENGTH, NOR GREATER THAN 36" IN LENGTH.
20. ALL CONDUIT PENETRATIONS SHALL BE SEALED WITH APPROPRIATE CONDUIT SEALING MATERIAL.
21. ALL CABLE SIZES SHALL UTILIZE COPPER CONDUCTORS.
22. FIELD VERIFY LOCATIONS OF BUILDING EXPANSION JOINTS WHEN ROUTING CONDUIT. ALL CONDUITS CROSSING EXPANSION JOINTS SHALL BE INSTALLED WITH THE EXPANSION FITTINGS. EXPANSION FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE NEC AND MANUFACTURERS WRITTEN RECOMMENDATIONS.
23. FEEDERS FROM PANELBOARDS BACK TO MAIN SWITCHBOARD, BETWEEN AUTO TRANSFER SWITCHES AND THEIR SOURCES/LOADS, BETWEEN DRY TRANSFORMERS AND THEIR SOURCES/LOADS ARE NOT INDICATED. FEEDERS ARE PART OF THE WORK, AND SHALL BE SIZED AS INDICATED ON THE LINE DIAGRAM.
24. HOMERUNS SHALL NOT BE COMBINED IN A RACEWAY UNLESS SHOWN ON THE CONTRACT DRAWINGS. SINGLE PHASE BRANCH CIRCUIT HOMERUNS MAY BE COMBINED AT THE CONTRACTORS DISCRETION NOT GREATER THAN (3) PHASE CONDUCTORS, NEUTRAL CONDUCTORS, AND A GROUNDING CONDUCTOR.
25. EACH SINGLE PHASE BRANCH CONDUCTOR SHALL HAVE A DEDICATED NEUTRAL BACK TO THE PANEL.
26. ALL PENETRATIONS BELOW GRADE SHALL USE LINK SEALS.
27. WHERE LOW VOLTAGE (CONTROL) CABLING IS ALLOWED TO BE INSTALLED WITHOUT A RACEWAY, IT SHALL BE SUPPORTED NOT EXCEEDING INTERVALS OF 48", AND NOT MORE THAN 6" FROM THE CABINETS, BOXES, FITTINGS, OUTLETS, RACKS, FRAMES AND TERMINALS.
28. ALL MOUNTING HARDWARE INCLUDING NUTS, BOLTS, SCREWS, WASHERS, ETC. SHALL BE STAINLESS STEEL.
29. MOUNT JUNCTION BOXES AND DISCONNECT SWITCHES ON STAINLESS STEEL UNISTRUT.
30. ALL UNISTRUT, MOUNTING BRACKETS AND SUPPORTING STRUCTURES SHALL BE STAINLESS STEEL.
31. DO NOT MIX CONTROL AND POWER CONDUCTORS IN THE SAME CONDUIT. DO NOT MIX DISCRETE AND ANALOG CONTROL CONDUCTORS IN THE SAME CONDUIT.
32. ADJUSTABLE SPEED DRIVES (ASD) LINE AND LOAD WIRE SHALL BE RUN IN SEPARATE RACEWAYS.
33. CONTRACTOR SHALL COORDINATE WITH HEAT TRACE MANUFACTURER DURING BIDDING AND CONSTRUCTION AND SHALL PROVIDE ALL CONDUIT, WIRING, AND CIRCUITS AS REQUIRED. HEAT TRACE SHALL BE PROVIDED/INSTALLED COMPLETE. ALL HEAT TRACE IS REQUIRED TO BE GFI PROTECTED.
34. CONTRACTOR SHALL NOT COMBINE POWER FEEDS FOR THREE PHASE LOADS.
35. THE BELOW LOCATIONS ARE WHERE GFCI OUTLETS ARE REQUIRED:
    35.1. KITCHENS: ALL KITCHEN OUTLETS.
    35.2. BATHROOMS: GFCI OUTLETS ARE REQUIRED IN BATHROOMS NEAR THE SINK.
    35.3. GARAGES: GFCI OUTLETS ARE REQUIRED IN GARAGES THAT HAVE SINKS.
    35.4. BASEMENTS: UNFINISHED BASEMENTS REQUIRE AT LEAST ONE GFCI OUTLET.
    35.5. OUTDOOR SPACES: GFCI OUTLETS ARE REQUIRED IN OUTDOOR AREAS THAT ARE ACCESSIBLE OR AT GRADE LEVEL.
    35.6. LAUNDRY ROOMS: ALL LAUNDRY ROOM OUTLETS.
    35.7. CRAWL SPACES: GFCI OUTLETS ARE REQUIRED IN CRAWL SPACES WHERE MECHANICAL EQUIPMENT IS LOCATED.
    35.8. UTILITY ROOMS: ALL UTILITY ROOM OUTLETS.
36. LIMIT CAT 6E INSTALLATION TO 230' MAXIMUM DISTANCE. CONTRACTOR SHALL FURNISH AND INSTALL FIBER OPTIC CABLE AND MEDIA CONVERTERS IF CONDUIT ROUTING EXCEEDS CAT 6E LIMITS.

LEGEND

SYMBOL	DESCRIPTION	MTG HGT AFF TO CL, UON
	OPEN LIGHTING FIXTURE SYMBOLOGY DENOTING FIXTURES CONNECTED TO NORMAL POWER: FIXTURE TYPE DETERMINES MOUNTING.	-----
	SINGLE DIAGONAL LIGHTING FIXTURE SYMBOLOGY DENOTING FIXTURES CONNECTED TO CRITICAL OR EQUIPMENT BRANCH (OR EMERGENCY POWER), UON: FIXTURE TYPE DETERMINES MOUNTING.	-----
	DOUBLE DIAGONAL LIGHTING FIXTURE SYMBOLOGY DENOTING FIXTURES CONNECTED TO LIFE SAFETY BRANCH (OR EMERGENCY POWER), UON: FIXTURE TYPE DETERMINES MOUNTING.	-----
	BATTERY POWERED EMERGENCY LIGHTING UNIT	7'-6"
	EXIT SIGN: ARROWS DENOTE DIRECTIONAL INDICATING CHEVRON RQMTS, SHADING DENOTES FACE(S) ORIENTATION.	-----
	WALLWASH OR OTHER DIRECTIONALLY ADJUSTABLE/AIMABLE FIXTURE: OPEN SIDE DENOTES ORIENTATION. TYPE DETERMINES MOUNTING.	-----
	TRACK LIGHTING FIXTURE: TYPE DETERMINES MOUNTING.	-----
	POLE-MOUNTED SITE LIGHTING FIXTURE: TYPE DETERMINES MTG.	-----
	FLOOD LIGHTING FIXTURE: TYPE DETERMINES MOUNTING.	-----
PC	PHOTO-CELL	-----
XX	ALL FIXTURES IN THIS SPACE SHALL BE SAME TYPE INDICATED, U.O.N.	-----
S	SINGLE-POLE TOGGLE SWITCH	3'-10"
$	SINGLE-POLE TOGGLE SWITCH: SLASH DENOTES ESSENTIAL POWER SYSTEM CONNECTION - TYPICAL FOR ALL SWITCHES.	3'-10"
$OV	DUAL TECHNOLOGY, WALL MNTD OCCUPANCY SENSOR WITH MANUAL OVERRIDE SWITCH	3'-10"
$O	DUAL TECHNOLOGY, CEILING MNTD OCCUPANCY SENSOR WITH REMOTE MANUAL OVERRIDE SWITCH	
$OR	SINGLE-POLE REMOTE OVERRIDE SWITCH FOR CEILING MNTD OCCUPANCY SENSOR	3'-10"
$D	DIMMER SWITCH	3'-10"
$D3	THREE-WAY DIMMER SWITCH	3'-10"
$P	SINGLE-POLE TOGGLE SWITCH WITH PILOT LIGHT	3'-10"
$M	SINGLE-POLE MOTOR-RATED TOGGLE SWITCH DISCONNECT	3'-10"
$T	SINGLE-POLE OR DOUBLE-POLE MANUAL MOTOR STARTER WITH MELTING ALLOY ELEMENTS FOR THERMAL OVERLOAD PROTECTION	3'-10"
$IR	OCCUPANCY SENSOR SWITCH	3'-10"
$IT	INTERVAL TIMER RESET AND CONTROL SWITCH	3'-10"
$J	JOG SWITCH	3'-10"
	MUSHROOM HEAD TYPE PUSHBUTTON STATION	5'-0"
P	AUTO DOOR CONTROL PUSHPLATE	-----
$V	VARIABLE INTENSITY CONTROLLER INCLUDED WITH OWNER-FURNISHED-CONTRACTOR-INSTALLED SURGICAL LIGHTING FIXTURE	5'-0"
$LV	LOW VOLTAGE CONTROL SWITCH	3'-10"
WS	FACTORY SUPPLIED WALL CONTROLLER FOR CEILING MOUNTED LIGHT-INSTALLED BY ELECTRICAL CONTRACTOR	3'-10"
	120V DUPLEX RECEPTACLE, STANDARD MOUNTING HEIGHT	1'-6"
	120V DUPLEX RECEPTACLE, SPECIAL MOUNTING HEIGHT INSTALL AT SAME HEIGHT AS SWITCHES IF NO HEIGHT IS INDICATED	ABOVE COUNTER
	120V QUADRUPLEX RECEPTACLE, STANDARD MOUNTING HEIGHT	1'-6"
	120V QUADRUPLEX RECEPTACLE, SPECIAL MOUNTING HEIGHT INSTALL AT SAME HEIGHT AS SWITCHES IF NO HEIGHT IS INDICATED	ABOVE COUNTER
	120V SINGLE RECEPTACLE, AMP RATING (IF OTHER THAN 20A) SHOWN: STANDARD MOUNTING HEIGHT, OR OTHER HEIGHT AS NOTED	1'-6", UON
GFCI	120V GFCI DUPLEX RECEPTACLE, STANDARD MOUNTING HEIGHT	1'-6"
	120V GFCI QUADRUPLEX RECEPTACLE, SPECIAL MOUNTING HEIGHT INSTALL AT SAME HEIGHT AS SWITCHES IF NO HEIGHT IS INDICATED	ABOVE COUNTER
	120V GFCI DUPLEX RECEPTACLE, SPECIAL MOUNTING HEIGHT INSTALL AT SAME HEIGHT AS SWITCHES IF NO HEIGHT IS INDICATED	ABOVE COUNTER
	SINGLE RECEPTACLE (OTHER THAN 120V), VOLTAGE, AMP RATING, NEMA CONFIGURATION, AND MOUNTING HEIGHT AS NOTED	-----
	RECEPTACLE OR J-BOX CONNECTION FOR X-RAY VIEWER: VERIFY CONNECTION RQMTS WITH UNIT FURNISHED PRIOR TO ROUGH-IN	-----
	120V DUPLEX RECEPTACLE IN FLUSH FLOOR-MOUNTED BOX	-----
TP	TELE-POWER POLE	-----
H	HALON DUMP STATION	-----
F	FIRE ALARM MANUAL PULL STATION	3'-10"
FK	FIRE ALARM MANUAL PULL STATION, KEY-OPERATED	3'-10"
D	FIRE ALARM CEILING-MOUNTED SMOKE DETECTOR	-----
H	FIRE ALARM CEILING-MOUNTED HEAT DETECTOR	-----
DS	FIRE ALARM SUPPLY AIR DUCT-MOUNTED SMOKE DETECTOR	-----
DR	FIRE ALARM RETURN AIR DUCT-MOUNTED SMOKE DETECTOR	-----
DR	FIRE ALARM PROJECTED BEAM SMOKE DETECTOR - RECEIVER	AS NOTED
DT	FIRE ALARM PROJECTED BEAM SMOKE DETECTOR - TRANSMITTER	AS NOTED
V	FIRE ALARM CONNECTION TO SPRINKLER SYSTEM VALVE STATUS SWITCH (TAMPER SWITCH)	-----
FS	FIRE ALARM CONNECTION TO SPRINKLER SYSTEM WATER FLOW SWITCH	-----
F	FIRE ALARM AUDIO/VISUAL NOTIFICATION DEVICE-CHIME & STROBE	6'-8"
F	FIRE ALARM AUDIO/VISIUAL NOTIFICATION DEVICE-HORN & STROBE	6'-8"
F	FIRE ALARM VISUAL ONLY NOTIFICATION DEVICE - STROBE LIGHT	6'-8"
FS FPS	FIRE ALARM SPEAKER: CEILING-MOUNTED, WALL-MOUNTED	6'-8"
FH	FIRE ALARM HORN, WALL-MOUNTED	AS NOTED
R HR	DUCT SMOKE DETECTOR ALARM REMOTE INDICATOR LIGHT: CEILING-MOUNTED, WALL-MOUNTED	6'-8"
SAI HSAI	DUCT SMOKE DETECTOR ALARM REMOTE INDICATOR LIGHT AND TEST SWITCH: CEILING-MOUNTED, WALL-MOUNTED	6'-8"
Z	FIRE ALARM ZONE ADDRESSABLE MODULE	-----
I	FIRE ALARM INDIVIDUAL ADDRESSABLE MODULE	-----
	FIRE ALARM ELECTRO-MAGNETIC DOOR HOLDER	6'-4"
FR	FIRE RELAY	-----
D	DESK MOUNTED INTERCOM	-----
W	WALL MOUNTED INTERCOM	-----
$X	EXPLOSION PROOF SWITCH	3'-10"
$3	3 WAY SWITCH	3'-10"
$4	4 WAY SWITCH	3'-10"
$WP	NEMA 4X SWITCH	3'-10"

