SET NO.

TOWN OF NEW PALESTINE
HANCOCK COUNTY, INDIANA

WASTEWATER UTILITY IMPROVEMENTS PROJECT
DIVISION "A" - WASTEWATER TREATMENT PLANT IMPROVEMENTS - VOLUME I
OCTOBER 2023 / REVISED JANUARY 2024

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RYAN HARTLEY	MEMBER
CHAD MOLINDER	MEMBER
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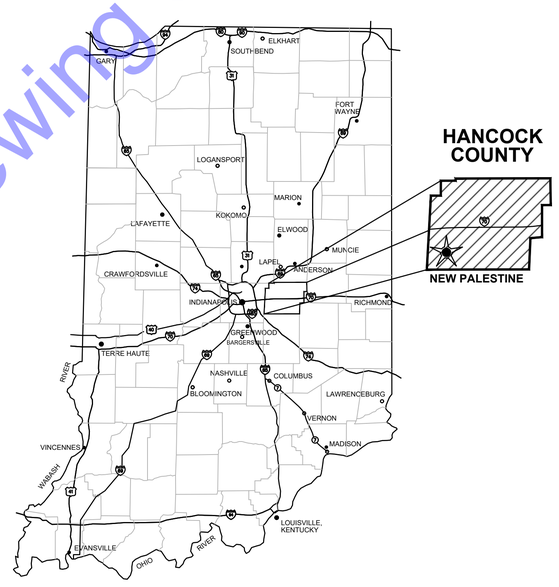
KYLE CONNER	WASTEWATER OPERATOR



GENERAL LOCATION MAP

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QA/QC BY : AL STONG — DATE : 10/24/2023

CERTIFIED BY : _____ — DATE : 10/24/2023
CHRIS A. LIMCACO
INDIANA P.E. No. 19700338

CHRIS A. LIMCACO REGISTERED No. 19700338 STATE OF INDIANA PROFESSIONAL ENGINEER

CONTRACT NO. : S22002

File: Z:\SHARED\IN CLIENTS M-Z\NEW PALESTINE\D S22002 WW UTILITY IMPRVS\06 CAD\A CURRENT FILES\1 DRAWINGS\DIV A - WWTP\01-TITLE SHEET.DWG
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FORT WAYNE, IN.
CROWN POINT, IN.
BOWLING GREEN, KY.
SOUTH BEND, IN.

CHRIS A. LIMCACO
REGISTERED
No. 19700338
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Signature 10/24/2023 Date

TOWN OF NEW PALESTINE
HANCOCK COUNTY, INDIANA

WASTEWATER UTILITY
IMPROVEMENTS PROJECT
DIVISION "A" - MAIN WWTP
IMPROVEMENTS

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No.	Submittal / Revision	By	Date

Designed By:	Drawn By:	Checked By:
CAL	DAN	ACS
Issue Date: OCT 2023	Project No: S22002	Scale: AS SHOWN

DRAWING SHEET INDEX

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VICINITY MAP

SCALE: 1"=1000'-0"

0 1000' 2000'

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WASTEWATER UTILITY
IMPROVEMENTS PROJECT

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VICINITY MAP

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G3
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GENERAL ABBREVIATIONS

A	AIR
AB	ANCHOR BOLT
AFF	ABOVE FINISH FLOOR
ALT	ALTERNATE
ALUM	ALUMINUM
@	AT
APP.	APPARENT
ATT	AERATION TANK TRANSFER
AUTO	AUTOMATIC
AVG	AVERAGE
B	BAFFLE
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
CW	COLD WATER
CY	CUBIC YARD
D	DRAIN
DEC	DECANT
DIA	DIAMETER
DIM	DIMENSION
DI	DUCTILE IRON PIPE
DL	DEAD LOAD
DSPT	DOWN SPOUT
DWG	DRAWING
E	ELECTRICAL CONDUIT
EA	EACH
EF	EACH FACE
EFFL	EFFLUENT
EL	ELEVATION
EW	EACH WAY
EX	EXISTING
EXF	EXHAUST FAN
EXP JP	EXPANSION JOINT
F	FILTER
FCAR	FLANGED COUPLING ADAPTER, RESTRAINED
FD	FLOOR DRAIN
FDN	FOUNDATION
FH	FIRE HYDRANT
FLD	FILTRATE DRAIN
FLG	FLANGE
FL	FLUSHING LINE
FLR	FLOOR
FM	FORCE MAIN
FRP	FIBER REINFORCED PLASTIC
FT	FEET OR FOOT
FTG	FOOTING
FW	FINISHED WATER
G	GAS
GALV	GALVANIZED
GEN	GENERAL
GRD	GROUND OR GRADE
HB	HOSE BIBB
HORIZ	HORIZONTAL
HP	HORSEPOWER
HW	HOT WATER
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 CONTRACT
NO	NORMALLY OPEN
NO.	NUMBER
NPW	NON-POTABLE WATER
OC	ON CENTER
OD	OUTSIDE DIAMETER
OPG	OPENING
OPP	OPPOSITE
PB	PULL BOX
PE	POLYETHYLENE EXP. JT.
	MATERIAL
P/L	PROPERTY LINE
POJ	PUSH ON JOINT
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
PW	POTABLE WATER
R	RECIRULCATION
RAD	RADIUS
RAS	RETURN ACTIVATED SLUDGE
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
REINF	REINFORCING
REQ'D	REQUIRED
R/W (ROW)	RIGHT-OF-WAY
SAN	SANITARY
SAS	SANITARY SEWER
SCH	SCHEDULE
SECT	SECTION
SF	SQUARE FEET
SHT	SHEET
SL	SAMPLE LINE
SOS	STORM SEWER
SP	STOP PLATE
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	WEIR
W/	WITH
W/O	WITHOUT
WAS	WASTE ACTIVATED SLUDGE
WC	WATER CLOSET
WH	WATER HEATER
WL	WATER LINE
WWF	WELDED WIRE FABRIC
YH	YARD HYDRANT

GENERAL NOTES

1. ALL PROPERTY AND RIGHT-OF-WAY LINES INFORMATION SHOWN IN DRAWING SET ARE APPARENT AND SHALL NOT BE DEEMED EXACT LOCATIONS, UNLESS OTHERWISE NOTED. INFORMATION WAS OBTAINED VIA "INDIANA ON-LINE" GIS WEBSITE.
2. EXISTING UTILITY INFORMATION SHOWN IN DRAWING SET, MEETS "ASCE 36-02" QUALITY LEVEL **"C"**, UNLESS OTHERWISE NOTED.

   UTILITY COORDINATION AND PROJECT DIRECTION OF EXISTING SUBSURFACE UTILITY DATA:

   UTILITY QUALITY LEVEL DESCRIPTIONS:

   UTILITY QUALITY LEVEL A - PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES OBTAINED BY THE ACTUAL EXPOSURE (OR VERIFICATIONS 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 QUALITY LEVEL C - INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE ABOVE GROUND UTILITY FEATURES AND CORRELATING QUALITY LEVEL "D" INFORMATION.

   UTILITY QUALITY LEVEL D - INFORMATION DERIVED FROM EXISTING RECORDS OR VERBAL RECOLLECTIONS.
3. NORTHING AND EASTING COORDINATES SHOWN ON ALL MANHOLE, INLETS, ETC. ARE SHOWN FROM CENTER OF STRUCTURE NOT CASTING, UNLESS OTHERWISE NOTED.
4. NORTHING AND EASTING COORDINATES SHOWN ON ALL STRUCTURES ARE SHOWN FROM THE INSIDE CORNER OF EACH STRUCTURE, UNLESS OTHERWISE NOTED.

GENERAL SCHEMATIC LEGEND

- QUICK DISCONNECT
- FLANGED SPOOL SECTION
- PRESSURE REDUCER VALVE
- FLANGED COUPLING ADAPTER
- BALL CHECK VALVE
- MOTOR ACTUATOR
- FLEXIBLE CONNECTION
- FLANGE FILLER & S.S. MESH SCREEN
- 90° V-NOTCH WEIR
- MAGNETIC FLOW METER
- ULTRASONIC SENSOR
- SUBMERSIBLE PUMP
- NEW PIPING AND EQUIPMENT
- EXISTING PIPING AND EQUIPMENT
- FUTURE PIPING AND EQUIPMENT
- BOOSTER PUMP
- AIR RELIEF VALVE
- FLOW METER
- GATE VALVE
- FLOW CONTROL VALVE
- VALVE
- ECCENTRIC PLUG VALVE
- CHECK VALVE
- INCREASER / REDUCER
- BUTTERFLY VALVE
- PIPE THROUGH FLOOR / WALL
- BALL VALVE
- BLIND FLANGE OR PLUG
- HOSE BIBB
- STOP PLATE
- WEIR

HATCHING SYMBOLS

- CMU WALL (PLAN VIEW)
- GRANULAR BACKFILL (PROFILE VIEW)
- DEMOLITION (CONTRACTOR SHALL REFER TO DETAILED SPECIFICATIONS)
- GROUT
- CONCRETE
- STEEL
- COMPACTED GRANULAR BACKFILL OR COMPACTED FOUNDATION
- ABANDONED IN PLACE
- GRAVEL
- EXISTING STRUCTURES
- NEW STRUCTURES

DRAWING SET LEGEND

- EXISTING OVERHEAD TELEPHONE LINE
- EXISTING GAS LINE AND VALVE
- EXISTING WATER LINE AND VALVE
- EXISTING FIBER OPTIC LINE
- EXISTING OVERHEAD ELECTRIC LINE
- EXISTING BURIED ELECTRIC
- EXISTING NON-POTABLE WATER LINE
- EXISTING POTABLE WATER LINE
- EXISTING BURIED TELEPHONE LINE
- EXISTING FENCE
- APPARENT RIGHT-OF-WAY
- APPARENT PROPERTY LINE
- EDGE OF ROAD
- EDGE OF ROAD WITH CURB
- EXISTING MAJOR CONTOUR LINE
- EXISTING MINOR CONTOUR LINE
- **NEW WATER LINE**
- **PROPOSED MAJOR CONTOUR LINE**
- **PROPOSED MINOR CONTOUR LINE**
- EXISTING GRAVEL SURFACE LIMITS
- EXISTING ASPHALT SURFACE LIMITS
- **PROPOSED GRAVEL SURFACE LIMITS**
- MONUMENT
- CONTROL POINT
- FLAG POLE
- POST
- STUMP
- BUSH / HEDGE
- DECIDUOUS TREE
- CONIFEROUS TREE
- SIGN
- LARGE ROCK
- UTILITY LOCATE FLAG
- GAS METER
- GAS LINE MARKER
- POWER/LIGHT POLE
- ELECTRIC METER
- GUY WIRE
- ELECTRIC PANEL
- TEL/TV PEDESTAL
- WATER METER
- VALVE
- FIRE HYDRANT
- FLUSH HYDRANT
- WALL SPIGOT
- EXISTING PIPE PLUG
- EXISTING STORM MANHOLE/INLET
- EXISTING SANITARY MH
- TOP OF PIPE
- CURB INLET
- STORM INLET SQUARE
- STORM INLET ROUND
- **NEW VALVE**
- **NEW FIRE HYDRANT**
- **NEW FLUSH HYDRANT**
- **NEW WET SADDLE AND VALVE BODY**
- **NEW PLUG**
- **NEW LINE STOP**
- **NEW SANITARY MH**

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Signature 10/24/2023 Date

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HANCOCK COUNTY, INDIANA

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GENERAL ABBREVIATIONS, LEGENDS, SYMBOLS AND NOTES

Drawing No: **G4**

Sheet: 04 OF 205

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SITE PLAN

SCALE: 1"=30'-0"

0 30' 60'

EXISTING STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION	DEMO NOTES
A	EXISTING HEADWORKS	TO BE ABANDONED
B	EXISTING AERATION TANKS	TO BE DEMOLISHED
C	EXISTING CLARIFIERS	TO BE DEMOLISHED
D	EXISTING RAS/WAS STATION	TO BE DEMOLISHED
E	EXISTING DIGESTER	TO BE MODIFIED
F	EXISTING UV	TO BE DEMOLISHED
G	EXISTING DRYING BEDS	TO BE MODIFIED
H	EXISTING SLUDGE BAGGING SYSTEM	TO BE MODIFIED
I	EXISTING LAB BUILDING	TO REMAIN
J	EXISTING STREET DEPARTMENT BUILDING	TO REMAIN
K	EXISTING STREET DEPARTMENT SALT BARN	TO REMAIN
L	OLD OXIDATION DITCH FOUNDATION	TO BE REMOVED
M	EXISTING PLANT DRAIN PUMP STATION	TO BE DEMOLISHED
N	EXISTING STORAGE SHED	TO REMAIN
O	EXISTING STREET DEPARTMENT STORAGE BAYS	TO BE RELOCATED
P	EXISTING PLANT EMERGENCY GENERATOR	TO REMAIN

CONTROL POINT INFORMATION

IDENTIFIER	NORTHING	EASTING	DESCRIPTION
CP-1	1626594.81	265694.52	REBAR
CP-2	1626322.83	265427.66	REBAR
CP-3	1626299.10	265814.25	REBAR
CP-17000	1626296.74	266130.75	TEMP
CP-17001	1626313.33	266208.77	TEMP
CP-17002	1626274.54	266213.49	TEMP

TEMPORARY BENCHMARK INFORMATION

IDENTIFIER	NORTHING	EASTING	ELEVATION	DESCRIPTION
TBM-12517	1626646.45	265522.29	817.33	BOAT SPIKE SET N SIDE PWP 1FT. UP
TBM-12516	1626377.19	265579.41	809.42	CUT SQUARE TOP OF STORAGE RET WALL

Project coordinates are based on the following:
HORIZONTAL-US State plane coordinates: NAD83 *(North American Datum)* Indiana East Zone (1301)
VERTICAL- USGS 1988 NAVD (North American Vertical Datum)-per GPS observations (Not verified by physical location of published USGS monuments)

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EXISTING WWTP SURVEY DATA DRAWING

Drawing No: **G5**

Sheet: 05 OF 205

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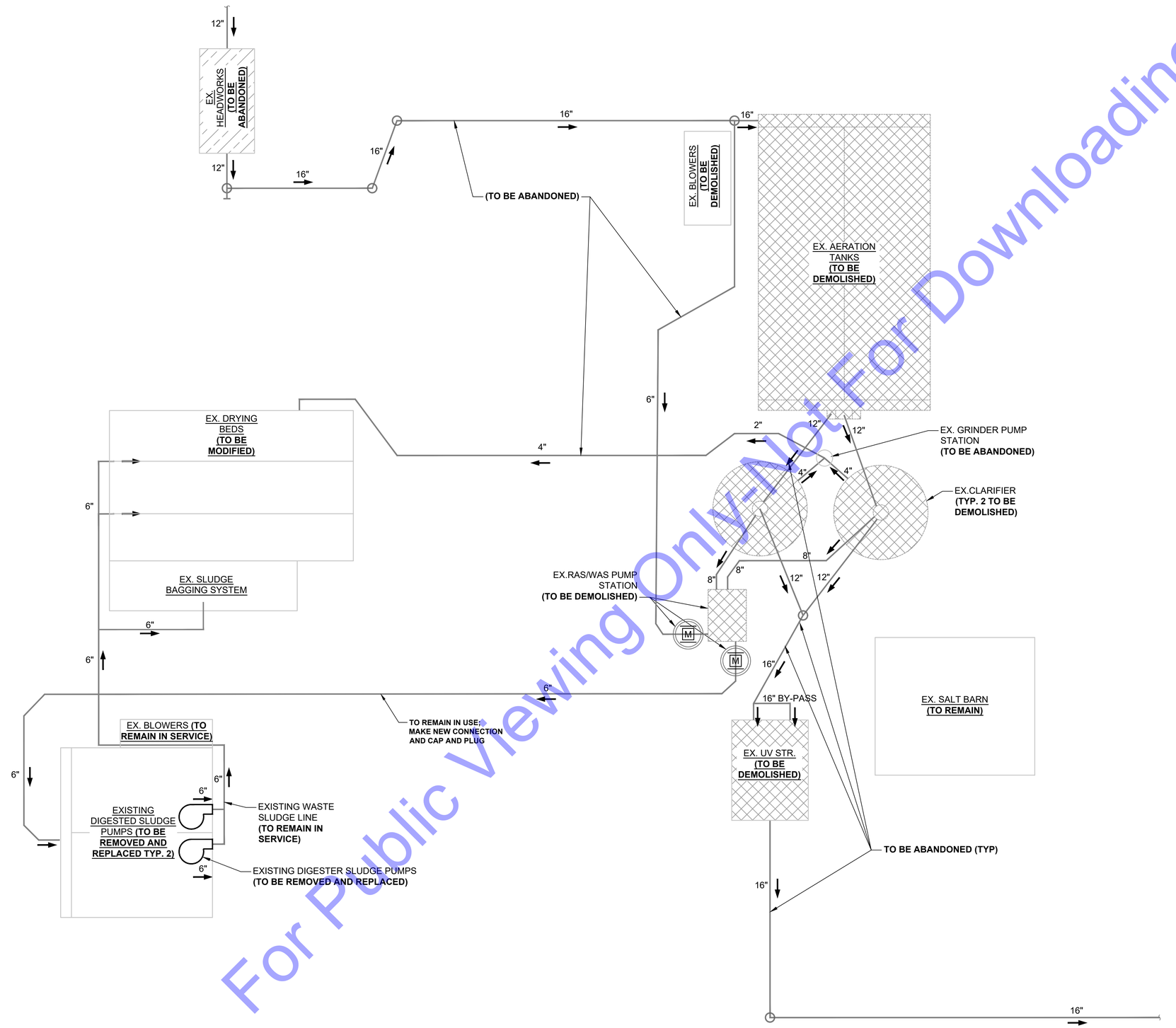

EXISTING FLOW SCHEMATIC AND PARTIAL DEMOLITION PLAN

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EXISTING WWTP PROCESS FLOW SCHEMATIC AND PARTIAL DEMOLITION PLAN

Drawing No: **G6**

Sheet: 06 OF 205

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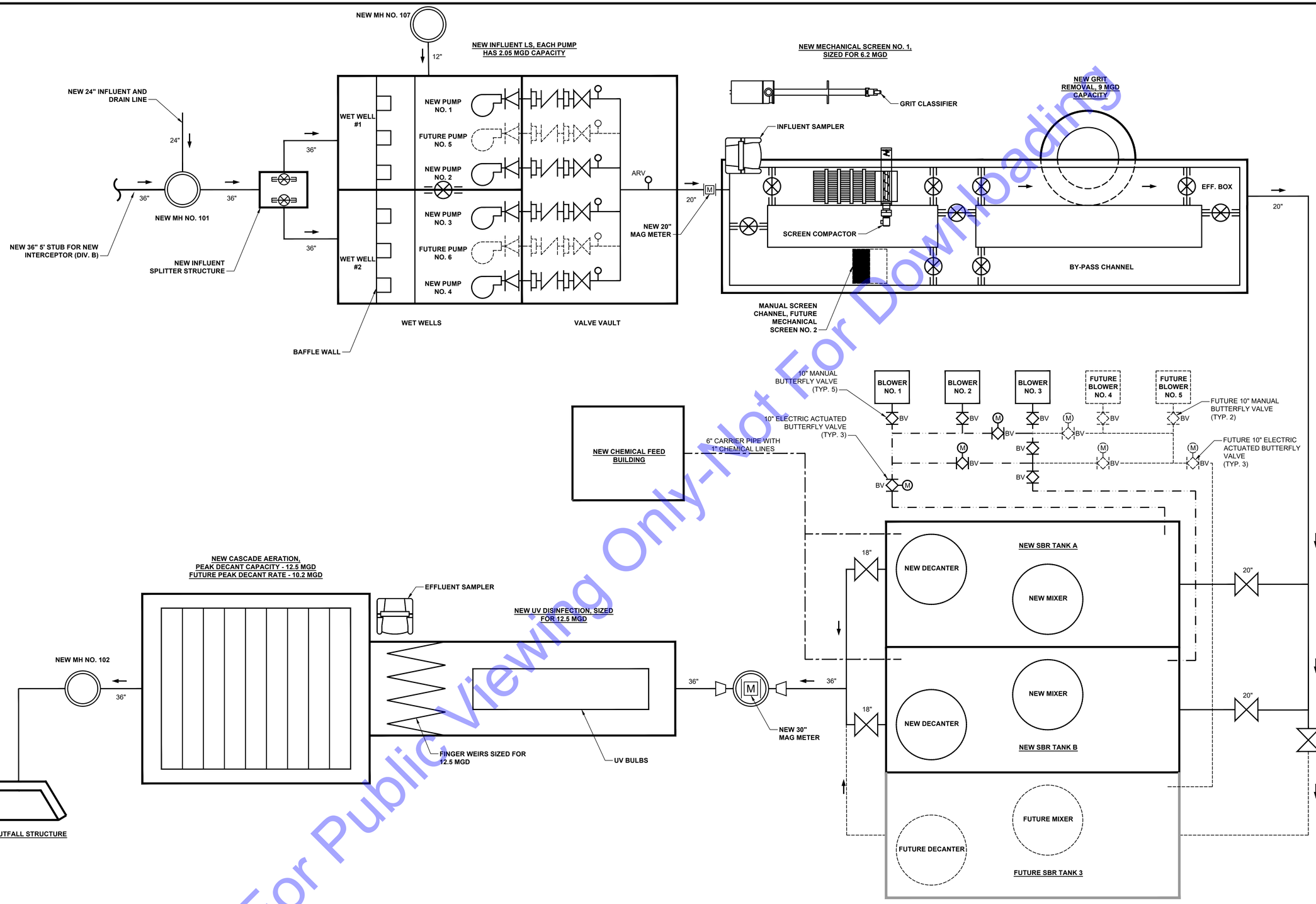

FLOW SCHEMATIC

NOT TO SCALE

LEGEND:

- NEW PIPING AND EQUIPMENT
- EXISTING PIPING AND EQUIPMENT
- FUTURE PIPING AND EQUIPMENT
- NEW AIR PIPING
- NEW CHEMICAL PIPING
- EX. STRUCTURE
- NEW STRUCTURE
- FUTURE STRUCTURE

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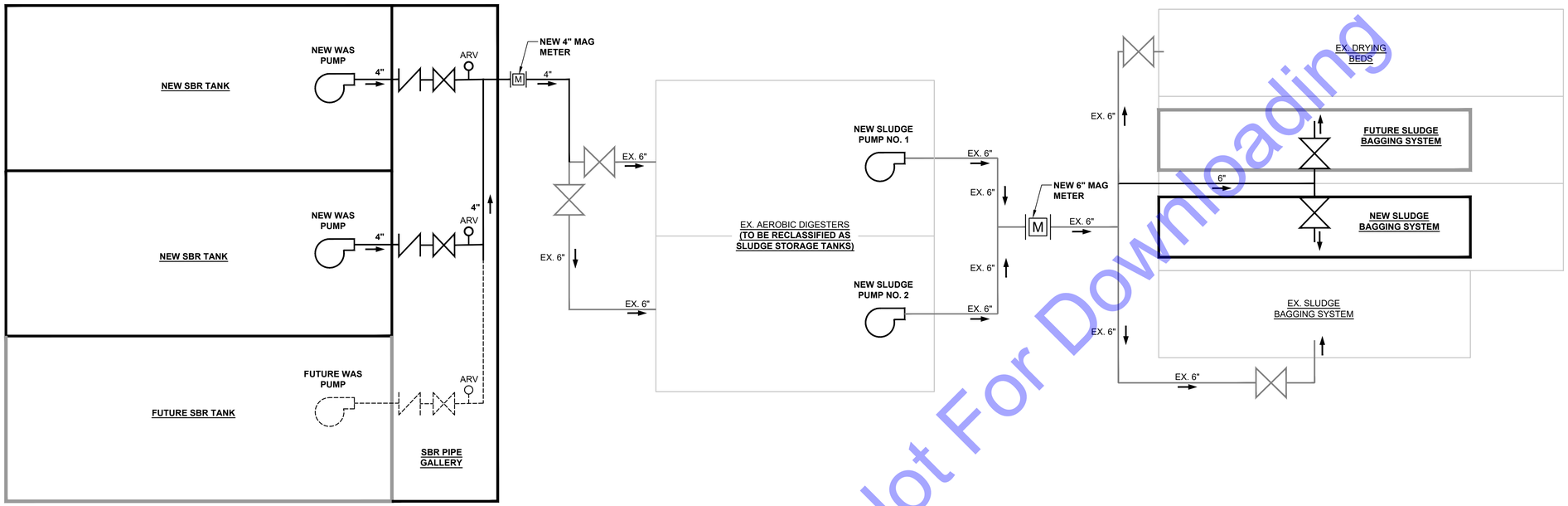
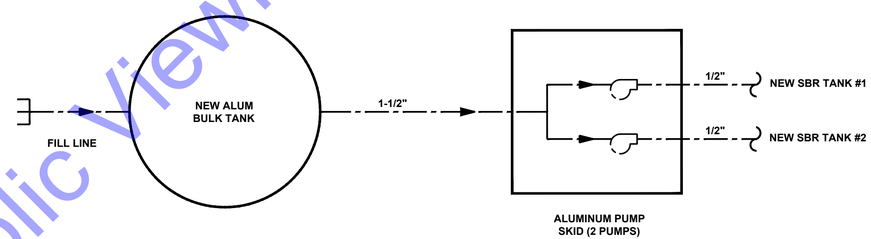
PROPOSED WWTP PROCESS FLOW SCHEMATIC

Drawing No:
G7
Sheet: 07 OF 205



SLUDGE SCHEMATIC

NOT TO SCALE



GENERAL NOTE:

1. 1/2" TUBING SHALL BE ENCASED IN A 6" PIPE FROM SLUDGE BUILDING TO SBR PIPE GALLERY

CHEMICAL FEED SCHEMATIC

NOT TO SCALE

LEGEND:

- NEW PIPING AND EQUIPMENT
- EXISTING PIPING AND EQUIPMENT
- FUTURE PIPING AND EQUIPMENT
- NEW CHEMICAL LINE
- EX. STRUCTURE
- NEW STRUCTURE
- FUTURE STRUCTURE

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PROPOSED WWTP SLUDGE AND CHEMICAL SCHEMATICS

Drawing No: **G8**

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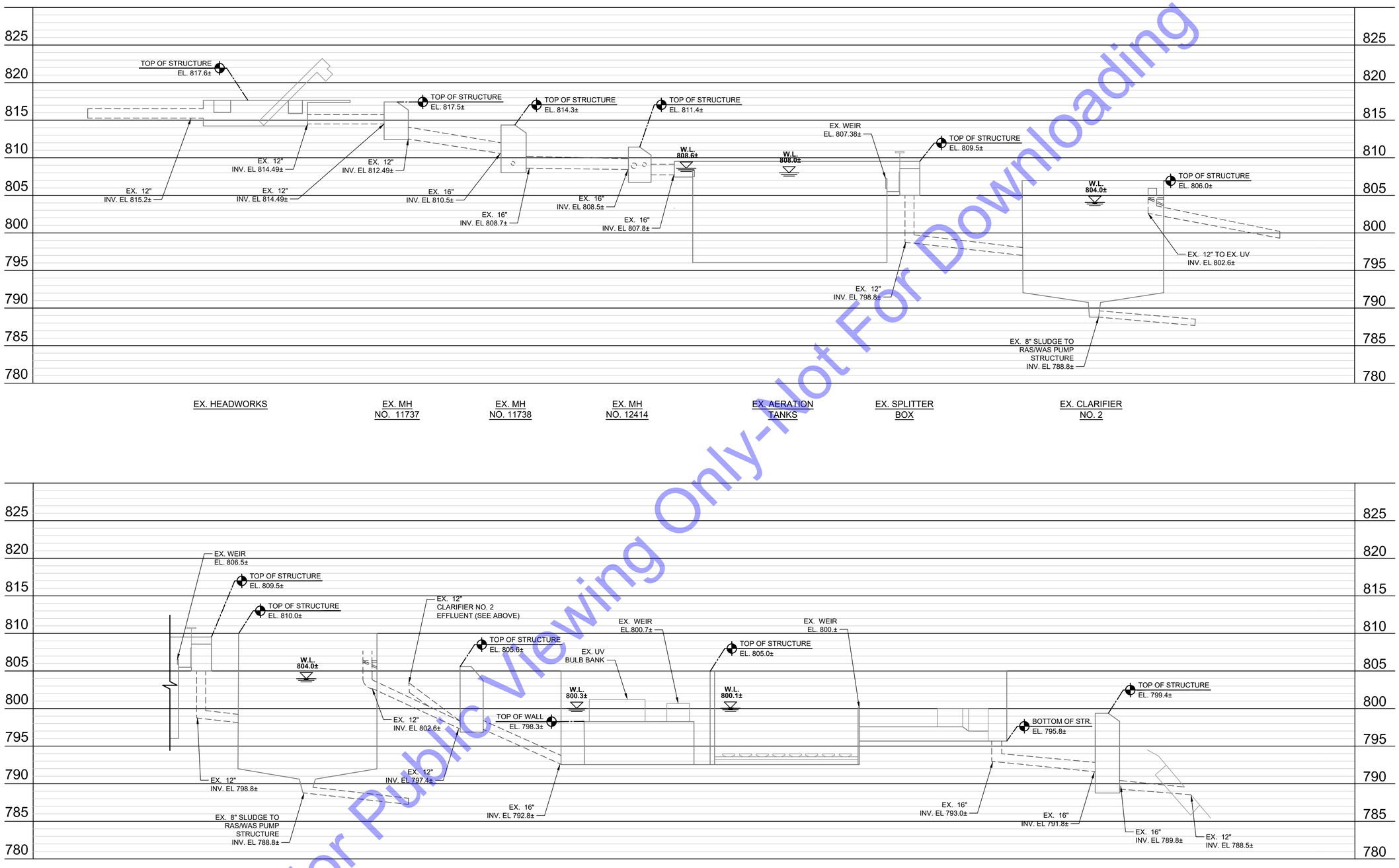

HYDRAULIC PROFILE

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EXISTING WWTP
HYDRAULIC PROFILE

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G9
Sheet: 09 OF 205

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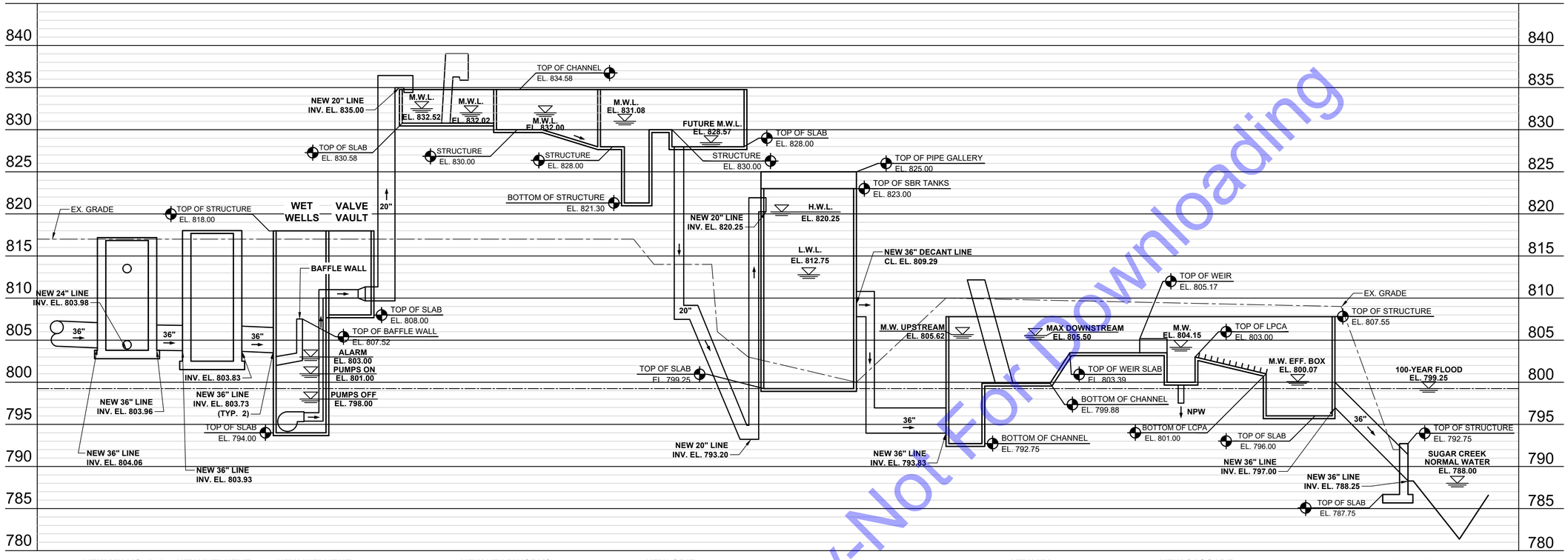
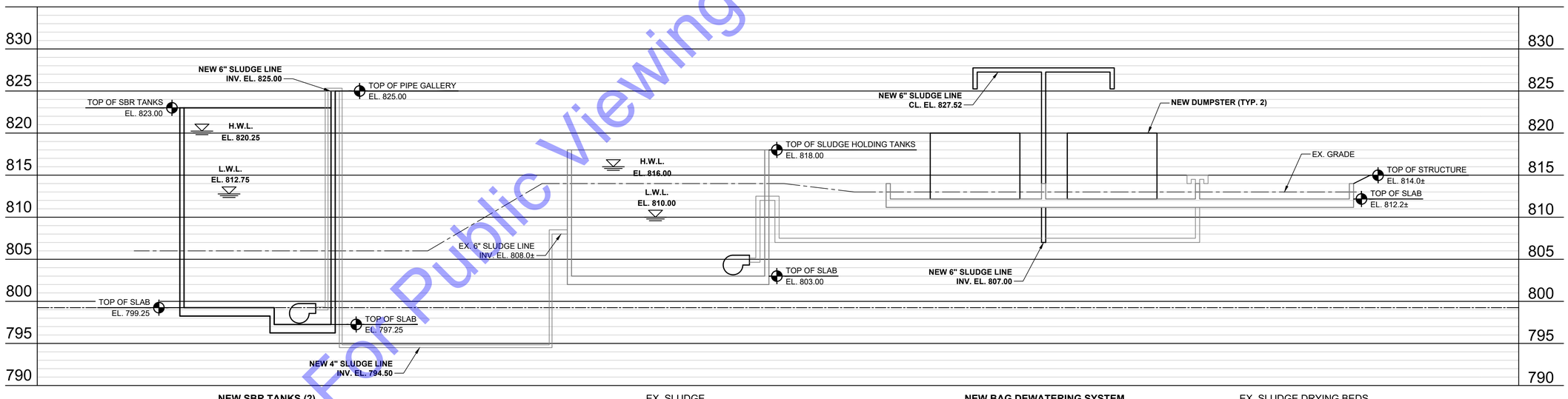


HYDRAULIC PROFILE

NOT TO SCALE



SLUDGE HYDRAULIC PROFILE

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PROPOSED WWTP PROCESS AND SLUDGE HYDRAULIC PROFILES

Drawing No: **G10**

Sheet: 10 OF 205

SITE PLAN

SCALE: 1"=30'-0"

0 30' 60'

EXISTING STRUCTURE LEGEND		
IDENTIFIER	DESCRIPTION	DEMO NOTES
A	EXISTING HEADWORKS	TO BE ABANDONED
B	EXISTING AERATION TANKS	TO BE DEMOLISHED
C	EXISTING CLARIFIERS	TO BE DEMOLISHED
D	EXISTING RAS/WAS STATION	TO BE DEMOLISHED
E	EXISTING DIGESTER	TO BE MODIFIED
F	EXISTING UV	TO BE DEMOLISHED
G	EXISTING DRYING BEDS	TO BE MODIFIED
H	EXISTING SLUDGE BAGGING SYSTEM	TO BE MODIFIED
I	EXISTING LAB BUILDING	TO REMAIN
J	EXISTING STREET DEPARTMENT BUILDING	TO REMAIN
K	EXISTING STREET DEPARTMENT SALT BARN	TO REMAIN
L	OLD OXIDATION DITCH FOUNDATION	TO BE DEMOLISHED
M	EXISTING PLANT DRAIN PUMP STATION	TO BE DEMOLISHED
N	EXISTING STORAGE SHED	TO REMAIN
O	EXISTING STREET DEPARTMENT STORAGE BAYS	TO BE RELOCATED
P	EXISTING PLANT EMERGENCY GENERATOR	TO REMAIN

LEGEND:

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EXISTING WWTP AERIAL SITE PLAN AND PHOTO LOG INDEX

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PHOTO #1

PHOTO #2

PHOTO #3

PHOTO #4

PHOTO #5

PHOTO #6

PHOTO #7

PHOTO #8

PHOTO #9

PHOTO #10

PHOTO #11

PHOTO #12

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PHOTO LOG

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PHOTO #13

PHOTO #14

PHOTO #15

PHOTO #16

PHOTO #17

PHOTO #18

PHOTO #19

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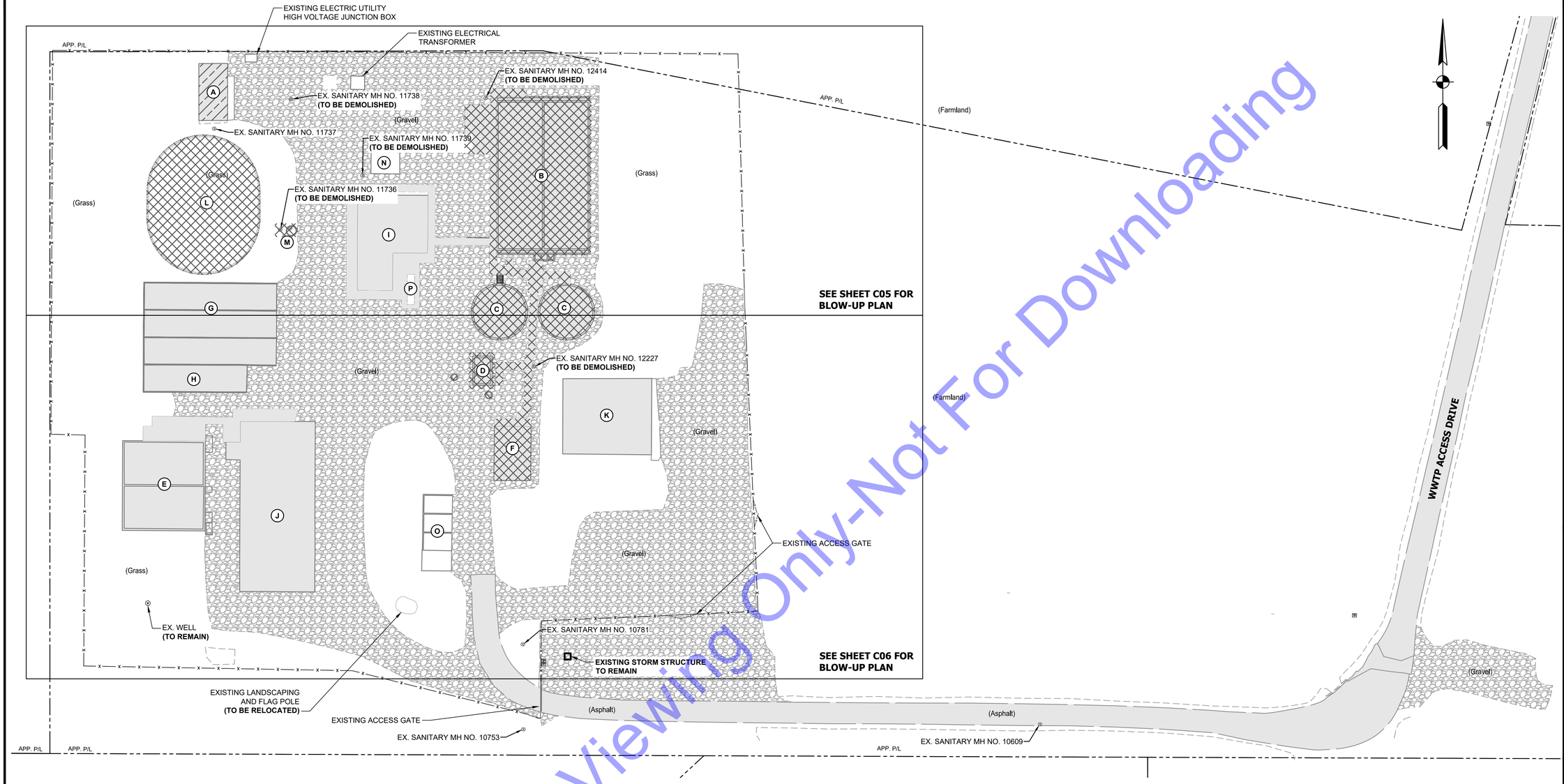

SITE PLAN

SCALE: 1"=30'-0"

0 30' 60'

EXISTING STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION	DEMO NOTES
A	EXISTING HEADWORKS	TO BE ABANDONED
B	EXISTING AERATION TANKS	TO BE DEMOLISHED
C	EXISTING CLARIFIERS	TO BE DEMOLISHED
D	EXISTING RAS/WAS STATION	TO BE DEMOLISHED
E	EXISTING DIGESTER	TO BE MODIFIED
F	EXISTING UV	TO BE DEMOLISHED
G	EXISTING DRYING BEDS	TO BE MODIFIED
H	EXISTING SLUDGE BAGGING SYSTEM	TO BE MODIFIED
I	EXISTING LAB BUILDING	TO REMAIN
J	EXISTING STREET DEPARTMENT BUILDING	TO REMAIN
K	EXISTING STREET DEPARTMENT SALT BARN	TO REMAIN
L	OLD OXIDATION DITCH FOUNDATION	TO BE DEMOLISHED
M	EXISTING PLANT DRAIN PUMP STATION	TO BE DEMOLISHED
N	EXISTING STORAGE SHED	TO REMAIN
O	EXISTING STREET DEPARTMENT STORAGE BAYS	TO BE RELOCATED
P	EXISTING PLANT EMERGENCY GENERATOR	TO REMAIN

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CHRIS A. LIMCACO REGISTERED No. 19700338 STATE OF INDIANA PROFESSIONAL ENGINEER

Signature 10/24/2023 Date

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HANCOCK COUNTY, INDIANA

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DIVISION "A" - MAIN WWTP
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EXISITNG WWTP SITE DEMOLITION PLAN

Drawing No: **C04**

Sheet: 14 OF 205

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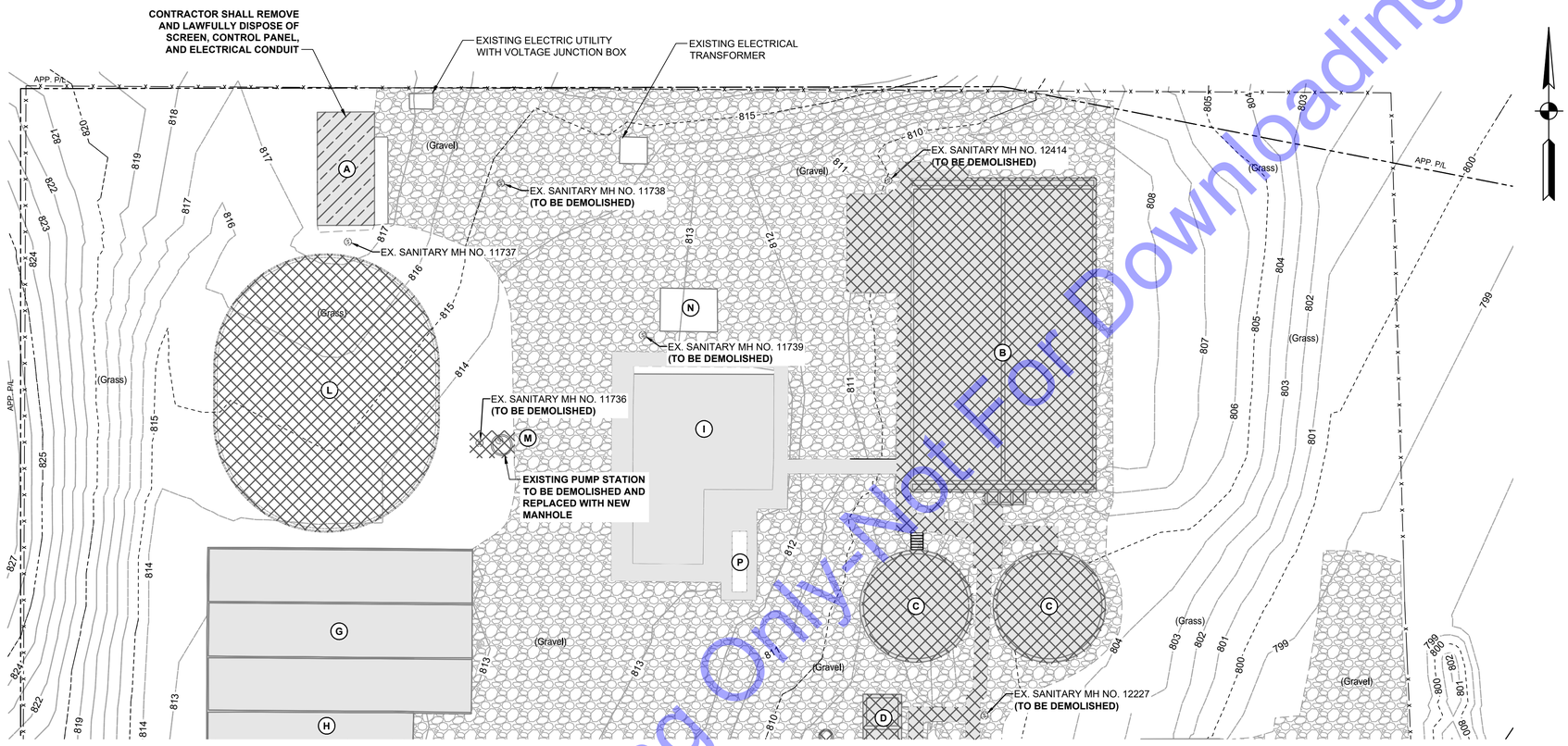


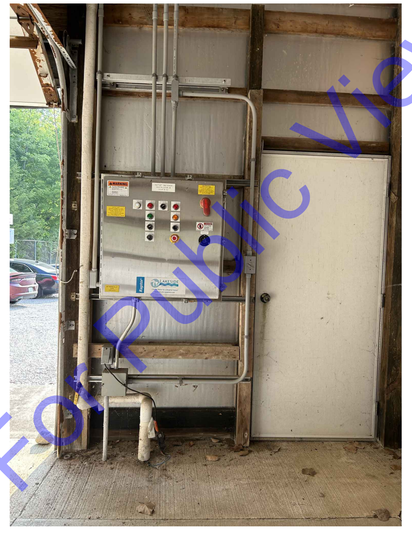
SITE PLAN

SCALE: 1"=20'-0"

0 20' 40'

EXISTING STRUCTURE LEGEND		
IDENTIFIER	**DESCRIPTION**	**DEMO NOTES**
A	EXISTING HEADWORKS	TO BE ABANDONED
B	EXISTING AERATION TANKS	TO BE DEMOLISHED
C	EXISTING CLARIFIERS	TO BE DEMOLISHED
D	EXISTING RAS/WAS STATION	TO BE DEMOLISHED
G	EXISTING DRYING BEDS	TO BE MODIFIED
H	EXISTING SLUDGE BAGGING SYSTEM	TO BE MODIFIED
I	EXISTING LAB BUILDING	TO REMAIN
L	OLD OXIDATION DITCH FOUNDATION	TO BE DEMOLISHED
M	EXISTING PLANT DRAIN PUMP STATION	TO BE DEMOLISHED
N	EXISTING STORAGE SHED	TO REMAIN
P	EXISTING PLANT EMERGENCY GENERATOR	TO REMAIN

SCREEN PHOTO #1



SCREEN PHOTO #2

SCREEN PHOTO #3

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EXISTING WWTP SITE DEMOLITION - NORTH BLOW-UP PLAN

Drawing No: **C05**

Sheet: 15 OF 205

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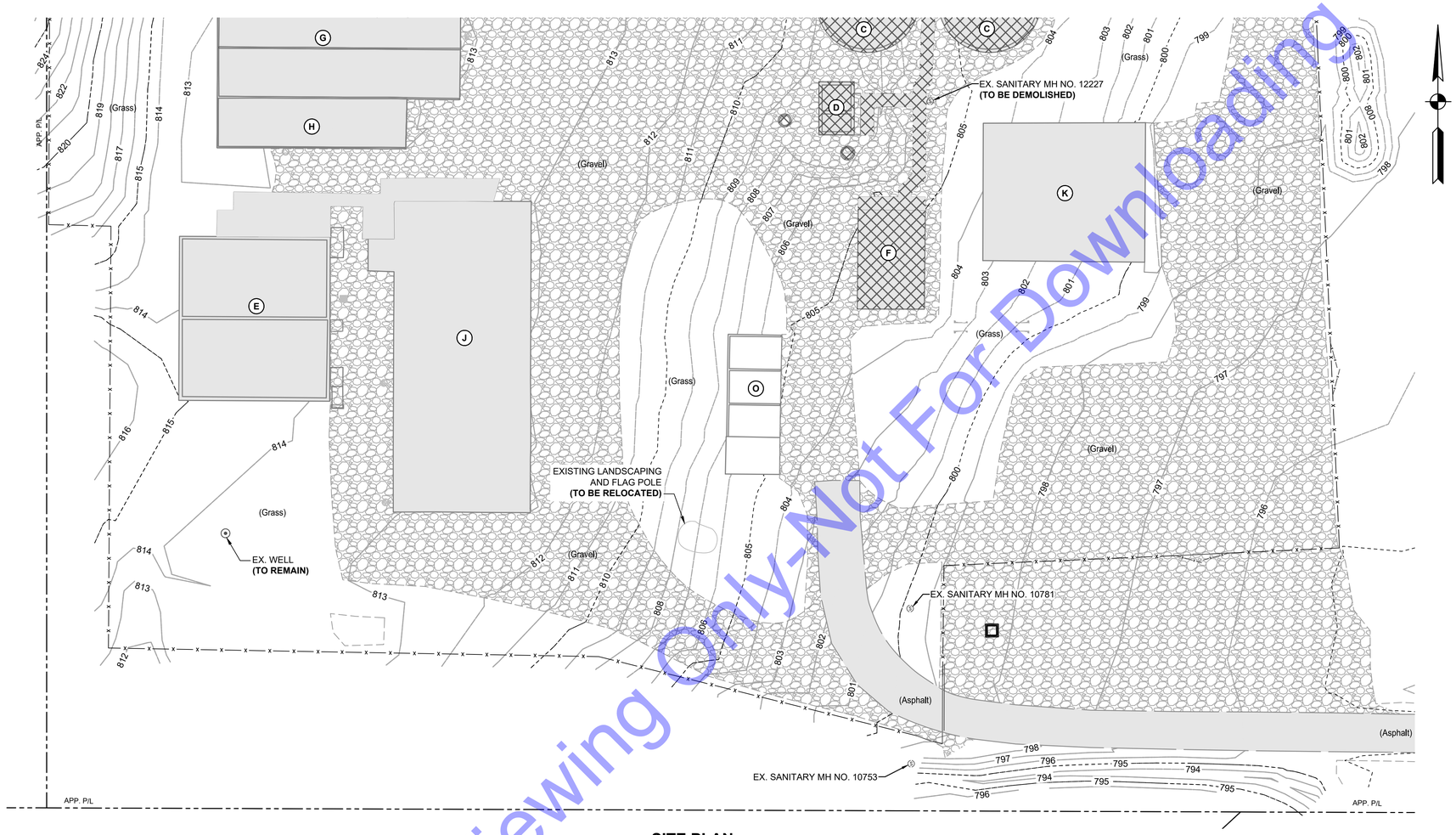

SITE PLAN

SCALE: 1"=20'-0"

0 20' 40'

EXISTING STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION	DEMO NOTES
C	EXISTING CLARIFIERS	TO BE DEMOLISHED
D	EXISTING RAS/WAS STATION	TO BE DEMOLISHED
E	EXISTING DIGESTER	TO BE MODIFIED
F	EXISTING UV	TO BE DEMOLISHED
G	EXISTING DRYING BEDS	TO BE MODIFIED
H	EXISTING SLUDGE BAGGING SYSTEM	TO BE MODIFIED
J	EXISTING STREET DEPARTMENT BUILDING	TO REMAIN
K	EXISTING STREET DEPARTMENT SALT BARN	TO REMAIN
O	EXISTING STREET DEPARTMENT STORAGE BAYS	TO BE RELOCATED

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EXISTING WWTP SITE DEMOLITION - SOUTH BLOW-UP PLAN

Drawing No:
C06
Sheet: 16 OF 205

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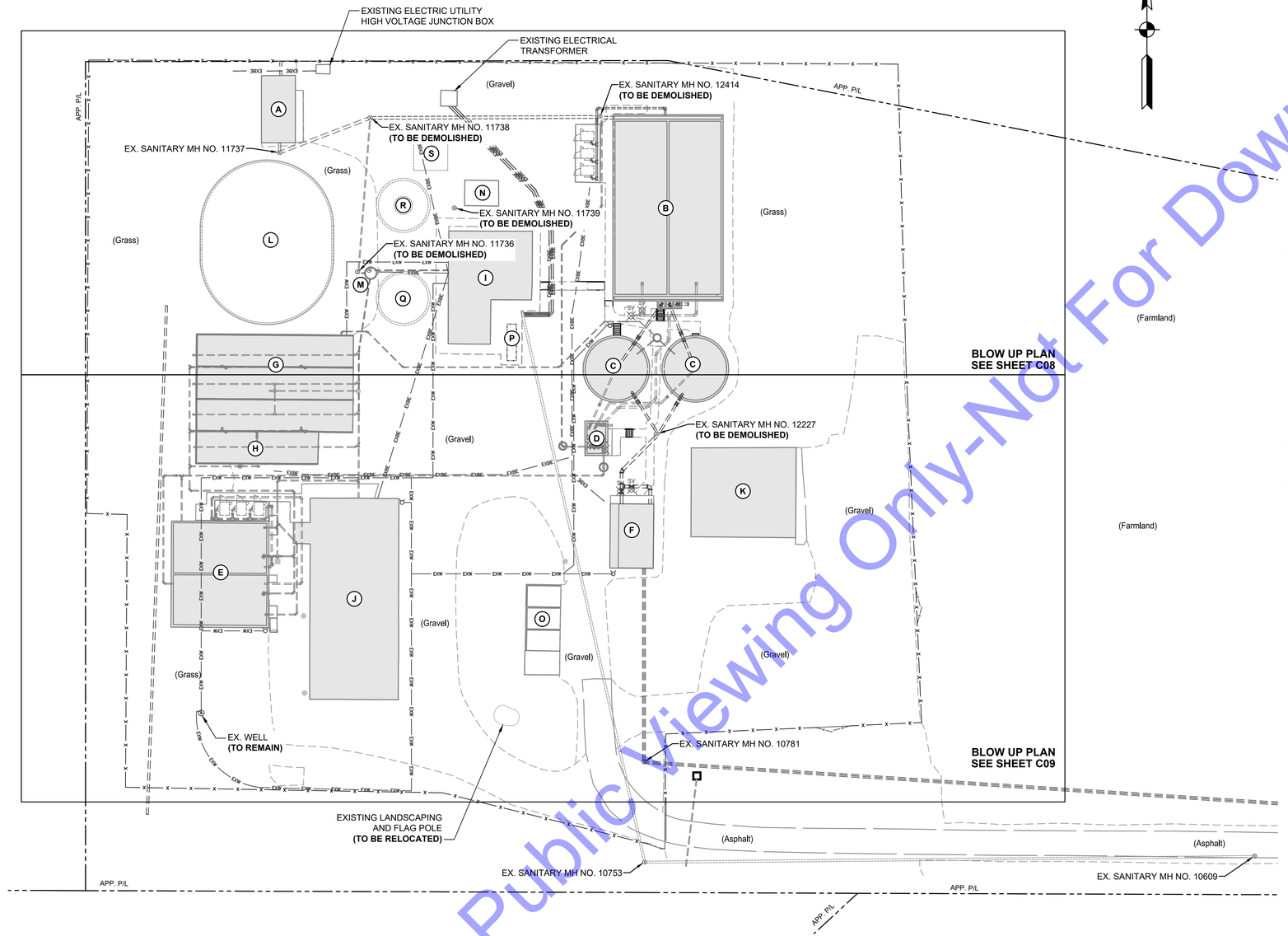

SITE PLAN

SCALE: 1"=30'-0"

0 30' 60'

EXISTING STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION	DEMO NOTES
A	EXISTING HEADWORKS	TO BE ABANDONED
B	EXISTING AERATION TANKS	TO BE DEMOLISHED
C	EXISTING CLARIFIERS	TO BE DEMOLISHED
D	EXISTING RAS/WAS STATION	TO BE DEMOLISHED
E	EXISTING DIGESTER	TO BE MODIFIED
F	EXISTING UV	TO BE DEMOLISHED
G	EXISTING DRYING BEDS	TO BE MODIFIED
H	EXISTING SLUDGE BAGGING SYSTEM	TO BE MODIFIED
I	EXISTING LAB BUILDING	TO REMAIN
J	EXISTING STREET DEPARTMENT BUILDING	TO REMAIN
K	EXISTING STREET DEPARTMENT SALT BARN	TO REMAIN
L	OLD OXIDATION DITCH FOUNDATION	TO BE DEMOLISHED
M	EXISTING PLANT DRAIN PUMP STATION	TO BE DEMOLISHED
N	EXISTING STORAGE SHED	TO REMAIN
O	EXISTING STREET DEPARTMENT STORAGE BAYS	TO BE RELOCATED
P	EXISTING PLANT EMERGENCY GENERATOR	TO REMAIN
Q	EXISTING BURIED TANK FOUNDATION	TO REMAIN
R	EXISTING BURIED TANK FOUNDATION	TO REMAIN
S	EXISTING BURIED TANK FOUNDATION	TO REMAIN

EXISTING PROCESS PIPING LEGEND

IDENTIFIER	DESCRIPTION
P-A	EXISTING 16" PVC LINE FROM EX. HEADWORKS TO EX. AERATION TANKS **(TO BE ABANDONED AND PLUGGED)**
P-B	EXISTING 12" PVC AERATION TANK EFFLUENT TO EX. CLARIFIERS **(TO BE DEMOLISHED)**
P-C	EXISTING 12" PVC CLARIFIER EFFLUENT LINES TO MH NO. 12227 **(TO BE DEMOLISHED)**
P-D	EXISTING 16" PVC LINE FROM MH 12227 TO EXISTING UV STRUCTURE **(TO BE DEMOLISHED)**
P-E	EXISTING 16" PVC UV BY-PASS LINE **(TO BE DEMOLISHED)**
P-F	EXISTING 16" PVC EFFLUENT LINE FROM UV TO MH NO. 10781 **(TO BE ABANDONED)**
P-G	EXISTING 16" PVC EFFLUENT LINE FROM MH NO. 10753 TO EXISTING OUTFALL **(TO BE ABANDONED)**
P-H	EXISTING / ABANDONED 12" EFFLUENT SEWER

EXISTING SLUDGE PIPING LEGEND

IDENTIFIER	DESCRIPTION
S-A	EXISTING 6" PVC FORCE MAIN FROM RAS/WAS STRUCTURE TO EX. MH NO. 12414 **(TO BE DEMOLISHED)**
S-B	EXISTING 4" PVC FORCE MAIN FROM EXISTING GRINDER PUMP TO SLUDGE DRYING BEDS **(TO BE ABANDONED)**
S-C	EXISTING 8" PVC CLARIFIER SLUDGE WITHDRAWAL LINE TO RAS/WAS STRUCTURE **(TO BE DEMOLISHED)**
S-D	EXISTING 6" D.I. AEROBIC DIGESTER EFFLUENT LINES TO SLUDGE DRYING BEDS
S-E	EXISTING 6" PVC FORCE MAIN FROM RAS/WAS STRUCTURE TO EXISTING AEROBIC DIGESTERS
S-F	EXISTING 4" D.I. SLUDGE LINE FROM CLARIFIERS TO EXISTING GRINDER STATION **(TO BE DEMOLISHED)**
S-G	EXISTING 8" FORCE MAIN FROM EXISTING PLANT DRAIN PUMP STATION TO EX. MH NO. 11738 **(TO BE ABANDONED)**

EXISTING MISCELLANEOUS PIPING LEGEND

IDENTIFIER	DESCRIPTION
M-A	EXISTING 10" D.I. AERATION TANK DRAINS TO RAS/WAS STRUCTURE **(TO BE DEMOLISHED)**
M-B	EXISTING 4" PVC SLUDGE DRYING BED DRAIN LINE
M-C	EXISTING 8" D.I. AIR PIPNG FROM BLOWERS TO AERATION TANKS **(TO BE DEMOLISHED AND REMOVED)**
M-D	EXISTING 8" D.I. AIR PIPING FROM BLOWERS TO AEROBIC DIGESTER
M-E	EXISTING 8" PVC STORM DRAINAGE LINE
M-F	EXISTING 8" PVC AEROBIC DIGESTER DRAIN LINE TO MH NO. 11738
M-G	EXISTING 4" PVC DRAIN LINE FROM EX. LAB BUILDING LATERAL TO EX. LIFT STATION
M-H	EXISTING 12" CIPP STORM DRAINAGE LINE

GENERAL NOTES:

1. **EXISTING PIPE MATERIALS SHOWN WAS OBTAINED FROM AS-BUILT INFORMATION AND SHALL BE USED AS REFERENCE ONLY FOR BIDDING PURPOSES. CONTRACTOR SHALL LOCATE AND VERIFY PRIOR TO ORDERING NEW MATERIALS.**

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STATE OF INDIANA
PROFESSIONAL ENGINEER
Signature
10/24/2023
Date

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HANCOCK COUNTY, INDIANA

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EXISTING WWTP SITE PIPING DEMOLITION PLAN

Drawing No: **C07**

Sheet: 17 OF 205

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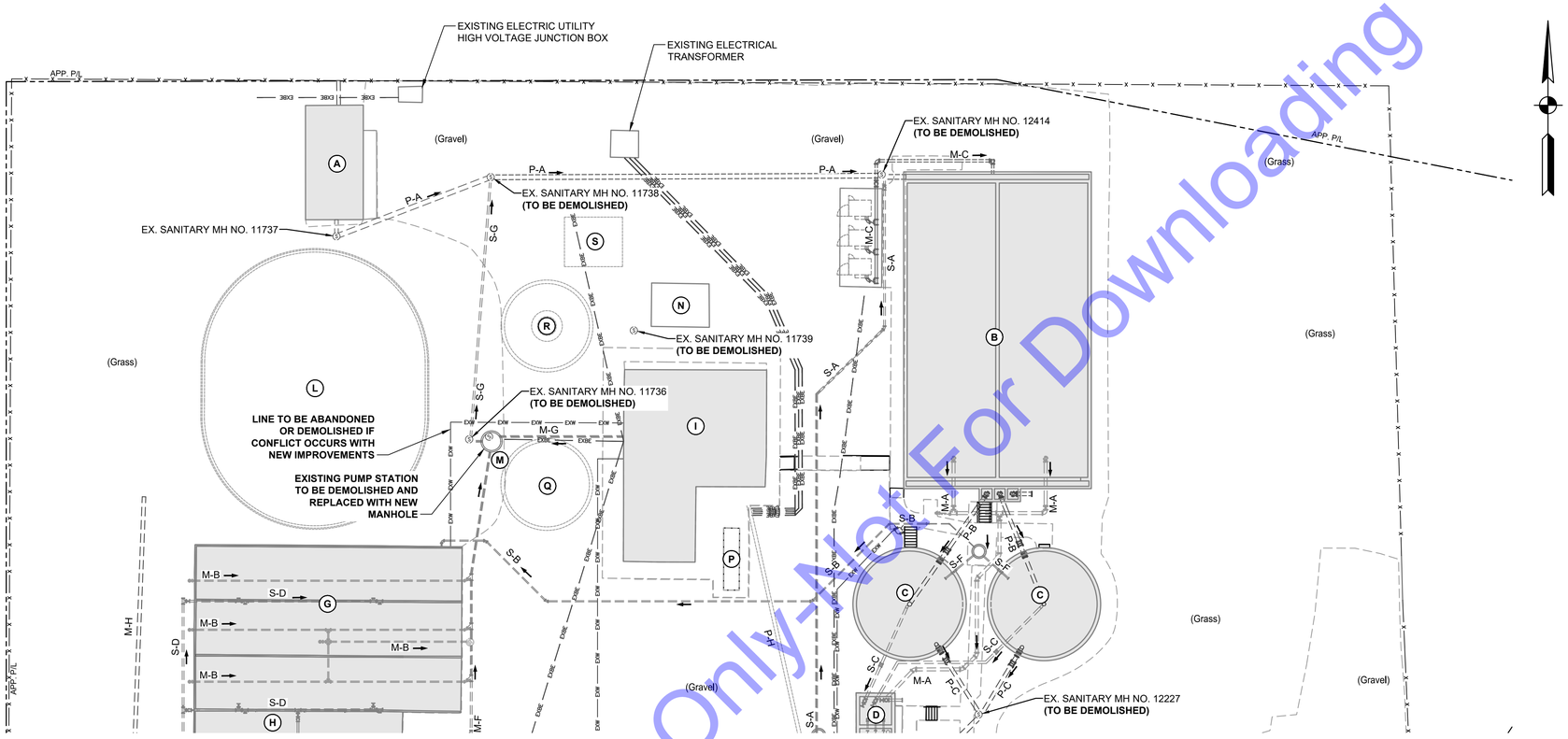

SITE PLAN

SCALE: 1"=20'-0"

0 20' 40'

EXISTING STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION	DEMO NOTES
A	EXISTING HEADWORKS	TO BE ABANDONED
B	EXISTING AERATION TANKS	TO BE DEMOLISHED
C	EXISTING CLARIFIERS	TO BE DEMOLISHED
D	EXISTING RAS/WAS STATION	TO BE DEMOLISHED
G	EXISTING DRYING BEDS	TO BE MODIFIED
H	EXISTING SLUDGE BAGGING SYSTEM	TO BE MODIFIED
I	EXISTING LAB BUILDING	TO REMAIN
L	OLD OXIDATION DITCH FOUNDATION	TO BE DEMOLISHED
M	EXISTING PLANT DRAIN PUMP STATION	TO BE DEMOLISHED
N	EXISTING STORAGE SHED	TO REMAIN
P	EXISTING PLANT EMERGENCY GENERATOR	TO REMAIN
Q	EXISTING BURIED TANK FOUNDATION	TO REMAIN
R	EXISTING BURIED TANK FOUNDATION	TO REMAIN
S	EXISTING BURIED TANK FOUNDATION	TO REMAIN

EXISTING PROCESS PIPING LEGEND

IDENTIFIER	DESCRIPTION
P-A	EXISTING 16" PVC LINE FROM EX. HEADWORKS TO EX. AERATION TANKS **(TO BE ABANDONED AND PLUGGED)**
P-B	EXISTING 12" PVC AERATION TANK EFFLUENT TO EX. CLARIFIERS **(TO BE DEMOLISHED)**
P-C	EXISTING 12" PVC CLARIFIER EFFLUENT LINES TO MH NO. 12227 **(TO BE DEMOLISHED)**
P-H	EXISTING / ABANDONED 12" EFFLUENT SEWER

EXISTING SLUDGE PIPING LEGEND

IDENTIFIER	DESCRIPTION
S-A	EXISTING 6" PVC FORCE MAIN FROM RAS/WAS STRUCTURE TO EX. MH NO. 12414 **(TO BE DEMOLISHED)**
S-B	EXISTING 4" PVC FORCE MAIN FROM EXISTING GRINDER PUMP TO SLUDGE DRYING BEDS **(TO BE ABANDONED)**
S-C	EXISTING 8" PVC CLARIFIER SLUDGE WITHDRAWAL LINE TO RAS/WAS STRUCTURE **(TO BE DEMOLISHED)**
S-D	EXISTING 6" D.I. AEROBIC DIGESTER EFFLUENT LINES TO SLUDGE DRYING BEDS
S-F	EXISTING 4" D.I. SLUDGE LINE FROM CLARIFIERS TO EXISTING GRINDER STATION **(TO BE DEMOLISHED)**
S-G	EXISTING 8" FORCE MAIN FROM EXISTING PLANT DRAIN PUMP STATION TO EX. MH NO. 11738 **(TO BE ABANDONED)**

EXISTING MISCELLANEOUS PIPING LEGEND

IDENTIFIER	DESCRIPTION
M-A	EXISTING 10" D.I. AERATION TANK DRAINS TO RAS/WAS STRUCTURE **(TO BE DEMOLISHED)**
M-B	EXISTING 4" PVC SLUDGE DRYING BED DRAIN LINE
M-C	EXISTING 8" D.I. AIR PIPNG FROM BLOWERS TO AERATION TANKS **(TO BE DEMOLISHED AND REMOVED)**
M-F	EXISTING 8" PVC AEROBIC DIGESTER DRAIN LINE TO MH NO. 11738
M-G	EXISTING 4" PVC DRAIN LINE FROM EX. LAB BUILDING LATERAL TO EX. LIFT STATION
M-H	EXISTING 12" CIPP STORM DRAINAGE LINE

GENERAL NOTES:

1. **EXISTING PIPE MATERIALS SHOWN WAS OBTAINED FROM AS-BUILT INFORMATION AND SHALL BE USED AS REFERENCE ONLY FOR BIDDING PURPOSES. CONTRACTOR SHALL LOCATE AND VERIFY PRIOR TO ORDERING NEW MATERIALS.**

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EXISTING WWTP SITE PIPING DEMOLITION - NORTH BLOW-UP PLAN

Drawing No: **C08**

Sheet: 18 OF 205

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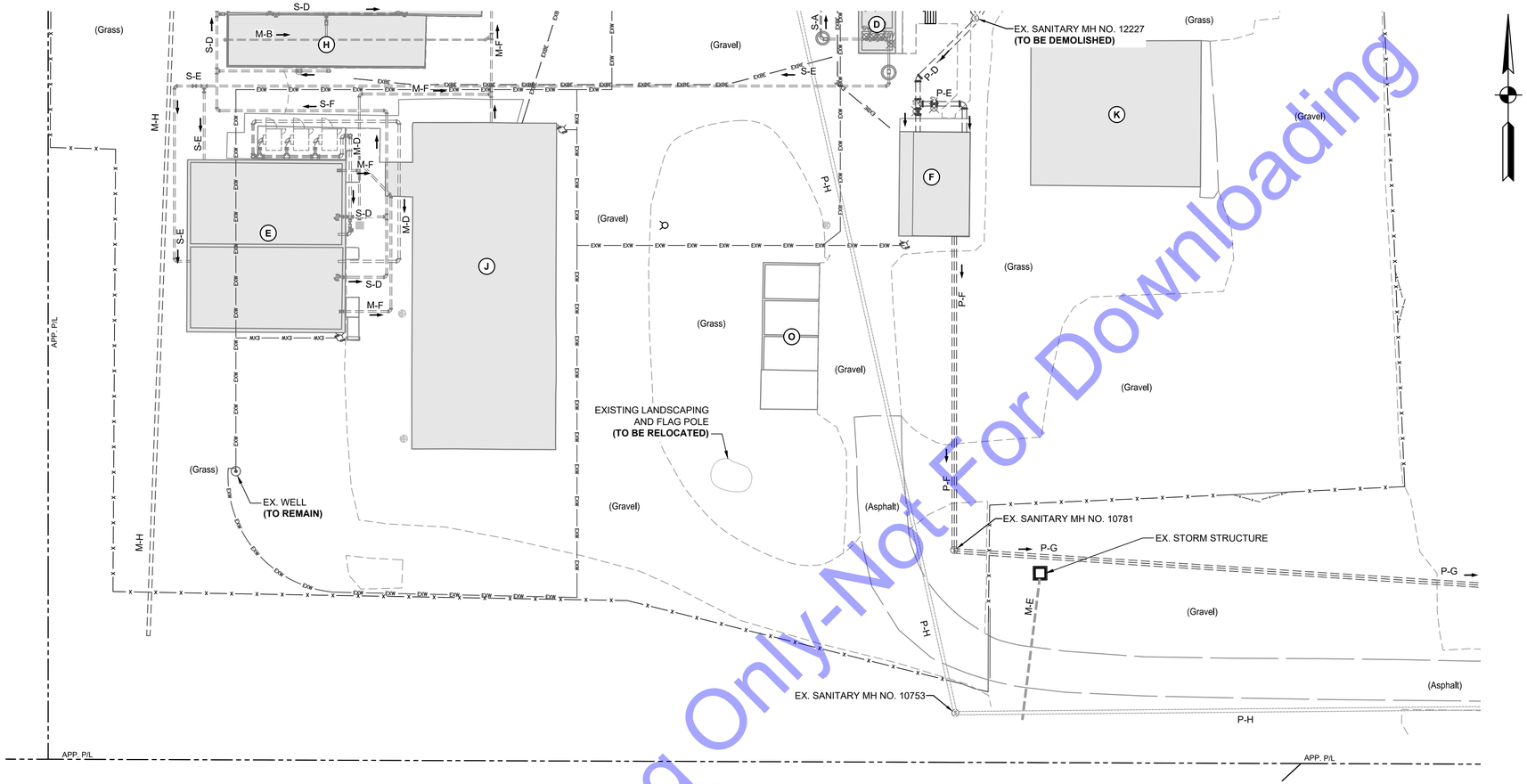

SITE PLAN

SCALE: 1"=20'-0"

0 20' 40'

EXISTING STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION	DEMO NOTES
D	EXISTING RAS/WAS STATION	TO BE DEMOLISHED
E	EXISTING DIGESTER	TO BE MODIFIED
F	EXISTING UV	TO BE DEMOLISHED
H	EXISTING SLUDGE BAGGING SYSTEM	TO BE MODIFIED
J	EXISTING STREET DEPARTMENT BUILDING	TO REMAIN
K	EXISTING STREET DEPARTMENT SALT BARN	TO REMAIN
O	EXISTING STREET DEPARTMENT STORAGE BAYS	TO BE RELOCATED

EXISTING PROCESS PIPING LEGEND

IDENTIFIER	DESCRIPTION
P-D	EXISTING 16" PVC LINE FROM MH 12227 TO EXISTING UV STRUCTURE **(TO BE DEMOLISHED)**
P-E	EXISTING 16" PVC UV BY-PASS LINE **(TO BE DEMOLISHED)**
P-F	EXISTING 16" PVC EFFLUENT LINE FROM UV TO MH NO. 10781 **(TO BE ABANDONED)**
P-G	EXISTING 16" PVC EFFLUENT LINE FROM MH NO. 10753 TO EXISTING OUTFALL **(TO BE ABANDONED)**
P-H	EXISTING / ABANDONED 12" EFFLUENT SEWER

EXISTING SLUDGE PIPING LEGEND

IDENTIFIER	DESCRIPTION
S-A	EXISTING 6" PVC FORCE MAIN FROM RAS/WAS STRUCTURE TO EX. MH NO. 12414 **(TO BE DEMOLISHED)**
S-C	EXISTING 8" PVC CLARIFIER SLUDGE WITHDRAWAL LINE TO RAS/WAS STRUCTURE **(TO BE DEMOLISHED)**
S-E	EXISTING 6" PVC FORCE MAIN FROM RAS/WAS STRUCTURE TO EXISTING AEROBIC DIGESTERS
S-F	EXISTING 4" D.I. SLUDGE LINE FROM CLARIFIERS TO EXISTING GRINDER STATION **(TO BE DEMOLISHED)**

EXISTING MISCELLANEOUS PIPING LEGEND

IDENTIFIER	DESCRIPTION
M-B	EXISTING 4" PVC SLUDGE DRYING BED DRAIN LINE
M-D	EXISTING 8" D.I. AIR PIPING FROM BLOWERS TO AEROBIC DIGESTER
M-E	EXISTING 8" PVC STORM DRAINAGE LINE
M-F	EXISTING 8" PVC AEROBIC DIGESTER DRAIN LINE TO MH NO. 11738
M-H	EXISTING 12" CIPP STORM DRAINAGE LINE

GENERAL NOTES:

1. **EXISTING PIPE MATERIALS SHOWN WAS OBTAINED FROM AS-BUILT INFORMATION AND SHALL BE USED AS REFERENCE ONLY FOR BIDDING PURPOSES. CONTRACTOR SHALL LOCATE AND VERIFY PRIOR TO ORDERING NEW MATERIALS.**

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EXISTING WWTP SITE PIPING DEMOLITION - SOUTH BLOW-UP PLAN

Drawing No: **C09**

Sheet: 19 OF 205

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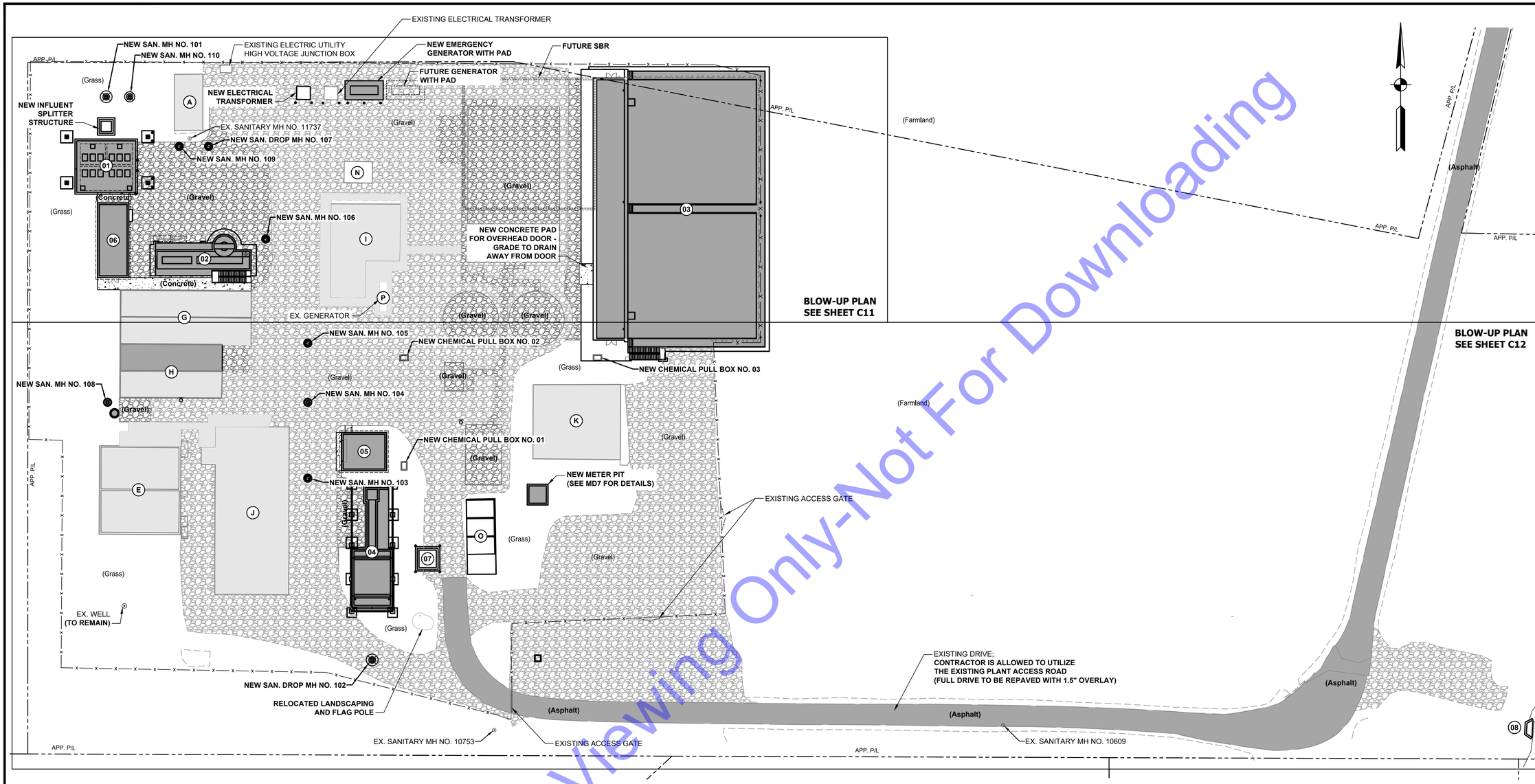

SITE PLAN

SCALE: 1"=30'-0"

0 30' 60'

EXISTING STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION	DEMO NOTES
A	EXISTING HEADWORKS	TO BE ABANDONED
E	EXISTING DIGESTER	TO BE MODIFIED
G	EXISTING DRYING BEDS	TO BE MODIFIED
H	EXISTING SLUDGE BAGGING SYSTEM	TO BE MODIFIED
I	EXISTING LAB BUILDING	TO REMAIN
J	EXISTING STREET DEPARTMENT BUILDING	TO REMAIN
K	EXISTING STREET DEPARTMENT SALT BARN	TO REMAIN
N	EXISTING STORAGE SHED	TO REMAIN
O	EXISTING STREET DEPARTMENT STORAGE BAYS	TO BE RELOCATED
P	EXISTING PLANT EMERGENCY GENERATOR	TO REMAIN

NEW STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION
01	NEW INFLUENT PUMP STATION
02	NEW HEADWORKS FACILITY
03	NEW SBR TREATMENT STRUCTURE
04	NEW UV AND POST AERATION STRUCTURE
05	NEW CHEMICAL FEED BUILDING
06	NEW ELECTRICAL BUILDING
07	NEW NON-POTABLE WATER SYSTEM
08	NEW OUTFALL STRUCTURE

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CHRIS A. LIMCACO REGISTERED No. 19700338 STATE OF INDIANA PROFESSIONAL ENGINEER

Signature 10/24/2023 Date

TOWN OF NEW PALESTINE
HANCOCK COUNTY, INDIANA

WASTEWATER UTILITY
IMPROVEMENTS PROJECTS

DIVISION "A" - MAIN WWTP
IMPROVEMENTS

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Designed By:	Drawn By:	Checked By:
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OVERALL EXISTING WWTP SITE IMPROVEMENTS PLAN

Drawing No: **C10**

Sheet: 20 OF 205

File: Z:\SHARED\IN CLIENTS M-Z\NEW PALESTINE\NEW PALESTINE\S22002 WW UTILITY IMPRV\SW06 CADA CURRENT FILES\1 DRAWINGS\DIV A - WWTP\06-PROPOSED SITE PLANS.DWG
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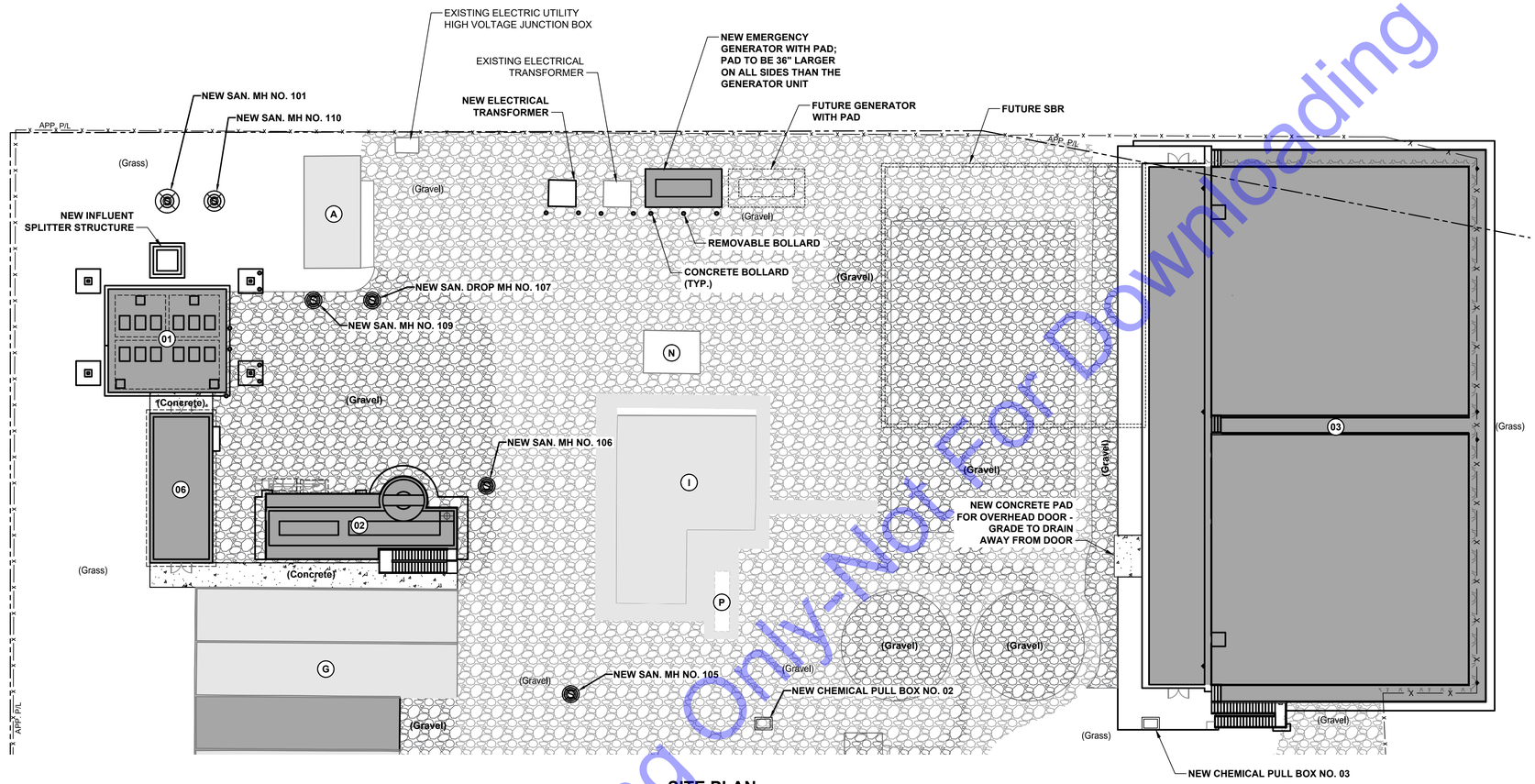

SITE PLAN

SCALE: 1"=20'-0"

0 20' 40'

EXISTING STRUCTURE LEGEND		
IDENTIFIER	DESCRIPTION	DEMO NOTES
A	EXISTING HEADWORKS	TO BE ABANDONED
G	EXISTING DRYING BEDS	TO BE MODIFIED
I	EXISTING LAB BUILDING	TO REMAIN
N	EXISTING STORAGE SHED	TO REMAIN
P	EXISTING PLANT EMERGENCY GENERATOR	TO REMAIN

NEW STRUCTURE LEGEND	
IDENTIFIER	DESCRIPTION
01	**NEW INFLUENT PUMP STATION**
02	**NEW HEADWORKS FACILITY**
03	**NEW SBR TREATMENT STRUCTURE**
06	**NEW ELECTRICAL BUILDING**

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OCT 2023	S22002	AS SHOWN

EXISTING WWTP SITE IMPROVEMENTS - NORTH BLOW UP PLAN

Drawing No:
C11
Sheet: 21 OF 205

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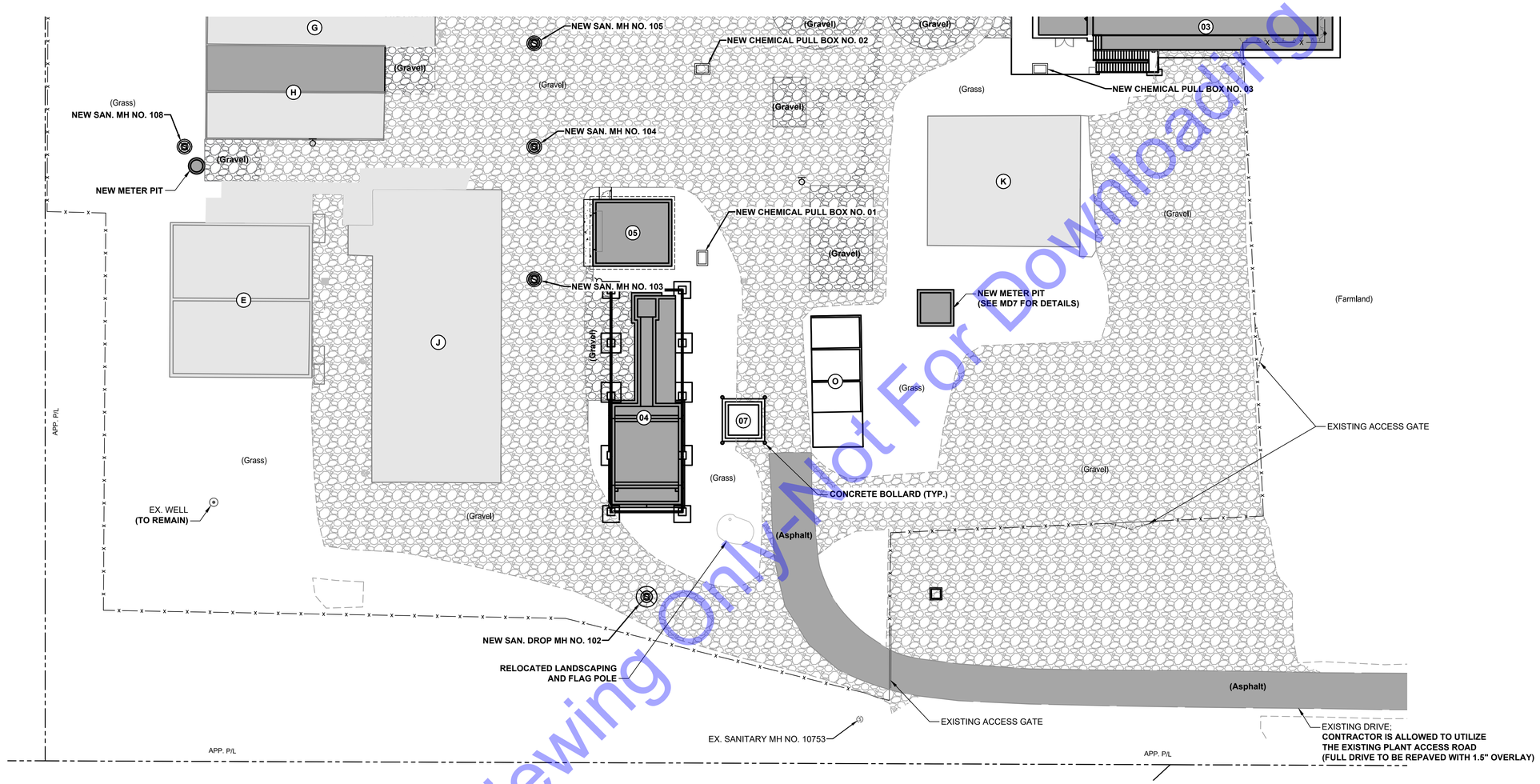

SITE PLAN

SCALE: 1"=20'-0"

0 20' 40'

EXISTING STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION	DEMO NOTES
E	EXISTING DIGESTER	TO BE MODIFIED
G	EXISTING DRYING BEDS	TO BE MODIFIED
H	EXISTING SLUDGE BAGGING SYSTEM	TO BE MODIFIED
J	EXISTING STREET DEPARTMENT BUILDING	TO REMAIN
K	EXISTING STREET DEPARTMENT SALT BARN	TO REMAIN
O	EXISTING STREET DEPARTMENT STORAGE BAYS	TO BE RELOCATED

NEW STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION
03	NEW SBR TREATMENT STRUCTURE
04	NEW UV AND POST AERATION STRUCTURE
05	NEW CHEMICAL FEED BUILDING
07	NEW NON-POTABLE WATER SYSTEM

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EXISTING WWTP SITE IMPROVEMENTS - SOUTH BLOW-UP PLAN

Drawing No: **C12**

Sheet: 22 OF 205

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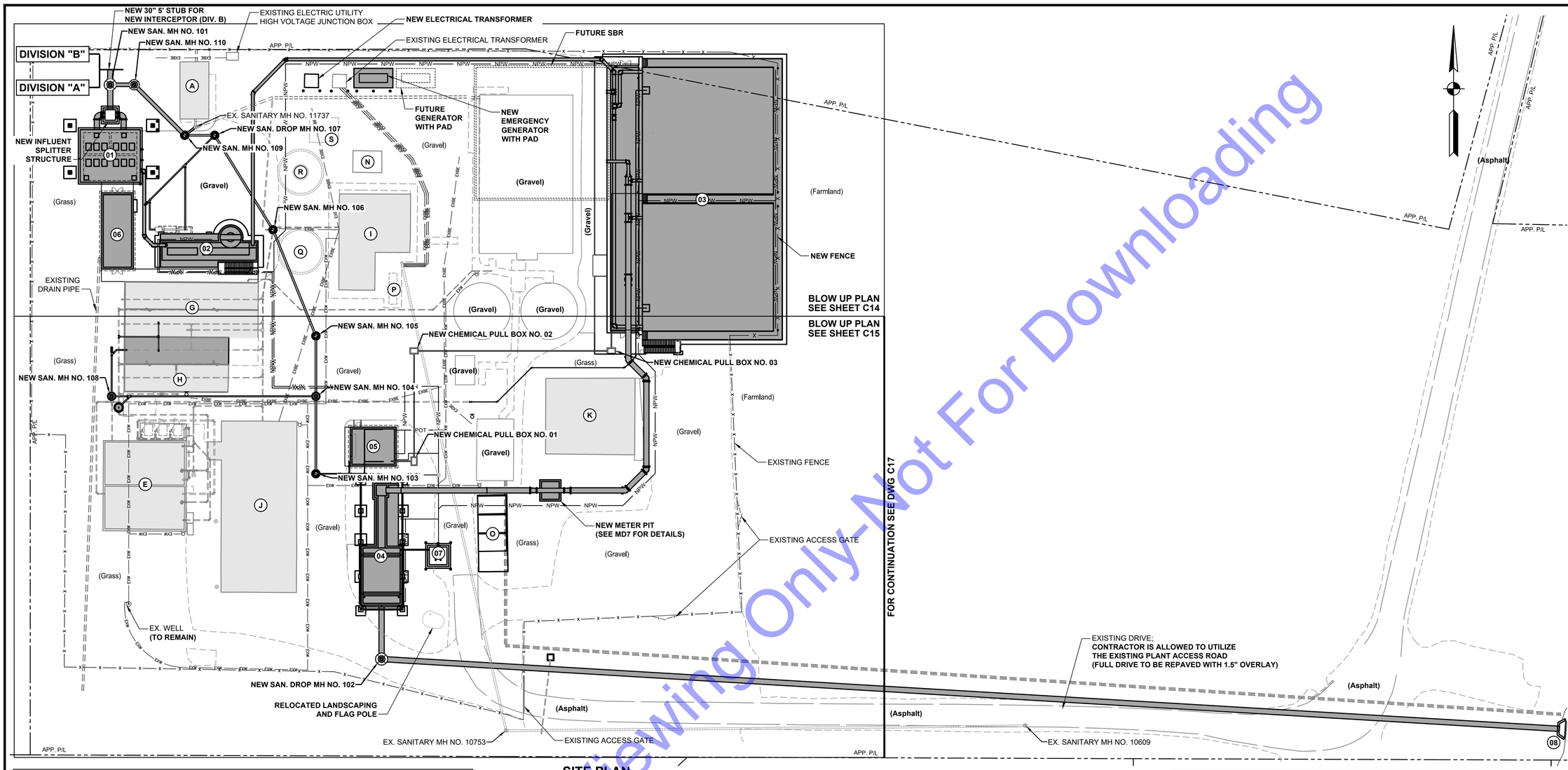

SITE PLAN

SCALE: 1"=30'-0"

0 30' 60'

EXISTING PROCESS PIPING LEGEND

IDENTIFIER	DESCRIPTION
P-A	EXISTING 16" PVC LINE FROM EX. HEADWORKS TO EX. AERATION TANKS **(TO BE ABANDONED AND PLUGGED)**
P-F	EXISTING 16" PVC EFFLUENT LINE FROM UV TO MH NO. 10781 **(TO BE ABANDONED)**
P-G	EXISTING 16" PVC EFFLUENT LINE FROM MH NO. 10753 TO EXISTING OUTFALL **(TO BE ABANDONED)**
P-H	EXISTING / ABANDONED 12" EFFLUENT SEWER