PUMP AND METER LEGEND

SYMBOL	DESCRIPTION
MF	MAGNETIC FLOW METER
	SONIC FLOW METER
	CENTRIFUGAL PUMP
	LOBE PUMP
	PERISTALTIC PUMP
	SUBMERSIBLE PUMP
	GRINDER PUMP

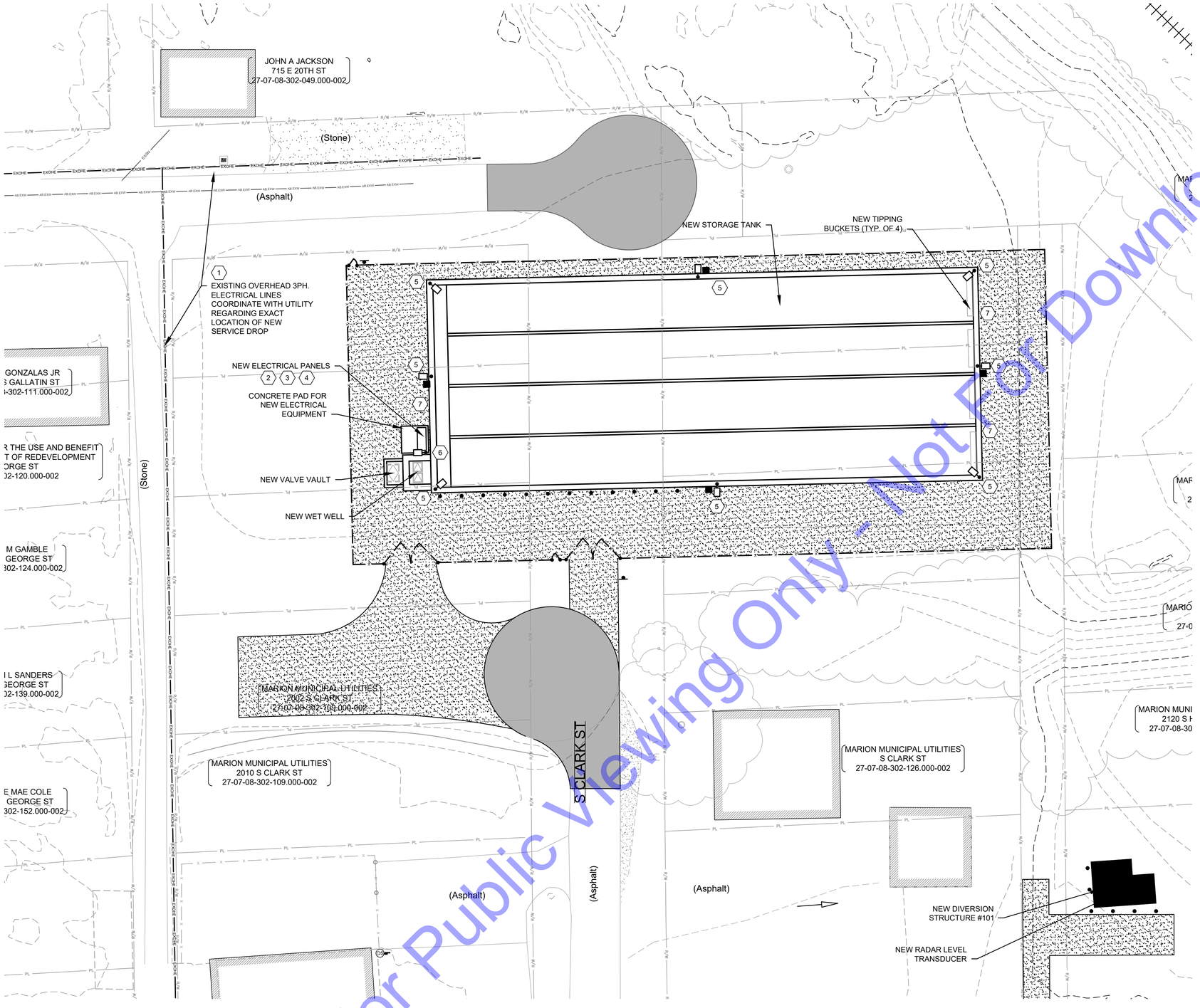
LEGEND

ABBREVIATIONS

ABV	ABOVE	IG	ISOLATED GROUND
AFF	ABOVE FINISHED FLOOR	MON	MONITOR
ACLG	ABOVE FINISHED CEILING	MTG	MOUNTING
BFC	BELOW FINISHED CEILING	MV	MULTI-VIEWER
C	CRITICAL BRANCH OR EMERG PWR-RED DEVICE & PLATE, UON.	MW	MICROWAVE OVEN
CL	CENTER-LINE	NEC	NATIONAL ELECTRICAL CODE
CLG	CEILING-MOUNTED	OCPD	OVERCURRENT PROTECTIVE DEVICE
COF	COFFEE MAKER	OFCI	OWNER-FURNISHED-CONTRACTOR-INSTALLED
COP	COPIER	OFE	OWNER-FURNISHED EQUIPMENT
CTR	COUNTER	PRT	PRINTER
ECB	ENCLOSED CIRCUIT BREAKER	PTS	PNEUMATIC TUBE STATION
EMER	EMERGENCY	Q	EQUIP BRANCH OR EMERG PWR-RED DEVICE & PLATE, UON.
EWC	ELECTRIC WATER COOLER	REF	REFRIGERATOR
EWH	ELECTRIC WATER HEATER	RQMTS	REQUIREMENTS
FAX	FACSIMILE MACHINE	T	TAMPERPROOF DEVICE
FBO	FURNISHED BY OTHERS	TSP	TWISTED SHIELDED PAIR
GFCI	GROUND FAULT CIRCUIT INTERRUPT-ING - PERSONNEL PROTECTION	UON	UNLESS OTHERWISE NOTED
GFI	GROUND FAULT INTERRUPTING - EQUIPMENT PROTECTION	UCR	UNDER-COUNTER REFRIGERATOR
HGT	HEIGHT	WP	WEATHERPROOF
FPMR	FUSED PER MANUFACTURE'S RECOMMENDATIONS		