EXISTING SLUDGE PIPING LEGEND

IDENTIFIER	DESCRIPTION
S-B	EXISTING 4" PVC FORCE MAIN FROM EXISTING GRINDER PUMP TO SLUDGE DRYING BEDS **(TO BE ABANDONED)**
S-D	EXISTING 6" D.I. AEROBIC DIGESTER EFFLUENT LINES TO SLUDGE DRYING BEDS
S-E	EXISTING 6" PVC FORCE MAIN FROM RAS/WAS STRUCTURE TO EXISTING AEROBIC DIGESTERS
S-G	EXISTING 8" FORCE MAIN FROM EXISTING PLANT DRAIN PUMP STATION TO EX. MH NO. 11738 **(TO BE ABANDONED)**

EXISTING MISCELLANEOUS PIPING LEGEND

IDENTIFIER	DESCRIPTION
M-B	EXISTING 4" PVC SLUDGE DRYING BED DRAIN LINE
M-D	EXISTING 8" D.I. AIR PIPING FROM BLOWERS TO AEROBIC DIGESTER
M-E	EXISTING 8" PVC STORM DRAINAGE LINE
M-F	EXISTING 8" PVC AEROBIC DIGESTER DRAIN LINE TO MH NO. 11738 **(RECONNECT TO NEW MH NO. 106)**
M-G	EXISTING 4" PVC DRAIN LINE FROM EX. LAB BUILDING LATERAL TO EX. LIFT STATION **(RECONNECT TO NEW MH NO. 106)**
M-H	EXISTING 12" CIPP STORM DRAINAGE LINE

EXISTING STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION	DEMO NOTES
A	EXISTING HEADWORKS	TO BE ABANDONED
E	EXISTING DIGESTER	TO BE MODIFIED
G	EXISTING DRYING BEDS	TO BE MODIFIED
H	EXISTING SLUDGE BAGGING SYSTEM	TO BE MODIFIED
I	EXISTING LAB BUILDING	TO REMAIN
J	EXISTING STREET DEPARTMENT BUILDING	TO REMAIN
K	EXISTING STREET DEPARTMENT SALT BARN	TO REMAIN
N	EXISTING STORAGE SHED	TO REMAIN
O	EXISTING STREET DEPARTMENT STORAGE BAYS	TO BE RELOCATED
P	EXISTING PLANT EMERGENCY GENERATOR	TO REMAIN
Q	EXISTING BURIED TANK FOUNDATION	TO REMAIN
R	EXISTING BURIED TANK FOUNDATION	TO REMAIN
S	EXISTING BURIED TANK FOUNDATION	TO REMAIN

NEW STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION
01	NEW INFLUENT PUMP STATION
02	NEW HEADWORKS FACILITY
03	NEW SBR TREATMENT STRUCTURE
04	NEW UV AND POST AERATION STRUCTURE
05	NEW CHEMICAL FEED BUILDING
06	NEW ELECTRICAL BUILDING
07	NEW NON-POTABLE WATER SYSTEM
08	NEW OUTFALL STRUCTURE

NEW PROCESS PIPING LEGEND

IDENTIFIER	DESCRIPTION
N-A	36" LINE FROM NEW SANITARY MH NO. 101 TO NEW INFLUENT PUMP STATION
N-B	20" LINE FROM NEW INFLUENT PUMP STATION TO NEW HEADWORKS FACILITY
N-C	20" LINE FROM NEW GRIT REMOVAL SYSTEM TO NEW SBR FACILITY
N-D	18" DECANT LINE FROM NEW SBR FACILITY
N-E	36" LINE FROM NEW SBR FACILITY TO NEW UV AND POST AERATION STRUCTURE
N-F	36" LINE FROM NEW UV AND POST AERATION STRUCTURE TO NEW SANITARY DROP MH NO. 102
N-G	36" LINE FROM NEW SANITARY DROP MH NO. 102 TO NEW OUTFALL STRUCTURE
N-H	12" LINE FROM EX. MH NO. 11737 TO NEW SANITARY MH NO. 109
N-AA	24" LINE FROM NEW SANITARY MH NO. 109 TO NEW SANITARY MH NO. 110
N-BB	24" LINE FROM NEW SANITARY MH NO. 110 TO NEW SANITARY MH NO. 101

NEW SLUDGE PIPING LEGEND

IDENTIFIER	DESCRIPTION
N-I	4" SLUDGE LINE FROM NEW SBR FACILITY TO CONNECT TO EX. SLUDGE LINE
N-Y	6" SLUDGE LINE TO NEW BAG DEWATERING SYSTEM

NEW MISCELLANEOUS PIPING LEGEND

IDENTIFIER	DESCRIPTION
N-J	4" DRAIN LINE FROM NEW CHEMICAL BUILDING
N-K	6" DRAIN LINE FROM NEW CHEMICAL BUILDING TO NEW SANITARY MH NO. 103
N-L	12" DRAIN LINE FROM NEW SANITARY MH NO. 103 TO NEW SANITARY MH NO. 104
N-M	12" DRAIN LINE FROM NEW SANITARY MH NO. 104 TO NEW SANITARY MH NO. 105
N-N	12" DRAIN LINE FROM NEW SANITARY MH NO. 105 TO NEW SANITARY MH NO. 106
N-O	12" DRAIN LINE FROM NEW SANITARY MH NO. 106 TO NEW SANITARY DROP MH NO. 107
N-P	12" DRAIN LINE FROM NEW SANITARY DROP MH NO. 107 TO NEW SANITARY MH NO. 109
N-Q	8" DRAIN LINE FROM GRIT CLASSIFIER
N-R	8" DRAIN LINE FROM NEW HEADWORKS FACILITY
N-S	8" DRAIN LINE FROM NEW SLUDGE BAGGING SYSTEM TO NEW SANITARY MH NO. 108
N-T	2" NON-POTABLE WATER LINE
N-U	2" POTABLE WATER LINE
N-V	8" DRAIN LINE FROM NEW SANITARY MH NO. 108 TO NEW SANITARY MH NO. 104
N-W	6" CHEMICAL CARRIER PIPE WITH 1" CHEMICAL LINES TO NEW SBR TREATEMENT STRUCTURE
N-X	1" CHEMICAL LINES TO NEW SBR TANKS
N-Z	6" NON-POTABLE INFLUENT LINE
N-CC	8" DRAIN LINE FROM NEW METER PIT STRUCTURE TO CONNECT TO NEW 8" DRAIN LINE

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OVERALL EXISTING WWTP SITE PIPING IMPROVEMENTS PLAN

Drawing No: **C13**

Sheet: 23 OF 205

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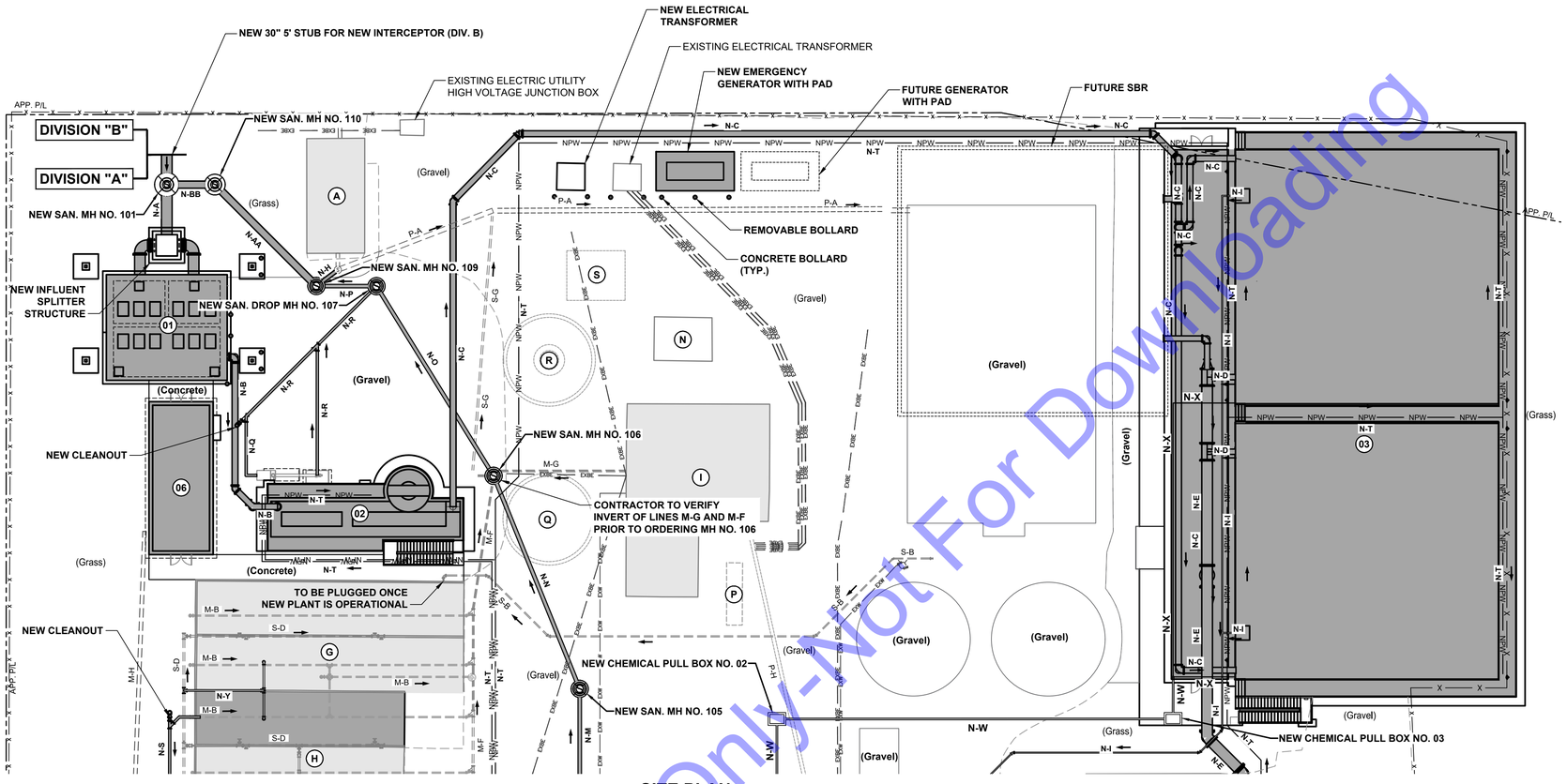

SITE PLAN

SCALE: 1"=20'-0"

0 20' 40'

NEW STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION
01	NEW INFLUENT PUMP STATION
02	NEW HEADWORKS FACILITY
03	NEW SBR TREATMENT STRUCTURE
06	NEW ELECTRICAL BUILDING

EXISTING STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION	DEMO NOTES
A	EXISTING HEADWORKS	TO BE ABANDONED
G	EXISTING DRYING BEDS	TO BE MODIFIED
H	EXISTING SLUDGE BAGGING SYSTEM	TO BE MODIFIED
I	EXISTING LAB BUILDING	TO REMAIN
N	EXISTING STORAGE SHED	TO REMAIN
P	EXISTING PLANT EMERGENCY GENERATOR	TO REMAIN
Q	EXISTING BURIED TANK FOUNDATION	TO REMAIN
R	EXISTING BURIED TANK FOUNDATION	TO REMAIN
S	EXISTING BURIED TANK FOUNDATION	TO REMAIN

NEW PROCESS PIPING LEGEND

IDENTIFIER	DESCRIPTION
N-A	36" LINE FROM NEW SANITARY DROP MH NO. 101 TO NEW INFLUENT PUMP STATION
N-B	20" LINE FROM NEW INFLUENT PUMP STATION TO NEW HEADWORKS FACILITY
N-C	20" LINE FROM NEW GRIT REMOVAL SYSTEM TO NEW SBR FACILITY
N-D	18" DECANT LINE FROM NEW SBR FACILITY
N-E	36" LINE FROM NEW SBR FACILITY TO NEW UV AND POST AERATION STRUCTURE
N-H	12" LINE FROM EX. MH NO. 11737 TO NEW SANITARY MH NO. 109
N-AA	24" LINE FROM NEW SANITARY MH NO. 109 TO NEW SANITARY MH NO. 110
N-BB	24" LINE FROM NEW SANITARY MH NO. 110 TO NEW SANITARY MH NO. 101

NEW SLUDGE PIPING LEGEND

IDENTIFIER	DESCRIPTION
N-I	4" SLUDGE LINE FROM NEW SBR FACILITY TO CONNECT TO EX. SLUDGE LINE
N-Y	6" SLUDGE LINE TO NEW BAG DEWATERING SYSTEM

NEW MISCELLANEOUS PIPING LEGEND

IDENTIFIER	DESCRIPTION
N-L	12" DRAIN LINE FROM NEW SANITARY MH NO. 103 TO NEW SANITARY MH NO. 104
N-M	12" DRAIN LINE FROM NEW SANITARY MH NO. 104 TO NEW SANITARY MH NO. 105
N-N	12" DRAIN LINE FROM NEW SANITARY MH NO. 105 TO NEW SANITARY MH NO. 106
N-O	12" DRAIN LINE FROM NEW SANITARY MH NO. 106 TO NEW SANITARY DROP MH NO. 107
N-P	12" DRAIN LINE FROM NEW SANITARY DROP MH NO. 107 TO NEW INFLUENT PUMP STATION
N-Q	8" DRAIN LINE FROM GRIT CLASSIFIER
N-R	8" DRAIN LINE FROM NEW HEADWORKS FACILITY
N-S	8" DRAIN LINE FROM NEW SLUDGE BAGGING SYSTEM TO NEW SANITARY MH NO. 108
N-T	2" NON-POTABLE WATER LINE
N-U	2" POTABLE WATER LINE
N-W	6" CHEMICAL CARRIER PIPE WITH 1" CHEMICAL LINES TO NEW SBR TREATMENT STRUCTURE
N-X	1" CHEMICAL LINE TO NEW SBR TANKS

EXISTING PROCESS PIPING LEGEND

IDENTIFIER	DESCRIPTION
P-A	EXISTING 16" PVC LINE FROM EX. HEADWORKS TO EX. AERATION TANKS **(TO BE ABANDONED AND PLUGGED)**
P-H	EXISTING / ABANDONED 12" EFFLUENT SEWER

EXISTING SLUDGE PIPING LEGEND

IDENTIFIER	DESCRIPTION
S-B	EXISTING 4" PVC FORCE MAIN FROM EXISTING GRINDER PUMP TO SLUDGE DRYING BEDS **(TO BE ABANDONED)**
S-D	EXISTING 6" D.I. AEROBIC DIGESTER EFFLUENT LINES TO SLUDGE DRYING BEDS
S-G	EXISTING 8" FORCE MAIN FROM EXISTING PLANT DRAIN PUMP STATION TO EX. MH NO. 11738 **(TO BE ABANDONED)**

EXISTING MISCELLANEOUS PIPING LEGEND

IDENTIFIER	DESCRIPTION
M-B	EXISTING 4" PVC SLUDGE DRYING BED DRAIN LINE
M-F	EXISTING 8" PVC AEROBIC DIGESTER DRAIN LINE TO MH NO. 11738 **(RECONNECT TO NEW MH NO. 106)**
M-G	EXISTING 4" PVC DRAIN LINE FROM EX. LAB BUILDING LATERAL TO EX. LIFT STATION **(RECONNECT TO NEW MH NO. 106)**
M-H	EXISTING 12" CIPP STORM LINE

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EXISTING WWTP SITE PIPING IMPROVEMENTS - NORTH BLOW-UP PLAN

Drawing No: **C14**

Sheet: 24 OF 205

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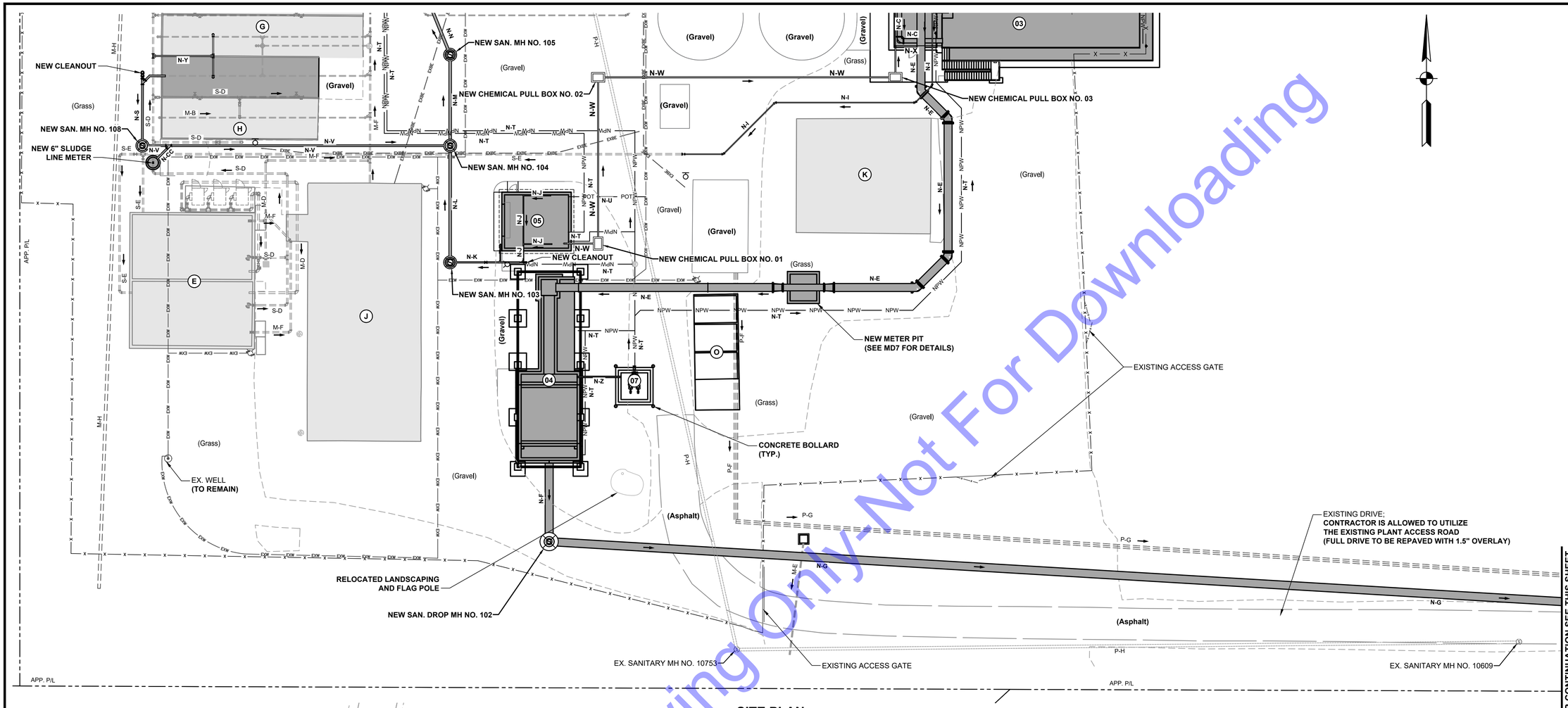
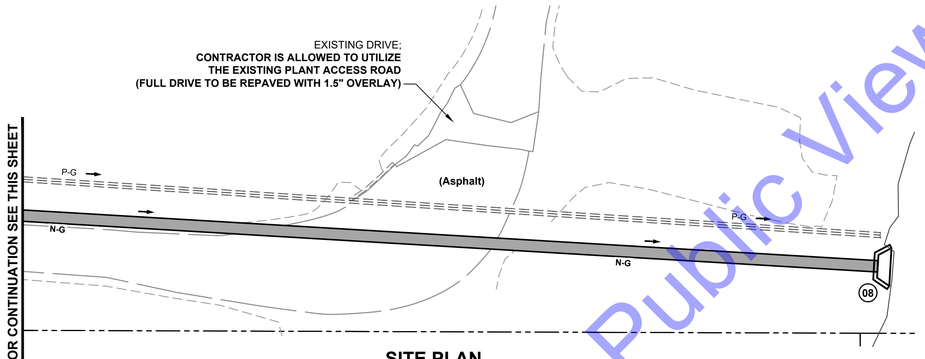


SITE PLAN

SCALE: 1"=20'-0"

0 20' 40'



SITE PLAN

SCALE: 1"=20'-0"

0 20' 40'

EXISTING STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION	DEMO NOTES
E	EXISTING DIGESTER	TO BE MODIFIED
G	EXISTING DRYING BEDS	TO BE MODIFIED
H	EXISTING SLUDGE BAGGING SYSTEM	TO BE MODIFIED
J	EXISTING STREET DEPARTMENT BUILDING	TO REMAIN
K	EXISTING STREET DEPARTMENT SALT BARN	TO REMAIN
O	EXISTING STREET DEPARTMENT STORAGE BAYS	TO BE RELOCATED

NEW STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION
03	NEW SBR TREATMENT STRUCTURE
04	NEW UV AND POST AERATION STRUCTURE
05	NEW CHEMICAL FEED BUILDING
07	NEW NON-POTABLE WATER SYSTEM
08	NEW OUTFALL STRUCTURE

EXISTING PROCESS PIPING LEGEND

IDENTIFIER	DESCRIPTION
P-D	EXISTING 16" PVC LINE FROM MH 12227 TO EXISTING UV STRUCTURE **(TO BE ABANDONED)**
P-E	EXISTING 16" PVC UV BY-PASS LINE **(TO BE ABANDONED)**
P-F	EXISTING 16" PVC EFFLUENT LINE FROM UV TO MH NO. 10781 **(TO BE ABANDONED)**
P-G	EXISTING 16" PVC EFFLUENT LINE FROM MH NO. 10753 TO EXISTING OUTFALL **(TO BE ABANDONED)**
P-H	EXISTING / ABANDONED 12" EFFLUENT SEWER

EXISTING SLUDGE PIPING LEGEND

IDENTIFIER	DESCRIPTION
S-A	EXISTING 6" PVC FORCE MAIN FROM RAS/WAS STRUCTURE TO EX. MH NO. 12414 **(TO BE ABANDONED)**
S-C	EXISTING 8" PVC CLARIFIER SLUDGE WITHDRAWAL LINE TO RAS/WAS STRUCTURE **(TO BE ABANDONED)**
S-D	EXISTING 6" D.I. AEROBIC DIGESTER EFFLUENT LINES TO SLUDGE DRYING BEDS
S-E	EXISTING 6" PVC FORCE MAIN FROM RAS/WAS STRUCTURE TO EXISTING AEROBIC DIGESTERS

EXISTING MISCELLANEOUS PIPING LEGEND

IDENTIFIER	DESCRIPTION
M-B	EXISTING 4" PVC SLUDGE DRYING BED DRAIN LINE
M-D	EXISTING 8" D.I. AIR PIPING FROM BLOWERS TO AEROBIC DIGESTER
M-E	EXISTING 8" PVC STORM DRAINAGE LINE
M-F	EXISTING 8" PVC AEROBIC DIGESTER DRAIN LINE TO MH NO. 11738 **(RECONNECT TO NEW MH NO. 106)**
M-H	EXISTING 12" CIPP STORM DRAINAGE LINE

NEW PROCESS PIPING LEGEND

IDENTIFIER	DESCRIPTION
N-C	20" LINE FROM NEW GRIT REMOVAL SYSTEM TO NEW SBR FACILITY
N-E	36" LINE FROM NEW SBR FACILITY TO NEW UV AND POST AERATION STRUCTURE
N-F	36" LINE FROM NEW UV AND POST AERATION STRUCTURE TO NEW SANITARY DROP MH NO. 102
N-G	36" LINE FROM NEW SANITARY DROP MH NO. 102 TO NEW OUTFALL STRUCTURE

NEW SLUDGE PIPING LEGEND

IDENTIFIER	DESCRIPTION
N-I	4" SLUDGE LINE FROM NEW SBR FACILITY TO CONNECT TO EX. SLUDGE LINE
N-Y	6" SLUDGE LINE TO NEW BAG DEWATERING SYSTEM

NEW MISCELLANEOUS PIPING LEGEND

IDENTIFIER	DESCRIPTION
N-J	4" DRAIN LINE FROM NEW CHEMICAL BUILDING
N-K	6" DRAIN LINE FROM NEW CHEMICAL BUILDING TO NEW SANITARY MH NO. 103
N-L	12" DRAIN LINE FROM NEW SANITARY MH NO. 103 TO NEW SANITARY MH NO. 104
N-M	12" DRAIN LINE FROM NEW SANITARY MH NO. 104 TO NEW SANITARY MH NO. 105
N-S	8" DRAIN LINE FROM NEW SLUDGE BAGGING SYSTEM TO NEW SANITARY MH NO. 108
N-T	2" NON-POTABLE WATER LINE
N-U	2" POTABLE WATER LINE
N-V	8" DRAIN LINE FROM NEW SANITARY MH NO. 108 TO NEW SANITARY MH NO. 104
N-W	6" CHEMICAL CARRIER PIPE WITH 1" CHEMICAL LINES TO NEW SBR TREATMENT STRUCTURE
N-X	1" CHEMICAL LINES TO NEW SBR TANKS
N-Z	6" NON-POTABLE INFLUENT LINE
N-CC	8" DRAIN LINE FROM NEW METER PIT TO CONNECT TO NEW 8" DRAIN LINE

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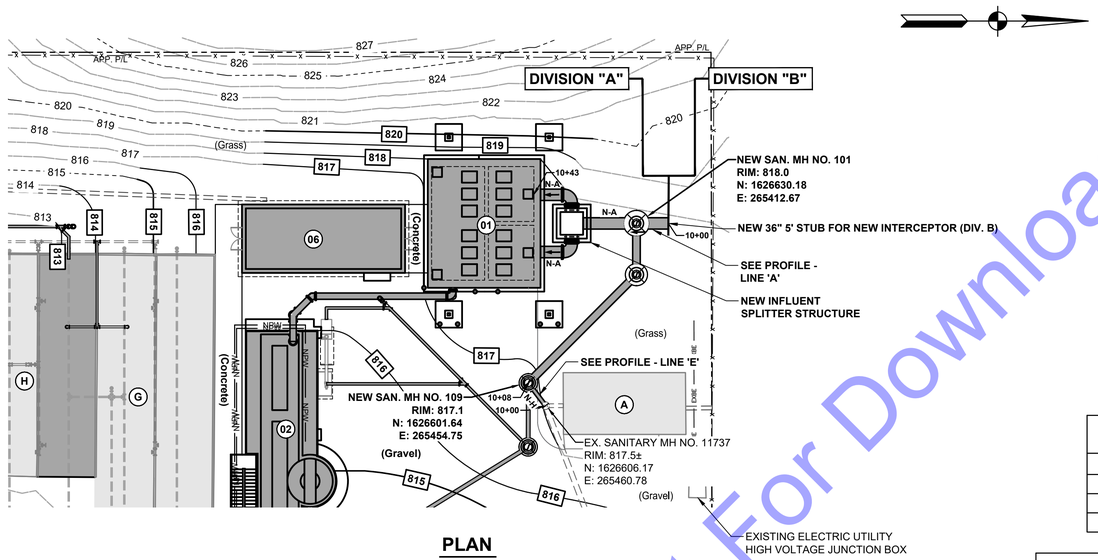
HANCOCK COUNTY, INDIANA
WASTEWATER UTILITY IMPROVEMENTS PROJECT
DIVISION "A" - MAIN WWTP IMPROVEMENTS

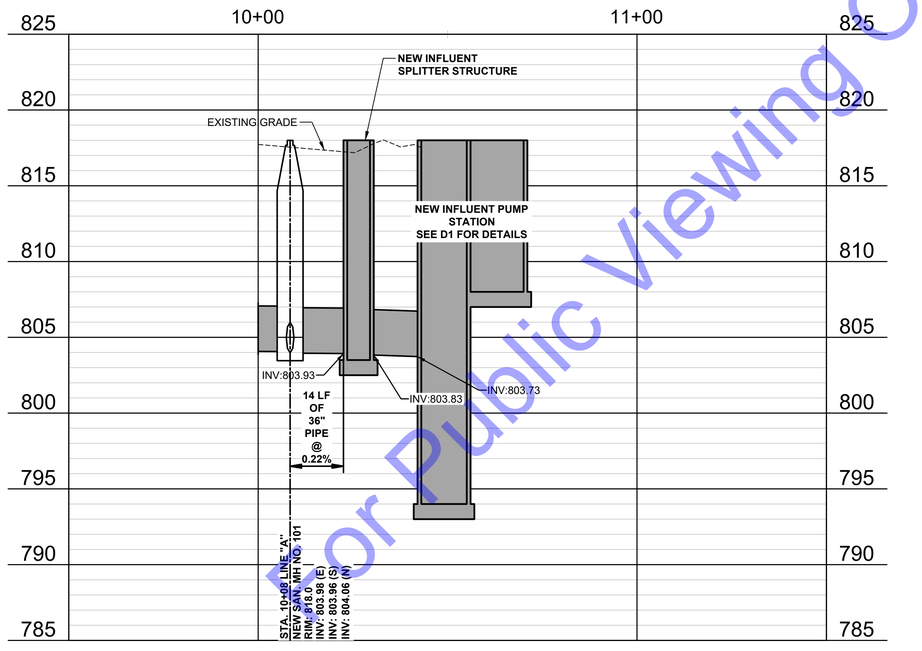
EXISTING WWTP SITE PIPING IMPROVEMENTS - SOUTH BLOW-UP PLAN

Drawing No: **C15**

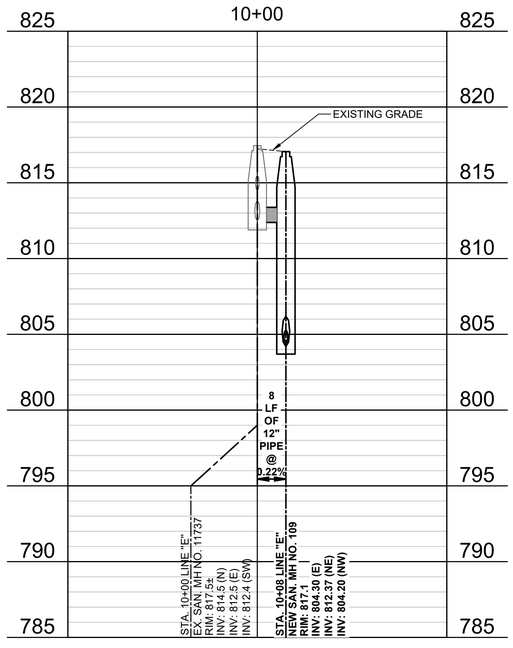
Sheet: 25 OF 205



PLAN



PROFILE - LINE 'A'



PROFILE - LINE 'E'

HORIZONTAL SCALE: 1" = 20'-0"
0 10' 20' 40' 60'
VERTICAL SCALE: 1"=5'
5' 0

NEW STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION
01	NEW INFLUENT PUMP STATION
02	NEW HEADWORKS FACILITY
06	NEW ELECTRICAL BUILDING

EXISTING STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION	DEMO NOTES
A	EXISTING HEADWORKS	TO BE ABANDONED
G	EXISTING DRYING BEDS	TO BE MODIFIED
H	EXISTING SLUDGE BAGGING SYSTEM	TO BE MODIFIED

NEW PROCESS PIPING LEGEND

IDENTIFIER	DESCRIPTION
N-A	36" LINE FROM NEW SANITARY DROP MH NO. 101 TO NEW INFLUENT PUMP STATION
N-H	12" LINE FROM EX. MH NO. 11737 TO NEW SANITARY MH NO. 109

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Signature 10/24/2023 Date

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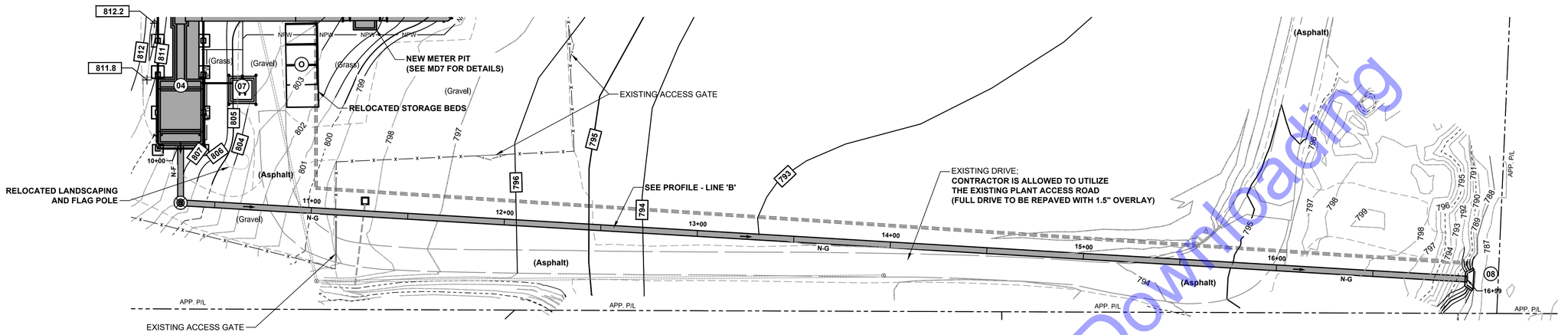
NEW INFLUENT PUMP STATION PLAN AND PROFILE VIEW - LINES "A" AND "E"

Drawing No: **C16**

Sheet: 26 OF 205

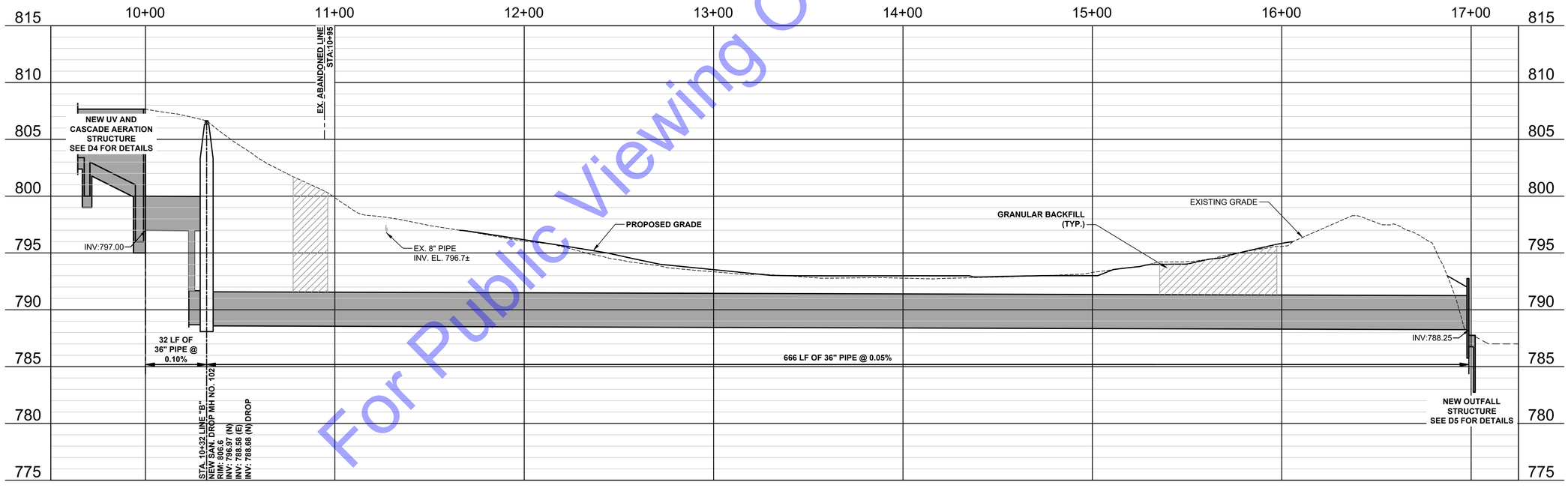


PLAN

EXISTING STRUCTURE LEGEND		
IDENTIFIER	DESCRIPTION	DEMO NOTES
O	EXISTING STREET DEPARTMENT STORAGE BAYS	TO BE RELOCATED

NEW STRUCTURE LEGEND	
IDENTIFIER	DESCRIPTION
04	NEW UV AND POST AERATION STRUCTURE
07	NEW NON-POTABLE WATER SYSTEM
08	NEW OUTFALL STRUCTURE

NEW PROCESS PIPING LEGEND	
IDENTIFIER	DESCRIPTION
N-F	36" LINE FROM NEW UV AND POST AERATION STRUCTURE TO NEW SANITARY DROP MH NO. 102
N-G	36" LINE FROM NEW SANITARY DROP MH NO. 102 TO NEW OUTFALL STRUCTURE



PROFILE - LINE 'B'

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NEW SITE EFFLUENT LINE PLAN AND PROFILE - LINE "B"

Drawing No:
C17
Sheet: 27 OF 205

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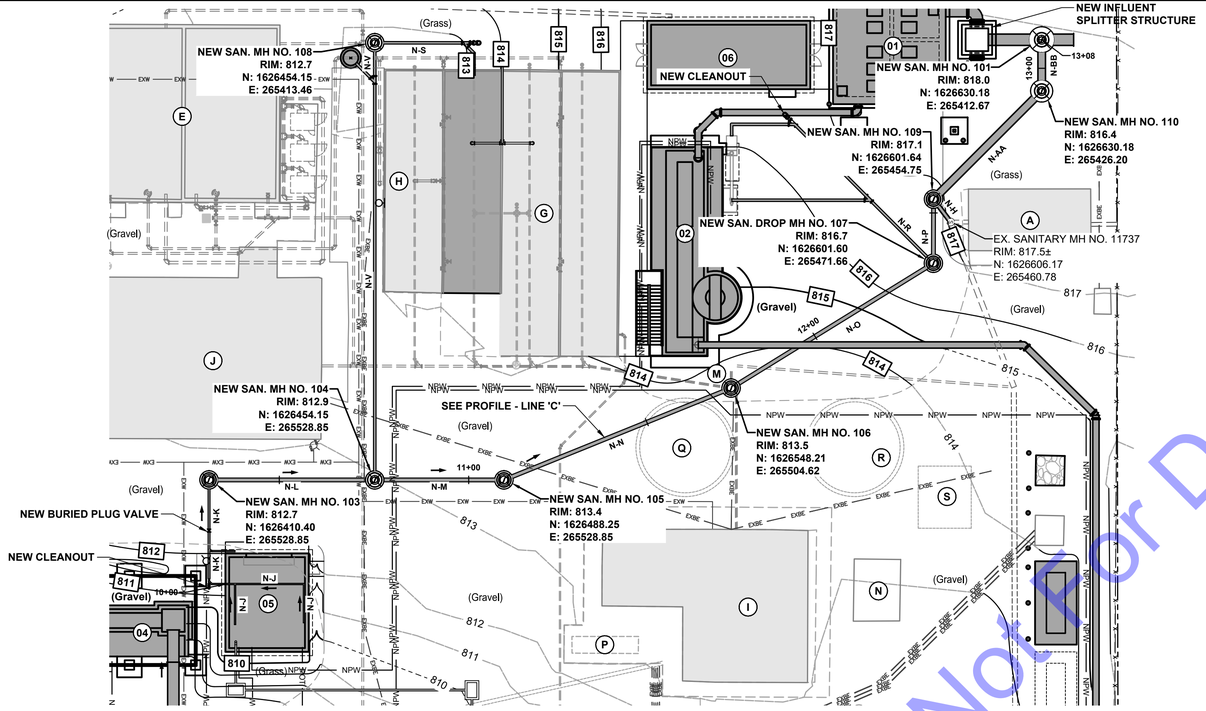

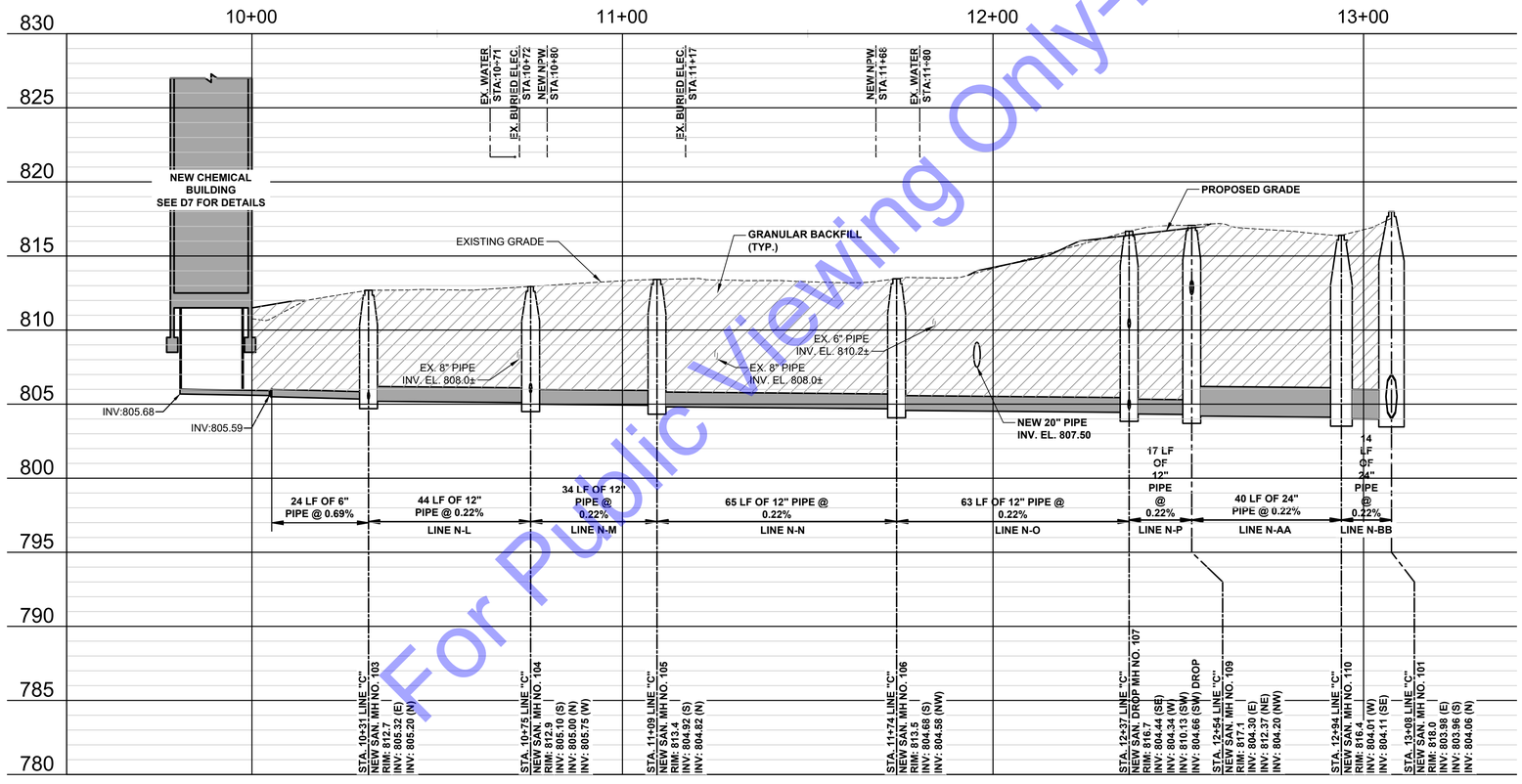

NEW STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION
01	NEW INFLUENT PUMP STATION
02	NEW HEADWORKS FACILITY
04	NEW UV AND POST AERATION STRUCTURE
05	NEW CHEMICAL FEED BUILDING
06	NEW ELECTRICAL BUILDING

EXISTING STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION	DEMO NOTES
A	EXISTING HEADWORKS	TO BE ABANDONED
E	EXISTING DIGESTER	TO BE MODIFIED
G	EXISTING DRYING BEDS	TO BE MODIFIED
H	EXISTING SLUDGE BAGGING SYSTEM	TO BE MODIFIED
I	EXISTING LAB BUILDING	TO REMAIN
J	EXISTING STREET DEPARTMENT BUILDING	TO REMAIN
M	EXISTING PLANT DRAIN PUMP STATION	TO BE DEMOLISHED
N	EXISTING STORAGE SHED	TO REMAIN
P	EXISTING PLANT EMERGENCY GENERATOR	TO REMAIN
Q	EXISTING BURIED TANK FOUNDATION	TO REMAIN
R	EXISTING BURIED TANK FOUNDATION	TO REMAIN
S	EXISTING BURIED TANK FOUNDATION	TO REMAIN

NEW MISCELLANEOUS PIPING LEGEND

IDENTIFIER	DESCRIPTION
N-H	12" LINE FROM EX. MH NO. 11737 TO NEW SANITARY MH NO. 109
N-J	4" DRAIN LINE FROM NEW CHEMICAL BUILDING
N-K	6" DRAIN LINE FROM NEW CHEMICAL BUILDING TO NEW SANITARY MH NO. 103
N-L	12" DRAIN LINE FROM NEW SANITARY MH NO. 103 TO NEW SANITARY MH NO. 104
N-M	12" DRAIN LINE FROM NEW SANITARY MH NO. 104 TO NEW SANITARY MH NO. 105
N-N	12" DRAIN LINE FROM NEW SANITARY MH NO. 105 TO NEW SANITARY MH NO. 106
N-O	12" DRAIN LINE FROM NEW SANITARY MH NO. 106 TO NEW SANITARY DROP MH NO. 107
N-P	12" DRAIN LINE FROM NEW SANITARY DROP MH NO. 107 TO NEW INFLUENT PUMP STATION
N-R	8" DRAIN LINE FROM NEW HEADWORKS FACILITY
N-S	8" DRAIN LINE FROM NEW SLUDGE BAGGING SYSTEM TO NEW SANITARY MH NO. 108
N-V	8" DRAIN LINE FROM NEW SANITARY MH NO. 108 TO NEW SANITARY MH NO. 104
N-AA	24" LINE FROM NEW SANITARY MH NO. 109 TO NEW SANITARY MH NO. 110
N-BB	24" LINE FROM NEW SANITARY MH NO. 110 TO NEW SANITARY MH NO. 101

HORIZONTAL SCALE: 1" = 20'-0"
0 10' 20' 40' 60'
VERTICAL SCALE: 1"=5'
5' 0

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PROFESSIONAL ENGINEER
Signature 10/24/2023 Date

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NEW CHEMICAL BUILDING DRAIN LINE PLAN AND PROFILE - LINE "C"

Drawing No: **C18**

Sheet: 28 OF 205

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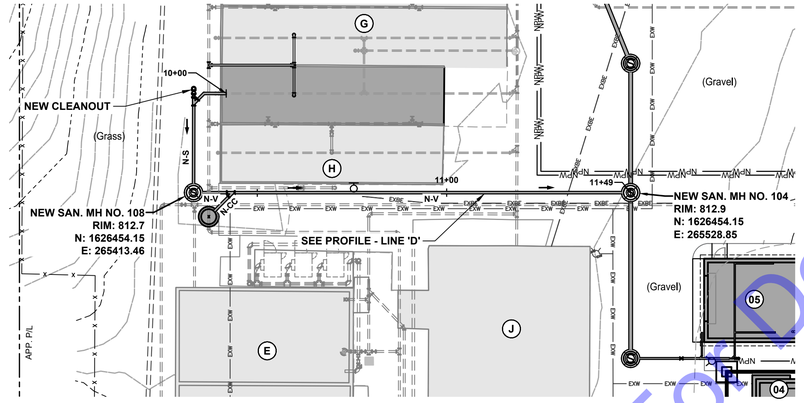
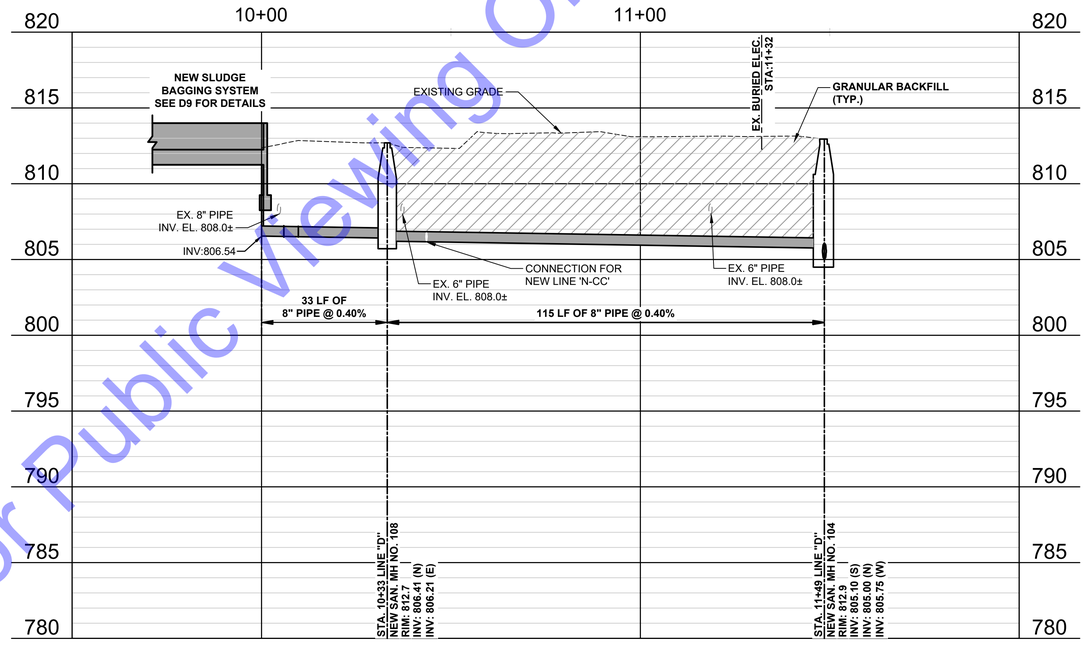


PLAN



PROFILE - LINE 'D'

NEW STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION
03	NEW SBR TREATMENT STRUCTURE
04	NEW UV AND POST AERATION STRUCTURE
05	NEW CHEMICAL FEED BUILDING
07	NEW NON-POTABLE WATER SYSTEM

EXISTING STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION	DEMO NOTES
E	EXISTING DIGESTER	TO BE MODIFIED
G	EXISTING DRYING BEDS	TO BE MODIFIED
H	EXISTING SLUDGE BAGGING SYSTEM	TO BE MODIFIED
I	EXISTING LAB BUILDING	TO REMAIN
J	EXISTING STREET DEPARTMENT BUILDING	TO REMAIN
K	EXISTING STREET DEPARTMENT SALT BARN	TO REMAIN
N	EXISTING STORAGE SHED	TO REMAIN
O	EXISTING STREET DEPARTMENT STORAGE BAYS	TO BE RELOCATED
P	EXISTING PLANT EMERGENCY GENERTOR	TO REMAIN

NEW MISCELLANEOUS PIPING LEGEND

IDENTIFIER	DESCRIPTION
N-S	8" DRAIN LINE FROM NEW SLUDGE BAGGING SYSTEM TO NEW SANITARY MH NO. 109
N-V	8" DRAIN LINE FROM NEW SANITARY MH NO. 109 TO NEW SANITARY MH NO. 110
N-CC	8" DRAIN LINE FROM NEW METER PIT TO CONNECT TO NEW 8" DRAIN LINE

HORIZONTAL SCALE: 1" = 20'-0"
0 10' 20' 40' 60'
VERTICAL SCALE: 1"=5'
5' 0

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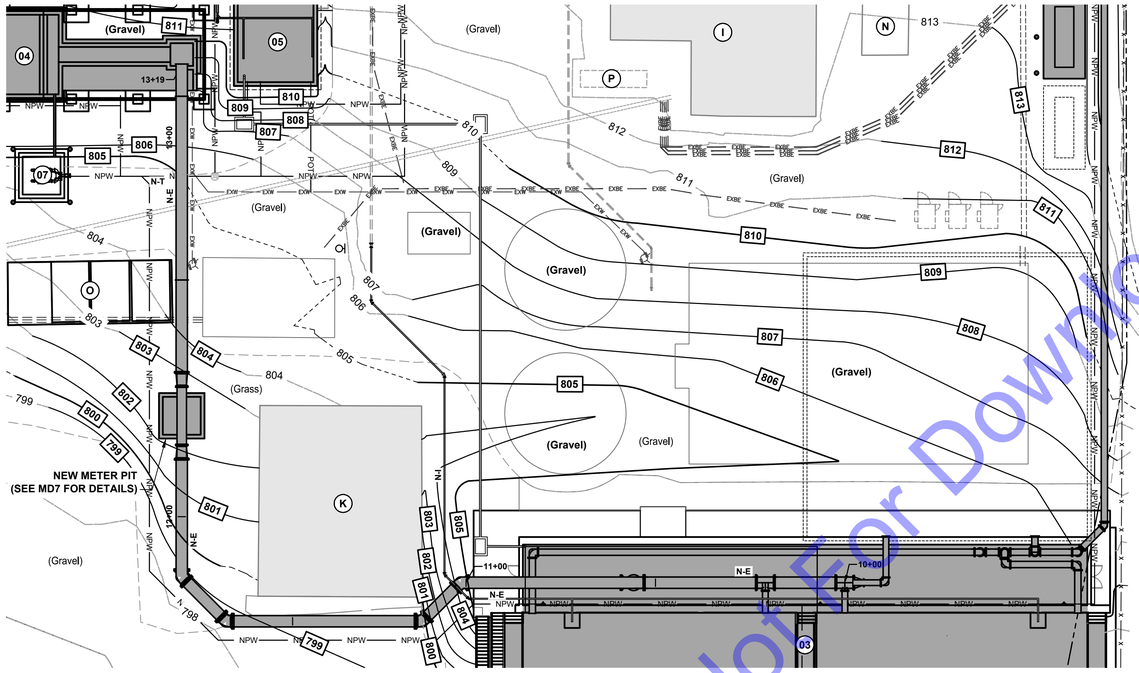
NEW SLUDGE BAGGING SYSTEM DRAIN LINE PLAN & PROFILE - LINE "D"

Drawing No:
C19
Sheet: 29 OF 205



PLAN

NEW STRUCTURE LEGEND

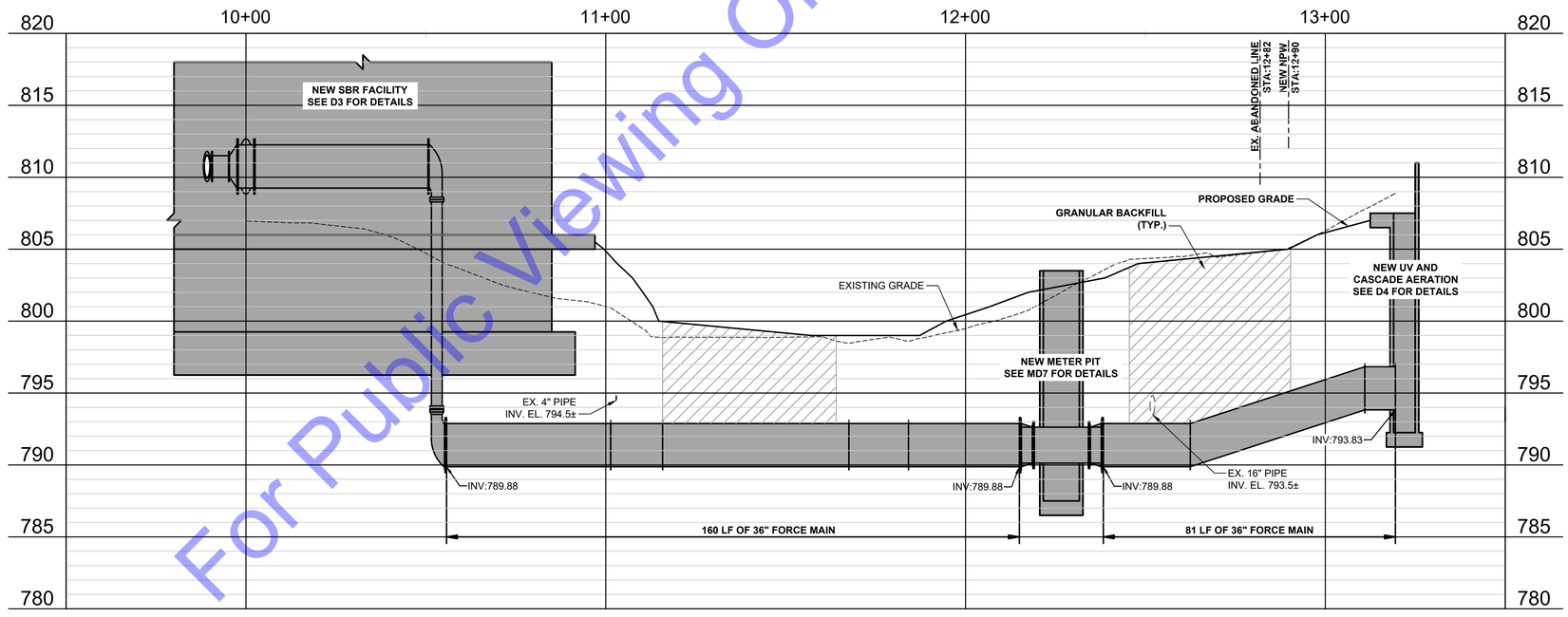
IDENTIFIER	DESCRIPTION
03	NEW SBR TREATMENT STRUCTURE
04	NEW UV AND POST AERATION STRUCTURE
05	NEW CHEMICAL FEED BUILDING
07	NEW NON-POTABLE WATER SYSTEM

EXISTING STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION	DEMO NOTES
I	EXISTING LAB BUILDING	TO REMAIN
K	EXISTING STREET DEPARTMENT SALT BARN	TO REMAIN
N	EXISTING STORAGE SHED	TO REMAIN
O	EXISTING STREET DEPARTMENT STORAGE BAYS	TO BE RELOCATED
P	EXISTING PLANT EMERGENCY GENERTOR	TO REMAIN

NEW MISCELLANEOUS PIPING LEGEND

IDENTIFIER	DESCRIPTION
N-E	36" LINE FROM NEW SBR FACILITY TO NEW UV AND POST AERATION STRUCTURE
N-I	4" SLUDGE LINE FROM NEW SBR FACILITY TO CONNECT TO EX. SLUDGE LINE
N-T	2" NON-POTABLE WATER LINE



PROFILE - LINE 'F'

HORIZONTAL SCALE: 1" = 20'-0"
0 10' 20' 40' 60'
VERTICAL SCALE: 1"=5'
0 5'

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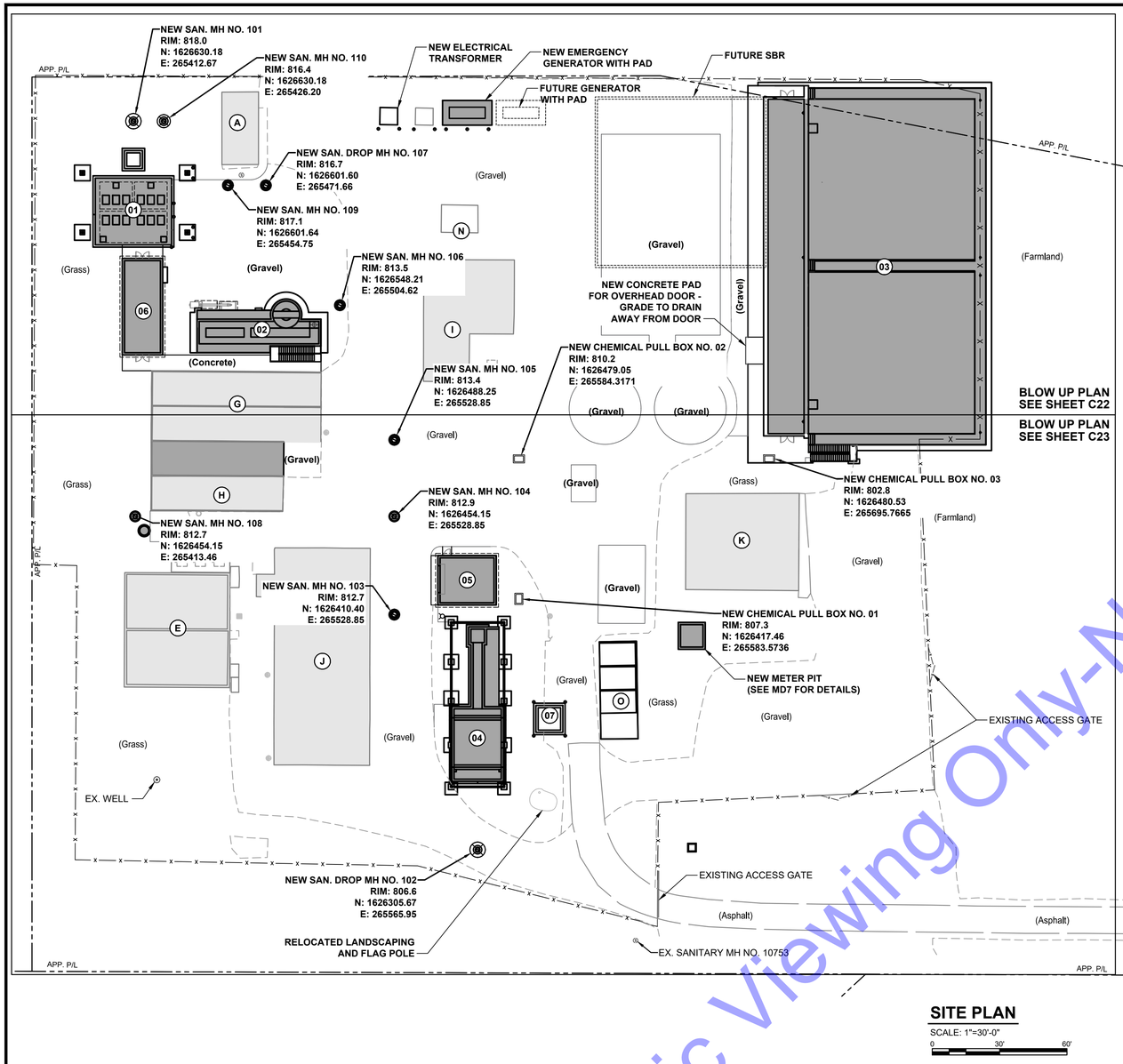
NEW SBR FACILITY
DECANT LINE PLAN &
PROFILE - LINE "F"

Drawing No:
C20
Sheet: 30 OF 205



SITE PLAN

SCALE: 1"=30'-0"

0 30' 60'

NEW STRUCTURE LEGEND	
IDENTIFIER	**DESCRIPTION**
01	NEW INFLUENT PUMP STATION
02	NEW HEADWORKS FACILITY
03	NEW SBR TREATMENT STRUCTURE
04	NEW UV AND POST AERATION STRUCTURE
05	NEW CHEMICAL FEED BUILDING
06	NEW ELECTRICAL BUILDING
07	NEW NON-POTABLE WATER SYSTEM
08	NEW OUTFALL STRUCTURE

EXISTING STRUCTURE LEGEND		
IDENTIFIER	**DESCRIPTION**	**DEMO NOTES**
A	EXISTING HEADWORKS	TO BE ABANDONED
E	EXISTING DIGESTER	TO BE MODIFIED
G	EXISTING DRYING BEDS	TO BE MODIFIED
H	EXISTING SLUDGE BAGGING SYSTEM	TO BE MODIFIED
I	EXISTING LAB BUILDING	TO REMAIN
J	EXISTING STREET DEPARTMENT BUILDING	TO REMAIN
K	EXISTING STREET DEPARTMENT SALT BARN	TO REMAIN
N	EXISTING STORAGE SHED	TO REMAIN
O	EXISTING STREET DEPARTMENT STORAGE BAYS	TO BE RELOCATED
P	EXISTING PLANT EMERGENCY GENERATOR	TO REMAIN

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OVERALL EXISTING WWTP SITE IMPROVEMENTS DIMENSIONING PLAN

Drawing No: **C21**

Sheet: 31 OF 205

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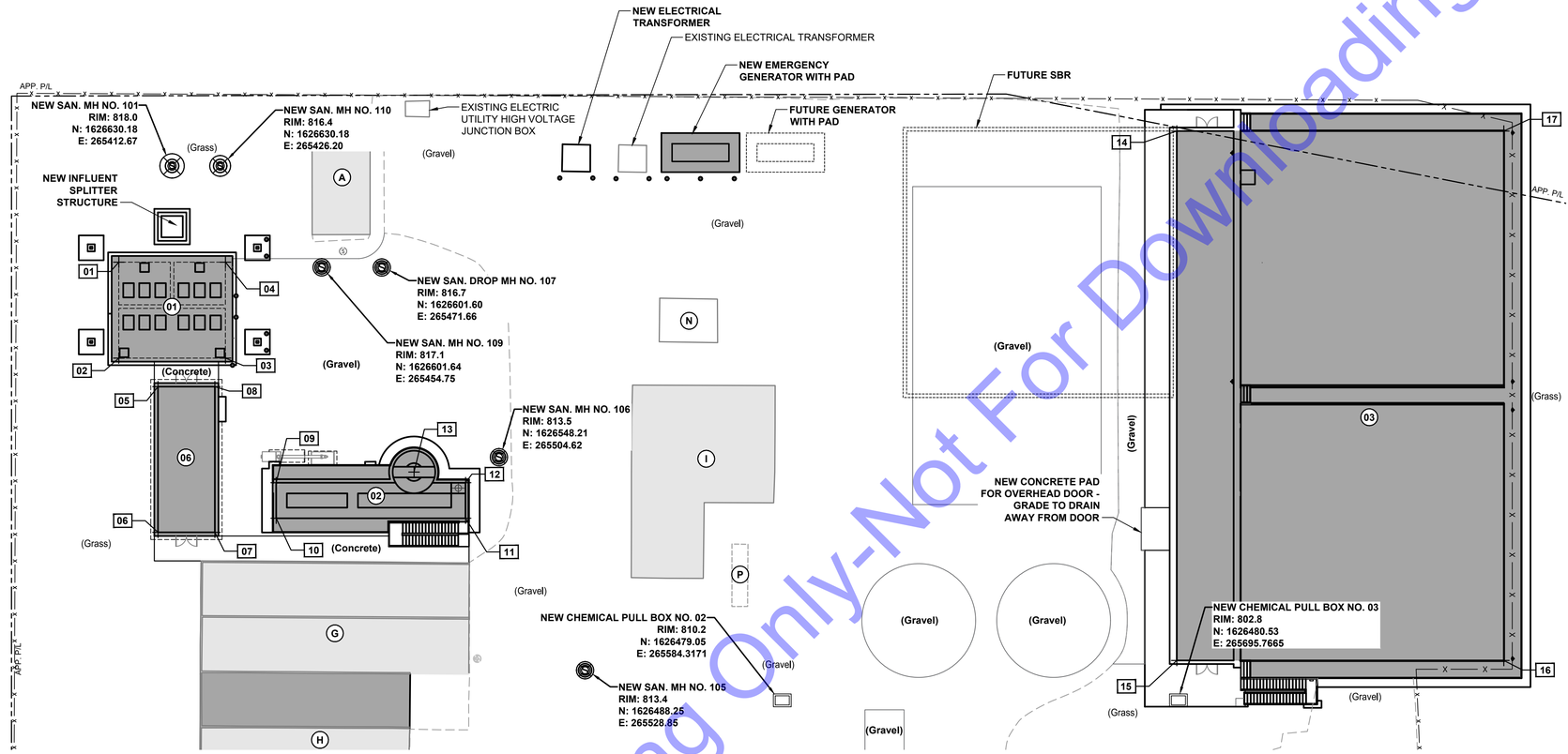

SITE PLAN

SCALE: 1"=20'-0"

0 20' 40'

NEW STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION
01	NEW INFLUENT PUMP STATION
02	NEW HEADWORKS FACILITY
03	NEW SBR TREATMENT STRUCTURE
06	NEW ELECTRICAL BUILDING

EXISTING STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION	DEMO NOTES
A	EXISTING HEADWORKS	TO BE ABANDONED
G	EXISTING DRYING BEDS	TO BE MODIFIED
H	EXISTING SLUDGE BAGGING SYSTEM	TO BE MODIFIED
I	EXISTING LAB BUILDING	TO REMAIN
N	EXISTING STORAGE SHED	TO REMAIN
P	EXISTING PLANT EMERGENCY GENERATOR	TO REMAIN

NEW STRUCTURE COORDINATES

IDENTIFIER	DESCRIPTION	NORTHING	EASTING
01	NEW INFLUENT PUMP STATION - NW CORNER	1626603.10	265397.67
02	NEW INFLUENT PUMP STATION - SW CORNER	1626576.10	265397.67
03	NEW INFLUENT PUMP STATION - SE CORNER	1626576.10	265427.67
04	NEW INFLUENT PUMP STATION - NE CORNER	1626603.10	265427.67
05	NEW ELECTRICAL BUILDING - NW CORNER	1626568.07	265408.70
06	NEW ELECTRICAL BUILDING - SW CORNER	1626527.07	265408.70
07	NEW ELECTRICAL BUILDING - SE CORNER	1626527.07	265424.70
08	NEW ELECTRICAL BUILDING - NE CORNER	1626568.07	265424.70
09	NEW HEADWORKS FACILITY - NW CORNER	1626541.03	265441.94
10	NEW HEADWORKS FACILITY - SW CORNER	1626531.03	265441.94
11	NEW HEADWORKS FACILITY - SE CORNER	1626531.05	265495.22
12	NEW HEADWORKS FACILITY - NE CORNER	1626541.05	265495.22
13	NEW GRIT VORTEX - CENTER	1626544.05	265480.72
14	NEW SBR TREATMENT STRUCTURE - NW CORNER	1626640.00	265695.30
15	NEW SBR TREATMENT STRUCTURE - SW CORNER	1626491.00	265695.30
16	NEW SBR TREATMENT STRUCTURE - SE CORNER	1626491.00	265787.30
17	NEW SBR TREATMENT STRUCTURE - NE CORNER	1626640.00	265787.30

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HANCOCK COUNTY, INDIANA

WASTEWATER UTILITY
IMPROVEMENTS PROJECT

DIVISION "A" - MAIN WWTP
IMPROVEMENTS

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EXISTING WWTP SITE IMPROVEMENTS DIMENSIONING - NORTH BLOW-UP PLAN

Drawing No:
C22
Sheet: 32 OF 205

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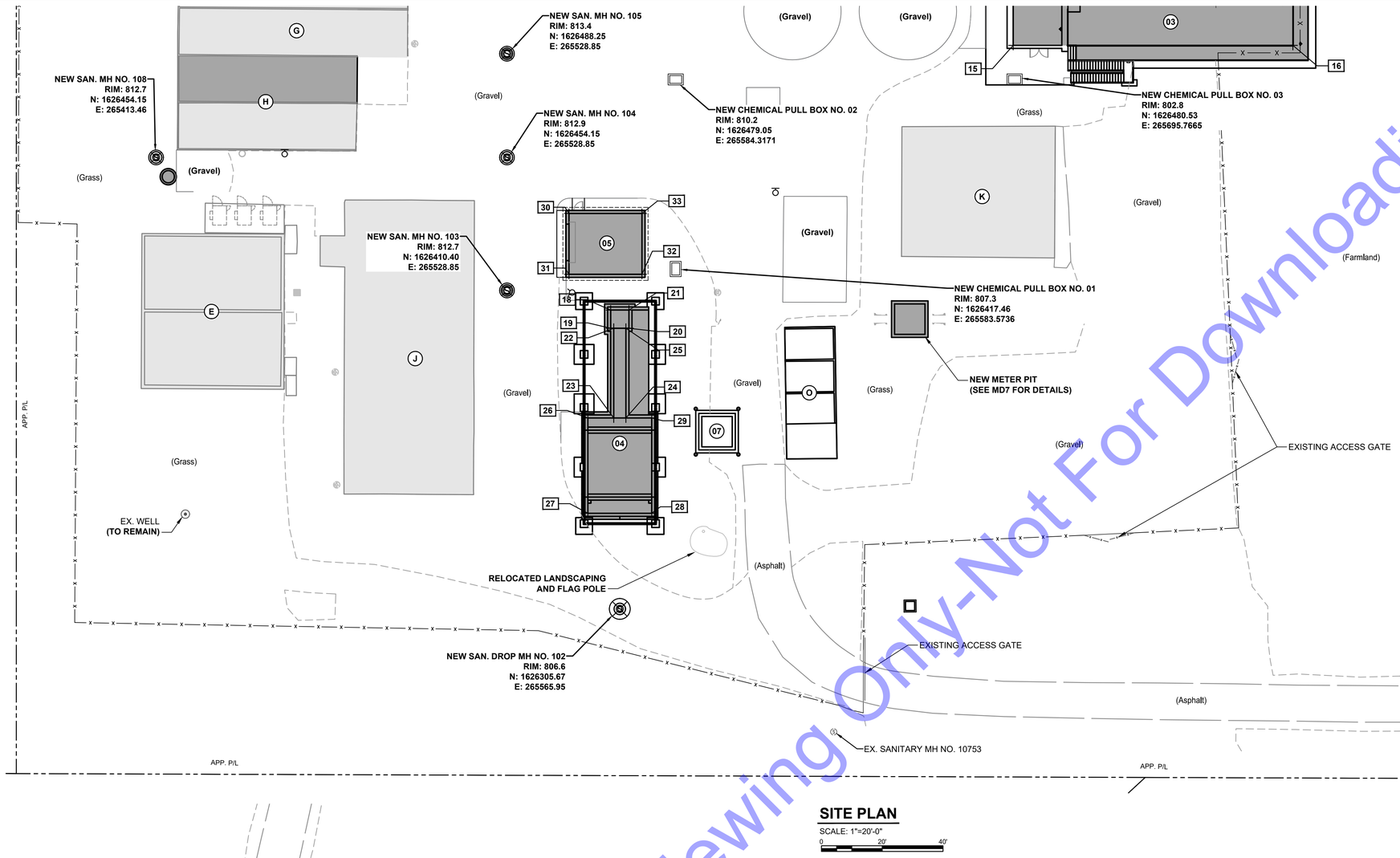
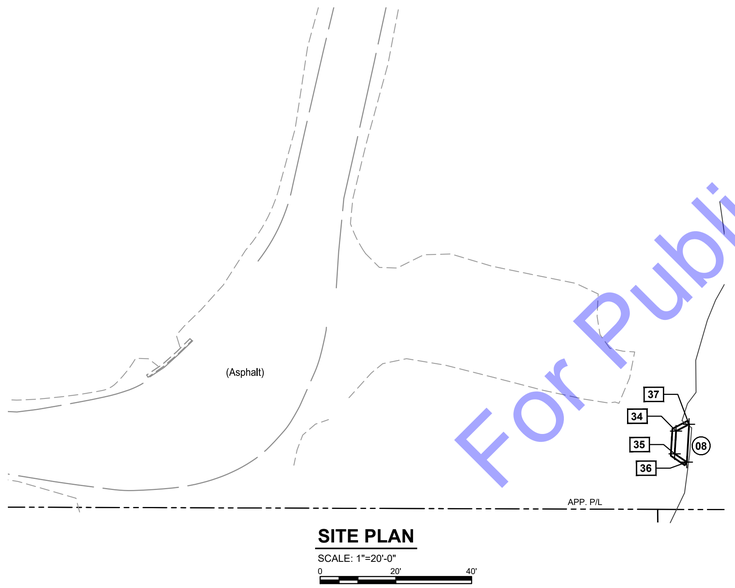


SITE PLAN

SCALE: 1"=20'-0"

0 20' 40'



SITE PLAN

SCALE: 1"=20'-0"

0 20' 40'

NEW STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION
03	NEW SBR TREATMENT STRUCTURE
04	NEW UV AND POST AERATION STRUCTURE
05	NEW CHEMICAL FEED BUILDING
07	NEW NON-POTABLE WATER SYSTEM
08	NEW OUTFALL STRUCTURE

EXISTING STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION	DEMO NOTES
E	EXISTING DIGESTER	TO BE MODIFIED
G	EXISTING DRYING BEDS	TO BE MODIFIED
H	EXISTING SLUDGE BAGGING SYSTEM	TO BE MODIFIED
J	EXISTING STREET DEPARTMENT BUILDING	TO REMAIN
K	EXISTING STREET DEPARTMENT SALT BARN	TO REMAIN
O	EXISTING STREET DEPARTMENT STORAGE BAYS	TO BE RELOCATED

NEW STRUCTURE COORDINATES

IDENTIFIER	DESCRIPTION	NORTHING	EASTING
15	NEW SBR TREATMENT STRUCTURE - SW CORNER	1626491.00	265695.30
16	NEW SBR TREATMENT STRUCTURE - SE CORNER	1626491.00	265787.30
18	NEW UV INFLUENT BOX - NW CORNER	1626403.96	265562.95
19	NEW UV INFLUENT BOX - SW CORNER	1626397.96	265562.95
20	NEW UV INFLUENT BOX - SE CORNER	1626397.96	265568.95
21	NEW UV INFLUENT BOX - NE CORNER	1626403.96	265568.95
22	NEW UV CHANNEL - NW CORNER	1626397.96	265563.95
23	NEW UV CHANNEL - SW CORNER	1626368.46	265563.95
24	NEW UV CHANNEL - SE CORNER	1626368.46	265567.95
25	NEW UV CHANNEL - NE CORNER	1626397.96	265567.95
26	NEW POST AERATION STRUCTURE - NW CORNER	1626368.46	265555.45
27	NEW POST AERATION STRUCTURE - SW CORNER	1626337.13	265555.45
28	NEW POST AERATION STRUCTURE - SE CORNER	1626337.13	265576.45
29	NEW POST AERATION STRUCTURE - NE CORNER	1626368.46	265576.45
30	NEW CHEMICAL BUILDING - NW CORNER	1626435.72	265549.23
31	NEW CHEMICAL BUILDING - SW CORNER	1626415.72	265549.23
32	NEW CHEMICAL BUILDING - SE CORNER	1626415.72	265573.23
33	NEW CHEMICAL BUILDING - NE CORNER	1626435.72	265573.23
34	NEW OUTFALL STRUCTURE - NW CORNER	1626269.24	266231.44
35	NEW OUTFALL STRUCTURE - SW CORNER	1626263.25	266231.09
36	NEW OUTFALL STRUCTURE - SE CORNER	1626261.05	266234.29
37	NEW OUTFALL STRUCTURE - NE CORNER	1626271.04	266234.88

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SOUTH BEND, IN.

CHRIS A. LIMCACO
REGISTERED
No. 19700338
STATE OF INDIANA
PROFESSIONAL ENGINEER

Signature 10/24/2023 Date

TOWN OF NEW PALESTINE
HANCOCK COUNTY, INDIANA

WASTEWATER UTILITY
IMPROVEMENTS PROJECT

DIVISION "A" - MAIN WWTP
IMPROVEMENTS

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CAL	DAN	ACS
Issue Date: OCT 2023	Project No: S22002	Scale: AS SHOWN

EXISTING WWTP SITE IMPROVEMENTS DIMENSIONING - SOUTH BLOW-UP PLAN

Drawing No: **C23**

Sheet: 33 OF 205

File: Z:\SHARED\IN CLIENTS M-Z\NEW PALESTINE\2022\02 WW UTILITY IMPRVS\06 CAD\A CURRENT FILES\ 1 DRAWINGS\DIV A - WWTP\06-PROPOSED SITE PLANS.DWG
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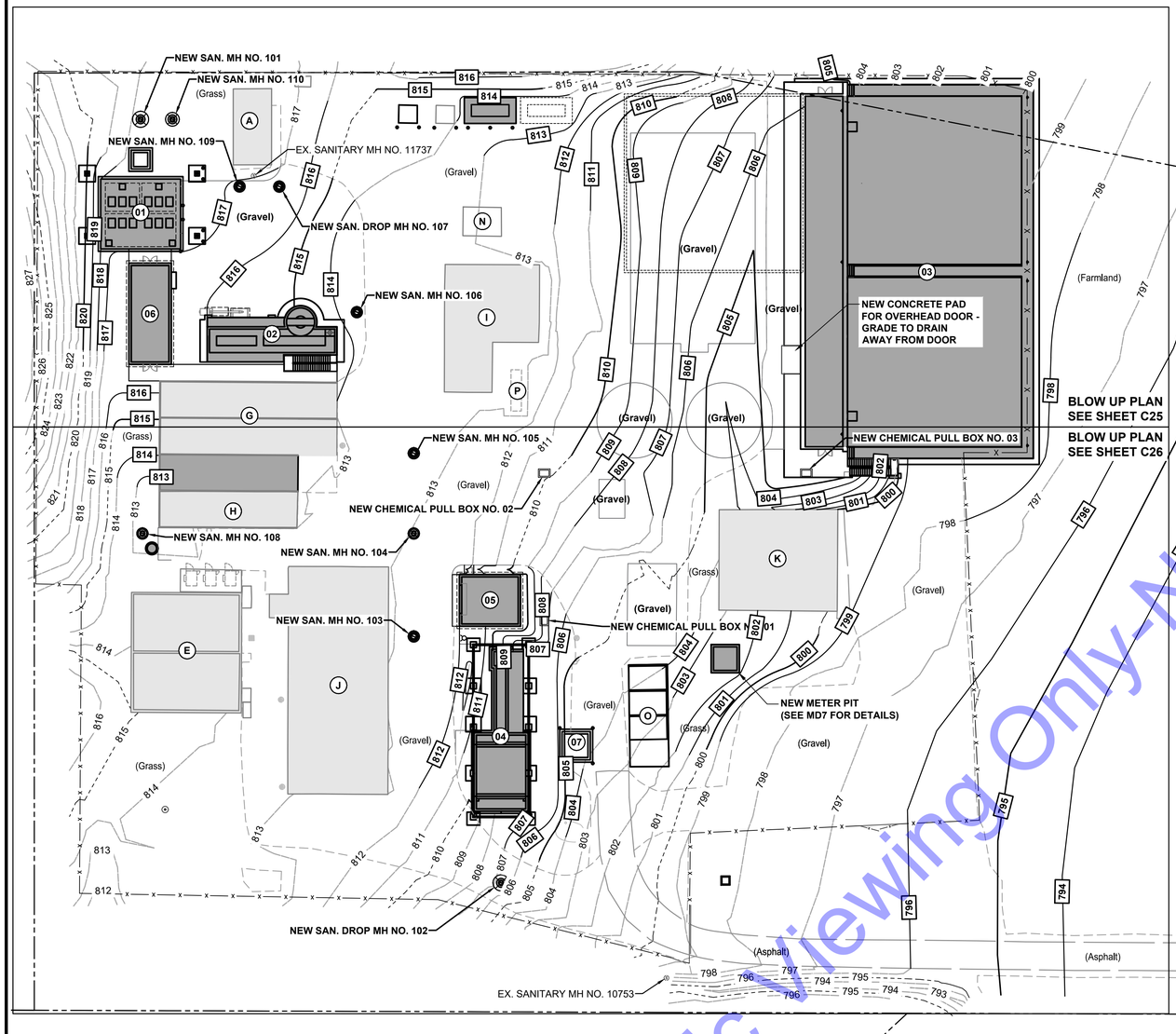

SITE PLAN

SCALE: 1"=30'-0"

0 30' 60'

NEW STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION
01	NEW INFLUENT PUMP STATION
02	NEW HEADWORKS FACILITY
03	NEW SBR TREATMENT STRUCTURE
04	NEW UV AND POST AERATION STRUCTURE
05	NEW CHEMICAL FEED BUILDING
06	NEW ELECTRICAL BUILDING
07	NEW NON-POTABLE WATER SYSTEM
08	NEW OUTFALL STRUCTURE

EXISTING STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION	DEMO NOTES
A	EXISTING HEADWORKS	TO BE ABANDONED
E	EXISTING DIGESTER	TO BE MODIFIED
G	EXISTING DRYING BEDS	TO BE MODIFIED
H	EXISTING SLUDGE BAGGING SYSTEM	TO BE MODIFIED
I	EXISTING LAB BUILDING	TO REMAIN
J	EXISTING STREET DEPARTMENT BUILDING	TO REMAIN
K	EXISTING STREET DEPARTMENT SALT BARN	TO REMAIN
N	EXISTING STORAGE SHED	TO REMAIN
O	EXISTING STREET DEPARTMENT STORAGE BAYS	TO BE RELOCATED
P	EXISTING PLANT EMERGENCY GENERATOR	TO REMAIN

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OVERALL EXISTING WWTP SITE IMPROVEMENTS GRADING PLAN

Drawing No:
C24
Sheet: 34 OF 205

File: Z:\SHARED\IN CLIENTS M-Z\NEW PALESTINE\S22002 WW UTILITY IMPRV\936 CADA CURRENT FILES\1 DRAWINGS\DIV A - WWTP\06-PROPOSED SITE PLANS.DWG
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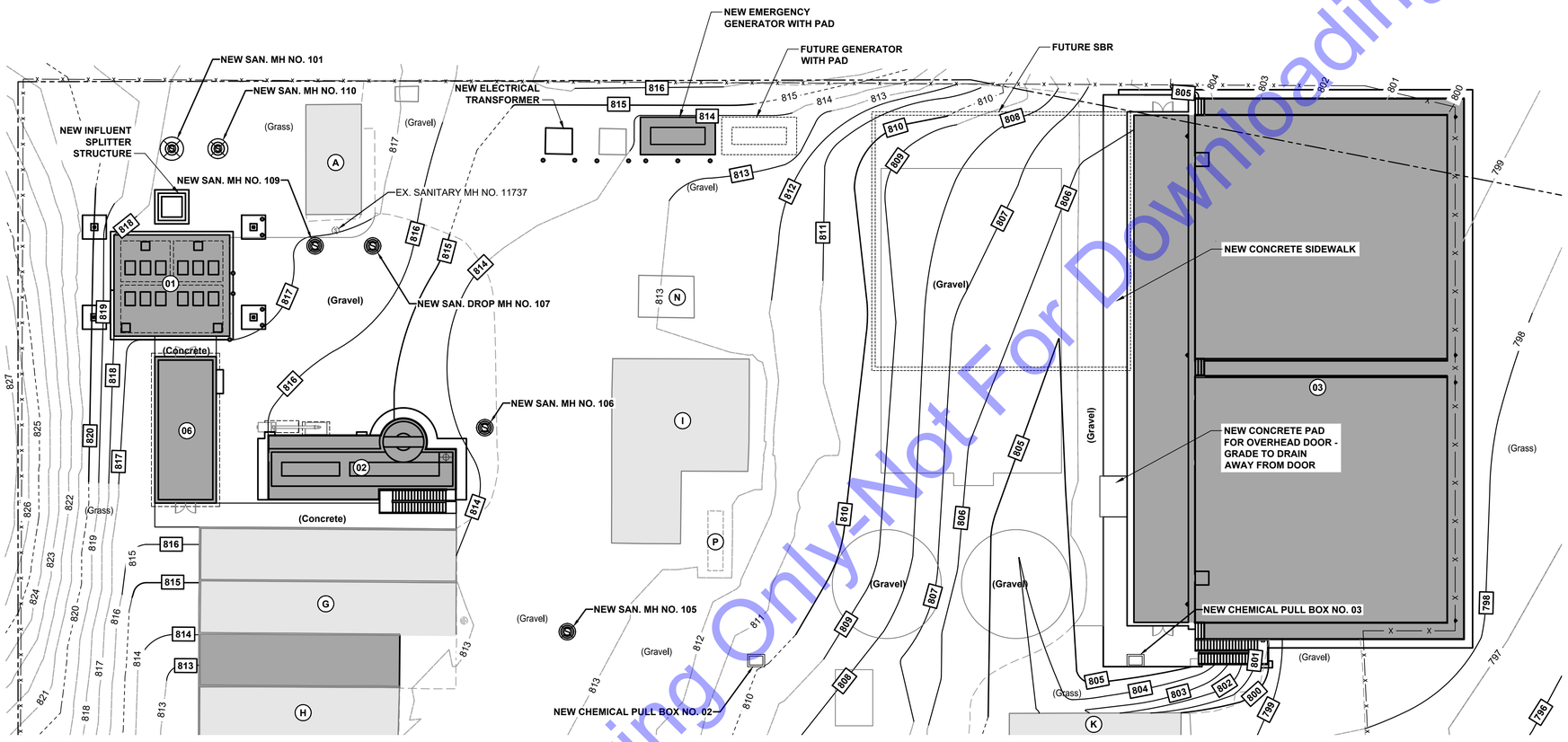

SITE PLAN

SCALE: 1"=20'-0"

0 20' 40'

NEW STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION
01	NEW INFLUENT PUMP STATION
02	NEW HEADWORKS FACILITY
03	NEW SBR TREATMENT STRUCTURE
06	NEW ELECTRICAL BUILDING

EXISTING STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION	DEMO NOTES
A	EXISTING HEADWORKS	TO BE ABANDONED
G	EXISTING DRYING BEDS	TO BE MODIFIED
H	EXISTING SLUDGE BAGGING SYSTEM	TO BE MODIFIED
I	EXISTING LAB BUILDING	TO REMAIN
K	EXISTING STREET DEPARTMENT SALT BARN	TO REMAIN
N	EXISTING STORAGE SHED	TO REMAIN
P	EXISTING PLANT EMERGENCY GENERATOR	TO REMAIN

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EXISTING WWTP SITE IMPROVEMENTS GRADING - NORTH BLOW-UP PLAN

Drawing No: **C25**

Sheet: 35 OF 205

File: Z:\SHARED\IN CLIENTS M-Z\NEW PALESTINE\S22002 WW UTILITY IMPRV\S06 CAD\A CURRENT FILES\1 DRAWINGS\DIV A - WWTP\06-PROPOSED SITE PLANS.DWG
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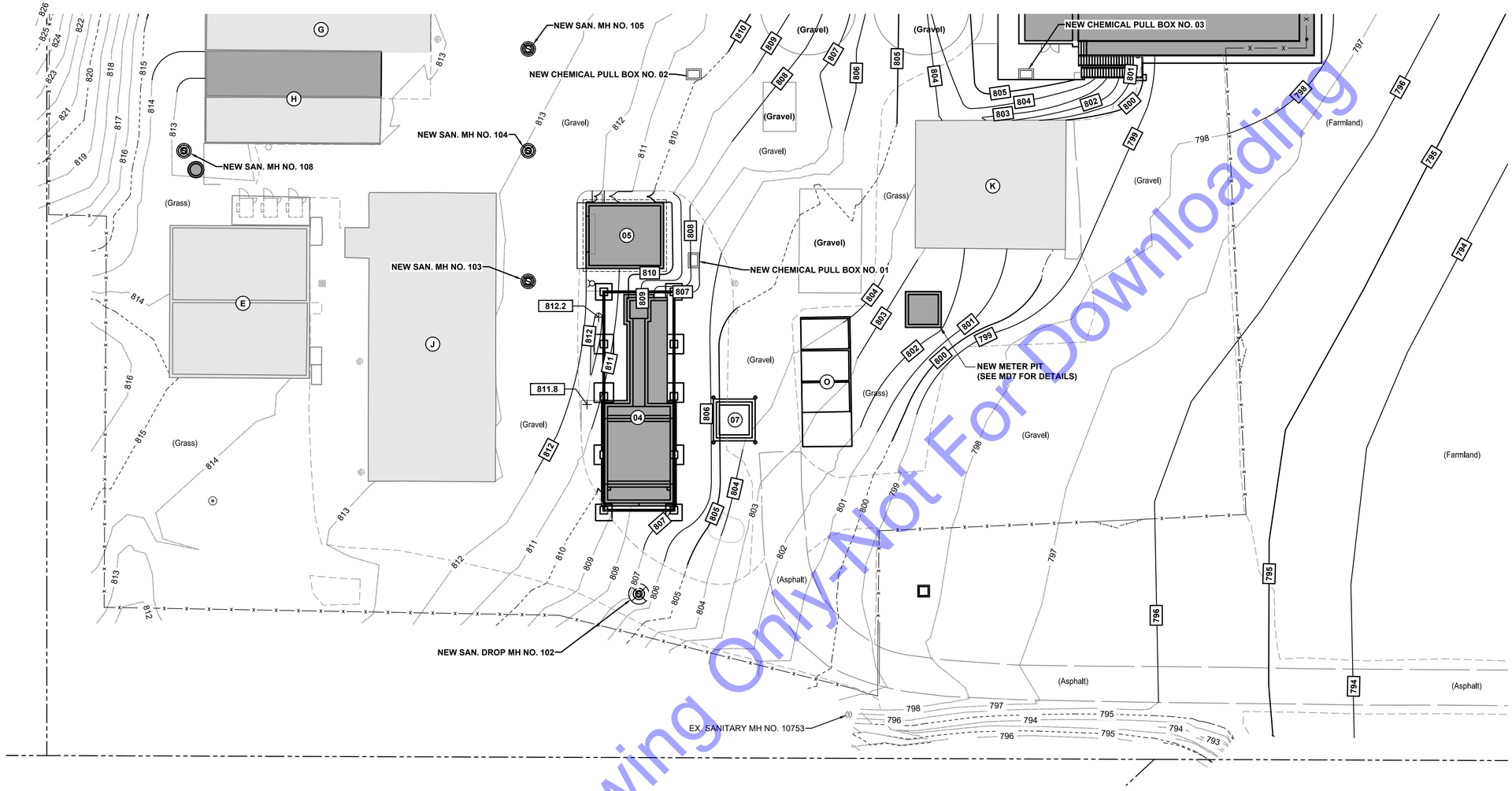

SITE PLAN

SCALE: 1"=20'-0"

0 20' 40'

NEW STRUCTURE LEGEND	
IDENTIFIER	DESCRIPTION
04	NEW UV AND POST AERATION STRUCTURE
05	NEW CHEMICAL FEED BUILDING
07	NEW NON-POTABLE WATER SYSTEM

EXISTING STRUCTURE LEGEND		
IDENTIFIER	DESCRIPTION	DEMO NOTES
E	EXISTING DIGESTER	TO BE MODIFIED
G	EXISTING DRYING BEDS	TO BE MODIFIED
H	EXISTING SLUDGE BAGGING SYSTEM	TO BE MODIFIED
J	EXISTING STREET DEPARTMENT BUILDING	TO REMAIN
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EXISTING WWTP SITE IMPROVEMENTS GRADING - SOUTH BLOW-UP PLAN

Drawing No:
C26
Sheet: 36 OF 205

SECTION A: BASIC PLAN ELEMENTS

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

THIS DOCUMENT REPRESENTS THE PLAN INDEX.

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

AN AERIAL MAP ILLUSTRATING THE APPROXIMATE EXTENT OF THE PROJECT IS SHOWN IN THE PLANS.

A3: NARRATIVE OF THE NATURE AND PURPOSE OF THE PROJECT:

THE TOWN OF NEW PALESTINE'S WASTEWATER TREATMENT PLANT (WWTP) IS EXCEEDING ITS CURRENT CAPACITY FOR FLOWS AND LOADINGS. RAPID PROJECTED GROWTH OF THE TOWN WILL ALSO REQUIRE ADDITIONAL WASTEWATER TREATMENT CAPACITIES. THE PROPOSED DIVISION "A" PROJECT INVOLVES IMPROVEMENTS TO THE EXISTING WWTP, INCLUDING THE CONSTRUCTION OF A NEW SEQUENCING BATCH REACTOR (SBR) TREATMENT PLANT. NEW COMPONENTS AT THE WWTP INCLUDE AN INFLUENT PUMP STATION, HEADWORKS, SBR TREATMENT STRUCTURE, UV AND POST-AERATION STRUCTURE, CHEMICAL FEED BUILDING, ELECTRICAL BUILDING, NON-POTABLE WATER SYSTEM, AND OUTFALL STRUCTURE.

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

THIS APPROXIMATE LATITUDE AND LONGITUDE FOR THE PROJECT SITE IS 39.713797°, -85.888749°.

A5: LEGAL DESCRIPTION OF THE PROJECT SITE:

THE PROJECT IS LOCATED IN THE TOWN OF NEW PALESTINE, SUGAR CREEK TOWNSHIP, HANCOCK COUNTY, IN SECTIONS 29 AND 32, T15N, R6E.

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

ALL LOT BOUNDARIES AND ROAD NAMES ARE SHOWN ON THE PLANS.

A7: BOUNDARIES OF THE ONE HUNDRED (100) YEAR FLOODPLAINS, FLOODWAY FRINGES, AND FLOODWAYS:

THE FEMA FIRM PANELS ARE 18059C0207E AND 18059C0209D. PORTIONS OF THE EXISTING WWTP ARE LOCATED WITHIN THE REGULATORY FLOODWAY. THIS IS SHOWN ON SHEET EC3.