SYMBOL	DESCRIPTION	MTG HGT AFF TO CL, UON
	EXPOSED RACEWAY	-----
	RACEWAY CONCEALED IN OR ABOVE CEILINGS AND WITHIN WALLS	-----
	BRANCH CIRCUIT RACEWAY CONCEALED IN OR BELOW FLOOR SLAB OR BELOW GRADE	-----
	FEEDER RACEWAY CONCEALED BELOW FLOOR SLAB OR BELOW GRADE	-----
	LIGHTNING PROTECTION CABLING	-----
	HOMERUN RACEWAY: NUMBER OF ARROWHEADS DENOTES NUMBER OF CIRCUITS.	-----
	RACEWAY TURNING UP AS VIEWED FROM THE LOAD	-----
	RACEWAY TURNING DOWN AS VIEWED FROM THE LOAD	-----
	RACEWAY VERTICAL RISER WITH HORIZONTAL CONTINUATION AT TWO LEVELS SHOWN	-----
	CAPPED RACEWAY	-----
	GENERAL LIGHTING OR OUTLET CIRCUIT - MAY BE DAISY CHAINED	-----
J	JUNCTION BOX	AS NOTED
	ENCLOSED BREAKER	
	FUSIBLE SAFETY SWITCH (AMP RATING, POLES, FUSE SIZE, AND NEMA ENCLOSURE TYPE IF OTHER THAN 1 NOTED)	-----
	NON-FUSIBLE SAFETY SWITCH (AMP RATING, POLES, AND NEMA ENCLOSURE TYPE IF OTHER THAN 1 NOTED)	-----
	COMBINATION MAGNETIC ACROSS-THE-LINE STARTER WITH MOTOR CIRCUIT PROTECTOR (NEMA STARTER SIZE NOTED)	-----
	CONTROL PANEL FURNISHED INTEGRAL TO EQUIPMENT (SINGLE-POINT ELECTRICAL CONNECTION REQUIRED)	-----
	MOTOR	-----
	FLEXIBLE CONDUIT CONNECTION	-----
	SURFACE- OR FLUSH-MOUNTED LIGHTING/RECEPTACLE PANELBOARD	-----
	POWER DISTRIBUTION PANELBOARD	-----
T T	DRY TYPE TRANSFORMER	-----
XXX	MISCELLANEOUS SYSTEMS PANEL OR CABINET: REFER TO ABBREVIATIONS.	-----

NOTE !! ALL ABBREVIATIONS, NOTES, AND SYMBOLS SHOWN ON THIS DRAWING DO NOT NECESSARILY APPEAR IN THIS SET OF C



GENERAL NOTES:

1. SEE E0.0 FOR PROJECT CONDUIT REQUIREMENTS.
2. THE PUMP STATION WET WELL IS CLASSIFIED AS A CLASS I, DIVISION I, GROUP D AREA PER NFPA 820. ADDITIONALLY, THE AREA EXTENDING 18" ABOVE THE PUMP STATION TOP OF SLAB AND THE AREA EXTENDING 3' BEYOND ALL SIDES OF THE HATCH IS A CLASS I, DIVISION 2 HAZARDOUS LOCATION. ANY EQUIPMENT LOCATED WITHIN THE CLASSIFIED AREA SHALL BE UL LISTED FOR THAT AREA, AND SHALL INCLUDE CONDUIT SEAL OFFS.
3. THE PUMP STATION VALVE VAULT IS CLASSIFIED AS A CLASS 1, DIVISION 2, GROUP C AND D AREA PER NFPA 820. ANY EQUIPMENT LOCATED WITHIN THE CLASSIFIED AREA SHALL BE UL LISTED FOR THAT AREA, AND SHALL INCLUDE CONDUIT SEAL OFFS.
4. THE STORAGE TANK IS CLASSIFIED AS A CLASS 1, DIVISION 2, GROUP C AND D AREA PER NFPA 820. THE CLASSIFIED SPACE INCLUDES THE SPACE FROM THE INTERIOR OF THE TANK FROM THE MINIMUM OPERATING WATER SURFACE TO THE TOP OF THE TANK WALL, AN ENVELOPE 18IN. ABOVE THE TOP OF THE TANK AND EXTENDING 18IN. BEYOND THE EXTERIOR WALL, AND AN ENVELOPE 18IN. ABOVE GRADE EXTENDING 10FT. HORIZONTALLY FROM THE EXTERIOR TANK WALLS. ANY EQUIPMENT LOCATED WITHIN THE CLASSIFIED AREA SHALL BE UL LISTED FOR THAT AREA, AND SHALL INCLUDE CONDUIT SEAL OFFS.
5. THE DIVERSION STRUCTURE #101 IS CLASSIFIED AS CLASS 1, DIVISION 1, GROUP D AREA PER NFPA 820. ADDITIONALLY, THE AREA EXTENDING 18" VERTICALLY ABOVE THE STRUCTURE TOP OF SLAB AND EXTENDING 3' HORIZONTALLY BEYOND ALL SIDES OF ALL HATCH(ES) IS A CLASS I, DIVISION 2 HAZARDOUS LOCATION. ANY EQUIPMENT LOCATED WITHIN THE CLASSIFIED AREA SHALL BE UL LISTED FOR THAT AREA, AND SHALL INCLUDE CONDUIT SEAL OFFS.
6. LOCATE ALL EXISTING UNDERGROUND UTILITIES AND COORDINATE WITH GENERAL CONTRACTOR FOR ALL NEW UNDERGROUND WORK PRIOR TO ANY EXCAVATION OR TRENCHING.

PLAN NOTES:

1. ELECTRICAL CONTRACTOR TO COORDINATE WITH IMP (AEP) FOR NEW 277 / 480V 3PH. SERVICE. ALL 480V INSTALLATIONS REGARDLESS OF AMPERAGE REQUIRE A CT CABINET. CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIALS NOT OTHERWISE PROVIDED BY LOCAL UTILITY. CONTRACTOR IS RESPONSIBLE FOR SECONDARY WIRE, SECONDARY CONDUIT OR OVERHEAD MASTS, AS APPROPRIATE, PRIMARY CONDUIT, CT CABINET, AND CONCRETE TRANSFORMER PAD, IF NEEDED. CONTRACTOR SHALL COORDINATE WITH UTILITY REGARDING ANY SERVICE ALTERATION APPLICATIONS REQUIRED AND SCHEDULING OF DOWNTIME / CUT OVER. COORDINATE WITH SETH MONTGOMERY 765-287-3381.
2. ELECTRICAL CONTRACTOR SHALL PROVIDE METER BASE, CT CABINET, AND MOUNTING AS REQUIRED BY LOCAL UTILITY. COORDINATE DURING BIDDING AND CONSTRUCTION.
3. GROUND PER NEC REQUIREMENTS. CONTRACTOR SHALL INSTALL TRIAD GROUNDING SYSTEM WITH 3 GROUND RODS SPACED A MINIMUM OF 10' APART.
4. CONTRACTOR SHALL ENSURE NEW ELECTRICAL EQUIPMENT IS NOT INSTALLED WITHIN ANY CLASSIFIED SPACES.
5. CONTRACTOR SHALL INSTALL NEW HANDRAIL MOUNTED LIGHTS TYPE F1 WHERE SHOWN. CONTRACTOR SHALL PROVIDE ONE (1) WEATHERPROOF OFF-ON SWITCH FOR CONTROL OF NEW HANDRAIL MOUNTED LIGHTS. SWITCH SHALL BE INSTALLED AT NEW ELECTRICAL EQUIPMENT MOUNTING RACK. LIGHTS FACING TANK INTERIOR SHALL BE MOUNTED AT 30 DEGREES; LIGHTS FACING OUTWARDS SHALL BE MOUNTED AT 0 DEGREES.
6. CONTRACTOR SHALL INSTALL ONE NEW LIGHT TYPE F1 TO BE MOUNTED TO ELECTRICAL EQUIPMENT UNISTRUT, ALSO REFER TO E2-1. CONTRACTOR SHALL PROVIDE ONE (1) WEATHERPROOF OFF-ON SWITCH FOR CONTROL OF ELECTRICAL PANELS' LIGHT TO BE INSTALLED AT ELECTRICAL EQUIPMENT RACK.
7. CONTRACTOR SHALL INSTALL THREE (3) 120V DUPLEX WEATHERPROOF GFCI RECEPTACLES POWERED FROM CONTROL PANEL WHERE SHOWN. RECEPTACLES SHALL BE STANCHION MOUNTED. CONTRACTOR SHALL ALSO INSTALL ONE (1) 120V DUPLEX WEATHERPROOF GFCI RECEPTACLE TO BE MOUNTED TO NEW ELECTRICAL PANELS UNISTRUT.

LIGHTING FIXTURE SCHEDULE

IMAGE	TYPE	MFR	CATALOG NUMBER	LAMPS	VOLT	MOUNTING	NOTES
	F1	RIG-A-LITE OR APPROVED EQUAL	SAFR-09-L2-U-LFG	LED	120-277	SLIP FITTER MOUNT	PROVIDE MOUNTING BRACKETS/HARDWARE AS REQUIRED FOR INSTALLATION.