A8: LAND USE OF ALL ADJACENT PROPERTIES:

LAND USE ADJACENT TO THE EXISTING WWTP INCLUDES FORESTED AREAS TO THE NORTH, WEST, AND SOUTH, AND AGRICULTURAL LAND TO EAST.

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

THE PROJECT AREA IS LOCATED WITHIN THE BOYD DITCH-SUGAR CREEK (HUC-12: 051202040405) WATERSHED. SUGAR CREEK HAS AN APPROVED TMDL FOR E. COLI AND PATHOGENS.

A10: NAME(S) OF THE RECEIVING WATER(S):

THE RECEIVING WATER BODY IN THE PROJECT AREA IS SUGAR CREEK.

A11: IDENTIFICATION OF DISCHARGES TO A WATER ON THE CURRENT 303(D) LIST OF IMPAORED WATERS AND THE POLLUTANT FOR WHICH IS IMPAIRED:

SUGAR CREEK IS NOT ON THE CURRENT 303(D) LIST.

A12: SOILS MAP OF THE PREDOMINATE SOIL TYPES:

THE SOILS MAP FOR THIS PROJECT IS SHOWN ON SHEET EC3. THE SOILS IN THE PROJECT AREAS CONSIST MAINLY OF "MMC2" "MIAMI SILT LOAM, 2 TO 6 PERCENT SLOPES," AND "OCA" "OCKLEY SILT LOAM, 0 TO 2 PERCENT SLOPES."

CONSTRUCTION PROJECTS ARE NOT EXPECTED TO HAVE ANY DETRIMENTAL, LONG-TERM IMPACTS ON THE SOILS. SHORT TERM IMPACTS WILL RELATE ONLY TO EXCAVATION ACTIVITIES FOR THE PROPOSED SYSTEM IMPROVEMENTS AND WILL BE MINIMAL. THESE IMPACTS CAN BE MITIGATED USING APPROPRIATE TECHNIQUES FOR EROSION CONTROL AND SURFACE RESTORATION DURING AND AFTER CONSTRUCTION.

SEASONAL WETNESS IS LIKELY TO BE THE MAIN LIMITATION OF THE SOILS IN THE CONSTRUCTION AREA. FOR THIS PROJECT, CONSTRUCTION PROBLEMS ASSOCIATED WITH WET SOILS WILL BE BEST OVERCOME BY COMPLETING OPEN EXCAVATION WORK DURING FAVORABLE CONDITIONS AND COORDINATING WORK ACTIVITIES BASED UPON WEATHER AND SOIL CONDITIONS. UNDER SEVERE SOIL WETNESS CONDITIONS, QUICKLIME MAY BE USED TO HELP DRY WET SOILS FOR SITE ACCESS PURPOSES AND TO REDUCE DOWNTIME.

A13: IDENTIFICATION AND LOCATION OF ALL KNOWN WETLANDS, LAKES, AND WATER COURSES ON OR ADJACENT TO THE PROJECT SITE (CONSTRUCTION PLAN, EXISTING LAYOUT):

ALL WETLANDS, LAKES, AND WATER COURSES LOCATED WITHIN AND NEARBY THE PROJECT AREA HAVE BEEN IDENTIFIED AND ARE SHOWN ON SHEET EC3. THERE IS A WETLAND SHOWN NEAR THE LIMITS OF THE PROJECT AREA. A REGULATED WATERS DELINEATION IS IN PROCESS AND PLANS WILL BE UPDATED IF WETLANDS ARE FOUND ON SITE.

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

THE PROJECT WILL REQUIRE SECTION 401/404 PERMITTING FOR THE NEW EFFLUENT OUTFALL AND A DNR CIF PERMIT FOR NEW STRUCTURES IN THE FLOODWAY. A REGULATED WATERS DELINEATION COMPLETED IN NOVEMBER 2023 INDICATED WETLANDS NEAR THE SOUTHERN LIMIT OF THE PROJECT AS SHOWN ON EC4. THE CONTRACTOR MUST KEEP THE LIMITS OF DISTURBANCE AND TEMPORARY EROSION CONTROL MEASURES OUTSIDE OF THE WETLAND AS NOTED.

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Project Site Owner: Clint Bledsoe **Company Name (if applicable):** Town of New Palestine
Address: 42 East Main Street
Town: New Palestine **State:** IN **Zip:** 46163
Phone: 317-861-4727 **Cell Phone:** NA **Email:** clint@townofnewpalestine.org

A15: IDENTIFICATION AND DELINEATION OF EXISTING VEGETATIVE COVER, INCLUDING NATURAL BUFFERS:

EXISTING VEGETATIVE COVER IS PRIMARILY TURF GRASS. THE ONLY NATURAL BUFFER AREA ANTICIPATED TO BE IMPACTED IS FOR THE NEW EFFLUENT OUTFALL. THIS IS EXEMPT FROM BUFFER PROTECTION REQUIREMENTS DUE TO THE SECTION 401/404 PERMITTING REQUIRED FOR INSTALLATION.

A16: EXISTING 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 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 PLAN SHEETS TO INDICATE DRAINAGE PATTERNS WITHIN THE CONSTRUCTION LIMITS.

A19: LOCATION OF ALL EXISTING STRUCTURES ON THE PROJECT SITE:

THE LOCATION OF ALL EXISTING STRUCTURES ON THE PROJECT SITE CAN BE SEEN IN THE PLANS.

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

THERE ARE NO EXISTING PERMANENT RETENTION OR DETENTION FACILITIES USED FOR STORMWATER MANAGEMENT WITHIN THE PROJECT AREA.

A21: LOCATIONS 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 3.7 ACRES.

A23: TOTAL EXPECTED LAND DISTURBANCE EXPRESSED IN ACRES:

THE TOTAL EXPECTED LAND DISTURBANCE FOR THE PROJECT IS APPROXIMATELY 1.2 ACRES.

A24: PROPOSED FINAL TOPOGRAPHY:

THE PLANS 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.

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 REPLACED 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:

LOCATIONS 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:

THE LOCATION OF THE STOCKPILE IS SHOWN ON THE PLANS. 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 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 LOCATIONS 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:

THE NEW EFFLUENT OUTFALL WILL REQUIRE THE USE OF ROCK CHECK DAMS AND LOCALIZED DEWATERING DURING INSTALLATION TO CONTROL THE FLOW OF WATER AND SEDIMENT.

SECTION B: STORMWATER POLLUTION PREVENTION - CONSTRUCTION

STORMWATER POLLUTION PREVENTION MEASURES SHALL BE IN ACCORDANCE WITH THE LOCAL REGULATORY AUTHORITY AND THE APPLICABLE IDEM CSGP REQUIREMENTS.

B1: DESCRIPTION OF THE POTENTIAL POLLUTANT GENERATING SOURCES AND POLLUTANTS, INCLUDING ALL POTENTIAL

WITHOUT THE USE OF PROPER BMPS, CLEARING, GRADING, EXCAVATING, STOCKPILING, PAVING REPAIR, AND DEWATERING ALL MAY RESULT IN SEDIMENT POLLUTION. PAVEMENT RESTORATION MAY ALSO CREATE BITUMINOUS DEBRIS. IMPROPER VEHICLE FUELING AND MAINTENANCE ON-SITE MAY RESULT IN SPILLS OF OIL, GREASE, AND FUEL. GENERAL CONSTRUCTION ACTIVITY CAN LEAD TO TRASH ACCUMULATION AND POLLUTION FROM SANITATION CHEMICALS.

EXCAVATION, STOCKPILING, AND GRADING:

STOCKPILE MANAGEMENT PROCEDURES AND PRACTICES WILL BE IMPLEMENTED TO MINIMIZE OR ELIMINATE THE DISCHARGE OF STOCKPILED MATERIAL (SOIL, TOPSOIL, BASE MATERIAL) FROM ENTERING DRAINAGE SYSTEMS OR SURFACE WATERS.

FOR ANY STOCKPILES OR LAND CLEARING DEBRIS COMPOSED, IN WHOLE OR IN PART, OF SEDIMENT OR SOIL, THE CONTRACTOR WILL BE REQUIRED TO COMPLY WITH THE FOLLOWING REQUIREMENTS:

1. LOCATE PILES WITHIN THE DESIGNATED LIMITS OF DISTURBANCE.
2. PROTECT FROM CONTACT WITH STORMWATER USING A TEMPORARY PERIMETER SEDIMENT BARRIER.
3. WHERE PRACTICABLE, PROVIDE COVER OR APPROPRIATE TEMPORARY VEGETATIVE OR STRUCTURAL STABILIZATION TO AVOID DIRECT CONTACT WITH PRECIPITATION OR TO MINIMIZE THE DISCHARGE OF SEDIMENTS.
4. NEVER HOSE DOWN OR SWEEP SOIL OR SEDIMENT ACCUMULATED ON PAVEMENT OR OTHER IMPERVIOUS SURFACES INTO ANY STORMWATER CONVEYANCE, STORM DRAIN INLET, OR SURFACE WATER.
5. TO THE MAXIMUM EXTENT PRACTICABLE, CONTAIN AND SECURELY PROTECT STOCKPILES FROM WIND.

DEWATERING:

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 BASINS 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, NON-TURBID DEWATERING WATER CAN BE DISCHARGED WITHOUT BEING ROUTED TO A CONTROL.

VEHICLE FUELING:

VEHICLE FUELING SHALL NOT TAKE PLACE WITHIN REGULATED DRAIN AREAS WETLANDS OR BUFFER ZONE AREAS, OR WITHIN 50-FEET OF THE STORM DRAIN SYSTEM. VEHICLE MAINTENANCE AND WASHING SHALL OCCUR OFF-SITE, OR IN DESIGNATED AREAS DEPICTED ON THE PLANS OR APPROVED OF BY THE SITE OWNER. MAINTENANCE AREAS SHALL BE CLEARLY DESIGNATED, AND BARRIERS SHALL BE USED AROUND THE PERIMETER OF THE MAINTENANCE AREA TO PREVENT STORMWATER CONTAMINATION.

CONSTRUCTION VEHICLES SHALL BE INSPECTED FREQUENTLY FOR LEAKS. REPAIRS SHALL TAKE PLACE IMMEDIATELY. DISPOSAL OF ALL USED OIL, ANTIFREEZE, SOLVENTS, AND OTHER AUTOMOTIVE-RELATED CHEMICALS SHALL BE ACCORDING TO APPLICABLE REGULATIONS; AT NO TIME SHALL ANY MATERIAL BE WASHED DOWN THE STORM DRAIN OR INTO ANY ENVIRONMENTALLY SENSITIVE AREA.

B2: STABLE CONSTRUCTION ENTRANCE LOCATIONS AND SPECIFICATIONS:

THE STABLE CONSTRUCTION ENTRANCE WILL BE LOCATED AT THE WWTP ENTRANCE AS SHOWN ON THE PLANS. UPON COMPLETION OF CONSTRUCTION ALL SURFACES SHALL BE RESTORED TO MATCH PRE-CONSTRUCTION CONDITIONS. LOCATIONS WHERE VEHICLES ENTER AND EXIT THE SITE WILL BE INSPECTED FOR EVIDENCE OF OFF-SITE SEDIMENT TRACKING. AT THE END OF CONSTRUCTION, THE CONTRACTOR SHALL RESTORE EXISTING SURFACES ACTING AS CONSTRUCTION ENTRANCES/EXITS TO PRE-CONSTRUCTION CONDITIONS. REFER TO DS-09, "TEMPORARY EROSION AND SEDIMENT CONTROL."

B3: SPECIFICATIONS FOR TEMPORARY AND PERMANENT STABILIZATION:

TEMPORARY AND PERMANENT SEED SURFACE STABILIZATION WILL BE UTILIZED WHERE NEEDED. SEE DS-09, "TEMPORARY EROSION AND SEDIMENT CONTROL" AND WM-24 "SEEDING AND SODDING."

UNVEGETATED AREAS THAT ARE LEFT IDLE OR SCHEDULED TO BE LEFT INACTIVE MUST BE TEMPORARILY OR PERMANENTLY STABILIZED WITH MEASURES APPROPRIATE FOR THE SEASON. STABILIZATION MUST BE INITIATED BY THE END OF THE SEVENTH DAY THE AREA IS LEFT IDLE. THE STABILIZATION ACTIVITY MUST BE COMPLETED WITHIN FOURTEEN (14) DAYS AFTER INITIATION.

INITIATION OF STABILIZATION INCLUDES SEEDING AND APPLYING MULCH OR OTHER TEMPORARY SURFACE STABILIZATION METHODS WHERE APPROPRIATE. BIODEGRADABLE MATTING OR NETTING MAY BE USED TO STABILIZE SOILS ON SLOPED AREAS AND SOME RECENTLY PLANTED AREAS TO PROTECT SEEDLINGS UNTIL THEY HAVE BECOME ESTABLISHED. TEMPORARY SEEDING OR EROSION CONTROL MATS ARE TO BE USED TO STABILIZE EXPOSED SURFACES IF FINAL GRADING AND SEEDING MUST BE DELAYED.

B4: SEDIMENT CONTROL MEASURES FOR CONCENTRATED FLOW AREAS:

PROTECTIVE MEASURES FOR AREAS OF CONCENTRATED FLOW WILL INCLUDE TEMPORARY AND PERMANENT VEGETATION, MULCHES, AND/OR EROSION CONTROL MATTING. REFER TO DS-09 "TEMPORARY EROSION AND SEDIMENT CONTROL."

B5: SEDIMENT CONTROL MEASURES FOR SHEET FLOW AREAS:

ALL DISTURBED AREAS, WHERE RUNOFF WILL BE IN SHEET FLOW CONDITION AND WHICH ARE NOT TO BE DISTURBED FOR SEVEN (7) DAYS OR MORE, SHALL RECEIVE TEMPORARY SEEDING. DISTURBED AREAS SHALL BE PERMANENTLY SEEDED IMMEDIATELY AFTER LAND DISTURBANCE ACTIVITIES ARE COMPLETED.

PERIMETER PROTECTION, INCLUDING SILT FENCE, SHALL BE USED AT LOCATIONS SHOWN IN THE PLANS. INLET PROTECTION IS REQUIRED FOR ALL INLETS IN THE PROJECT AREAS, INCLUDING THROUGH TOWN FOR THE FORCE MAIN INSTALLATION IN DIVISION B. REFER TO DS-09 "TEMPORARY EROSION AND SEDIMENT CONTROL."

B6: RUNOFF CONTROL MEASURES:

DIVERSION DITCHES, CHECK DAMS, SLOPE DRAINS, OR OTHER SIMILAR STRUCTURES FOR RUNOFF CONTROL ARE NOT ANTICIPATED FOR THIS PROJECT.

B7: STORMWATER OUTLET PROTECTION SPECIFICATIONS:

STORMWATER OUTLET PROTECTION IS NOT ANTICIPATED FOR THIS PROJECT.

B8: GRADE STABILIZATION STRUCTURE LOCATIONS AND SPECIFICATIONS:

GRADE STABILIZATION STRUCTURES ARE NOT ANTICIPATED FOR THIS PROJECT.

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CHRIS A. LIMCACO
REGISTERED
No. 19700338
STATE OF INDIANA
PROFESSIONAL ENGINEER

Signature 10/24/2023 Date

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No.	Submittal / Revision	By	Date

Designed By:	Drawn By:	Checked By:
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Issue Date:	**Project No:**	**Scale:**
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TOWN OF NEW PALESTINE HANCOCK COUNTY, INDIANA

WASTEWATER UTILITY IMPROVEMENTS PROJECT DIVISION "A" - MAIN WWTP IMPROVEMENTS

STORM WATER POLLUTION PREVENTION PLAN GENERAL NOTES

Drawing No: **EC1**

Sheet: 37 OF 205

File: Z:\SHARED\IN CLIENTS M-Z\NEW PALESTINE\ED S22002 WW UTILITY IMPR\WS08 CAD\A CURRENT FILES\1 DRAWINGS\SDIV A - WWTP\06-PROPOSED SITE PLANS.DWG
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SECTION B: STORMWATER POLLUTION PREVENTION - CONSTRUCTION

B9: DEWATERING APPLICATIONS AND MANAGEMENT METHODS:

AT A MINIMUM, THE FOLLOWING DISCHARGE REQUIREMENTS MUST BE MET FOR DEWATERING ACTIVITIES:

1. ALLOW NO DISCHARGE OF VISIBLE SEDIMENT OR SOLIDS. THIS INCLUDES DISCHARGE WATER WITH A VISIBLE SHEEN.
2. AT ALL POINTS WHERE DEWATERING WATER IS DISCHARGED, UTILIZE VELOCITY DISSIPATION DEVICES.
3. DEWATERING PRACTICES MUST INVOLVE THE IMPLEMENTATION OF APPROPRIATE CONTROL MEASURES AS APPLICABLE (I.E., CONTAINMENT AREAS FOR DEWATERING EARTH MATERIALS, PORTABLE SEDIMENT TANKS AND BAGS, PUMPING SETTLING BASINS, AND PUMP INTAKE PROTECTION).

B10: MEASURES UTILIZED FOR WORK WITHIN WATERBODIES:

THE NEW EFFLUENT OUTFALL WILL REQUIRE THE USE OF ROCK CHECK DAMS AND LOCALIZED DEWATERING DURING INSTALLATION TO CONTROL THE FLOW OF WATER AND SEDIMENT.

B11: MAINTENANCE GUIDELINES FOR EACH PROPOSED STORMWATER QUALITY MEASURE:

THROUGHOUT CONSTRUCTION, THE CONTRACTOR SHALL MONITOR AND MANAGE PROJECT CONSTRUCTION AND STORMWATER ACTIVITIES THROUGH THE ADMINISTRATION OF A SMP. A TRAINED INDIVIDUAL SHALL SUBMIT WEEKLY SMP REPORTS, 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 FROM THE CONSTRUCTION SITE.

CONSTRUCTION ENTRANCES SHOULD BE INSPECTED DAILY. RESHAPE PAD AS NEEDED FOR DRAINAGE AND RUNOFF CONTROL. TOP DRESS WITH AGGREGATE AS NEEDED. REMOVE MUD AND SEDIMENT TRACKED ONTO PUBLIC ROADS. FLUSHING SHOULD ONLY BE USED IF WATER IS CONVEYED INTO A SEDIMENT TRAP OR BASIN.

INSPECT SILT FENCES WITHIN 24 HOURS OF A RAIN EVENT AND AT LEAST WEEKLY. FABRIC TEARS, POST FAILURES, VEHICLE DAMAGE, OR UNDERMINING OF THE SILT FENCE ARE TO BE REPAIRED IMMEDIATELY. SEDIMENT BUILDUP ALONG SILT FENCES WILL BE REMOVED IF IT REACHES 1/2 THE HEIGHT OF THE SILT FENCE ABOVE THE GROUND ELEVATION.

INLETS SHOULD BE INSPECTED DAILY. INLETS SHALL BE CLEARED OF SEDIMENT AT LEAST WEEKLY, AFTER STORM EVENTS, AND AS NEEDED. REPLACE OR CLEAN GEOTEXTILE FABRIC AS NEEDED.

INSPECT CONCRETE WASHOUTS DAILY AND AFTER EACH STORM EVENT. MAINTAIN CONCRETE WASHOUTS TO PROVIDE ADEQUATE HOLDING AND CAPACITY WITH MINIMUM FREEBOARD OF 12 INCHES.

REFER TO DS-09 "TEMPORARY EROSION AND SEDIMENT CONTROL" FOR ADDITIONAL INFORMATION ON PROPOSED STORMWATER QUALITY MEASURES.

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

A PRE-CONSTRUCTION MEETING WILL BE REQUIRED PRIOR TO COMMENCEMENT OF CONSTRUCTION AND ANY LAND DISTURBANCE ACTIVITY. ATTENDEES TO THE PRE-CONSTRUCTION MEETING WILL INCLUDE REPRESENTATIVES OF THE CONTRACTOR, OWNER, ENGINEER. THE IDEM OFFICE OF WATER QUALITY (OWQ) SHALL BE PROVIDED WITH A 48-HOUR NOTICE PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY.

THE NOTICE OF INTENT (NOI) AND THE LOCATION OF THE SWPPP WILL BE POSTED AT THE JOB SITE. THERE WILL BE FUEL CONTAINMENT AND CONCRETE WASHOUT PROVIDED ON-SITE, IF APPLICABLE.

PROJECT SEQUENCING WILL GENERALLY FOLLOW THE FOLLOWING STEPS:

1. INSTALL CONSTRUCTION ENTRANCES PRIOR TO CLEARING AND GRADING.
2. INSTALL PERIMETER PROTECTION (SILT FENCE, INLET PROTECTION) PRIOR TO CLEARING AND GRADING.
3. INSTALL CONCRETE WASHOUTS PRIOR TO CONCRETE INSTALLATION.
4. TEMPORARY SEED AS NEEDED PER SPECIFICATIONS AFTER ROUGH GRADING AND/OR WITHIN 7 DAYS OF INACTIVITY.
5. PERMANENT SEED AFTER FINISH GRADING.
6. REMOVE TEMPORARY EROSION CONTROL MEASURES AS PERMANENT MEASURES ARE ESTABLISH.

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

THE PROJECT AREA AND INDIVIDUAL AREA EROSION CONTROL IS DEPICTED IN PLANS.

B14: MATERIAL HANDLING AND SPILL PREVENTION AND SPILL RESPONSE PLAN MEETING THE REQUIREMENTS IN 327 IAC 2-6.1:

THE CONTRACTOR WILL BE REQUIRED TO INSPECT EQUIPMENT REGULARLY TO AVOID UNNECESSARY LEAKS OR SPILLS. THE CONTRACTOR WILL ALSO BE REQUIRED TO PROVIDE SPILL KITS AND EQUIPMENT TO CONTAIN AND CLEAN UP AND PETROLEUM PRODUCTS OR OTHER UNDESIRABLE SPILLS WHICH MAY OCCUR DURING CONSTRUCTION.

IF A SPILL DOES OCCUR, SPILL REPORTING AND NOTIFICATION REQUIREMENTS WILL BE UNDERTAKEN IN ACCORDANCE WITH OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AND STATE REQUIREMENTS. THE CONTRACTOR WILL BE REQUIRED TO PROVIDE RESPONSE PROCEDURES THAT WILL MINIMIZE GROUNDWATER AND SURFACE WATER IMPACTS.

CONTACT INFORMATION FOR LOCAL AND STATE AGENCIES TO BE CONTACTED IN THE EVENT OF A SPILL ARE AS FOLLOWS:

TOWN OF NEW PALESTINE
42 E. MAIN STREET
NEW PALESTINE, IN 46163
PHONE: 317-861-4727

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF LAND QUALITY
EMERGENCY RESPONSE AND SPILL REPORTING SECTION
PHONE: 1-888-233-7745

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER QUALITY
INDIANA GOVERNMENT CENTER NORTH
100 N. SENATE AVENUE, ROOM N1255
INDIANAPOLIS, INDIANA 46204
PHONE: 1-888-233-7745

INDIANA DEPARTMENT OF NATURAL RESOURCES
DISTRICT 6 HEADQUARTERS
PHONE: 812-526-4101

INDIANA DEPARTMENT OF TRANSPORTATION
TRAFFIC MANAGEMENT CENTER
PHONE: 317-899-8690

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 INSURE PROPER STORAGE AND HANDLING AND TO GUARD AGAINST LEAKAGE. DEFECTIVE CONTAINERS WILL BE REMOVED FROM THE PROJECT SITE IMMEDIATELY.

CONCRETE WASHOUT LOCATIONS ARE SHOWN ON THE PROJECT PLANS.

SECTION C: STORMWATER POLLUTION PREVENTION - POST CONSTRUCTION

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

THE FINAL LAND USE IS NOT PROPOSED TO CHANGE FROM THE EXISTING. POTENTIAL POLLUTANTS FROM THIS PROJECT AFTER CONSTRUCTION IS COMPLETED INCLUDE SEDIMENT, HYDROCARBONS, AND LITTER.

SEDIMENT POLLUTION IS A RESULT OF EROSION WHICH CAN BE TRIGGERED BY NATURAL CAUSES OR HUMAN ACTIVITY. FOR THIS PROJECT, SEDIMENTATION MAY OCCUR DUE TO RUNOFF FROM EXCAVATED AREAS. SEDIMENT POLLUTION MAY ALSO BE CAUSED BY ON-SITE STORAGE OF EXCAVATED MATERIALS, BACKFILL MATERIALS, AND CONSTRUCTION SPOIL AREAS. HYDROCARBON POLLUTION MAY OCCUR DUE TO LEAKAGE AND SPILLS FROM ITEMS SUCH AS GASOLINE, OIL, GREASE, VEHICLE BRAKE AND TRANSMISSION FLUIDS, ANTIFREEZE, AND COOLANTS. LITTER MAY OCCUR IN PROJECT AREAS DUE TO HUMAN ACTIVITIES AND INCLUDES PLASTIC BAGS, BOTTLES, ALUMINUM CANS, AND OTHER GENERAL GARBAGE.

C2: DESCRIPTION OF PROPOSED POST-CONSTRUCTION STORMWATER QUALITY MEASURES:

PERMANENT SEEDING IS THE ONLY POST CONSTRUCTION STORMWATER QUALITY MEASURES THAT ARE ANTICIPATED TO BE NEEDED. ALL VEGETATED AREAS DISTURBED BY CONSTRUCTION ACTIVITIES WILL BE REQUIRED TO BE RESTORED. REQUIREMENTS FOR PERMANENT SEEDING ARE REFERENCED IN WM-24 - SEEDING AND SODDING.

POST-CONSTRUCTION STORMWATER QUALITY MEASURES MUST BE SIZED TO TREAT EXCESS STORM WATER RUNOFF AFTER DEVELOPMENT DUE TO THE ADDITION OF IMPERVIOUS SURFACE. THE TOWN DOES NOT HAVE CURRENT TECHNICAL STANDARDS, SO CALCULATIONS OF PRE-AND POST-CONSTRUCTION RUNOFF RATES WERE COMPLETED IN ACCORDANCE WITH THE WATER QUALITY VOLUME (WQV).

WQV = WATER QUALITY VOLUME (ACRE-FEET)
WQV = RV X A X P

RV = RUNOFF COEFFICIENT
RV = 0.05 + 0.9I

A = DRAINAGE AREA (ACRES)
P = PRECIPITATION DEPTH OF 1-INCH OVER 24 HOURS (INCHES)
I = PERCENTAGE OF IMPERVIOUS SURFACE

PRE-CONSTRUCTION WQV:
I = 0.42
RV = 0.05 +0.9(0.42) = 0.43
WQV = 0.43 X 3.65 ACRES X 1.0 INCH = 1.56 ACRE-FEET

POST-CONSTRUCTION WQV:
I = 0.53
RV = 0.05 +0.9(0.53) = 0.53
WQV = 0.53 X 3.65 ACRES X 1.0 INCH = 1.94 ACRE-FEET

WHILE THERE IS AN INCREASE IN IMPERVIOUS SURFACE AT THE WWTP, THERE IS ALSO AN INCREASE IN THE AMOUNT OF OPEN TREATMENT STRUCTURE, WHICH WILL CAPTURE SOME RAINFALL AND PREVENT IT FROM RUNNING OFF THE SITE. THIS IS CONSIDERED AN ADEQUATE MEASURE FOR REDUCING EXCESS STORMWATER RUNOFF FROM ADDITIONAL IMPERVIOUS SURFACE.

C3: PLAN DETAILS FOR EACH STORMWATER QUALITY MEASURE:

PERMANENT SEEDING IS THE ONLY POST-CONSTRUCTION STORMWATER QUALITY MEASURE ANTICIPATED FOR THIS PROJECT. PERMANENT SEEDING WILL BE PROVIDED FOR ALL PORTIONS OF THE PROJECT WHICH ARE DISTURBED BY CONSTRUCTION ACTIVITIES, AND WHICH ARE NOT COVERED BY PERMANENT IMPERVIOUS SURFACE. TEMPORARY EROSION CONTROL MEASURES WILL NOT BE REMOVED UNTIL THE PERMANENT SEEDING HAS BEEN ESTABLISHED. REFER TO DS-09 - TEMPORARY EROSION AND SEDIMENT CONTROL AND WM-24 - SEEDING AND SODDING.

C4: SEQUENCE DESCRIBING STORMWATER QUALITY MEASURE IMPLEMENTATION:

POST-CONSTRUCTION SEQUENCING MEASURES FOR THIS PROJECT WILL BE AS FOLLOWS:

1. TEMPORARY PLANTINGS 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.
2. REMOVAL AND CLEANUP OF ALL TEMPORARY EROSION CONTROL MEASURES INCLUDING SILT FENCES AND INLET PROTECTION.
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 SWPPP, CONSTRUCTION DRAWINGS, AND SUPPORTING DOCUMENTS HAVE BEEN FULFILLED.

C5: MAINTENANCE GUIDELINES FOR PROPOSED POST-CONSTRUCTION WATER QUALITY MEASURES:

PERMANENT SEEDING IS THE ONLY ANTICIPATED POST-CONSTRUCTION STORMWATER QUALITY MEASURE. VEGETATED AREAS WITHIN THE PROJECT BOUNDARIES MUST BE MAINTAINED ON A REGULAR BASIS DURING THE ACTIVE GROWING SEASON. MAINTENANCE ACTIVITIES WILL INCLUDE INSPECTION FOR SPARSELY SEEDED AREAS, AND RESEEDING AREAS WHICH HAVE BEEN DAMAGED OR WHICH HAVE NOT EXHIBITED A SUCCESSFUL AND HARDY STAND OF VEGETAL COVER. FERTILIZATION AND WATERING REQUIREMENTS ARE PROVIDED IN WM-24 - SEEDING AND SODDING.

C6: MAINTENANCE GUIDELINES FOR PROPOSED POST-CONSTRUCTION WATER QUALITY MEASURES:

THE TOWN OF NEW PALESTINE WILL BE RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF POST-CONSTRUCTION STORMWATER MEASURES AFTER THE NOTICE OF TERMINATION (NOT) HAS BEEN RECEIVED BY THE IDEM AND THE LOCAL REGULATORY AUTHORITY.

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SOUTH BEND, IN.

CHRIS A. LIMCACO
REGISTERED
No. 19700338
STATE OF INDIANA
PROFESSIONAL ENGINEER

Signature 10/24/2023 Date

TOWN OF NEW PALESTINE
HANCOCK COUNTY, INDIANA

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STORM WATER POLLUTION PREVENTION PLAN GENERAL NOTES

Drawing No:
EC2
Sheet: 38 OF 205

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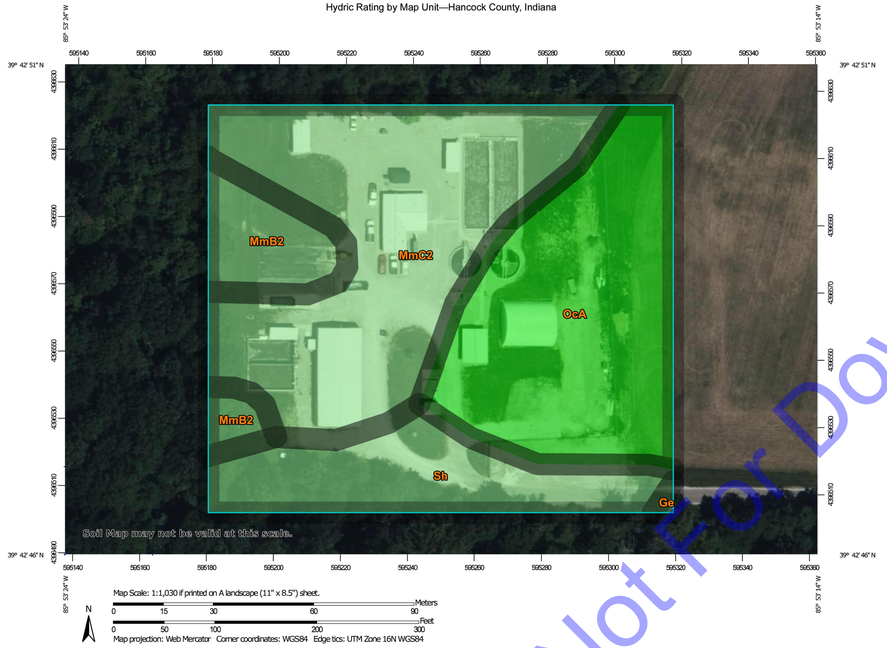
EXHIBIT #2A - SOILS MAP

Hydric Rating by Map Unit—Hancock County, Indiana



Natural Resources Conservation Service

Web Soil Survey
National Cooperative Soil Survey

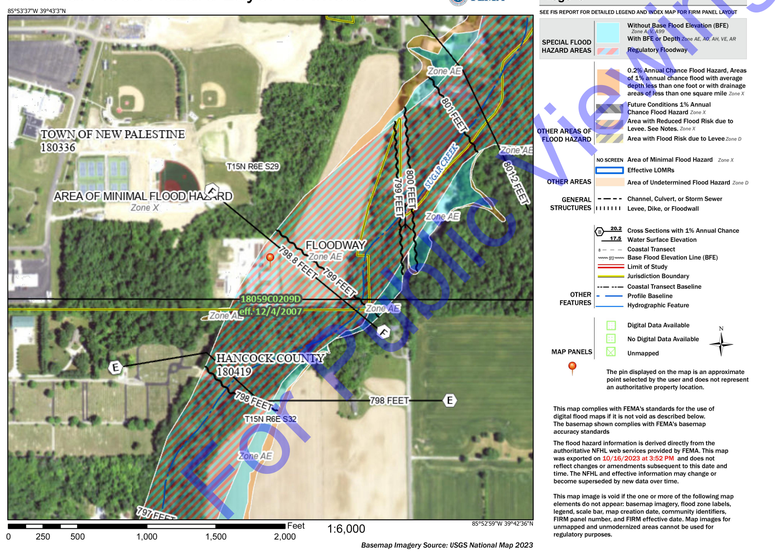
10/16/2023
Page 1 of 5

SOILS MAP

LEGEND:

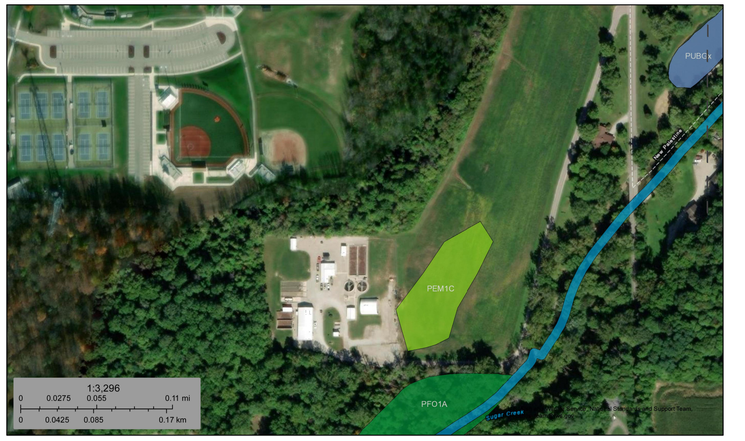
GE - GENESEE SILT LOAM, 0 TO 2 PERCENT SLOPES, FREQUENTLY FLOODED, VERY BRIEF DURATION
MmB2 - MIAMI SILT LOAM, 2 TO 6 PERCENT SLOPES, ERODED
MmC2 - MIAMI SILT LOAM, 6 TO 12 PERCENT SLOPES, ERODED
OcA - OCKLEY SILT LOAM, 0 TO 2 PERCENT SLOPES
Sh - SHOALS SILT LOAM, 0 TO 2 PERCENT SLOPES, FREQUENTLY FLOODED, VERY BRIEF DURATION

EXHIBIT #1 - FLOODPLAIN MAP



FLOODPLAIN MAP

EXHIBIT #3 - SURFACE WATERS & WETLANDS MAP



October 16, 2023

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

SURFACE WATERS MAP

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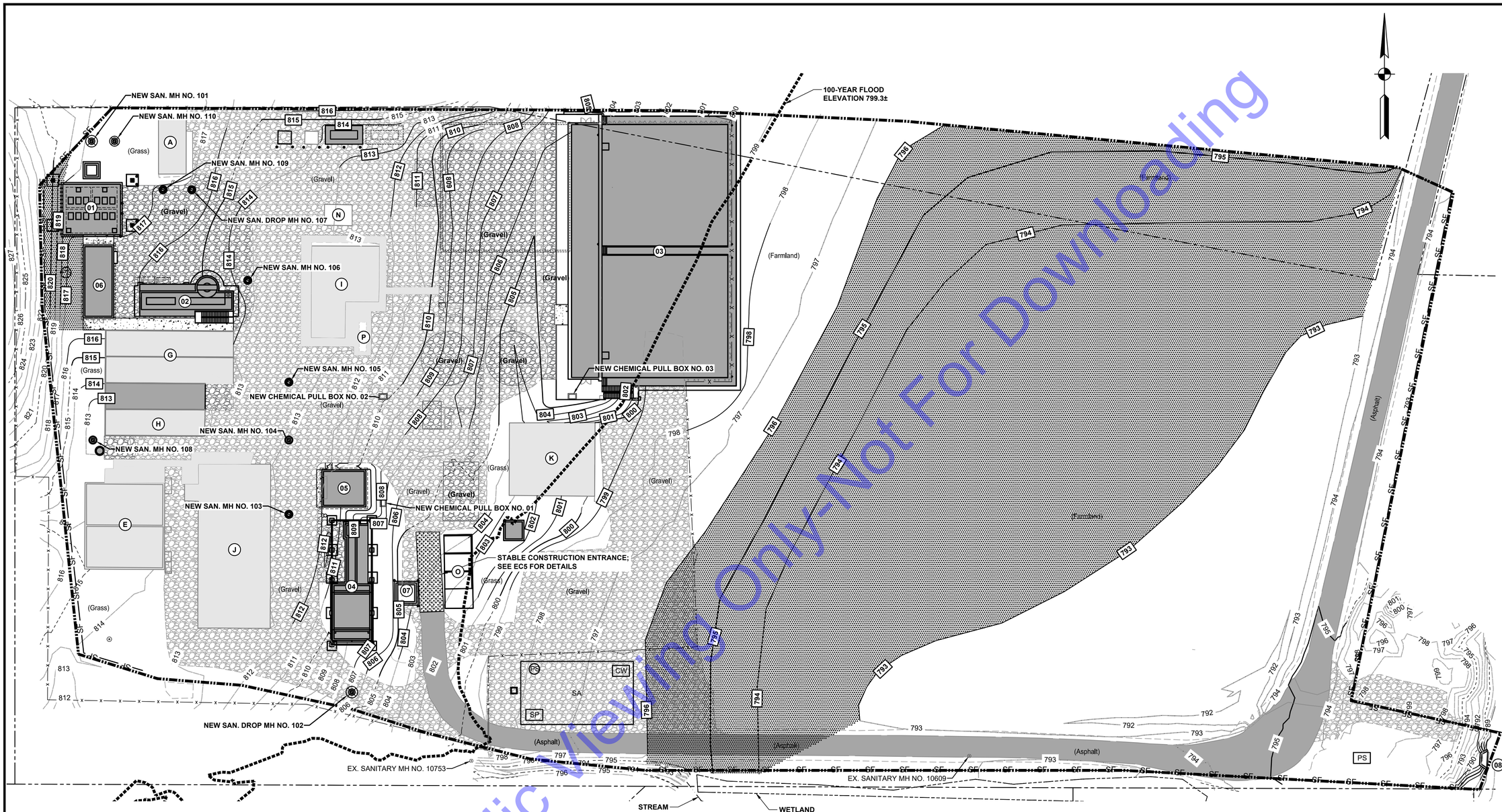
STORM WATER POLLUTION PREVENTION PLAN FIGURES

Drawing No:
EC3
Sheet: 39 OF 205



SITE PLAN

SCALE: 1"=30'-0"

0 30' 60'

LEGEND:

- PS — PERMANENT SEEDING/MULCHING
- PS — PERMANENT SEEDING/MULCHING FLOODPLAIN MIXTURE
- SF — SILT FENCE
- IP — INLET PROTECTION
- CW — CONCRETE WASHOUT STATION
- SA — STAGING AREA
- SP — STOCKPILE
- EROSION CONTROL BLANKETS FOR REGRADING
- CONSTRUCTION LIMITS / LIMITS OF DISTURBANCE

NEW STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION
01	NEW INFLUENT PUMP STATION
02	NEW HEADWORKS FACILITY
03	NEW SBR TREATMENT STRUCTURE
04	NEW UV AND POST AERATION STRUCTURE
05	NEW CHEMICAL FEED BUILDING
06	NEW ELECTRICAL BUILDING
07	NEW NON-POTABLE WATER SYSTEM
08	NEW OUTFALL STRUCTURE

EXISTING STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION	DEMO NOTES
A	EXISTING HEADWORKS	TO BE ABANDONED
E	EXISTING DIGESTER	TO BE MODIFIED
G	EXISTING DRYING BEDS	TO BE MODIFIED
H	EXISTING SLUDGE BAGGING SYSTEM	TO BE MODIFIED
I	EXISTING LAB BUILDING	TO REMAIN
J	EXISTING STREET DEPARTMENT BUILDING	TO REMAIN
K	EXISTING SALT BARN	TO REMAIN

GENERAL NOTES:

1. **CONTRACTOR MUST NOT EXCAVATE OR PLACE TEMPORARY EROSION CONTROL MEASURES WITHIN WETLAND.**
2. **UTILIZE INDOT FLOODPLAIN SEED MIXTURE FOR PERMANENT SEEDING AS APPLICABLE IN ACCORDANCE WITH INDOT STANDARD SPECIFICATIONS FOR AREAS SUBJECT TO THE 100-YEAR FLOOD.**

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STORM WATER POLLUTION PREVENTION PLAN
EROSION CONTROL SITE PLAN

Drawing No: **EC4**

Sheet: 40 OF 205

File: Z:\SHARED\IN CLIENTS M-Z\NEW PALESTINE\SD 2002 WW UTILITY IMPRV\SD\6 CAD\A CURRENT FILES\1 DRAWINGS\DIV A - WWTP\06-PROPOSED_SITE PLANS.DWG
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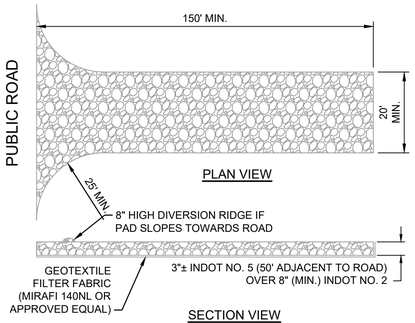
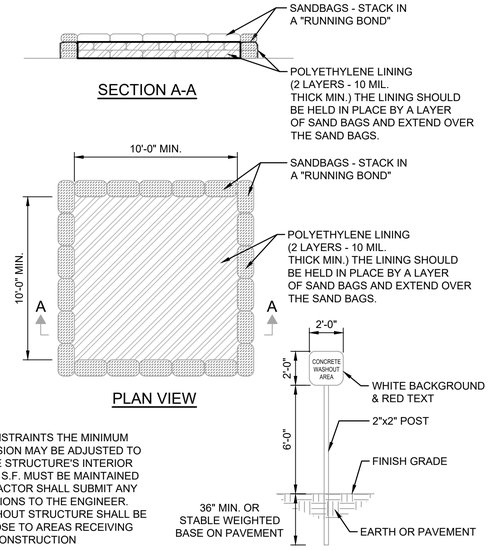


MAINTENANCE:

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

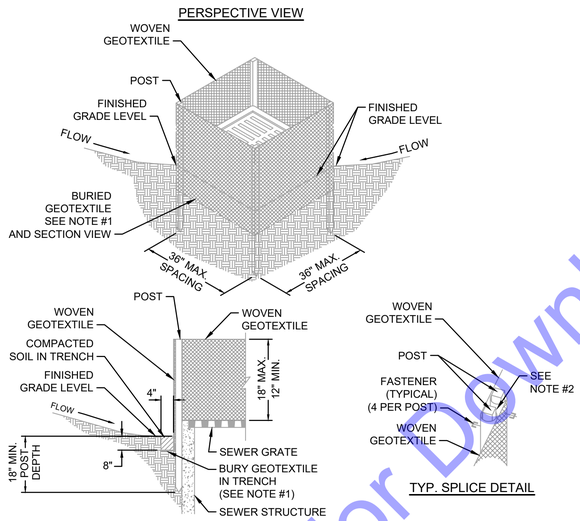
NO SCALE



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 RE-LOCATED CLOSE TO AREAS RECEIVING CONCRETE, AS CONSTRUCTION PROGRESSES.

CONCRETE WASHOUT PIT DETAIL

NO SCALE

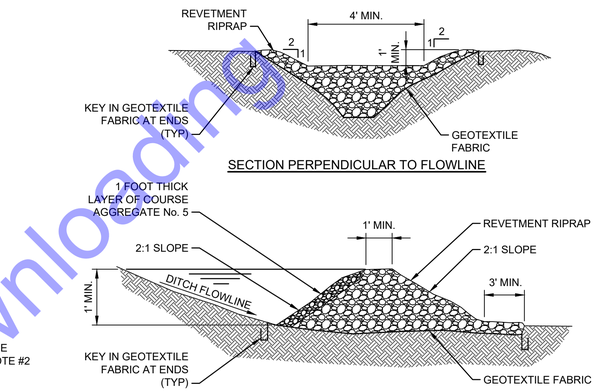


NOTES:

1. GEOTEXTILE FABRIC LAID ON DOWN-SLOPE SIDE AND BOTTOM OF TRENCH ALONG FULL PERIMETER OF SEWER STRUCTURE. DURING EXCAVATION, MINIMIZE DISTURBING THE GROUND AROUND TRENCH AS MUCH AS IS FEASIBLE AND SMOOTH SURFACE FOLLOWING EXCAVATION TO AVOID CONCENTRATING FLOWS.
2. IF SPLICING IS NECESSARY, FENCE SECTIONS SHALL BE CLOSE ENOUGH TOGETHER TO CREATE A SEAMLESS JOINT AND PREVENT SILT-LADEN WATER FROM ESCAPING THROUGH THE FENCE AT THE OVERLAP. JOINING SECTIONS SHALL NOT BE PLACED IN LOW SPOTS OR IN SUMP LOCATIONS.
3. PREFABRICATED UNITS MAY BE USED WITH PRIOR APPROVAL FROM PROJECT ENGINEER.

YARD INLET PROTECTION DETAIL

NO SCALE

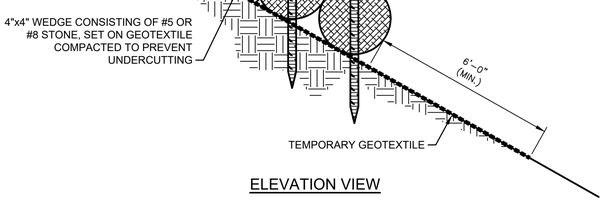


GENERAL NOTES:

1. RIPRAP DITCH CHECK DAMS SHALL BE PLACED SUCH THAT THE TOP OF THE DOWNSTREAM CHECK DAM IS AT THE SAME ELEVATION AS THE TOE OF THE ADJACENT UPSTREAM CHECK DAM.
2. AFTER COMPLETION OF CONTRACT, OR AS REQUESTED BY OWNER, THE CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION CONTROL ITEMS, REMOVE ALL ACCUMULATED DEPOSITS AND, AS REQUIRED, SEED AND MULCH OR SOD AS REQUIRED TO ESTABLISH AREA TO CONDITION PRIOR TO CONSTRUCTION.

ROCK CHECK DAM DETAIL

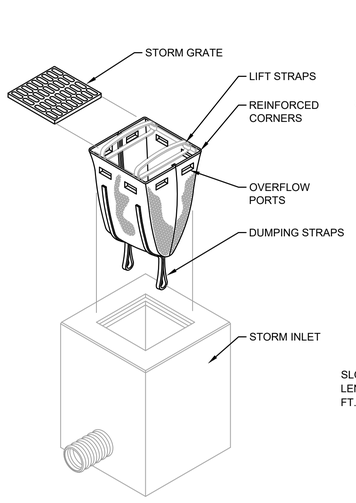
NO SCALE



ELEVATION VIEW

ROLLED EROSION CONTROL PRODUCT DETAIL

NO SCALE



INSERT (BASKET) INLET PROTECTION DETAIL

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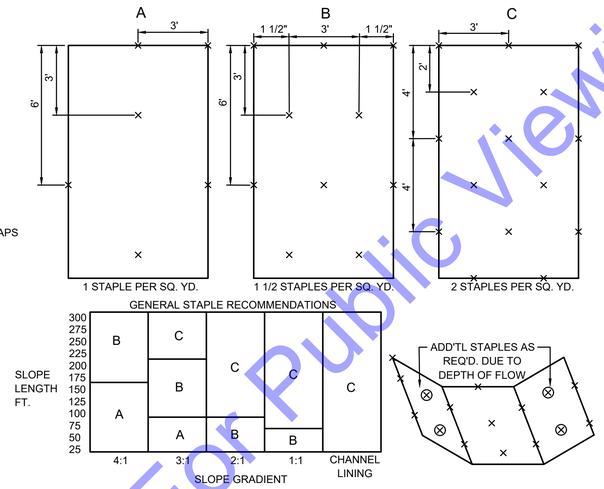

SPECIFICATIONS

EFFECTIVE LIFE
- THE FUNCTIONAL LIFE OF AN EROSION CONTROL BLANKET IS DEPENDENT ON THE MATERIALS USED.

ANCHORING
- STAPLES, PINS OR STAKES USED TO PREVENT MOVEMENT OR DISPLACEMENT OF BLANKET. (FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR SPECIFIC APPLICATIONS.)

MATERIALS
- ORGANIC (STRAW, EXCELSIOR, WOVEN PAPER, COCONUT FIBER, ETC.) OR SYNTHETIC MULCH INCORPORATED WITH A POLYPROPYLENE, NATURAL FIBER OR SIMILAR NETTING MATERIAL. (THE NETTING MAY BE BIODEGRADABLE, PHOTODEGRADABLE OR PERMANENT.)

  NOTE: SOME EROSION CONTROL BLANKET NETTINGS MAY POSE A THREAT TO CERTAIN SPECIES OF WILDLIFE IF THEY BECOME ENTANGLED IN THE NETTING MATRIX.

- SIX TO 12-INCH STAPLES, PINS, OR STAKES.

INSTALLATION
1. SELECT THE TYPE AND WEIGHT OF EROSION CONTROL BLANKET TO FIT THE SITE CONDITIONS (E.G., SLOPE, CHANNEL, FLOW VELOCITY) PER THE MANUFACTURER'S RECOMMENDATIONS.
2. PREPARE THE SEEDBED, ADD SOIL AMENDMENTS, AND PERMANENTLY SEED THE AREA IMMEDIATELY FOLLOWING SEEDBED PREPARATION.
3. LAY EROSION CONTROL BLANKETS ON THE SEEDED AREA SO THAT THEY ARE IN CONTINUOUS CONTACT WITH THE SOIL WITH EACH UP-SLOPE OR UP-STREAM BLANKET OVERLAPPING THE DOWN-SLOPE OR DOWN-STREAM BLANKET BY AT LEAST EIGHT INCHES, OR FOLLOW MANUFACTURER'S RECOMMENDATIONS.
4. TUCK THE UPPERMOST EDGE OF THE UPPER BLANKETS INTO A CHECK SLOT (SLIT TRENCH), BACKFILL WITH SOIL AND TAMP DOWN. IN CERTAIN APPLICATIONS, THE MANUFACTURER MAY REQUIRE ADDITION CHECK SLOTS AT SPECIFIC LOCATIONS DOWN SLOPE FROM THE UPPERMOST EDGE OF THE UPPER BLANKETS.
5. ANCHOR THE BLANKETS IN PLACE BY DRIVING STAPLES, PINS, OR STAKES THROUGH THE BLANKET AND INTO THE UNDERLYING SOIL. FOLLOW AN ANCHORING PATTERN APPROPRIATE FOR THE SITE CONDITIONS AND AS RECOMMENDED BY THE MANUFACTURER.

MAINTENANCE
- INSPECT WITHIN 24 HOURS OF EACH RAIN EVENT AND AT LEAST ONCE EVERY SEVEN CALENDAR DAYS.
- CHECK FOR EROSION OR DISPLACEMENT OF THE BLANKET.
- IF ANY AREA SHOWS EROSION, PULL BACK THAT PORTION OF THE BLANKET COVERING THE ERODED AREA, ADD SOIL AND TAMP, RESEED THE AREA, REPLACE AND STAPLE THE BLANKET.

NOTES

CHANNEL LININGS UTILIZE STAPLE PATTERN "C" WITH ADDITIONAL STAPLES ON SIDE SLOPES AT PROJECTED WATER LINE.

STAPLE PATTERNS APPLY TO ALL NORTH AMERICAN GREEN EROSION CONTROL BLANKETS. STAPLE PATTERNS MAY VARY DEPENDING UPON SOIL TYPE AND AVERAGE RAINFALL.

AT SLOPE LENGTHS GREATER THAN 300 FEET OR WHERE DRAINAGE OVER LARGE AREAS IS DIRECTED ONTO THE BLANKETS, STAPLE PATTERN "C" SHOULD BE UTILIZED.

EROSION CONTROL BLANKET

NOT TO SCALE

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 AND LOCAL EROSION AND SEDIMENT CONTROL ORDINANCE, OR SWCD.
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.

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STORM WATER POLLUTION PREVENTION PLAN EROSION CONTROL DETAILS

Drawing No: **EC5**

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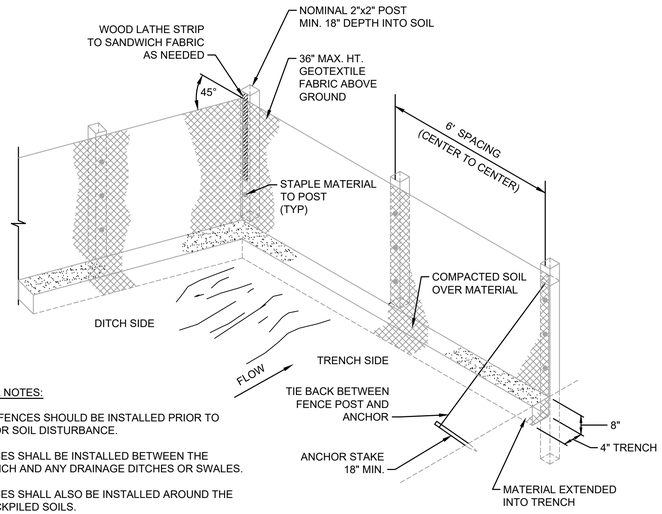
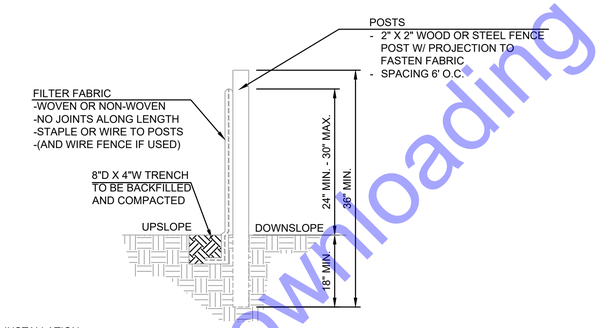


GENERAL NOTES:

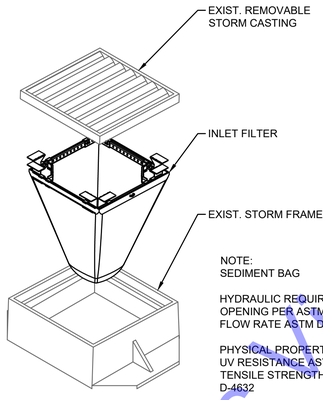
1. SILT FENCES SHOULD BE INSTALLED PRIOR TO MAJOR SOIL DISTURBANCE.
2. FENCES SHALL BE INSTALLED BETWEEN THE TRENCH AND ANY DRAINAGE DITCHES OR SWALES.
3. FENCES SHALL ALSO BE INSTALLED AROUND THE STOCKPILED SOILS.
4. THE GEOTEXTILE SHALL BE FREE FROM DEFECTS, TEARS, PUNCTURES, FLAWS, DETERIORATION OR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



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 DETAIL
NOT TO SCALE

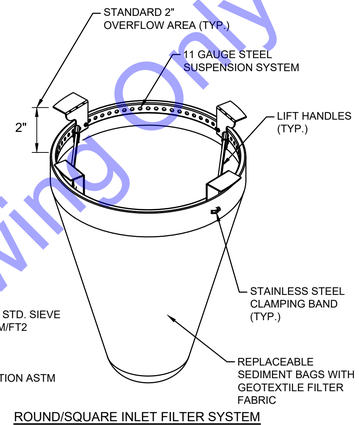


NOTE:
SEDIMENT BAG

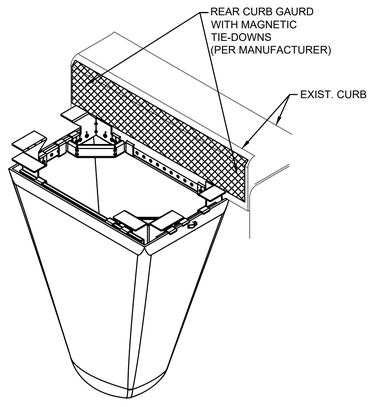
HYDRAULIC REQUIREMENTS:
OPENING PER ASTM D-4751 -20 US STD. SIEVE
FLOW RATE ASTM D-4491 - 200 GPM/FT2

PHYSICAL PROPERTIES:
UV RESISTANCE ASTM D-4355
TENSILE STRENGTH AND ELONGATION ASTM D-4632

TYPICAL INSTALLATION UNDER INLET



ROUND/SQUARE INLET FILTER SYSTEM



COMBINATION INLET FILTER
FOR CURB HOODS

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 INDO THE SEDIMENT BAG.

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

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STORM WATER POLLUTION PREVENTION PLAN EROSION CONTROL DETAILS

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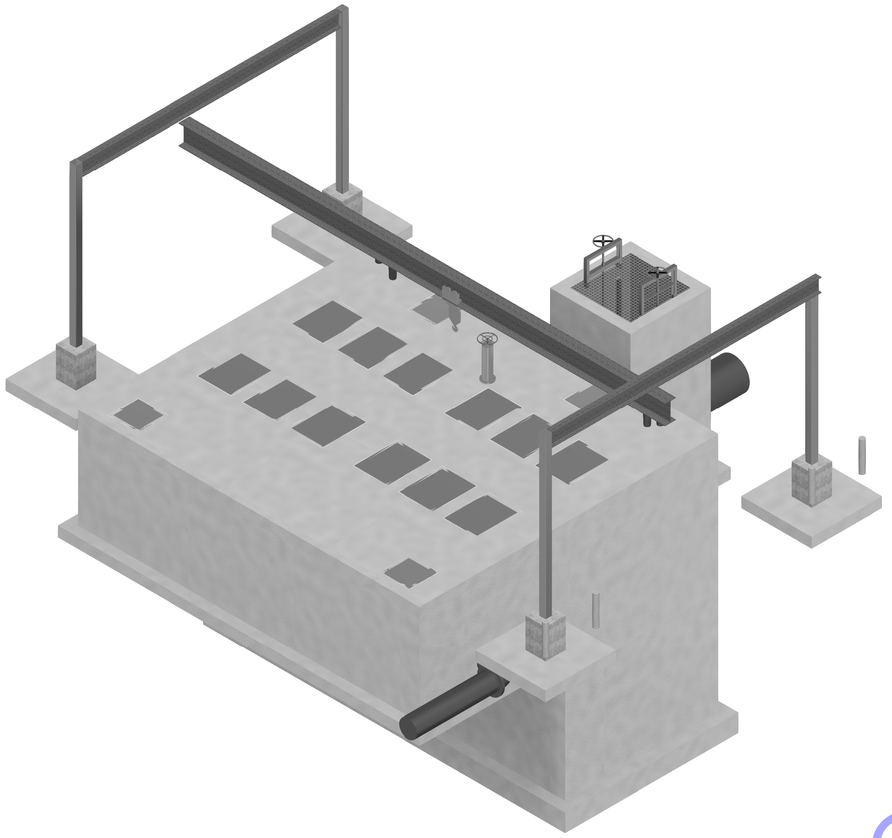
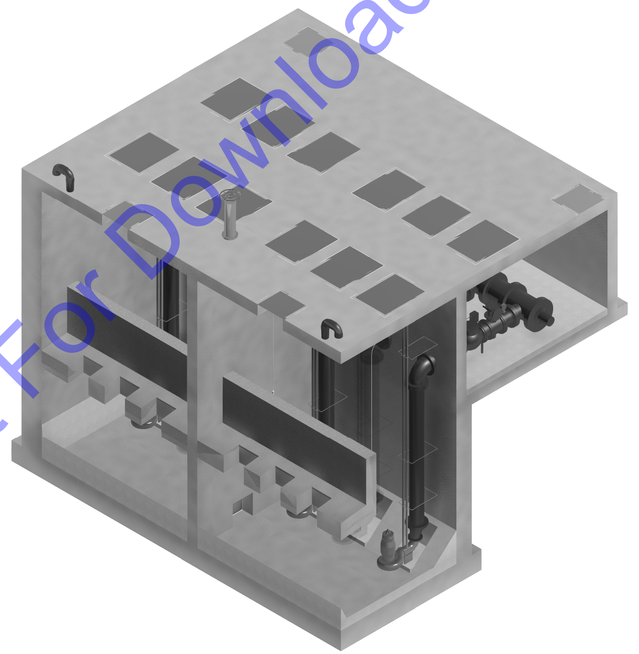


OVERALL ISOMETRIC
SCALE: NOT TO SCALE



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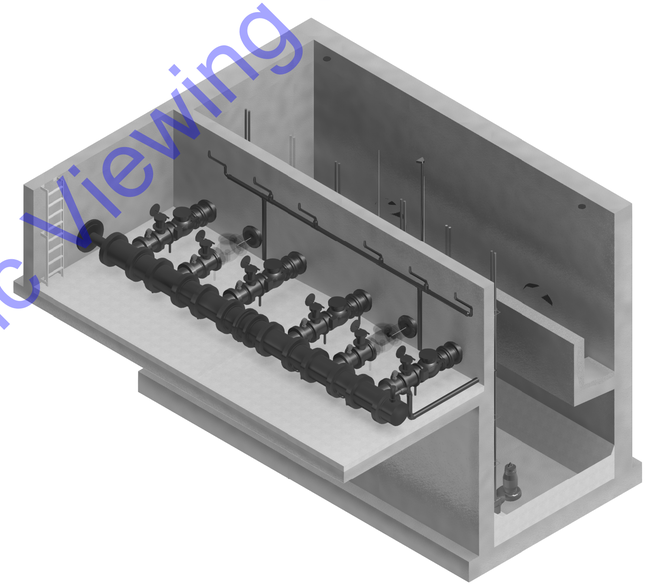

SOUTHEAST ISOMETRIC
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NEW INFLUENT PUMP STATION - ISOMETRIC VIEWS

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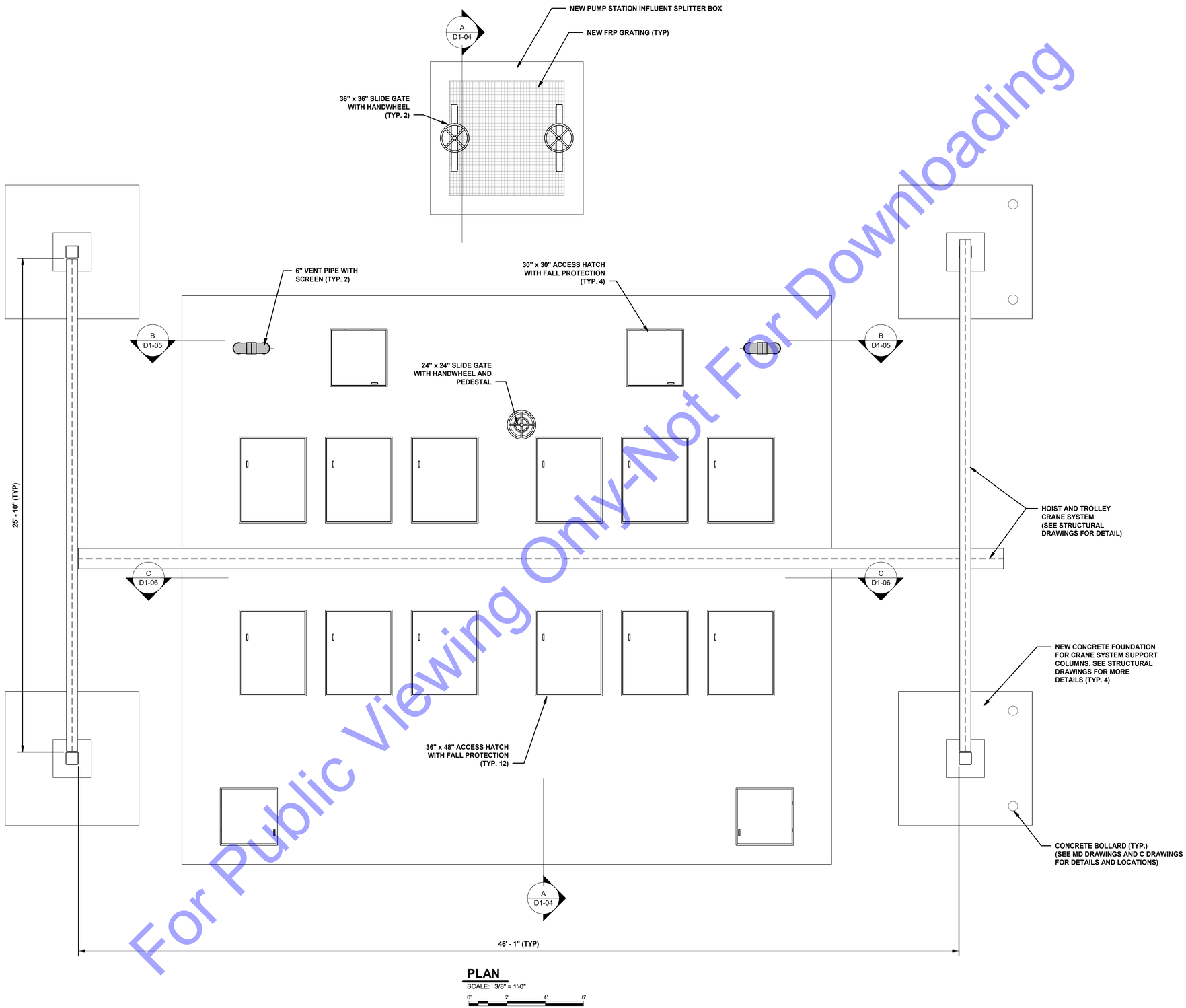

PLAN

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

0' 2' 4' 6'

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NEW INFLUENT PUMP STATION - UPPER PLAN VIEW

Drawing No:

D1-02

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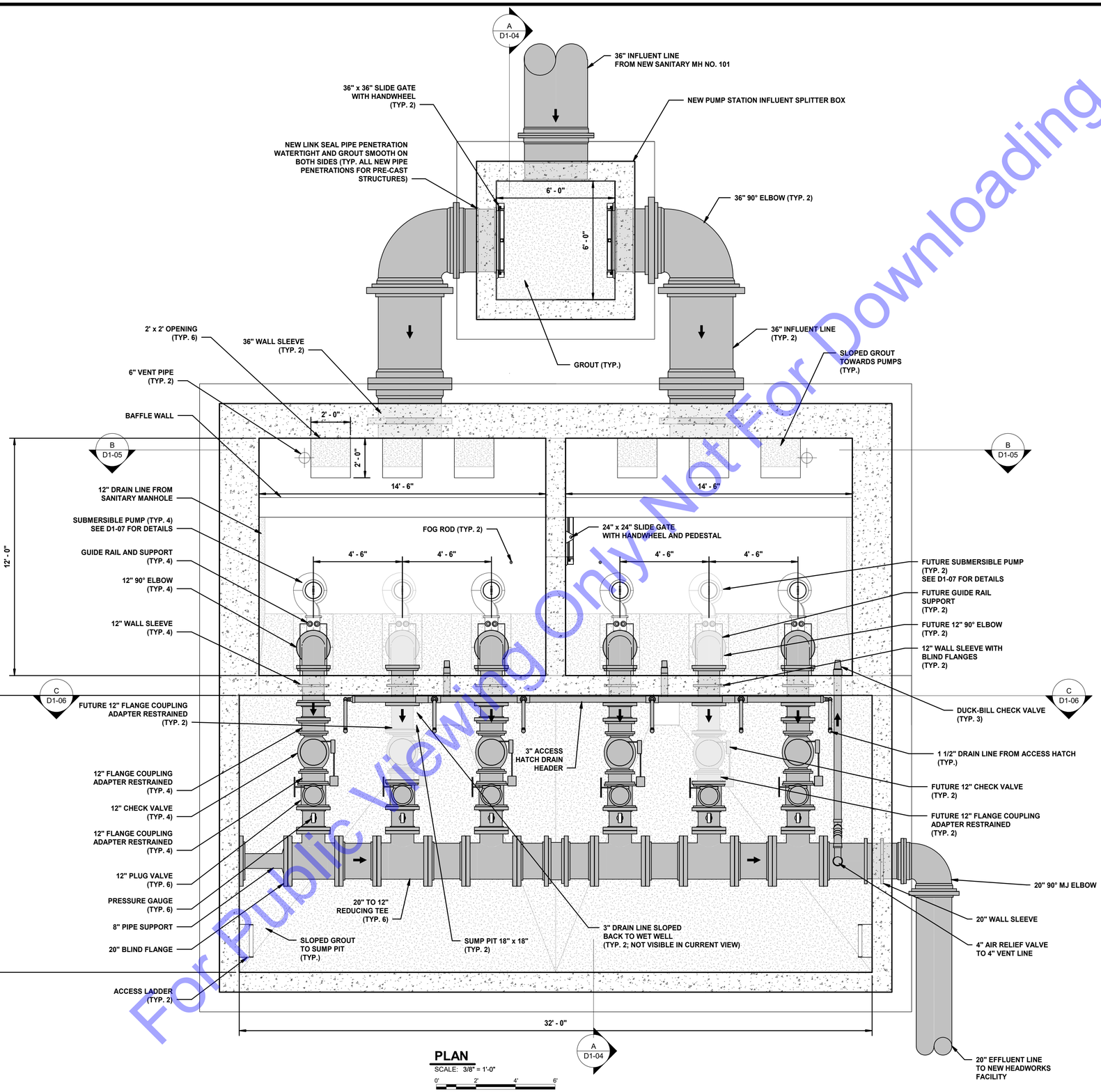

PLAN
SCALE: 3/8" = 1'-0"
0' 2' 4' 6'

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NEW INFLUENT PUMP STATION - LOWER PLAN VIEW

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D1-03
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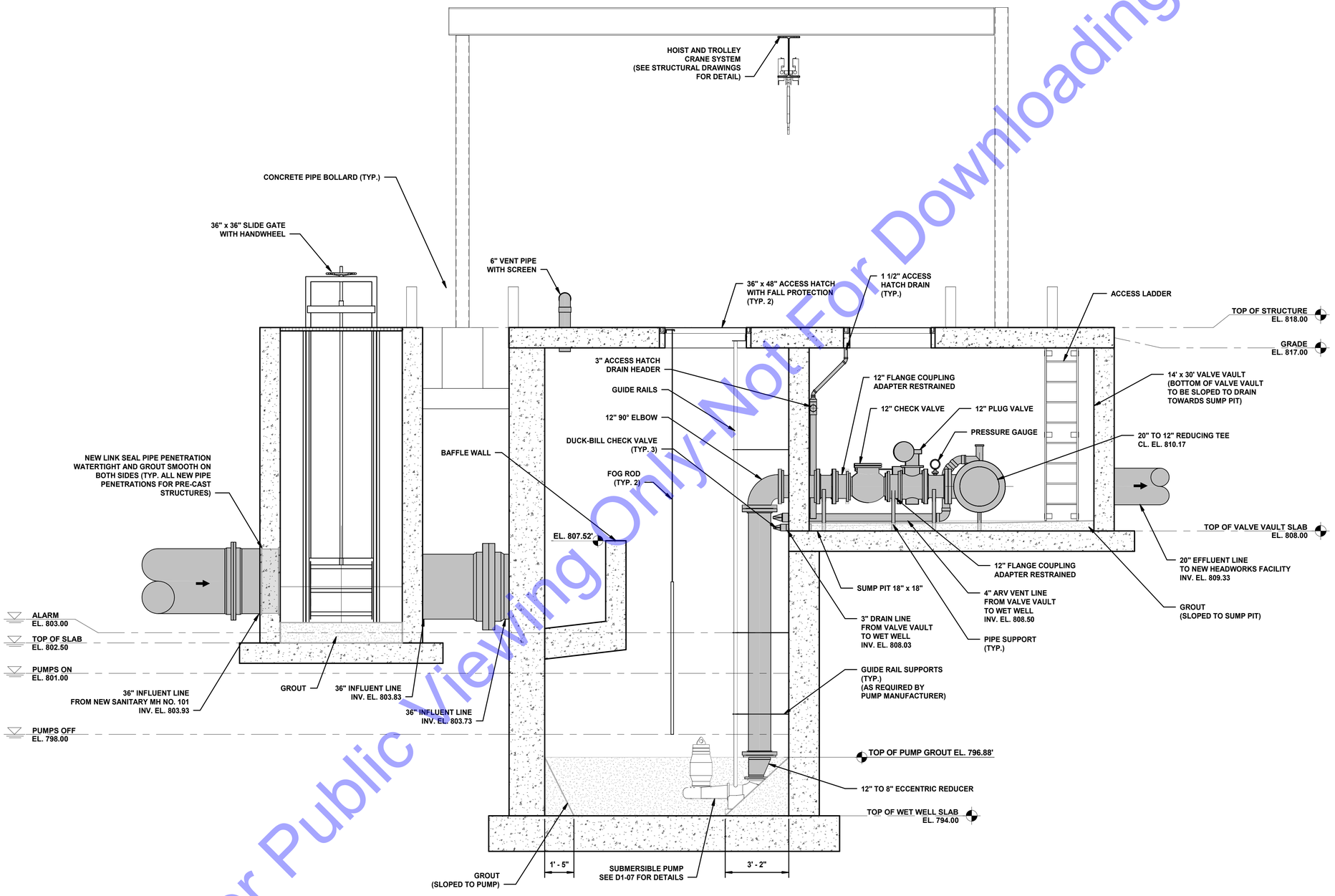

SECTION

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

A D1-02

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Issue Date: OCT 2023	Project No: S22002	Scale: AS SHOWN

NEW INFLUENT PUMP STATION - SECTION VIEW

Drawing No: **D1-04**

Sheet: 46 OF 205

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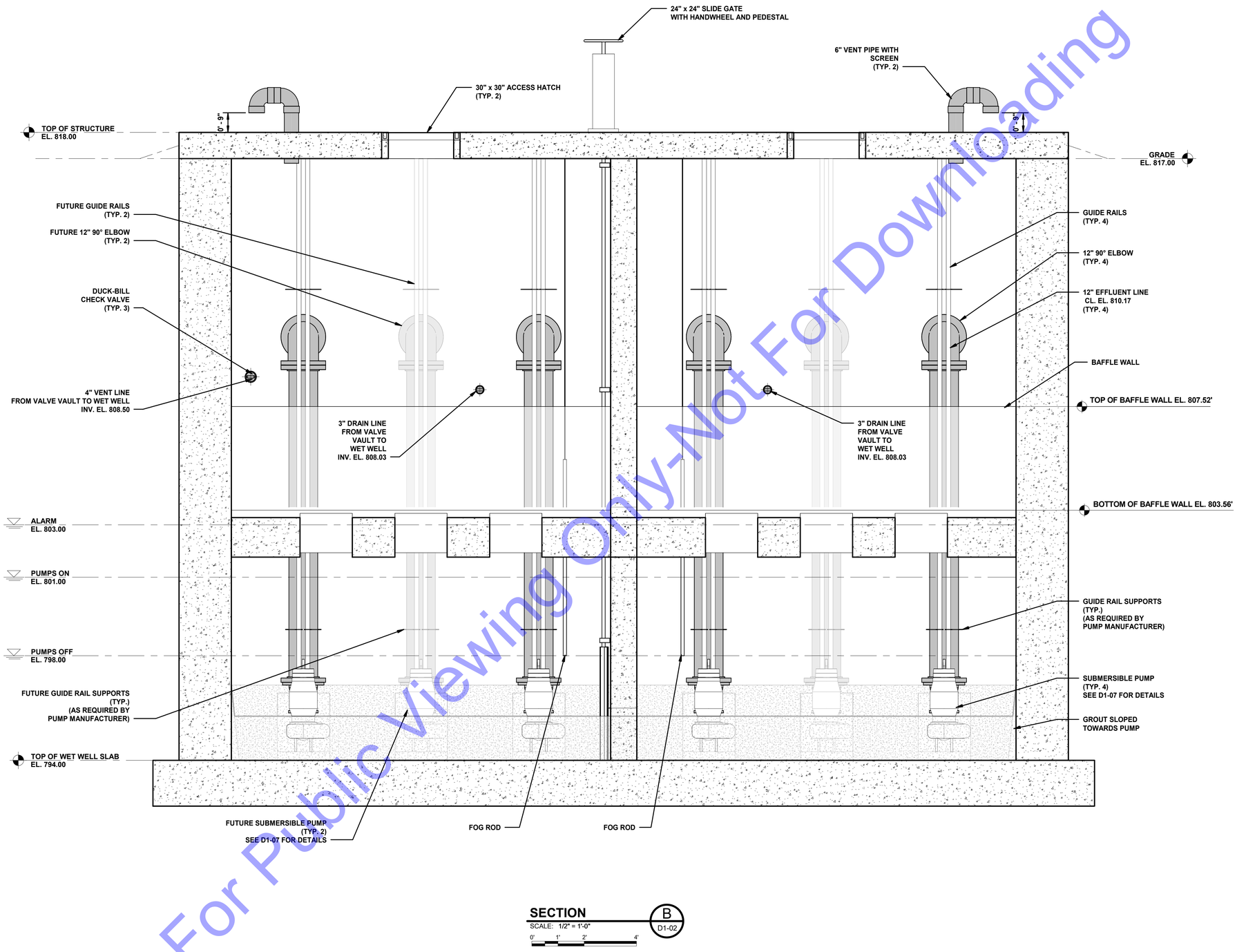

SECTION B D1-02

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

0' 1' 2' 4'

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REGISTERED
No. 19700338
STATE OF INDIANA
PROFESSIONAL ENGINEER

Signature 10/24/2023 Date

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NEW INFLUENT PUMP STATION - SECTION VIEW

Drawing No:

D1-05

Sheet: 47 OF 205

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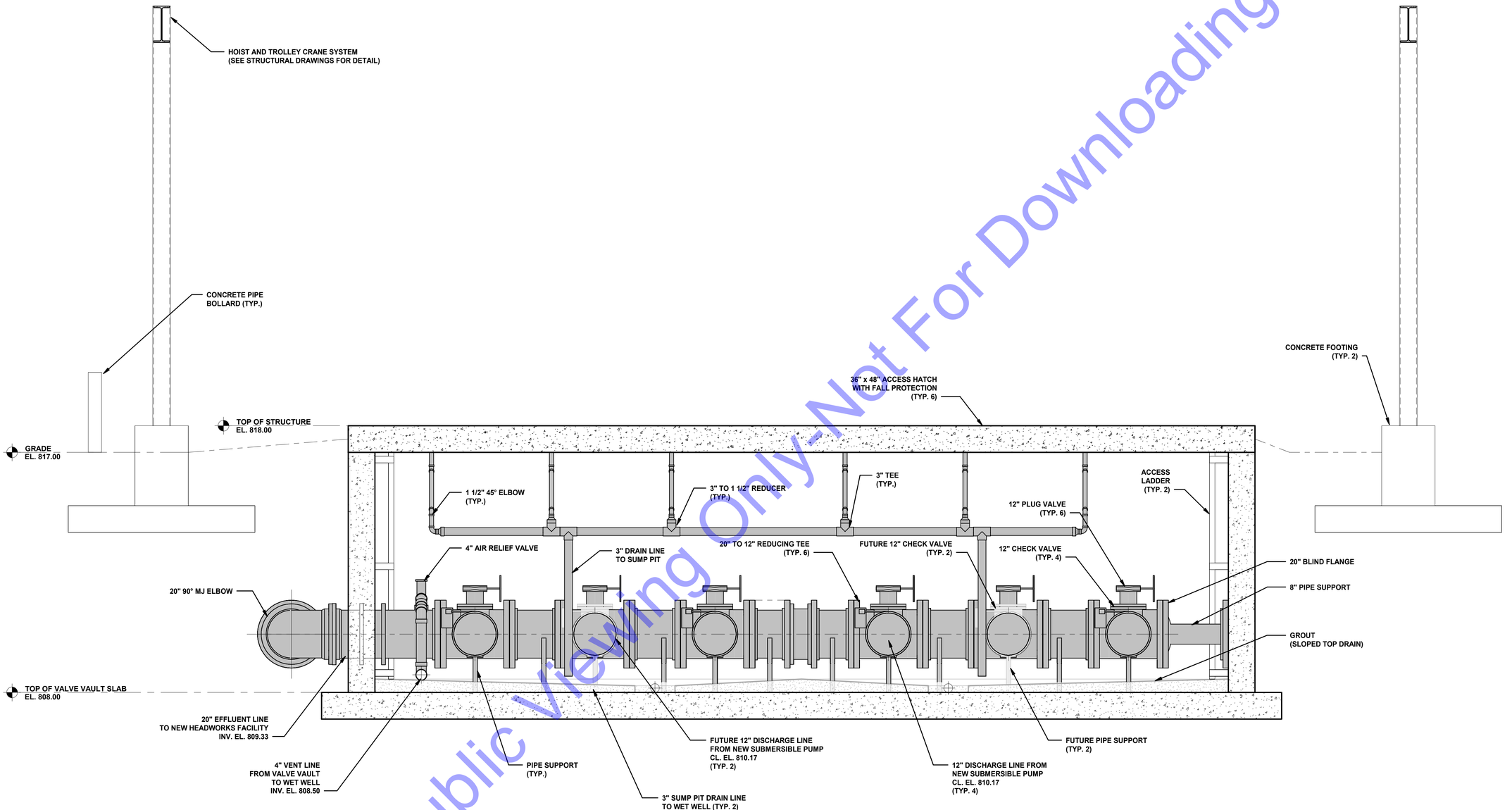

SECTION C D1-02

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

0' 1' 2' 4'

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NEW INFLUENT PUMP STATION - SECTION VIEW

Drawing No:
D1-06
Sheet: 48 OF 205

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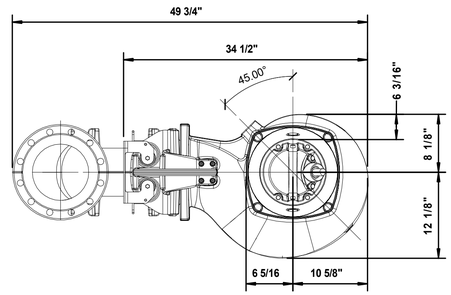

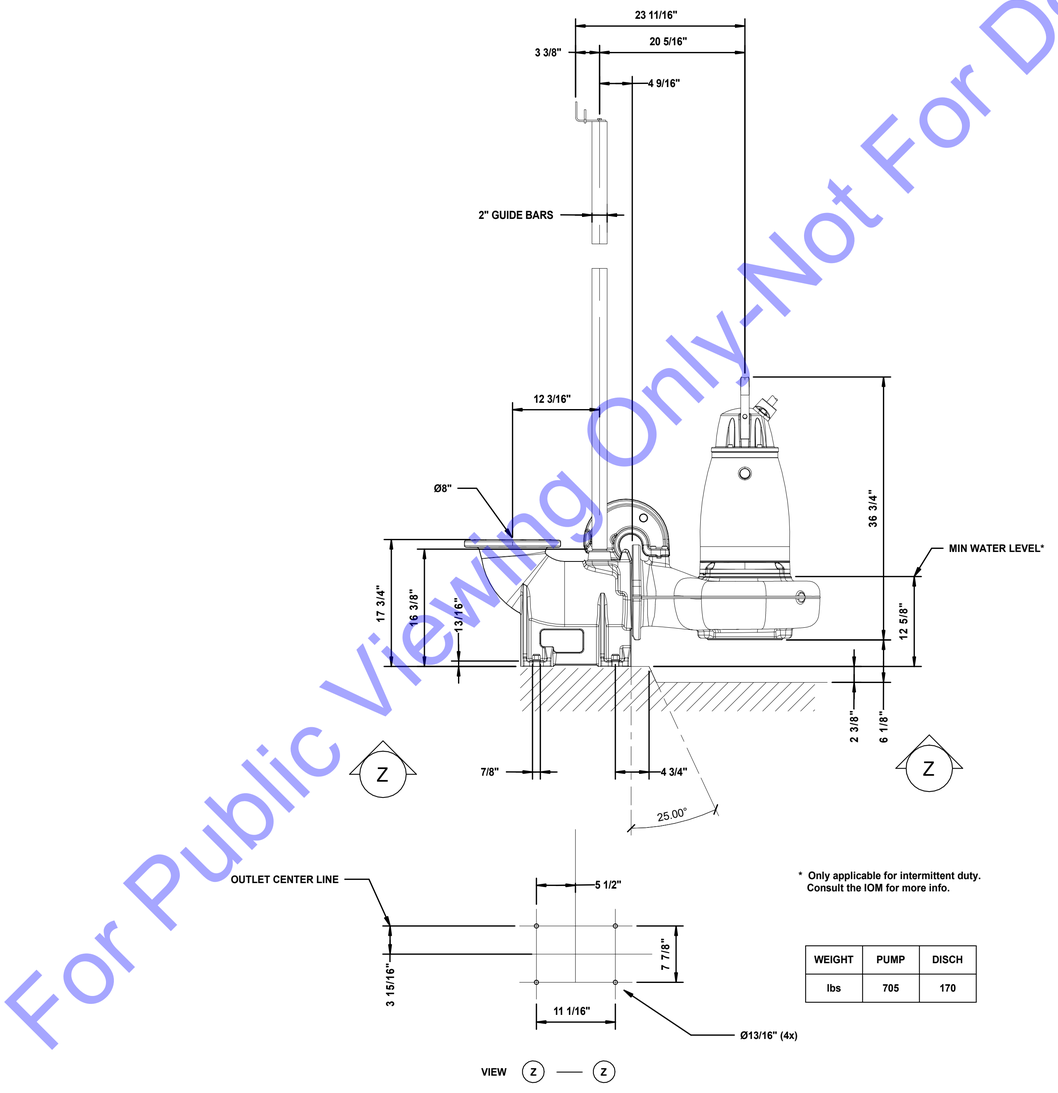

* Only applicable for intermittent duty. Consult the IOM for more info.

WEIGHT	PUMP	DISCH
lbs	705	170

DISCLAIMER NOTE:

1. THIS DETAIL HAS BEEN ACQUIRED FROM FLYGT. IT IS FOR REFERENCE ONLY.

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NEW INFLUENT PUMP STATION - EQUIPMENT DETAILS

Drawing No:
D1-07
Sheet: 49 OF 205

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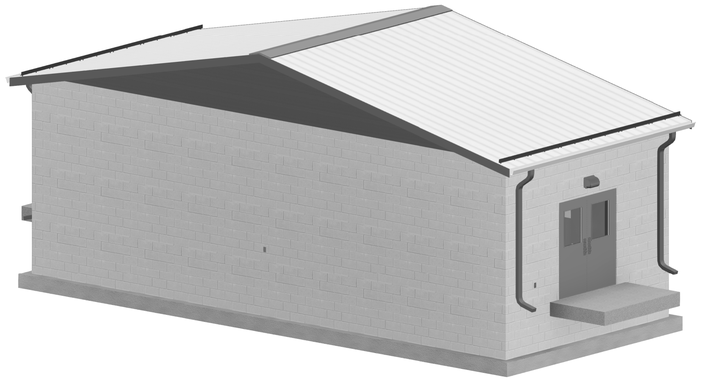

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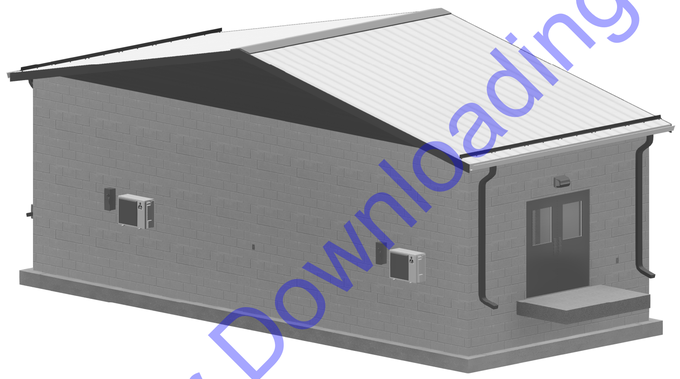
SCALE: NOT TO SCALE



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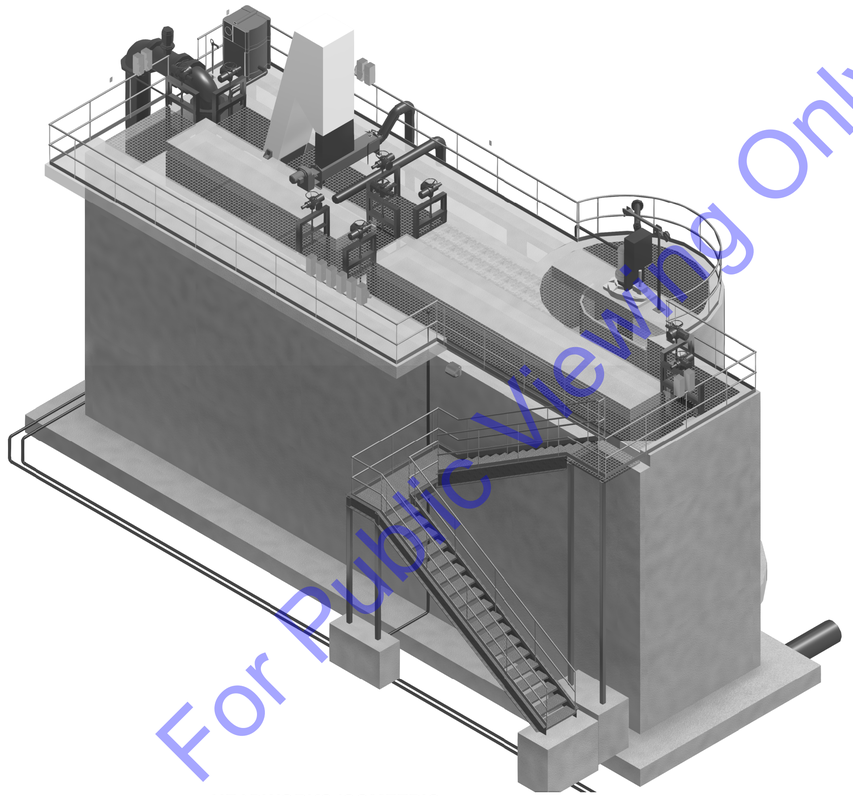
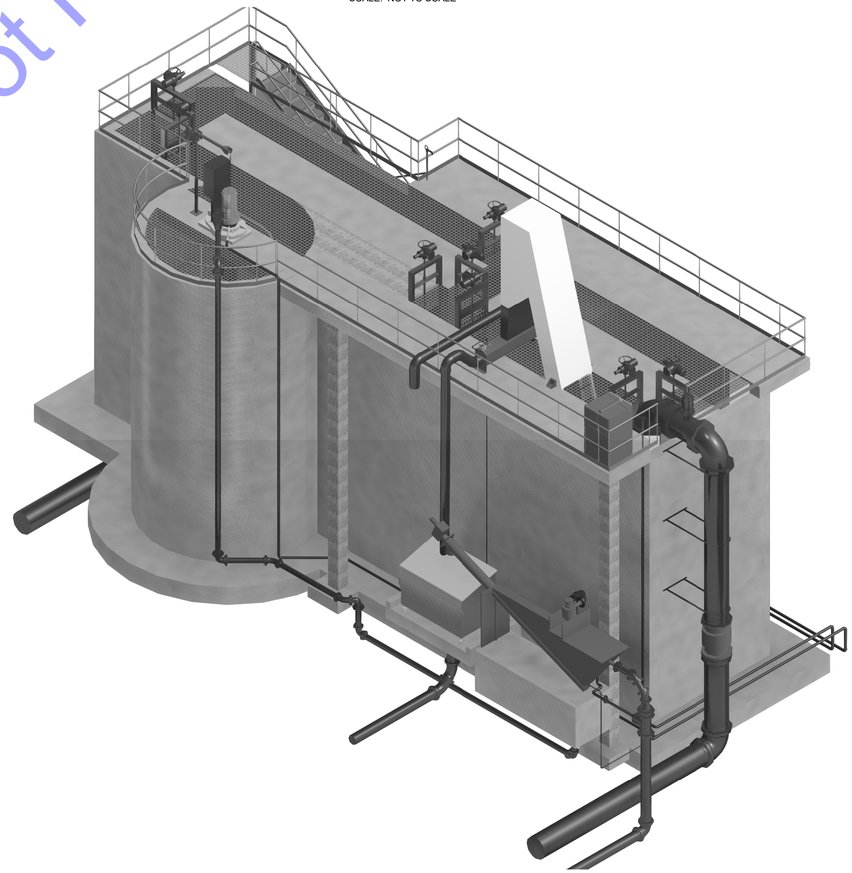


HEADWORKS ISOMETRIC
SCALE: NOT TO SCALE



GRIT ISOMETRIC
SCALE: NOT TO SCALE

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NEW HEADWORKS FACILITY ISOMETRIC VIEWS

Drawing No:
D2-01
Sheet: 50 OF 205

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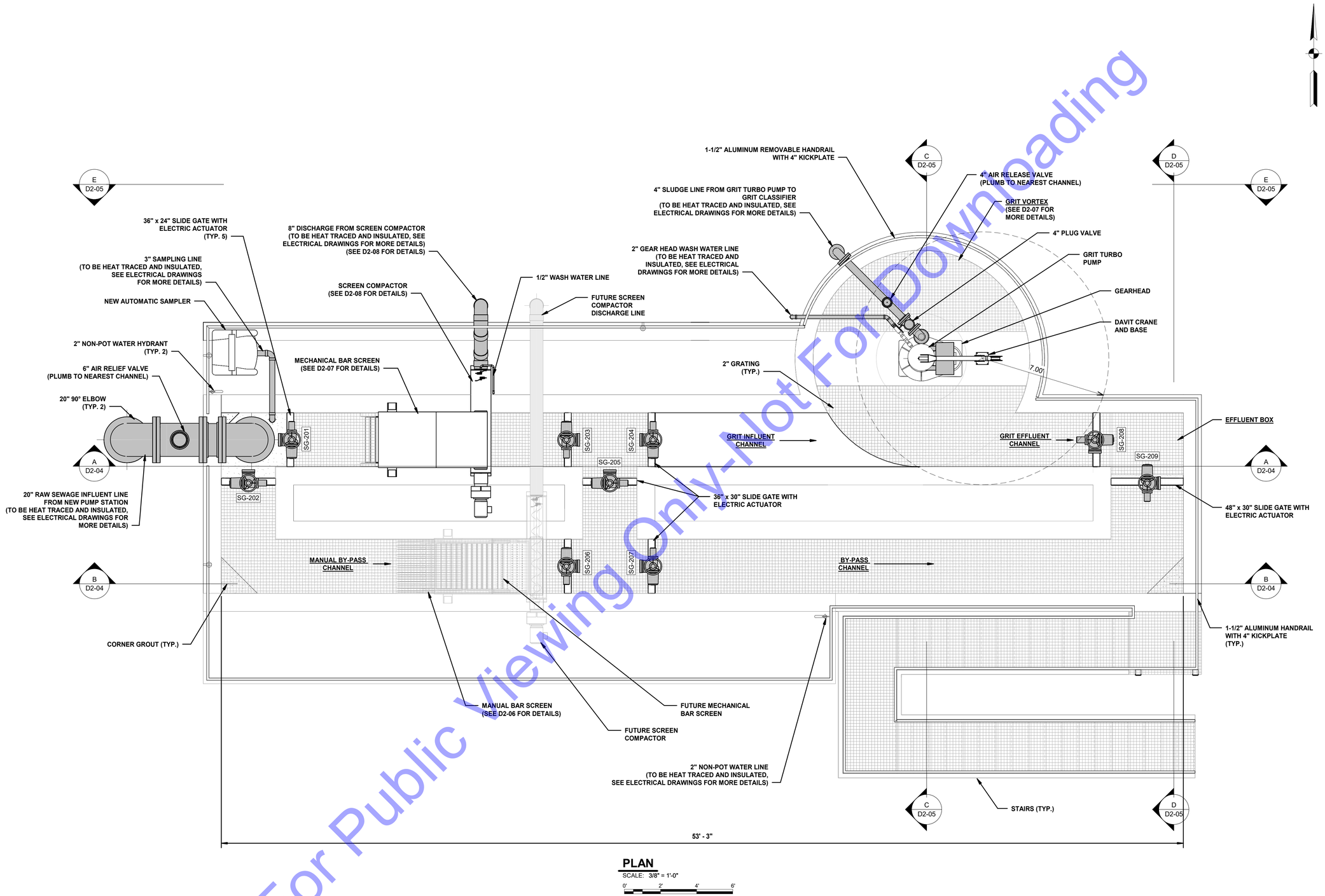

PLAN

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

0' 2' 4' 6'

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NEW HEADWORKS FACILITY UPPER LEVEL PLAN VIEW

Drawing No:

D2-02

Sheet: 51 OF 205

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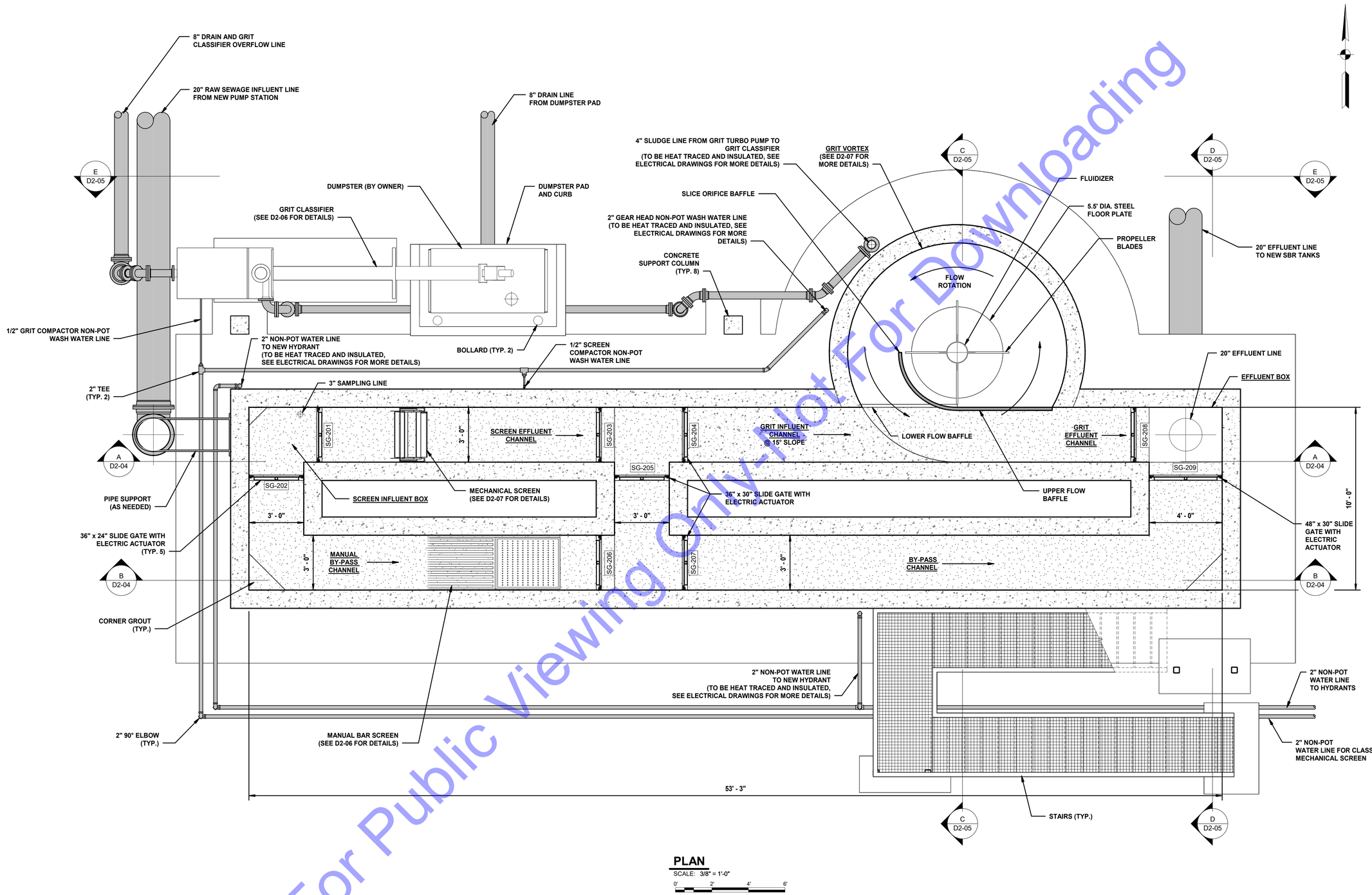

PLAN

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

0' 2' 4' 6'

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NEW HEADWORKS FACILITY LOWER LEVEL PLAN VIEW

Drawing No:

D2-03

Sheet: 52 OF 205

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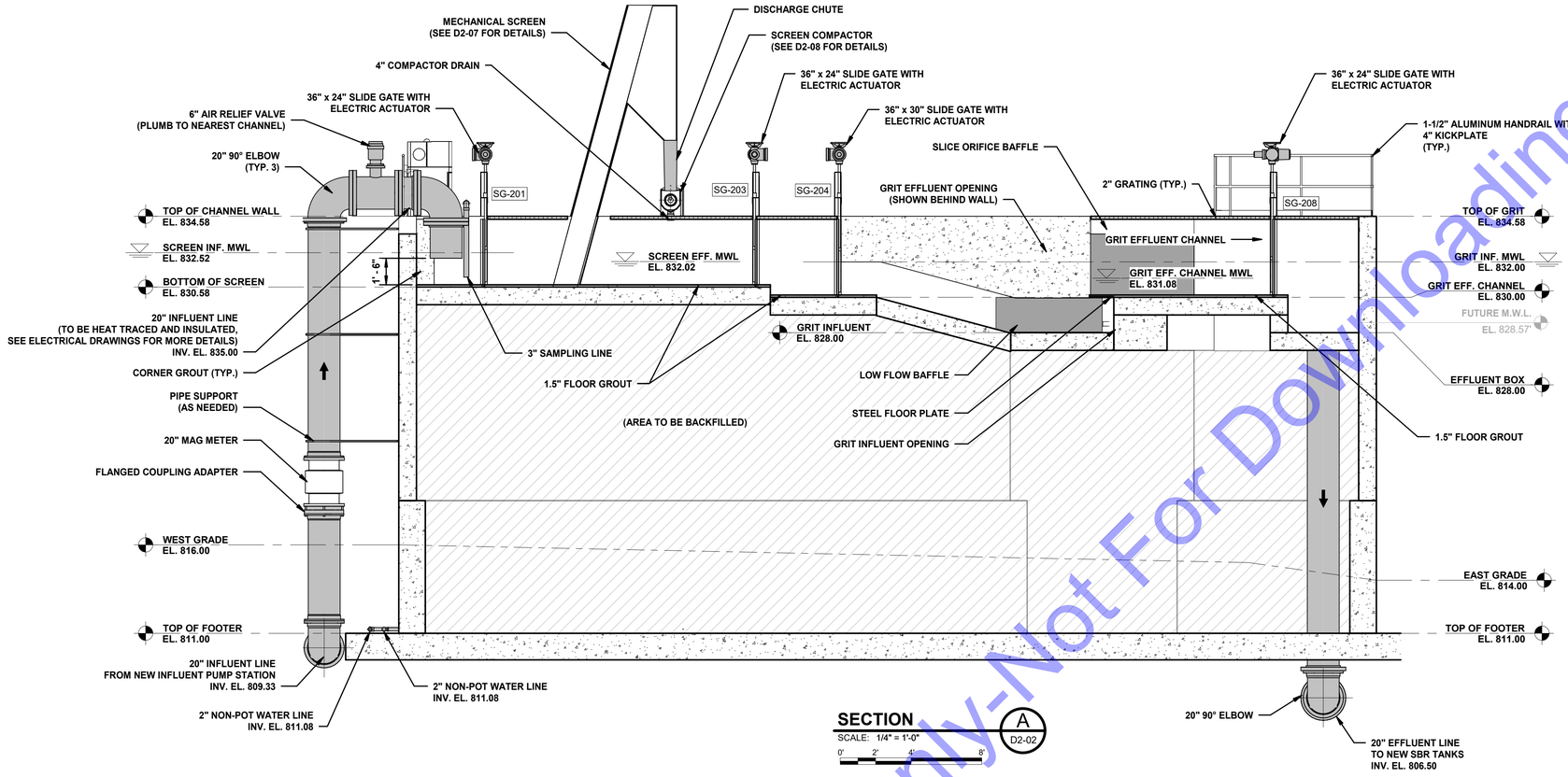
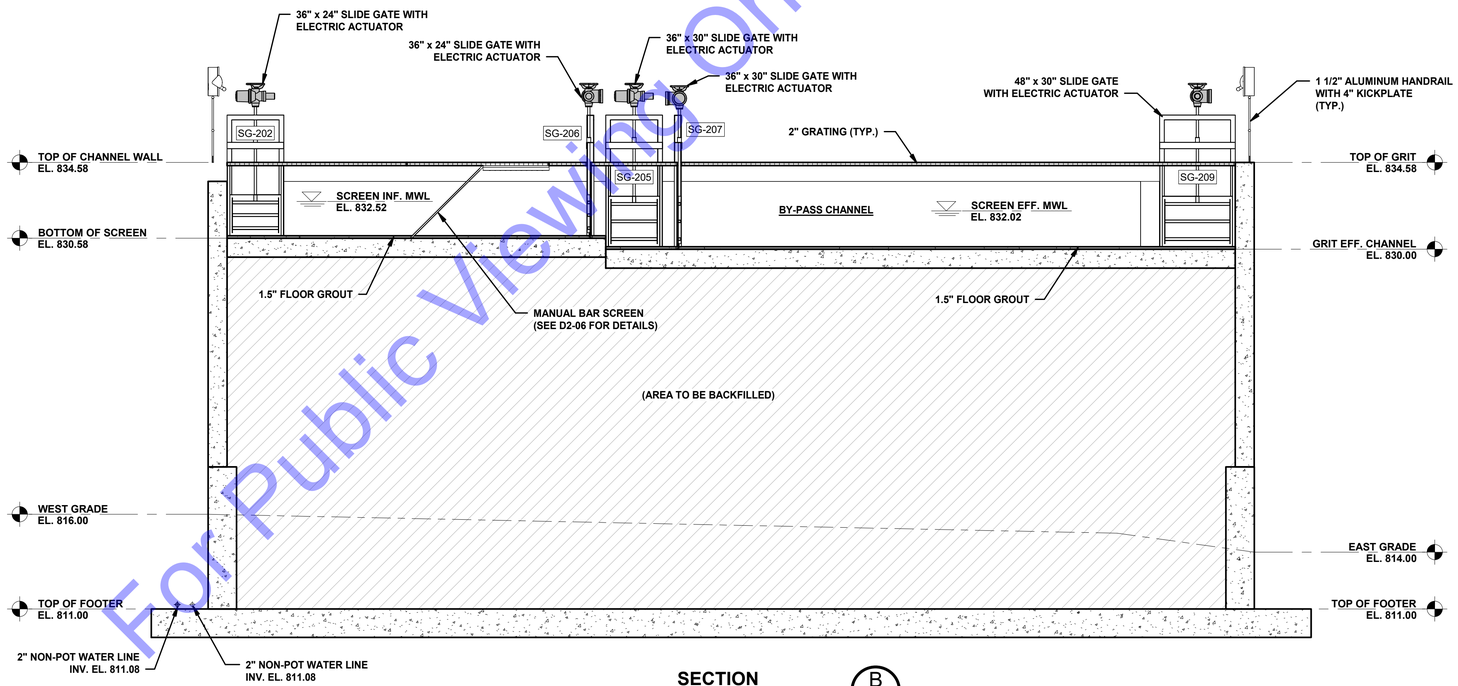


SECTION A D2-02
SCALE: 1/4" = 1'-0"
0' 2' 4' 8'



SECTION B D2-02
SCALE: 1/4" = 1'-0"
0' 2' 4' 8'

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NEW HEADWORKS
FACILITY SECTION
VIEWS

Drawing No:
D2-04
Sheet: 53 OF 205

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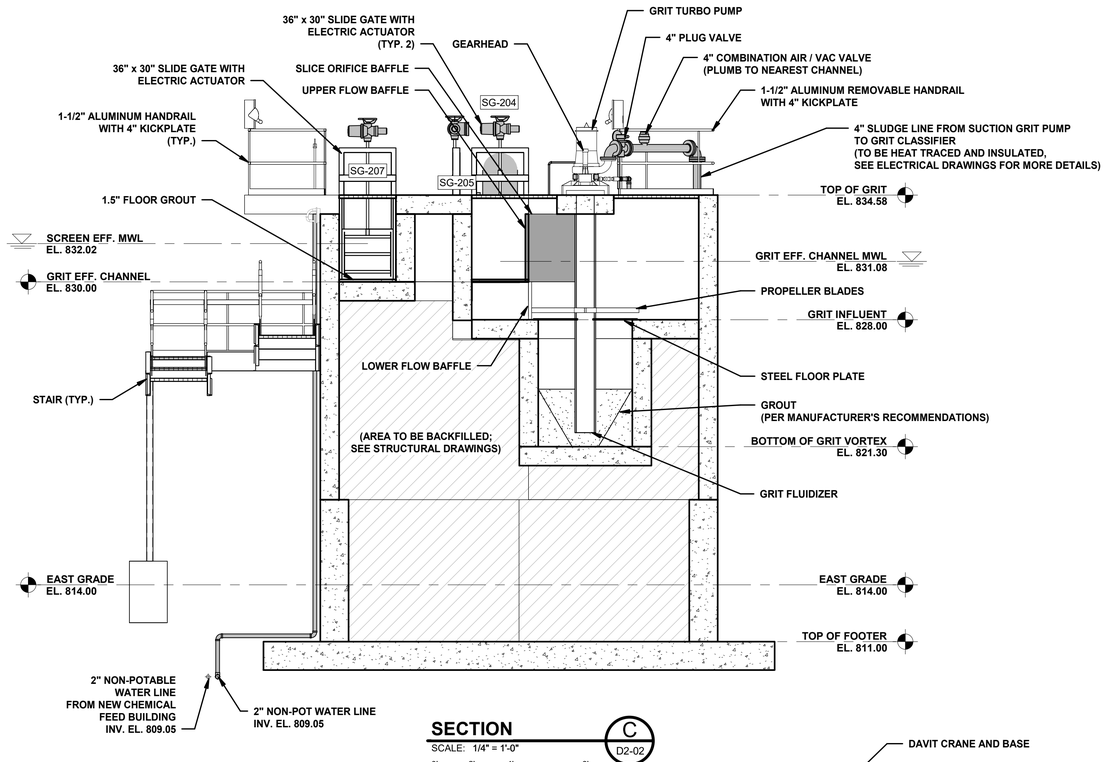
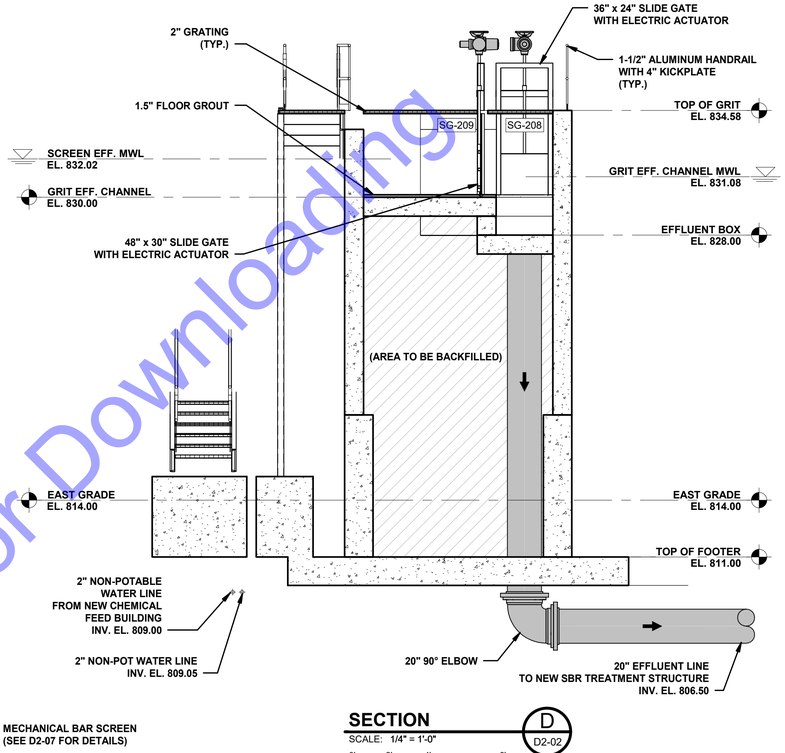


SECTION C D2-02
SCALE: 1/4" = 1'-0"
0' 2' 4' 8'



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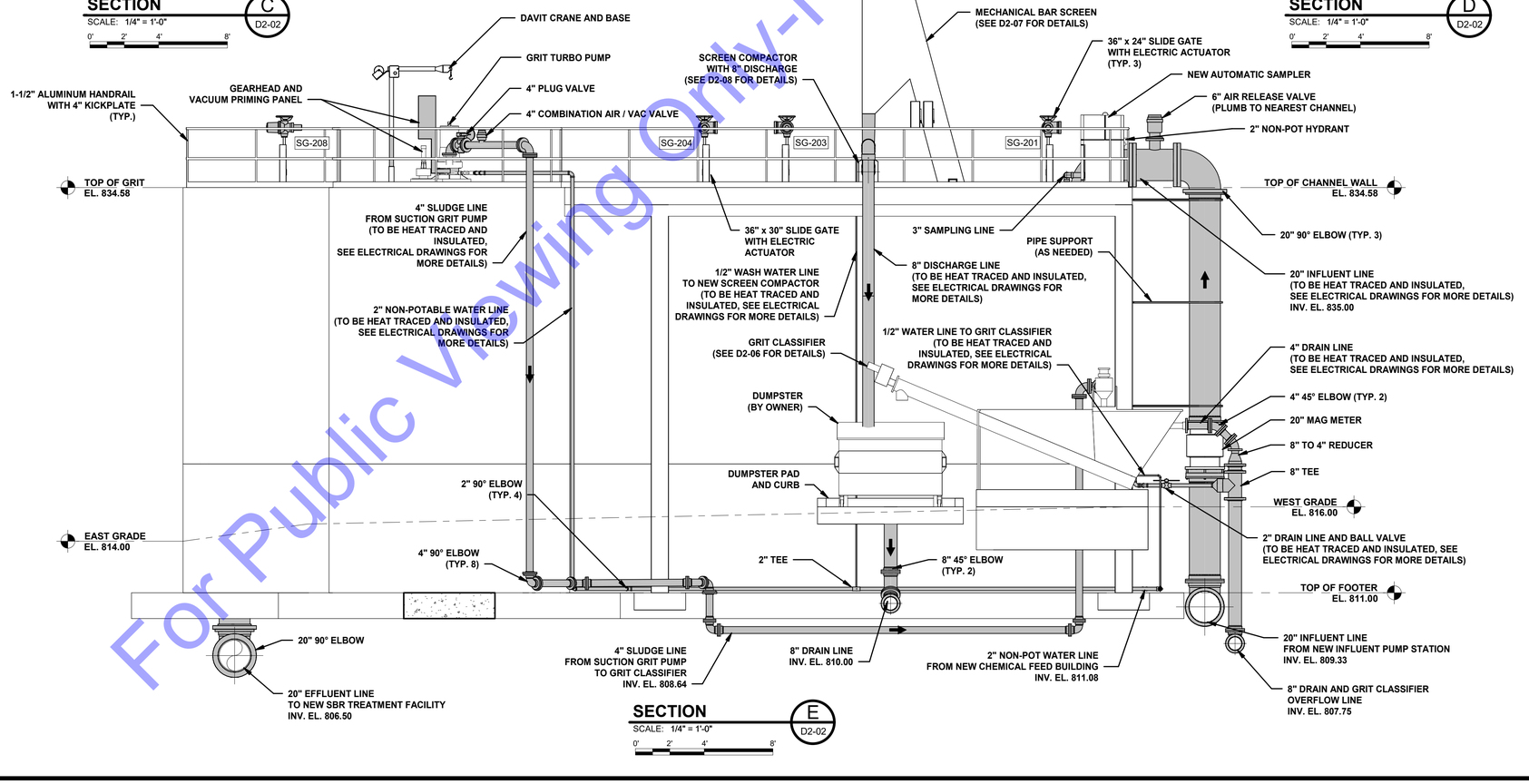

SECTION E D2-02
SCALE: 1/4" = 1'-0"
0' 2' 4' 8'

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NEW HEADWORKS FACILITY SECTION VIEWS

Drawing No:
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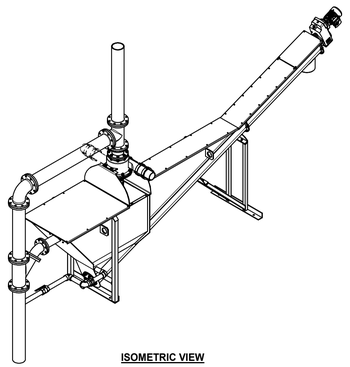
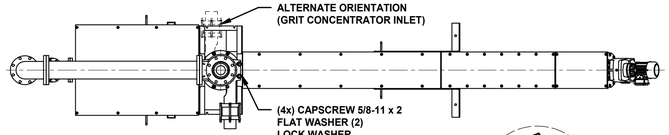
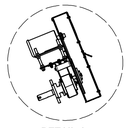


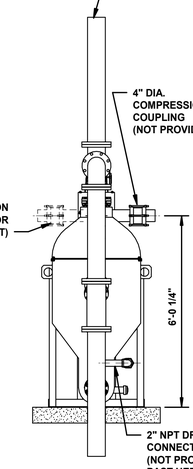
ISOMETRIC VIEW



PLAN VIEW
(CONVEYOR AND PIPING)

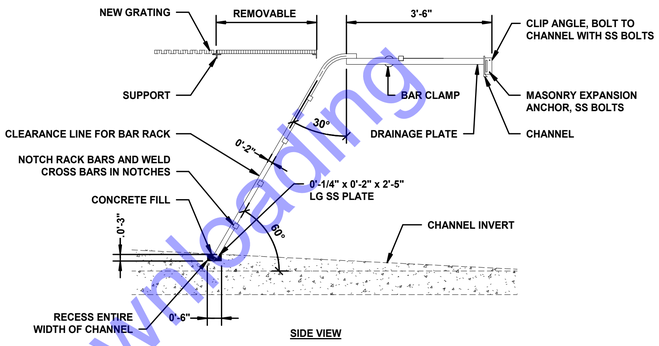


DETAIL A
ALTERNATE BELT DRIVE
ASSEMBLY (REF)

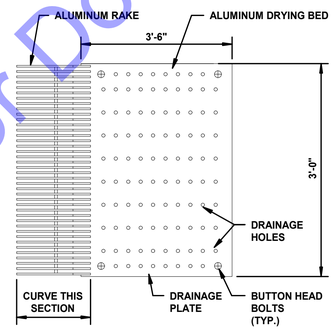


OVERFLOW END VIEW
(CONVEYOR AND PIPING)

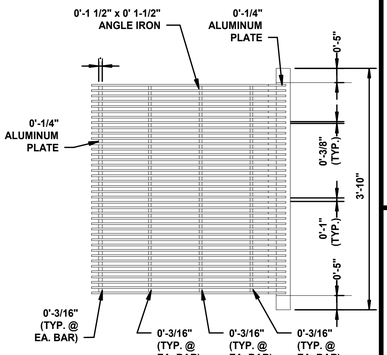
ELEVATION VIEW
(CONVEYOR AND PIPING)



SIDE VIEW



DRAINAGE PLATE PLAN VIEW



BAR RACK PLAN VIEW

MANUAL BAR SCREEN DETAIL

SCALE: NOT TO SCALE

NOTE:

1. ALL INTERCONNECTING PIPING AND FITTINGS NOT PROVIDED

2. DETAIL FOR PISTA 2-PIECE GRIT CONCENTRATOR NOT INCLUDED.

3. LOWER DETAIL IS OF LS DEWATERING SCREW CONVEYOR WITH 250 GPM 2-PIECE GRIT CONCENTRATOR.

4. THE 2" DRAIN PIPE WITH BALL OR PLUG VALVE AND UNION IS USED TO FACILITATE CLEAN-UP AND INSPECTION.

5. TO PREVENT SIPHONING, THE CENTERLINE OF THE GRIT CONCENTRATOR INLET MUST BE AT LEAST 2'-0" ABOVE THE MAXIMUM WATER LEVEL IN THE PISTA CHAMBER.

6. TOP OF GRIT CONCENTRATOR AIR VENT IS TO BE OPEN ENDED. ANY OBSTRUCTIONS RESTRICTING AIR FLOW INTO THE PIPING WILL RESULT IN DECREASED PERFORMANCE OF THE GRIT CONCENTRATOR.

7. THE PROJECTED SEPARATOR PLATES SETTLING AREA IS 15.1 SQ. FT.

8. THE 4" DIA. OVERFLOW MUST BE A FREE DISCHARGE WITHOUT WATER BACK-UP

9. THE NEOPRENE SLEEVE OUTLET CANNOT BE SUBMERGED. AIR MUST BE CAPABLE OF VENTING UP THROUGH THE SLEEVE INTO THE PISTA 2-PIECE GRIT CONCENTRATOR. TERMINATE THE SLEEVE AT LEAST 6" ABOVE THE HIGH WATER LEVEL IN THE SCREW CONVEYOR HOPPER. IF THE SLEEVE IS OVER 5'-0" IN LENGTH, AN AIR GAP MUST BE PROVIDED AT THE POINT WHERE THE SLEEVE ATTACHES TO THE PISTA 20PIECE GRIT CONCENTRATOR OUTLET TO PERMIT PROPER VENTILATION.

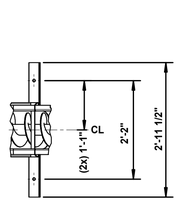
10. SOLID COVERS ARE SUPPLIED STANDARD FOR THE HOPPER AND TROUGH. CONSULT FACTORY FOR OTHER OPTIONS AVAILABLE.

11.SEE SPECIFICATIONS FOR MOTOR DETAILS.

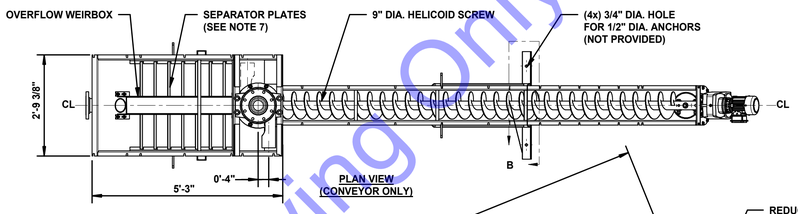
12. DIRECT DRIVE CONFIGURATION SHOWN. BELT DRIVE OPTION AVAILABLE. SEE REFERENCE TABLE FOR VARIATIONS IN CLEARANCE HEIGHT AND OVERALL LENGTH.

13. PLAIN END DISCHARGE PIPE SHOWN. CONSULT FACTORY FOR OTHER OPTIONS AVAILABLE.

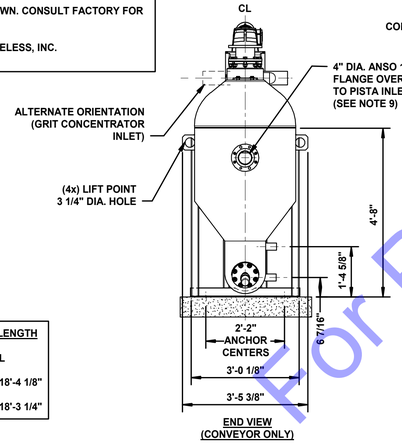
14.



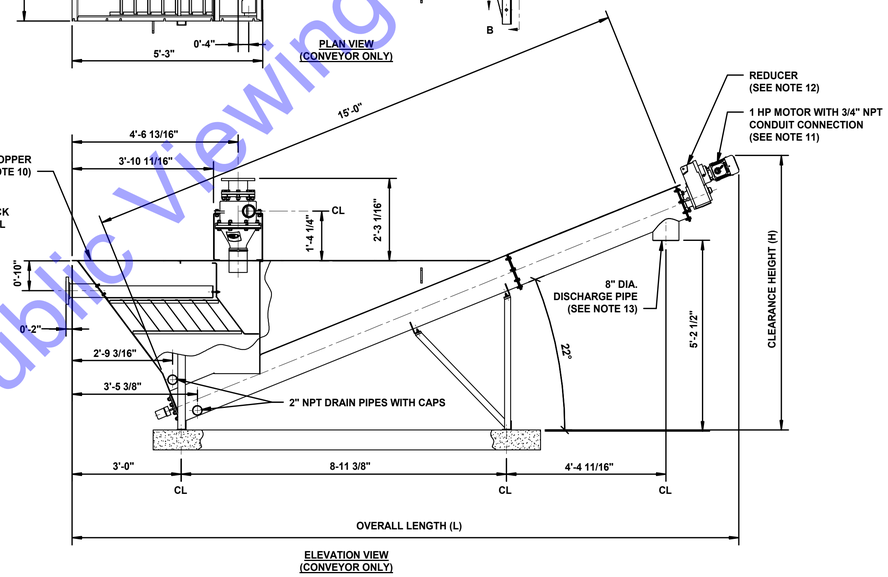
DETAIL B



PLAN VIEW
(CONVEYOR ONLY)



END VIEW
(CONVEYOR ONLY)



ELEVATION VIEW
(CONVEYOR ONLY)

CLEARANCE HEIGHT AND OVERALL LENGTH		
DRIVE TYPE	H	L
DIRECT DRIVE	7'-6 5/8"	18'-4 1/8"
BELT DRIVE	8'-9 1/8"	18'-3 1/4"

GRIT CLASSIFIER DETAIL

SCALE: NOT TO SCALE

NOTE:

1. GRIT CLASSIFIER DETAIL IS FROM SMITH AND LOVELESS INC. AND SHOULD BE USED AS REFERENCE ONLY

2. MANUAL BAR SCREEN DETAIL SHOULD BE USED AS REFERENCE ONLY.

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WASTEWATER UTILITY
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NEW HEADWORKS
FACILITY EQUIPMENT
DETAILS

Drawing No:
D2-06
Sheet: 55 OF 205

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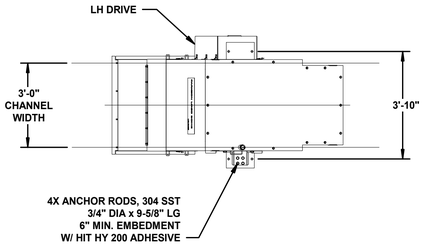
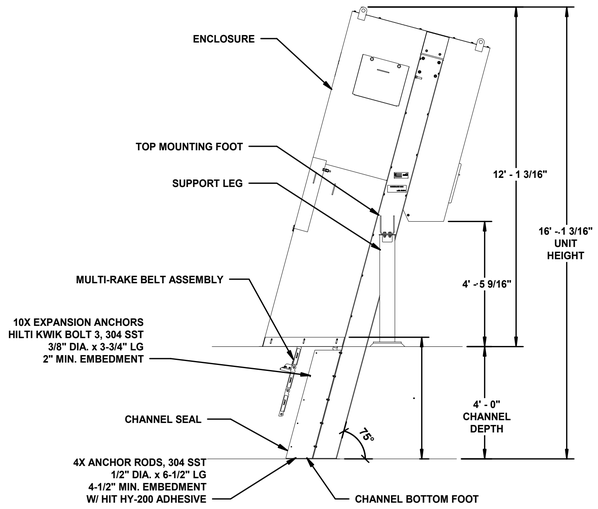
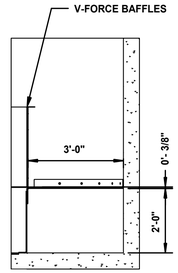


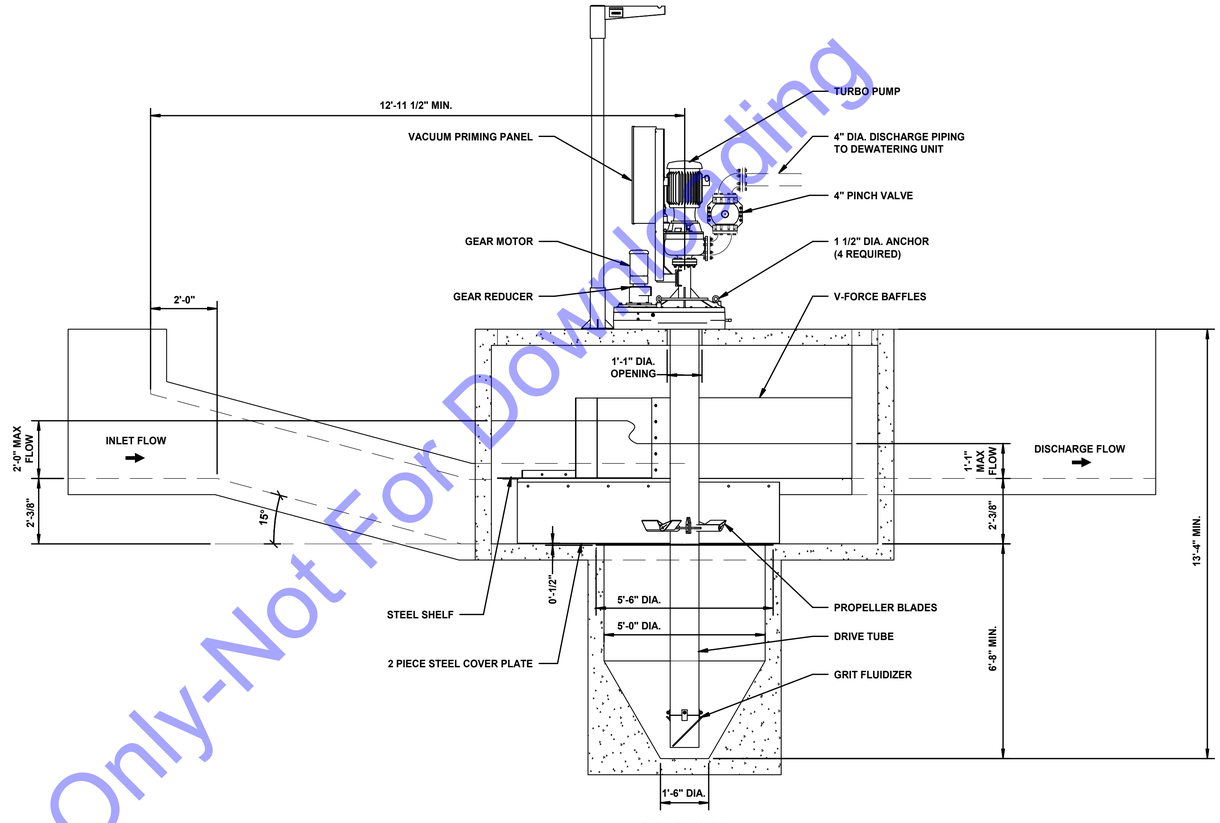
DRY WEIGHTS:

AQUA CAIMAN SCREEN: 3,300 LBS

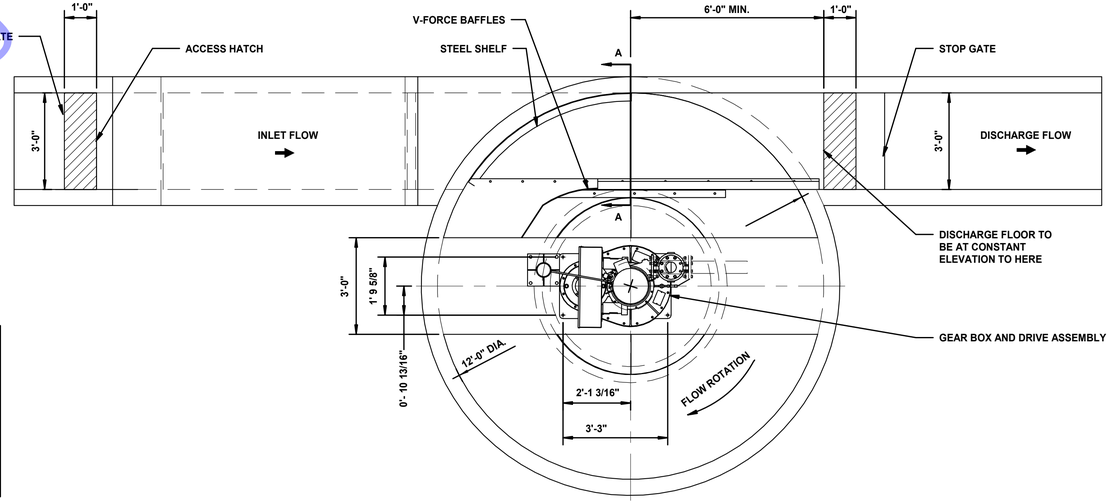




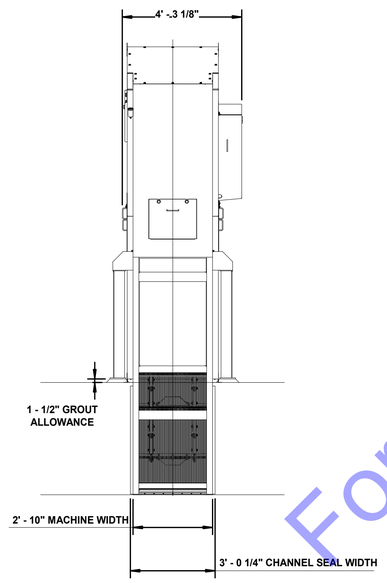
SECTION A-A
STEEL SHELF DETAIL



ELEVATION VIEW



PLAN VIEW



MECHANICAL SCREEN DETAIL

SCALE: NOT TO SCALE

NOTE:

1. CONCRETE, REINFORCING AND GRATING OR HANDRAILS (IF REQUIRED) BY CONTRACTOR

~~2. SEE NOTES ON DESIGN FOR HYDRAULIC REQUIREMENTS~~

~~3. SEE ENGINEERING ORDER FOR PROJECT SPECIFIC REQUIREMENTS~~

4. COPYRIGHT (C) 2021 SMITH AND LOVELESS, INC.

GRIT VORTEX DETAIL

SCALE: NOT TO SCALE

NOTE:

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BOWLING GREEN, KY.
SOUTHBEND, IN.

CHRIS A. LIMCACO
REGISTERED
No. 19700338
STATE OF INDIANA
PROFESSIONAL ENGINEER

Signature 10/24/2023 Date

TOWN OF NEW PALESTINE
HANCOCK COUNTY, INDIANA

WASTEWATER UTILITY
IMPROVEMENTS PROJECT

DIVISION "A" - MAIN WWTP
IMPROVEMENTS

Indiana811 Know what's below. Call before you dig. 1-800-382-5544 (ITS THE LAW)

No.	Submittal / Revision	By	Date

Designed By:	Drawn By:	Checked By:
CAL	DAN	ACS
Issue Date:	Project No:	Scale:
OCT 2023	S22002	AS SHOWN

NEW HEADWORKS FACILITY EQUIPMENT DETAILS

Drawing No:

D2-07

Sheet: 56 OF 205

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NOTE:

1. ALL 304L STAINLESS STEEL CONSTRUCTION EXCEPT FOR MOTOR, REDUCER, SPIRAL AND ELECTRICAL FIXTURES

2. DRIVE SYSTEM
   A. MOTOR: 3 HP. 18700 RPM, 230/460 V, 3 PH, 60 HZ, TEFC
   B. REDUCER: HELICAL GEAR UNIT DIRECT COUPLED TO DRIVE SHAFT

3. SPIRAL SPEED: 14 RPM

4. RECOMMENDED CLEARANCE TO BE 3' AROUND AND ABOVE UNIT

5. WEIGHT: SEE TABLE (BASE UNIT ONLY, DISCHARGE TUBING AND INLET HOPPER NOT INCLUDED)

6. ALL DIMENSIONS WRITTEN IN FEET-INCHES UNLESS OTHERWISE SPECIFIED

7. ALL INTERCONNECTING WIRING, CONDUIT AND PIPING FROM UNIT MOUNTED DEVICES WILL BE SUPPLIED BY OTHERS. SUPPORT ALL EXTERNAL PIPING INDEPENDENTLY OF UNIT

8. NEMA 4X LOCAL E-STOP. 1/2" NPT CONDUIT CONNECTION

9. MOTOR: 1X 1/2" NPT AND 1X 3/4" NPT CONDUIT CONNECTION

10. NEMA 4X WASH SOLENOID VALVE. 1/2" NPT CONNECTION

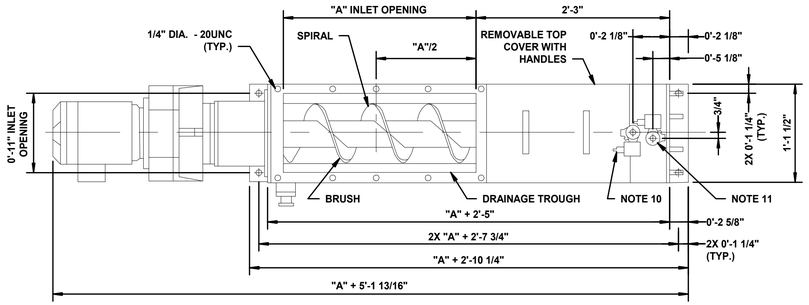
11. NEMA 4X FLUSH SOLENOID VALVE. 1/2" NPT CONNECTION

12. WASH WATER SPRAY CONNECTION (10 CPM AT 60 PSI) 1/2" NPT

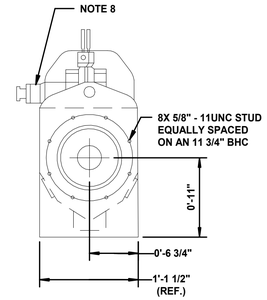
13. FLUSH WATER SPRAY CONNECTION (15 GPM AT 60 PSI) 1/2" NPT

14. STANDARD UNIT SHOWN. CONSULT LOCAL PRODUCT REPRESENTATIVE FOR AVAILABLE OPTIONS.

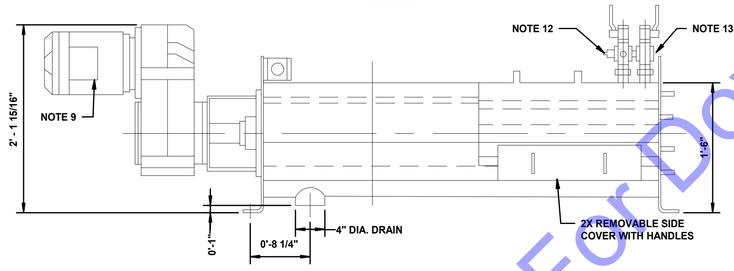
MODEL NUMBER	"A"	WEIGHT
AWP8-1.0	1'-3"	621 LB
AWP8-1.5	1'-9"	656 LB
AWP8-2.0	2'-3"	691 LB
AWP8-2.5	2'-9"	726 LB
AWP8-3.0	3'-3"	761 LB
AWP8-3.5	3'-9"	796 LB
AWP8-4.0	4'-3"	831 LB
AWP8-4.5	4'-9"	866 LB
AWP8-5.0	5'-3"	901 LB



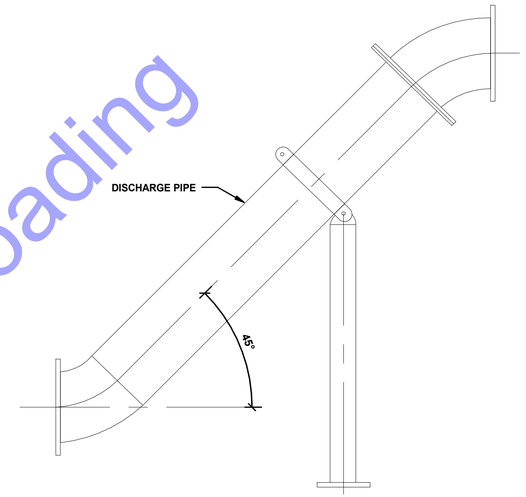
TOP VIEW



FRONT VIEW



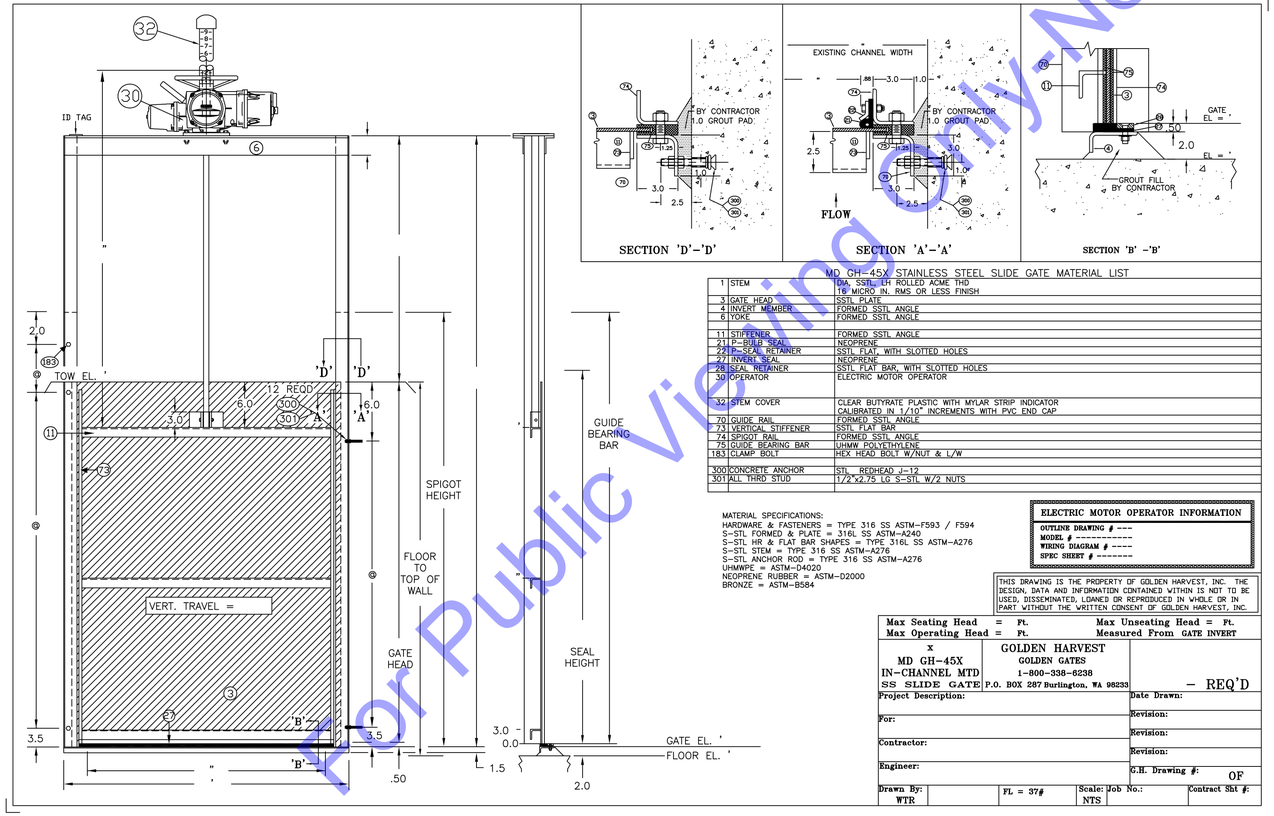
SIDE VIEW



DISCHARGE SIDE VIEW

SCREEN COMPACTOR DETAIL

SCALE: NOT TO SCALE



MD GH-45X STAINLESS STEEL SLIDE GATE MATERIAL LIST

1	STEM	DIA. SSTL. IN ROLLED ACME THD 16 MICRO IN. RMS OR LESS FINISH
3	GATE HEAD	SSTL PLATE
4	INVERT MEMBER	FORMED SSTL ANGLE
6	YOKE	FORMED SSTL ANGLE
11	STIFFENER	FORMED SSTL ANGLE
21	P-BULB SEAL	NEOPRENE
22	P-SEAL RETAINER	SSTL FLAT, WITH SLOTTED HOLES
27	INVERT SEAL	NEOPRENE
28	SEAL RETAINER	SSTL FLAT BAR, WITH SLOTTED HOLES
30	OPERATOR	ELECTRIC MOTOR OPERATOR
32	STEM COVER	CLEAR BUTYRATE PLASTIC WITH MYLAR STRIP INDICATOR CALIBRATED IN 1/10" INCREMENTS WITH PVC END CAP
70	GUIDE RAIL	FORMED SSTL ANGLE
73	VERTICAL STIFFENER	SSTL FLAT BAR
74	SPIGOT RAIL	FORMED SSTL ANGLE
75	GUIDE BEARING BAR	UHMW POLYETHYLENE
183	CLAMP BOLT	HEX HEAD BOLT W/NUT & L/W
300	CONCRETE ANCHOR	STL REDHEAD J-12
301	ALL THRD STUD	1/2"x2.75 LG S-STL W/2 NUTS

MATERIAL SPECIFICATIONS:
HARDWARE & FASTENERS = TYPE 316 SS ASTM-F593 / F594
S-STL FORMED & PLATE = 316L SS ASTM-A240
S-STL HR & FLAT BAR SHAPES = TYPE 316L SS ASTM-A276
S-STL STEM = TYPE 316 SS ASTM-A276
S-STL ANCHOR ROD = TYPE 316 SS ASTM-A276
UHMWPE = ASTM-D4020
NEOPRENE RUBBER = ASTM-D2000
BRONZE = ASTM-B584

ELECTRIC MOTOR OPERATOR INFORMATION
OUTLINE DRAWING # ---
MODEL # ----------
WIRING DIAGRAM # -----
SPEC SHEET # --------

Max Seating Head = Ft. Max Unseating Head = Ft.
Max Operating Head = Ft. Measured From GATE INVERT

X
MD GH-45X
IN-CHANNEL MTD
SS SLIDE GATE

GOLDEN HARVEST
GOLDEN GATES
1-800-338-6238
P.O. BOX 287 Burlington, WA 98233

— REQ'D

Project Description:
For:
Contractor:
Engineer:

Date Drawn:
Revision:
Revision:
Revision:
G.H. Drawing #: OF

Drawn By: WTR | FL = 37# | Scale: NTS | Job No.: | Contract Sht #:

SLIDE GATE DETAIL

SCALE: NOT TO SCALE

NOTE:

1. THESE DETAILS HAVE BEEN PROVIDED FROM PARKSON AND SHOULD BE USED AS REFERENCE ONLY.

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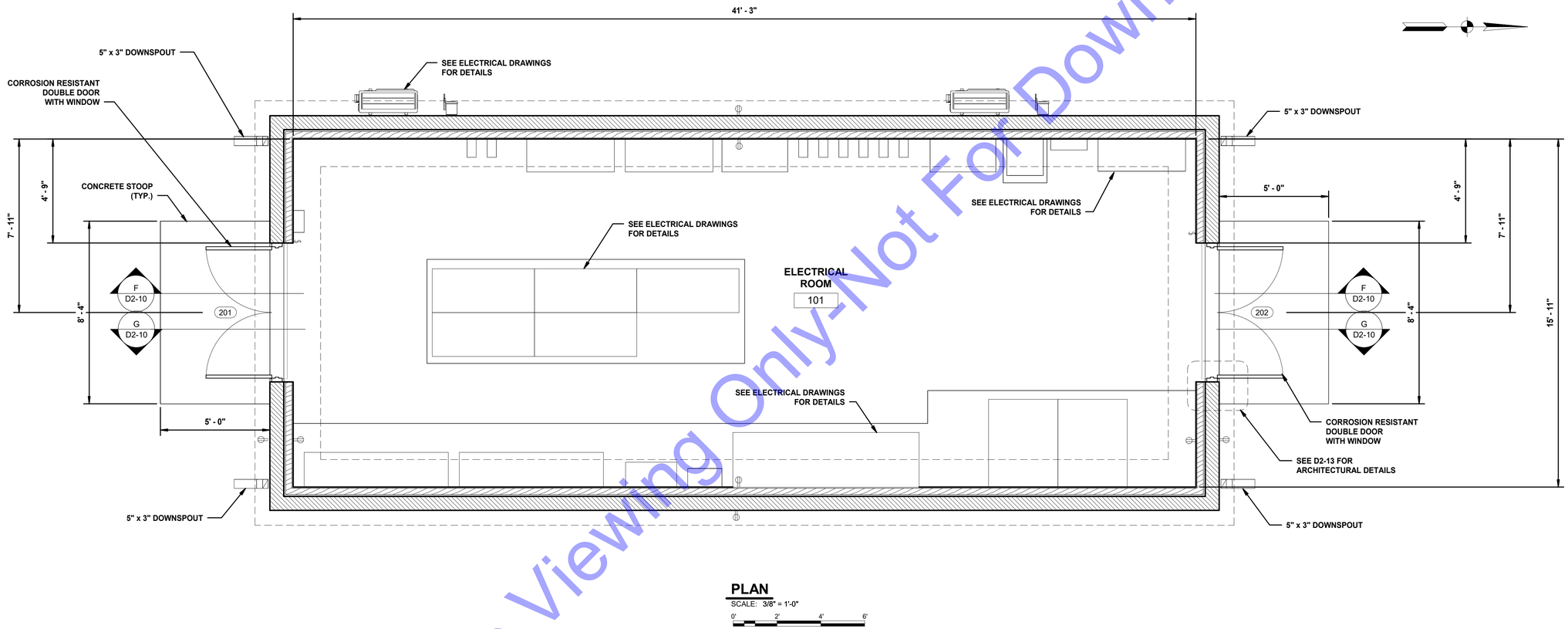
Issue Date: OCT 2023	Project No: S22002	Scale: AS SHOWN

NEW HEADWORKS FACILITY EQUIPMENT DETAILS

Drawing No: **D2-08**

Sheet: 57 OF 205



PLAN

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

0' 2' 4' 6'

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NEW ELECTRICAL BUILDING PLAN VIEWS

Drawing No:
D2-09
Sheet: 58 OF 205

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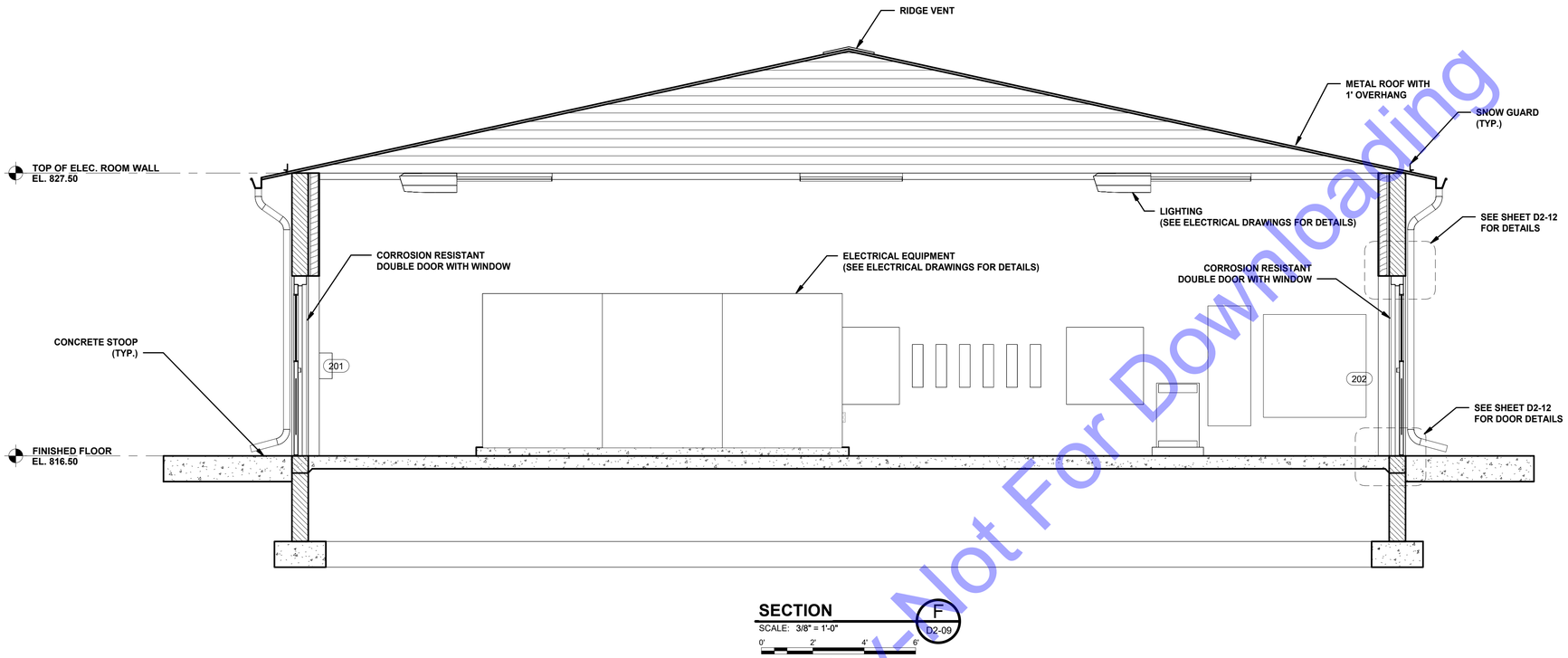
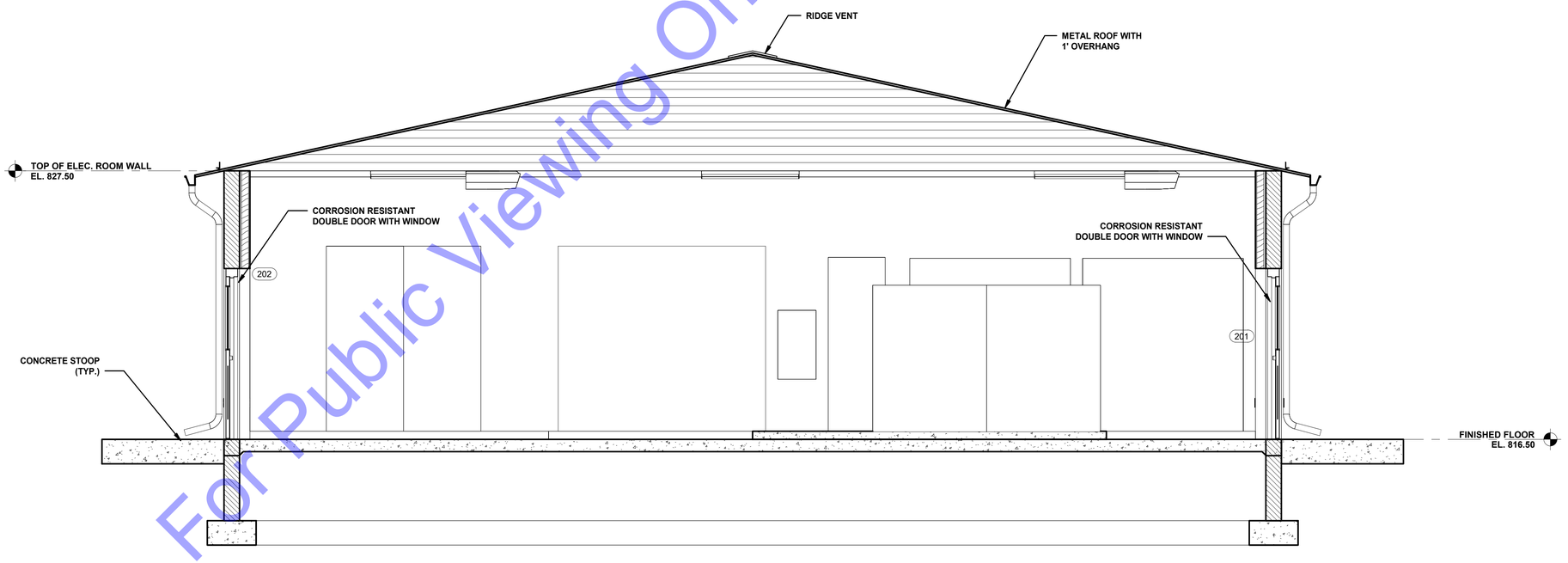


SECTION F (D2-09)
SCALE: 3/8" = 1'-0"
0' 2' 4' 6'



SECTION G (D2-09)
SCALE: 3/8" = 1'-0"
0' 2' 4' 6'

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NEW ELECTRICAL BUILDING SECTION VIEWS

Drawing No:
D2-10
Sheet: 59 OF 205

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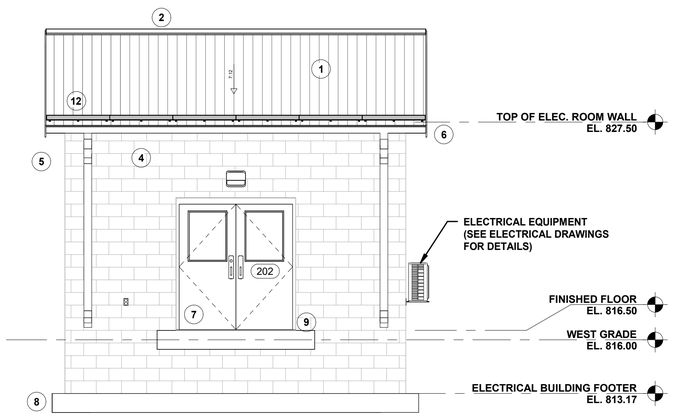
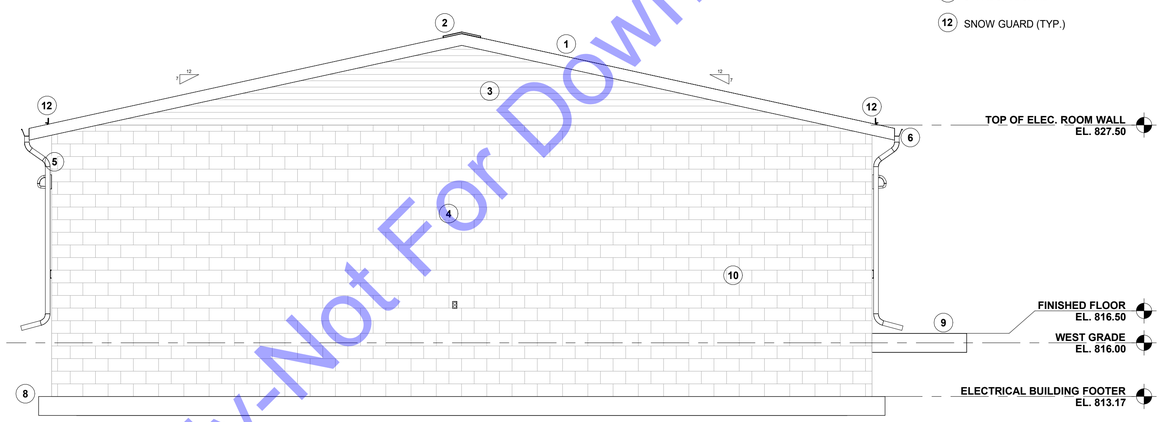
#	ELEVATION VIEW KEYNOTE LEGEND:
1	METAL SEAM ROOF
2	RIDGE VENT
3	METAL PANEL SIDING
4	SPLIT FACE CMU BLOCK
5	5" x 3" PREFINISHED ALUM. DOWNSPOUT
6	5" x 5" PREFINISHED ALUM. GUTTER
7	NEW DOUBLE DOOR (PAINTED)
8	FOOTING AND FOUNDATION (SEE STRUCTURAL DRAWINGS)
9	8.333' x 5' CONCRETE STOOP
10	SOLAR J-BOX
11	8" FASCIA BOARD
12	SNOW GUARD (TYP.)



NORTH ELEVATION

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

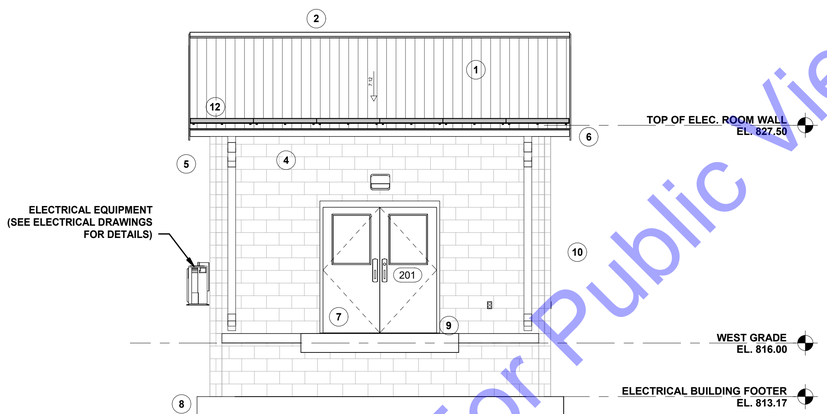
0' 2' 4' 8'



EAST ELEVATION

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

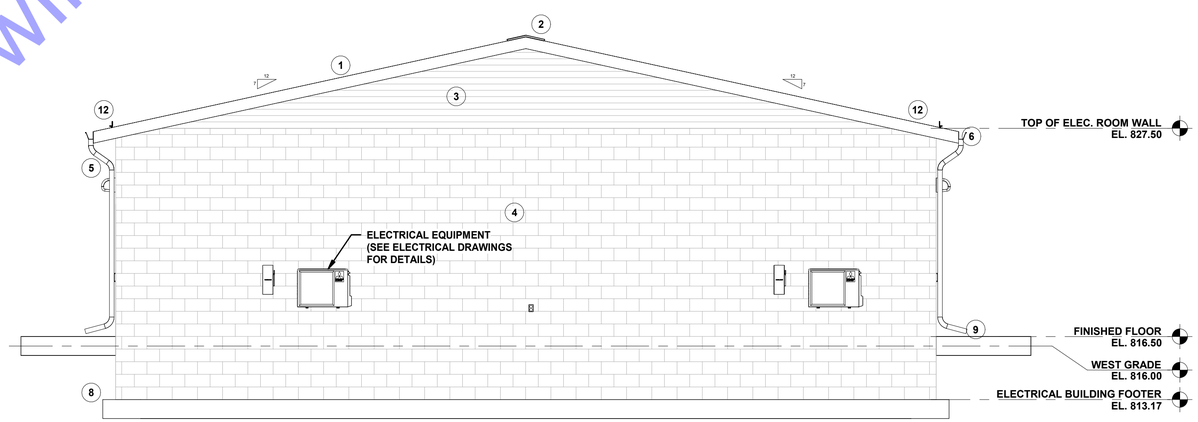
0' 2' 4' 8'



SOUTH ELEVATION

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

0' 2' 4' 8'



WEST ELEVATION

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

0' 2' 4' 8'

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Issue Date:	**Project No:**	**Scale:**
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NEW ELECTRICAL BUILDING ELEVATION VIEWS

Drawing No:

D2-11

Sheet: 60 OF 205

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DOOR SCHEDULE

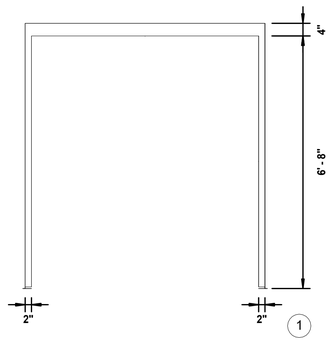
LOCATION	DOOR DATA											FRAME DATA						COMMENTS
	DOOR NUMBER	QUANTITY	DOOR TYPE	WINDOW	INSULATED	ROUGH WIDTH	ROUGH HEIGHT	DOOR WIDTH	DOOR HEIGHT	DOOR MATERIAL	THICKNESS	FRAME NUMBER	FRAME MATERIAL	FRAME DEPTH	HEAD DETAIL	JAMB DETAIL	SILL DETAIL	
ELECTRICAL ROOM	201	1	A	Yes	Yes	6' - 4"	7' - 0"	6' - 0"	6' - 8"	FRP OR STAINLESS STEEL	0' - 2"	1	FRP OR STAINLESS STEEL	5 3/4"	3	2	1	
ELECTRICAL ROOM	202	1	A	Yes	Yes	6' - 4"	7' - 0"	6' - 0"	6' - 8"	FRP OR STAINLESS STEEL	0' - 2"	1	FRP OR STAINLESS STEEL	5 3/4"	3	2	1	

GATE SCHEDULE

LOCATION	SYMBOL	GATE TYPE	GATE SIZE		GATE MOUNTING TYPE	CONFIGURATION	MATERIAL	SELF-CONTAINED	LIFT TYPE	NUMBER	OPEN / CLOSE	COMMENTS
			HEIGHT	WIDTH								
SCREEN INFLUENT CHANNEL	SG-201	SLIDE	2' - 0"	3' - 0"	SURFACE MOUNTED	SURFACE MOUNTED UPWARD OPENING, NON-SELF CONTAINED	HEAVY DUTY 304 SS	Yes	ELECTRICAL ACTUATOR	1	N/A	
SCREEN BY-PASS CHANNEL	SG-202	SLIDE	2' - 0"	3' - 0"	SURFACE MOUNTED	SURFACE MOUNTED UPWARD OPENING, NON-SELF CONTAINED	HEAVY DUTY 304 SS	Yes	ELECTRICAL ACTUATOR	1	N/A	
SCREEN EFFLUENT CHANNEL	SG-203	SLIDE	2' - 0"	3' - 0"	SURFACE MOUNTED	SURFACE MOUNTED UPWARD OPENING, NON-SELF CONTAINED	HEAVY DUTY 304 SS	Yes	ELECTRICAL ACTUATOR	1	N/A	
GRIT INFLUENT CHANNEL	SG-204	SLIDE	2' - 6"	3' - 0"	SURFACE MOUNTED	SURFACE MOUNTED UPWARD OPENING, NON-SELF CONTAINED	HEAVY DUTY 304 SS	Yes	ELECTRICAL ACTUATOR	1	N/A	
SCREEN BY-PASS CHANNEL	SG-205	SLIDE	2' - 6"	3' - 0"	SURFACE MOUNTED	SURFACE MOUNTED UPWARD OPENING, NON-SELF CONTAINED	HEAVY DUTY 304 SS	Yes	ELECTRICAL ACTUATOR	1	N/A	
SCREEN BY-PASS CHANNEL	SG-206	SLIDE	2' - 0"	3' - 0"	SURFACE MOUNTED	SURFACE MOUNTED UPWARD OPENING, NON-SELF CONTAINED	HEAVY DUTY 304 SS	Yes	ELECTRICAL ACTUATOR	1	N/A	
GRIT BY-PASS CHANNEL	SG-207	SLIDE	2' - 6"	3' - 0"	SURFACE MOUNTED	SURFACE MOUNTED UPWARD OPENING, NON-SELF CONTAINED	HEAVY DUTY 304 SS	Yes	ELECTRICAL ACTUATOR	1	N/A	
GRIT EFFLUENT CHANNEL	SG-208	SLIDE	2' - 0"	3' - 0"	SURFACE MOUNTED	SURFACE MOUNTED UPWARD OPENING, NON-SELF CONTAINED	HEAVY DUTY 304 SS	Yes	ELECTRICAL ACTUATOR	1	N/A	
BY-PASS EFFLUENT CHANNEL	SG-209	SLIDE	2' - 6"	4' - 0"	SURFACE MOUNTED	SURFACE MOUNTED UPWARD OPENING, NON-SELF CONTAINED	HEAVY DUTY 304 SS	Yes	ELECTRICAL ACTUATOR	1	N/A	

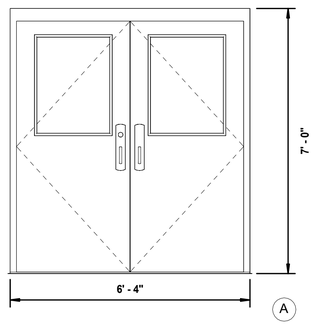
ROOM FINISH SCHEDULE

ROOM NUMBER	ROOM NAME	FLOOR	WALLS	CEILING	COMMENTS
101	ELECTRICAL ROOM	FLOOR COATING PER SPECIFICATIONS WITH SILICA SAND, OR EQUAL INCORPORATED TO ASSURE NON-SLIP SURFACE	PAINTED DRYWALL	PAINTED DRYWALL	



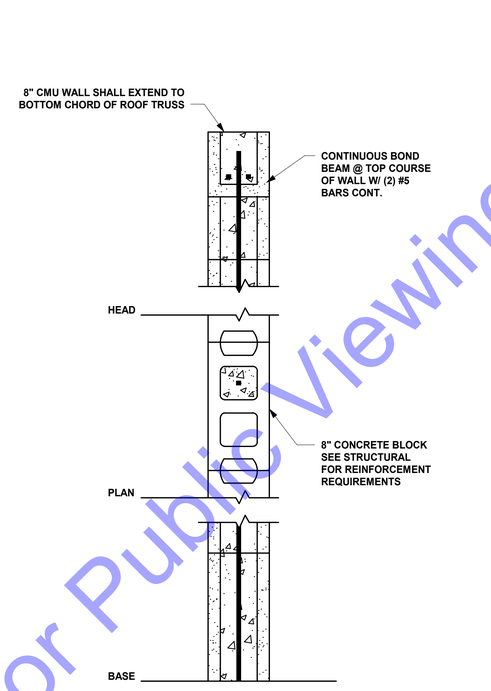
DOOR FRAME ELEVATIONS

SCALE: NOT TO SCALE



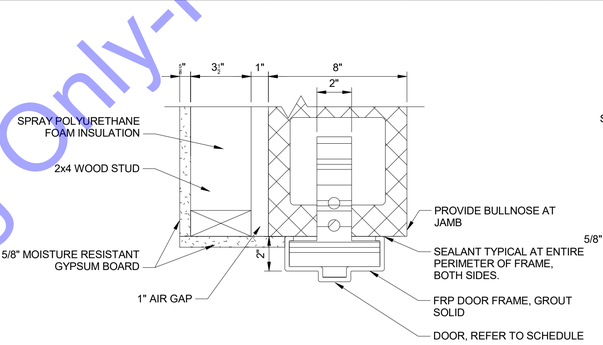
DOOR ELEVATIONS

SCALE: NOT TO SCALE



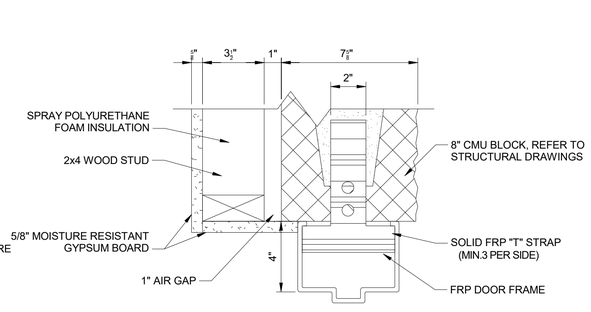
TYPICAL WALL SECTION - INTERIOR

SCALE: N.T.S.



JAMB DETAIL 2

NOT TO SCALE



HEAD DETAIL 3

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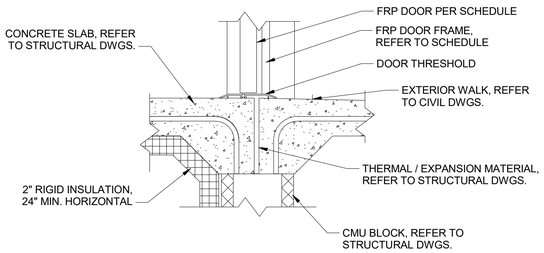

SILL DETAIL 1

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NEW ELECTRICAL BUILDING SCHEDULES AND DOOR DETAILS

Drawing No:

D2-12

Sheet: 61 OF 205

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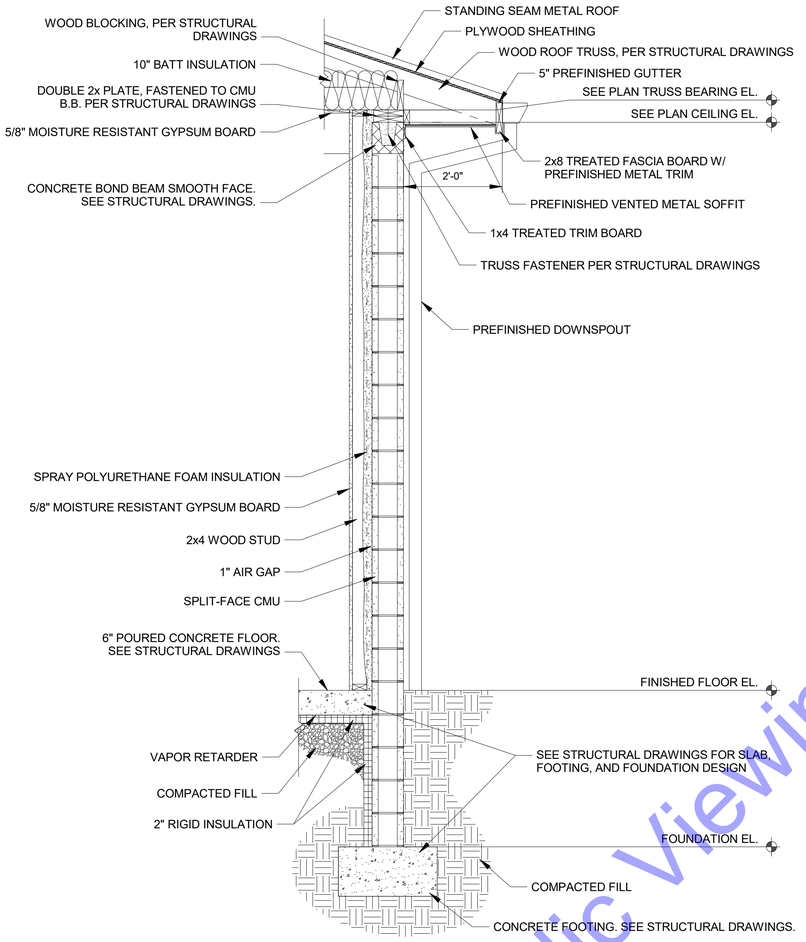
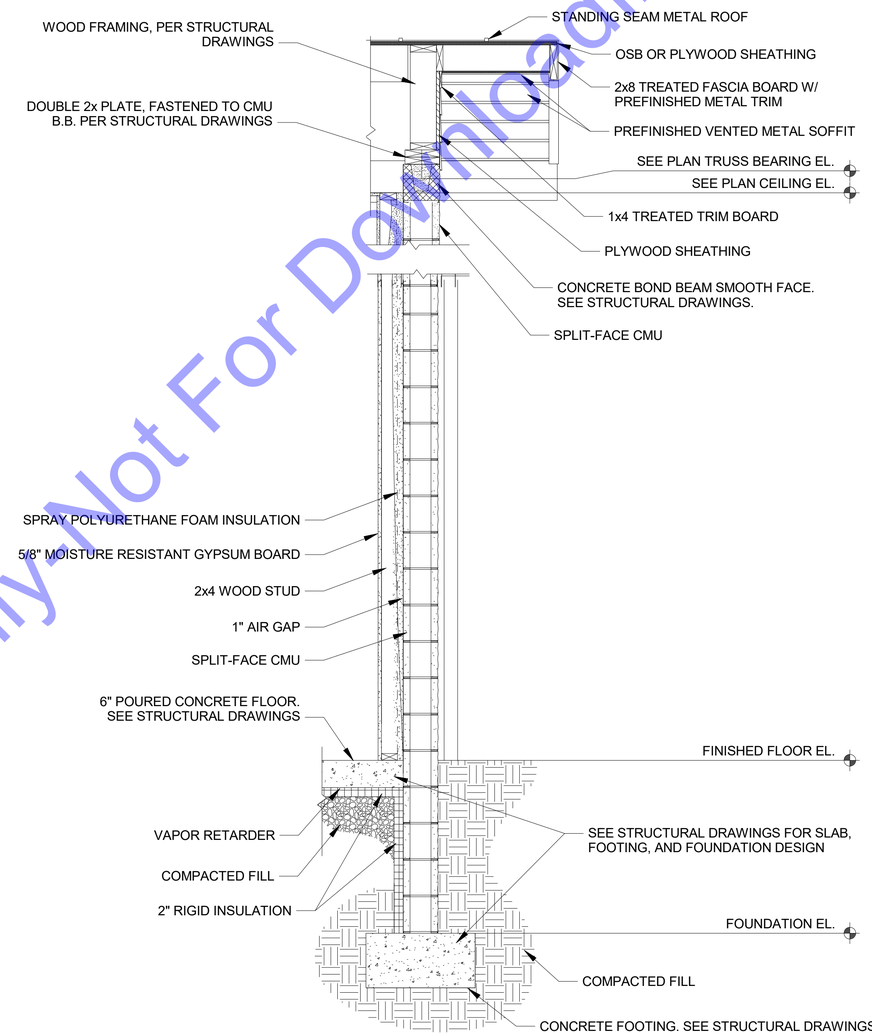


TYPICAL WALL SECTION - EAVE DETAIL

NOT TO SCALE



TYPICAL WALL SECTION - RACK DETAIL

NOT TO SCALE

TYPICAL WALL SECTION DETAILS

SCALE: NOT TO SCALE

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NEW ELECTRICAL BUILDING ARCHITECTURAL DETAILS

Drawing No:

D2-13

Sheet: 62 OF 205

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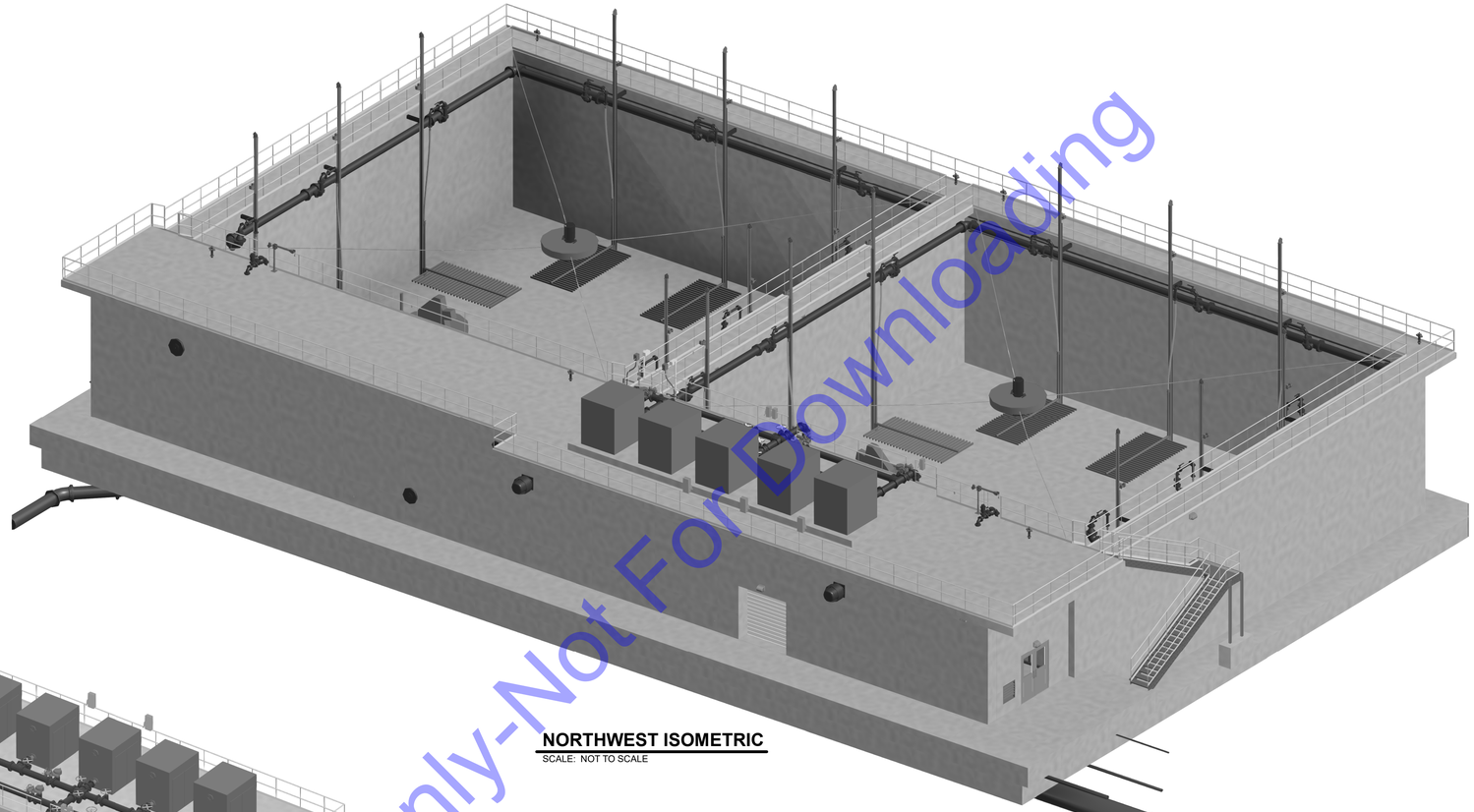
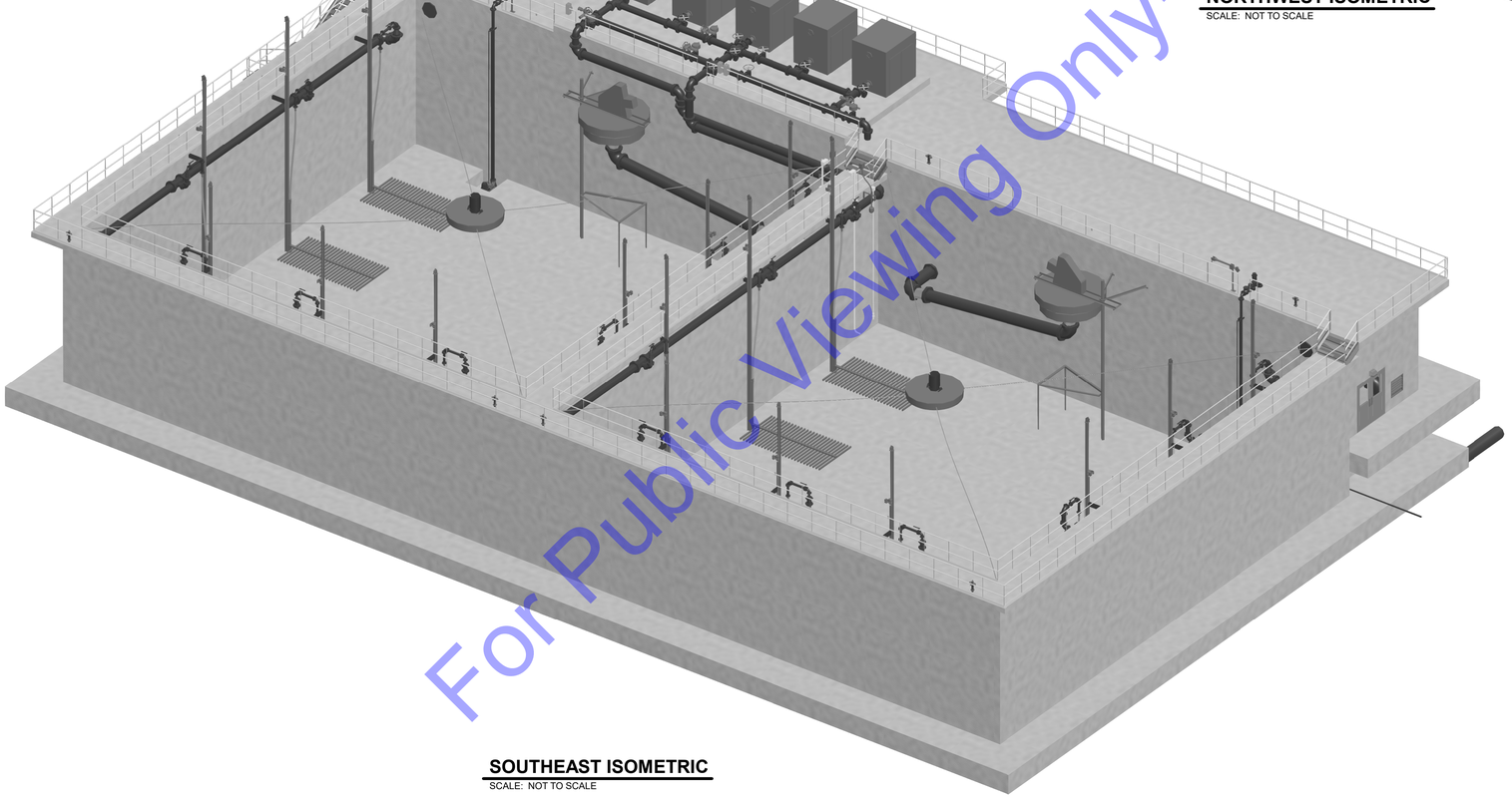


NORTHWEST ISOMETRIC
SCALE: NOT TO SCALE



SOUTHEAST ISOMETRIC
SCALE: NOT TO SCALE

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NEW OVERALL SBR TANK ISOMETRIC VIEWS

Drawing No:
D3-01
Sheet: 63 OF 205

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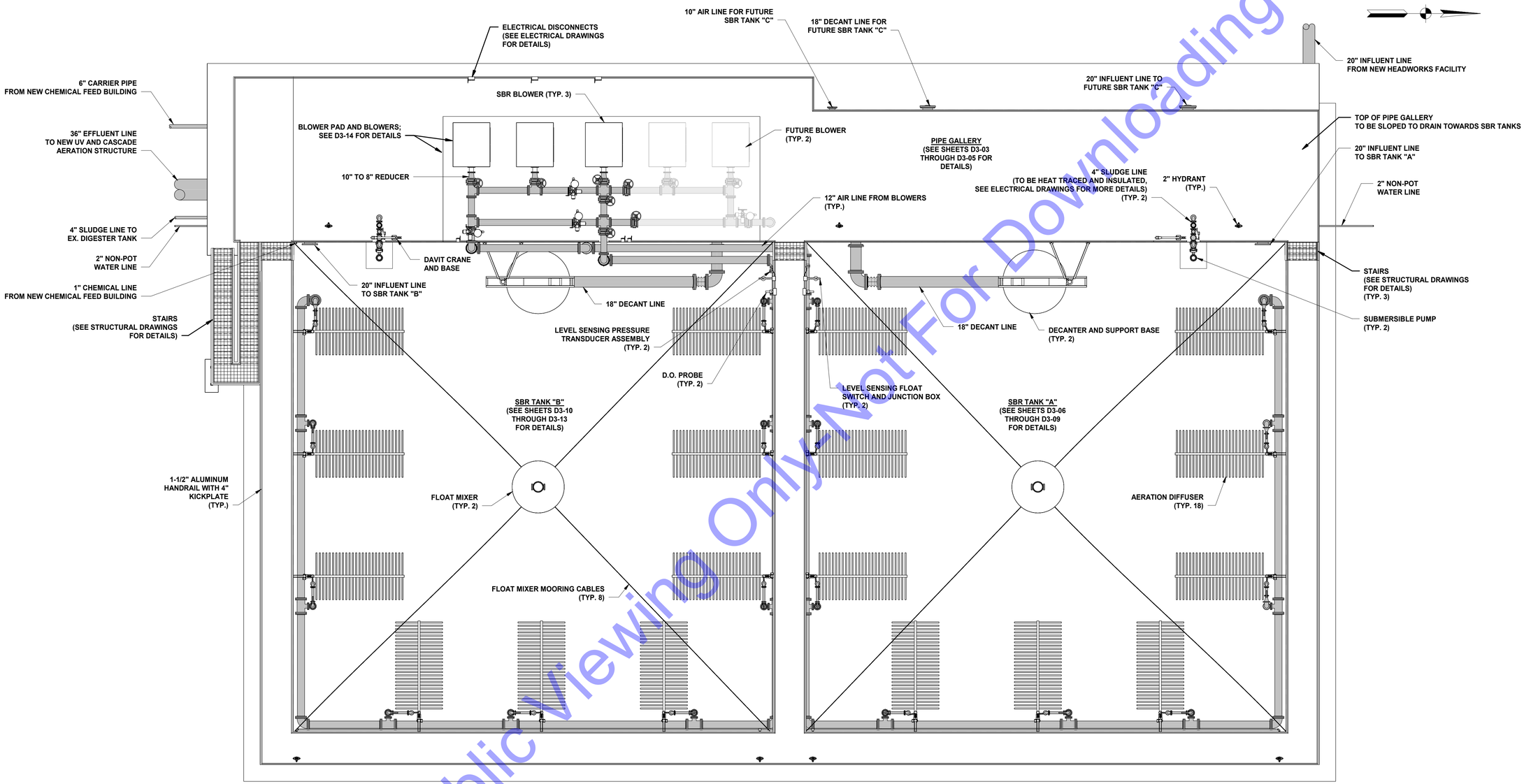

PLAN

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

0' 4' 8' 16'

GENERAL NOTES:

1. **ALL EXPOSED PROCESS PIPING ABOVE THE LOW WATER LEVEL IN EACH TANK SHALL BE HEAT TRACED AND INSULATED. SEE ELECTRICAL DRAWINGS FOR MORE DETAILS.**

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NEW OVERALL SBR TANK PLAN VIEWS

Drawing No:
D3-02
Sheet: 64 OF 205

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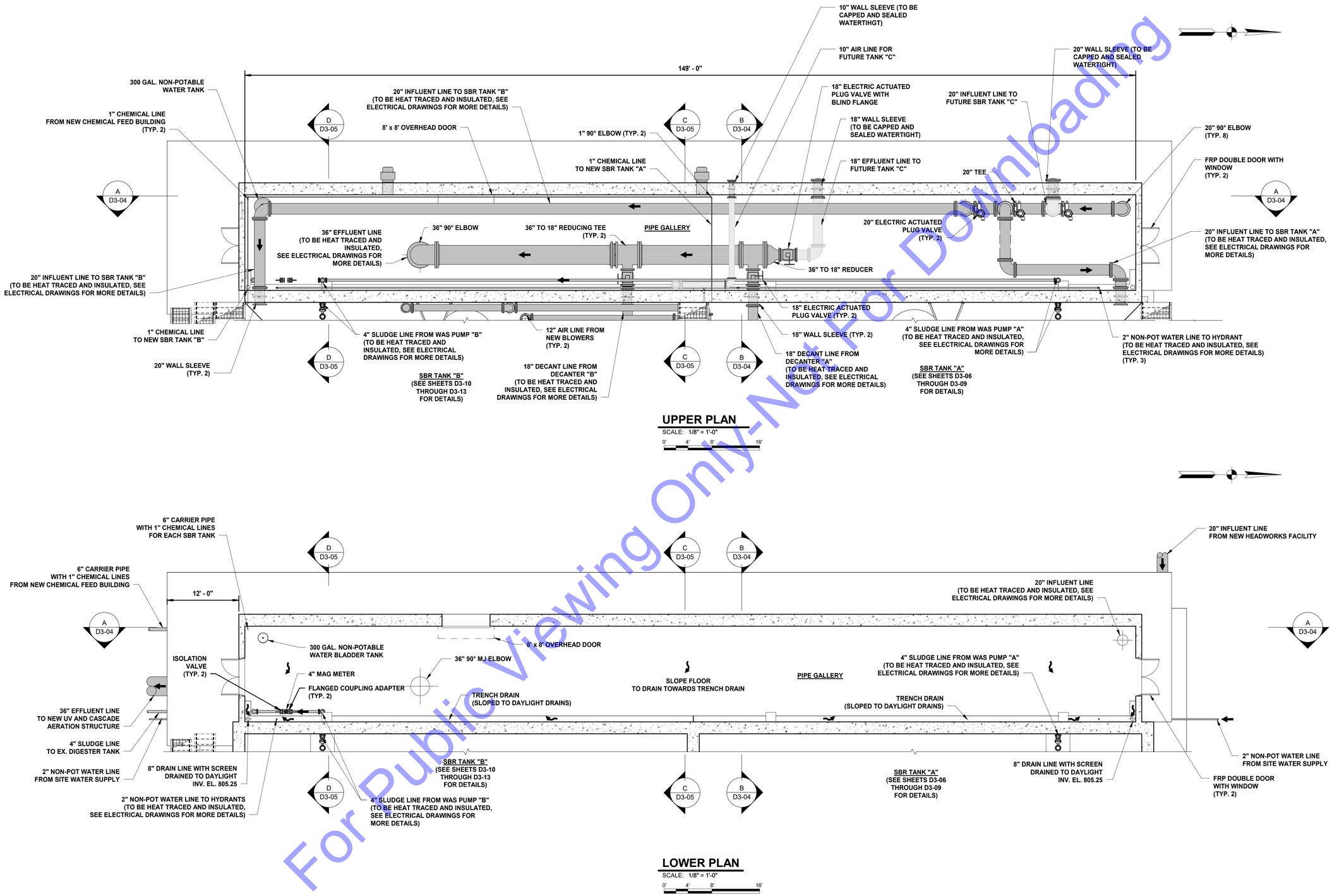