ELECTRICAL SITE PLAN

SCALE: 1"=20'-0"

SCALE: 1"=20'

20' 0 20'

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MICHAEL A. MIRANDE II
REGISTERED
No. 19800084
STATE OF INDIANA
PROFESSIONAL ENGINEER
Signature
7/31/2025
Date

MARION UTILITIES SERVICE BOARD
GRANT COUNTY, INDIANA

CSO 009 LTCP IMPROVEMENTS

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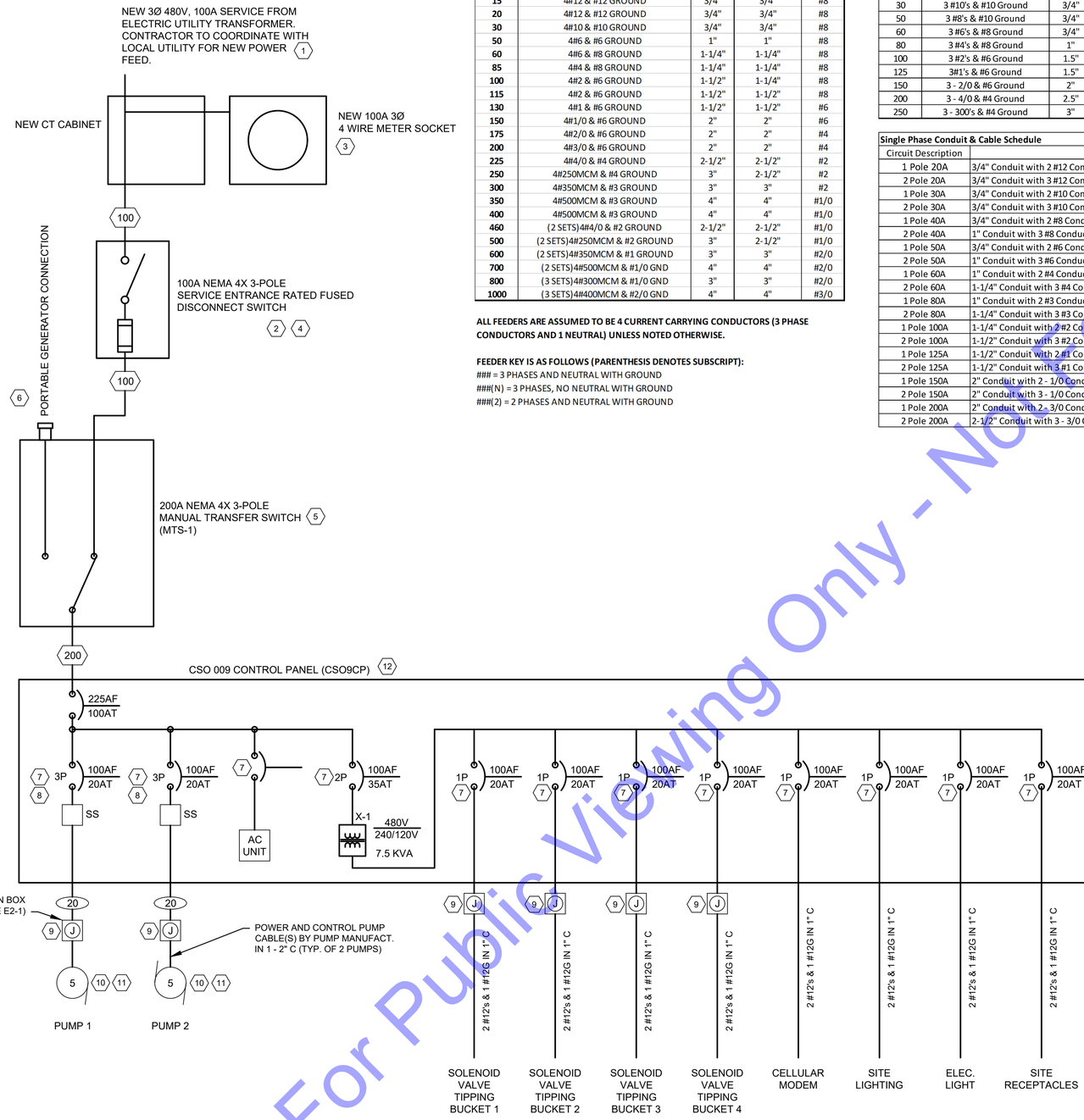
No.	Submittal / Revision	By	Date

Designed By:	Drawn By:	Checked By:
REW	REW	MAM
Issue Date:	Project No:	Scale:
7/2025	S24146	AS SHOWN

ELECTRICAL SITE PLAN

Drawing No:
E1-0
Sheet: 53 OF 59

File: Z:\SHARED\IN CLIENTS M-Z\MARION\S24146 - CSO 009 LTCP IMPROVEMENTS\06 CAD\K MECH-ELECT\ELECTRICAL SITE PLAN.DWG
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ONE LINE DIAGRAM

SCALE: NTS

FEEDER SCHEDULE

TYPE NO.	COPPER WIRE QUANTITIES & WIRE SIZE	CONDUIT	W/O NEUTRAL	SERVICE GROUND
15	4#12 & #12 GROUND	3/4"	3/4"	#8
20	4#12 & #12 GROUND	3/4"	3/4"	#8
30	4#10 & #10 GROUND	3/4"	3/4"	#8
50	4#6 & #6 GROUND	1"	1"	#8
60	4#6 & #8 GROUND	1-1/4"	1-1/4"	#8
85	4#4 & #8 GROUND	1-1/4"	1-1/4"	#8
100	4#2 & #6 GROUND	1-1/2"	1-1/4"	#8
115	4#2 & #6 GROUND	1-1/2"	1-1/2"	#8
130	4#1 & #6 GROUND	1-1/2"	1-1/2"	#6
150	4#1/0 & #6 GROUND	2"	2"	#6
175	4#2/0 & #6 GROUND	2"	2"	#4
200	4#3/0 & #6 GROUND	2"	2"	#4
225	4#4/0 & #4 GROUND	2-1/2"	2-1/2"	#2
250	4#250MCM & #4 GROUND	3"	2-1/2"	#2
300	4#350MCM & #3 GROUND	3"	3"	#2
350	4#500MCM & #3 GROUND	4"	4"	#1/0
400	4#500MCM & #3 GROUND	4"	4"	#1/0
460	(2 SETS)4#4/0 & #2 GROUND	2-1/2"	2-1/2"	#1/0
500	(2 SETS)4#250MCM & #2 GROUND	3"	2-1/2"	#1/0
600	(2 SETS)4#350MCM & #1 GROUND	3"	3"	#2/0
700	(2 SETS)4#500MCM & #1/0 GND	4"	4"	#2/0
800	(3 SETS)4#300MCM & #1/0 GND	3"	3"	#2/0
1000	(3 SETS)4#400MCM & #2/0 GND	4"	4"	#3/0

ALL FEEDERS ARE ASSUMED TO BE 4 CURRENT CARRYING CONDUCTORS (3 PHASE CONDUCTORS AND 1 NEUTRAL) UNLESS NOTED OTHERWISE.

FEEDER KEY IS AS FOLLOWS (PARENTHESIS DENOTES SUBSCRIPT):
= 3 PHASES AND NEUTRAL WITH GROUND
###(N) = 3 PHASES, NO NEUTRAL WITH GROUND
###(2) = 2 PHASES AND NEUTRAL WITH GROUND

Load Wiring Schedule		
	Copper Wire	
Type #:	Quantity and Wire Size	Conduit
20	3 #12's & #12 Ground	3/4"
30	3 #10's & #10 Ground	3/4"
50	3 #8's & #10 Ground	3/4"
60	3 #6's & #8 Ground	3/4"
80	3 #4's & #8 Ground	1"
100	3 #2's & #6 Ground	1.5"
125	3#1's & #6 Ground	1.5"
150	3 - 2/0 & #6 Ground	2"
200	3 - 4/0 & #4 Ground	2.5"
250	3 - 300's & #4 Ground	3"

Single Phase Conduit & Cable Schedule	
Circuit Description	Description
1 Pole 20A	3/4" Conduit with 2 #12 Conductors and 1 #12 Ground Conductor
2 Pole 20A	3/4" Conduit with 3 #12 Conductors and 1 #12 Ground Conductor
1 Pole 30A	3/4" Conduit with 2 #10 Conductors and 1 #10 Ground Conductor
2 Pole 30A	3/4" Conduit with 3 #10 Conductors and 1 #10 Ground Conductor
1 Pole 40A	3/4" Conduit with 2 #8 Conductors and 1 #10 Ground Conductor
2 Pole 40A	1" Conduit with 3 #8 Conductors and 1 #10 Ground Conductor
1 Pole 50A	3/4" Conduit with 2 #6 Conductors and 1 #10 Ground Conductor
2 Pole 50A	1" Conduit with 3 #6 Conductors and 1 #10 Ground Conductor
1 Pole 60A	1" Conduit with 2 #4 Conductors and 1 #8 Ground Conductor
2 Pole 60A	1-1/4" Conduit with 3 #4 Conductors and 1 #8 Ground Conductor
1 Pole 80A	1" Conduit with 2 #3 Conductors and 1 #8 Ground Conductor
2 Pole 80A	1-1/4" Conduit with 3 #3 Conductors and 1 #8 Ground Conductor
1 Pole 100A	1-1/4" Conduit with 2 #2 Conductors and 1 #6 Ground Conductor
2 Pole 100A	1-1/2" Conduit with 3 #2 Conductors and 1 #6 Ground Conductor
1 Pole 125A	1-1/2" Conduit with 2 #1 Conductors and 1 #6 Ground Conductor
2 Pole 125A	1-1/2" Conduit with 3 #1 Conductors and 1 #6 Ground Conductor
1 Pole 150A	2" Conduit with 2 - 1/0 Conductors and 1 #6 Ground Conductor
2 Pole 150A	2" Conduit with 3 - 1/0 Conductors and 1 #6 Ground Conductor
1 Pole 200A	2" Conduit with 2 - 3/0 Conductors and 1 #6 Ground Conductor
2 Pole 200A	2-1/2" Conduit with 3 - 3/0 Conductors and 1 #6 Ground Conductor

GENERAL NOTES:

1. SEE E0.0 FOR PROJECT CONDUIT REQUIREMENTS.
2. THE PUMP STATION WET WELL IS CLASSIFIED AS A CLASS I, DIVISION I, GROUP D AREA PER NFPA 820. ADDITIONALLY, THE AREA EXTENDING 18" ABOVE THE PUMP STATION TOP OF SLAB AND THE AREA EXTENDING 3' BEYOND ALL SIDES OF THE HATCH IS A CLASS I, DIVISION 2 HAZARDOUS LOCATION. ANY EQUIPMENT LOCATED WITHIN THE CLASSIFIED AREA SHALL BE UL LISTED FOR THAT AREA, AND SHALL INCLUDE CONDUIT SEAL OFFS.
3. THE PUMP STATION VALVE VAULT IS CLASSIFIED AS CLASS 1, DIVISION 2, GROUP C AND D AREAS PER NFPA 820. ANY EQUIPMENT LOCATED WITHIN THE CLASSIFIED AREA SHALL BE UL LISTED FOR THAT AREA, AND SHALL INCLUDE CONDUIT SEAL OFFS.
4. THE PROPOSED TANK IS CLASSIFIED AS CLASS 1, DIVISION 2, GROUP C AND D PER NFPA 820. THE CLASSIFIED SPACE INCLUDES THE SPACE FROM THE INTERIOR OF THE TANK FROM THE MINIMUM OPERATING WATER SURFACE TO THE TOP OF THE TANK WALL, AN ENVELOPE 18IN. ABOVE THE TOP OF THE TANK AND EXTENDING 18IN. BEYOND THE EXTERIOR WALL, AND AN ENVELOPE 18IN. ABOVE GRADE EXTENDING 10FT. HORIZONTALLY FROM THE EXTERIOR TANK WALLS. ANY EQUIPMENT LOCATED WITHIN THE CLASSIFIED AREA SHALL BE UL LISTED FOR THAT AREA, AND SHALL INCLUDE CONDUIT SEAL OFFS.
5. THE DIVERSION STRUCTURE IS CLASSIFIED AS CLASS 1, DIVISION 1, GROUP D AREA PER NFPA 820. ADDITIONALLY, THE AREA EXTENDING 18" VERTICALLY ABOVE THE STRUCTURE TOP OF SLAB AND EXTENDING 3' HORIZONTALLY BEYOND ALL SIDES OF ALL HATCH(ES) IS A CLASS I, DIVISION 2 HAZARDOUS LOCATION. ANY EQUIPMENT LOCATED WITHIN THE CLASSIFIED AREA SHALL BE UL LISTED FOR THAT AREA, AND SHALL INCLUDE CONDUIT SEAL OFFS.
6. CONTRACTOR SHALL ENSURE NEW ELECTRICAL EQUIPMENT IS NOT INSTALLED WITHIN ANY CLASSIFIED SPACES.

PLAN NOTES:

1. ELECTRICAL CONTRACTOR TO COORDINATE WITH LOCAL UTILITY FOR NEW 480V 3PH. SERVICE. CONTRACTOR SHALL PROVIDE ALL CONDUIT AND WIRE AND CONCRETE TRANSFORMER PAD, AS NEEDED, AS REQUIRED BY LOCAL UTILITY. CONTRACTOR IS RESPONSIBLE FOR ALL LABOR AND MATERIALS NOT OTHERWISE PROVIDED BY LOCAL UTILITY.
2. GROUND PER NEC REQUIREMENTS. INSTALL TRIAD GROUNDING SYSTEM WITH 3 GROUND RODS SPACED A MINIMUM OF 10' APART.
3. PROVIDE 100A, 3Ø, 4 WIRE METER SOCKET. MANUFACTURER AND MODEL AS APPROVED BY LOCAL ELECTRIC UTILITY. PROVIDE CT CABINET AS APPROVED BY LOCAL UTILITY. CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF UTILITY-PROVIDED CTS.
4. PROVIDE NEMA 4X, SERVICE ENTRANCE RATED 3 POLE MAIN DISCONNECT SWITCH FUSED AT 100A. DISCONNECT SHALL BE CAPABLE OF BEING LOCKED IN THE OFF POSITION. KAIC RATING AS REQUIRED BY LOCAL ELECTRIC UTILITY.
5. PROVIDE NEMA 4X 3 POLE MANUAL TRANSFER SWITCH.
6. PROVIDE MELTRIC DS200 200A, 480V TYPE 4X GENERATOR PLUG PART NUMBER 37-28043-172-4X, OR EQUAL. NEW GENERATOR PLUG SHALL BE COMPATIBLE WITH EXISTING KOHLER 125ROZJ71 TOWABLE GENERATOR. CONTRACTOR SHALL COORDINATE WITH OWNER AS NECESSARY.
7. COORDINATE WITH THE CONTRACTOR AND EQUIPMENT SUPPLIERS WHEN SELECTING THE CIRCUIT BREAKER SIZES TO ENSURE NEW CIRCUIT BREAKERS ARE PROPERLY SIZED. BREAKERS SHALL BE CAPABLE OF LOCKOUT / TAGOUT.
8. CIRCUIT BREAKERS FEEDING PUMPS SHALL SERVE AS THE LOCAL DISCONNECTING MEANS FOR PUMPS. ADDITIONAL STAINLESS STEEL DISCONNECT IS NOT REQUIRED.
9. CONTRACTOR SHALL UTILIZE VENTILATED JUNCTION BOX WITH APPROPRIATE CONDUIT SEAL OFFS (SEE DETAIL E2-1) FOR ANY AND ALL POWER AND / OR CONTROL WIRING ORIGINATING AT THE CONTROL PANEL AND TERMINATING IN A CLASSIFIED SPACE.
10. CONTRACTOR SHALL COORDINATE WITH PUMP SUPPLIER AND PROVIDE ALL NECESSARY POWER AND CONTROL WIRING FOR A COMPLETE AND FUNCTIONING LIFT STATION. USE SEAL OFFS ON CONDUITS BETWEEN CLASSIFIED SPACE(S) AND CONTROL PANEL.
11. WIRE PUMP SAFETIES AND LEVEL CONTROLS AS REQUIRED. COORDINATE WITH CONTRACTOR DURING BIDDING AND CONSTRUCTION. INTEGRATE PUMP SAFETY RELAYS INTO CONTROL PANEL AS REQUIRED BY PUMP MANUFACTURER; PUMP SAFETIES SHALL BE INSTALLED INTERNAL TO THE CONTROL PANEL.
12. CONTRACTOR SHALL ENSURE CONTROL PANEL IS CAPABLE OF SUPPLYING POWER TO OTHER ELECTRICAL EQUIPMENT AROUND THE SITE AS SHOWN. BREAKERS REQUIRED FOR CONTROL LOADS INTERNAL TO THE CONTROL PANEL (UPS, POWER SUPPLIES, ETC.) ARE NOT SHOWN BUT SHALL BE PROVIDED BY THE CONTROL PANEL MANUFACTURER AS NECESSARY.

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7/31/2025
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MARION UTILITIES SERVICE BOARD
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No.	Submittal / Revision	By	Date

Designed By:	Drawn By:	Checked By:
REW	REW	MAM
Issue Date: 7/2025	Project No: S24146	Scale: AS SHOWN

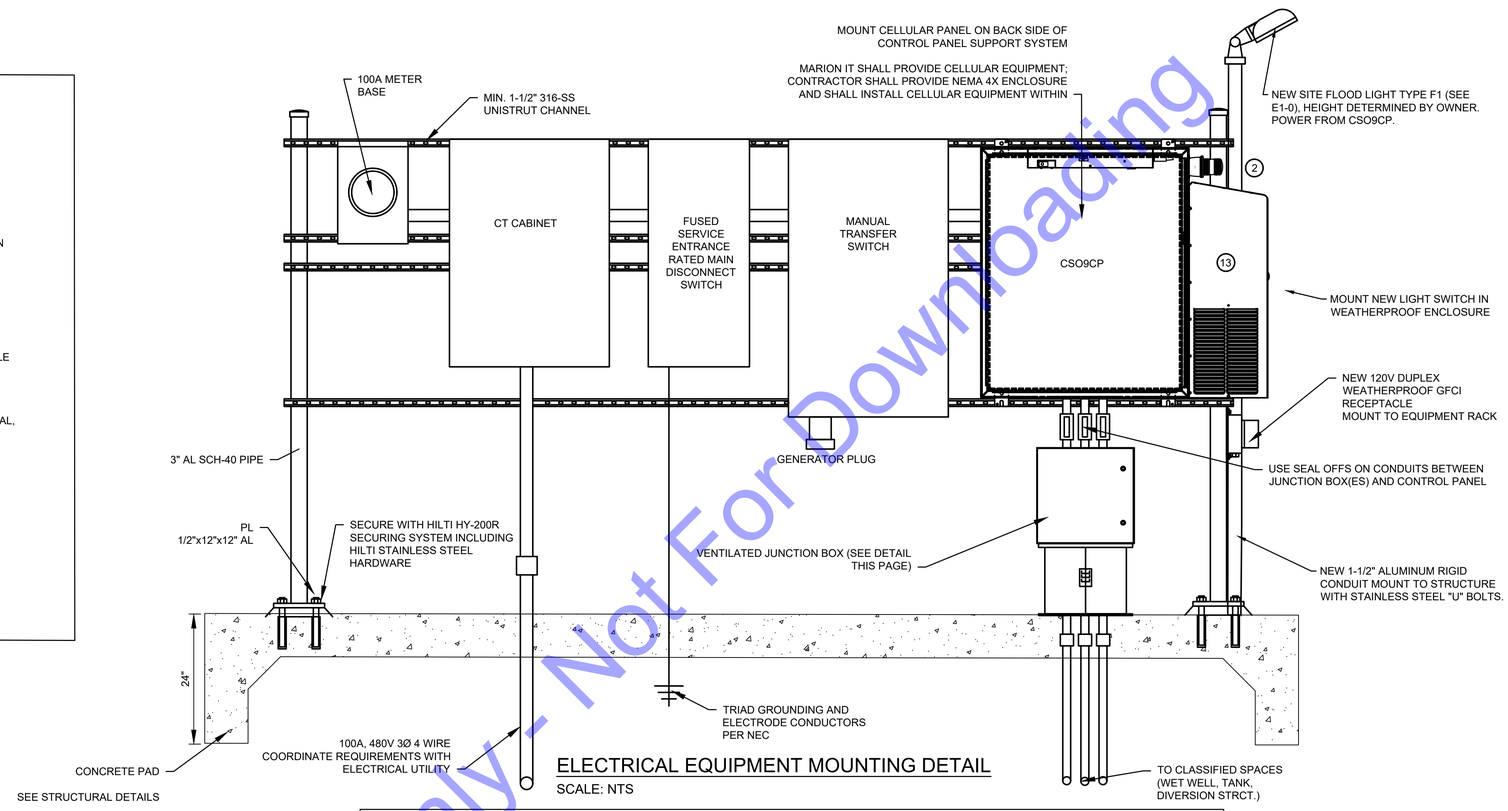
ELECTRICAL ONE LINE

Drawing No:
E2-0
Sheet: 54 OF 59

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NEMA 4X CONTROL PANEL DEVICE LEGEND