UPPER PLAN

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

0' 4' 8' 16'

LOWER PLAN

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

0' 4' 8' 16'

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NEW SBR PIPE GALLERY PLAN VIEWS

Drawing No:

D3-03

Sheet: 65 OF 205

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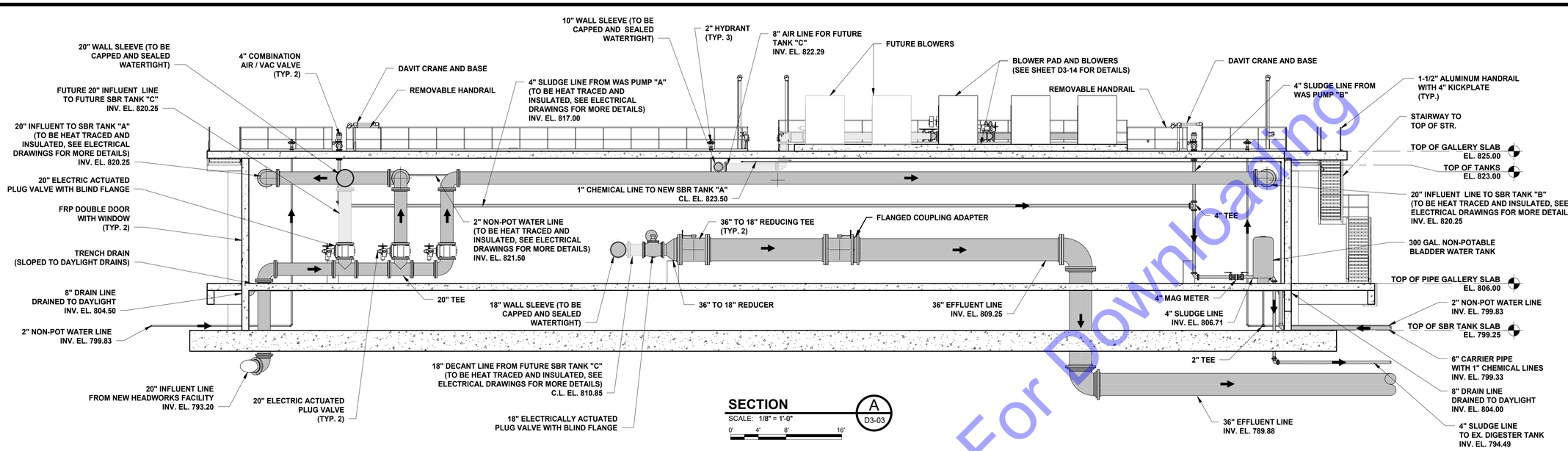
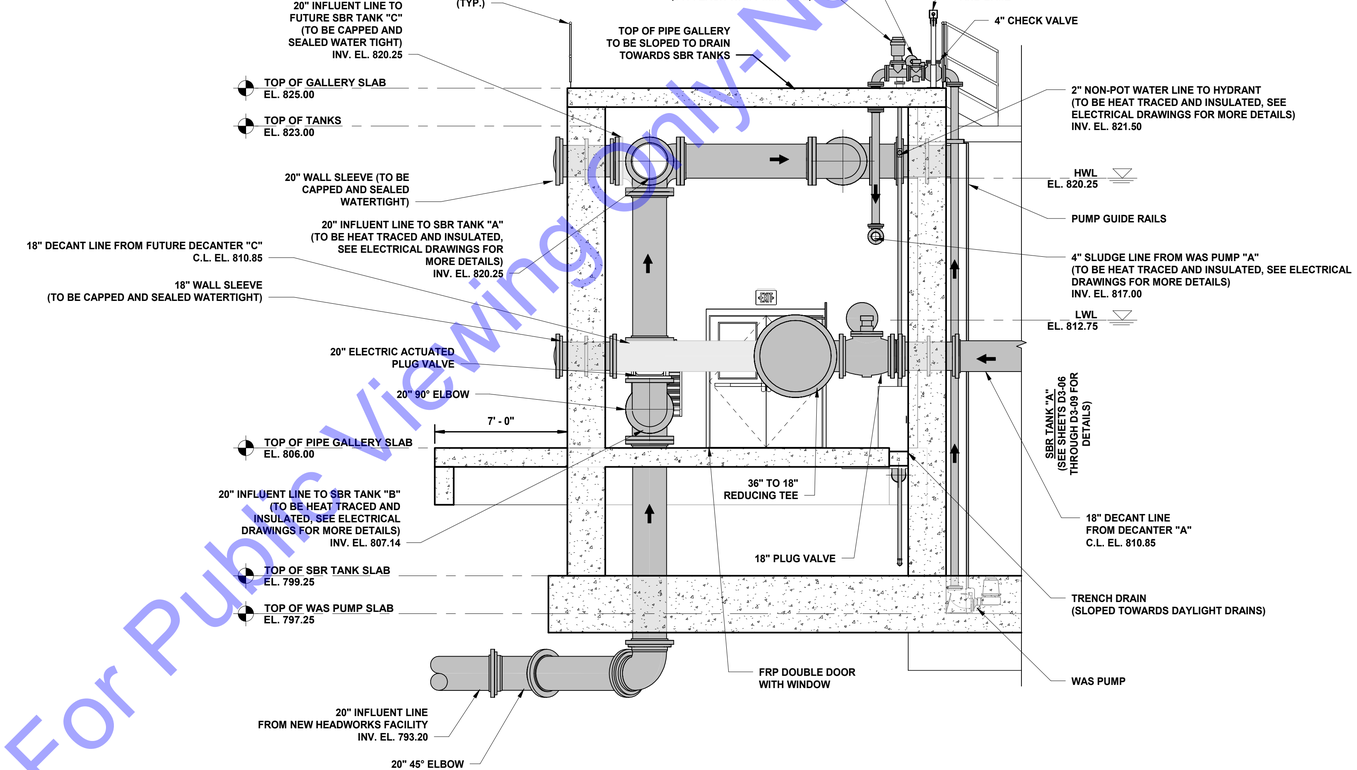


SECTION A D3-03
SCALE: 1/8" = 1'-0"
0' 4' 8' 16'



SECTION B D3-03
SCALE: 1/4" = 1'-0"
0' 2' 4' 8'

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NEW SBR PIPE GALLERY SECTION VIEWS

Drawing No:
D3-04
Sheet: 66 OF 205

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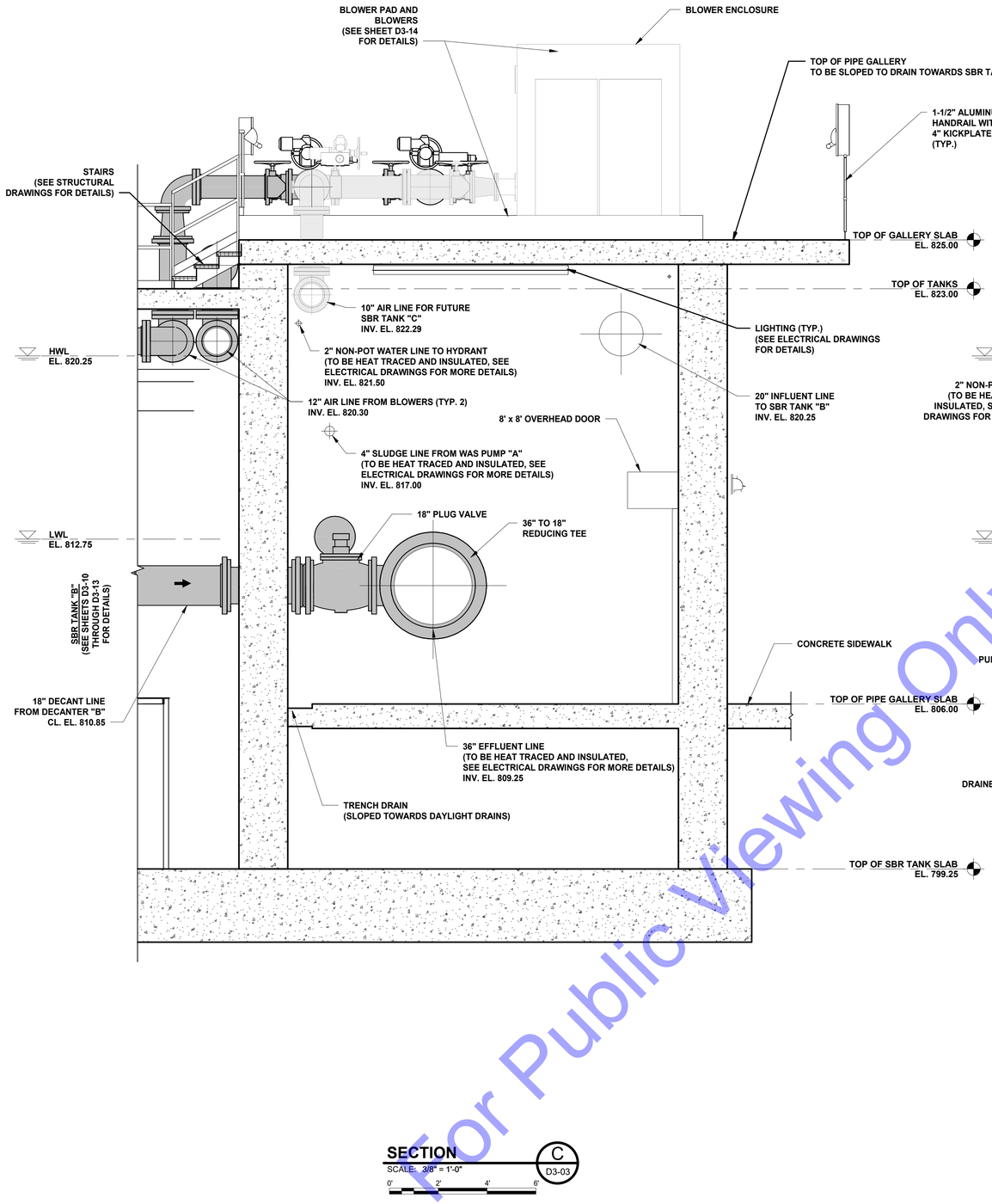
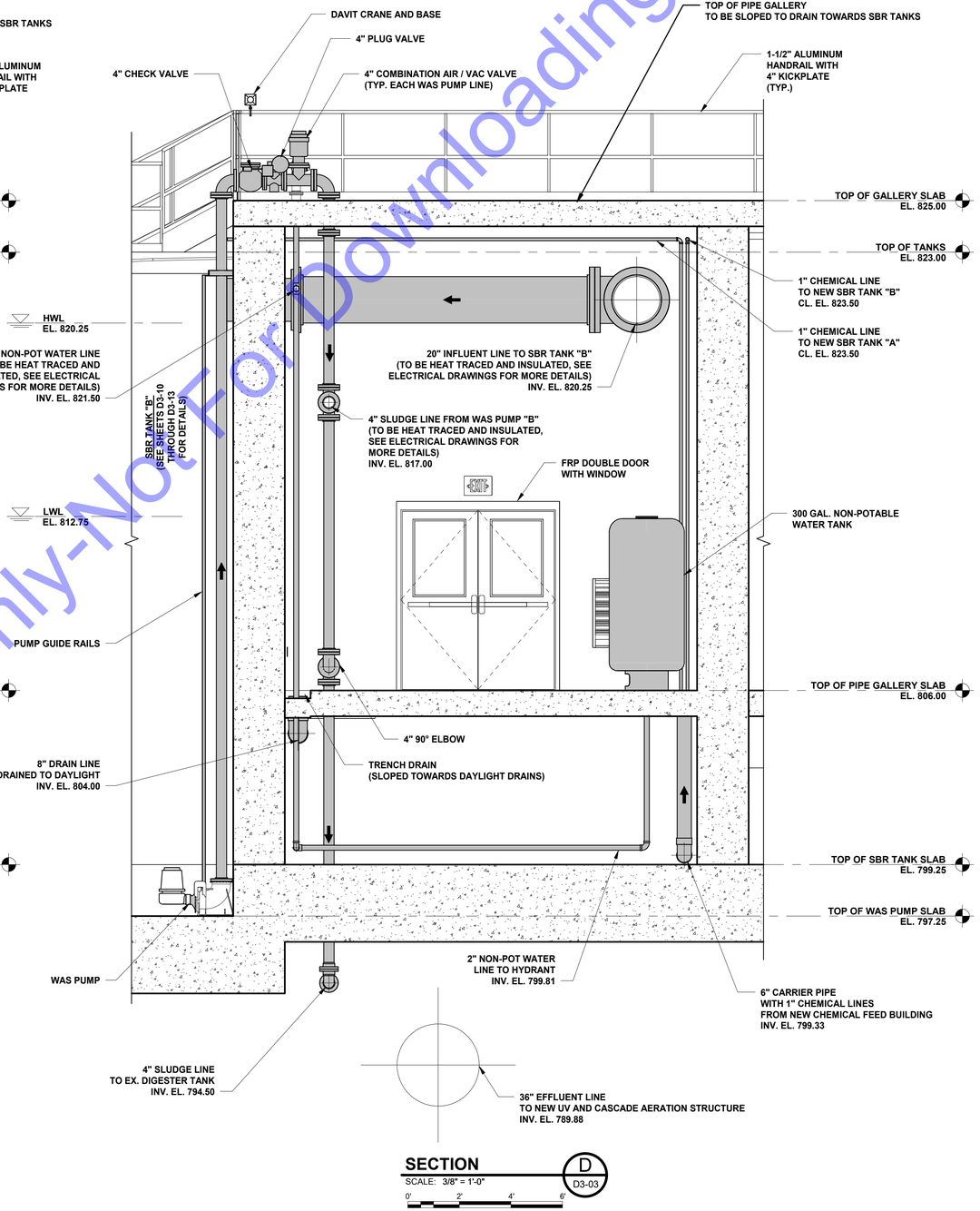


SECTION C
SCALE: 3/8" = 1'-0"
0' 2' 4' 6'
D3-03



SECTION D
SCALE: 3/8" = 1'-0"
0' 2' 4' 6'
D3-03

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NEW SBR PIPE GALLERY SECTION VIEWS

Drawing No:
D3-05
Sheet: 67 OF 205

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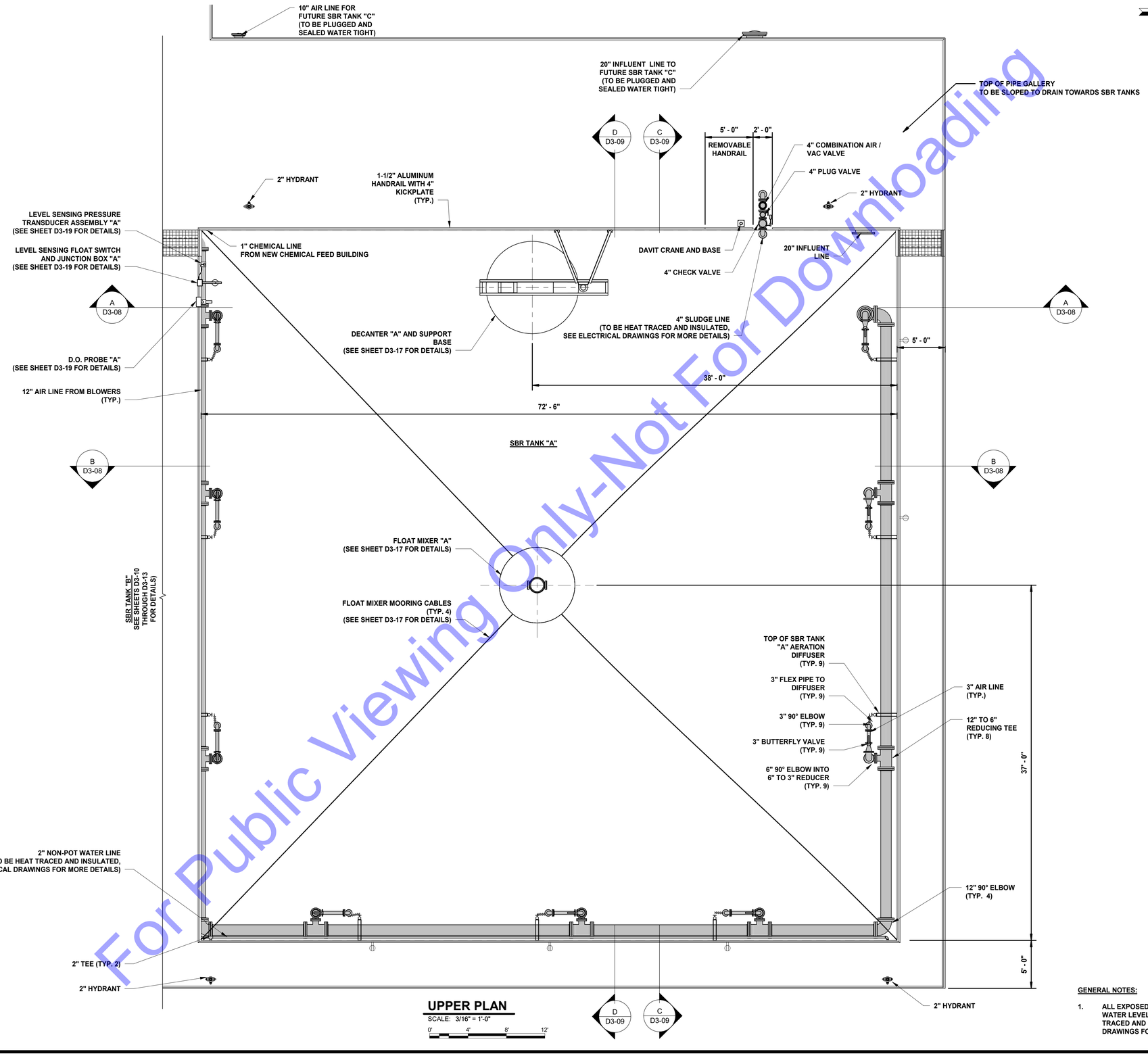

UPPER PLAN

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

0' 4' 8' 12'

GENERAL NOTES:

1. ALL EXPOSED PROCESS PIPING ABOVE THE LOW WATER LEVEL IN EACH TANK SHALL BE HEAT TRACED AND INSULATED. SEE ELECTRICAL DRAWINGS FOR MORE DETAILS.

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NEW SBR TANK "A" UPPER LEVEL PLAN VIEW

Drawing No: **D3-06**

Sheet: 68 OF 205

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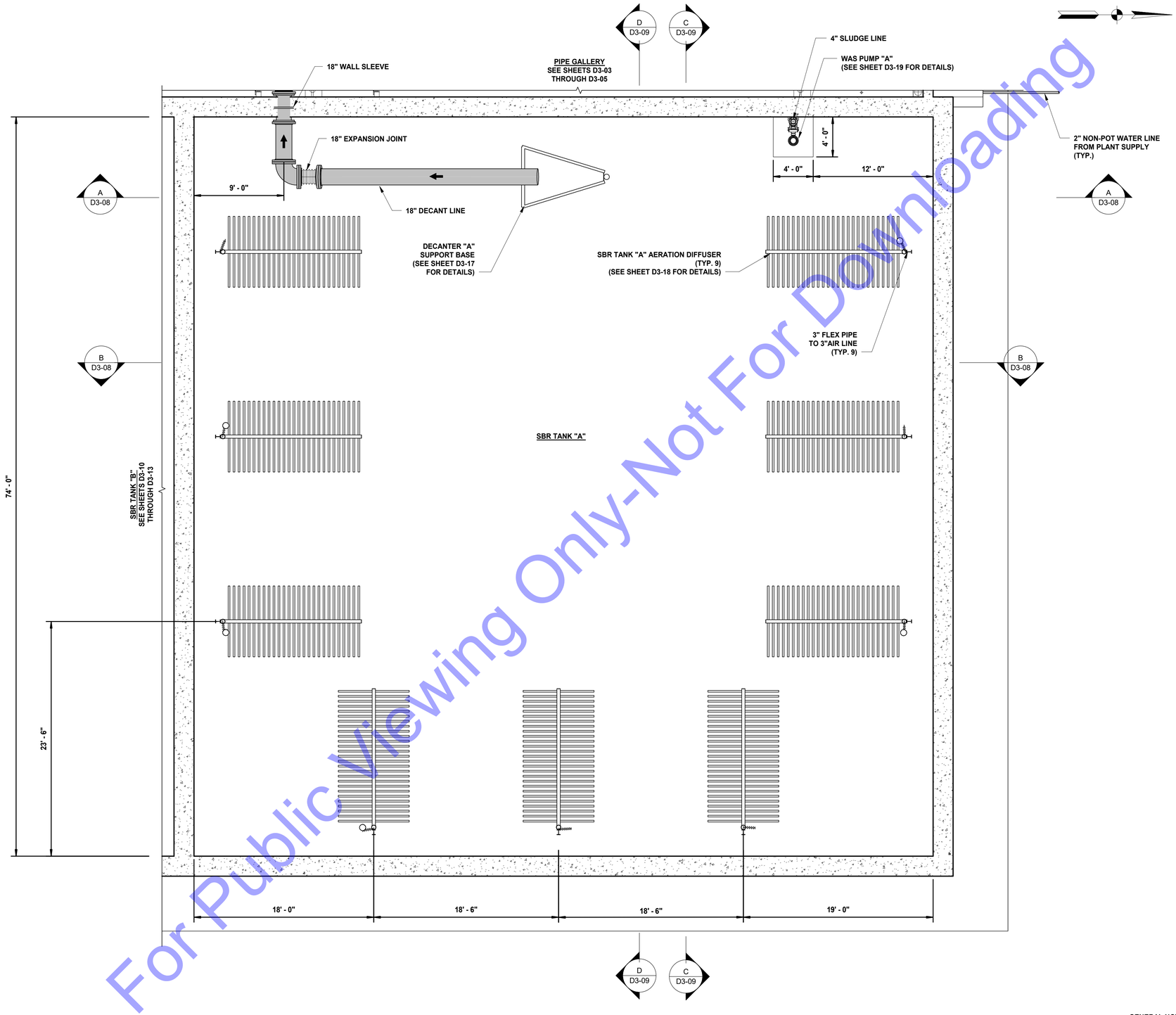

LOWER PLAN

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

0' 4' 8' 12'

GENERAL NOTES:

1. **ALL EXPOSED PROCESS PIPING ABOVE THE LOW WATER LEVEL IN EACH TANK SHALL BE HEAT TRACED AND INSULATED. SEE ELECTRICAL DRAWINGS FOR MORE DETAILS.**

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NEW SBR TANK "A"
LOWER LEVEL PLAN
VIEW

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D3-07
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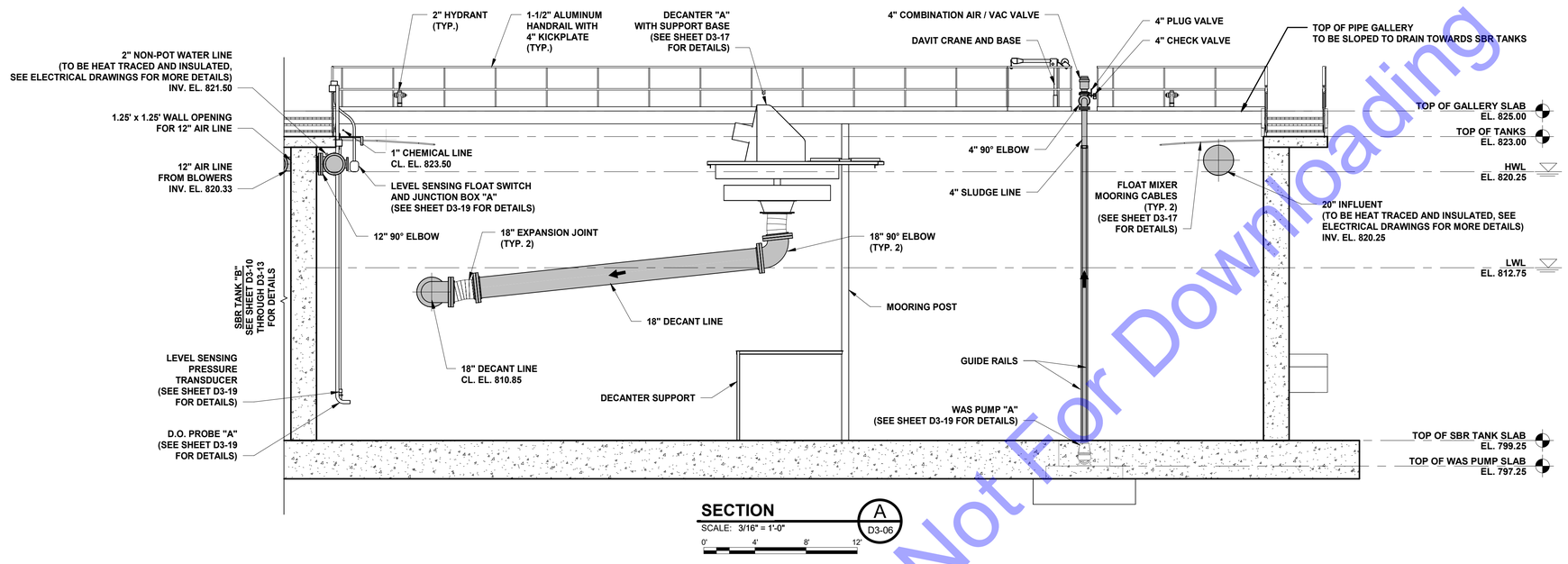

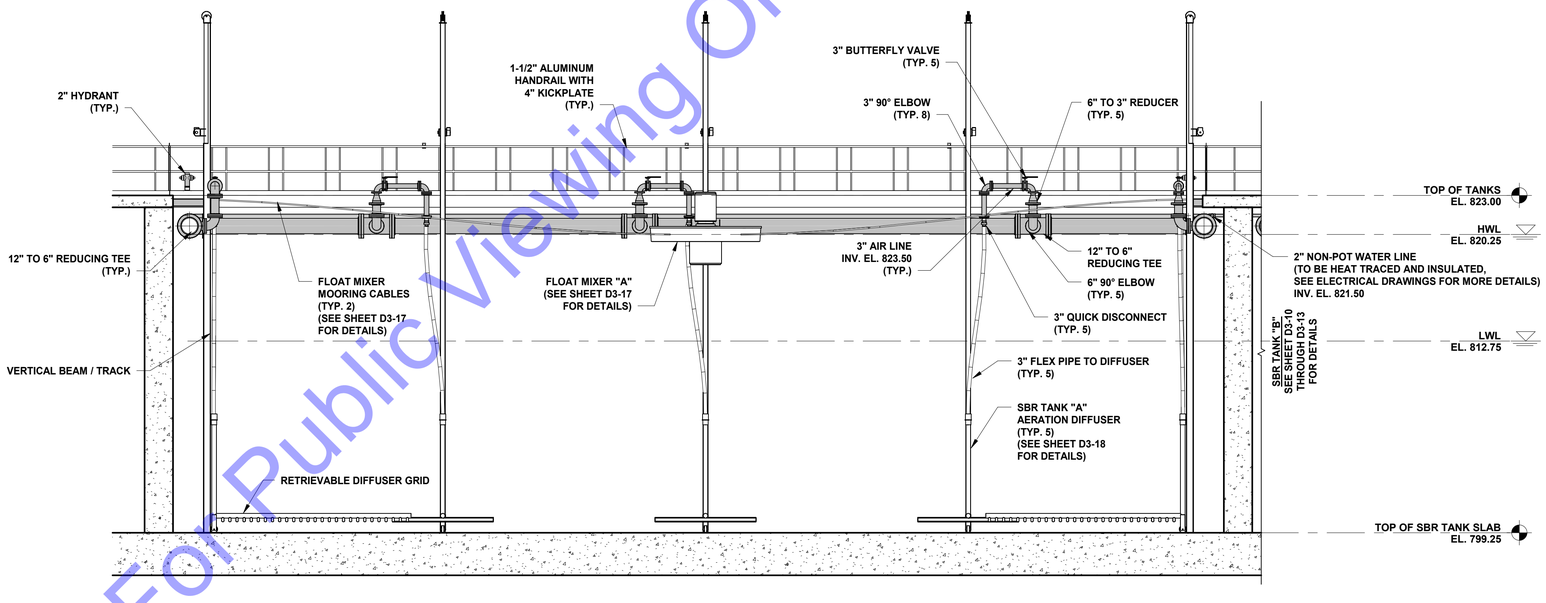

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NEW SBR TANK "A"
SECTION VIEWS

Drawing No:
D3-08
Sheet: 70 OF 205

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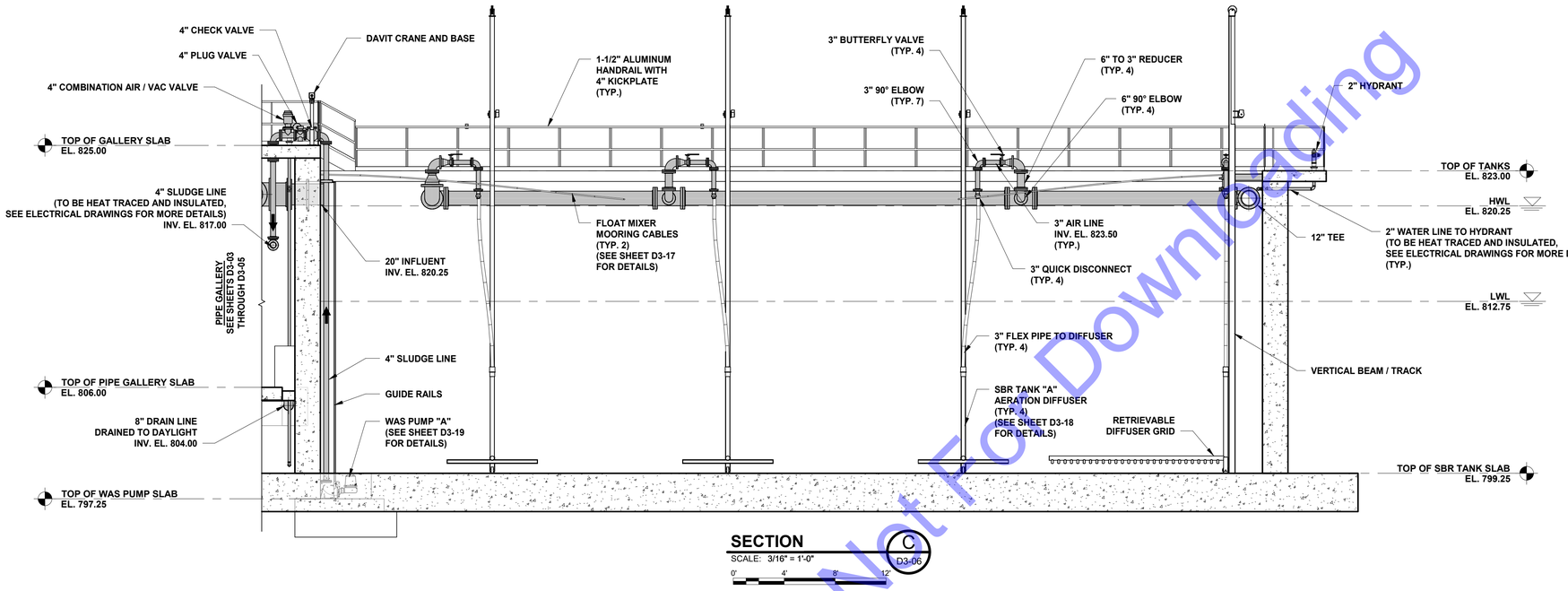
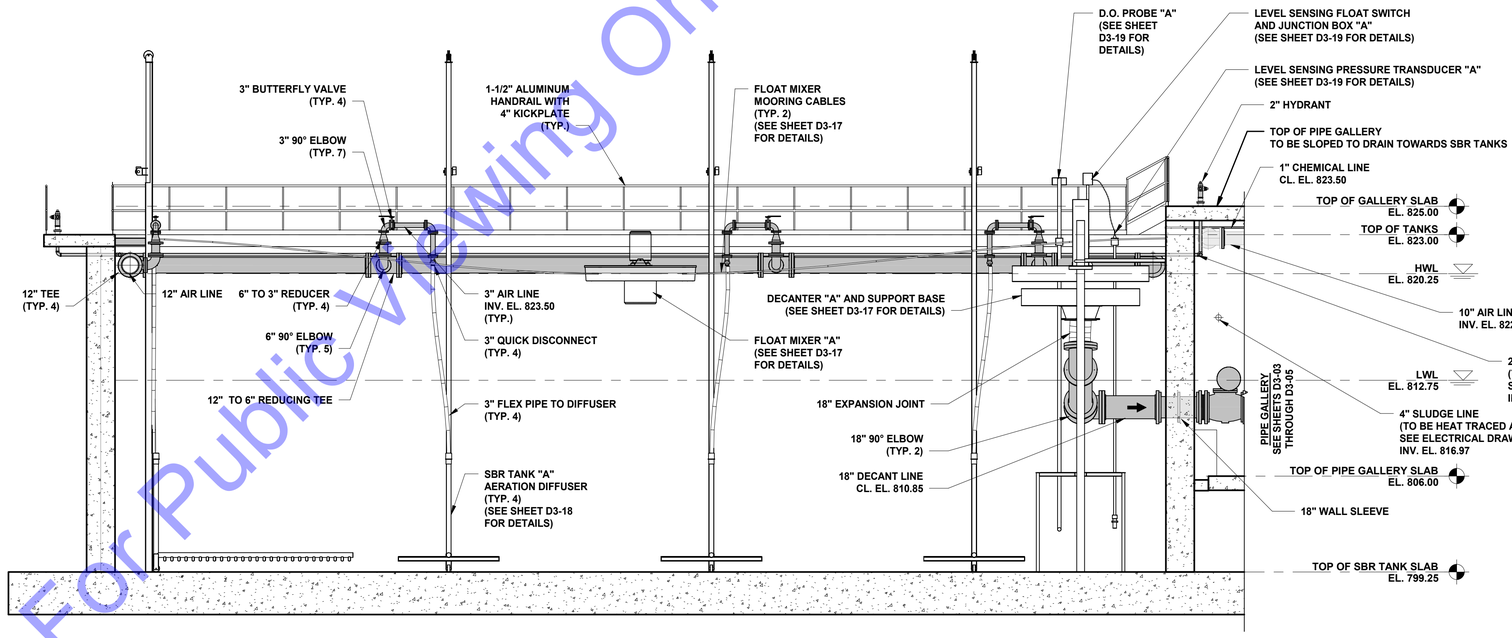


SECTION C
SCALE: 3/16" = 1'-0" D3-06
0' 4' 8' 12'



SECTION D
SCALE: 3/16" = 1'-0" D3-06
0' 4' 8' 12'

GENERAL NOTES:

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NEW SBR TANK "A"
SECTION VIEWS

Drawing No:
D3-09
Sheet: 71 OF 205

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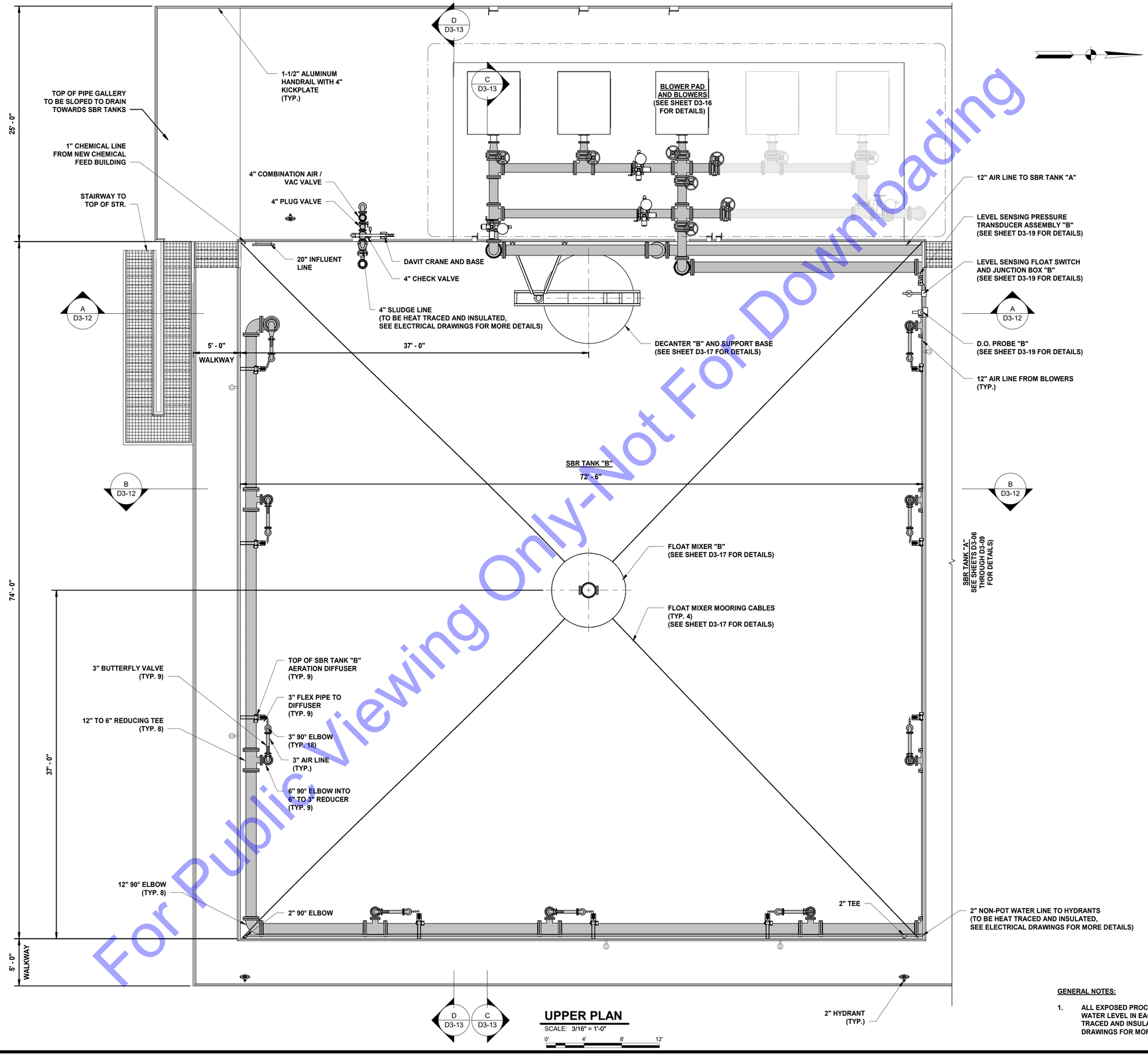

UPPER PLAN

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

0' 4' 8' 12'

GENERAL NOTES:

1. ALL EXPOSED PROCESS PIPING ABOVE THE LOW WATER LEVEL IN EACH TANK SHALL BE HEAT TRACED AND INSULATED. SEE ELECTRICAL DRAWINGS FOR MORE DETAILS.

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NEW SBR TANK "B"
UPPER LEVEL PLAN
VIEW

Drawing No:
D3-10
Sheet: 72 OF 205

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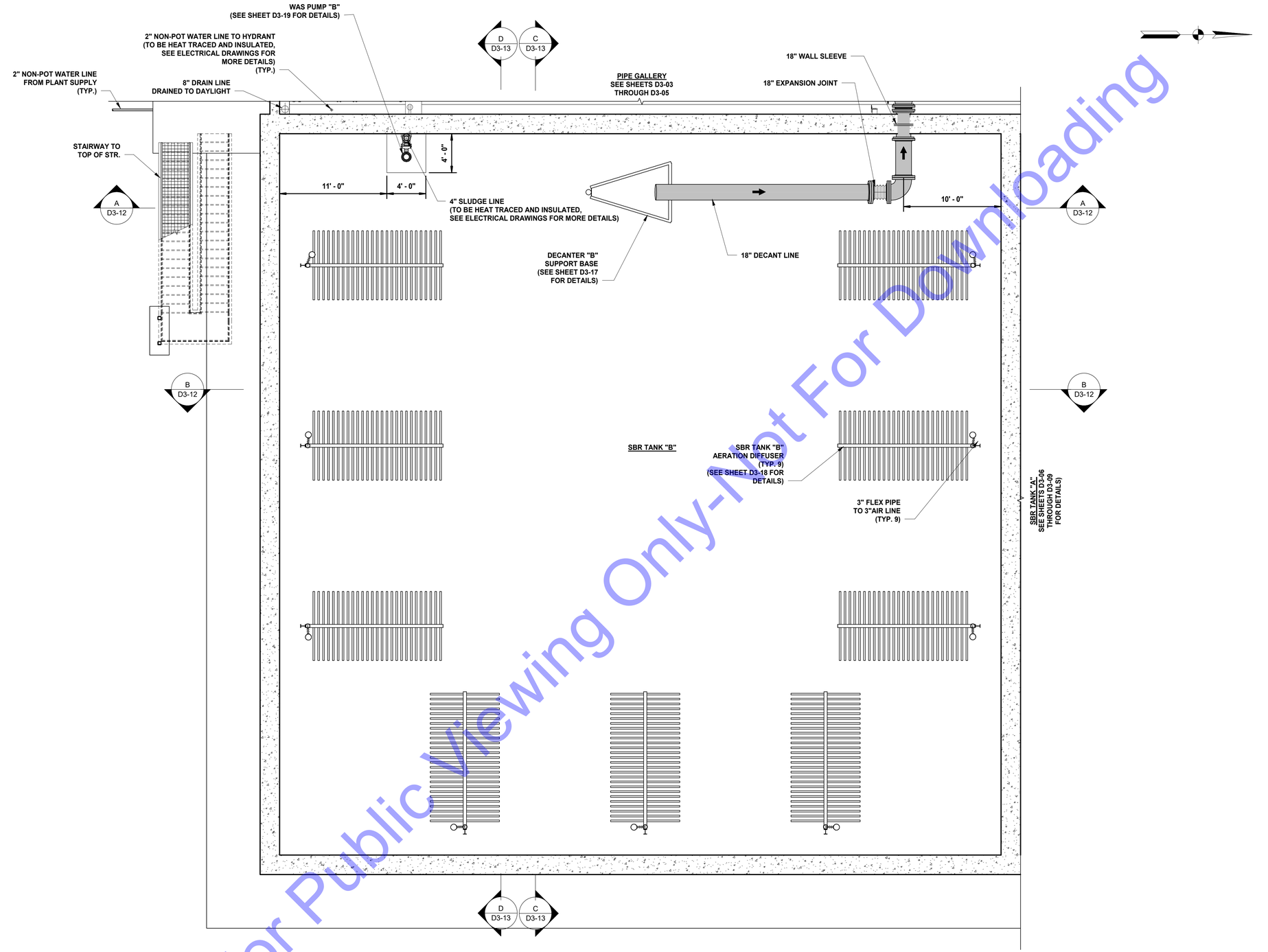

LOWER PLAN

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

0' 4' 8' 12'

GENERAL NOTES:

1. **ALL EXPOSED PROCESS PIPING ABOVE THE LOW WATER LEVEL IN EACH TANK SHALL BE HEAT TRACED AND INSULATED. SEE ELECTRICAL DRAWINGS FOR MORE DETAILS.**

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CHRIS A. LIMCACO
REGISTERED
No. 19700338
STATE OF INDIANA
PROFESSIONAL ENGINEER

Signature 10/24/2023 Date

TOWN OF NEW PALESTINE
HANCOCK COUNTY, INDIANA

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IMPROVEMENTS PROJECT

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Issue Date:	Project No:	Scale:
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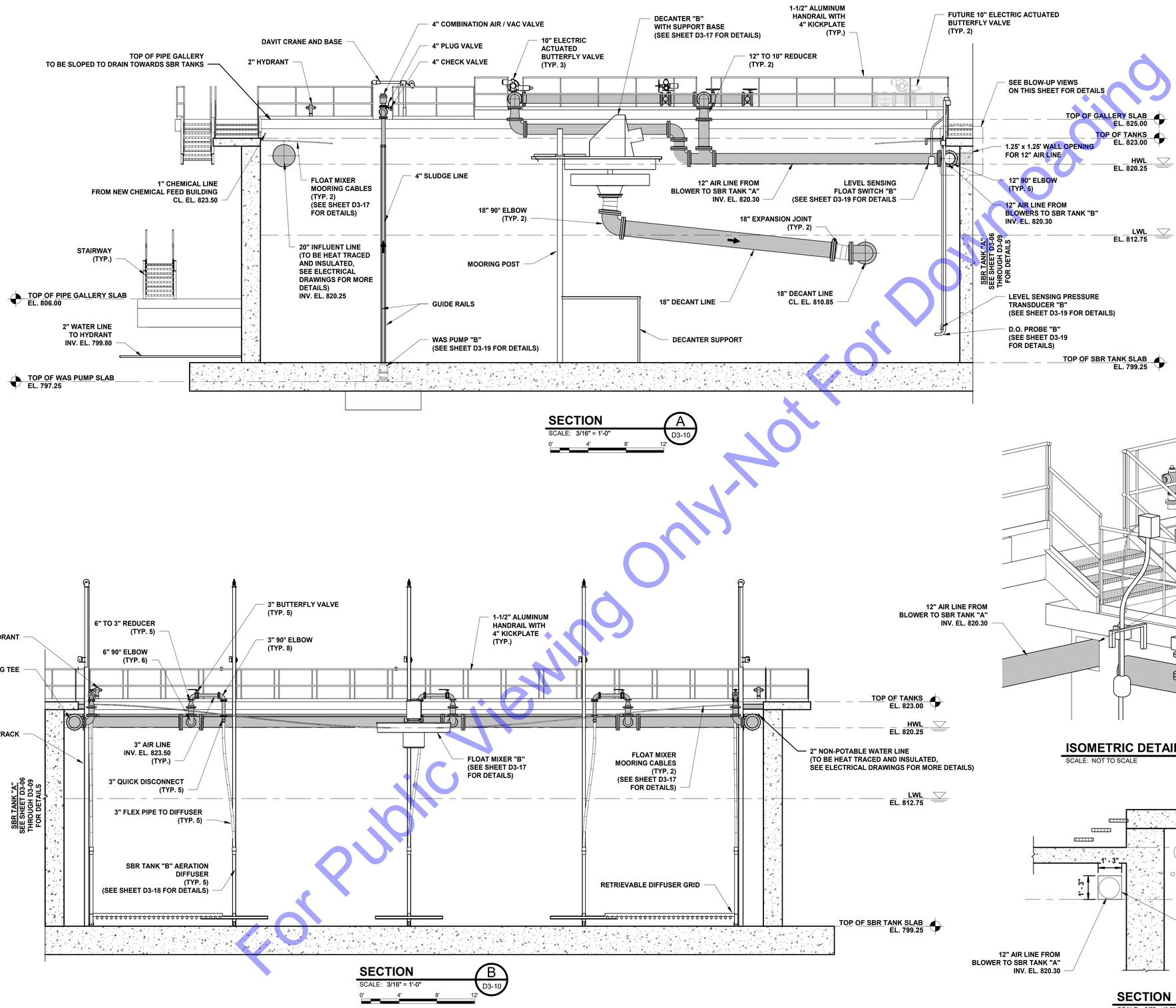
NEW SBR TANK "B"
LOWER LEVEL PLAN
VIEW

Drawing No:
D3-11
Sheet: 73 OF 205

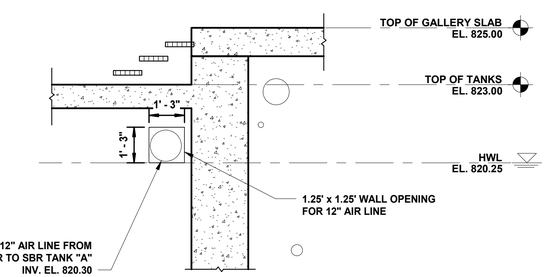
Saved: 8/28/2024 11:44:52 AM Current Local File: Autodesk Docs://New Palestine WWTP/NEW SBR TANKS_v23.rvt



SECTION A D3-10
SCALE: 3/16" = 1'-0"
0' 4' 8' 12'

SECTION B D3-10
SCALE: 3/16" = 1'-0"
0' 4' 8' 12'

ISOMETRIC DETAIL
SCALE: NOT TO SCALE



SECTION
SCALE: 3/8" = 1'-0"
0' 2' 4' 6'

GENERAL NOTES:

1. ALL EXPOSED PROCESS PIPING ABOVE THE LOW WATER LEVEL IN EACH TANK SHALL BE HEAT TRACED AND INSULATED. SEE ELECTRICAL DRAWINGS FOR MORE DETAILS.

NOTE:

1. EQUIPMENT AND PIPING HIDDEN FOR CLARITY.

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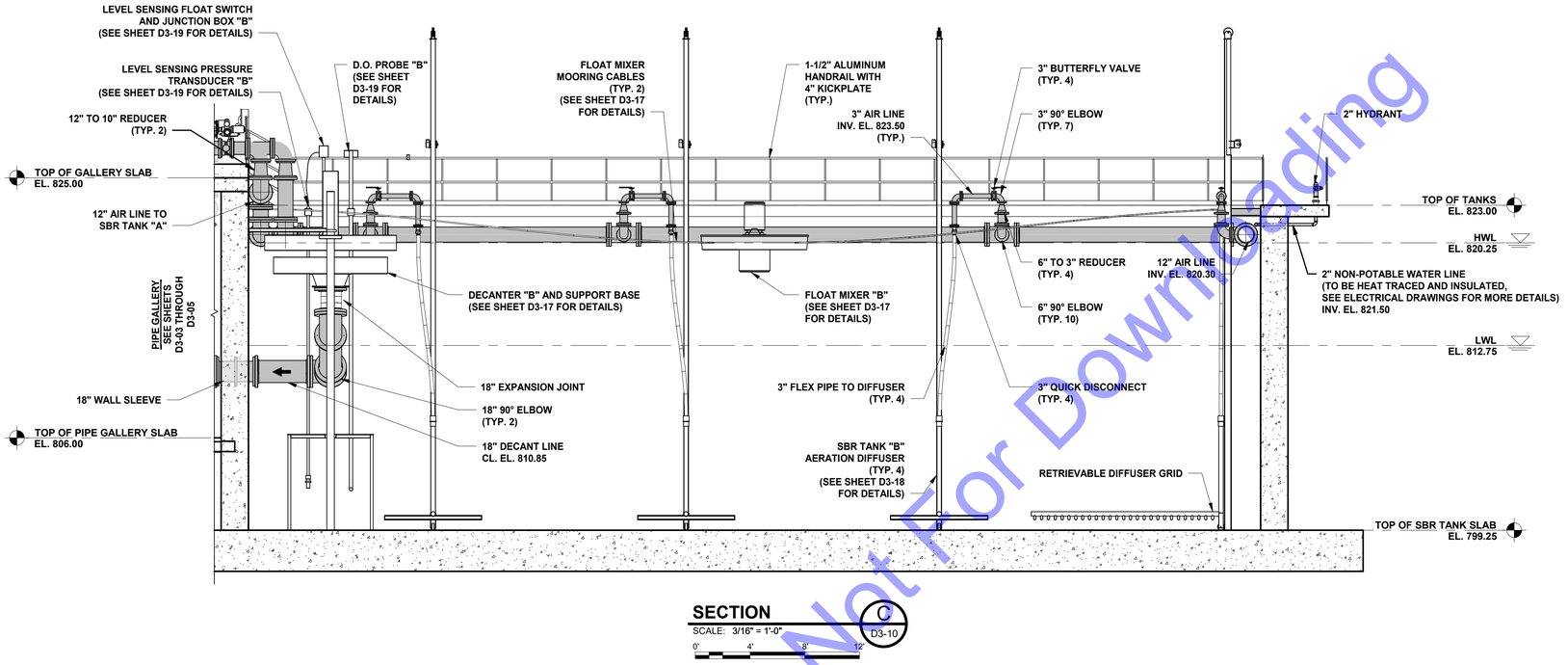
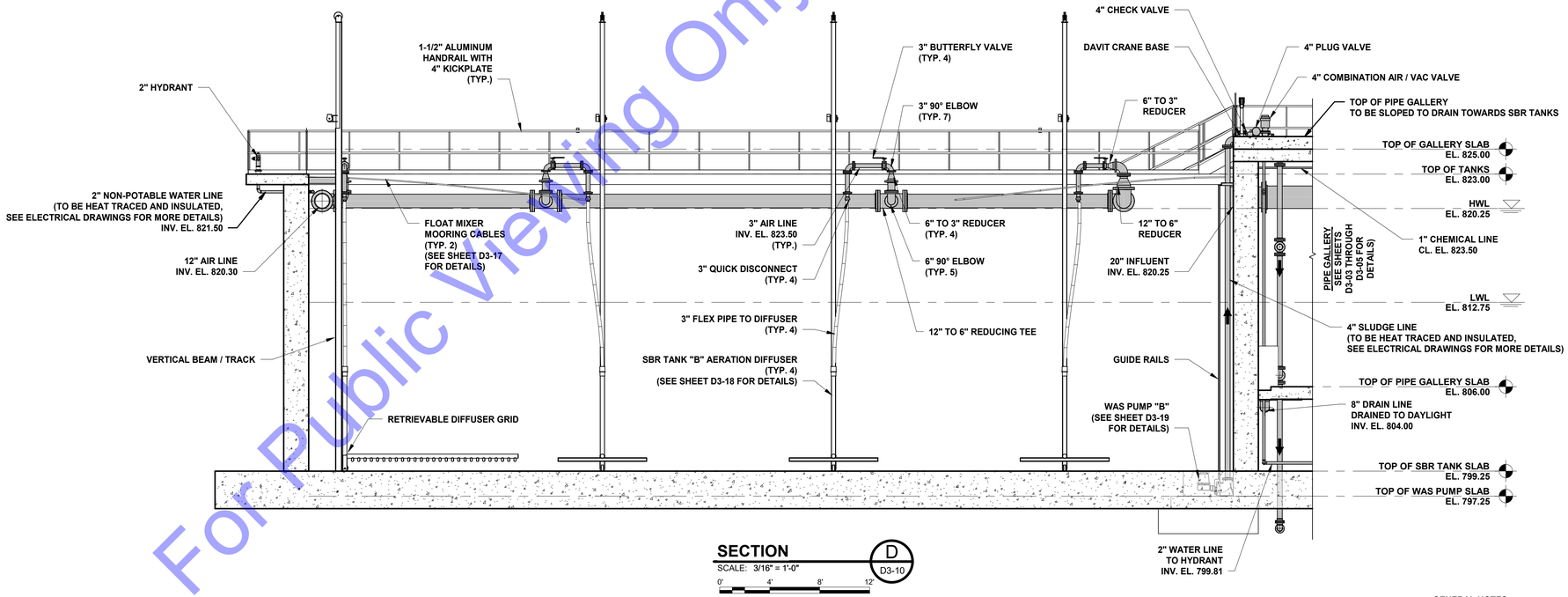
NEW SBR TANK "B"
SECTION VIEWS

Drawing No:
D3-12
Sheet: 74 OF 205



SECTION C
SCALE: 3/16" = 1'-0"
0' 4' 8' 12'
D3-10



SECTION D
SCALE: 3/16" = 1'-0"
0' 4' 8' 12'
D3-10

GENERAL NOTES:

1. ALL EXPOSED PROCESS PIPING ABOVE THE LOW WATER LEVEL IN EACH TANK SHALL BE HEAT TRACED AND INSULATED. SEE ELECTRICAL DRAWINGS FOR MORE DETAILS.

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NEW SBR TANK "B"
SECTION VIEWS

Drawing No:
D3-13
Sheet: 75 OF 205

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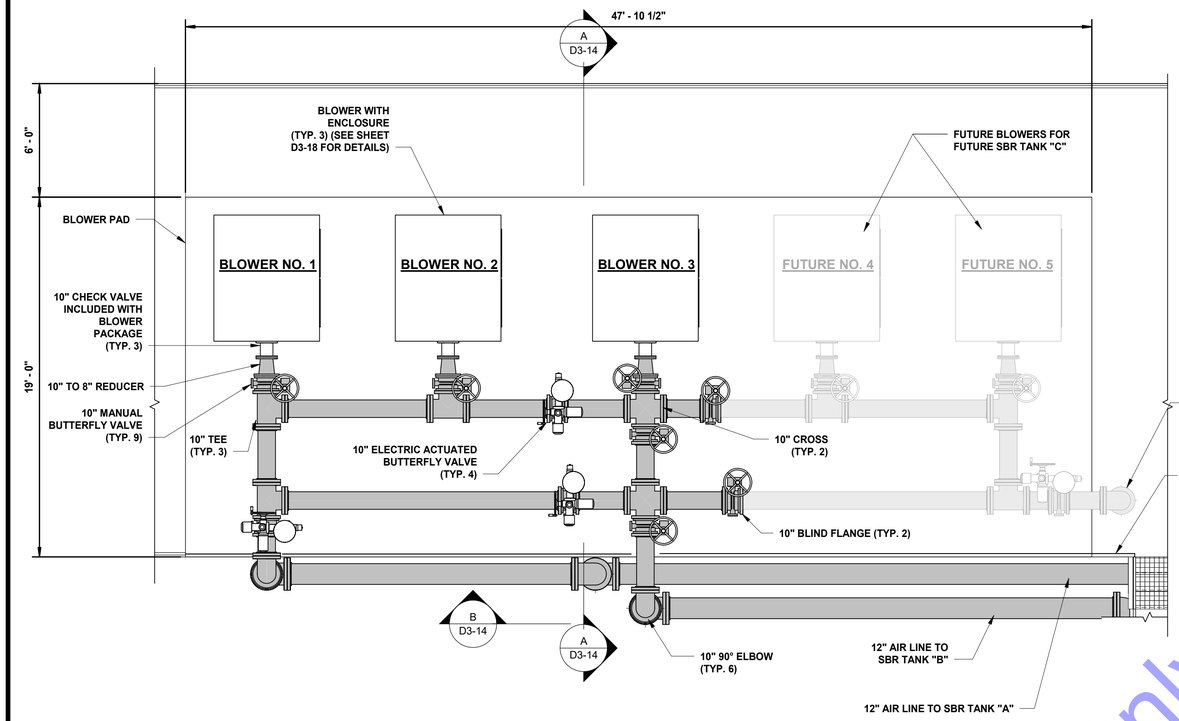
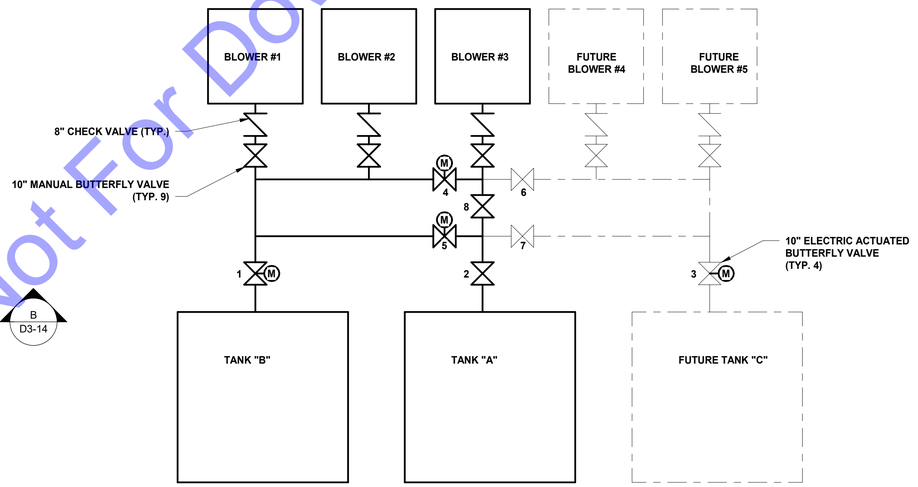
NEW PALESTINE WW UTILITY IMPRV PHASE 2
SBR BLOWER VALVE STATUS TABLE

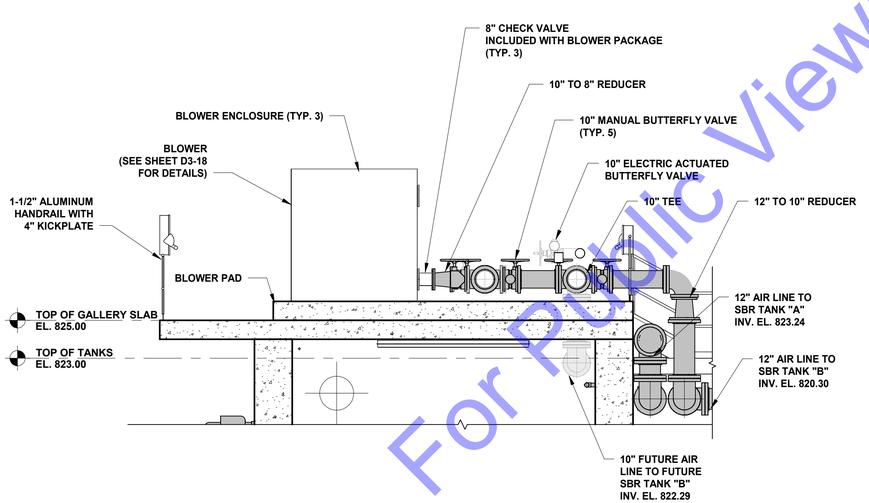
Scenario #	Tanks in Operation		Blower Status	Blowers Serving Tank "1"	Blowers Serving Tank "2"	Valve Status							
						Valve #1	Valve #2	Valve #3	Valve #4	Valve #5	Valve #6	Valve #7	Valve #8
1	Tank A	Tank B	Normal Operation	B1 & B2	B3 & B4	Open	Open	Closed	Closed	Closed	Open	Open	Open
2			Blower #1 Down	B2 & B3	B4 & B5	Open	Open	Closed	Closed	Open	Open	Open	Closed
3			Blower #2 Down	B1 & B3	B4 & B5	Open	Open	Closed	Closed	Open	Open	Open	Closed
4			Blower #3 Down	B1 & B2	B4 & B5	Open	Open	Closed	Closed	Closed	Open	Open	Open
5			Blower #4 Down	B1 & B2	B3 & B5	Open	Open	Closed	Closed	Closed	Open	Open	Open
6	Tank A	Tank C	Normal Operation	B1 & B2	B4 & B5	Open	Closed	Open	Closed	Closed	Closed	Closed	Closed
7			Blower #1 Down	B2 & B3	B4 & B5	Open	Closed	Open	Open	Open	Closed	Closed	Open
8			Blower #2 Down	B1 & B3	B4 & B5	Open	Closed	Open	Open	Open	Closed	Closed	Open
9			Blower #4 Down	B1 & B2	B3 & B5	Open	Closed	Open	Closed	Closed	Open	Open	Open
10			Blower #5 Down	B1 & B3	B3 & B4	Open	Closed	Open	Closed	Closed	Open	Open	Open
11	Tank B	Tank C	Normal Operation	B2 & B3	B4 & B5	Closed	Open	Open	Open	Open	Closed	Closed	Open
12			Blower #2 Down	B1 & B3	B4 & B5	Closed	Open	Open	Open	Open	Closed	Closed	Open
13			Blower #3 Down	B1 & B2	B4 & B5	Closed	Open	Open	Open	Open	Closed	Closed	Open
14			Blower #4 Down	B1 & B2	B3 & B5	Closed	Open	Open	Open	Closed	Closed	Open	Closed
15			Blower #5 Down	B1 & B2	B3 & B4	Closed	Open	Open	Open	Closed	Closed	Open	Closed



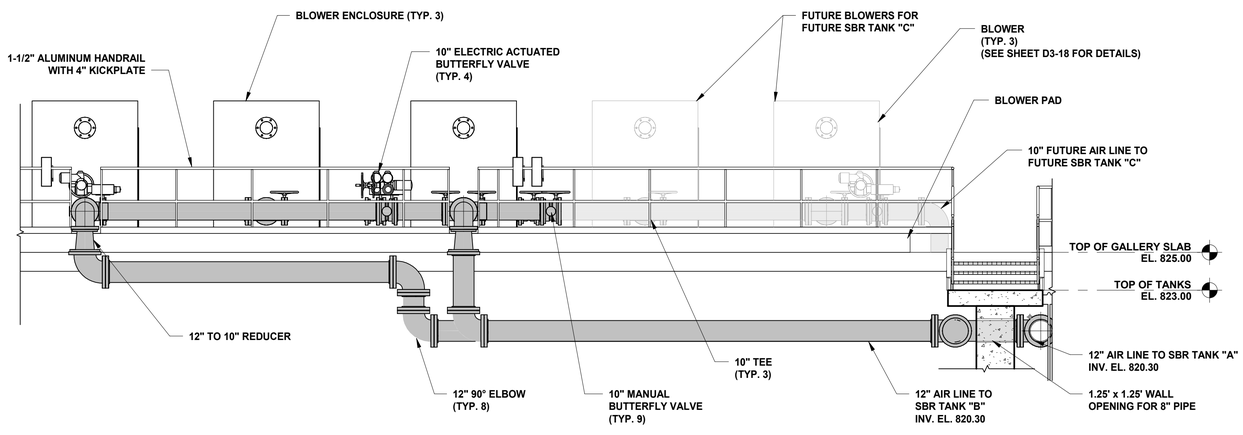
PLAN
SCALE: 1/4" = 1'-0"
0' 2' 4' 8'



BLOWER SCHEMATIC
SCALE: NOT TO SCALE



SECTION A
SCALE: 1/4" = 1'-0"
0' 2' 4' 8'
A D3-14



SECTION B
SCALE: 1/4" = 1'-0"
0' 2' 4' 8'
B D3-14

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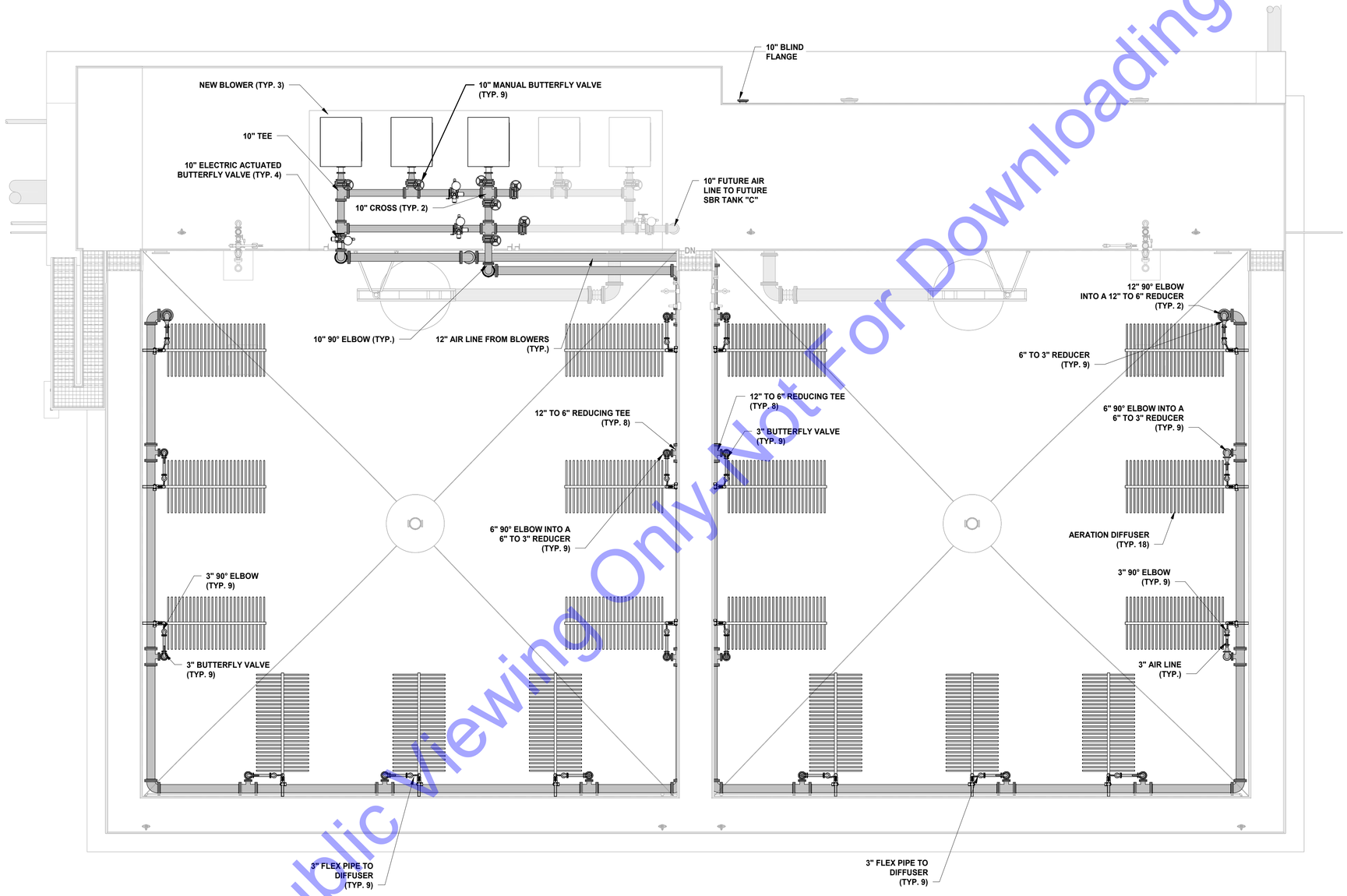
NEW BLOWER PAD PLAN AND SECTION VIEWS

Drawing No:
D3-14
Sheet: 76 OF 205



PLAN

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

0' 4' 8' 16'

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NEW SBR TREATMENT STRUCTURE AIR PIPING PLAN VIEW

Drawing No:

D3-15

Sheet: 77 OF 205

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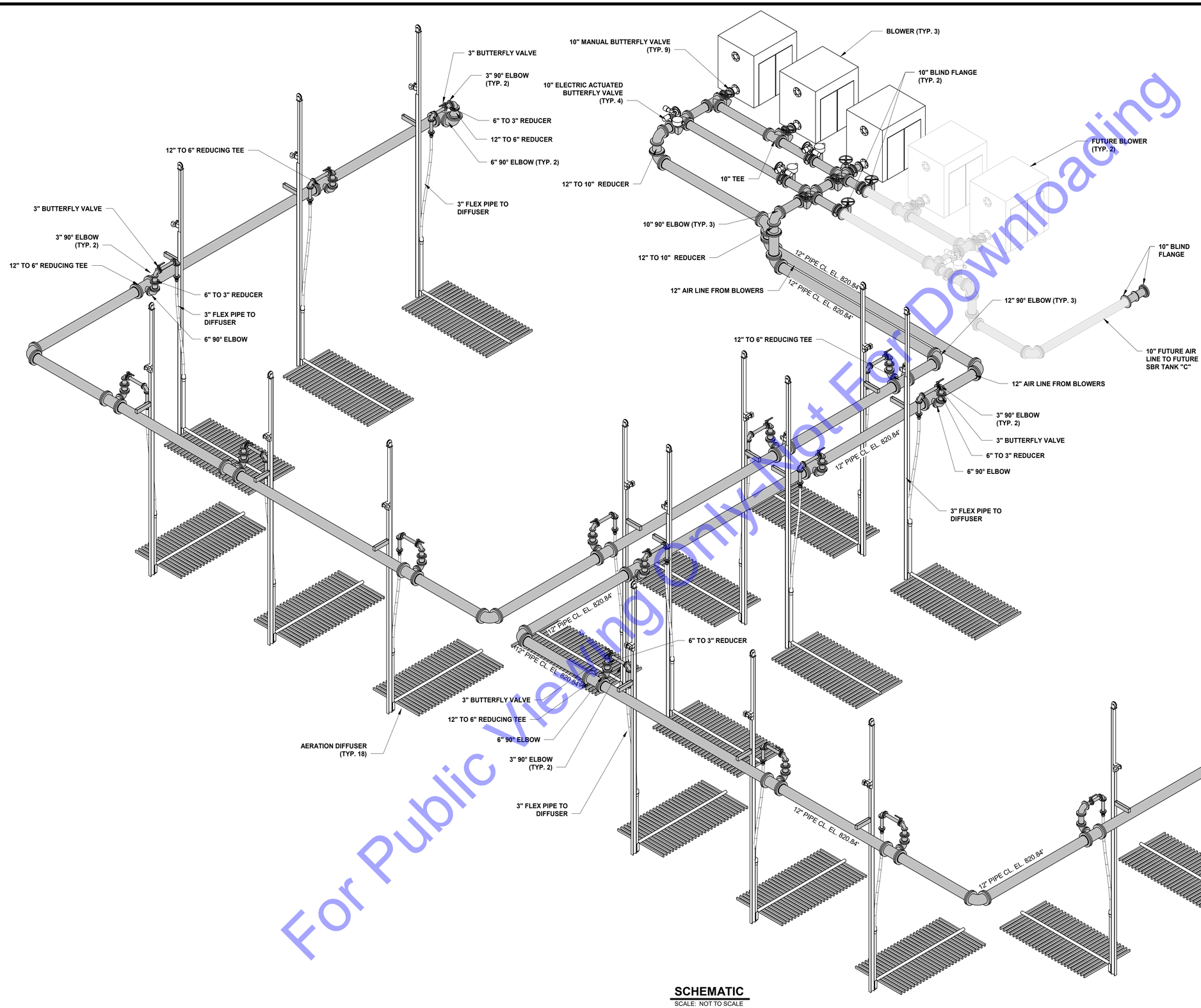

SCHEMATIC
SCALE: NOT TO SCALE

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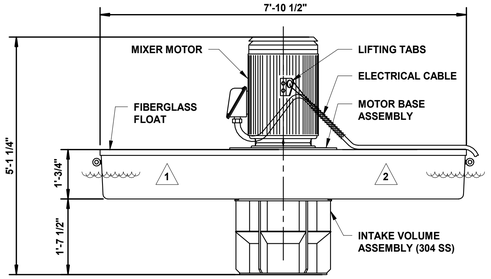
NEW SBR TREATMENT STRUCTURE AIR PIPING SCHEMATIC

Drawing No:
D3-16
Sheet: 78 OF 205

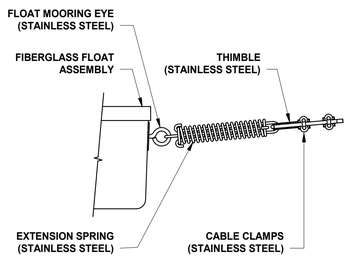


1. TWO COMPONENT POLYURETHANE FOAM FILLED ASSEMBLY. TWO POUNDS PER CUBIC FOOT DENSITY.
2. APPROXIMATE NON-OPERATING WATER LEVEL 0'-7".

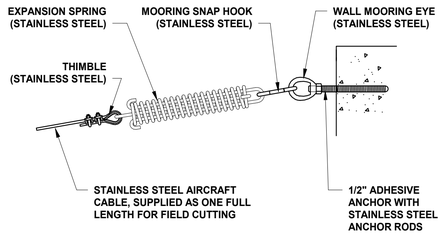
NOTE:

POLYPROPYLENE MAINTENANCE LOOP PROVIDED TO ALLOW UNIT TO REST ON BASIN FLOOR IN DEWATERED POSITION OR TO ALLOW UNIT TO BE ACCESSED FROM THE SIDE OF BASIN FOR MAINTENANCE.

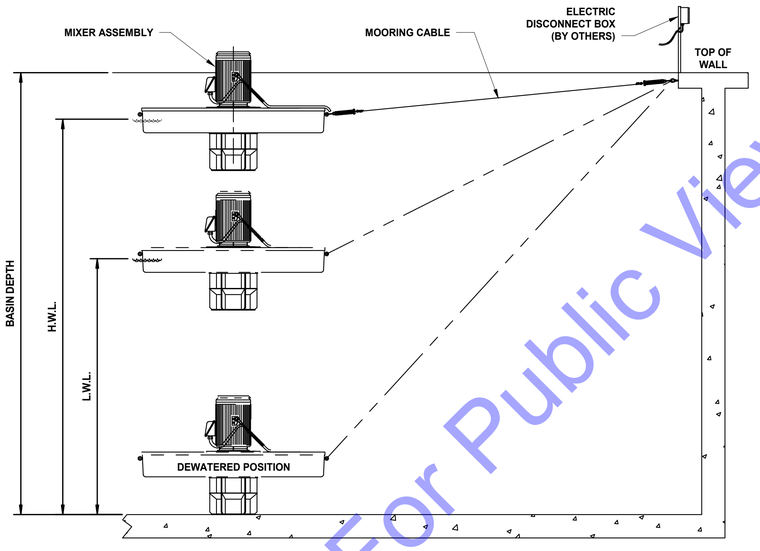
FLOAT MIXER



FLOAT MOORING



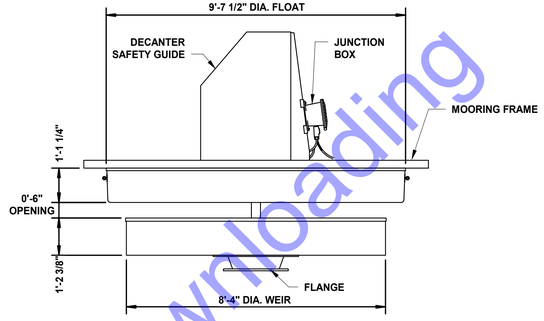
MOORING CABLE



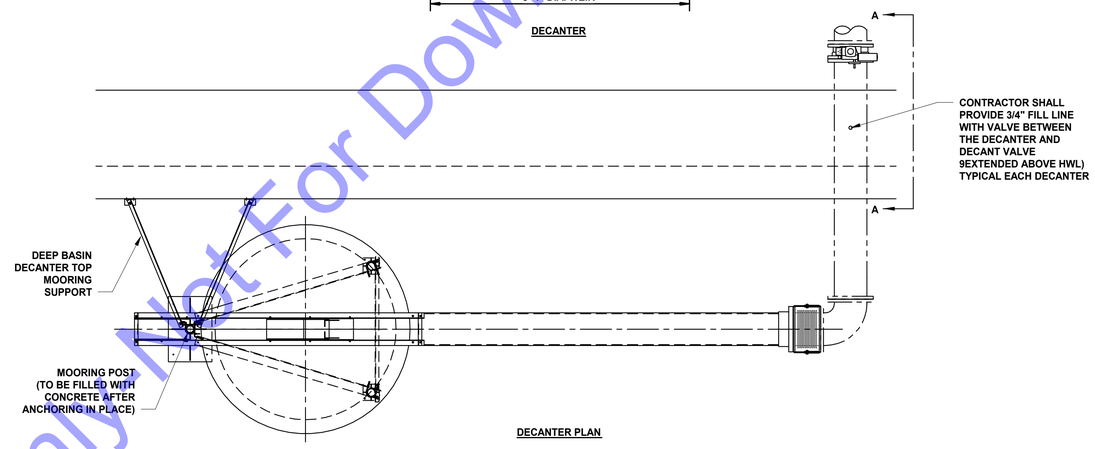
MIXER ELEVATION

FLOAT MIXER DETAIL

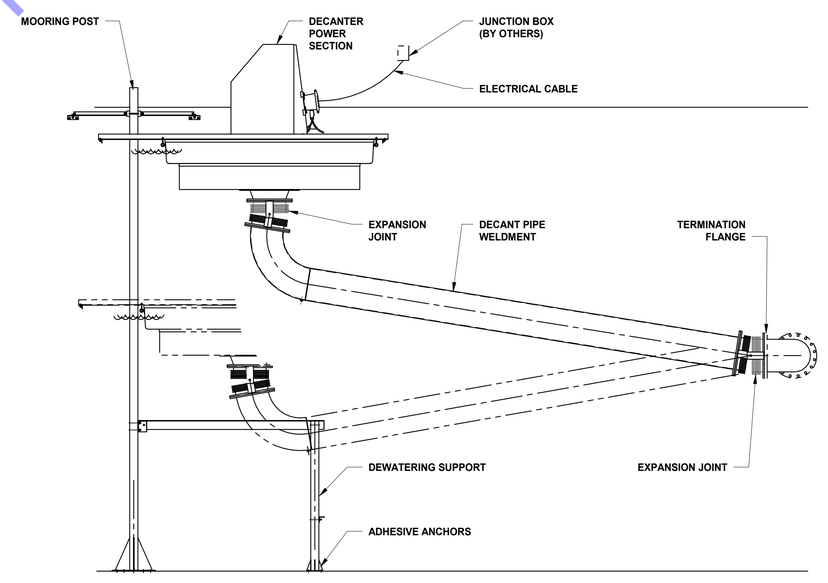
SCALE: NOT TO SCALE



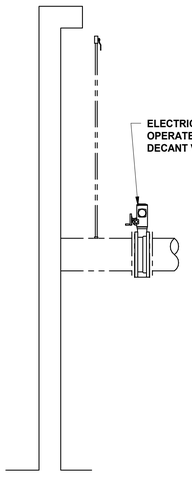
DECANTER



DECANTER PLAN



DECANTER ELEVATION



SECTION A-A

DECANTER DETAIL

SCALE: NOT TO SCALE

NOTE:

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NEW SBR TREATMENT STRUCTURE EQUIPMENT DETAILS

Drawing No:

D3-17

Sheet: 79 OF 205

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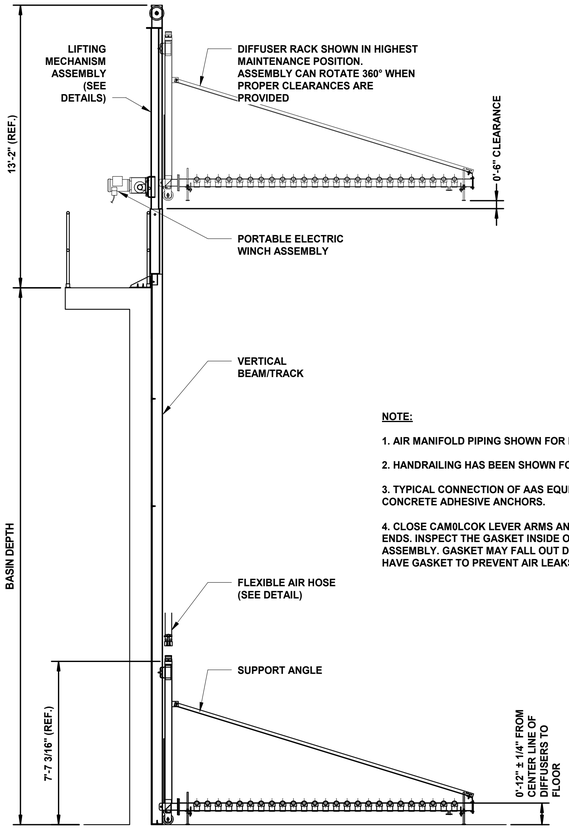
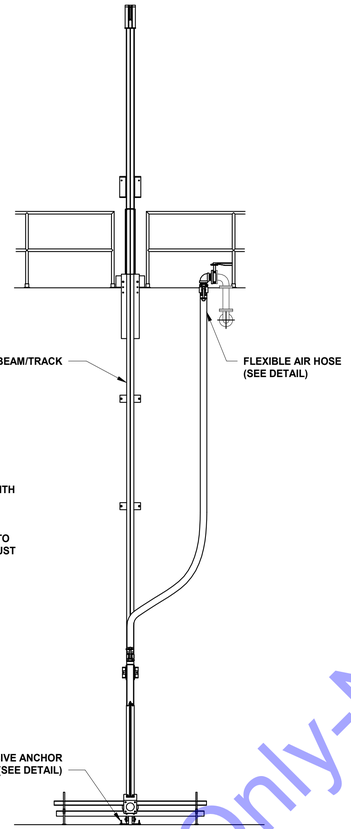


DIFFUSER ELEVATION



DIFFUSER FRONT

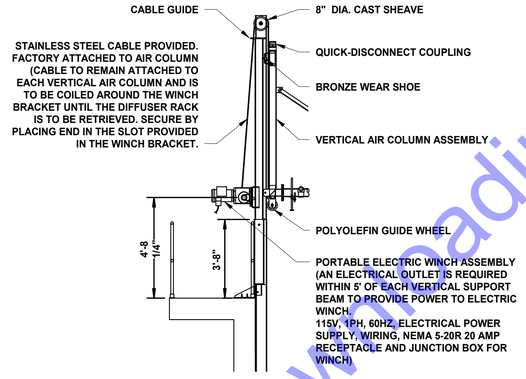
NOTE:

1. AIR MANIFOLD PIPING SHOWN FOR REFERENCE ONLY.

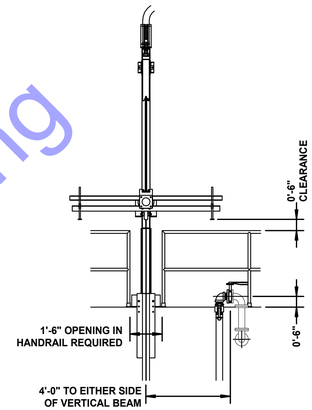
2. HANDRAILING HAS BEEN SHOWN FOR REFERENCE ONLY.

3. TYPICAL CONNECTION OF AAS EQUIPMENT TO BASIN STRUCTURE IS WITH CONCRETE ADHESIVE ANCHORS.

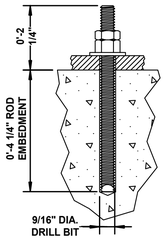
4. CLOSE CAM0LCOK LEVER ARMS AND TY-WRAP AROUND HOSE, BOTH ENDS. INSPECT THE GASKET INSIDE OF THE CAM-LOCK FITTINGS PRIOR TO ASSEMBLY. GASKET MAY FALL OUT DUE TO HANDLING. EACH FITTING MUST HAVE GASKET TO PREVENT AIR LEAKS.



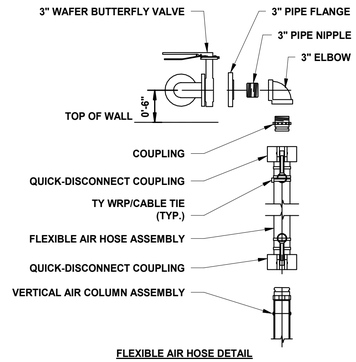
LIFTING MECHANISM ASSEMBLY ELEVATION DETAIL



LIFTING MECHANISM ASSEMBLY FRONT DETAIL



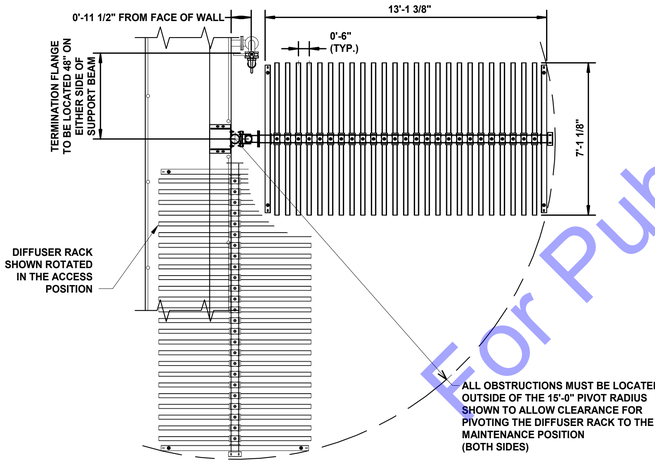
1/2" ADHESIVE ANCHOR ELEVATION DETAIL



FLEXIBLE AIR HOSE DETAIL

DIFFUSER DETAIL

SCALE: NOT TO SCALE



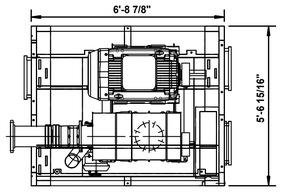
DIFFUSER PLAN

NOTE:

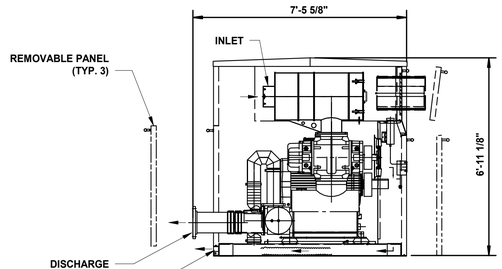
1. DETAIL IS FOR REFERENCE ONLY. EQUIPMENT SHOWN MAY BE ARRANGED DIFFERENTLY. THE EXPANSION JOINT AND ISOLATION VALVE MAY BE ARRANGED ON THE END OF THE "PACKAGE" IN EITHER ORDER. ALL DIMENSIONS ARE APPROXIMATE AND SUBJECT TO CHANGE.

2. ALL PIPING BEYOND THE TERMINATION FLANGE OF THE BLOWER PACKAGES MUST BE SUPPORTED.

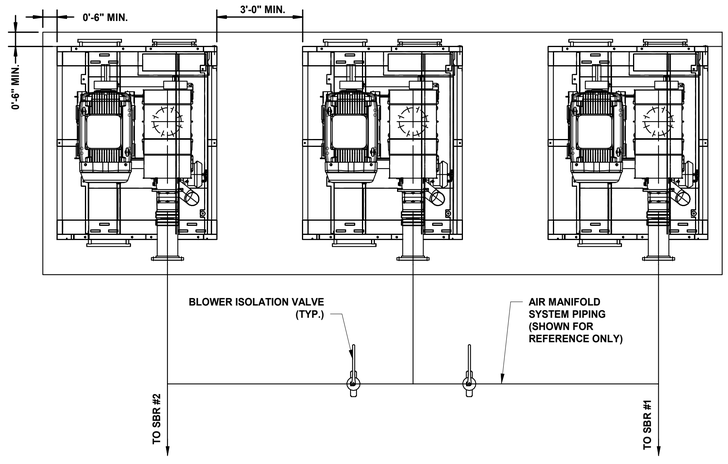
3. MINIMUM RECOMMENDED DISTANCE BETWEEN BLOWERS IS 3'-0" FOR SERVICING AND MAINTAINING UNITS.



BLOWER BASE FRAME PLAN



BLOWER ELEVATION



BLOWER PAD DETAIL

BLOWER DETAIL

SCALE: NOT TO SCALE

NOTE:

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FORTWAYNE, IN.
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SOUTHBEND, IN.

CHRIS A. LIMCACO
REGISTERED
No. 19700338
STATE OF INDIANA
PROFESSIONAL ENGINEER

Signature 10/24/2023 Date

TOWN OF NEW PALESTINE
HANCOCK COUNTY, INDIANA

WASTEWATER UTILITY
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Designed By:	Drawn By:	Checked By:
CAL	DAN	ACS
Issue Date: OCT 2023	Project No: S22002	Scale: AS SHOWN

NEW SBR TREATMENT STRUCTURE EQUIPMENT DETAILS

Drawing No:
D3-18
Sheet: 80 OF 205

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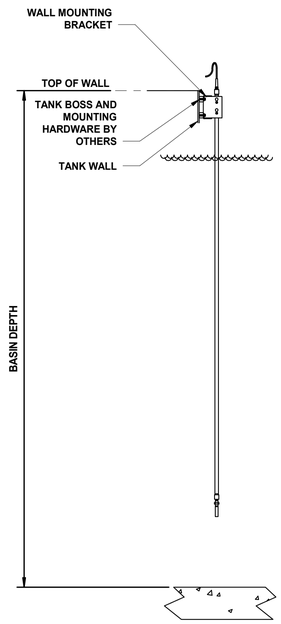
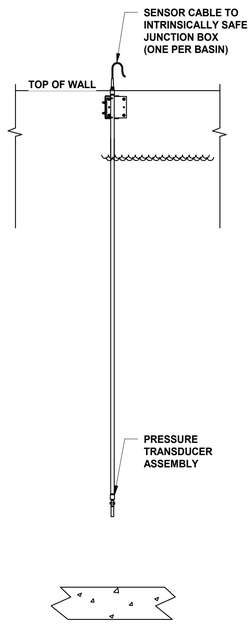
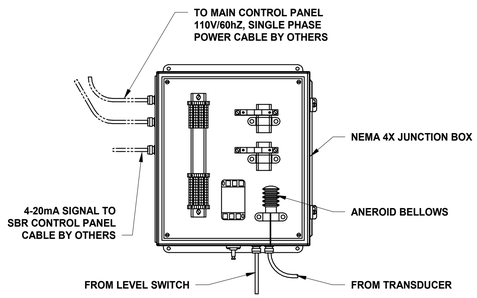


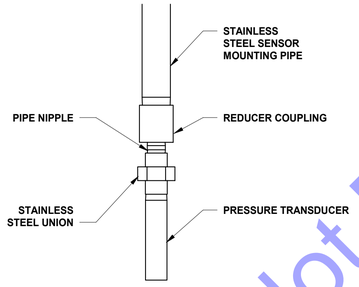
SENSOR ASSEMBLY ELEVATION



SENSOR ASSEMBLY FRONT



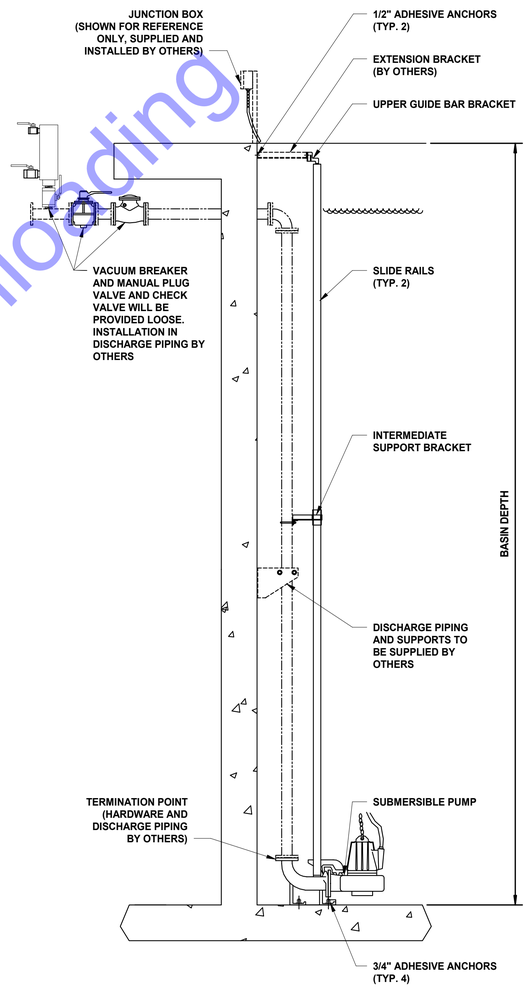
JUNCTION BOX DETAIL



TYPICAL ENLARGED SENSOR ASSEMBLY DETAIL

PRESSURE TRANSDUCER DETAIL

SCALE: NOT TO SCALE



SUBMERSIBLE PUMP DETAIL

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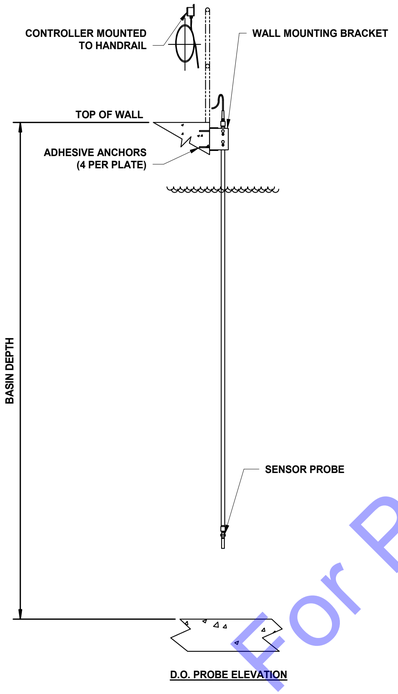
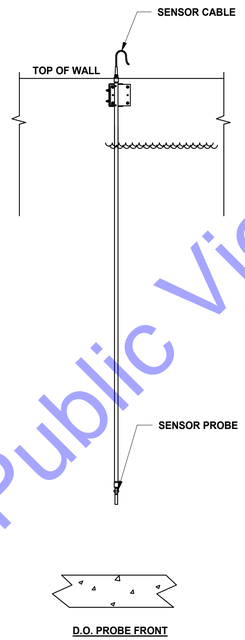


D.O. PROBE ELEVATION



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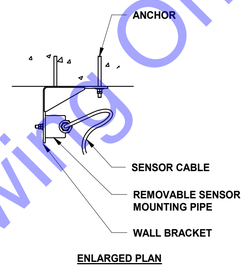
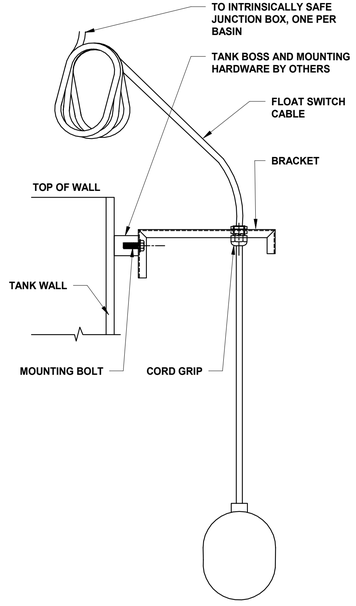


ENLARGED PLAN

D.O. PROBE DETAIL

SCALE: NOT TO SCALE



LEVEL SENSING FLOAT SWITCH DETAIL

SCALE: NOT TO SCALE

NOTE:

1. DETAILS PROVIDED BY AQUA-AEROBIC SYSTEMS, INC AND SHOULD BE USED AS REFERENCE ONLY

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NEW SBR TREATMENT STRUCTURE EQUIPMENT DETAILS

Drawing No:

D3-19

Sheet: 81 OF 205

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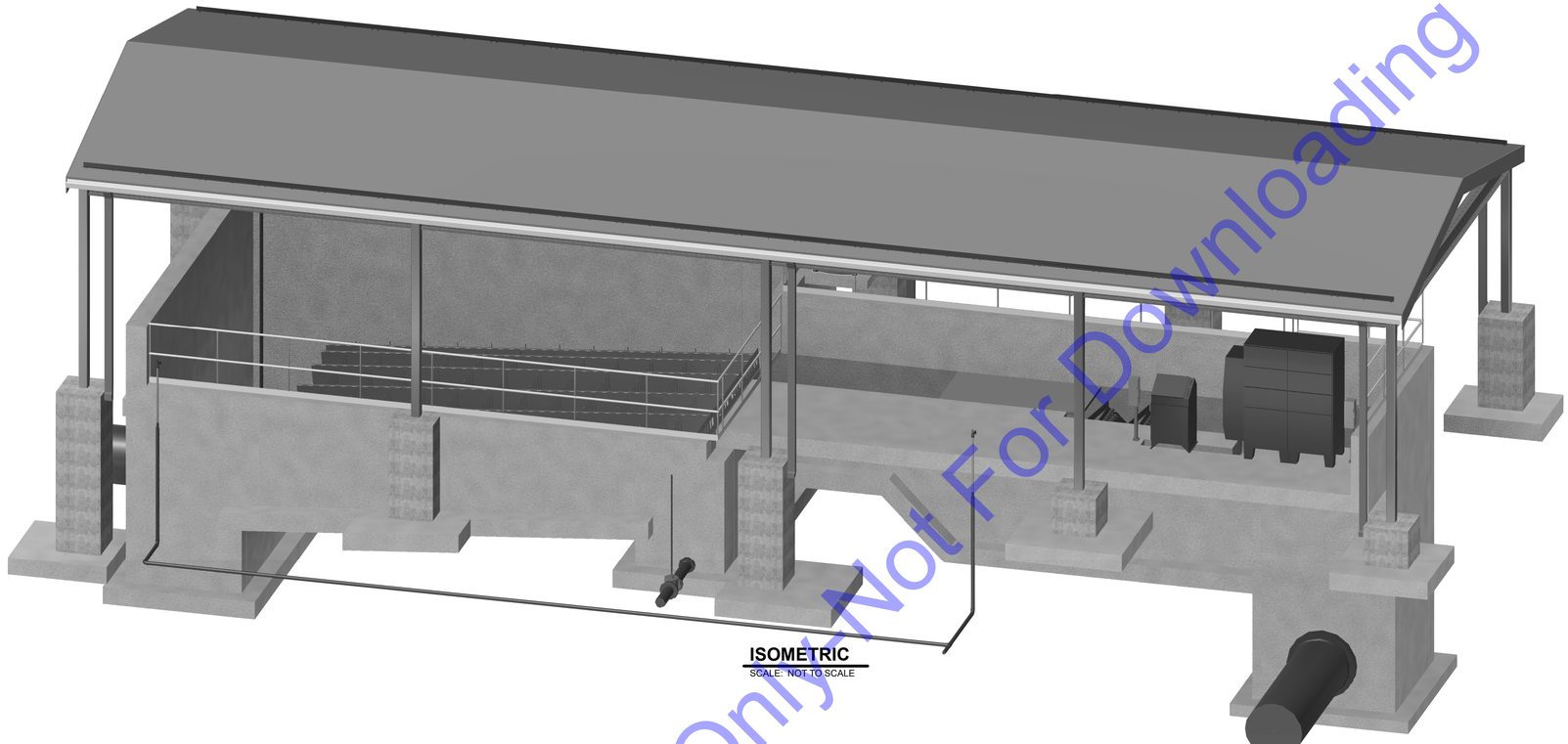

ISOMETRIC
SCALE: NOT TO SCALE

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SCALE: NOT TO SCALE

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NEW UV AND POST AERATION STRUCTURE ISOMETRIC VIEWS

Drawing No:
D4-01
Sheet: 82 OF 205

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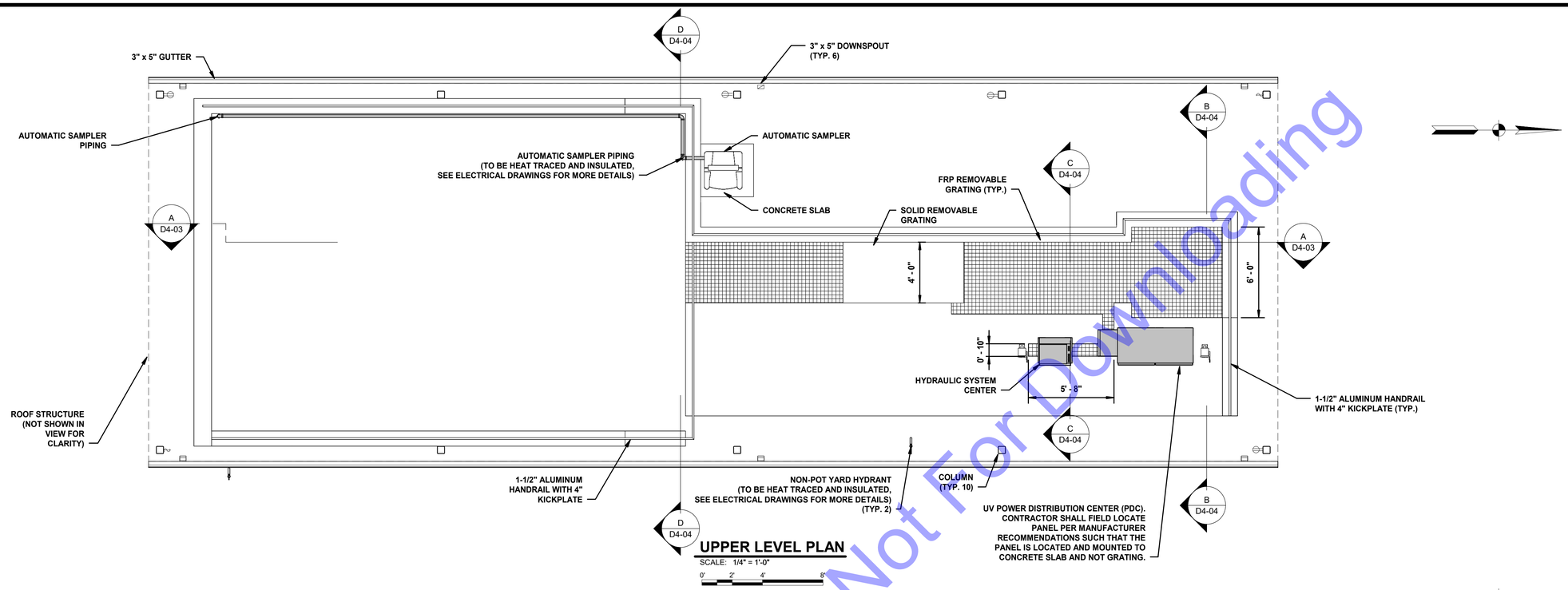
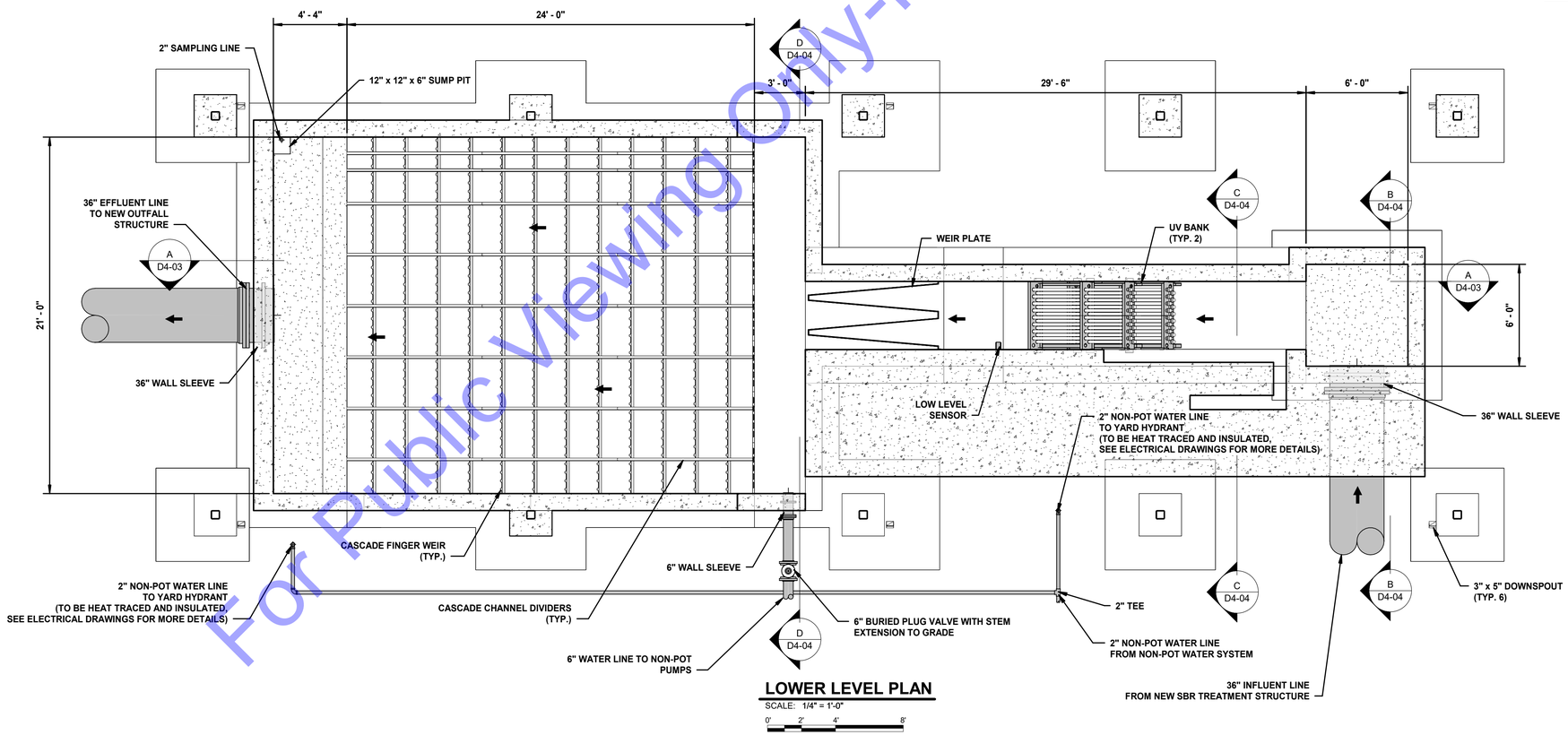


UPPER LEVEL PLAN

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

0' 2' 4' 8'



LOWER LEVEL PLAN

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

0' 2' 4' 8'

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NEW UV AND POST AERATION STRUCTURE PLAN VIEWS

Drawing No:

D4-02

Sheet: 83 OF 205

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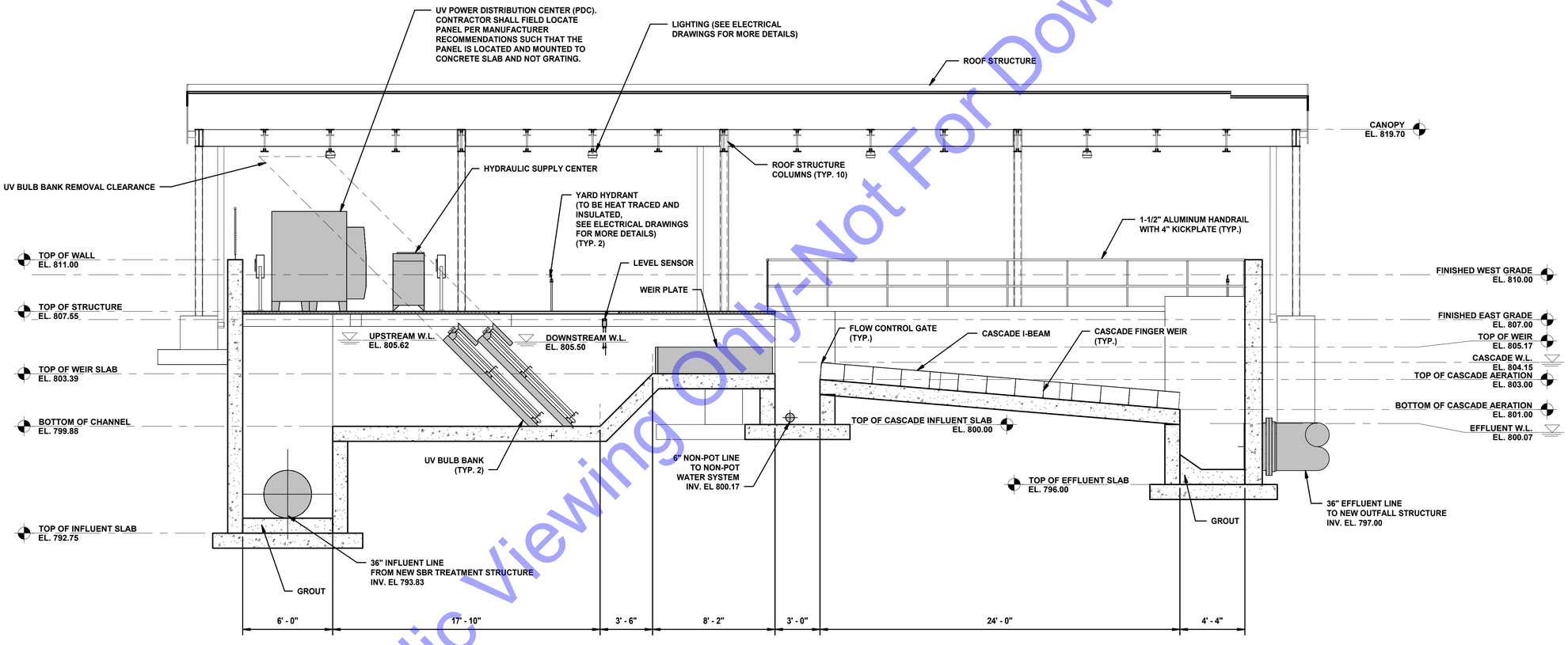

SECTION

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

A
D4-02

0' 2' 4' 8'

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NEW UV AND POST AERATION STRUCTURE SECTION VIEW

Drawing No:
D4-03
Sheet: 84 OF 205

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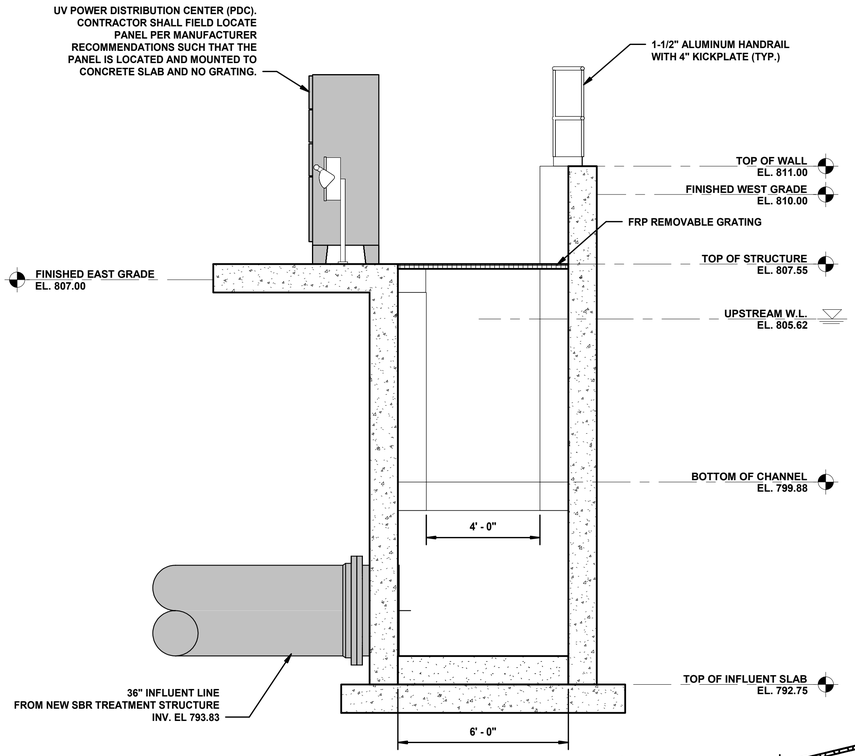
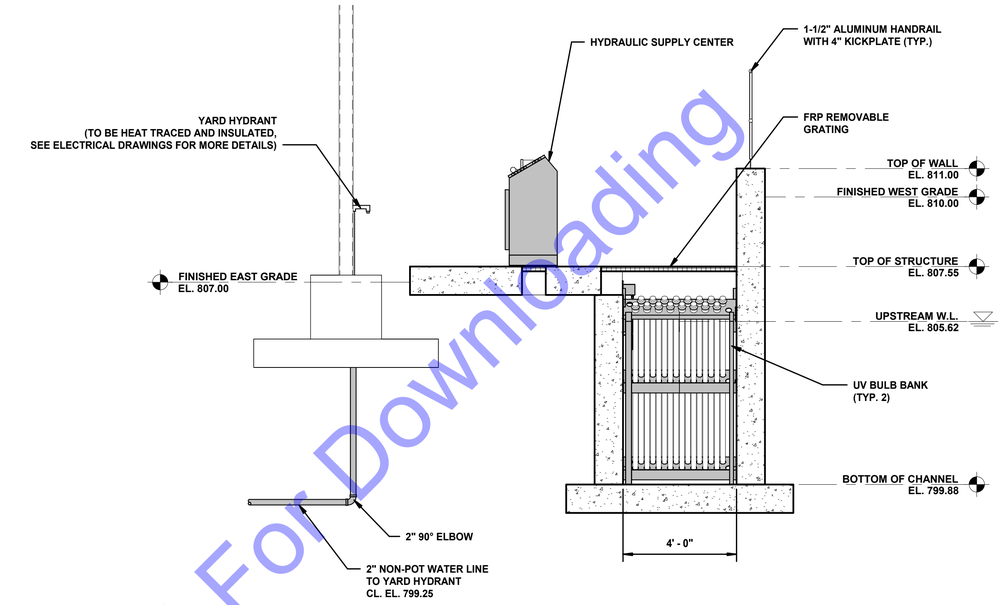
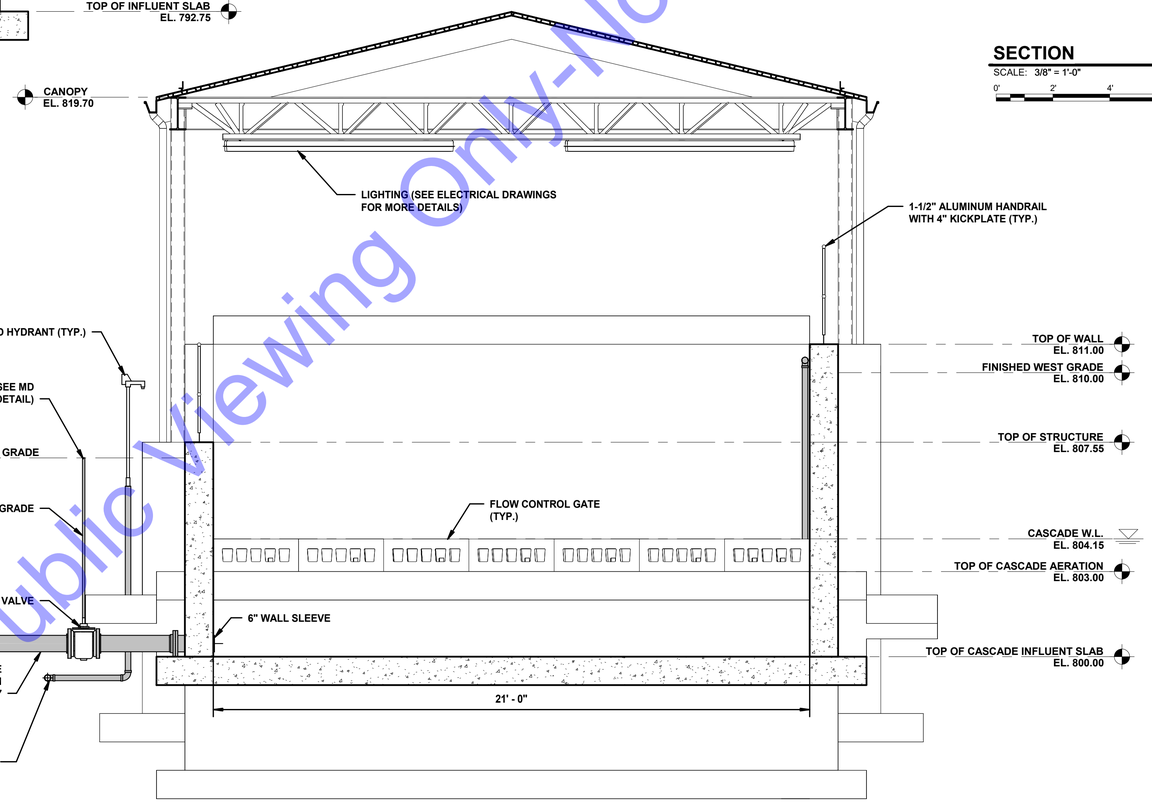


SECTION B D4-02
SCALE: 3/8" = 1'-0"
0' 2' 4' 6'



SECTION C D4-02
SCALE: 3/8" = 1'-0"
0' 2' 4' 6'



SECTION D D4-02
SCALE: 3/8" = 1'-0"
0' 2' 4' 6'

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NEW UV AND POST AERATION STRUCTURE SECTION VIEWS

Drawing No: **D4-04**

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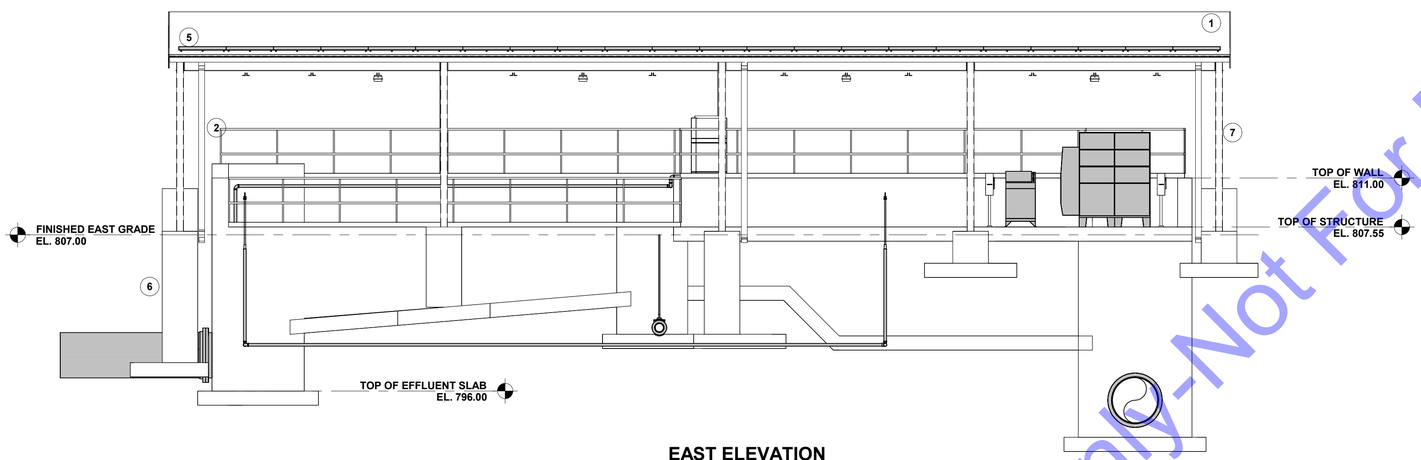
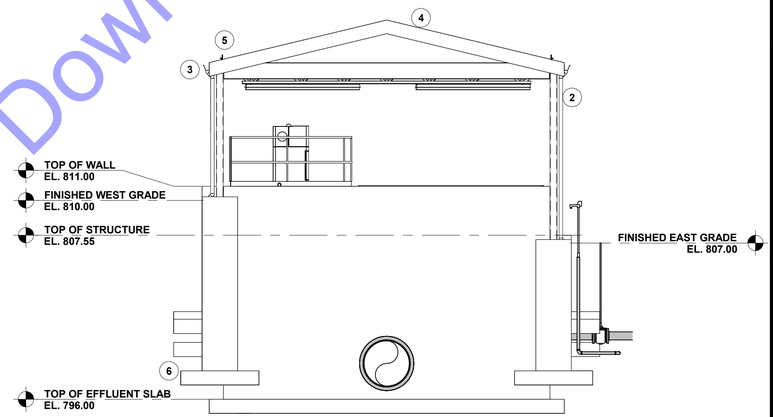
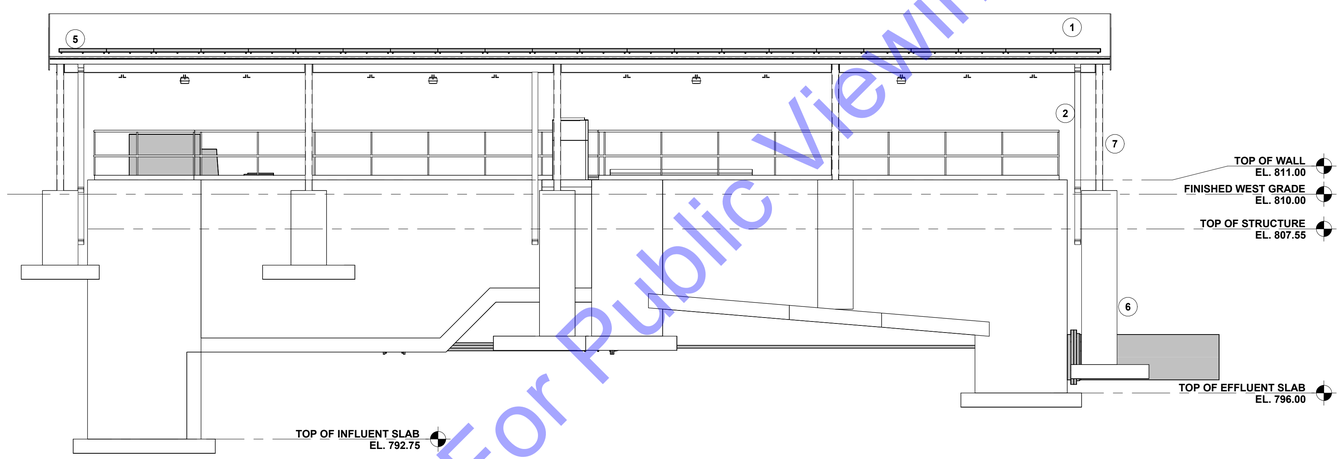
#	ELEVATION VIEW KEYNOTE LEGEND:
1	METAL SEAM ROOF
2	5" x 3" PREFINISHED ALUM. DOWNSPOUT
3	5" x 5" PREFINISHED ALUM. GUTTER
4	8" FASCIA BOARD
5	SNOW GUARD (TYP.)
6	FOOTING AND FOUNDATION (SEE STRUCTURAL DRAWINGS)
7	ROOF COLUMN (SEE STRUCTURAL DRAWINGS)



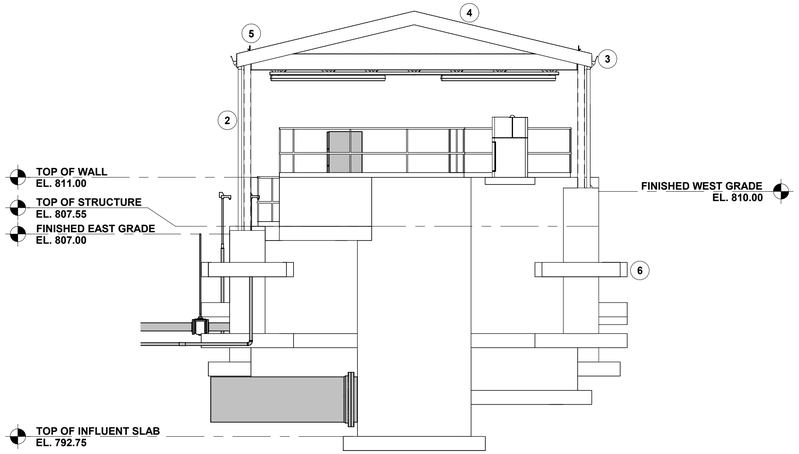
EAST ELEVATION
SCALE: NOT TO SCALE



SOUTH ELEVATION
SCALE: NOT TO SCALE



WEST ELEVATION
SCALE: NOT TO SCALE



NORTH ELEVATION
SCALE: NOT TO SCALE

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NEW UV AND POST AERATION STRUCTURE ELEVATION VIEWS

Drawing No:
D4-05
Sheet: 86 OF 205

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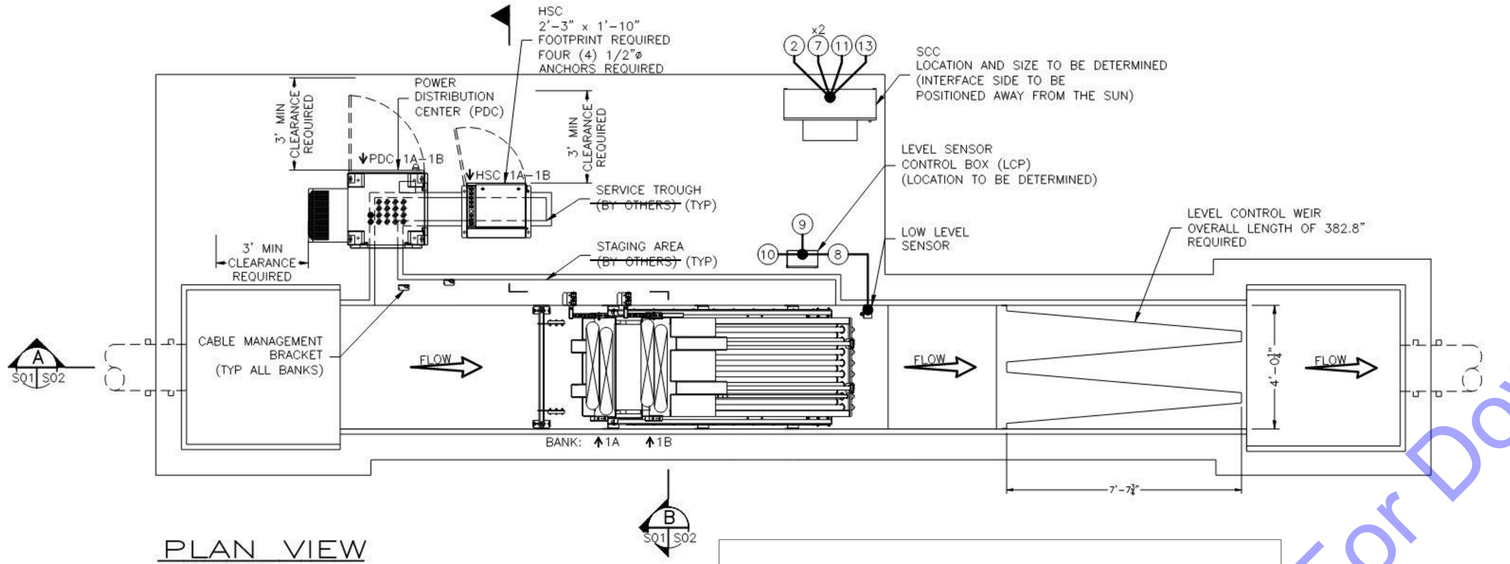
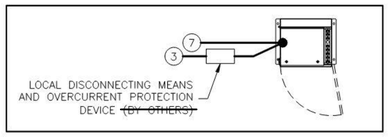


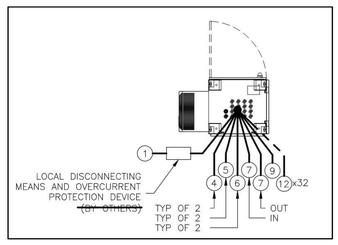
PLAN VIEW

SCALE: AS SHOWN



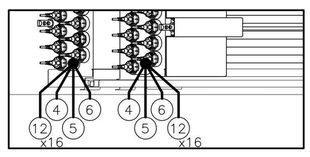
HSC INTERCONNECT DETAIL

SCALE: NOT TO SCALE



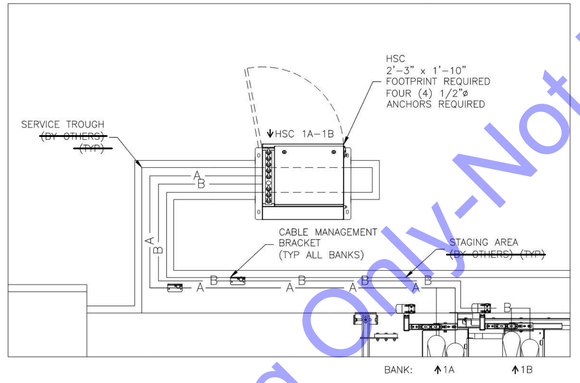
PDC INTERCONNECT DETAIL

SCALE: NOT TO SCALE



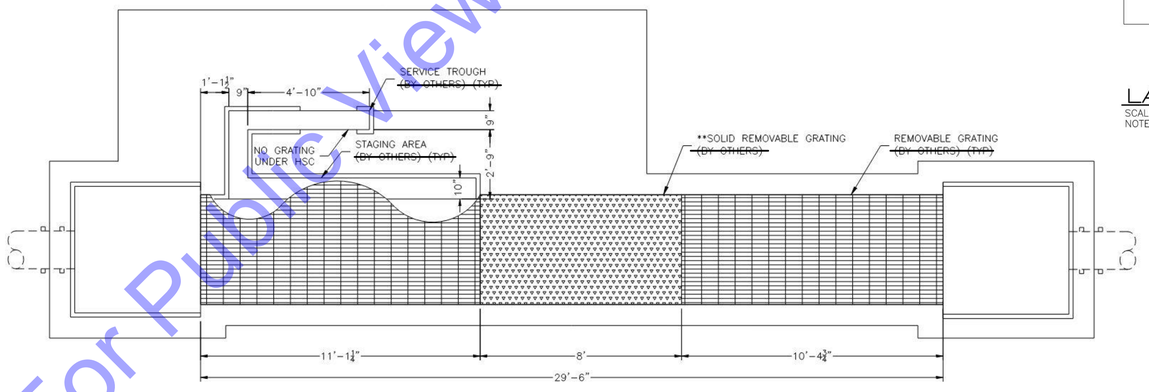
UV BANK INTERCONNECT DETAIL

SCALE: NOT TO SCALE
NOTE: TYPICAL FOR ALL UV BANKS.
TROUGH NOT SHOWN FOR CLARITY.



HYDRAULIC HOSE ROUTING PLAN

SCALE: AS SHOWN
NOTE: PDC NOT SHOWN FOR CLARITY.



GRATING AND TROUGH PLAN VIEW

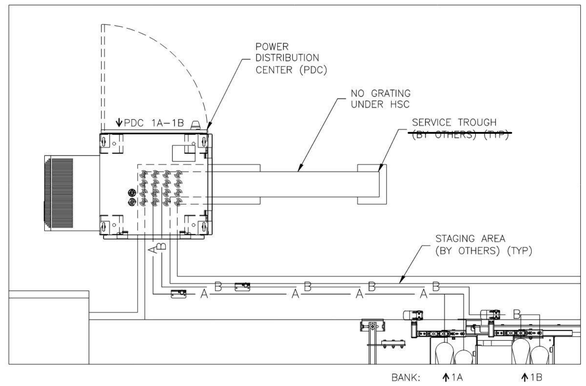
SCALE: AS SHOWN
NOTE: DESIGN OF GRATING SECTIONS SHOULD BE SIZED TO ALLOW FOR EASY REMOVAL BY SERVICE TECHNICIANS. SOLID GRATING MUST BE PROVIDED IN AREA INDICATED TO BLOCK UV LIGHT.

TROJAN UVSIGNA™

EQUIPMENT INTERCONNECTIONS

1	POWER DISTRIBUTION CENTER (PDC)* POWER SUPPLY 480Y/277V, 3PHASE, 4 WIRE + GROUND 49 AMPS MAXIMUM CURRENT/PHASE 35.9 kVA/PDC POWER DRAW	DISTRIBUTION PANEL (DP) (NOT SHOWN)	PDC(s) (TOP OF PANEL)
2	SYSTEM CONTROL CENTER (SCC) POWER SUPPLY 120V, 1 PHASE, 2 WIRE + GROUND, 1.8 kVA, 15 AMPS	DISTRIBUTION PANEL (DP) (NOT SHOWN)	SCC
3	HYDRAULIC SYSTEM CENTER (HSC)* POWER SUPPLY 480V, 3 PHASE, 3 WIRE + GROUND, 2.5 kVA, 3 AMPS	DISTRIBUTION PANEL (DP) (NOT SHOWN)	HSC
4	BONDING CONDUCTOR 8 AWG TYPE TWH STRANDED	PDC'(s) UNDERSIDE OF PANEL	UV BANK(s)
5	UV INTENSITY 4-20MA ANALOG INPUT (SUPPLIED)	UV BANK(s)	PDC'(s) UNDERSIDE OF PANEL
6	BANK IN PLACE PROXIMITY SENSOR 3 CONDUCTOR CABLES (SUPPLIED)	PROXIMITY SENSOR(s)	PDC'(s) UNDERSIDE OF PANEL
7	MODBUS BELDEN 3106A OR EQUIVALENT (ONE LINE PER CHANNEL)	SCC	HSC(s) AND PDC(s) (UNDERSIDE OF PANEL) (DAISY CHAINED)
8	DISCRETE LOW LEVEL SIGNAL 12 VDC - 2 CONDUCTORS	LOW LEVEL SENSOR	LEVEL SENSOR CONTROL BOX (LCP)
9	DISCRETE WATER LEVEL SIGNAL 2 CONDUCTORS	LOW LEVEL SENSOR CONTROL BOX (LCP)	PDC'(s) UNDERSIDE OF PANEL
10	LOW LEVEL SENSOR CONTROL BOX (LCP)* POWER SUPPLY 120V, 1 PHASE, 2 WIRE + GROUND, 0.12 kVA	DP (REQUIRED) (NOT SHOWN)	LEVEL SENSOR CONTROL BOX (LCP)
11	FLOW METER 4-20 mA, DC ANALOG INPUT	FLOW METER (NOT SHOWN) (REQUIRED)	SCC
12	LAMP CABLES (SUPPLIED BY TROJAN) (ROUTED BY CONTRACTORS)	UV BANK	PDC (UNDERSIDE OF PANEL)
13	ETHERNET/IP COMMUNICATION	SCC	PLANT SCADA (REQUIRED) (NOT SHOWN)

* GROUND CONNECTION REQUIRED TO PLANT GRID (BY OTHERS).



LAMP CABLE ROUTING PLAN

SCALE: AS SHOWN
NOTE: HSC NOT SHOWN FOR CLARITY.

NOTES:
: DO NOT SLOPE CHANNEL FLOOR.
: CHANNEL WIDTH MUST BE KEPT WITHIN A TOLERANCE OF ±1½" AT UV BANK FRAME AND ±¼" FOR REST OF CHANNEL.
: ALL CHANNEL ELEVATIONS MUST BE KEPT WITHIN A TOLERANCE OF ±¼ AGAINST A COMMON DATUM ELEVATION.
: ANCHOR BOLTS ARE NOT SUPPLIED BY TROJAN TECHNOLOGIES.
: SYSTEM CONDUIT, WIRING, DISTRIBUTION PANELS AND INTERCONNECTIONS REQUIRED.
: ELECTRICAL REQUIREMENTS SHOWN ARE TO SUPPLY TROJAN UV EQUIPMENT ONLY.
:REMOVABLE GRATING SECTIONS SHALL BE EASILY REMOVED BY ONE PERSON.
:MAXIMUM WEIGHT OF SECTIONS SHALL BE IN ACCORDANCE WITH REQUIREMENTS OF APPLICABLE JURISDICTION.
:CONTRACTOR TO REVIEW ALL TROJAN TECHNOLOGIES INSTALLATION INSTRUCTIONS PRIOR TO EQUIPMENT INSTALLATION.
:EFFLUENT LEVELS SHOWN REFLECT HYDRAULICS ASSOCIATED WITH TROJAN EQUIPMENT ONLY. EFFLUENT LEVELS MAY BE ALTERED DUE TO CHANNEL DEBRIS OR GEOMETRY.
: HYDRAULIC HOSE ELEVATIONS NOT TO EXCEED 12" ABOVE HSC MOUNTING ELEVATION.
: INCLUDED CABLE LENGTH ALLOWS FOR 11.5' ROUTING (RISE + RUN) BETWEEN CABLE/ HOSE MANAGEMENT BRACKET AND UNDERSIDE OF PDC. (6' ROUTING ASSUMED BASED ON THIS LAYOUT.)
: SITE TO PROVIDE APPROVED (ENGINEERED) ANCHOR POINTS FOR PERSONNEL TO USE AS PART OF THEIR FALL RESTRAINT SYSTEM AROUND OPEN CHANNELS. THE ANCHOR POINTS MUST BE POSITIONED SO THAT THE PREFERRED RETRACTABLE LIFELINE OF 8 FEET IS OF SUFFICIENT LENGTH TO ACCESS THE WORK AT THE CHANNEL.
** SOLID GRATING REQUIRED TO BLOCK ULTRAVIOLET (UV) LIGHT.

GENERAL NOTE:

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Issue Date: OCT 2023	Project No: S22002	Scale: AS SHOWN

NEW UV AND POST AERATION STRUCTURE EQUIPMENT DETAILS

Drawing No: **D4-06**

Sheet: 87 OF 205

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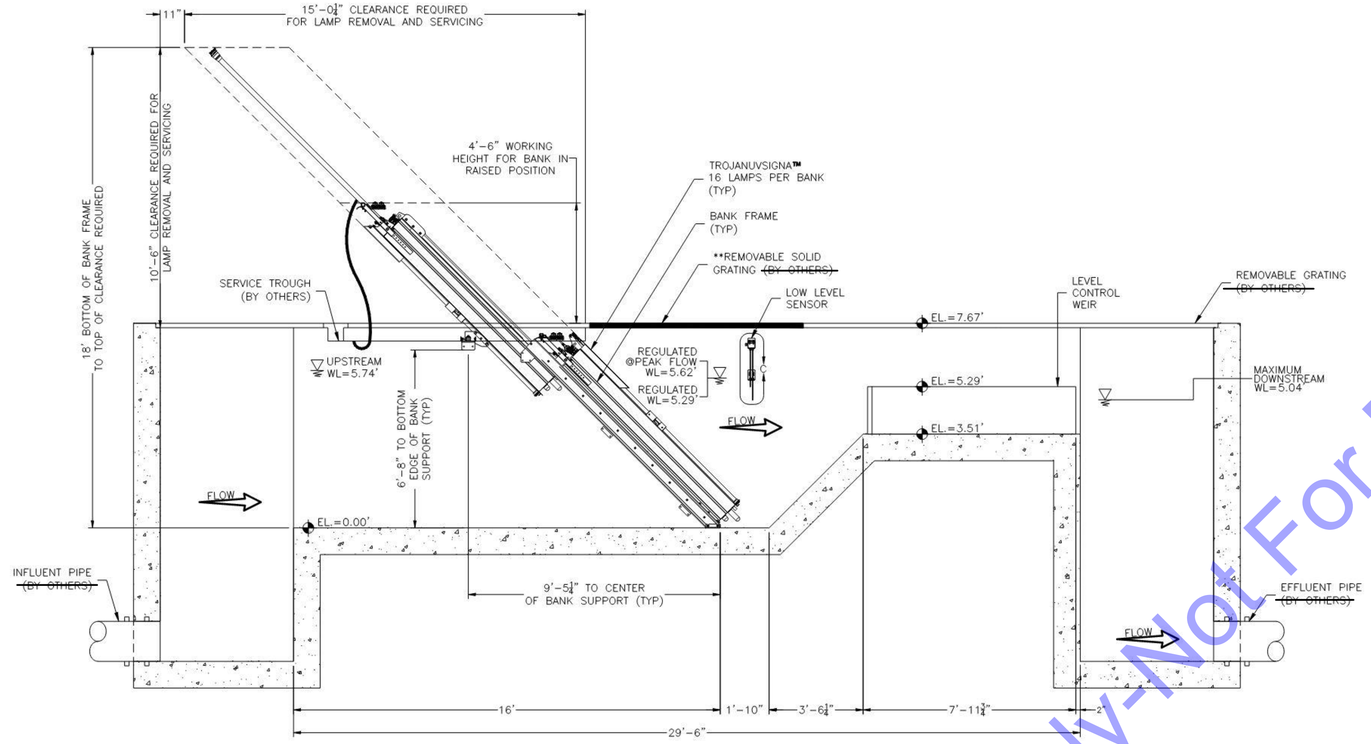
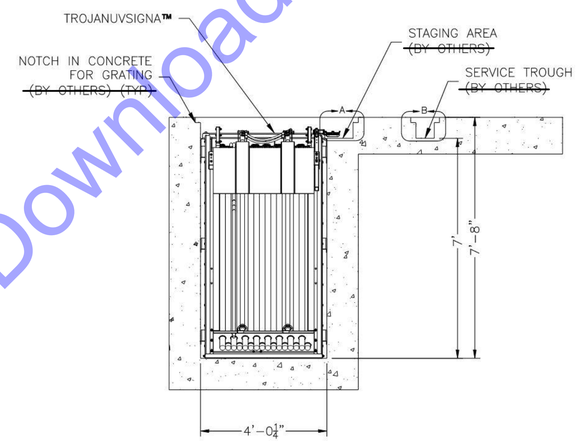
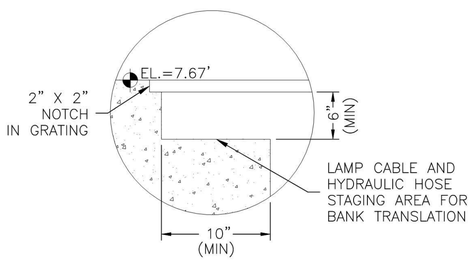
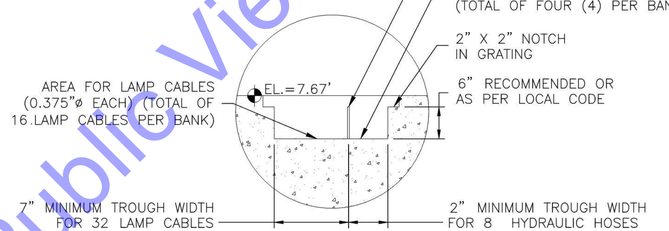




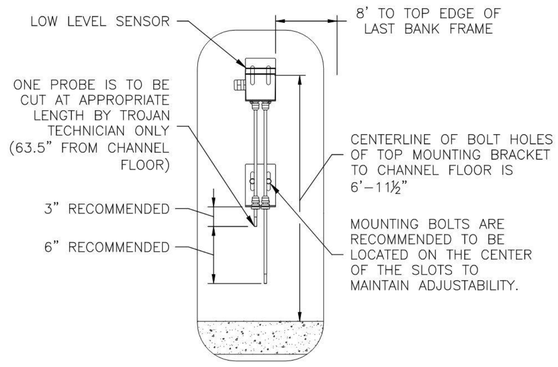
B SECTION
S01 S02 SCALE: AS SHOWN
NOTE: PDC, HSC, AND REMOVABLE GRATING (BY OTHERS) NOT SHOWN FOR CLARITY.



DETAIL A
SCALE: NOT TO SCALE



DETAIL B
SCALE: NOT TO SCALE
NOTE: REFER TO TROJAN TROUGH CABLE INSTALLATION GUIDELINE DC000601-017 OR LOCAL CODE IF MORE RESTRICTIVE. TROUGH WIDTHS BASED ON SOLID STYLE GRATING.



DETAIL C
SCALE: NOT TO SCALE

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NEW UV AND POST AERATION STRUCTURE EQUIPMENT DETAILS

Drawing No:
D4-07
Sheet: 88 OF 205

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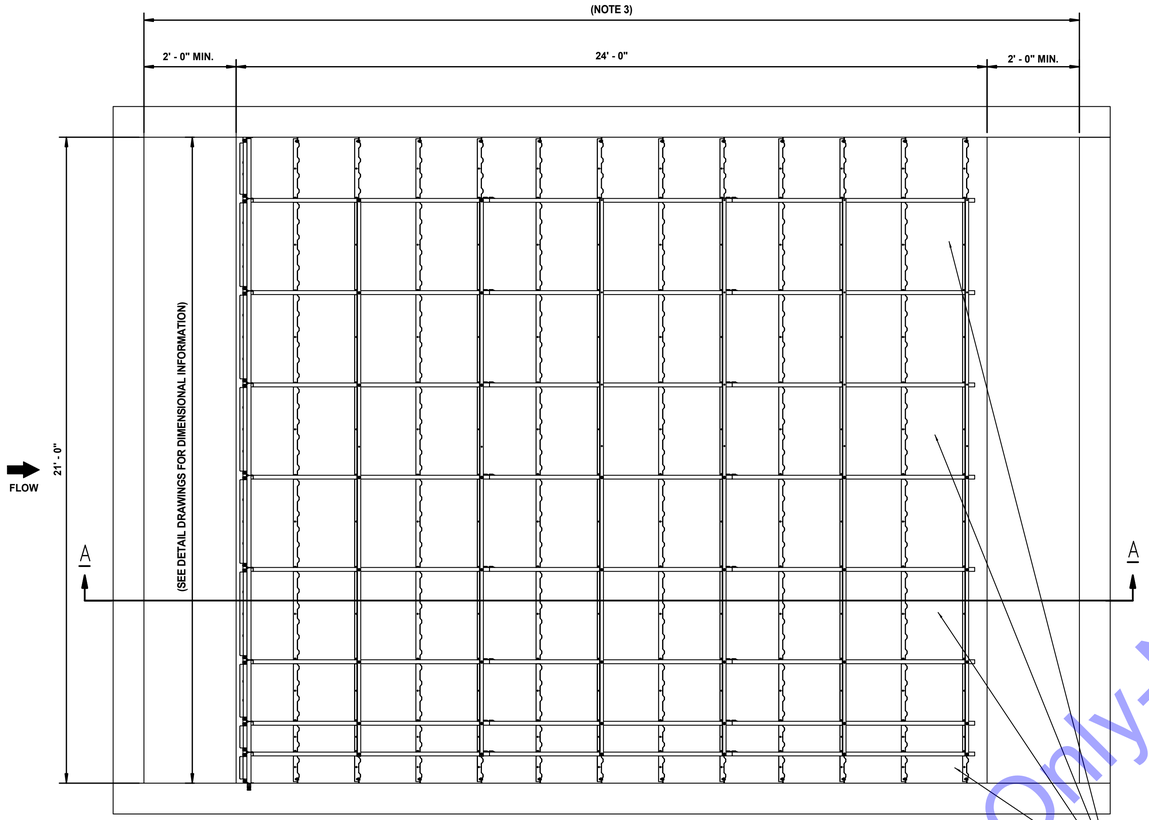
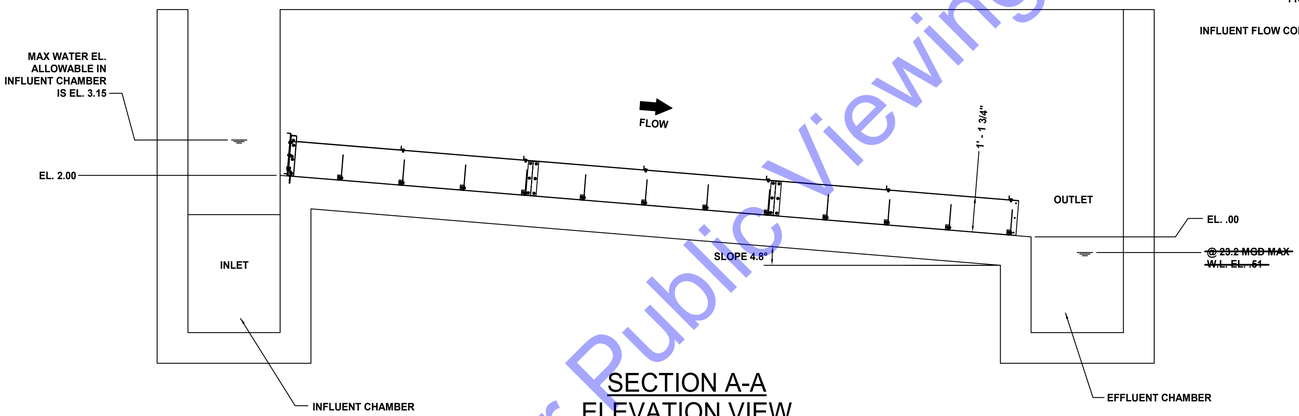
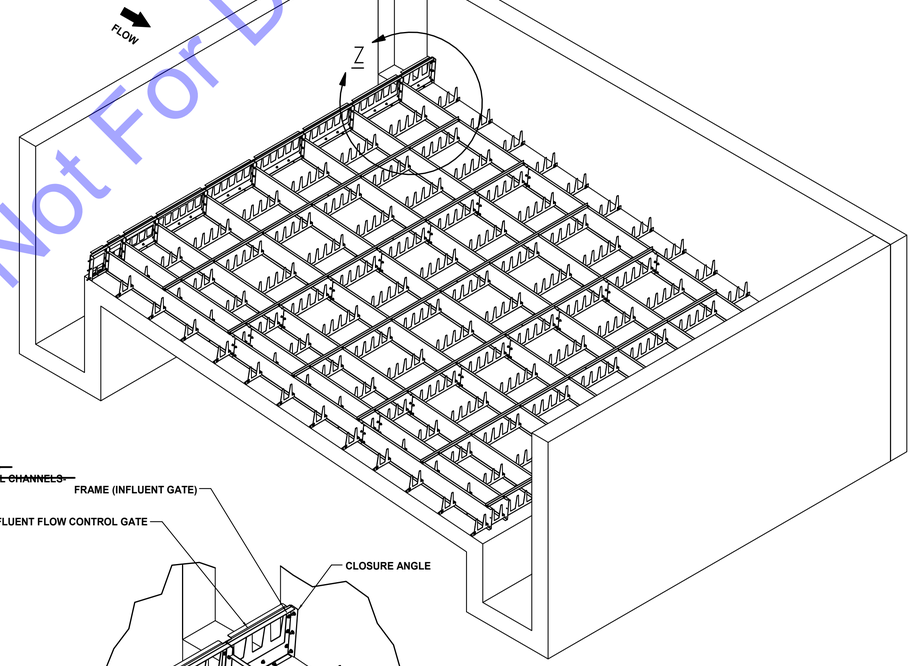


PLAN VIEW



SECTION A-A
ELEVATION VIEW



DETAIL Z
COMPONENT IDENTIFICATION

NOTES:

1. MATERIALS OF CONSTRUCTION TO BE T-304 STAINLESS STEEL.
2. ~~CONCRETE BASIN IS BY OTHERS.~~
3. ~~INLETS, OUTLETS, INFLUENT, AND EFFLUENT CHAMBERS TO BE SIZED (BY OTHERS) TO NOT EXCEED INDICATED MAX WATER ELEVATIONS.~~
4. ~~INFLUENT CHAMBERS MAY NEED TO INCLUDE ENERGY DISSIPATION DEVICE TO REDUCE WATER VELOCITY IMPACT ON INFLUENT DISTRIBUTION AND TO EVENLY DISTRIBUTE FLOW TO INFLUENT FLOW CONTROL GATES.~~
5. SLOPE OF CONCRETE FLOOR AND LEVEL OF CONCRETE FLOOR ACROSS WIDTH OF BASIN IS CRITICAL TO PROPER SYSTEM PERFORMANCE.
6. CONCRETE SURFACE TO BE FLAT AND SMOOTH (1/4" IN 10' IN ALL DIRECTIONS), AND IS CRITICAL FOR PROPER SEALING.
7. PLACE SEAL MATERIAL BETWEEN MATING STEEL AND CONCRETE SURFACES BEFORE ANCHORING.
8. ~~BY MFR:~~ ~~INDIVIDUAL CHANNEL WIDTHS WILL CHANGE FOR JOB SPECIFIC APPLICATION FLOW RATES AND WILL BE DETERMINED AT TIME OF SUBMITTAL.~~
9. ~~BY MFR: THE PATENT PENDING LPCA INFLUENT FLOW CONTROL GATE & AIR INFUSION PLATES WILL BE TRAPEZOIDAL SHAPED. THEY ARE DESIGNED FOR JOB SPECIFIC APPLICATION FLOW RATES TO OPTIMIZE AIR INFUSION AT MINIMUM FLOW RATES & ACHIEVE THE "DO" CONCENTRATION SPECIFIED THROUGHOUT THE FULL RANGE OF FLOW.~~

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Drawing No:
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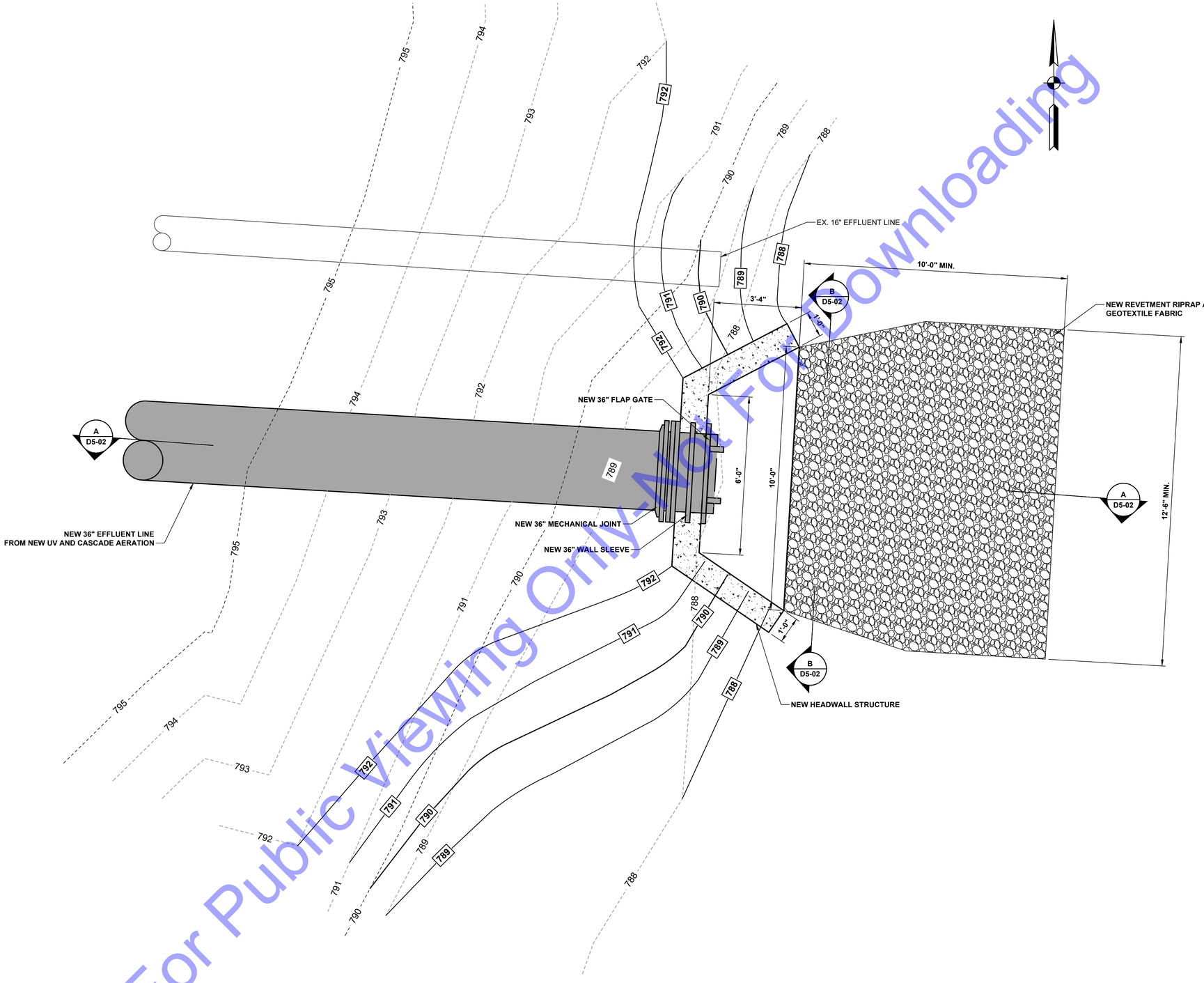

PLAN

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

0 1' 2' 4'

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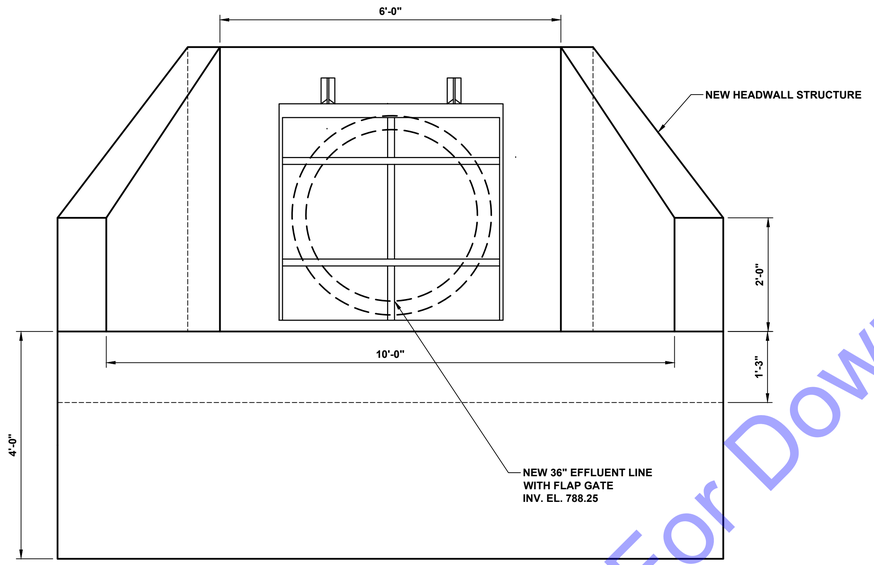
NEW EFFLUENT OUTFALL STRUCTURE PLAN VIEW

Drawing No:
D5-01
Sheet: 90 OF 205



SECTION B (D5-01)

SCALE: 3/4"=1'-0"

0 1" 2" 3"

SECTION A (D5-01)

SCALE: 3/4"=1'-0"

0 1" 2" 3"

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NEW EFFLUENT
OUTFALL STRUCTURE
SECTION VIEWS

Drawing No:
D5-02
Sheet: 91 OF 205

File: Z:\SHARED\IN CLIENTS M-Z\NEW PALESTINE\D S22002 WW UTILITY IMPRV\S06 CAD\A CURRENT FILES\1 DRAWINGS\DIV A - WWTP\11-NEW OUTFALL STRUCTURE.DWG
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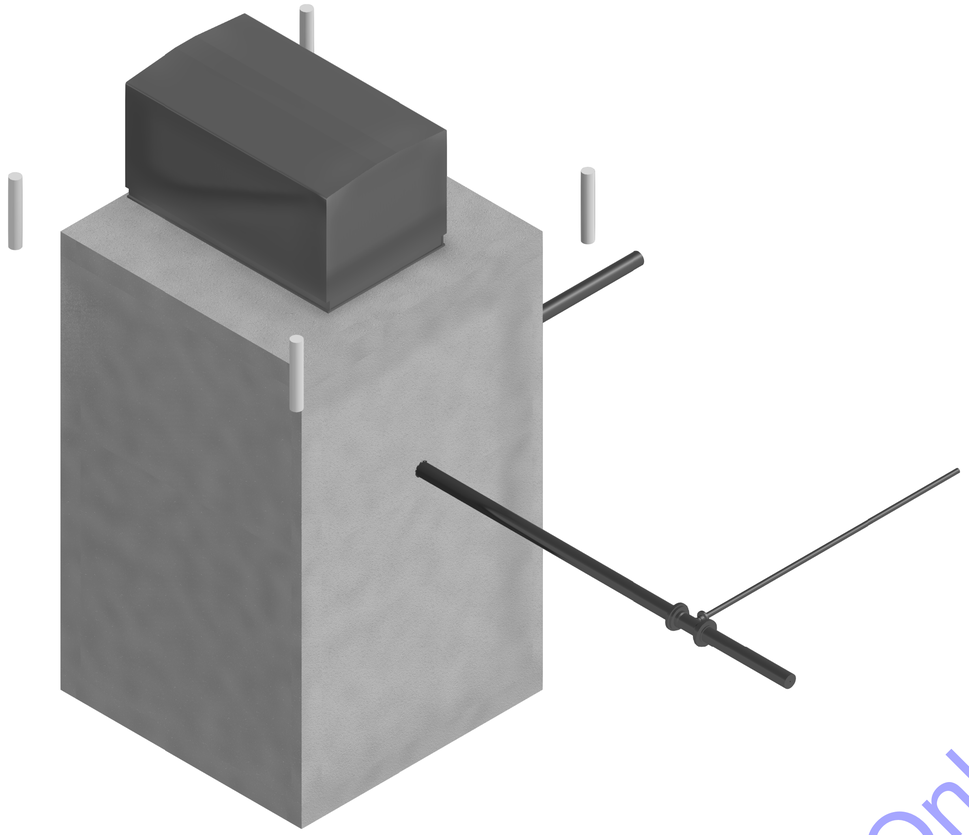
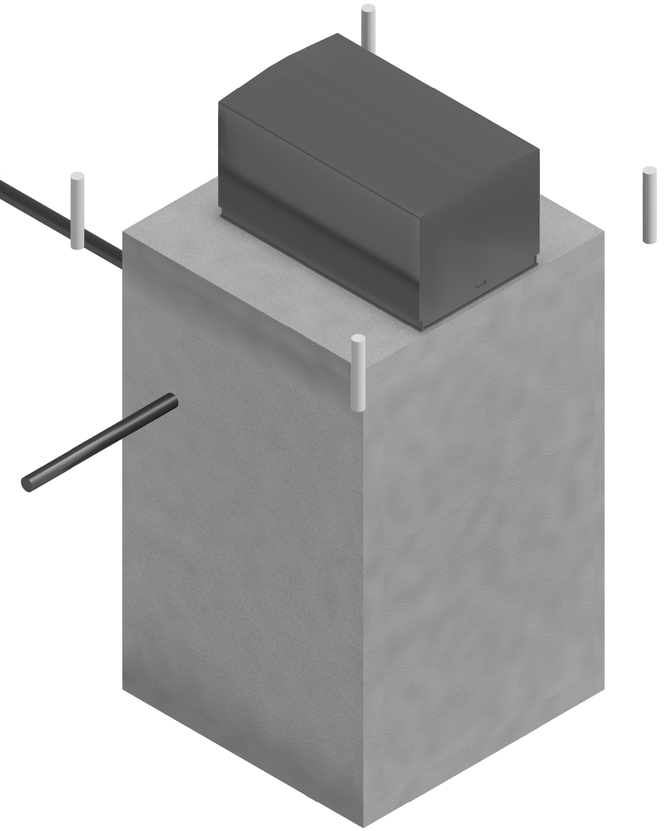


NORTHEAST ISOMETRIC
SCALE: NOT TO SCALE



SOUTHWEST ISOMETRIC
SCALE: NOT TO SCALE

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NEW NON-POTABLE WATER SYSTEM ISOMETRIC VIEWS

Drawing No:
D6-01
Sheet: 92 OF 205

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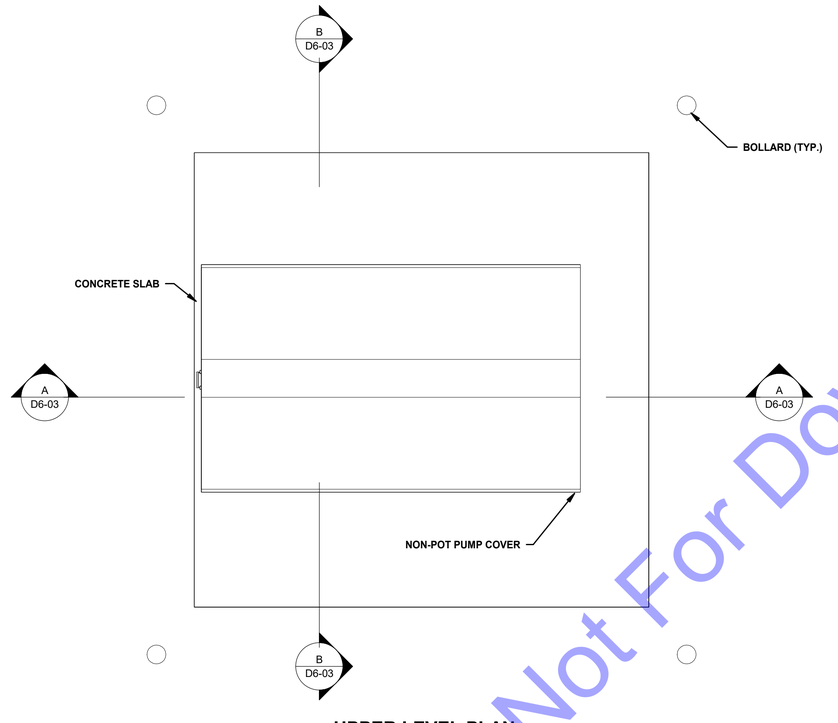
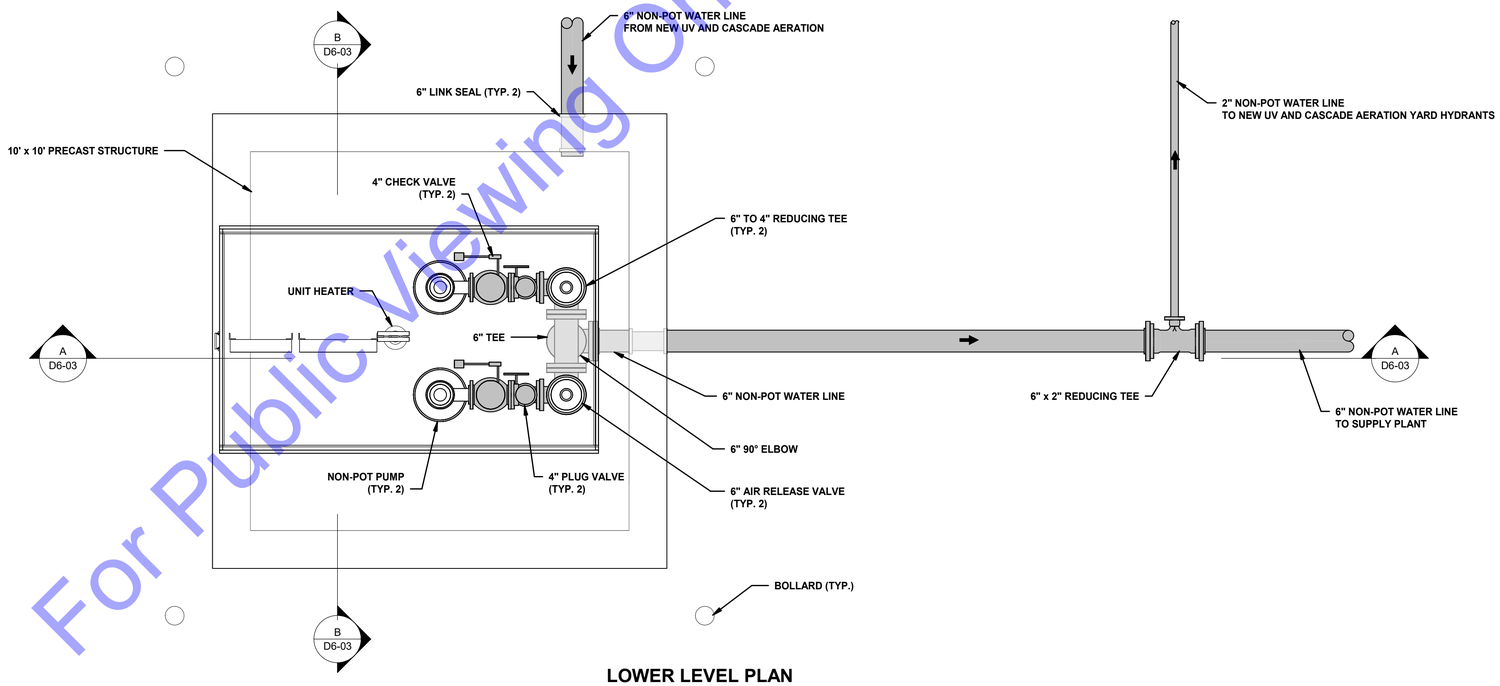


UPPER LEVEL PLAN

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

0' 1' 2' 4'



LOWER LEVEL PLAN

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

0' 1' 2' 4'

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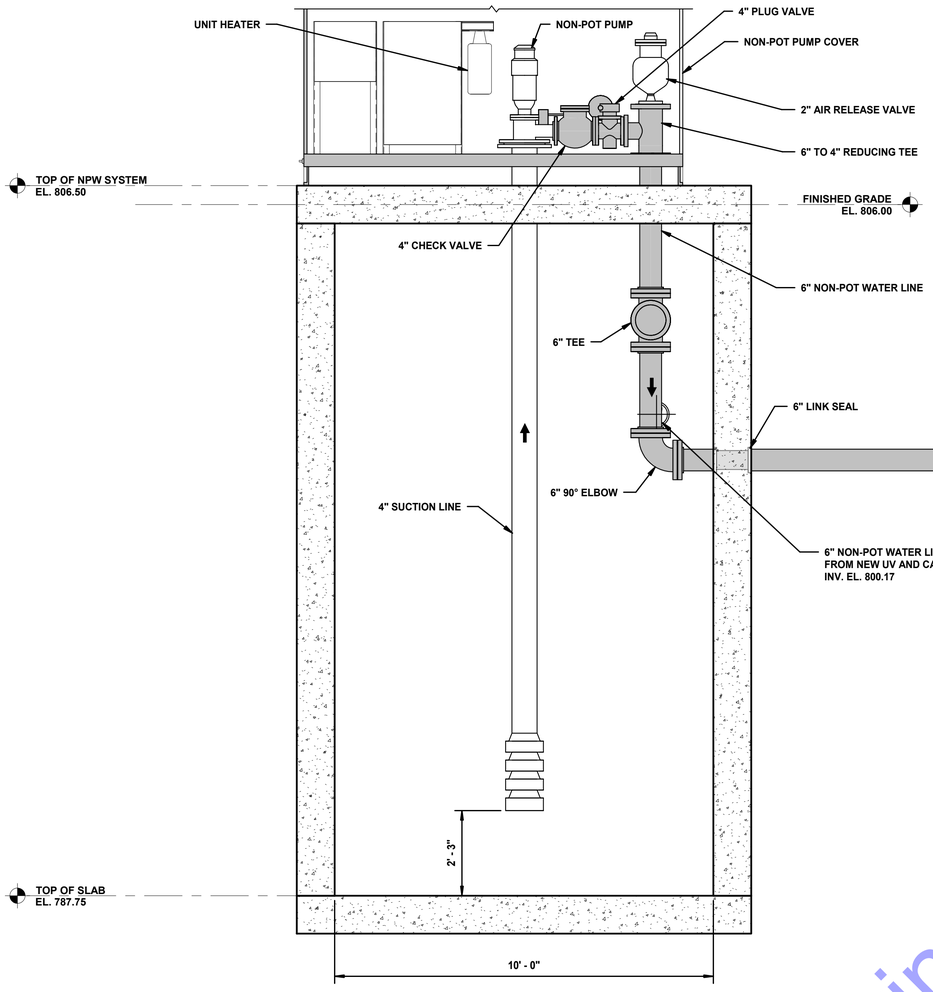
NEW NON-POTABLE WATER SYSTEM UPPER AND LOWER PLAN VIEWS

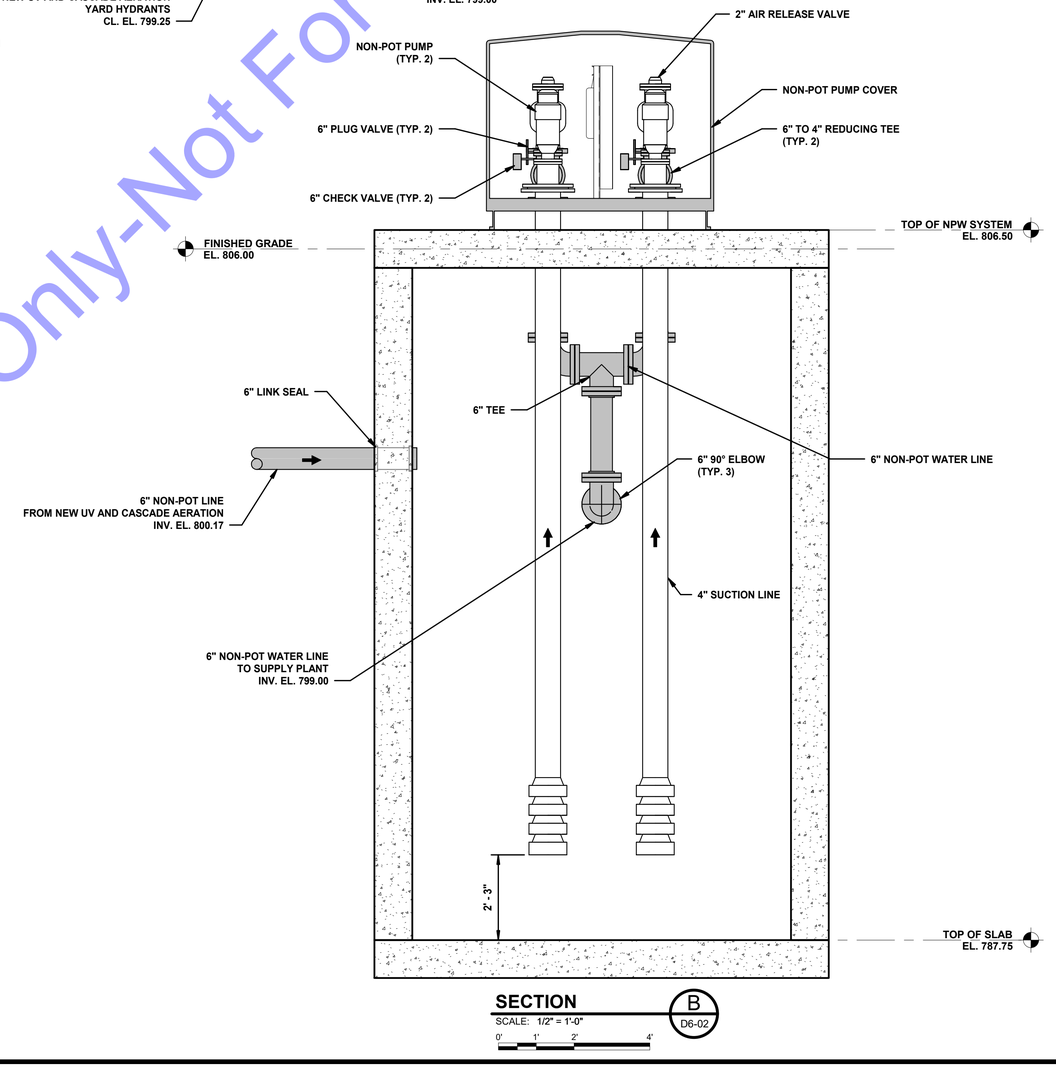
Drawing No:

D6-02

Sheet: 93 OF 205



SECTION A D6-02
SCALE: 1/2" = 1'-0"
0' 1' 2' 4'



SECTION B D6-02
SCALE: 1/2" = 1'-0"
0' 1' 2' 4'

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NEW NON-POTABLE WATER SYSTEM SECTION VIEWS

Drawing No:
D6-03
Sheet: 94 OF 205

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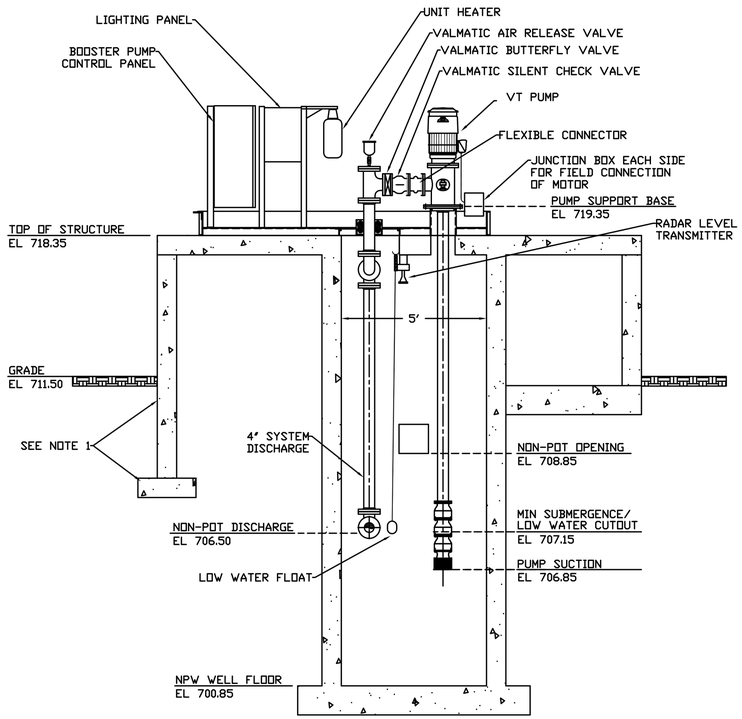
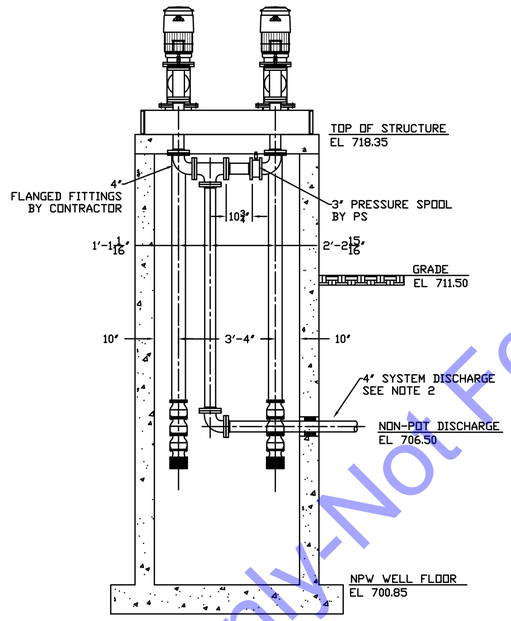
EXAMPLE DRAWING - NOT FOR CONSTRUCTION



SECTION (A)



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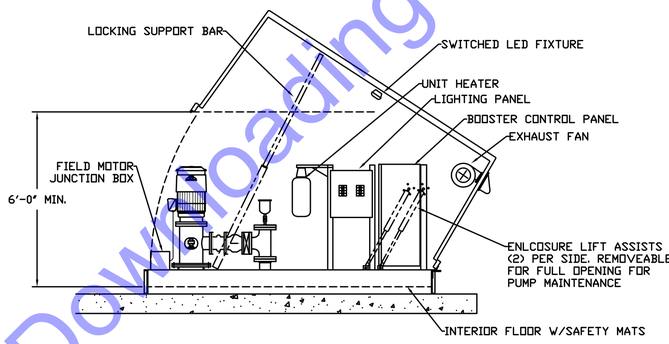

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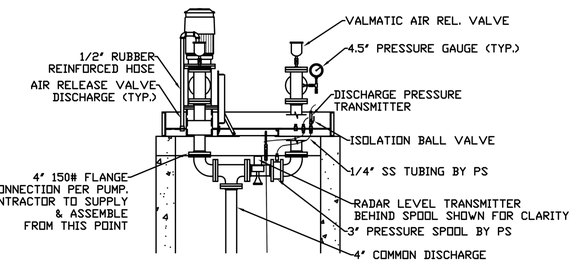

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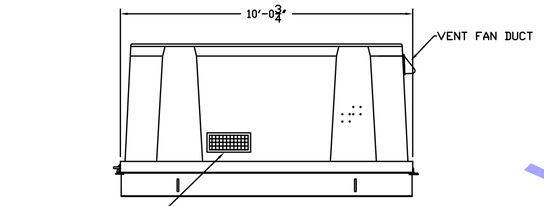
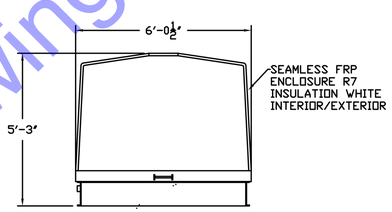


SIDE ELEVATION



FRONT ELEVATION

MANUFACTURER'S NOTES

1. THIS DRAWING DEPICTS AN ALTERNATE CONSTRUCTION OF THE NON-POTABLE WATER PUMP STATION STRUCTURE. VALVE VAULT IS NOT REQUIRED DUE TO ABOVE GRADE VALVES.

2. THIS DRAWING DEPICTS AN ALTERNATE LOCATION FOR SYSTEM DISCHARGE

Rev	Description	By	Date
A	PRE-PRODUCTION		

NON-POTABLE BOOSTER

FRP TIP-ENCLOSURE

NOT FOR CONSTRUCTION

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NEW NON-POTABLE WATER SYSTEM EQUIPMENT DETAILS

Drawing No:
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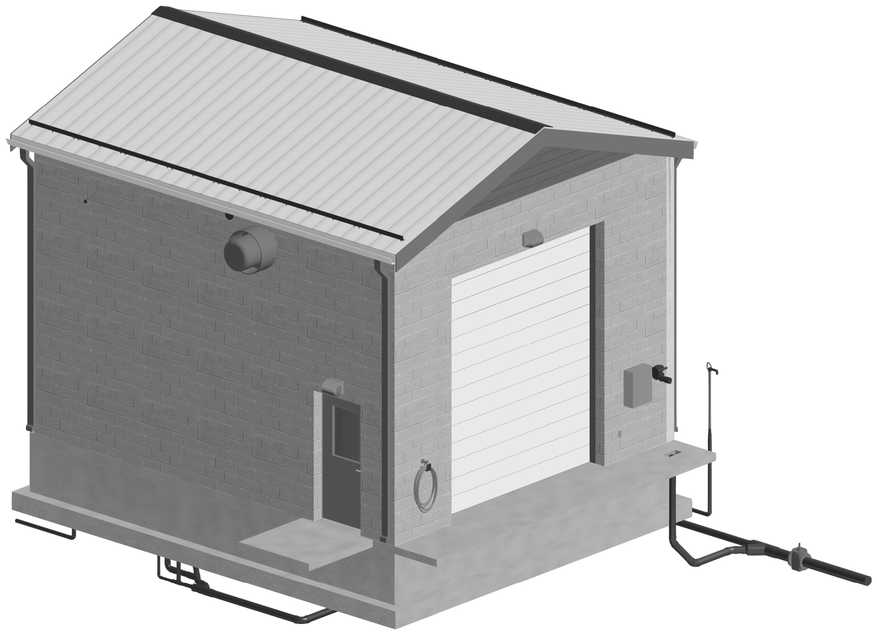
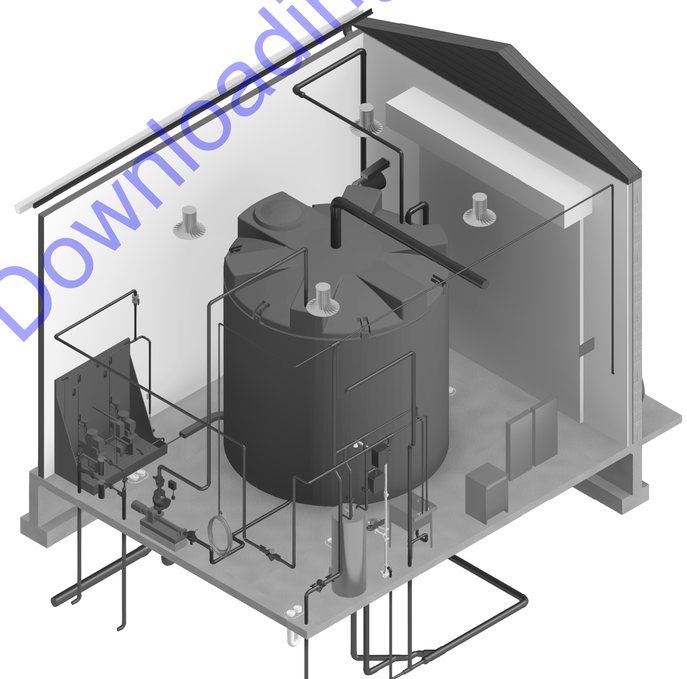
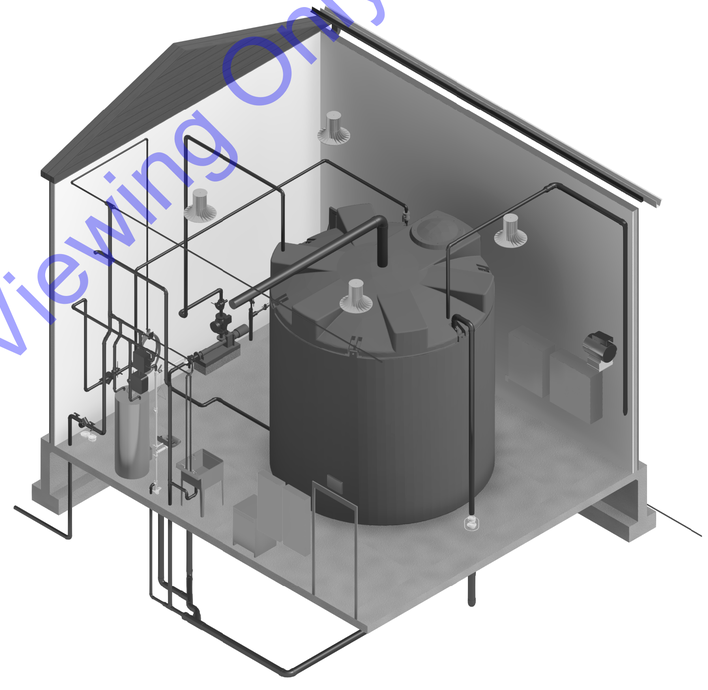
Sheet: 95 OF 205



ISOMETRIC
SCALE: NOT TO SCALE



ISOMETRIC
SCALE: NOT TO SCALE



ISOMETRIC
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NEW CHEMICAL FEED BUILDING - ISOMETRIC VIEWS

Drawing No:
D7-01
Sheet: 96 OF 205

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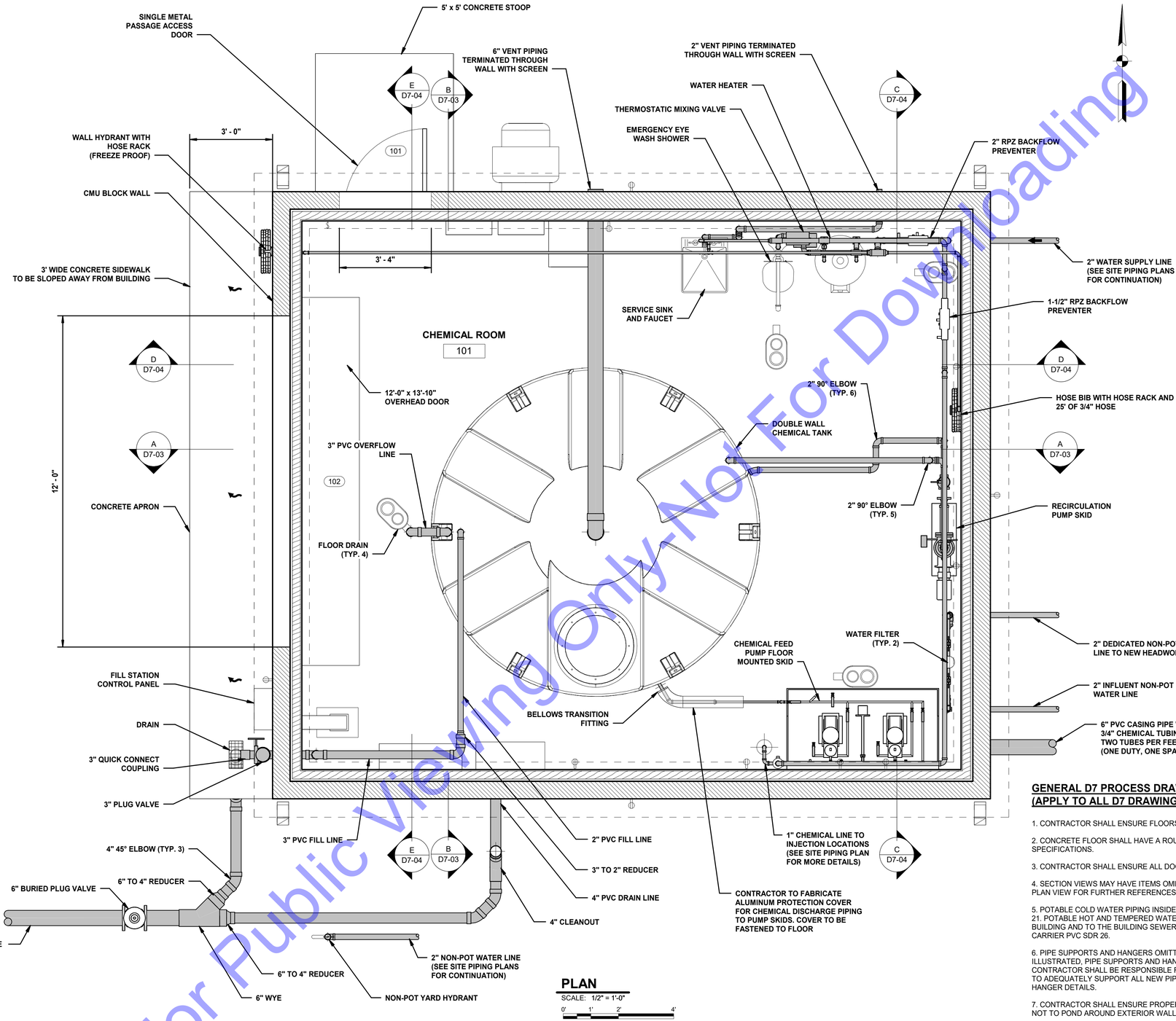

PLAN

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

0' 1' 2' 4'

GENERAL D7 PROCESS DRAWING NOTES (APPLY TO ALL D7 DRAWINGS)

1. CONTRACTOR SHALL ENSURE FLOORS ARE SLOPED TO DRAIN INTO.

2. CONCRETE FLOOR SHALL HAVE A ROUGH, SLIP RESISTANT FINISH AND SEALED PER SPECIFICATIONS.

3. CONTRACTOR SHALL ENSURE ALL DOORS HAVE PANIC HARDWARE.

4. SECTION VIEWS MAY HAVE ITEMS OMITTED FOR CLARITY, REFER TO OTHER SECTION VIEWS OR PLAN VIEW FOR FURTHER REFERENCES.

5. POTABLE COLD WATER PIPING INSIDE BUILDING PVC SCH 80. POTABLE WATER MAINS PVC SDR 21. POTABLE HOT AND TEMPERED WATER PIPING CPVC SCH 80. DRAIN AND VENT PIPE INSIDE BUILDING AND TO THE BUILDING SEWER CONNECTION PVC SCH 40. GRAVITY SEWER AND CHEMICAL CARRIER PVC SDR 26.