ITEM #	DESCRIPTION
1	PILOT DEVICES (TYPICAL FOR EACH PUMP): RUNNING LIGHT, OVERLOAD LIGHT, SEAL FAIL LIGHT, HIGH MOTOR TEMP LIGHT, FAULT LIGHT, FAULT RESET PUSHBUTTON, HOA SWITCH, AND ELAPSED TIME METER. PILOT DEVICES TO BE MOUNTED ON PANEL DEAD FRONT.
2	NEMA 4X ALARM LIGHT WITH INTEGRAL BUZZER AND ALARM ACKNOWLEDGE PUSHBUTTON LOCATED ON SIDE OF PANEL.
3	ALTERNATING RELAYS AND CONTROL RELAYS AS REQUIRED.
4	SOFT STARTERS (PUMP 1 & 2)
5	ALLEN BRADLEY PLC
6	ISOLATION CIRCUIT BREAKERS WITH LOCKOUT/TAGOUT CAPABILITY. BREAKER ACCESSIBLE THROUGH DEAD FRONT.
7	BACKUP LEVEL MODE RESET PUSHBUTTON.
8	MISCELLANEOUS COMPONENTS INCLUDING BUT NOT LIMITED TO PILOT RELAYS, PUMP SEAL, TEMPERATURE AND OIL SAFETY RELAYS,TERMINAL BLOCKS, CIRCUIT BREAKERS, CONTROL TRANSFORMER, POWER SUPPLIES, ETHERNET SWITCH, UPS, ETC. TO PROVIDE FOR A COMPLETE AND FUNCTIONING CONTROL PANEL.
9	HEATER WITH INTEGRAL THERMOSTAT.
10	3 POINT LATCHING SYSTEM ON PANEL DOOR (CLAMPS NOT ACCEPTABLE).
11	10" COLOR TOUCH SCREEN
12	ELAPSED TIME METER TO RECORD TIME OF SIMULTANEOUS PUMP OPERATION.
13	NEMA 4X A/C UNIT IF REQUIRED BY HEAT LOAD CALCULATIONS. PROVIDE HEAT LOAD CALCULATIONS WITH SUBMITTAL.

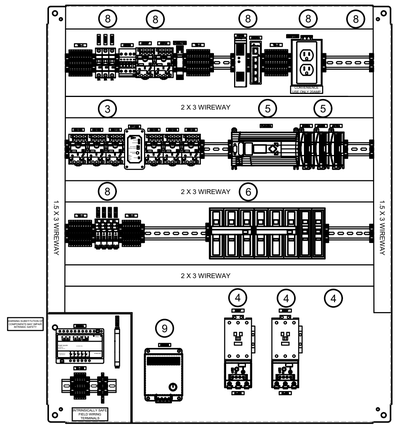


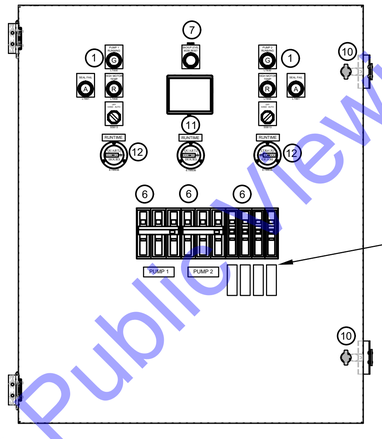
ELECTRICAL EQUIPMENT MOUNTING DETAIL

SCALE: NTS

NOTES:

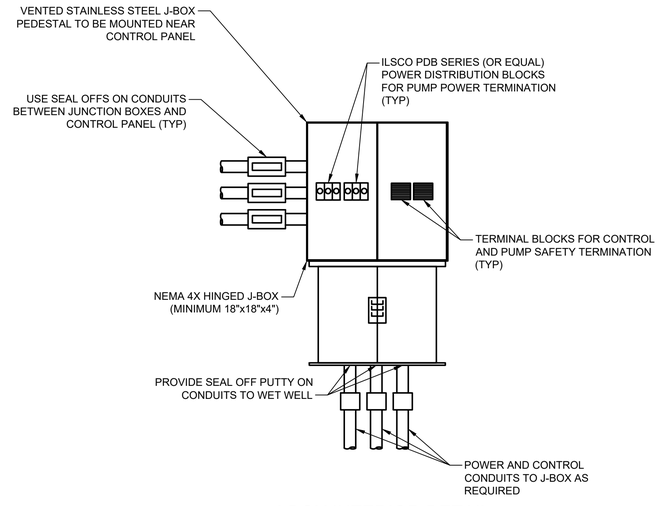
1. SIZE NEMA 4X CONTROL PANEL AS REQUIRED.
2. CONTROL PANEL SHALL BE CONSTRUCTED TO UL STANDARDS IN A UL PANEL SHOP. CONTROL PANEL SHALL BE UL LISTED.
3. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE ELECTRIC UTILITY TO PROVIDE POWER SERVICE TO THE NEW LIFT STATION. PROVIDE CONDUIT, WIRE, METER BASE, ETC. TO PROVIDE POWER COMPLETE TO THE LIFT STATION.
4. CONTRACTOR TO PROVIDE METER BASE PER ELECTRIC UTILITY METER BASE REQUIREMENTS.
5. ALL COSTS ASSOCIATED WITH PROVIDING POWER TO THE LIFT STATION SHALL BE INCLUDED IN THE CONTRACTOR'S BID PRICE; EXCEPT ANY CHARGES BY THE UTILITY COMPANY FOR THEIR WORK.
6. PILOT DEVICES, ELAPSED TIME METERS, AND TOUCH SCREEN SHALL BE MOUNTED ON THE PANEL DEAD FRONT.





CONTROL PANEL DETAIL

SCALE: NTS



J-BOX INTERIOR DETAIL

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No. 19800084
STATE OF INDIANA
PROFESSIONAL ENGINEER
Signature
7/31/2025
Date

MARION UTILITIES SERVICE BOARD
GRANT COUNTY, INDIANA

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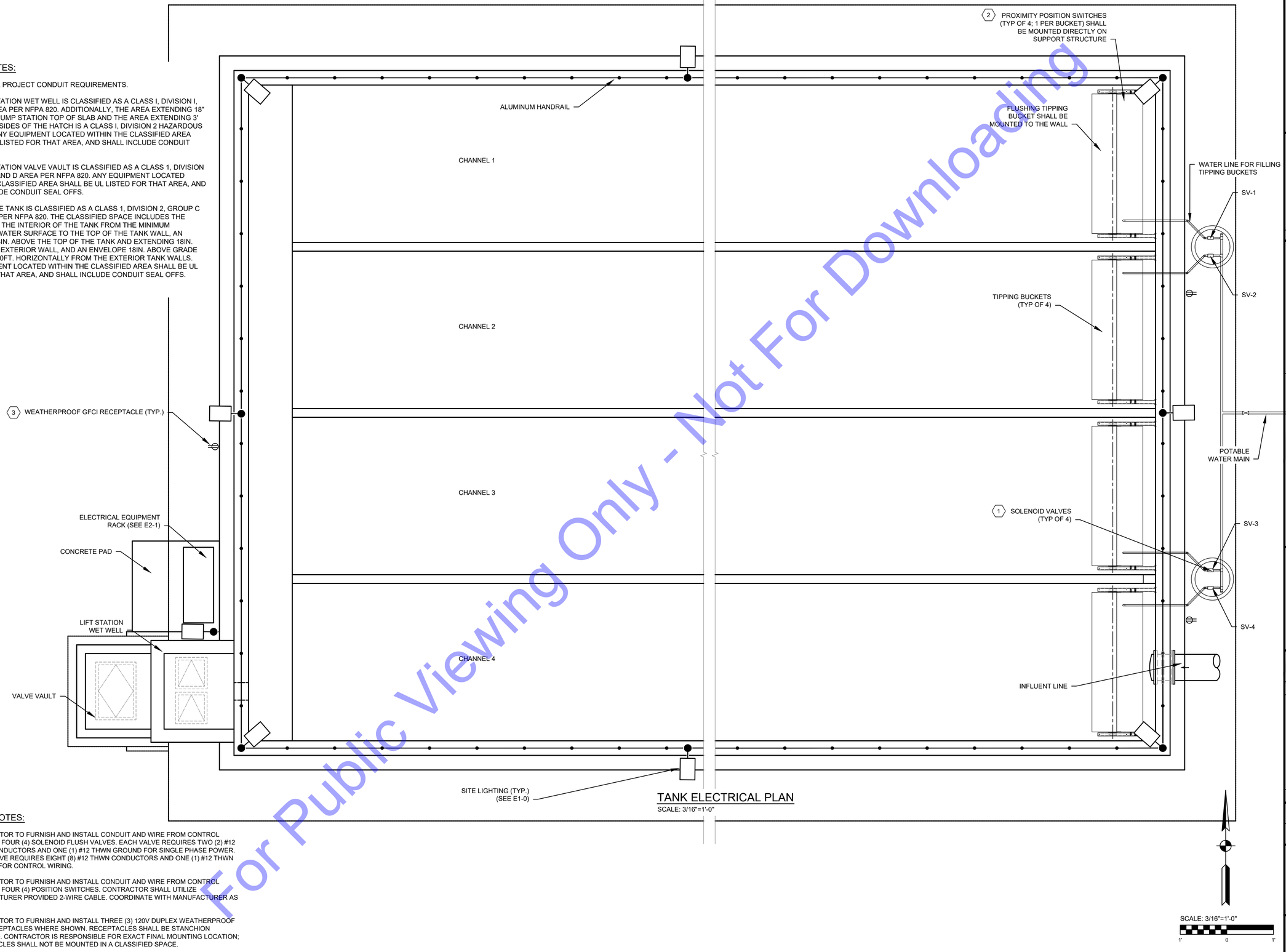
ELECTRICAL MOUNTING DIAGRAM

Drawing No:
E2-1
Sheet: 55 OF 59

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GENERAL NOTES:

1. SEE E0.0 FOR PROJECT CONDUIT REQUIREMENTS.
2. THE PUMP STATION WET WELL IS CLASSIFIED AS A CLASS I, DIVISION I, GROUP D AREA PER NFPA 820. ADDITIONALLY, THE AREA EXTENDING 18" ABOVE THE PUMP STATION TOP OF SLAB AND THE AREA EXTENDING 3' BEYOND ALL SIDES OF THE HATCH IS A CLASS I, DIVISION 2 HAZARDOUS LOCATION. ANY EQUIPMENT LOCATED WITHIN THE CLASSIFIED AREA SHALL BE UL LISTED FOR THAT AREA, AND SHALL INCLUDE CONDUIT SEAL OFFS.
3. THE PUMP STATION VALVE VAULT IS CLASSIFIED AS A CLASS 1, DIVISION 2, GROUP C AND D AREA PER NFPA 820. ANY EQUIPMENT LOCATED WITHIN THE CLASSIFIED AREA SHALL BE UL LISTED FOR THAT AREA, AND SHALL INCLUDE CONDUIT SEAL OFFS.
4. THE STORAGE TANK IS CLASSIFIED AS A CLASS 1, DIVISION 2, GROUP C AND D AREA PER NFPA 820. THE CLASSIFIED SPACE INCLUDES THE SPACE FROM THE INTERIOR OF THE TANK FROM THE MINIMUM OPERATING WATER SURFACE TO THE TOP OF THE TANK WALL, AN ENVELOPE 18IN. ABOVE THE TOP OF THE TANK AND EXTENDING 18IN. BEYOND THE EXTERIOR WALL, AND AN ENVELOPE 18IN. ABOVE GRADE EXTENDING 10FT. HORIZONTALLY FROM THE EXTERIOR TANK WALLS. ANY EQUIPMENT LOCATED WITHIN THE CLASSIFIED AREA SHALL BE UL LISTED FOR THAT AREA, AND SHALL INCLUDE CONDUIT SEAL OFFS.



TANK ELECTRICAL PLAN

SCALE: 3/16"=1'-0"

SCALE: 3/16"=1'-0"

1' 0 1'

PLAN NOTES:

1. CONTRACTOR TO FURNISH AND INSTALL CONDUIT AND WIRE FROM CONTROL PANEL TO FOUR (4) SOLENOID FLUSH VALVES. EACH VALVE REQUIRES TWO (2) #12 THWN CONDUCTORS AND ONE (1) #12 THWN GROUND FOR SINGLE PHASE POWER. EACH VALVE REQUIRES EIGHT (8) #12 THWN CONDUCTORS AND ONE (1) #12 THWN GROUND FOR CONTROL WIRING.
2. CONTRACTOR TO FURNISH AND INSTALL CONDUIT AND WIRE FROM CONTROL PANEL TO FOUR (4) POSITION SWITCHES. CONTRACTOR SHALL UTILIZE MANUFACTURER PROVIDED 2-WIRE CABLE. COORDINATE WITH MANUFACTURER AS NEEDED.
3. CONTRACTOR TO FURNISH AND INSTALL THREE (3) 120V DUPLEX WEATHERPROOF GFCI RECEPTACLES WHERE SHOWN. RECEPTACLES SHALL BE STANCHION MOUNTED. CONTRACTOR IS RESPONSIBLE FOR EXACT FINAL MOUNTING LOCATION; RECEPTACLES SHALL NOT BE MOUNTED IN A CLASSIFIED SPACE.

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Signature: Michael A. Mirande II — Date: 7/31/2025

MARION UTILITIES SERVICE BOARD
GRANT COUNTY, INDIANA

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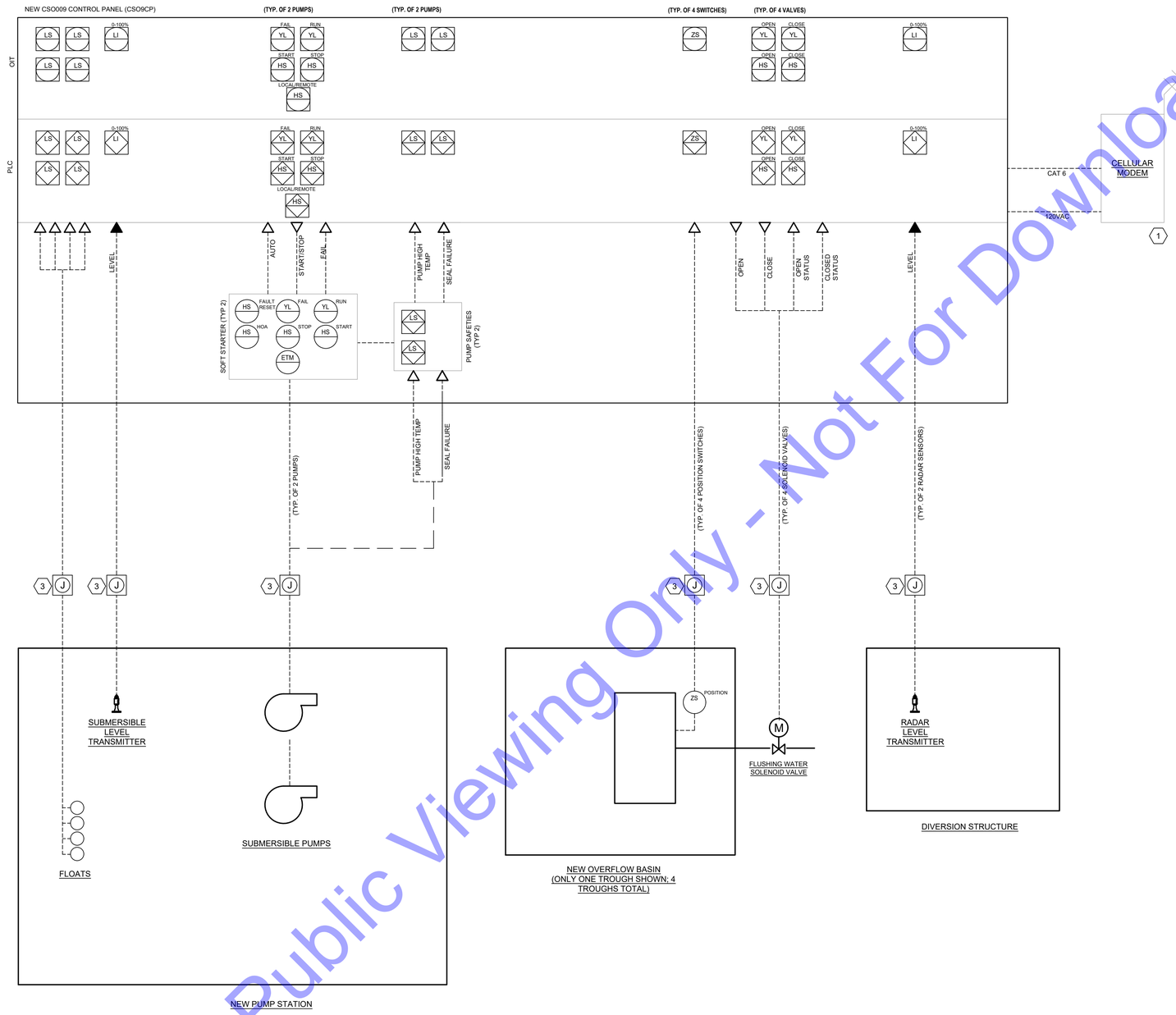
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TANK ELECTRICAL PLAN

Drawing No: E2-2

Sheet: 56 OF 59

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PROCESS AND INSTRUMENTATION DIAGRAM

SCALE: NTS

PLAN NOTES:

1. CELLULAR MODEM PROVIDED BY MARION IT. NEMA 4X ENCLOSURE AND MOUNTING TO BE PROVIDED BY CONTRACTOR. CONTRACTOR SHALL ALSO PROVIDE CONDUIT AND WIRE FOR POWER FEED AND ETHERNET CONNECTION BETWEEN NEW CONTROL PANEL AND CELL MODEM.
2. MARION IT SHALL MOUNT CELL ANTENNA TO EQUIPMENT STRUCTURE. CONTRACTOR SHALL ENSURE MOUNTING DOES NOT VIOLATE NEMA 4X RATING OF ELECTRICAL PANEL(S).
3. CONTRACTOR SHALL UTILIZE VENTILATED JUNCTION BOX WITH APPROPRIATE CONDUIT SEAL OFFS (SEE DETAIL E2-1) FOR ANY AND ALL POWER AND / OR CONTROL WIRING ORIGINATING AT THE CONTROL PANEL AND TERMINATING IN A CLASSIFIED SPACE. CONTRACTOR SHALL ALSO UTILIZE INTRINSICALLY SAFE BARRIERS.

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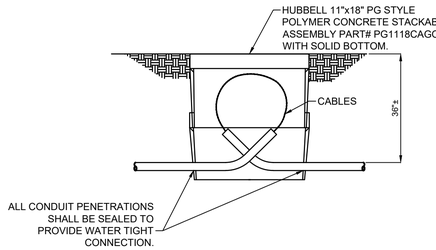
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PROCESS AND INSTRUMENTATION DIAGRAM

Drawing No:
E2-3
Sheet: 57 OF 59

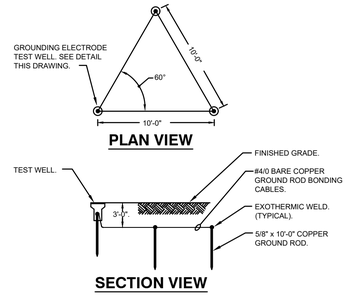
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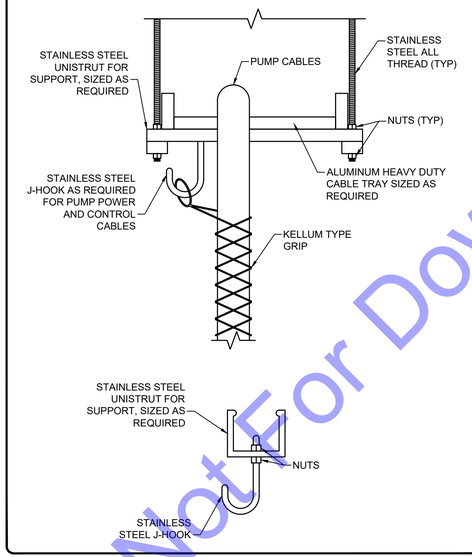
PROVIDE LOGOS AS SHOWN ON THE DRAWINGS. COLOR AS SELECTED BY OWNER.