6. PIPE SUPPORTS AND HANGERS OMITTED IN MOST LOCATIONS FOR CLARITY. WHERE ILLUSTRATED, PIPE SUPPORTS AND HANGERS SHOWN FOR REFERENCE PURPOSES ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING SUPPORTS AND HANGERS AS REQUIRED TO ADEQUATELY SUPPORT ALL NEW PIPING. REFER TO DRAWING MD4 FOR PIPE SUPPORT AND HANGER DETAILS.

7. CONTRACTOR SHALL ENSURE PROPER GRADING AROUND BUILDING WILL ALLOW FOR RUN-OFF NOT TO POND AROUND EXTERIOR WALLS AND WILL DRAIN AWAY FROM BUILDING.

8. CONTRACTOR SHALL REFER TO STRUCTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS AS REQUIRED.

9. FOR GRATING SUPPORT DETAILS, CONTRACTOR SHALL REFER TO STRUCTURAL DRAWINGS.

10. DRAWINGS ARE DIAGRAMMATIC ONLY. COORDINATION WITH OTHER TRADES, LAYOUT, ROUTING AND FITTINGS NECESSARY ARE THE RESPONSIBILITY OF THE CONTRACTOR.

11. ANY MINOR CHANGES IN THE LOCATION OF ANY EQUIPMENT OR FIXTURES FORM THOSE SHOWN ON THE PLANS SHALL BE MADE WITHOUT EXTRA CHARGE IF SO DIRECTED BY ENGINEER OR OWNER BEFORE INSTALLATION. MINOR CHANGES IN LOCATION SHALL BE DEFINED AS WITHIN 5 FEET IN ANY DIRECTION, HORIZONTALLY OR VERTICALLY, FROM THE LOCATION INDICATED ON THE DRAWINGS.

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NEW CHEMICAL FEED BUILDING - PLAN VIEW

Drawing No:

D7-02

Sheet: 97 OF 205

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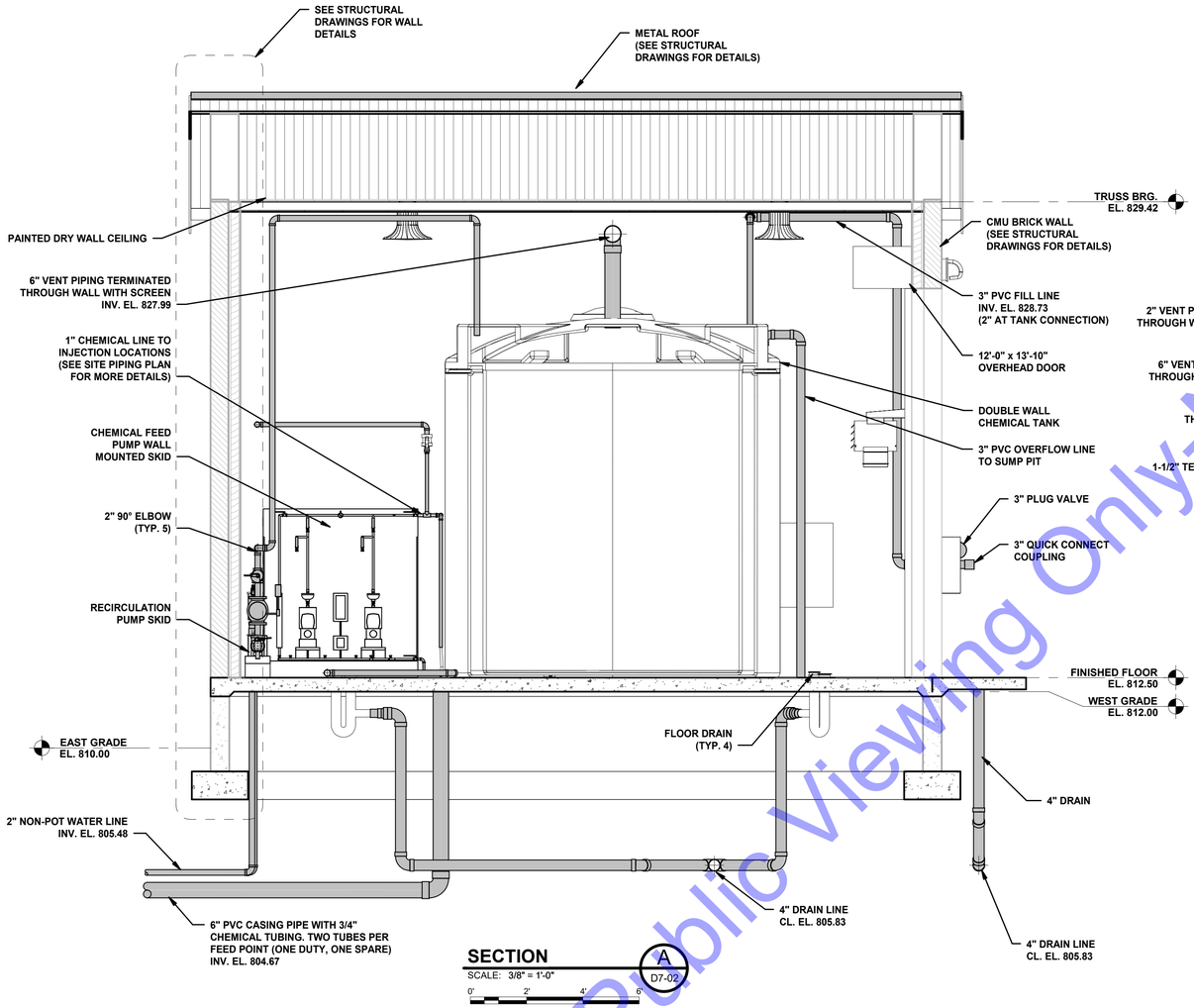
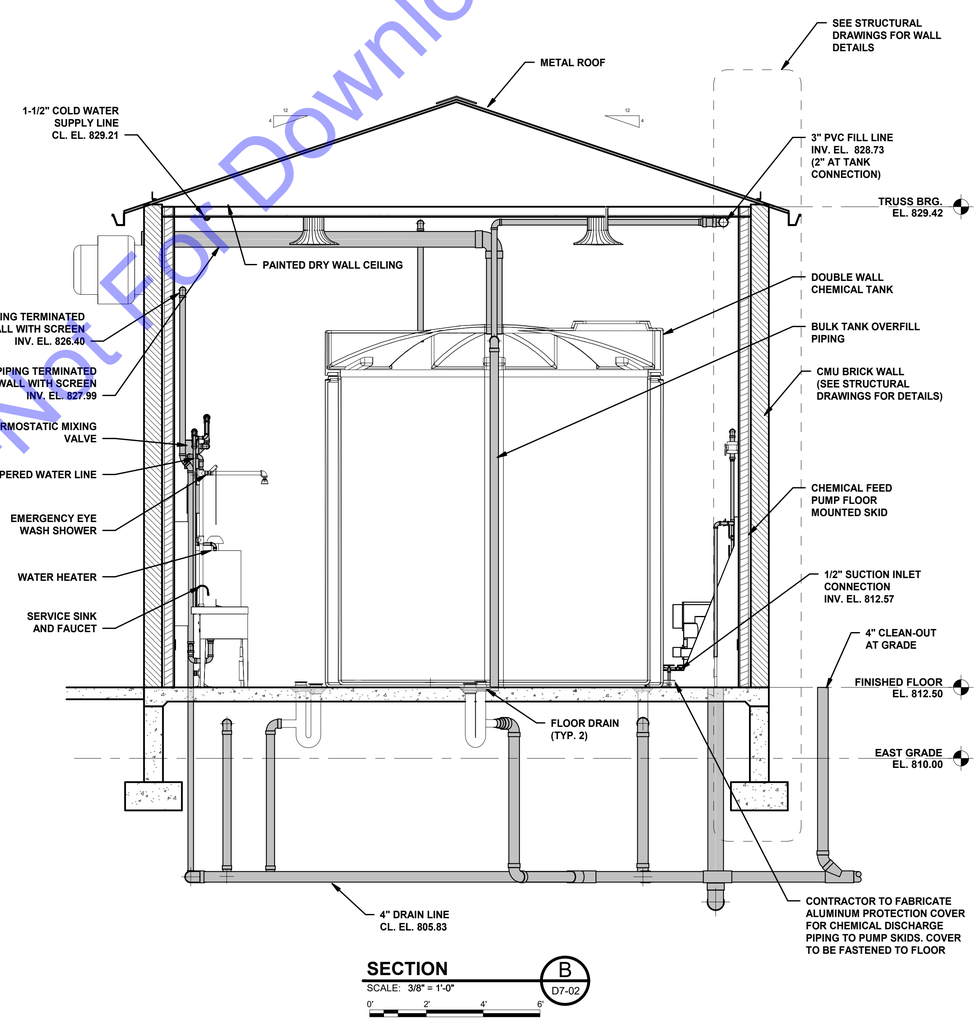


SECTION A

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

0' 2' 4' 6'

D7-02



SECTION B

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

0' 2' 4' 6'

D7-02

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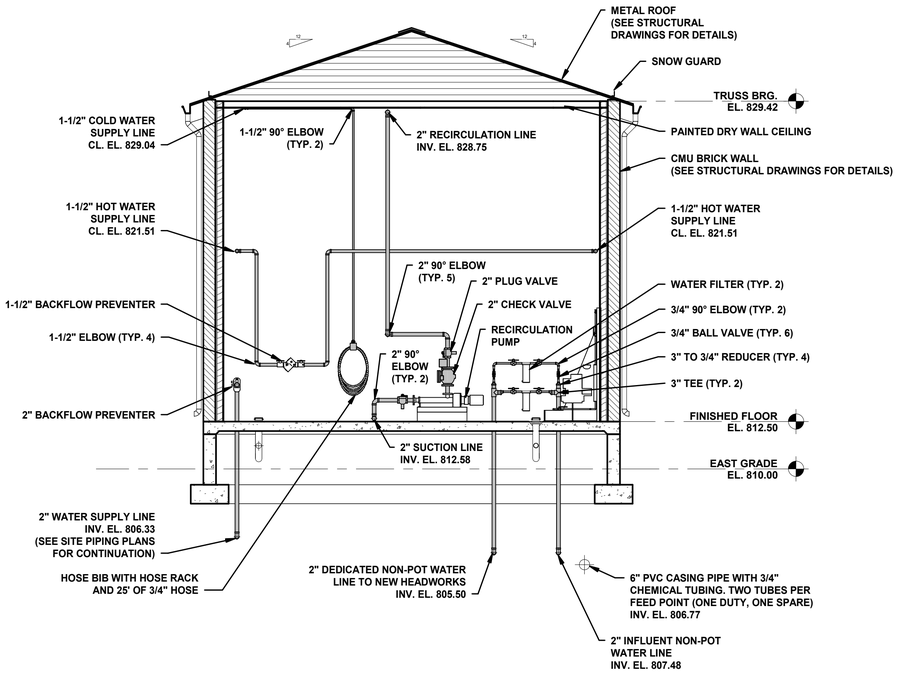
NEW CHEMICAL FEED BUILDING - SECTION VIEWS

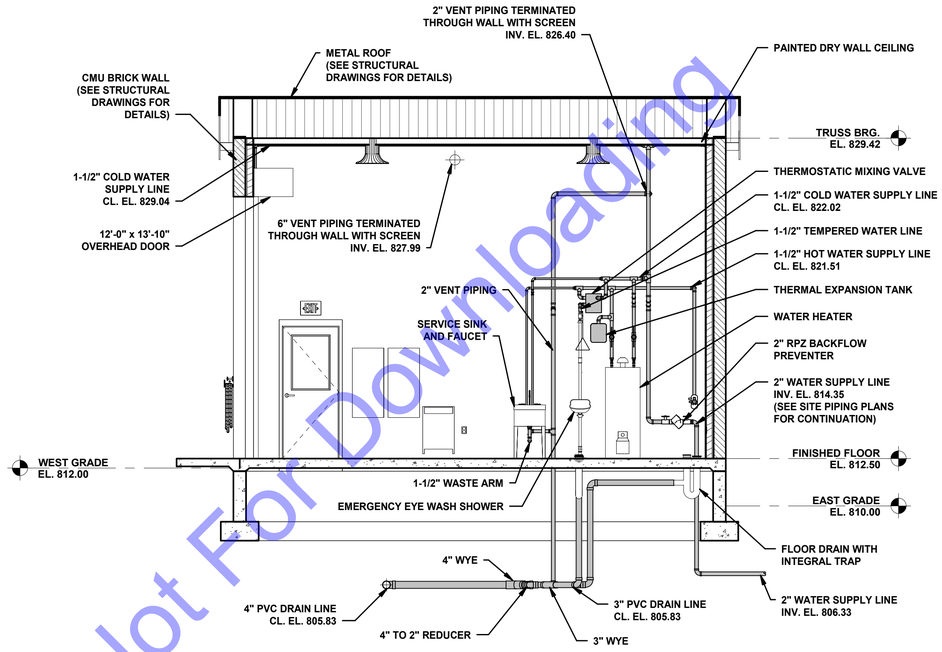
Drawing No:

D7-03

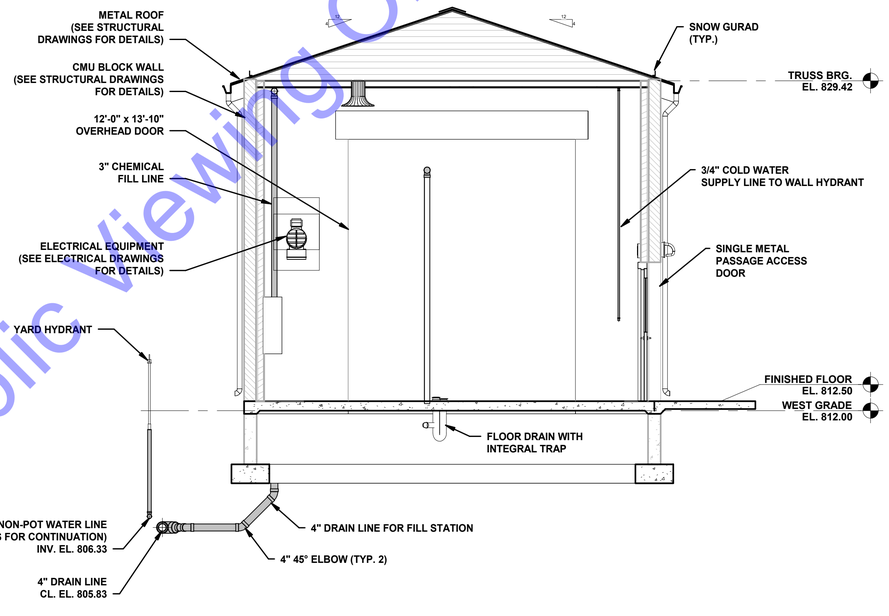
Sheet: 98 OF 205



SECTION C — SCALE: 1/4" = 1'-0" — D7-02



SECTION D — SCALE: 3/8" = 1'-0" — D7-02



SECTION E — SCALE: 1/4" = 1'-0" — D7-02

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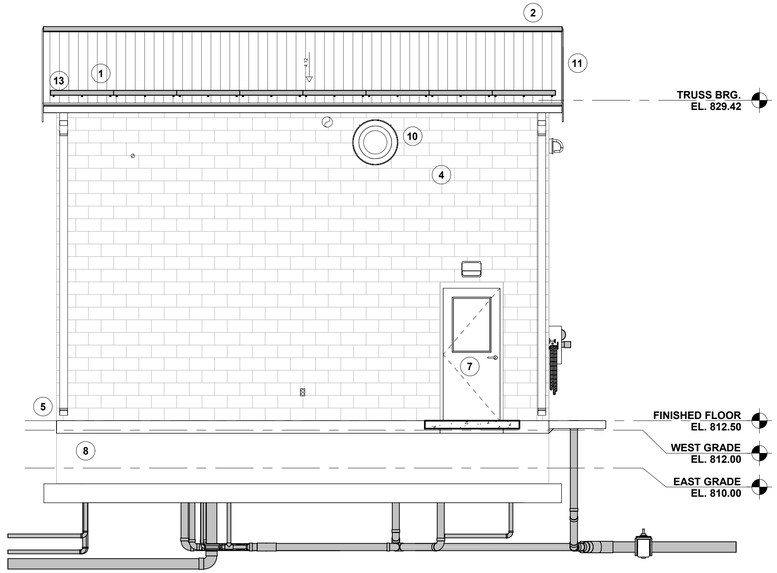
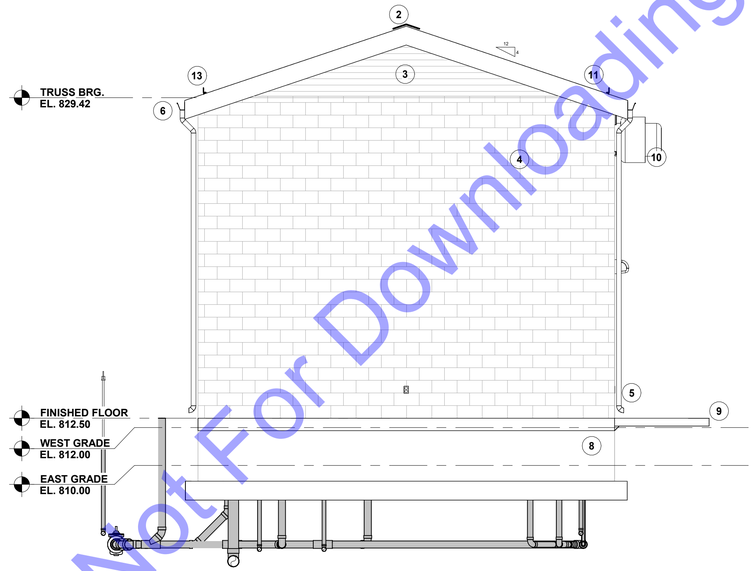
NEW CHEMICAL FEED BUILDING - SECTION VIEWS

Drawing No: **D7-04**

Sheet: 99 OF 205

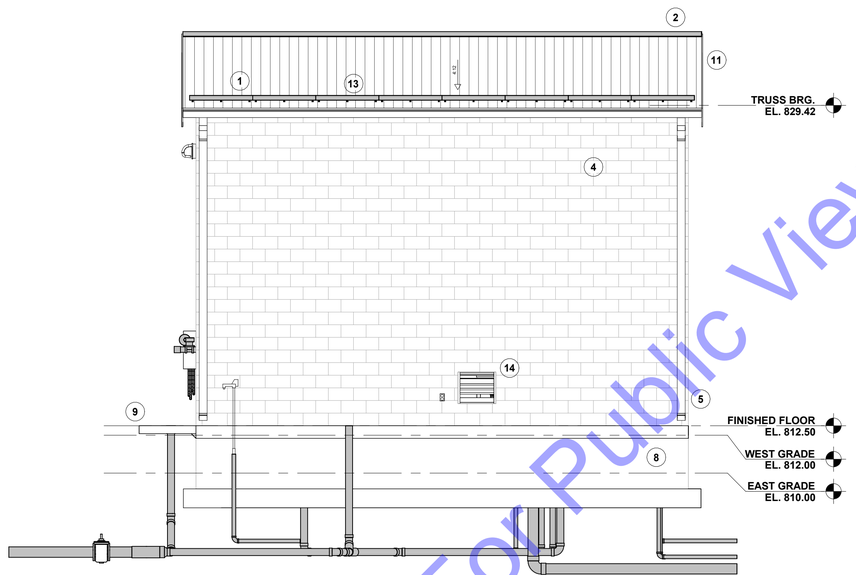


NORTH ELEVATION
SCALE: NOT TO SCALE

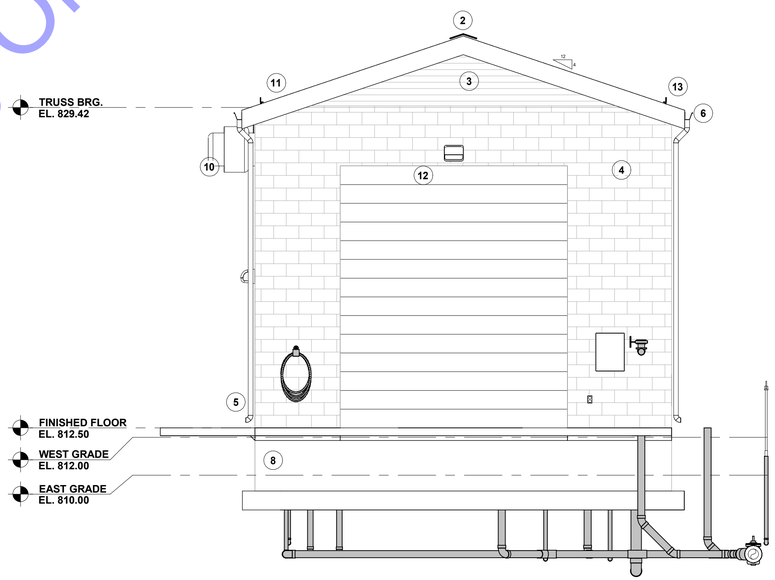


EAST ELEVATION
SCALE: NOT TO SCALE

#	ELEVATION VIEW KEYNOTE LEGEND:
1	METAL SEAM ROOF
2	RIDGE VENT
3	METAL PANEL SIDING
4	SPLIT FACE CMU BLOCK
5	5" x 3" PREFINISHED ALUM. DOWNSPOUT
6	5" x 5" PREFINISHED ALUM. GUTTER
7	NEW SINGLE ACCESS DOOR (PAINTED)
8	FOOTING AND FOUNDATION (SEE STRUCTURAL DRAWINGS)
9	CONCRETE STOOP
10	EXHAUST FAN
11	8" FASCIA BOARD
12	12'-0" x 13'-10" OVERHEAD DOOR
13	SNOW GUARD (TYP.)
14	LOUVER



SOUTH ELEVATION
SCALE: NOT TO SCALE



WEST ELEVATION
SCALE: NOT TO SCALE

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NEW CHEMICAL FEED BUILDING - ELEVATION VIEWS

Drawing No:
D7-05
Sheet: 100 OF 205

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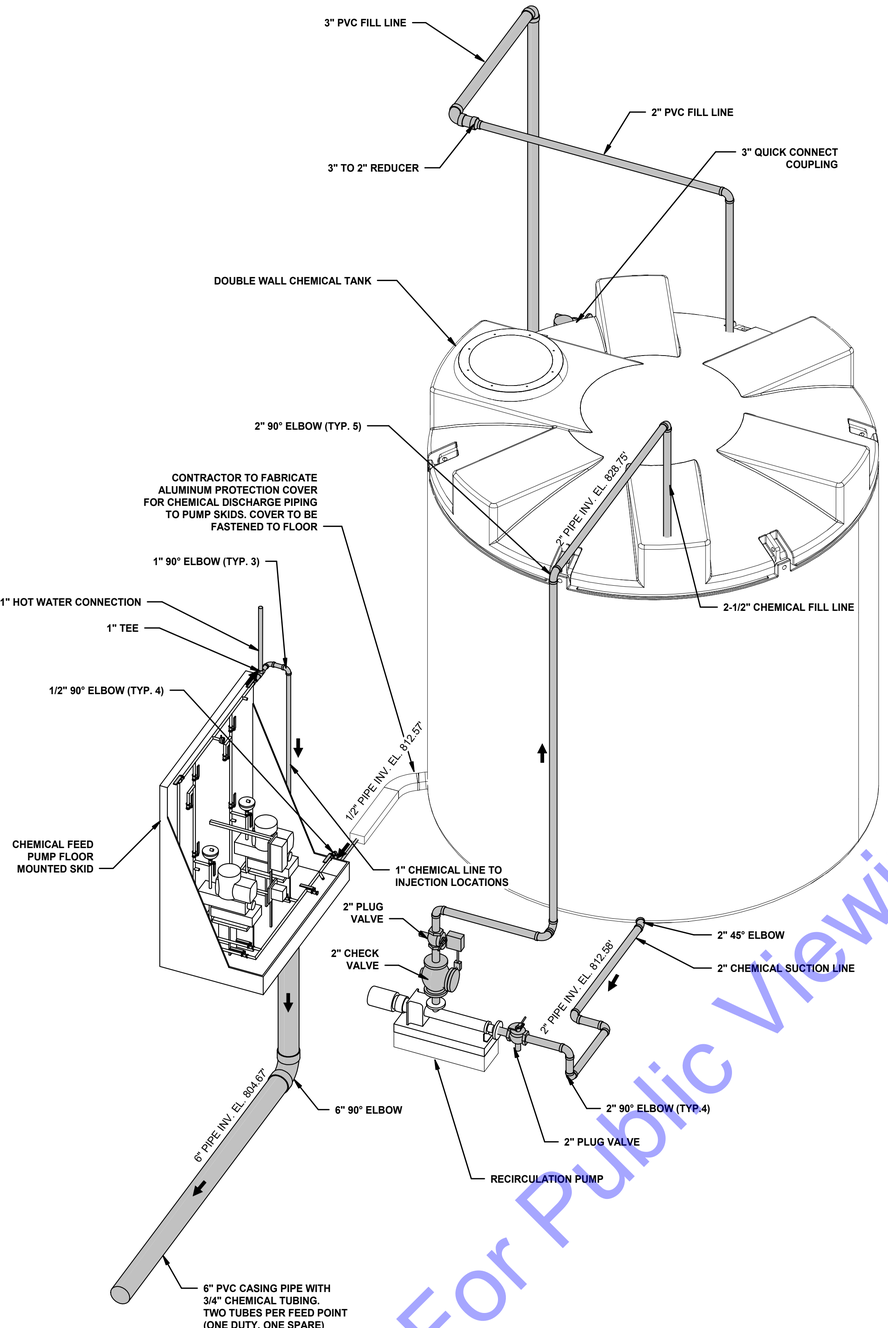
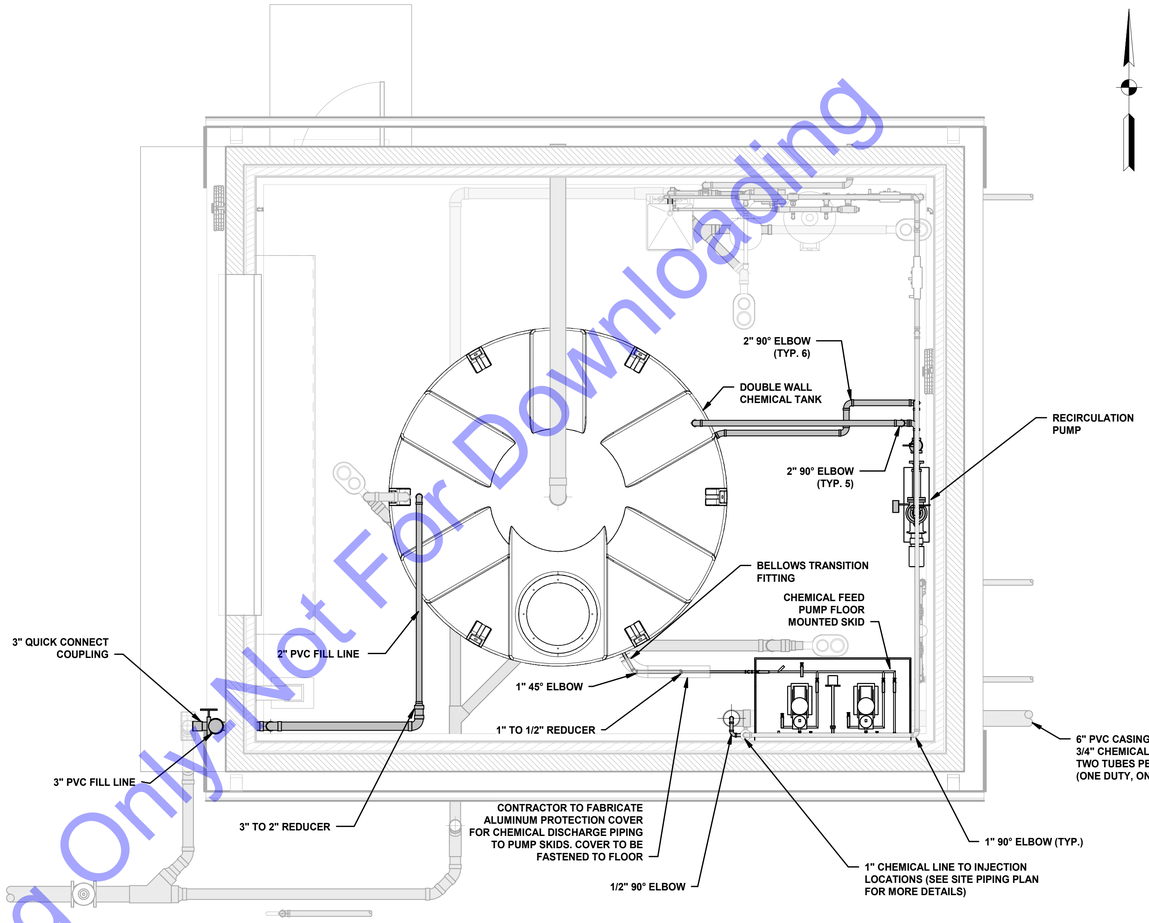


SCHEMATIC
SCALE: NOT TO SCALE



PLAN
SCALE: 3/8" = 1'-0"
0' 2' 4' 6'

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NEW CHEMICAL FEED BUILDING - CHEMICAL SCHEMATIC AND PLAN VIEW

Drawing No:
D7-06
Sheet: 101 OF 205

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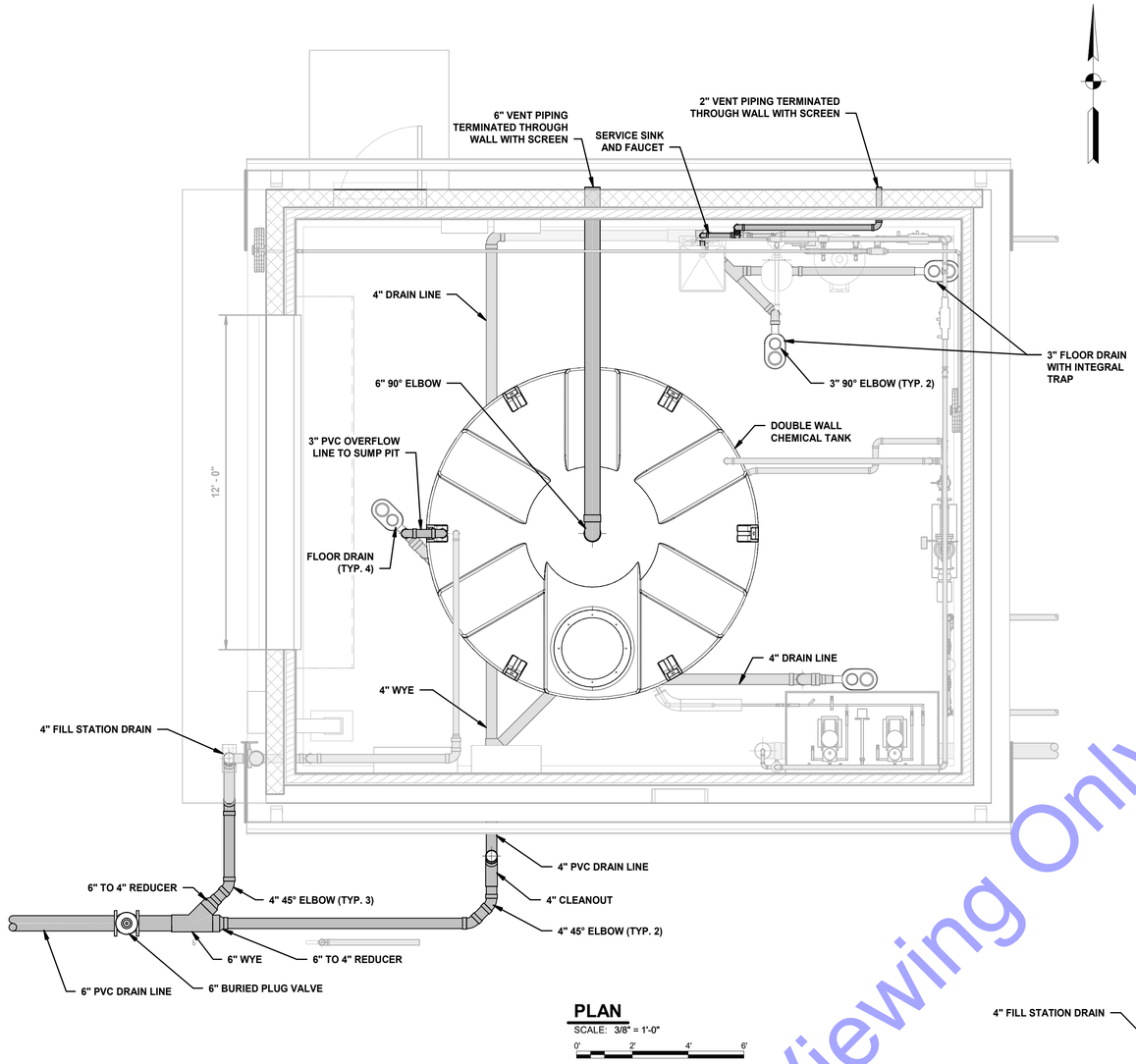
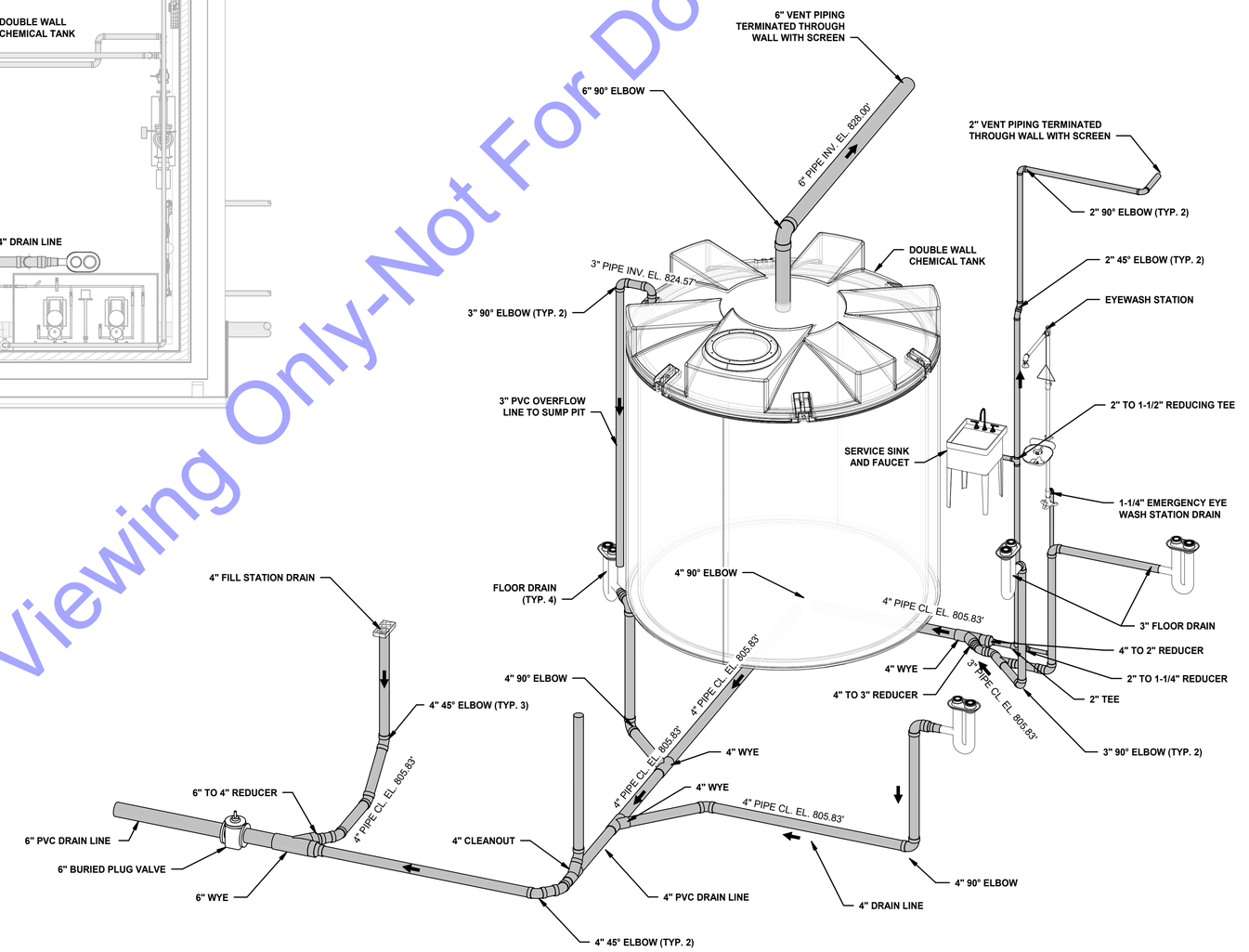


PLAN

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

0' 2' 4' 6'



SCHEMATIC

SCALE: NOT TO SCALE

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NEW CHEMICAL FEED BUILDING - DRAIN SCHEMATIC AND PLAN VIEW

Drawing No:

D7-07

Sheet: 102 OF 205

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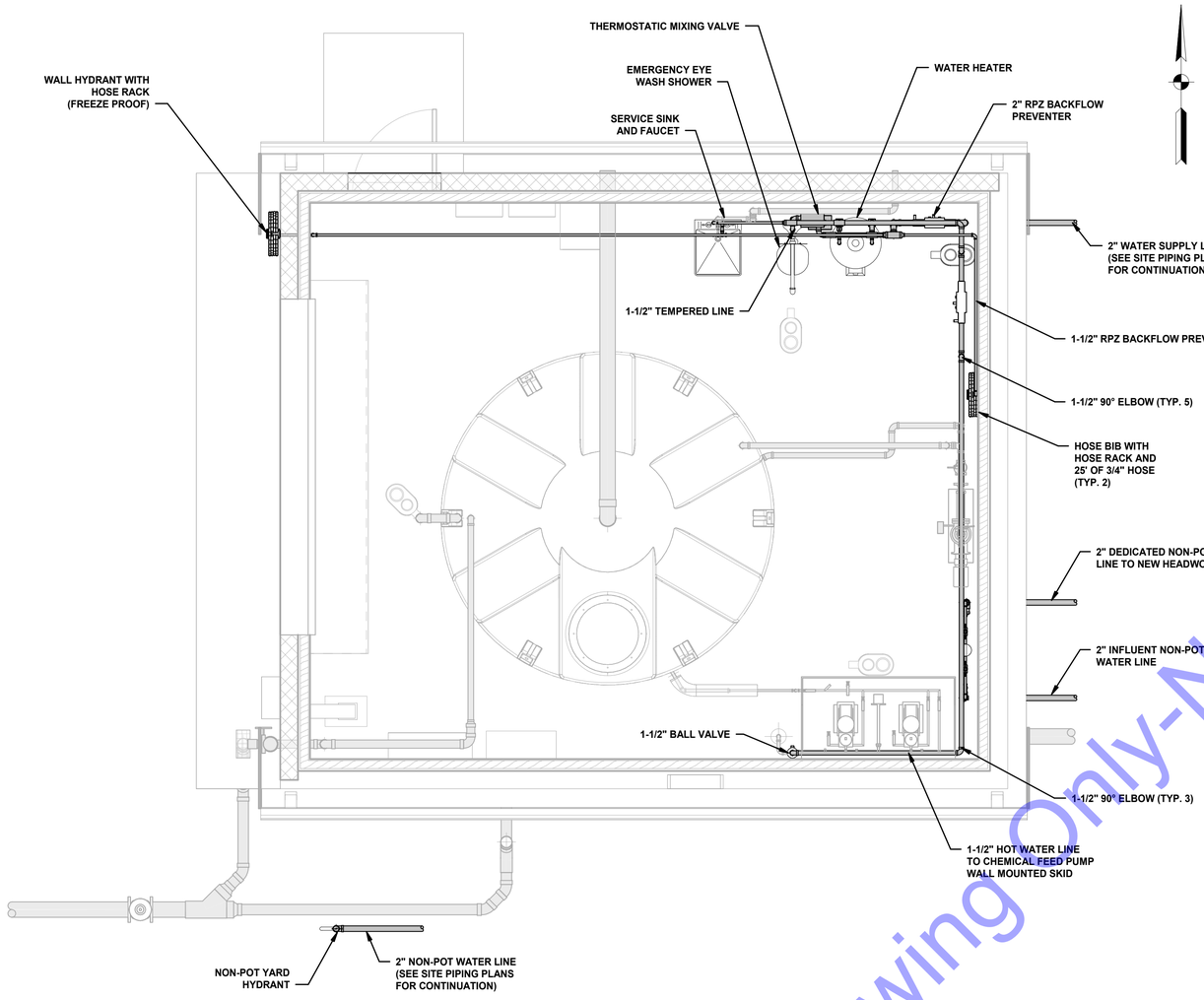
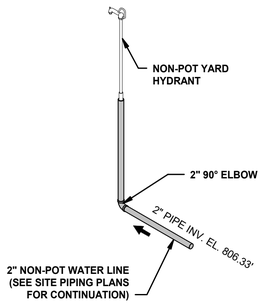
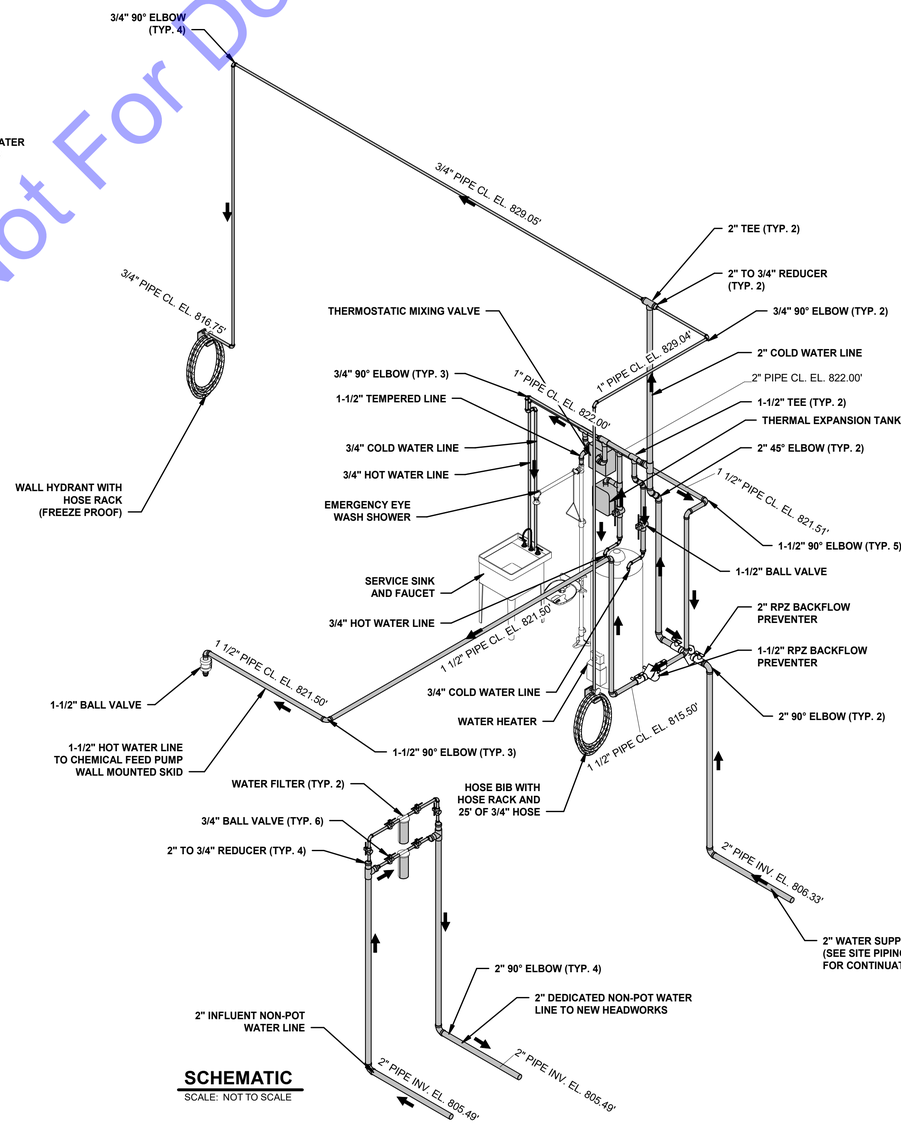


PLAN

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

0' 2' 4' 6'





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SCALE: NOT TO SCALE

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NEW CHEMICAL FEED BUILDING - PLUMBING SCHEMATIC AND PLAN VIEW

Drawing No:

D7-08

Sheet: 103 OF 205

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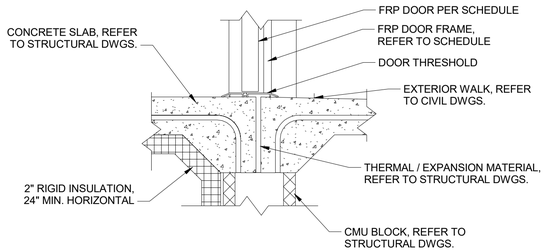
DOOR SCHEDULE

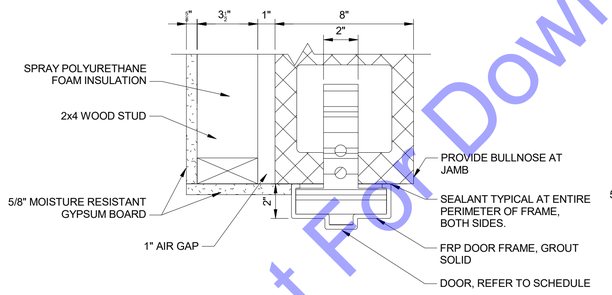
LOCATION	DOOR DATA											FRAME DATA						COMMENTS
	DOOR NUMBER	QUANTITY	DOOR TYPE	WINDOW	INSULATED	ROUGH WIDTH	ROUGH HEIGHT	DOOR WIDTH	DOOR HEIGHT	DOOR MATERIAL	THICKNESS	FRAME NUMBER	FRAME MATERIAL	FRAME DEPTH	HEAD DETAIL	JAMB DETAIL	SILL DETAIL	
CHEMICAL ROOM	101	1	A	Yes	Yes	3' - 4"	7' - 4"	3' - 0"	7' - 0"	FRP OR STAINLESS STEEL	0' - 2"	1	FRP OT STAINLESS STEEL	0' - 6"	3	2	1	
CHEMICAL ROOM	102	1	B	No	Yes	12' - 0"	13' - 10"	12' - 0"	13' - 10"	AS SPECIFIED	0' - 3"	N/A	AS SPECIFIED	N/A	6	5	4	

ROOM FINISH SCHEDULE

ROOM NUMBER	ROOM NAME	FLOOR	WALLS	CEILING	COMMENTS
101	CHEMICAL ROOM	FLOOR COATING PERSPECIFICATIONS WITH SILICA SAND, OR EQUAL INCORPORATED TO ASSURE NON-SLIP SURFACE	PAINTED DRYWALL	PAINTED DRYWALL	



SILL DETAIL 1
NOT TO SCALE



JAMB DETAIL 2
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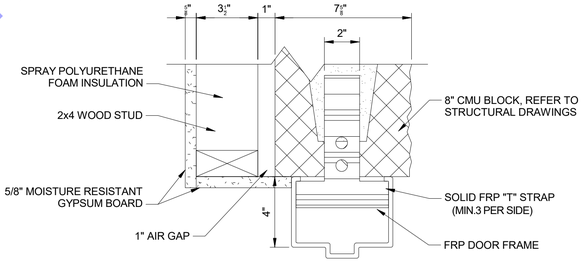

HEAD DETAIL 3
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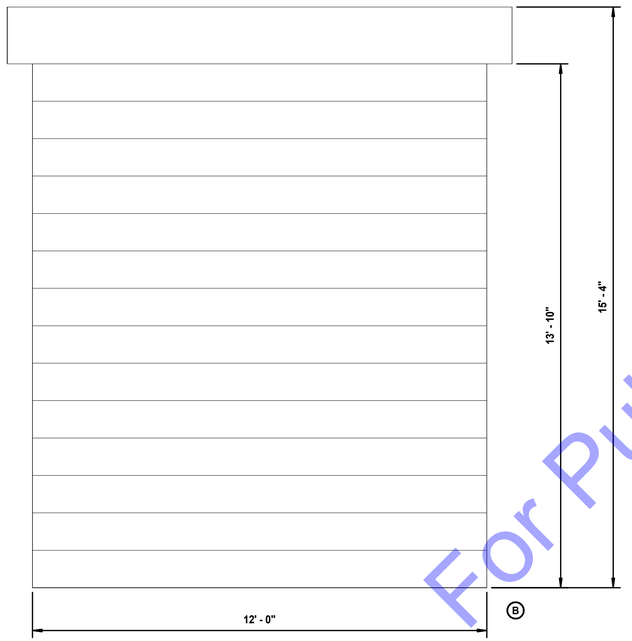
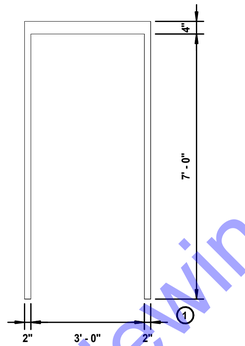
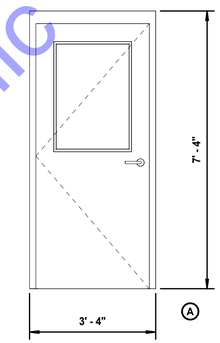
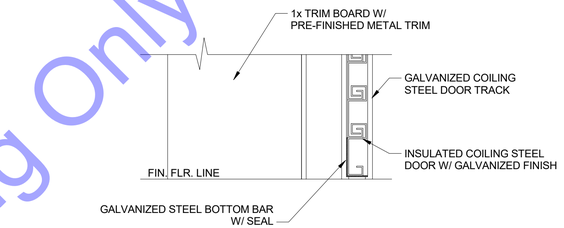


DOOR ELEVATIONS
SCALE: NOT TO SCALE



DOOR FRAME ELEVATIONS
SCALE: NOT TO SCALE





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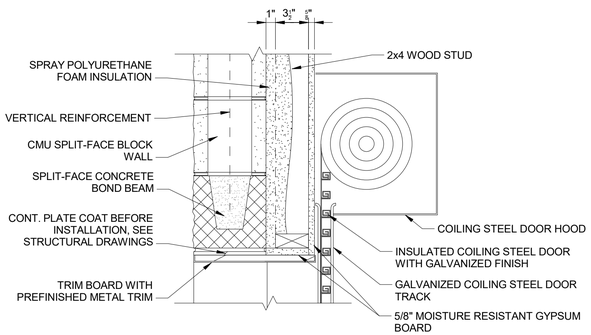

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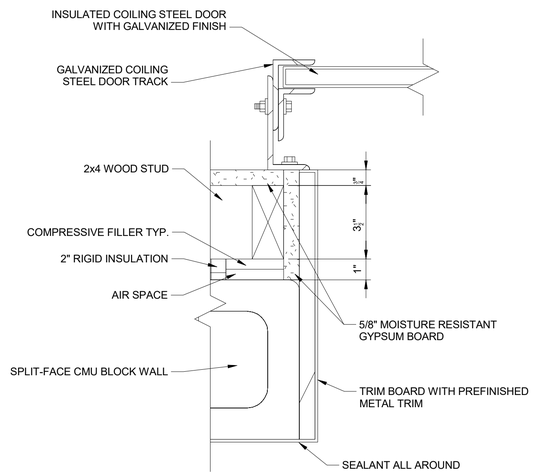

JAMB DETAIL 5
NOT TO SCALE

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CHRIS A. LIMCACO
REGISTERED
No. 19700338
STATE OF INDIANA
PROFESSIONAL ENGINEER

Signature 10/24/2023 Date

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HANCOCK COUNTY, INDIANA

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Issue Date:	**Project No:**	**Scale:**
OCT 2023	S22002	AS SHOWN

NEW CHEMICAL FEED BUILDING - SCHEDULES AND DOOR DETAILS

Drawing No:
D7-09
Sheet: 104 OF 205

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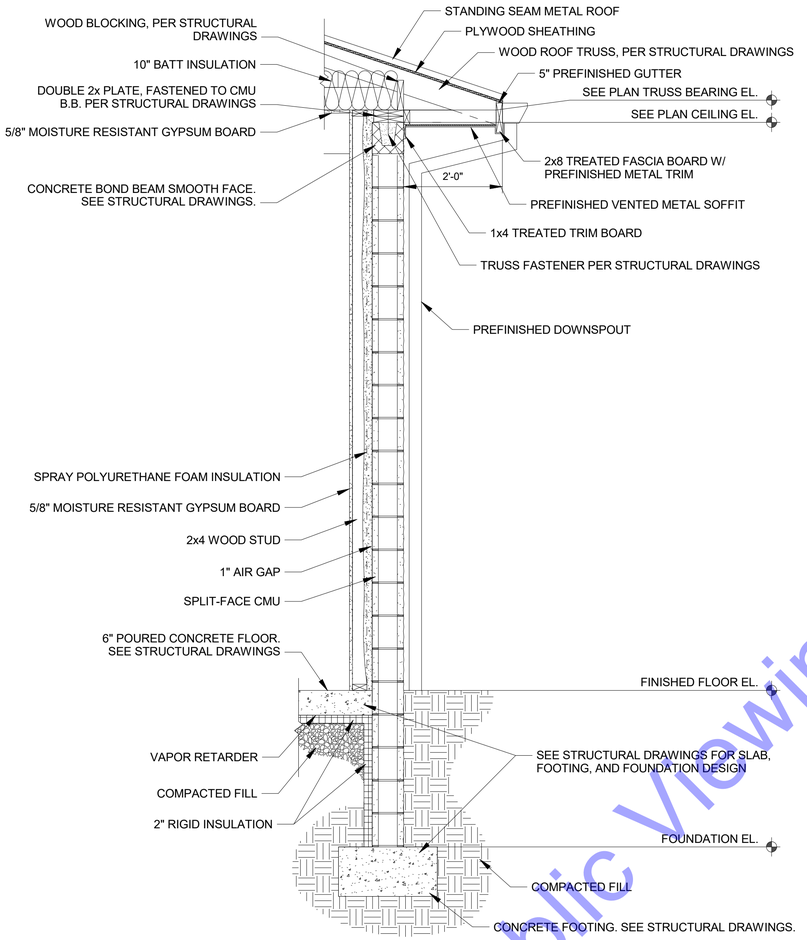
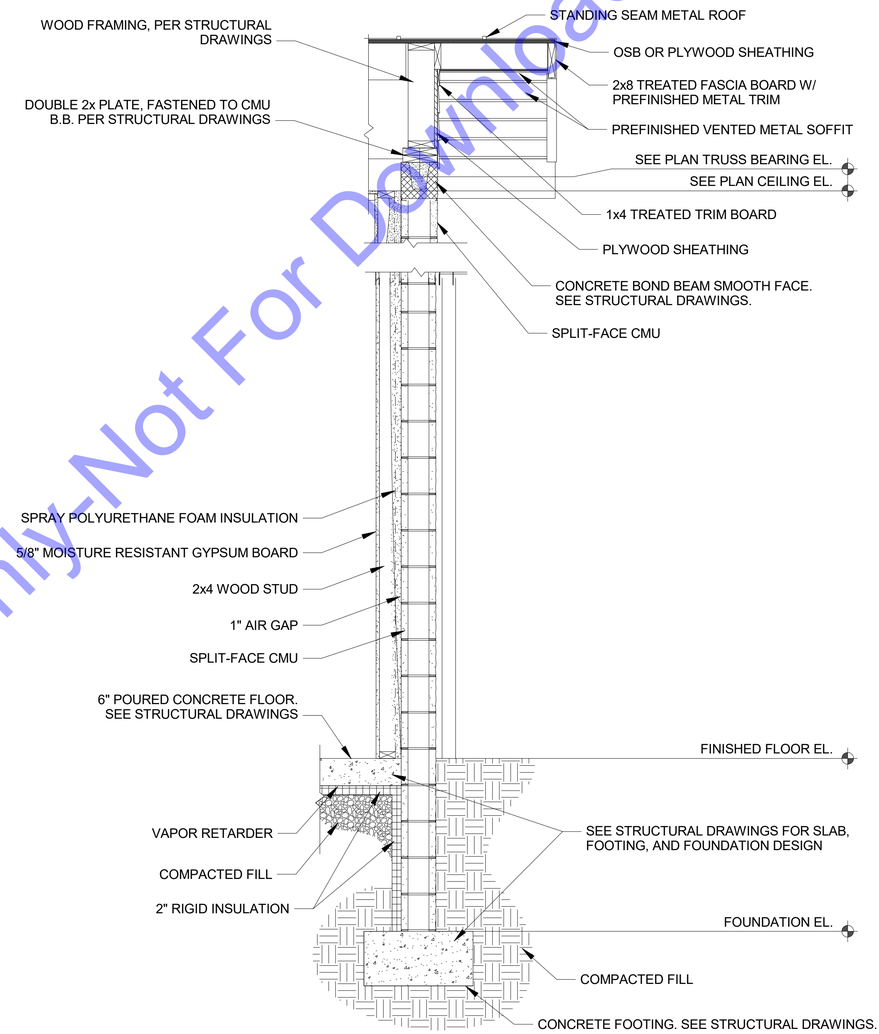


TYPICAL WALL SECTION - EAVE DETAIL

NOT TO SCALE



TYPICAL WALL SECTION - RACK DETAIL

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NEW CHEMICAL FEED BUILDING ARCHITECTURAL DETAILS

Drawing No:

D7-10

Sheet: 105 OF 205

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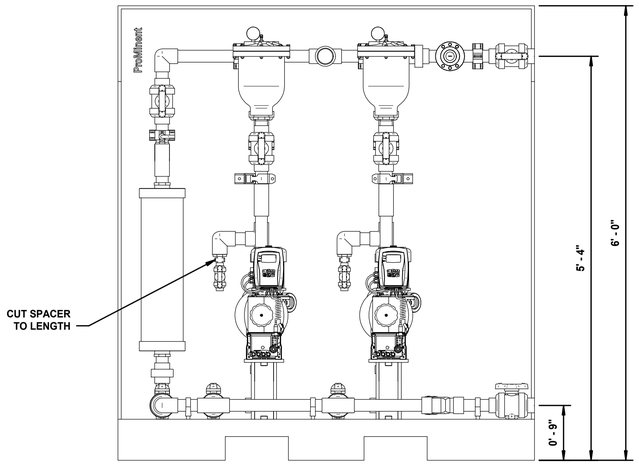
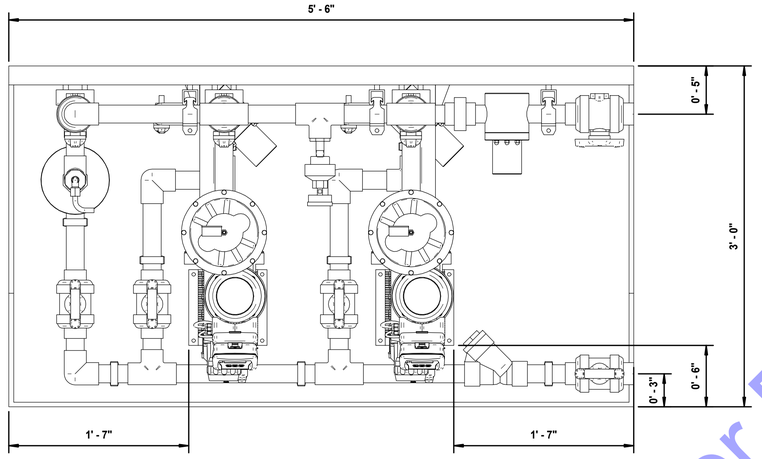
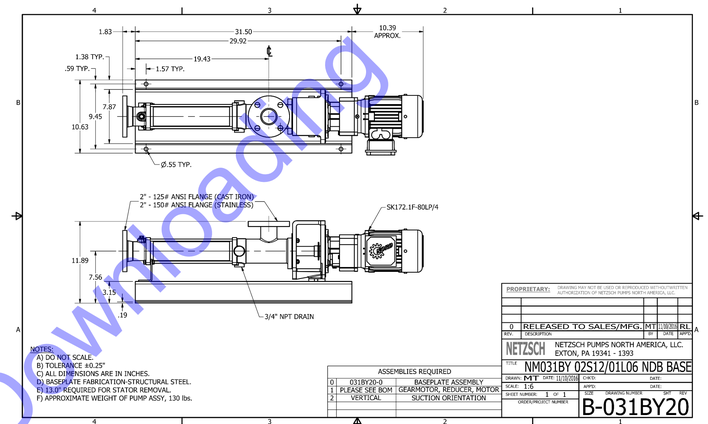


FRONT VIEW
SCALE: NOT TO SCALE



PLAN VIEW
SCALE: NOT TO SCALE



RECIRCULATION PUMP DETAIL
SCALE: NOT TO SCALE

GENERAL NOTE:

1. **THIS DETAIL HAS BEEN ACQUIRED FROM NETZSCH. IT IS FOR REFERENCE ONLY.**

TESTING:

-HYDROSTATIC TEST PRESSURE: 150 PSIG
-DESIGN OPERATING PRESSURE: SELECTED PUMP RATED PRESSURE
-DESIGN FLOW TEST PRESSURE: SELECTED PUMP RATED PRESSURE

TESTING CONDITIONS:

-TEST TYPE: HYDROSTATIC
-TEST MEDIUM: WATER
-TEST TEMPERATURE: AMBIENT 68F (20C)
-TEST DURATION: 30 MIN. (MINIMUM)

GENERAL NOTES:

1. ALL PIPING AND FITTINGS SHALL BE 1/2" OR 1-1/2" SCH. 80 PVC SOCKET WELD UNLESS OTHERWISE REQUIRED BY COMPONENTS.
2. SEAL MATERIAL IS EPDM UNLESS OTHERWISE SPECIFIED.
3. ALL MOUNTING HARDWARE IS 316SS UNLESS OTHERWISE SPECIFIED.
4. ALL PIPING AND COMPONENTS SHALL BE SECURED AT BUILDERS DISCRETION.
5. ALL INTERCONNECTING FIELD PIPING, HARDWARE, GASKETS, SEALS, AND WIRING ARE DONE ON SITE BY OTHERS.
6. ALL INTERCONNECTING FIELD PIPING SHALL BE FULLY & INDEPENDENTLY SUPPORTED BY OTHERS.
7. TOLERANCE ON ALL TERMINATION POINTS ARE ± 3/8" (10mm) UNLESS OTHERWISE SPECIFIED.
8. PUMP MAXIMUM CAPACITY RATES BASED UPON PUMPING WATER.
9. ESTIMATED WEIGHT: 481 LBS.

DISCLAIMER NOTE:

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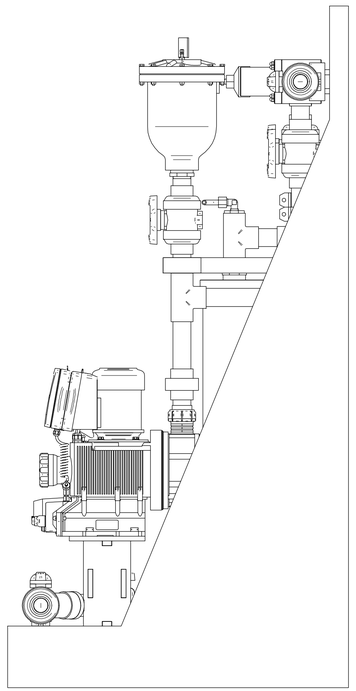
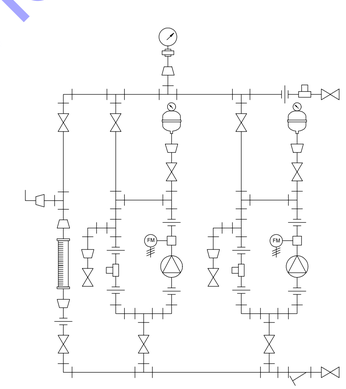
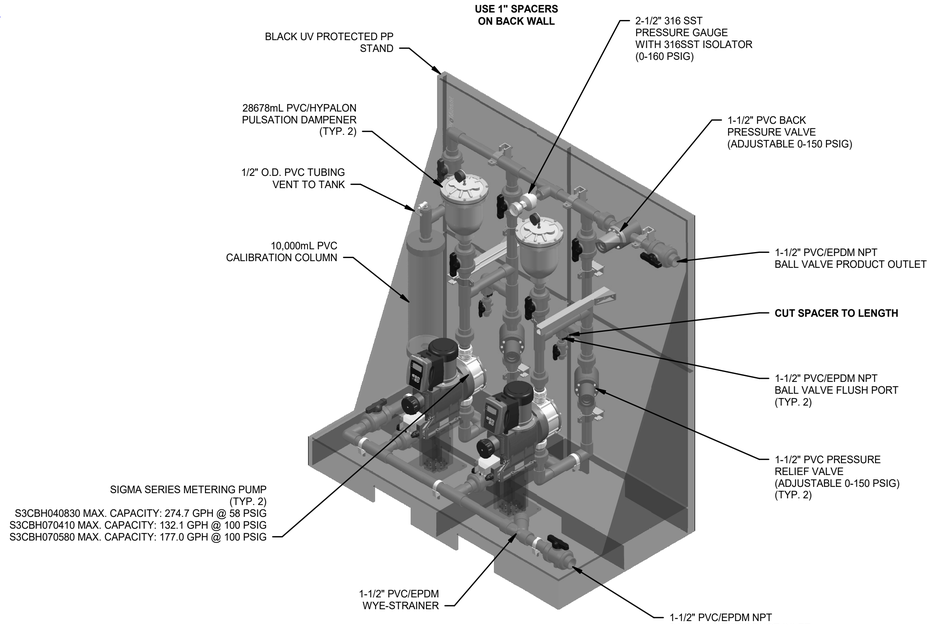


USE 1" SPACERS ON BACK WALL

SIDE VIEW
SCALE: NOT TO SCALE



PIPING SCHEMATIC
SCALE: NOT TO SCALE



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NEW CHEMICAL FEED BUILDING EQUIPMENT DETAILS

Drawing No:
D7-11
Sheet: 106 OF 205

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Tank Contents: XXXXXX

Supplier: Assmann Corportation of America

Serial Number: XXXXX

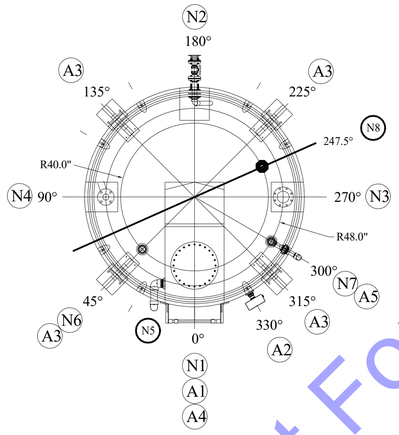
Rated Capacity: 6500 Gal

Tank Type: Crosslinked Polyethylene

Hydro-test Pressure: Atmospheric

Year Built: XXXX

A1 Tank Data Plate



TANK NOZZLES					
MK	SIZE	DESCRIPTION	DEG	ELEV	DOME
N1	22"	Bolted cover, S/S bolts XLPE gasket gasket	0°	-	X
N2	2"	316L stainless steel double male bolted nozzle, EPDM gaskets	180°	10"	-
		316L stainless steel 150 lb. ANSI flange adapter			
		PVC siphon drain			
		Teflon expansion joint, stainless steel flanges and limit cables			
N3	6"	PVC flange, stainless steel bolts, EPDM gasket	270°	-	X
		PVC flange adapter			
N4	3"	PVC bulkhead fitting with EPDM gasket	90°	-	X
		PVC flange adapter			
		PVC 45 deg. anti-foam elbow			
N5	3"	PVC bulkhead fitting with EPDM gasket	See	Print	-
		PVC overflow pipe with S/S pipe supports			
N6	2"	PVC self-aligning bulkhead fitting with EPDM gasket	45°	-	X
N7	2"	PVC self-aligning bulkhead fitting with EPDM gasket	300°	-	X
N8	2"	PVC self-aligning bulkhead fitting with EPDM gasket	247.5°	-	X
ACCESSORIES					
A1	-	White Phenolic engraved tank data plate	0°	60"	-
A2	-	Interstitial leak detection, Nema 4X enclosure	330°	-	-
A3	-	ASCE cable restraint system, S/S hardware	45°, 135°, 225°, 315°		
A4	-	FRP ladder with 42" extension	0°	-	-
A5	-	PVC reverse float level, (2) S/S pipe supports, fume tight, decal	300°	-	X

Manway

Discharge Nozzle

Vent Nozzle

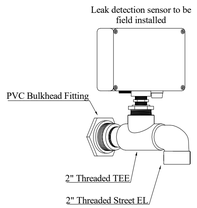
Fill Assembly

Overflow Nozzle

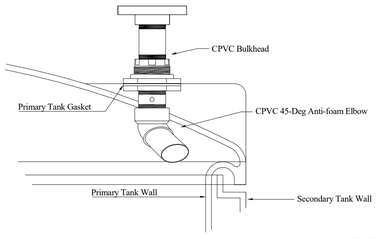
Level Nozzle

Float Level Nozzle

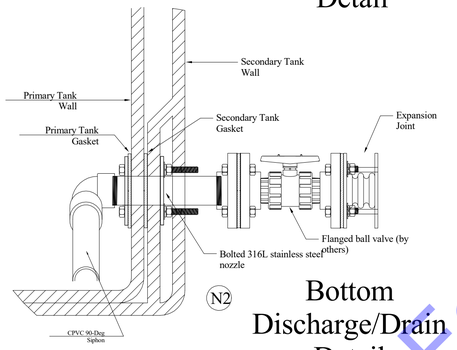
Recirc Nozzle



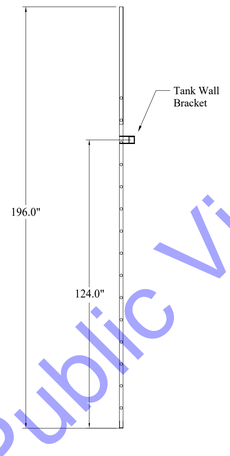
A2 Interstitial Leak Detection Detail



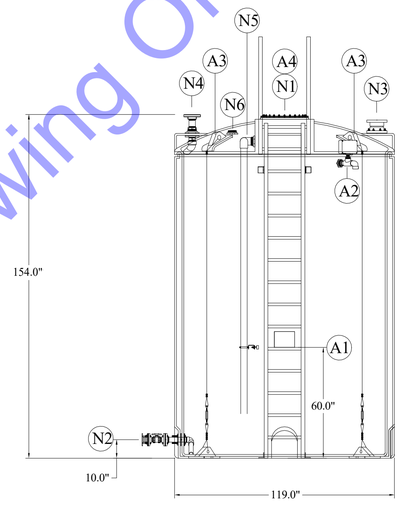
N4 45-Deg Anti-Foam Elbow Detail

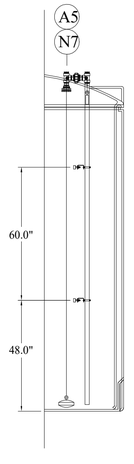


N2 Bottom Discharge/Drain Detail



A4 Ladder Detail





Reverse Float Level Detail

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NEW CHEMICAL FEED BUILDING
EQUIPMENT DETAILS

Drawing No:
D7-12
Sheet: 107 OF 205

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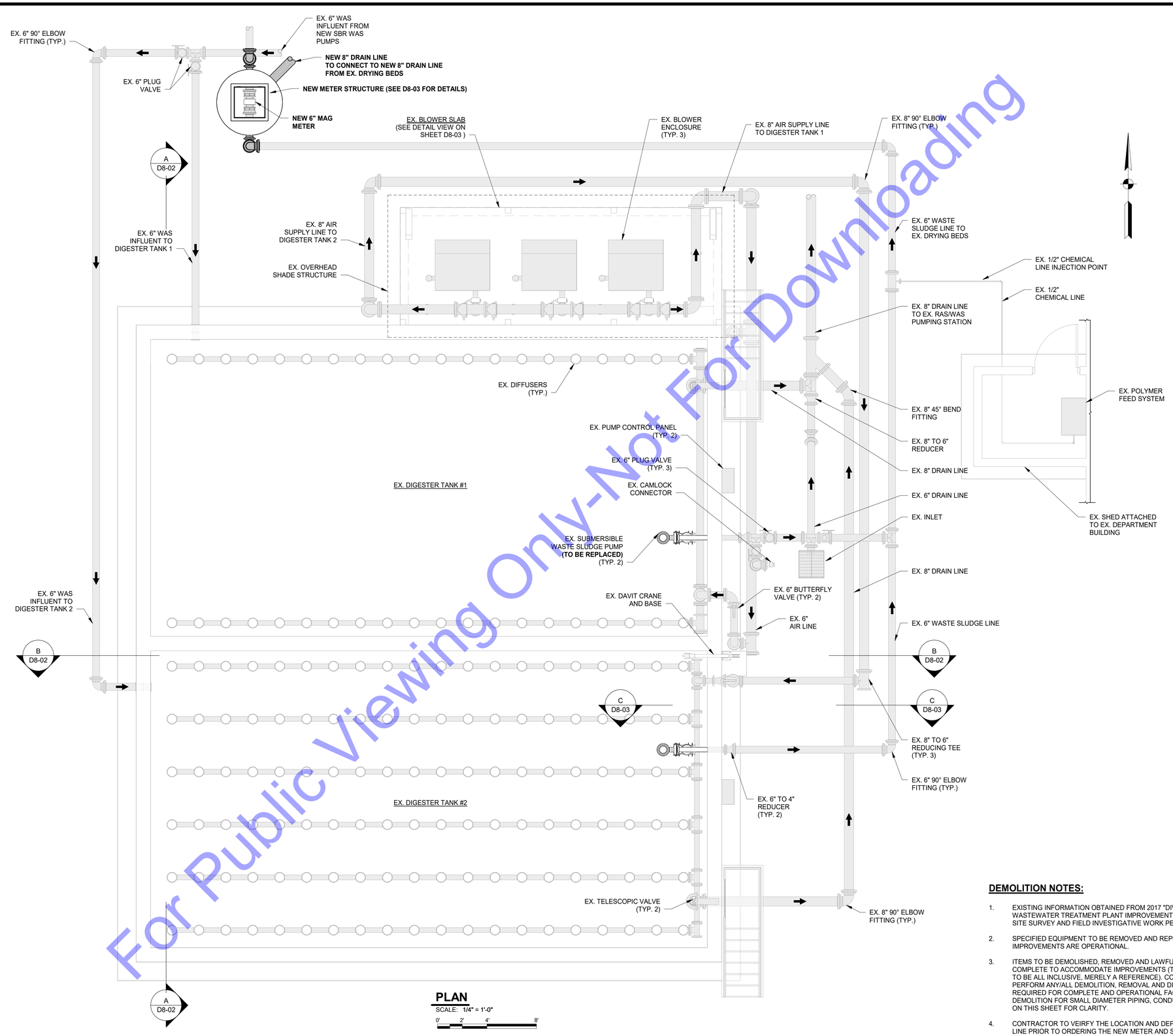

PLAN

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

0' 2' 4' 8'

DEMOLITION NOTES:

1. EXISTING INFORMATION OBTAINED FROM 2017 "DIVISION I PROPOSED WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT: AS-BUILT, SITE SURVEY AND FIELD INVESTIGATIVE WORK PERFORMED BY CEI.
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EXISTING DIGESTER TANKS IMPROVEMENTS - PLAN VIEW

Drawing No:

D8-01

Sheet: 108 OF 205

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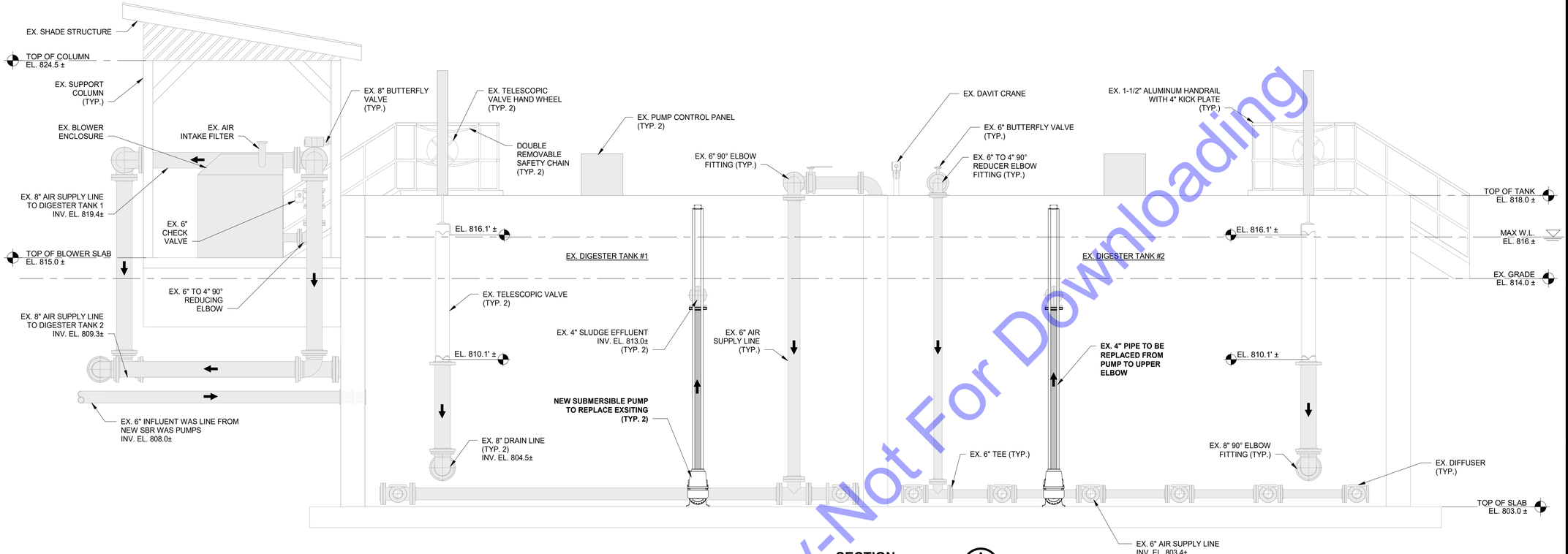
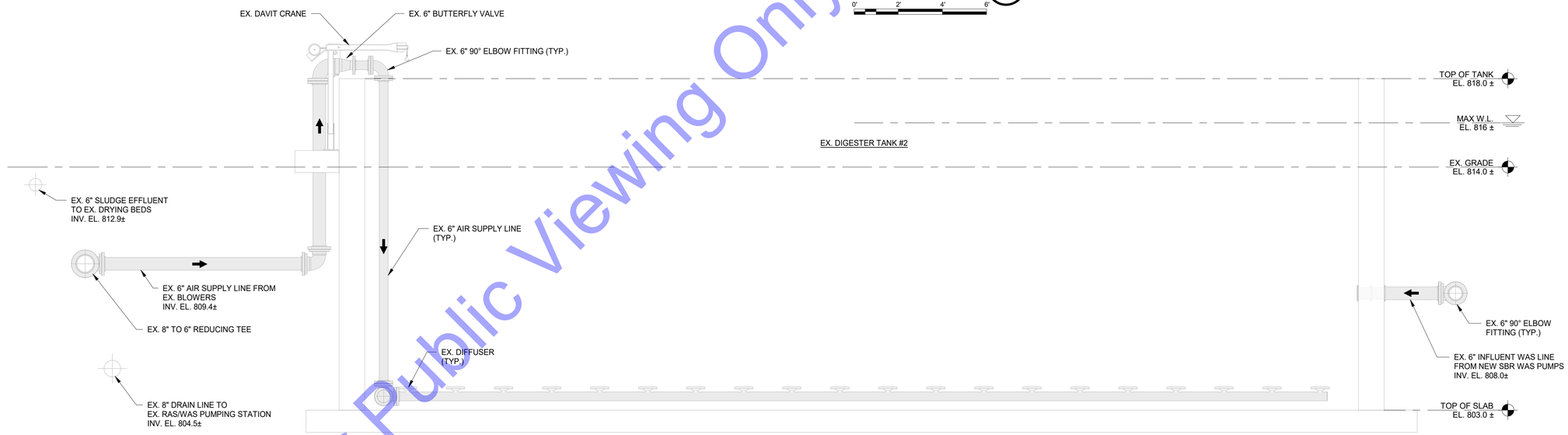


SECTION A D8-01
SCALE: 3/8" = 1'-0"
0' 2' 4' 6'



SECTION B D8-01
SCALE: 3/8" = 1'-0"
0' 2' 4' 6'

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EXISTING DIGESTER TANKS IMPROVEMENTS - SECTION VIEWS

Drawing No:
D8-02
Sheet: 109 OF 205

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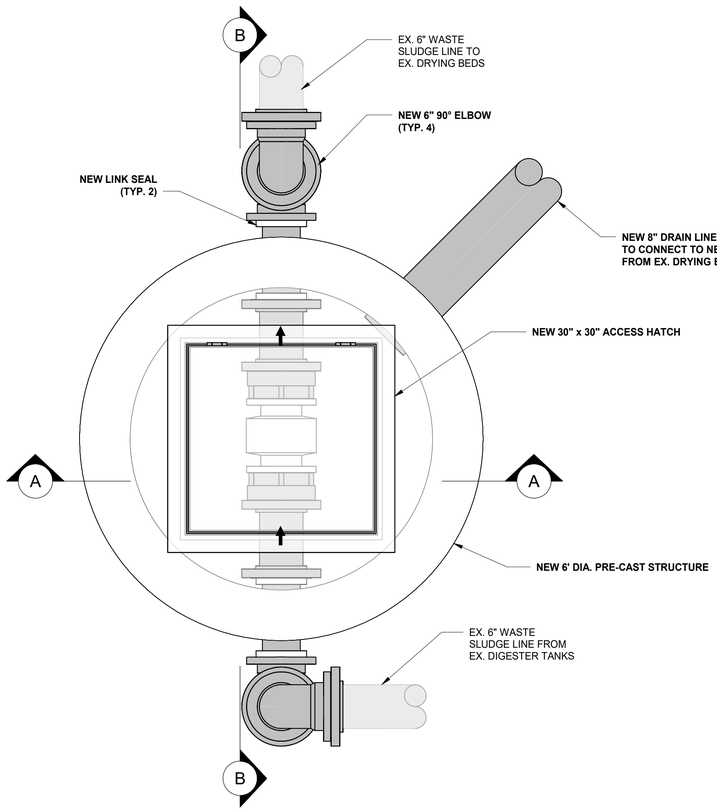
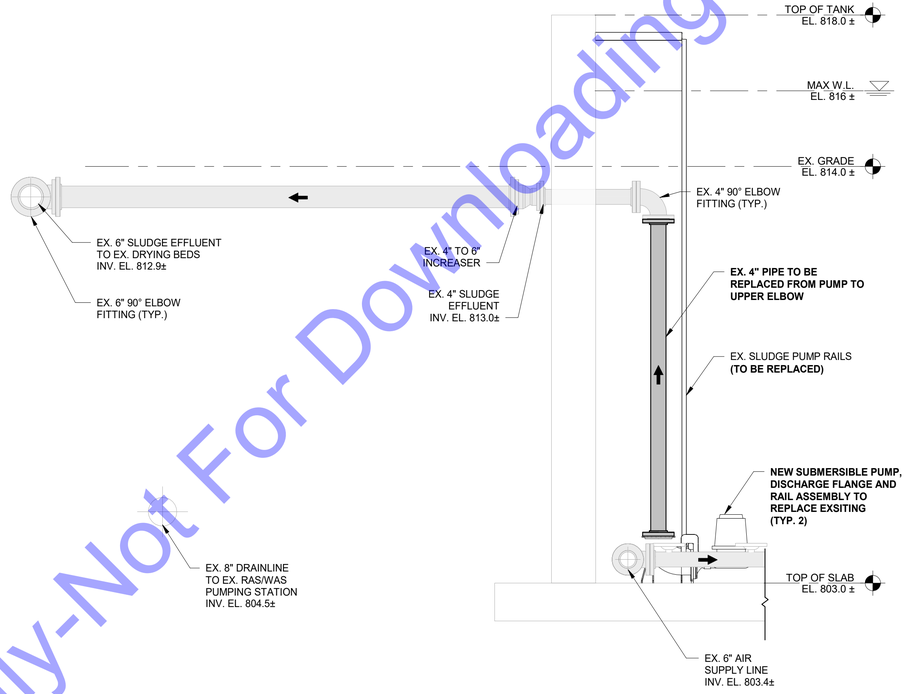


PLAN

SCALE: 1" = 1'-0"

0' 1/2' 1' 2'

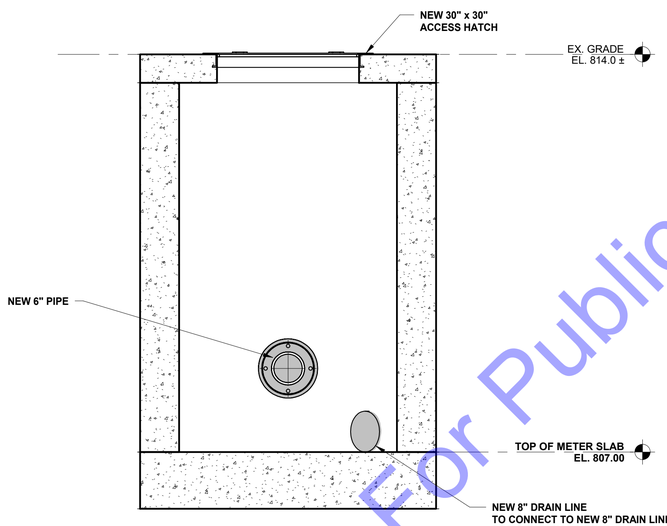


SECTION C

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

0' 1' 2' 4'

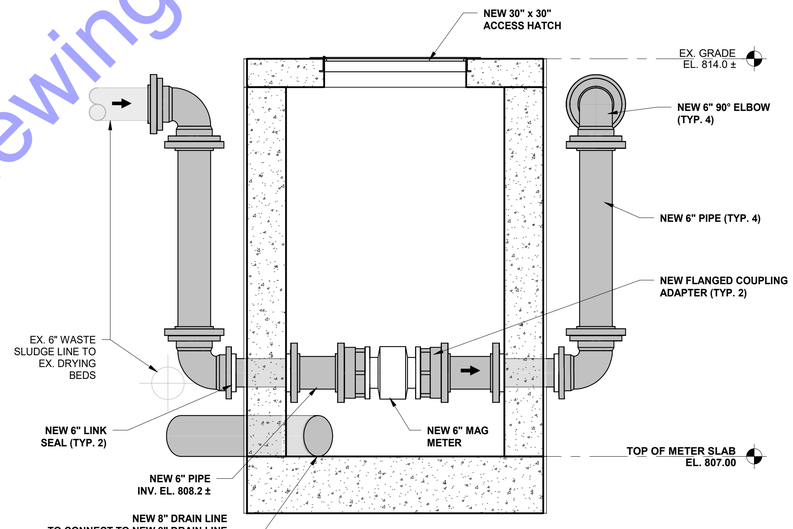
D8-01



SECTION A

SCALE: 3/4" = 1'-0"

0' 1' 2' 3'



SECTION B

SCALE: 3/4" = 1'-0"

0' 1' 2' 3'

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EXISTING DIGESTER TANKS IMPROVEMENTS - SECTION AND DETAIL VIEWS

Drawing No:

D8-03

Sheet: 110 OF 205

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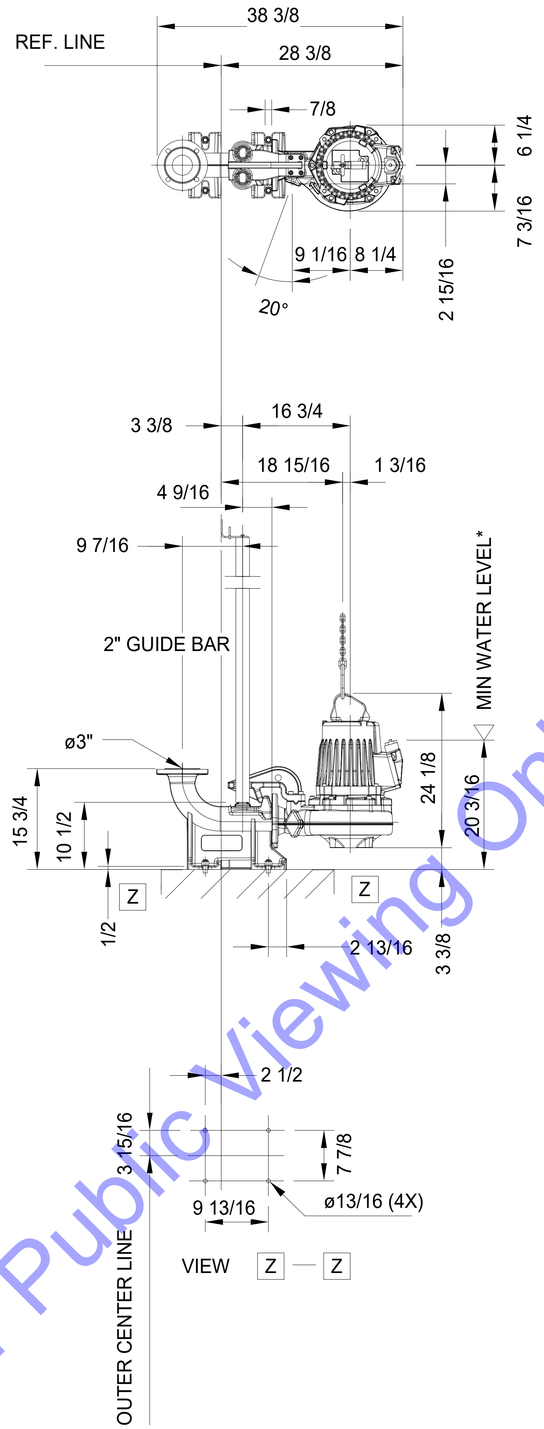

WEIGHT (LBS)	
PUMP	DISCH
325	80

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REGISTERED
No. 19700338
STATE OF INDIANA
PROFESSIONAL ENGINEER

Signature 10/24/2023 Date

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EXISTING DIGESTER TANKS IMPROVEMENTS - EQUIPMENT DETAILS

Drawing No:
D8-04
Sheet: 111 OF 205

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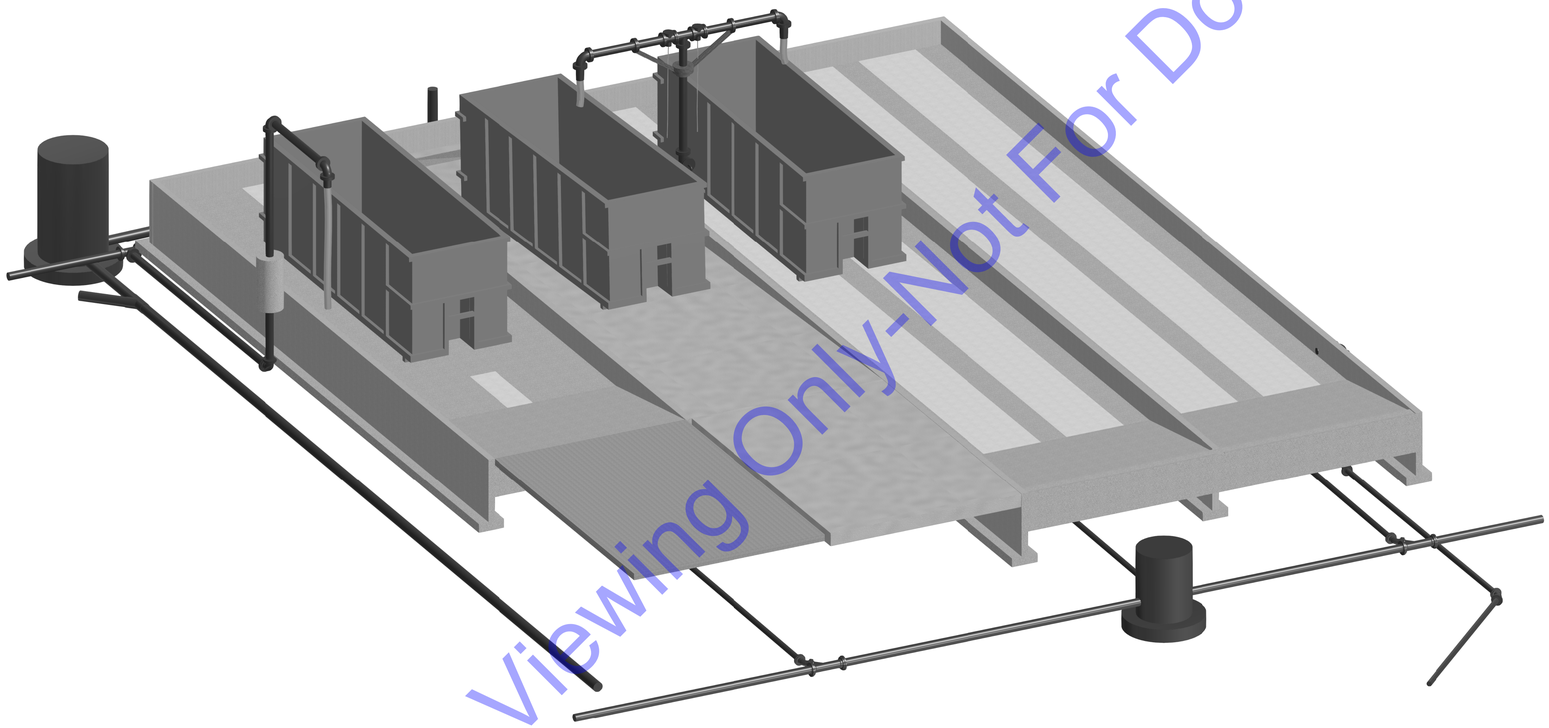