YARD PULL/JUNCTION BOX DETAIL



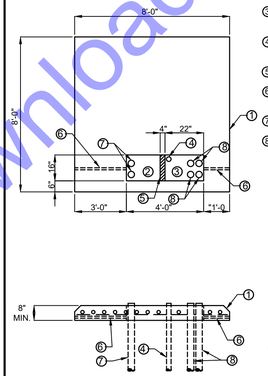
GROUNDING ELECTRODE SYSTEM

NOT TO SCALE



PUMP CABLE SUPPORT

NOT TO SCALE



DETAIL NOTES:

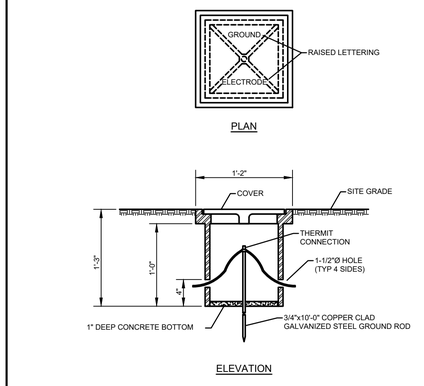
1. CONCRETE PAD WITH MINIMUM STRENGTH OF 4000 PSI. CHAMFER ALL EDGES. NO JOINTS ARE ACCEPTABLE IN THE PAD. THE TOP SHALL BE LEVEL AND SMOOTH.
2. SECTION BOXED OUT FOR PRIMARY CONDUITS AND CABLES.
3. SECTION BOXED OUT FOR SECONDARY CABLES. METERING CABLES AND CONDUITS.
4. 2" CONDUIT FOR METER/PHONE CABLES, COORDINATE WITH UTILITY FOR ALL METERING AND METER WIRING REQUIREMENTS.
5. NO CONDUIT PERMITTED IN THE SHADED AREA.
6. 1" PVC CONDUIT FOR GROUND WIRE. GROUND WIRE BY ELECTRIC UTILITY.
7. PRIMARY CABLE CONDUIT.
8. SERVICE CABLE CONDUIT, SEE ELECTRICAL SERVICE AND DISTRIBUTION DIAGRAM FOR THE EXACT NUMBER OF CONDUITS.

GENERAL NOTES:

1. THE TRANSFORMER PAD SHALL BE CONCRETE AND A MINIMUM OF EIGHT (8) INCHES THICK. THE TOP SURFACE SHALL BE A MINIMUM OF TWO (2) INCHES ABOVE THE SURROUNDING GRADE. REINFORCING STEEL SHALL BE AT LEAST #4 BARS OR LARGER INSTALLED A MINIMUM OF 12 INCHES ON CENTER BOTH WAYS.
2. THE TRANSFORMER PAD SHALL BE INSTALLED ON A BED OF GRANULAR FILL MATERIAL THAT HAS BEEN COMPACTED PRIOR TO POURING THE CONCRETE.
3. THE SURFACE OF THE TRANSFORMER PAD SHALL BE FLAT, SMOOTH, AND LEVEL WITHIN ONE (1) INCH IN ALL DIRECTIONS.
4. THE EDGE OF THE TRANSFORMER PAD SHALL HAVE A ONE (1) INCH BEVEL FORMED INTO THE TOP EDGE.
5. A ONE (1) INCH I.D. PVC CONDUIT SHALL BE INSTALLED IN THE CONCRETE AS SHOWN IN THE SKETCH FOR THE INSTALLATION GROUNDING CONDUCTORS FOR ADJACENT COMMUNICATIONS EQUIPMENT. GROUNDING CONDUCTORS SHALL BE INSTALLED BY ELECTRIC UTILITY.
6. ALL WORK SHALL BE IN COMPLIANCE WITH ELECTRIC UTILITY'S SERVICE GUIDELINES FOR COMMERCIAL/INDUSTRIAL DEVELOPMENTS. VERIFY ALL DETAILS, DIMENSIONS, ROUGH-INS, ETC. WITH ELECTRIC UTILITY PRIOR TO POURING.

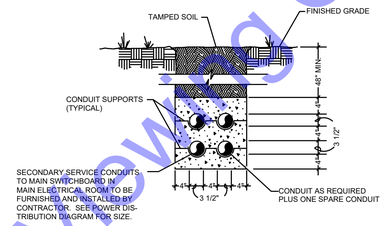
GENERIC TRANSFORMER PAD DETAIL

NOT TO SCALE



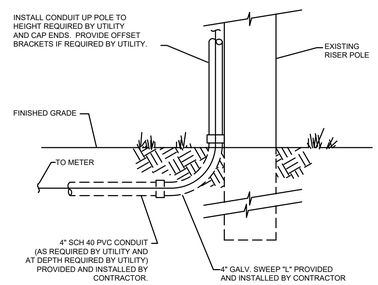
TYPICAL GROUND ROD AND ACCESS BOX DETAIL

NOT TO SCALE



SECONDARY ELECTRICAL SERVICE DUCT BANK

CAD ID: 11E008



NOTE:

COORDINATE ALL WORK WITH UTILITY.

POLE RISER TERMINATION

CAD ID: 11E002

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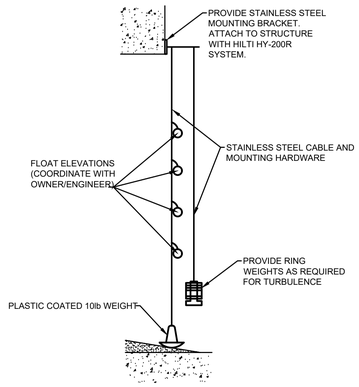
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ELECTRICAL DETAILS

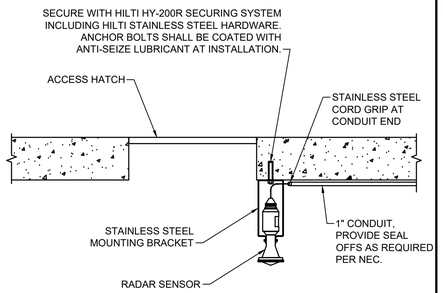
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E3-0
Sheet: 58 OF 59

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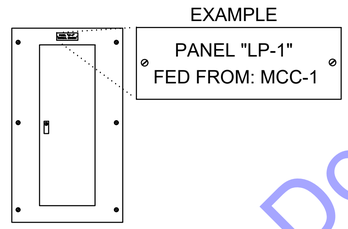
SUBMERSIBLE LEVEL TRANSMITTER AND FLOAT MOUNTING DETAIL

NOT TO SCALE



WET WELL RADAR MOUNTING DETAIL

NOT TO SCALE

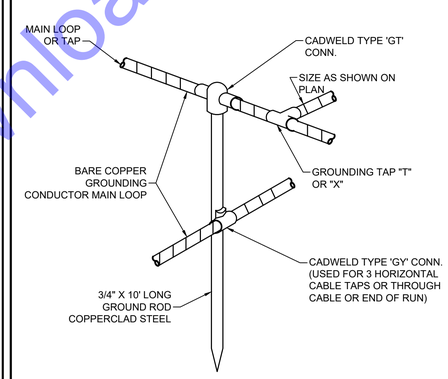


NOTE:
ALL PANELBOARDS INVOLVED IN THIS PROJECT SHALL BE IDENTIFIED BY THE PANEL NAME AND SOURCE OF THE PANEL'S POWER. REFER TO THE SPECIFICATIONS FOR COLORS AND ADDITIONAL REQUIREMENTS.

CAD ID: 04E102

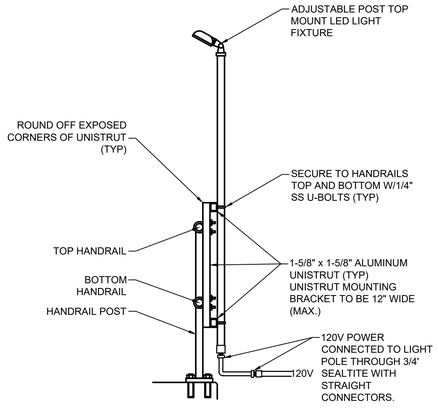
PANELBOARD IDENTIFICATION

NOT TO SCALE



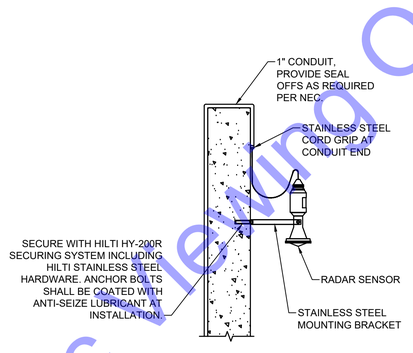
CONDUCTOR TO GROUND ROD CONNECTION DETAIL

NOT TO SCALE



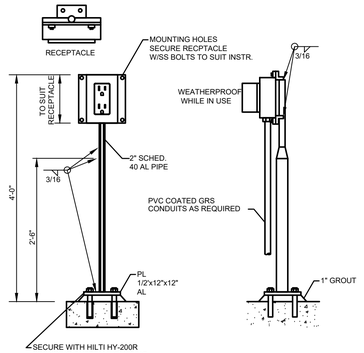
HANDRAIL MOUNT LIGHT

NOT TO SCALE



RADAR WALL MOUNTING DETAIL

NOT TO SCALE



NOTE:
1. ROUND OFF ALL EXPOSED EDGES & CORNERS.
2. PAINT METAL IN CONTACT WITH CONCRETE ACCORDING TO SPECIFICATIONS FOR PAINTING.
3. ALL BOLTS, ANCHORS, AND OTHER HARDWARE SHALL BE STAINLESS STEEL.

STANCHION MOUNT DUPLEX WEATHERPROOF GFCI RECEPTACLE

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ELECTRICAL DETAILS

Drawing No:
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