ISOMETRIC
SCALE: NOT TO SCALE

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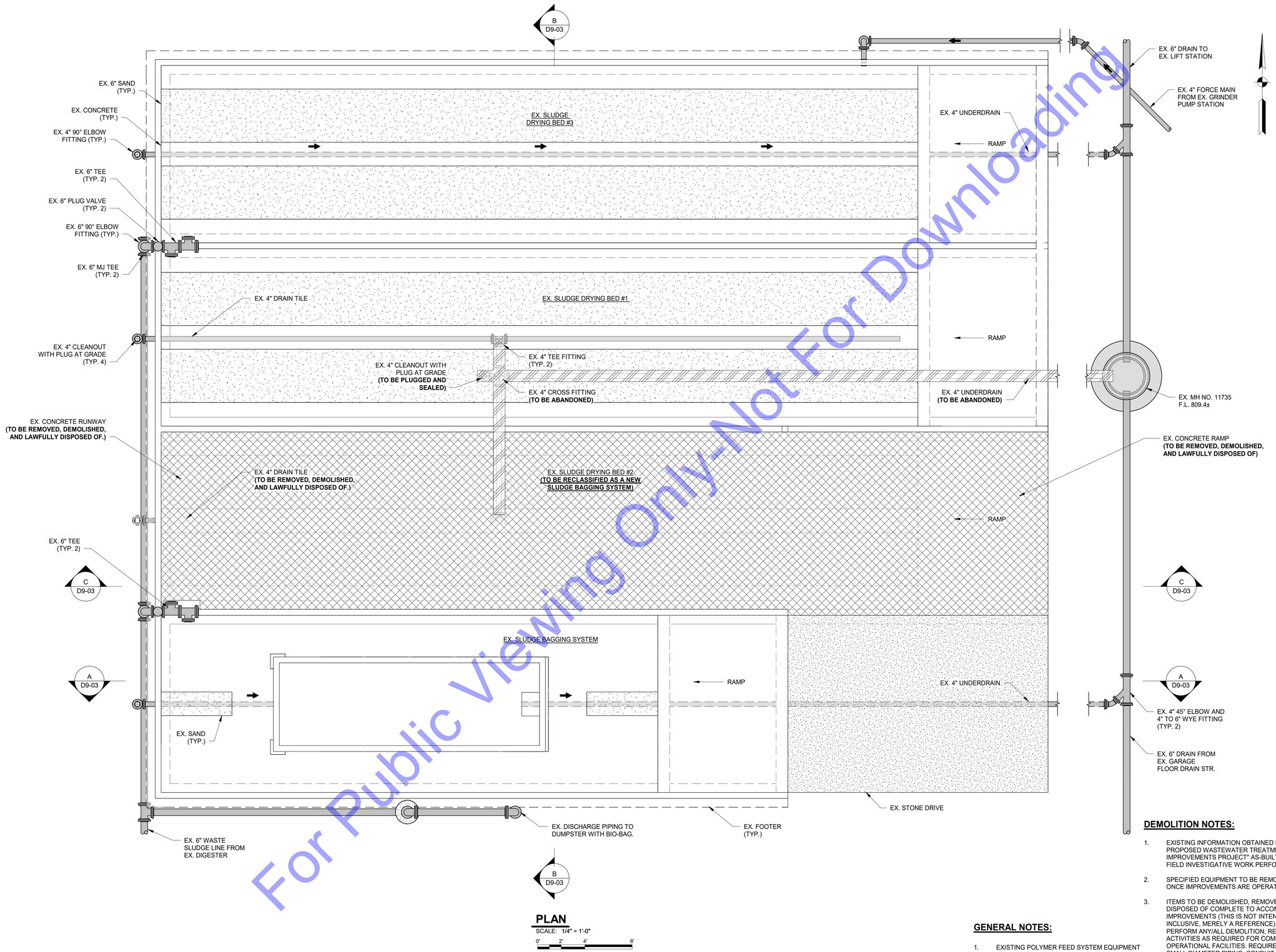
EXISTING SLUDGE BAGGING SYSTEM IMPROVEMENTS ISOMETRIC VIEWS

Drawing No:
D9-01
Sheet: 112 OF 205

Saved: 7/24/2024 3:46:46 PM Current Local File: Autodesk Docs://New Palestine WWTP/CEI EX. SLUDGE BAGGING SYSTEM AND DRYING BED IMPR._v23.rvt



PLAN

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

0' 2' 4' 8'

GENERAL NOTES:

1. EXISTING POLYMER FEED SYSTEM EQUIPMENT SHOWN ON AEROBIC DIGESTER DRAWINGS

DEMOLITION NOTES:

1. EXISTING INFORMATION OBTAINED FROM 2017 "DIVISION I PROPOSED WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT" AS-BUILT, SITE SURVEY AND FIELD INVESTIGATIVE WORK PERFORMED BY CEI.
2. SPECIFIED EQUIPMENT TO BE REMOVED AND REPLACED ONCE IMPROVEMENTS ARE OPERATIONAL.
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EXISTING SLUDGE BAGGING SYSTEM OVERALL DEMOLITION PLAN VIEW

Drawing No:
D9-02
Sheet: 113 OF 205

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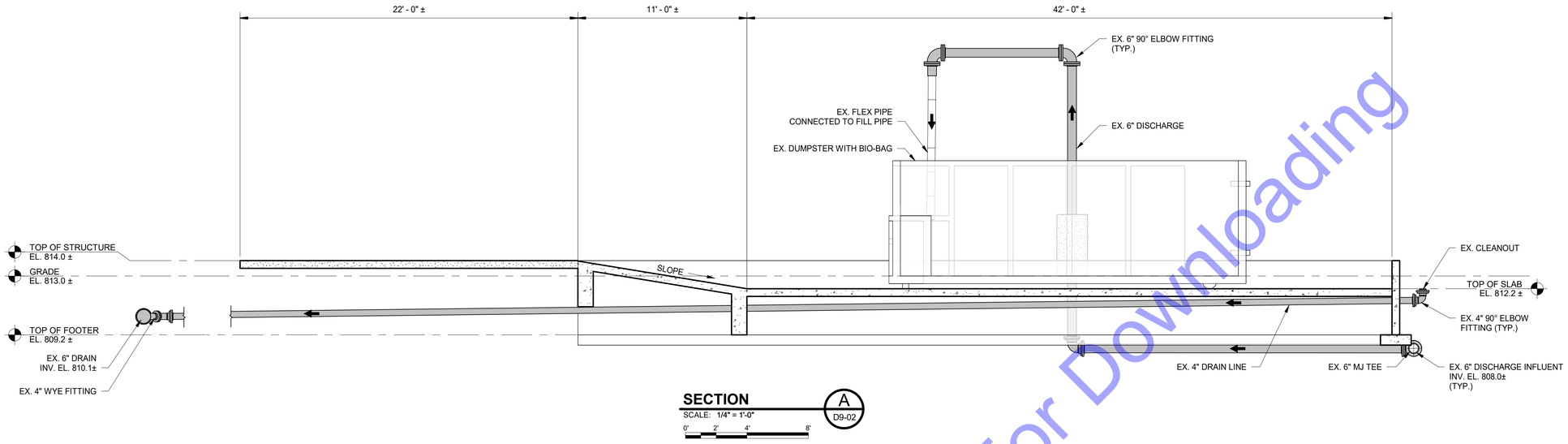
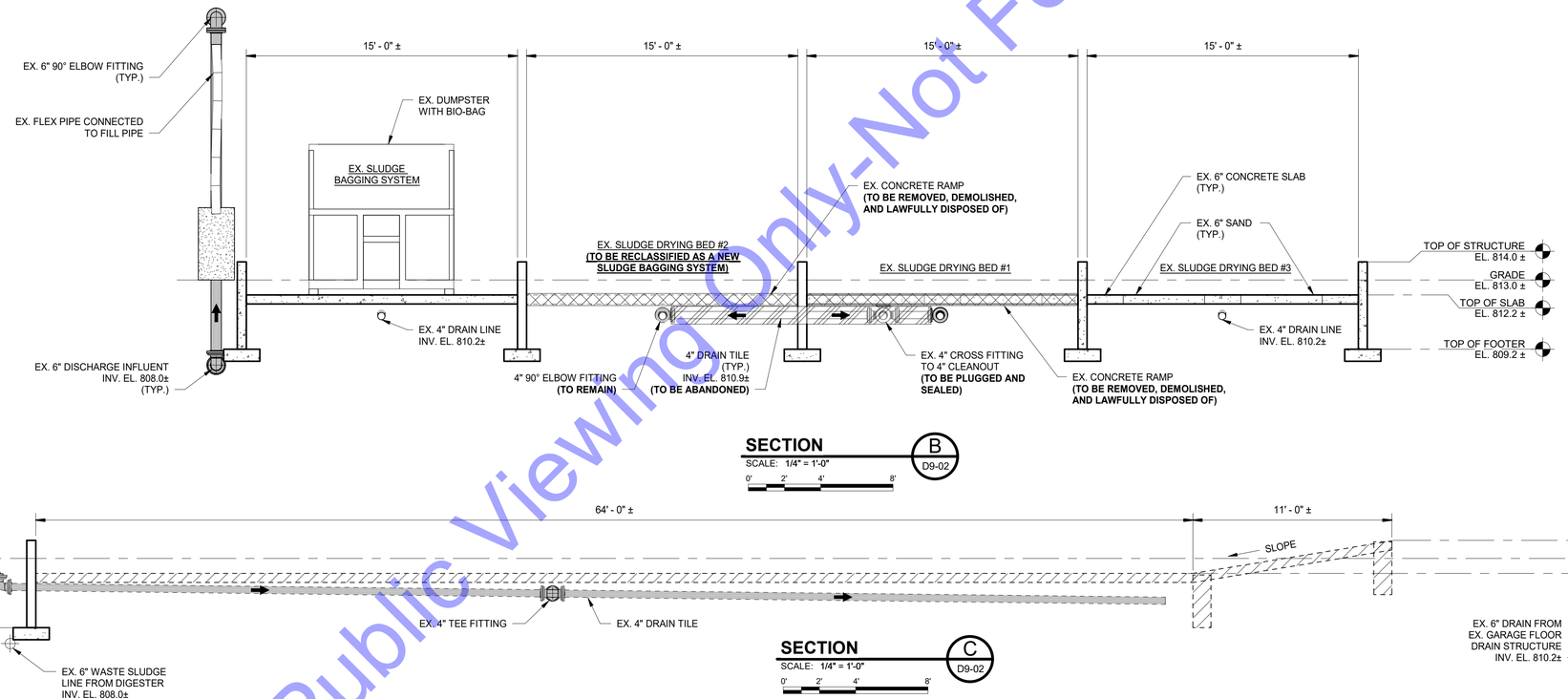


SECTION A D9-02
SCALE: 1/4" = 1'-0"
0' 2' 4' 8'



SECTION B D9-02
SCALE: 1/4" = 1'-0"
0' 2' 4' 8'

SECTION C D9-02
SCALE: 1/4" = 1'-0"
0' 2' 4' 8'

DEMOLITION NOTES:

1. EXISTING INFORMATION OBTAINED FROM 2017 "DIVISION I PROPOSED WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT" AS-BUILT, SITE SURVEY AND FIELD INVESTIGATIVE WORK PERFORMED BY CEI.
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GENERAL NOTES:

1. EXISTING POLYMER FEED SYSTEM EQUIPMENT SHOWN ON AEROBIC DIGESTER DRAWINGS

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EXISTING SLUDGE BAGGING SYSTEM OVERALL DEMOLITION SECTION VIEWS

Drawing No:
D9-03
Sheet: 114 OF 205

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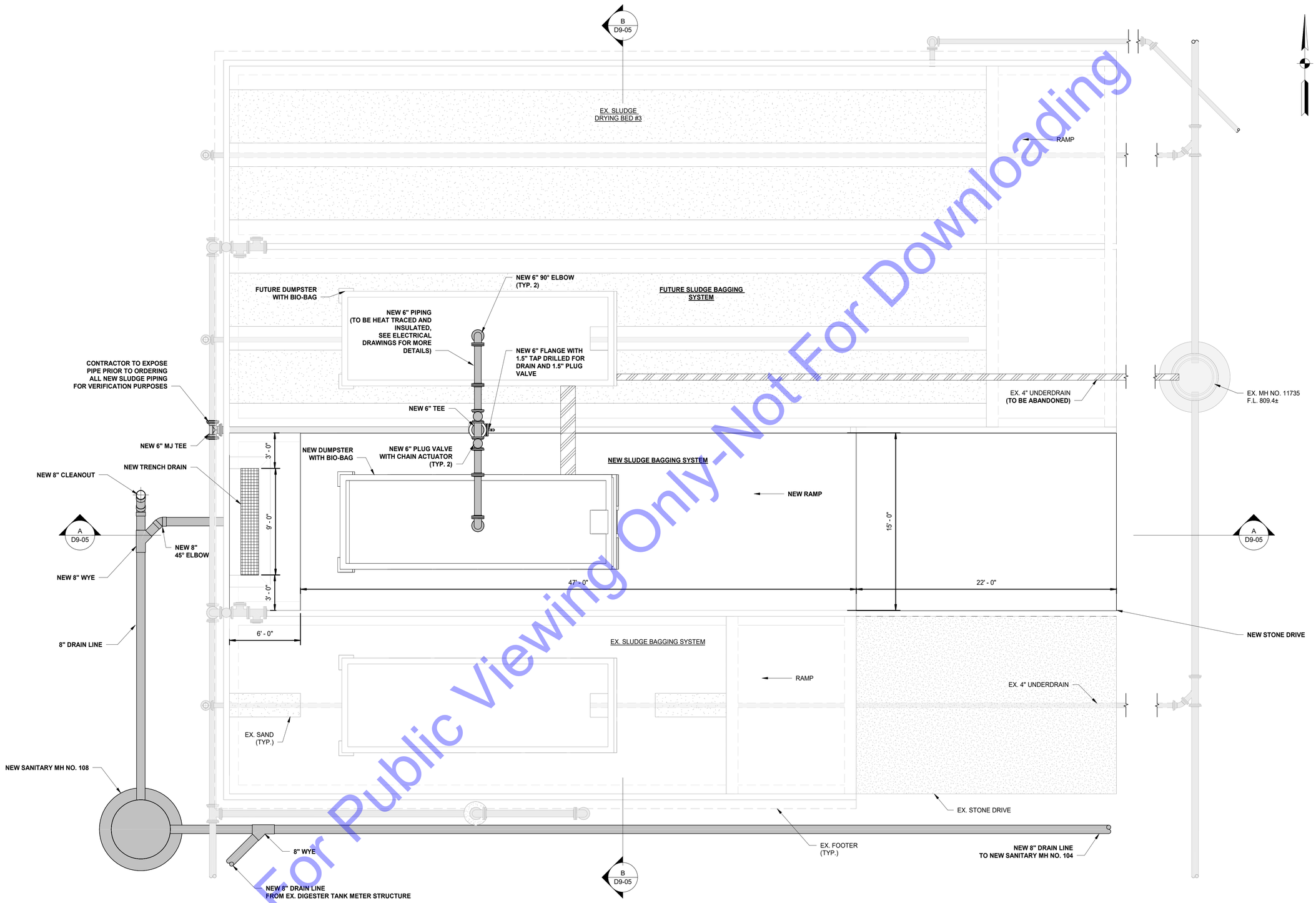

PLAN
SCALE: 1/4" = 1'-0"
0' 2' 4' 8'

GENERAL NOTES:

1. EXISTING POLYMER FEED SYSTEM EQUIPMENT SHOWN ON AEROBIC DIGESTER DRAWINGS
2. CONTRACTOR TO EXPOSE PIPE PRIOR TO ORDERING ALL NEW SLUDGE PIPING FOR VERIFICATION PURPOSES

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EXISTING SLUDGE BAGGING SYSTEM IMPROVEMENTS PLAN VIEW

Drawing No:
D9-04
Sheet: 115 OF 205

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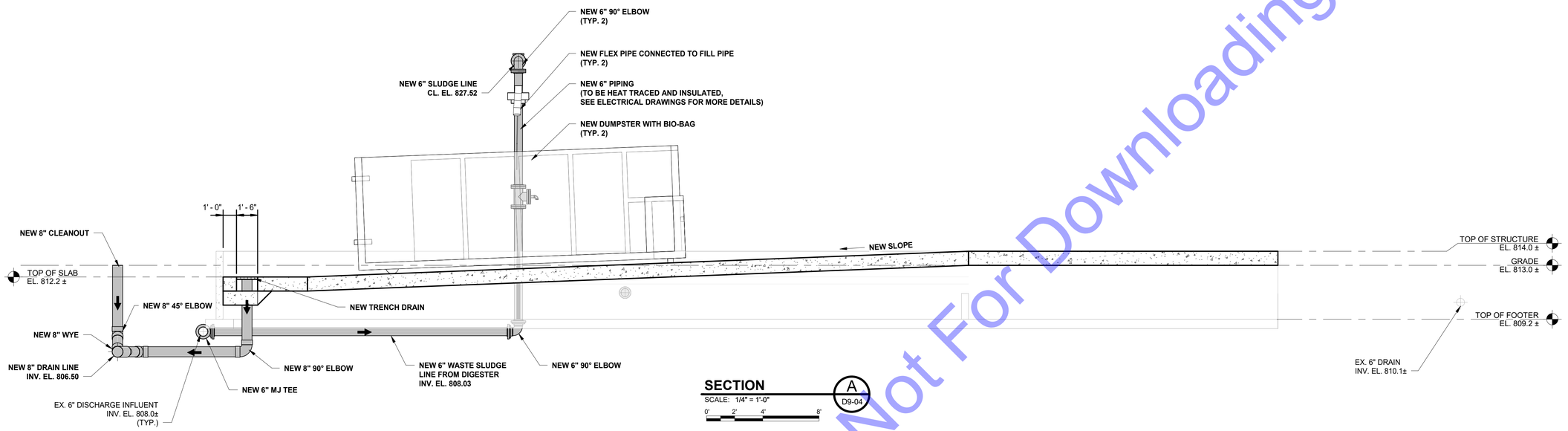
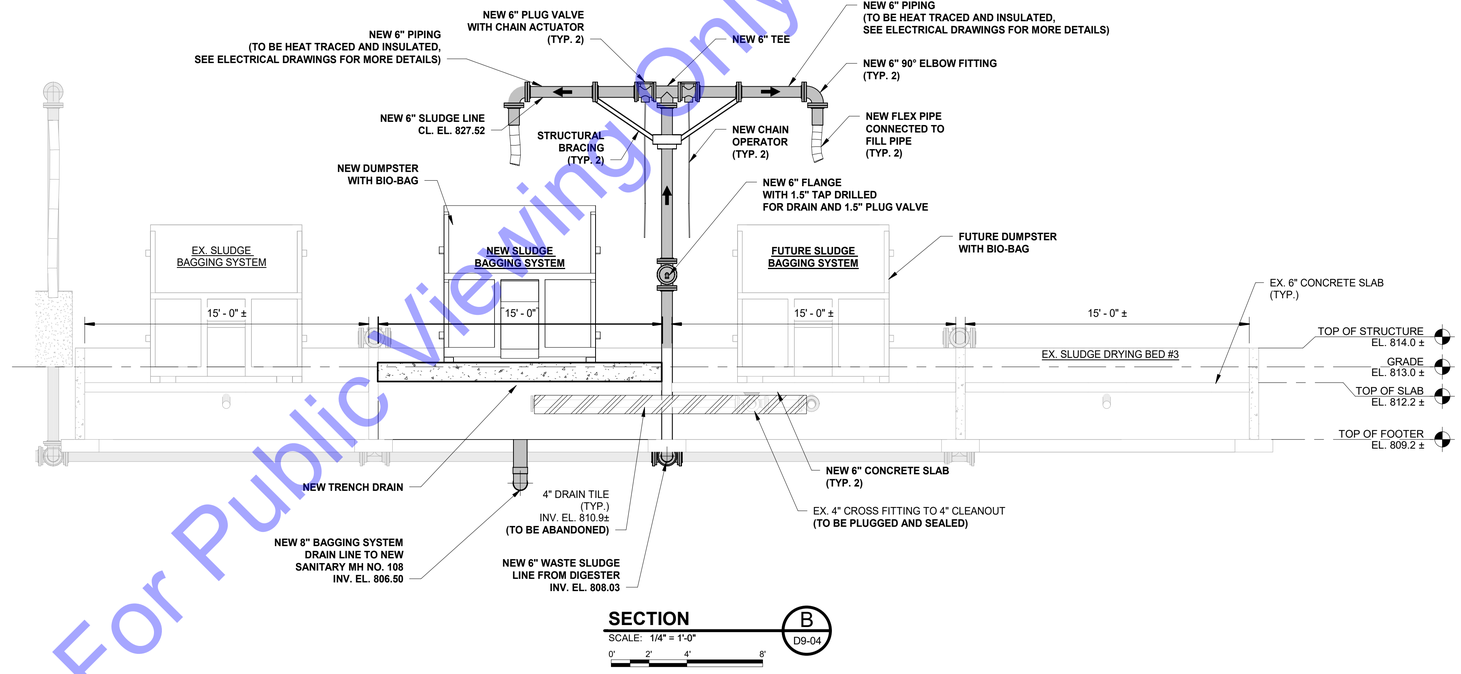


SECTION A D9-04
SCALE: 1/4" = 1'-0"
0' 2' 4' 8'



SECTION B D9-04
SCALE: 1/4" = 1'-0"
0' 2' 4' 8'

NOTES:

1. EXISTING POLYMER FEED SYSTEM EQUIPMENT SHOWN ON AEROBIC DIGESTER DRAWINGS

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EXISTING SLUDGE
BAGGING SYSTEM
IMPROVEMENTS
SECTION VIEWS

Drawing No:
D9-05
Sheet: 116 OF 205

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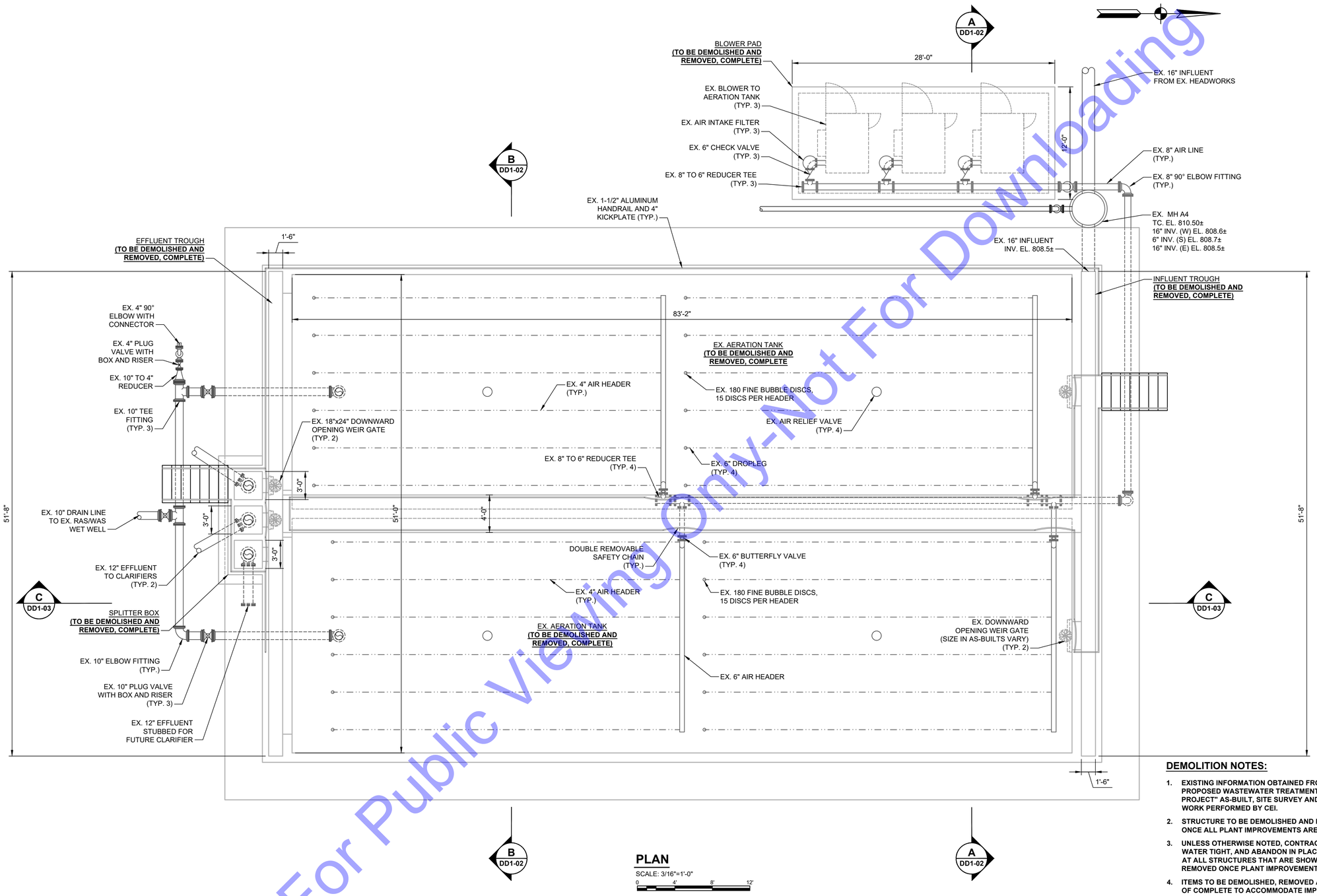

PLAN

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

0 4' 8' 12'

DEMOLITION NOTES:

1. EXISTING INFORMATION OBTAINED FROM 2017 "DIVISION I PROPOSED WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT" AS-BUILT, SITE SURVEY AND FIELD INVESTIGATIVE WORK PERFORMED BY CEI.
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5. ALL ABOVE AND UNDERGROUND ELECTRICAL AND INSTRUMENTAL COMPONENTS ASSOCIATED WITH THE UNIT PROCESS SHALL BE DEMOLISHED AND REMOVED COMPLETELY.

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EXISTING AERATION TANK DEMOLITION - PLAN VIEW

Drawing No:
DD1-01
Sheet: 117 OF 205

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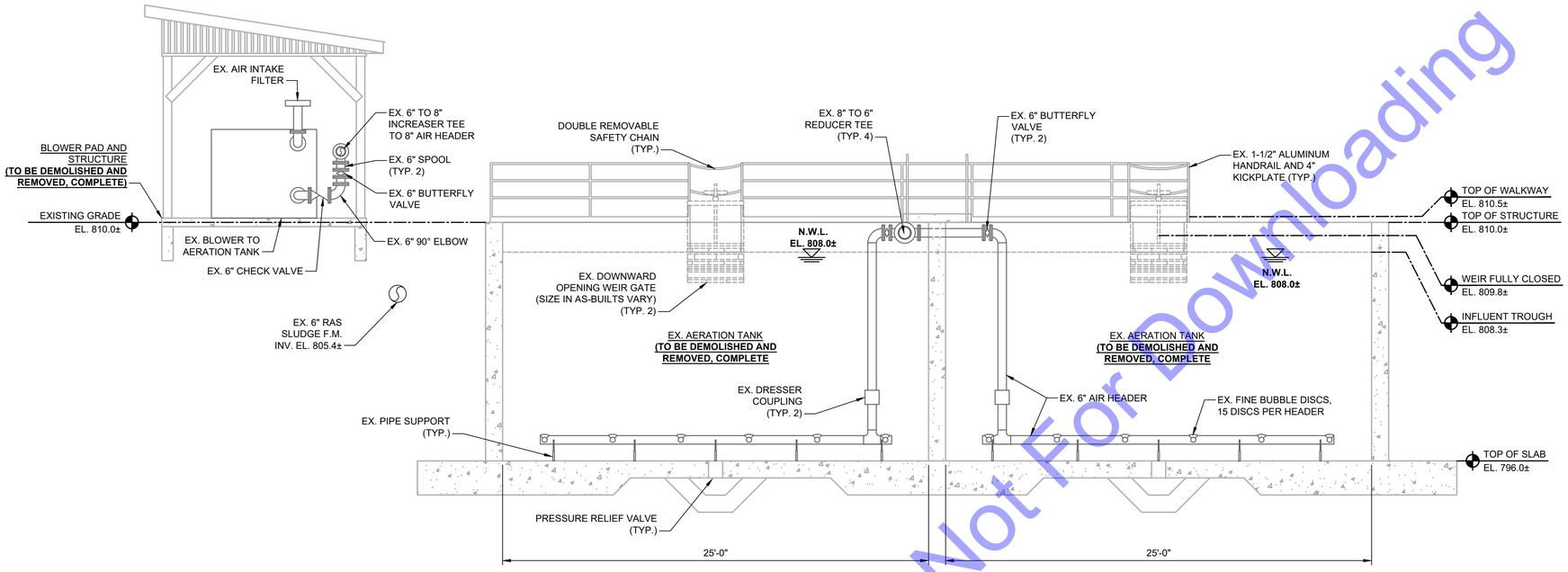
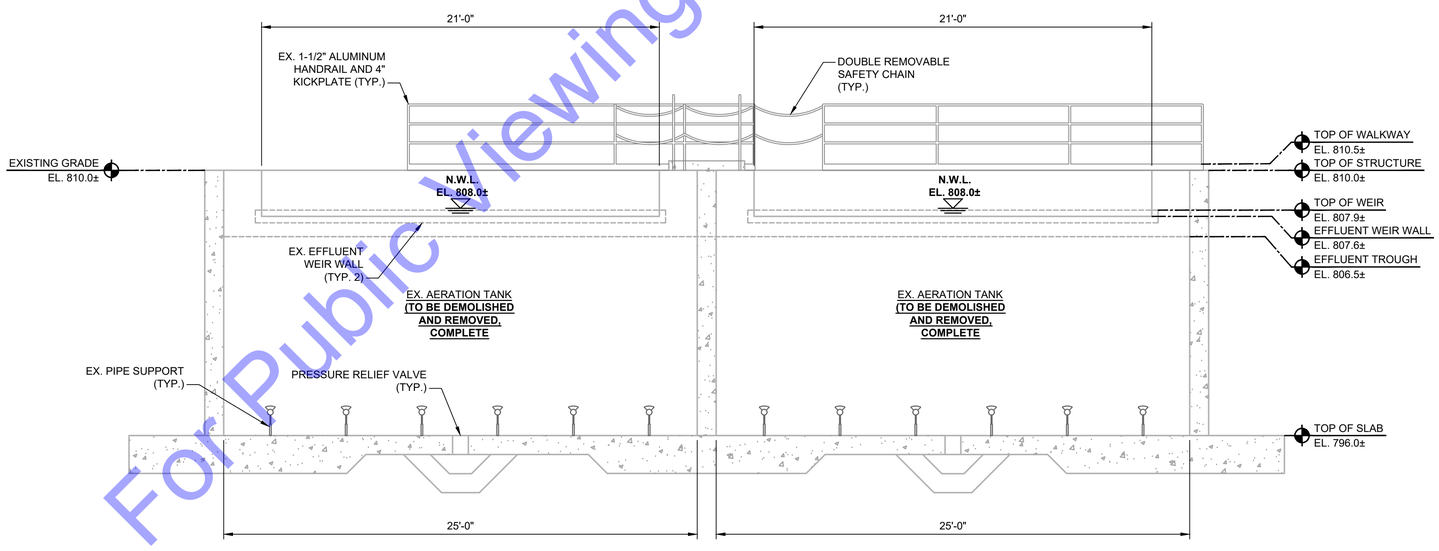


SECTION A — DD1-01
SCALE: 1/4"=1'-0"
0 2' 4' 8'



SECTION B — DD1-01
SCALE: 1/4"=1'-0"
0 2' 4' 8'

DEMOLITION NOTES:

1. **EXISTING INFORMATION OBTAINED FROM 2017 "DIVISION I PROPOSED WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT" AS-BUILT, SITE SURVEY AND FIELD INVESTIGATIVE WORK PERFORMED BY CEI.**
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EXISTING AERATION TANK DEMOLITION - SECTION VIEWS

Drawing No:
DD1-02
Sheet: 118 OF 205

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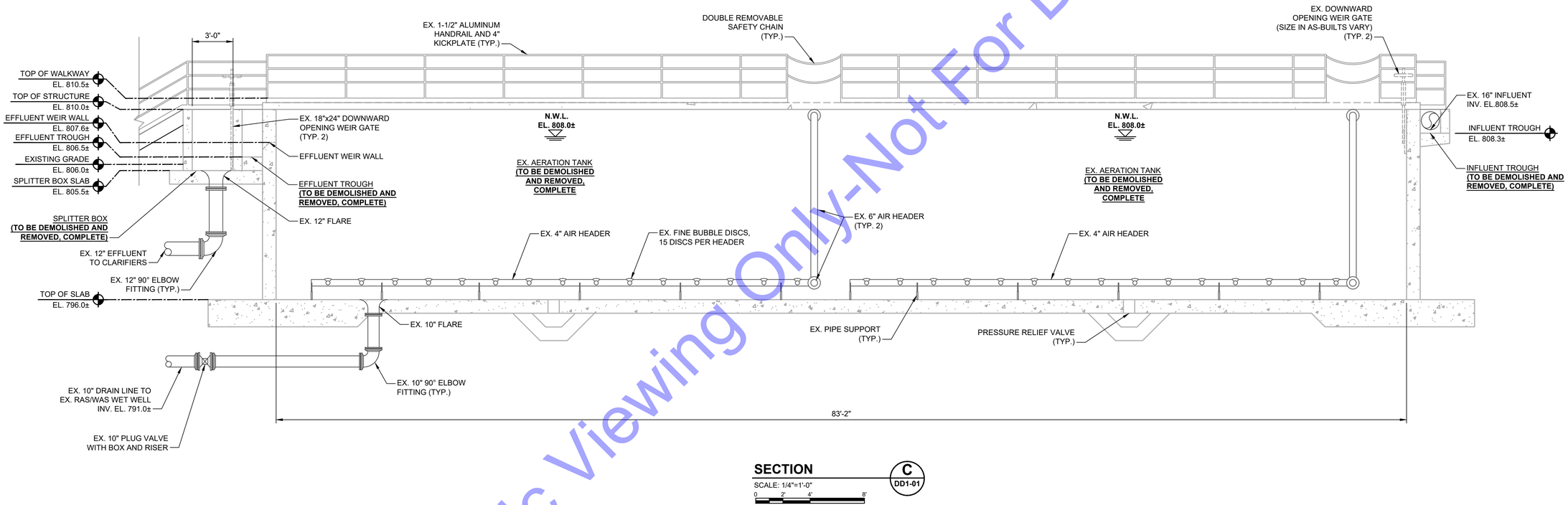

SECTION C
DD1-01

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

0 2' 4' 8'

DEMOLITION NOTES:

1. EXISTING INFORMATION OBTAINED FROM 2017 "DIVISION I PROPOSED WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT" AS-BUILT, SITE SURVEY AND FIELD INVESTIGATIVE WORK PERFORMED BY CEI.
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EXISTING AERATION TANK DEMOLITION - SECTION VIEW

Drawing No:
DD1-03
Sheet: 119 OF 205

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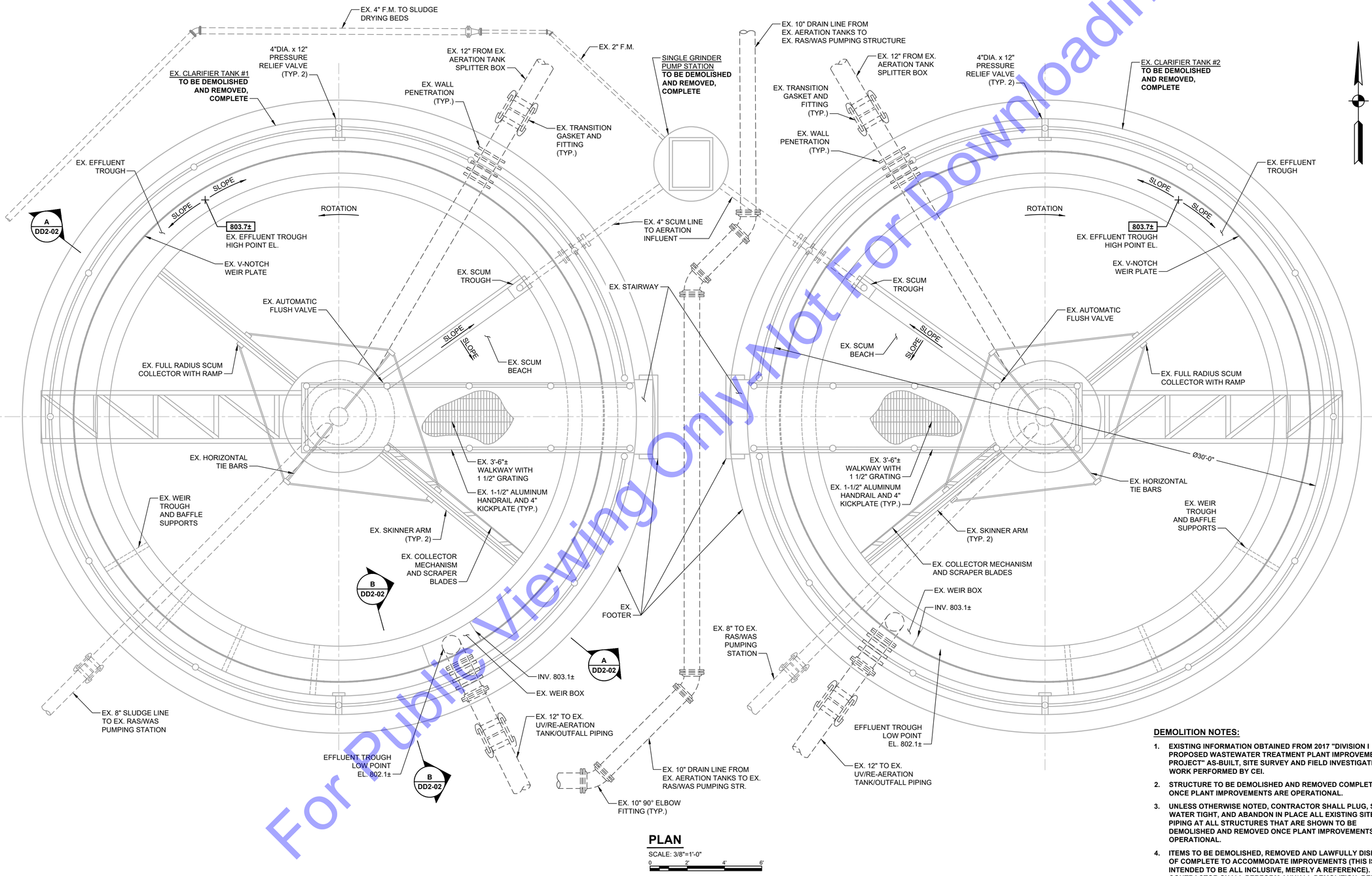

PLAN

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

0 2" 4' 6'

DEMOLITION NOTES:

1. **EXISTING INFORMATION OBTAINED FROM 2017 "DIVISION I PROPOSED WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT" AS-BUILT, SITE SURVEY AND FIELD INVESTIGATIVE WORK PERFORMED BY CEI.**
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EXISTING CLARIFIER TANKS DEMOLITION PLAN VIEW

Drawing No:

DD2-01

Sheet: 120 OF 205

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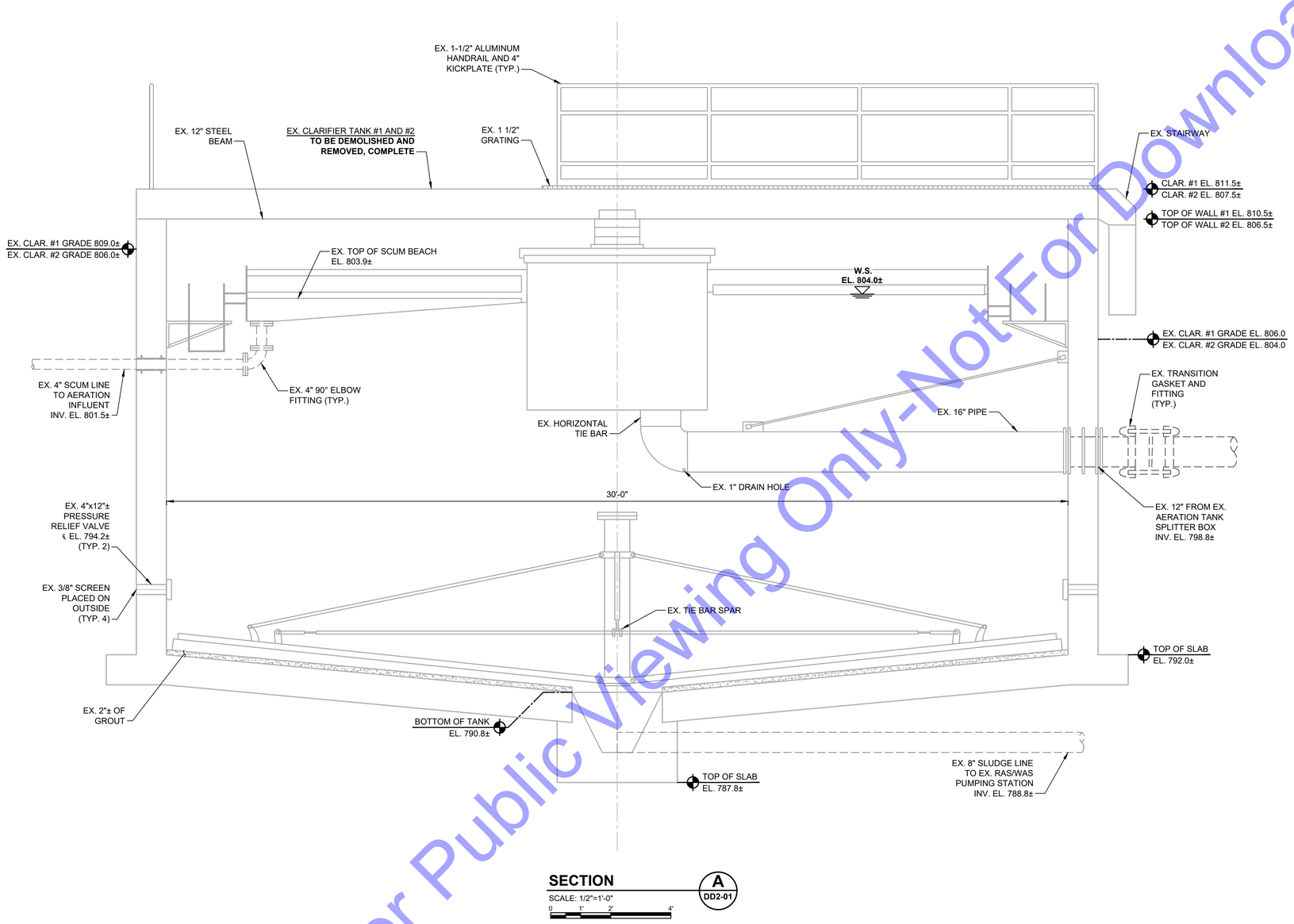
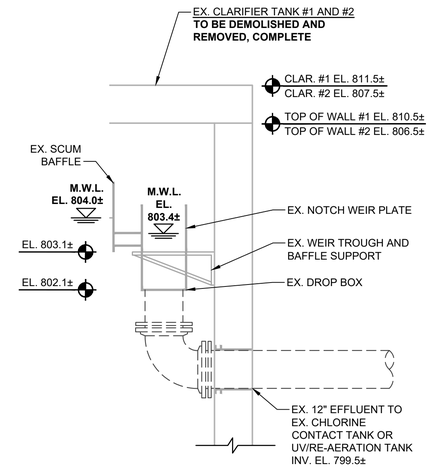


SECTION A DD2-01

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

0 1' 2' 4'



SECTION B DD2-01

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

0 1' 2' 4'

DEMOLITION NOTES:

1. **EXISTING INFORMATION OBTAINED FROM 2017 "DIVISION I PROPOSED WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT" AS-BUILT, SITE SURVEY AND FIELD INVESTIGATIVE WORK PERFORMED BY CEI.**
2. **STRUCTURE TO BE DEMOLISHED AND REMOVED COMPLETELY ONCE PLANT IMPROVEMENTS ARE OPERATIONAL.**
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Signature 10/24/2023 Date

TOWN OF NEW PALESTINE
HANCOCK COUNTY, INDIANA

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DIVISION "A" - MAIN WWTP
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EXISTING CLARIFIER TANKS DEMOLITION SECTION VIEWS

Drawing No:
DD2-02
Sheet: 121 OF 205

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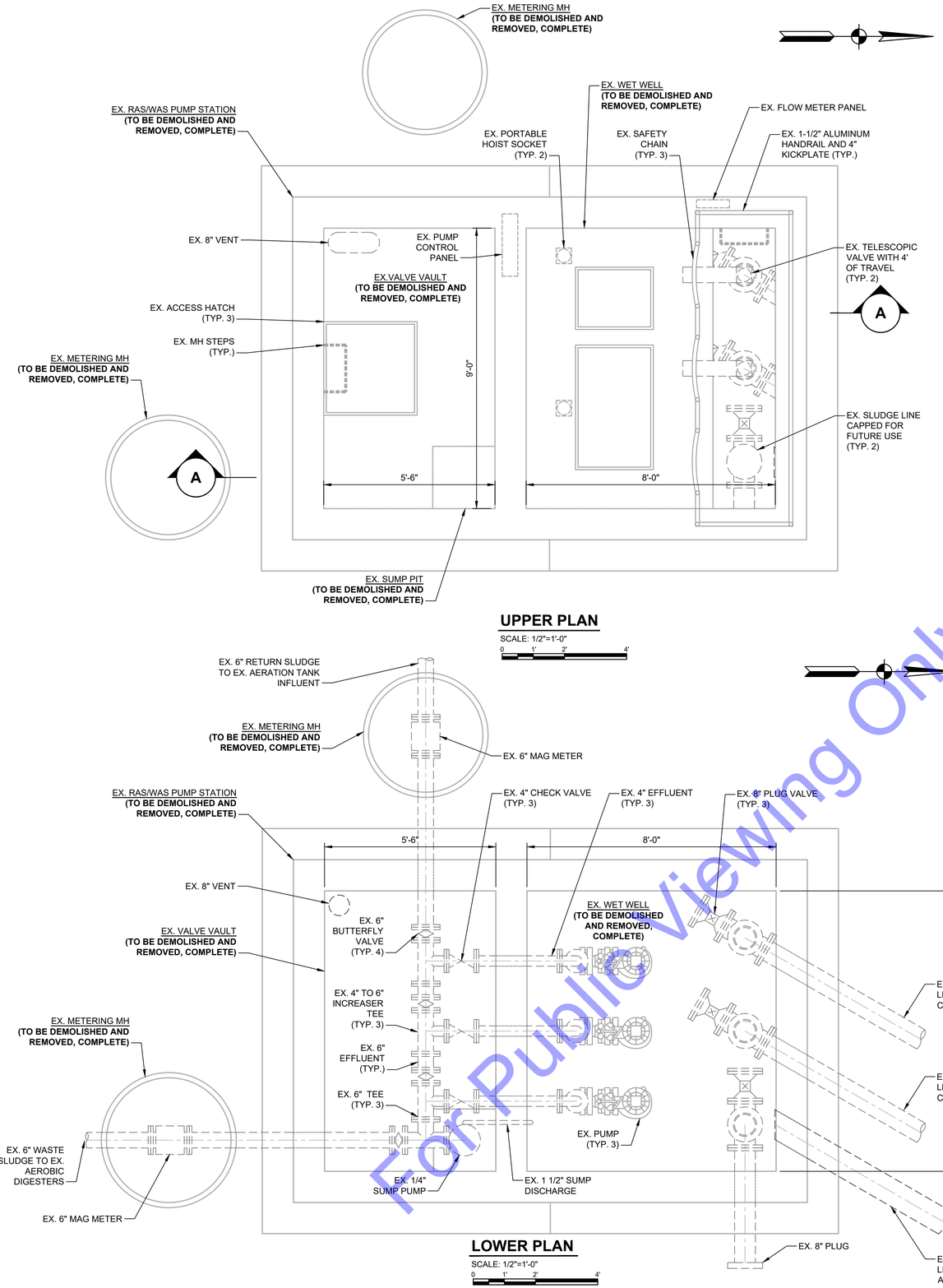

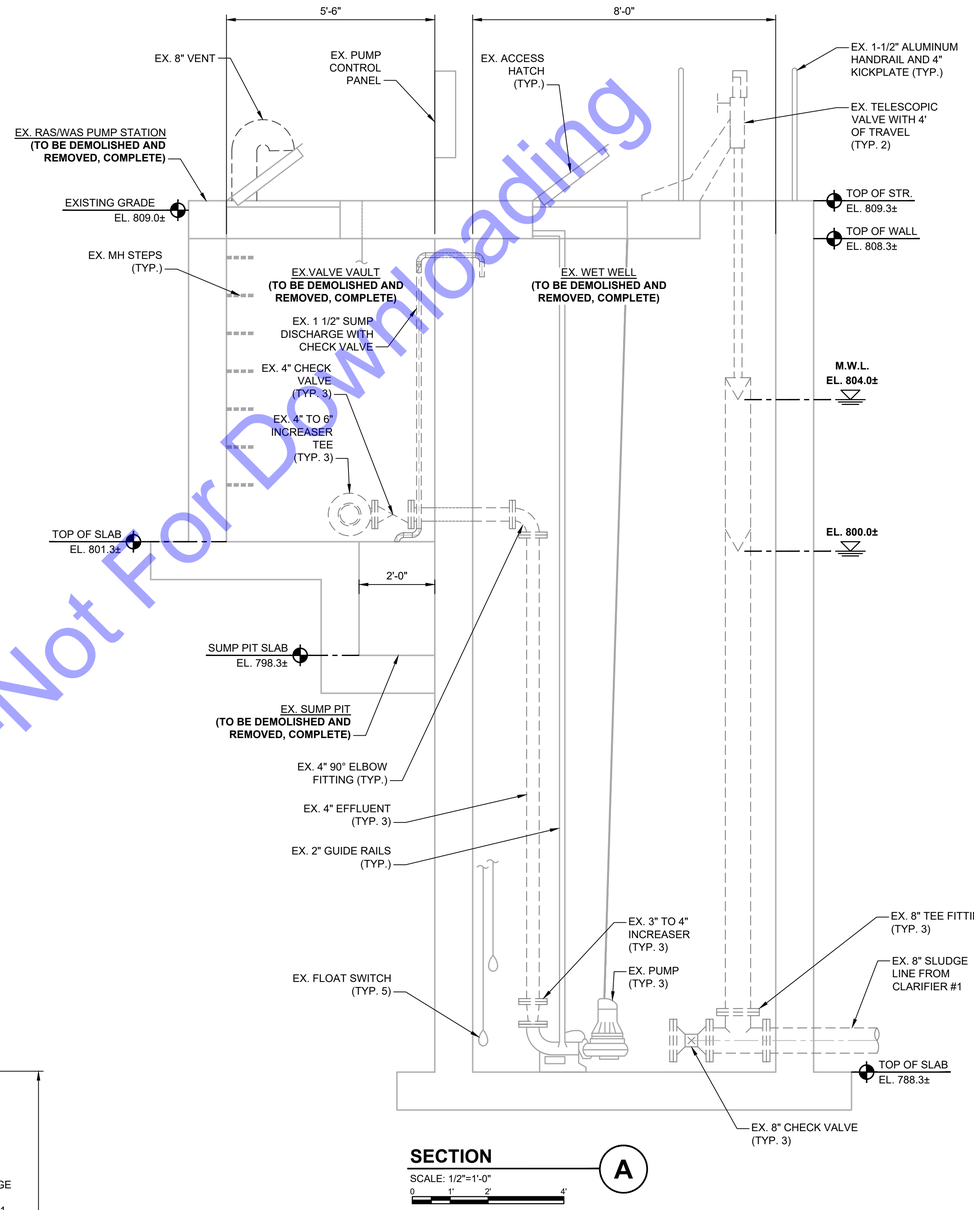

SECTION A

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

DEMOLITION NOTES:

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EXISTING RAS-WAS PUMP STATION DEMOLITION PLAN AND SECTION VIEWS

Drawing No:
DD3-01
Sheet: 122 OF 205

File: Z:\SHARED\IN CLIENTS IM-Z\NEW PALESTINE\D S22002 WW UTILITY IMPRV\S06 CAD\A CURRENT FILES\ I DRAWINGS\DIV A - WWTP\18-EX RAS\WAS PUMP STN.DWG
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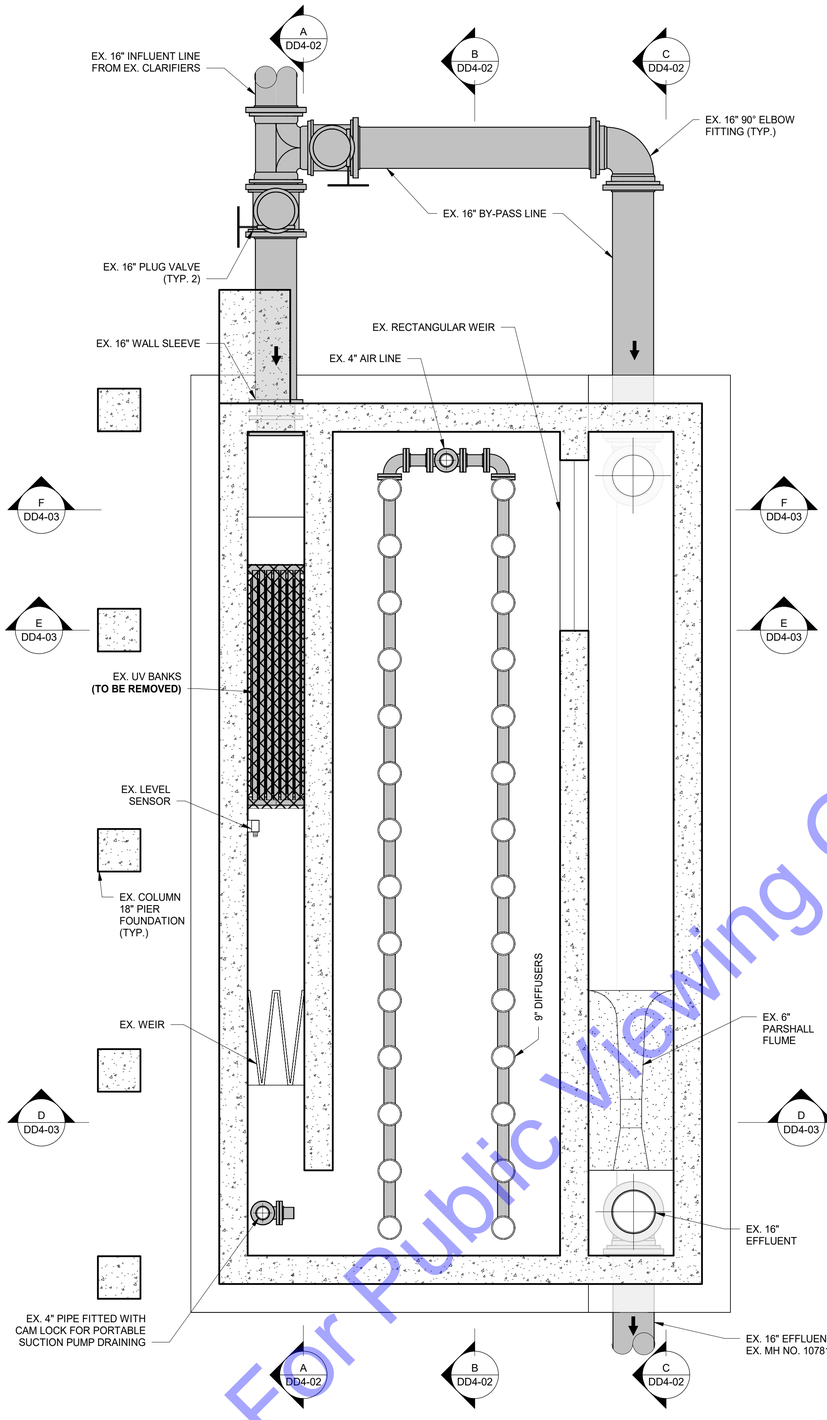
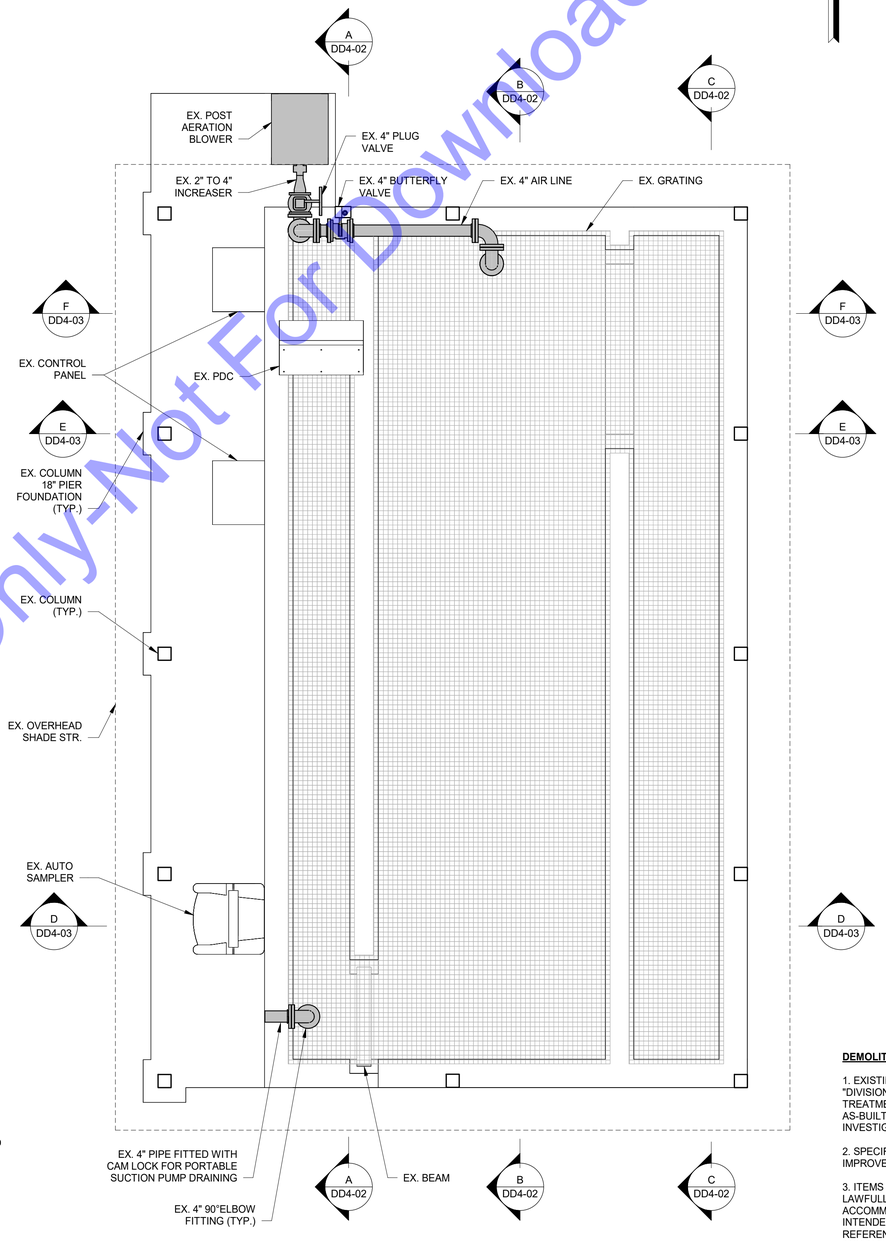


LOWER PLAN

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

0' 2' 4' 6'



UPPER PLAN

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

0' 2' 4' 6'

DEMOLITION NOTES:

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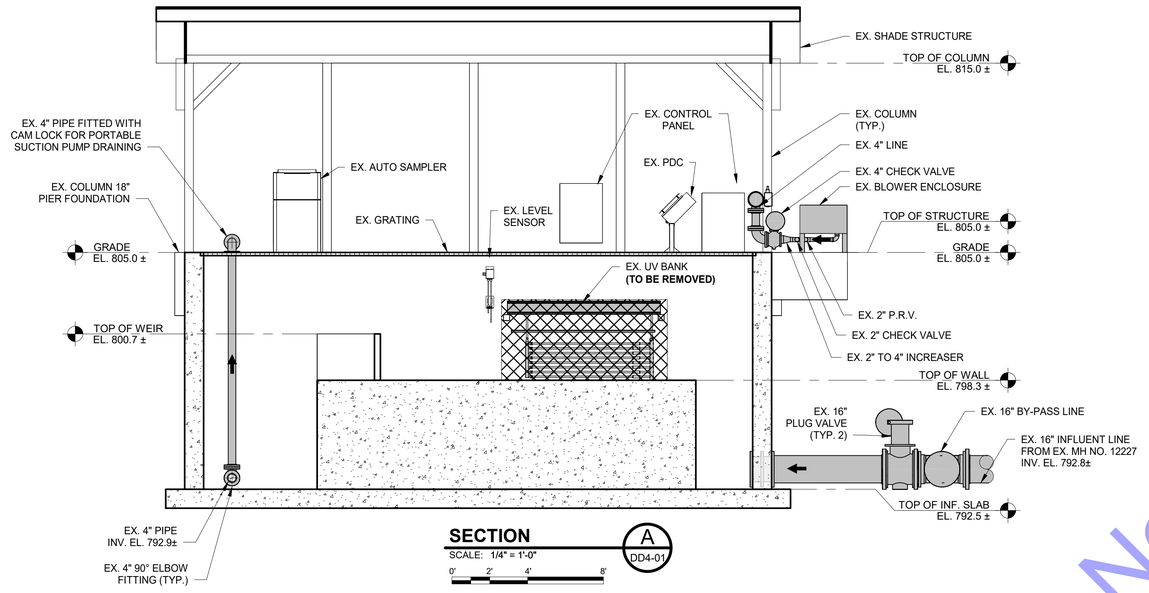
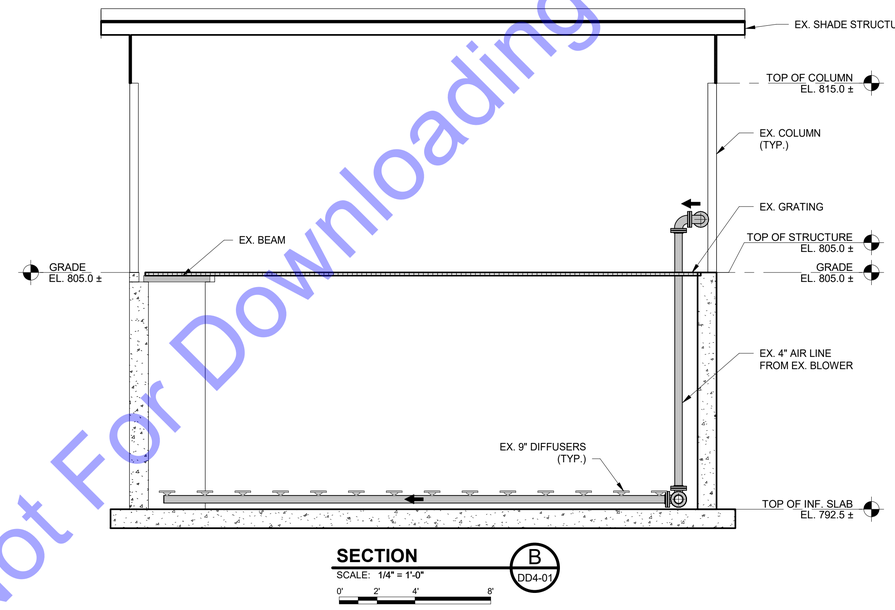
EXISTING UV AND POST AERATION DEMOLITION PLAN VIEWS

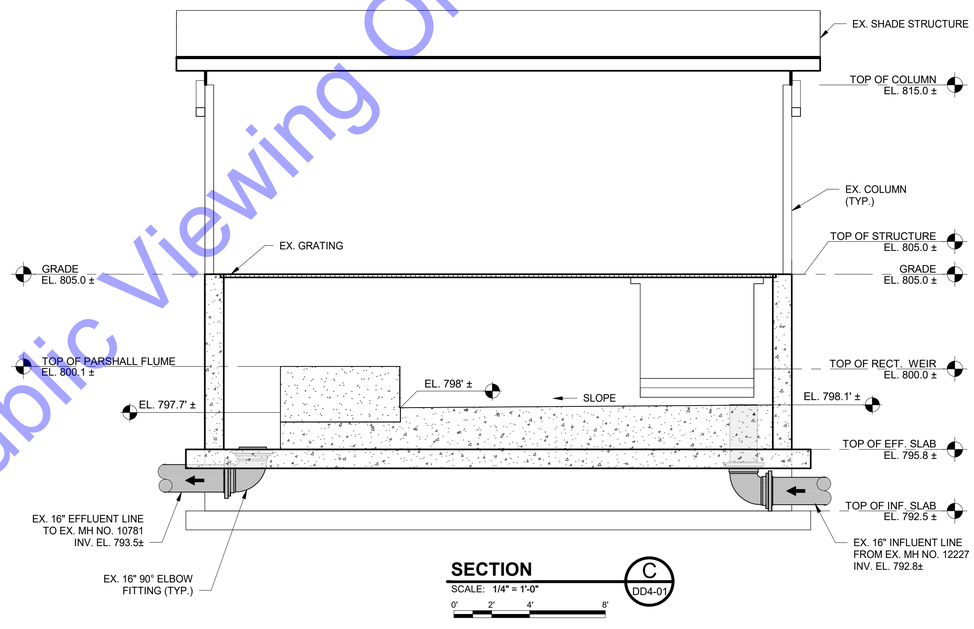
Drawing No:

DD4-01

Sheet: 123 OF 205







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EXISTING UV AND POST AERATION DEMOLITION SECTION VIEWS

Drawing No:

DD4-02

Sheet: 124 OF 205

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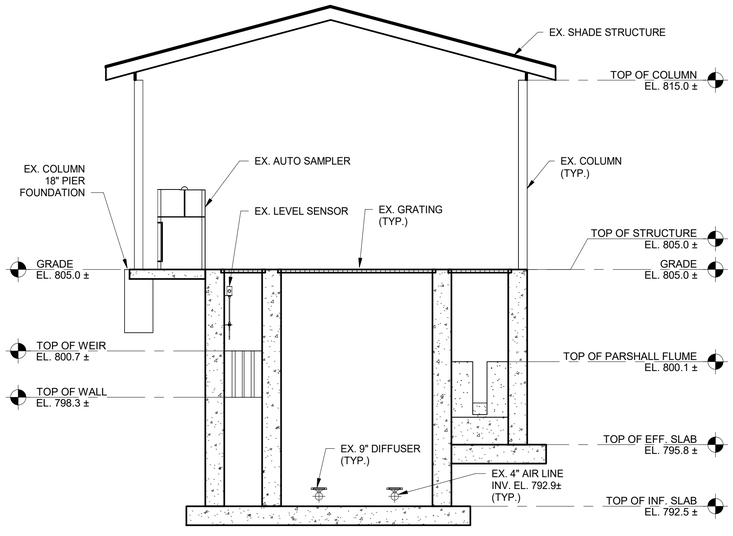
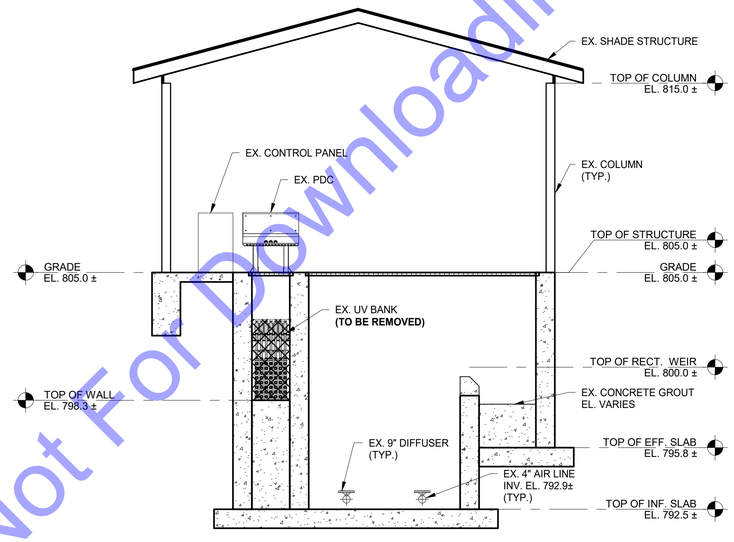
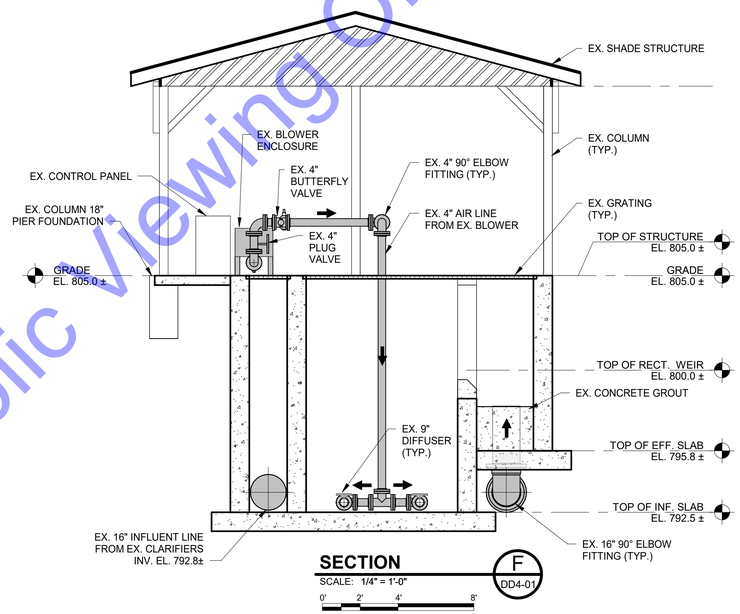


SECTION D
SCALE: 1/4" = 1'-0"
0' 2' 4' 8'
DD4-01



SECTION E
SCALE: 1/4" = 1'-0"
0' 2' 4' 8'
DD4-01



SECTION F
SCALE: 1/4" = 1'-0"
0' 2' 4' 8'
DD4-01

DEMOLITION NOTES:

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EXISTING UV AND POST AERATION DEMOLITION SECTION VIEWS

Drawing No:
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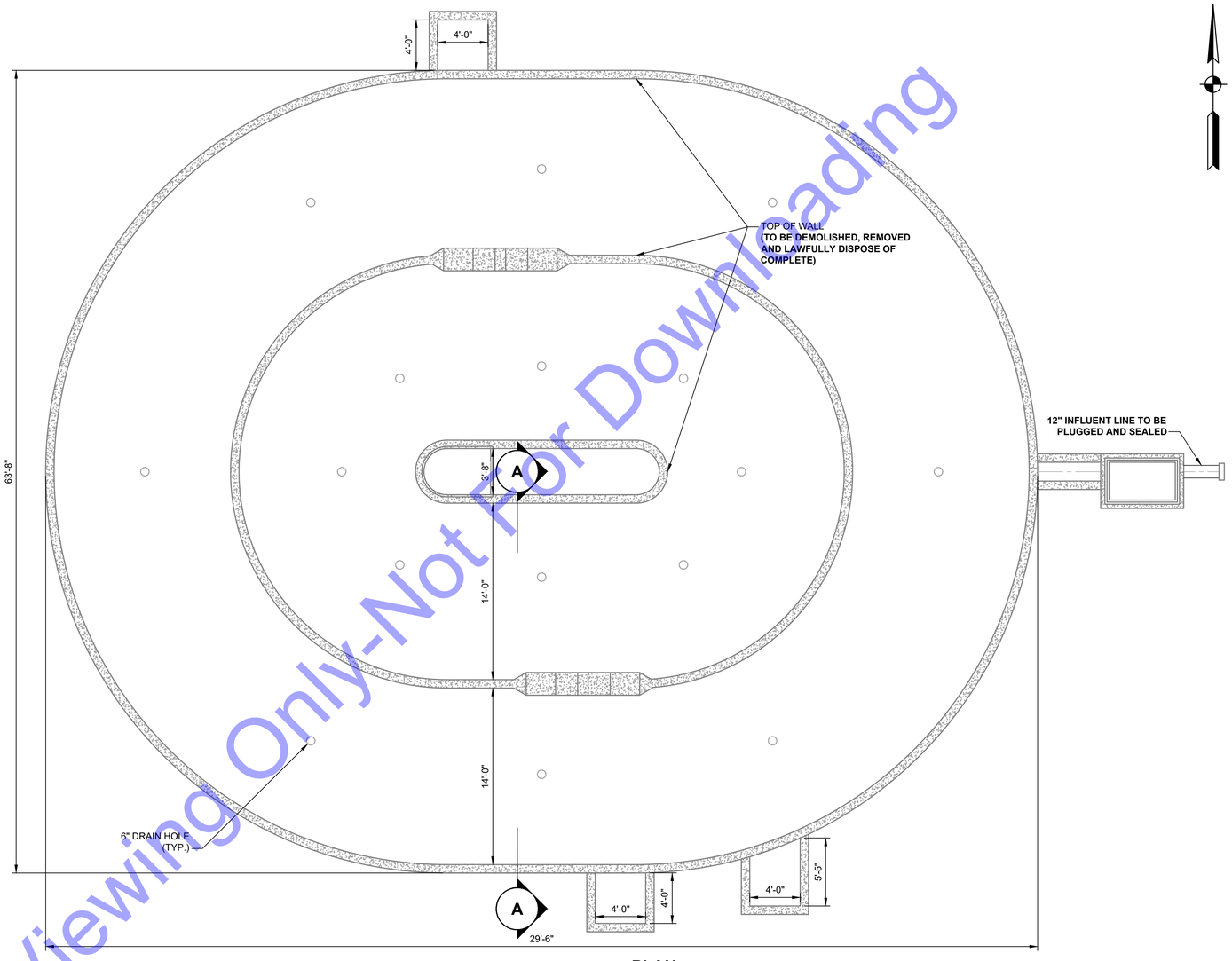
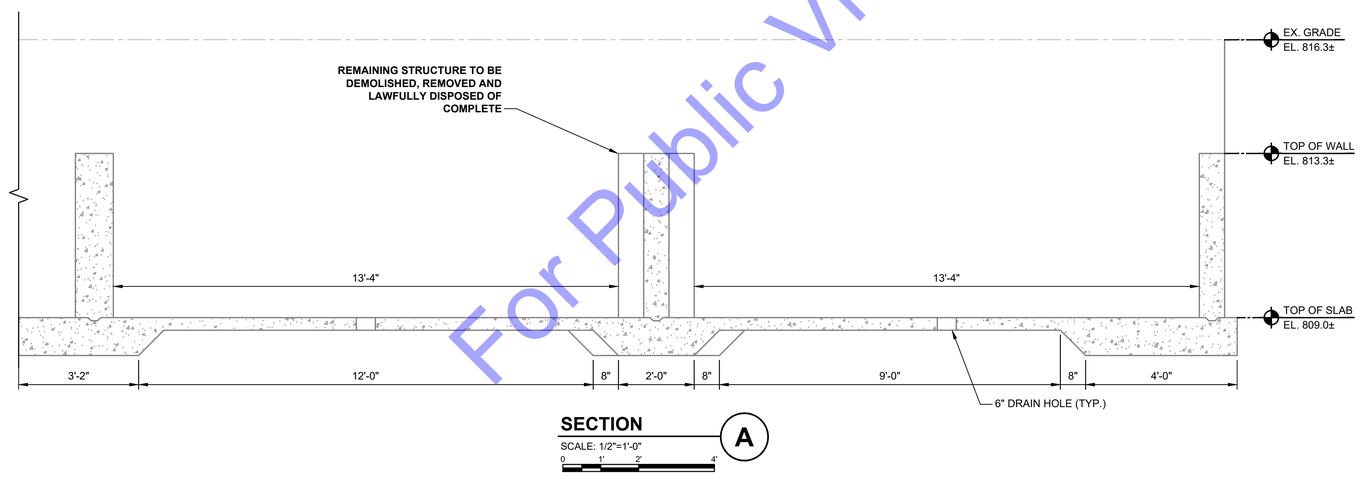


PLAN

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

0 4' 8' 12'



SECTION A

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

0 1' 2' 4'

DEMOLITION NOTES:

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EXISTING OXIDATION DITCH DEMOLITION PLAN AND SECTION VIEWS

Drawing No:

DD5-01

Sheet: 126 OF 205

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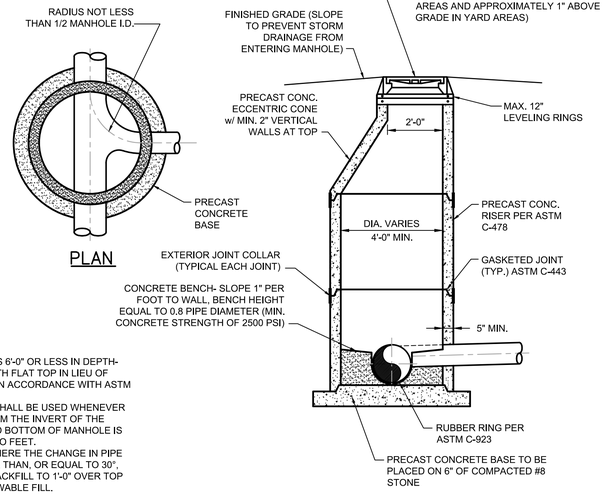
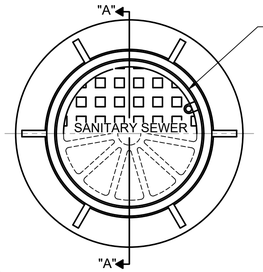


GENERAL NOTES:

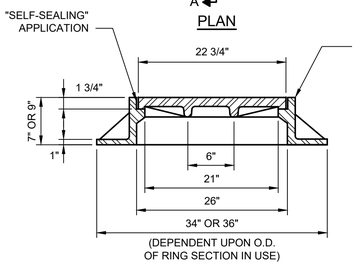
1. FOR ALL MANHOLES 6'-0" OR LESS IN DEPTH- PROVIDE RISER WITH FLAT TOP IN LIEU OF ECCENTRIC CONE IN ACCORDANCE WITH ASTM C-478.
2. DROP MANHOLES SHALL BE USED WHENEVER THE DISTANCE FROM THE INVERT OF THE INCOMING LINE AND BOTTOM OF MANHOLE IS GREATER THAN TWO FEET.
3. FOR MANHOLES WHERE THE CHANGE IN PIPE ANGLE IS GREATER THAN, OR EQUAL TO 30°, REPLACE INITIAL BACKFILL TO 1'-0" OVER TOP OF PIPE WITH FLOWABLE FILL.

STANDARD SANITARY MANHOLE DETAIL
NO SCALE



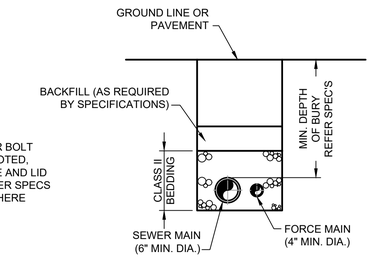
NOTES:
1. WHERE WATERTIGHT OR BOLT DOWN CASTINGS ARE NOTED, PROVIDE R-1916F FRAME AND LID BY NEENAH FOUNDRY PER SPECS
2. PROVIDE VENTED LID WHERE NOTED.

PLAN

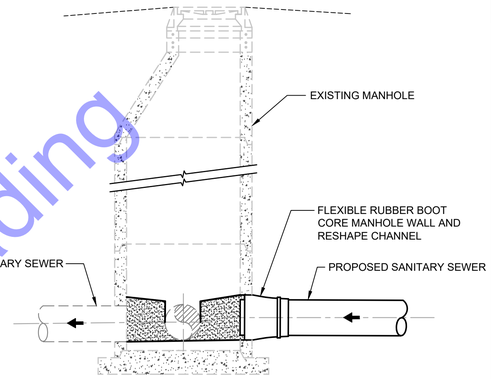


SECTION "A"

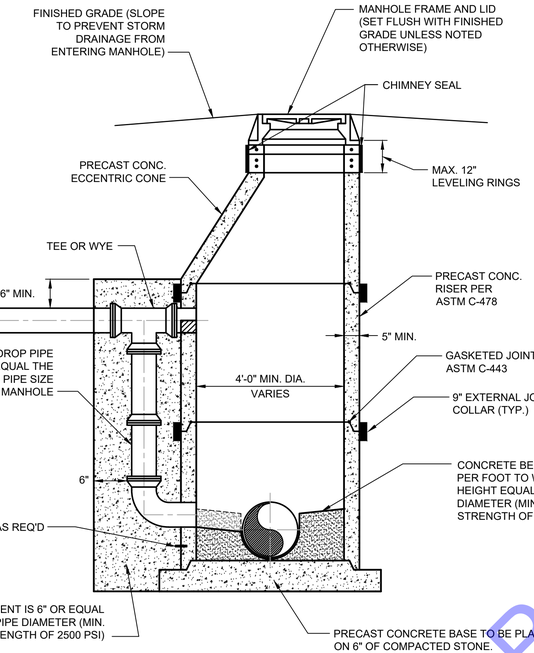
SANITARY SEWER MANHOLE FRAME AND COVER- STANDARD MANHOLE
SCALE: 1"=1'-0"



DUAL FORCE MAIN AND FLEXIBLE GRAVITY SEWER DETAIL
NO SCALE



EXISTING MANHOLE ENTRY DETAIL
NO SCALE



NOTE :
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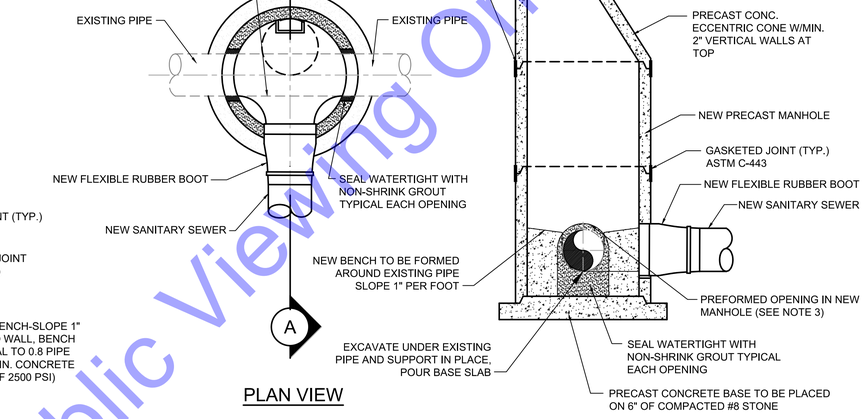
2. THE CROWN OF THE INFLUENT PIPE SHALL BE AT OR ABOVE THE CROWN OF THE OUTLET PIPE

3. DROP MANHOLES SHALL BE USED WHENEVER THE DISTANCE FROM THE INVERT OF THE INCOMMING LINE AND BOTTOM OF MANHOLE IS GREATER THAN TWO FEET.

PRECAST DROP MANHOLE DETAIL
SCALE: N.T.S.



PLAN VIEW

SECTION A

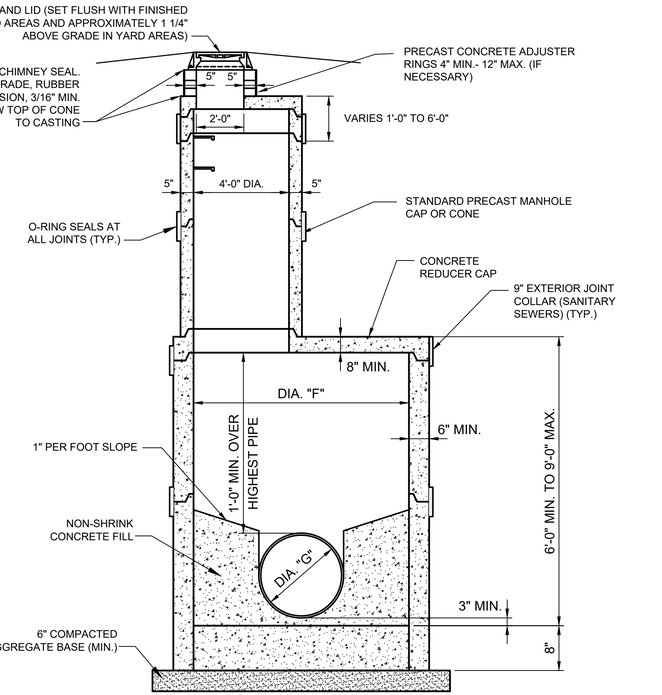
GENERAL NOTES:

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
NO SCALE



MANHOLE BASE, RISER AND REDUCER CAP FOR PIPES 24" THRU 96"
SCALE: N.T.S.

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"
O	84" TO 96"	10'-0"	84"	96"

GENERAL NOTES:

1. MANHOLE CONFORMS TO ASTM C-478

2. NO BRICK OR BLOCK WILL BE ALLOWED IN MANHOLE

3. O-RING GASKETED JOINT BETWEEN ALL RISER AND CONE SECTIONS PER ASTM C-443 PLUS 1/2" EXTRUDABLE GASKET (KENT SEAL OR EQUAL)

GENERAL NOTES:

1. MANHOLE CONFORMS TO ASTM C-478

2. NO BRICK OR BLOCK WILL BE ALLOWED IN MANHOLE

3. O-RING GASKETED JOINT BETWEEN ALL RISER AND CONE SECTIONS PER ASTM C-443 PLUS 1/2" EXTRUDABLE GASKET (KENT SEAL OR EQUAL)

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SOUTH BEND, IN.

CHRIS A. LIMCACO REGISTERED No. 19700338 STATE OF INDIANA PROFESSIONAL ENGINEER

Signature 10/24/2023 Date

TOWN OF HANCOCK COUNTY, INDIANA
WASTEWATER UTILITY IMPROVEMENTS PROJECT
DIVISION "A" - MAIN WWTP IMPROVEMENTS

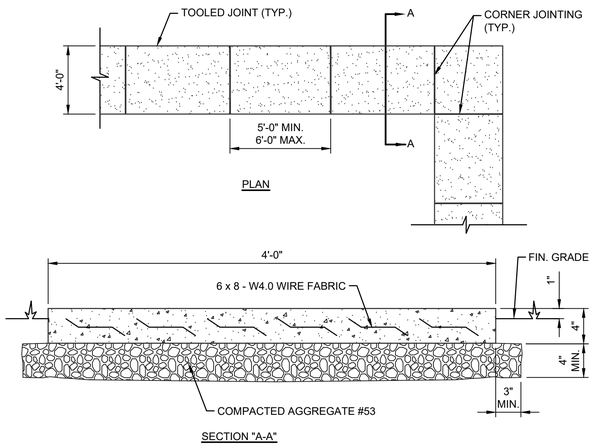
Indiana811 Know what's below. 811 before you dig. 1-800-382-5544 (ITS THE LAW)

No.	Submittal / Revision	By	Date

Designed By:	Drawn By:	Checked By:
CAL	DAN	ACS
Issue Date: OCT 2023	Project No: S22002	Scale: AS SHOWN

MISCELLANEOUS DETAILS

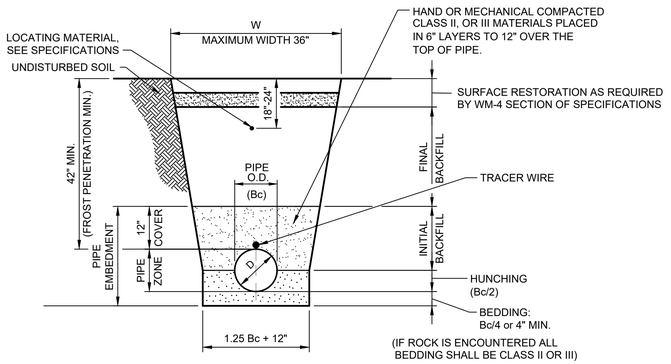
Drawing No:
MD1
Sheet: 127 OF 205



GENERAL NOTES:

1. TRANSVERSE JOINTS SHALL BE CUT WITH A JOINTER HAVING A RADIUS OF ¼" AT SPACING AT A MINIMUM OF 6'-0"
2. SIDEWALK SHALL BE 6" THICK WITH 8" OF COMPACTED AGGREGATE No. 53 AT ALL DRIVEWAY CROSSINGS
3. SIDE SLOPE SHALL BE ¼" / FT.

CONCRETE SIDEWALK DETAIL
NO SCALE



W = MAX. ALLOWABLE TRENCH WIDTH FOR PIPE SHALL NOT TO EXCEED 30 INCHES FOR 4" THROUGH 8" PIPE, 36" FOR 8" THROUGH 12" PIPE.

D = PIPE DIAMETER (INTERNAL)

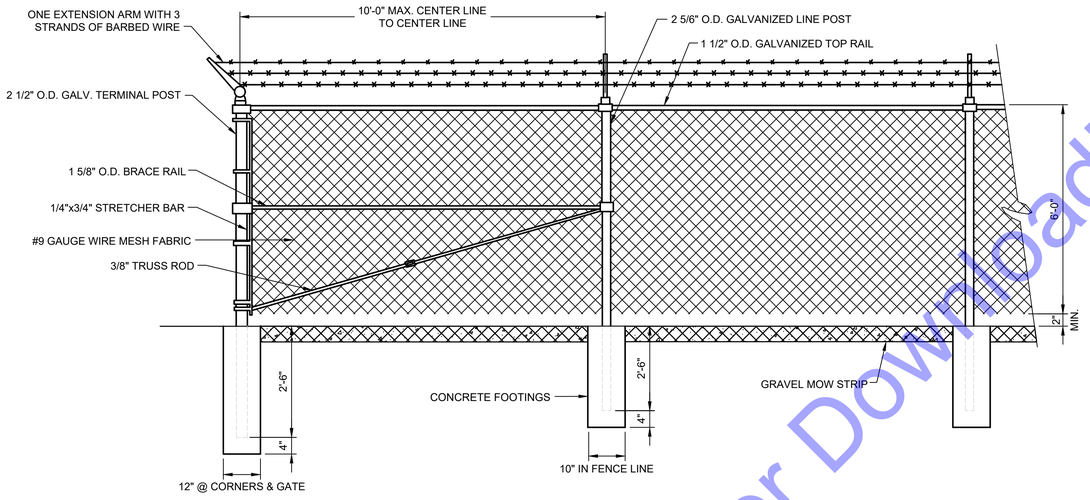
Bc = PIPE DIAMETER (EXTERNAL)

APPLICATION	BEDDING & HUNCHING INITIAL BACKFILL	FINAL BACKFILL
GRASSY AREA OR NEW PAVED AREAS	CLASS I, OR II MATERIAL (REFER TO WORKMANSHIP & MATERIALS SPECIFICATIONS	SELECTED EXCAVATED MATERIAL
PAVEMENT AREA OR ANY AREA SUBJECT TO VEHICULAR TRAFFIC	CLASS I, II OR III MATERIAL (REFER TO WORKMANSHIP & MATERIALS SPECIFICATIONS	COMPACTED GRANULAR MATERIAL

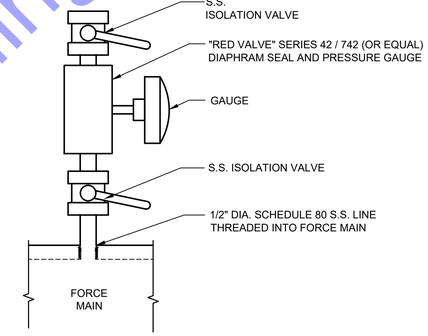
NOTES:

1. INITIAL BACKFILL STOPS AT A POINT 12" ABOVE THE TOP OF THE PIPE. BACKFILLING ABOVE THIS POINT SHALL BE IN ACCORDING WITH THE SPECIFICATIONS AND AS REQUIRED BY HEREIN.
2. BEDDING, HUNCHING AND INITIAL BACKFILL SHALL BE CLASS I, II, OR III MATERIALS ACCORDING TO THE WORKMANSHIP AND MATERIALS SPECIFICATIONS.
3. 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.
4. WORK NOT FALLING UNDER THE JURISDICTION OF INDIANA DEPT. OF TRANSPORTATION SHALL UTILIZE COMPACTED GRANULAR BACKFILL MATERIAL FOR INITIAL AND FINAL BACKFILL ANYWHERE WITHIN 5 FEET OF THE EDGE OF PAVEMENT.

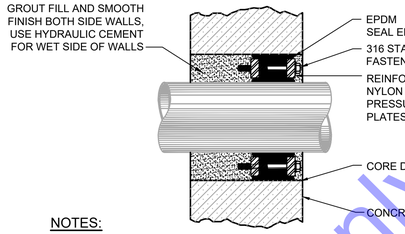
TRENCH DETAIL FOR WATER MAIN
NO SCALE



CHAIN LINK FENCE DETAIL
NO SCALE



PRESSURE GAUGE DETAIL
NO SCALE

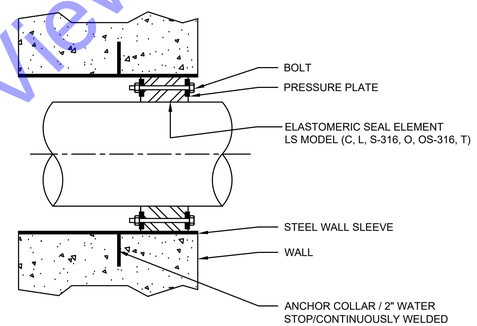


NOTES:

1. ELECTROMETRIC ELEMENT AND LINK-SEAL APPARATUS REQUIRED COMPATIBLE FOR HIGH TEMPERATURE APPLICATIONS - FOR ALL LINES
2. ALL WALL PENETRATIONS (EXISTING WALLS) CONVEYING PIPE SHALL UTILIZE A LINK-SEAL EQUIVALENT, SHALL BE GROUTED SMOOTH, AND SHALL HAVE A BONDING AGENT APPLIED

LINK-SEAL WITH CORE DRILLED HOLE DETAIL
NO SCALE

LINK-SEAL® MODULAR SEALS WITH MODEL WS STEEL WALL SLEEVES
MANUFACTURED BY PIPELINE SEAL & INSULATOR, INC.
HOUSTON, TEXAS, U.S.A. TEL: 800-423-2410 E-MAIL: INFO@PSIPSI.COM

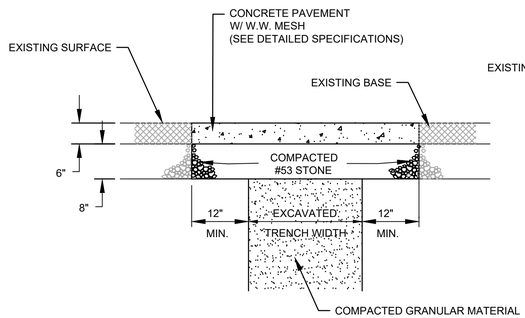


LS Model	Seal Element	Bolts/Nuts	Pressure Plate
C	EPDM (Black)	Zinc Dichromate/Organic Coated Carbon Steel Bolt	Reinforced Nylon Polymer
L	EPDM (Blue)	Zinc Dichromate/Organic Coated Carbon Steel Bolt	Reinforced Nylon Polymer
O	Nitrile	Zinc Dichromate/Organic Coated Carbon Steel Bolt	Reinforced Nylon Polymer
T	Silicone	Zinc Dichromate/Organic Coated Carbon Steel Bolt	Steel Zinc Dichromate
(C,L,O)+S-316 (see model options)		316 Stainless Steel	Reinforced Nylon Polymer

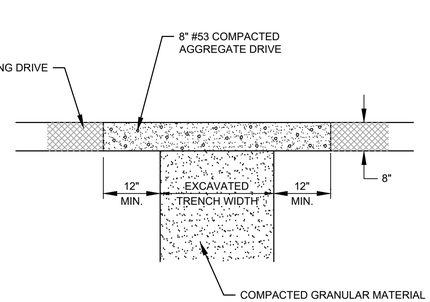
Sleeve Model	Description	Material
CS	Century-Line Sleeve	HDPE
WS	Steel Wall Sleeve	Steel

For more Material Property Information, see literature at www.linkseal.com

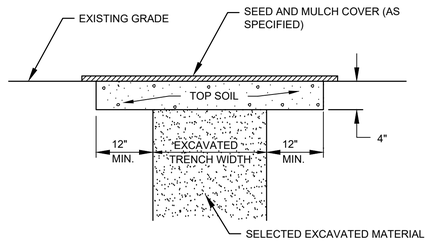
LINK SEAL WITH STEEL WALL SLEEVE
NO SCALE



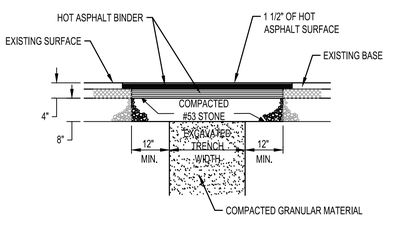
SURFACE RESTORATION DETAIL FOR CONCRETE PAVEMENT - DRIVE AND WALKWAYS
NO SCALE



SURFACE RESTORATION DETAIL FOR GRAVEL PAVEMENT- ROAD AND PARKING LOTS
NO SCALE



SURFACE RESTORATION DETAIL FOR GRASS AREAS
NO SCALE



SURFACE RESTORATION DETAIL FOR ASPHALT PAVEMENT- ROAD
NO SCALE

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TOWN OF NEW PALESTINE
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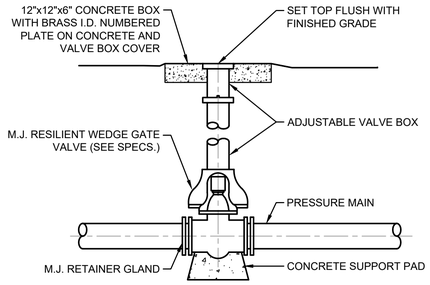
Designed By:	Drawn By:	Checked By:
CAL	DAN	ACS
Issue Date: OCT 2023	Project No: S22002	Scale: AS SHOWN

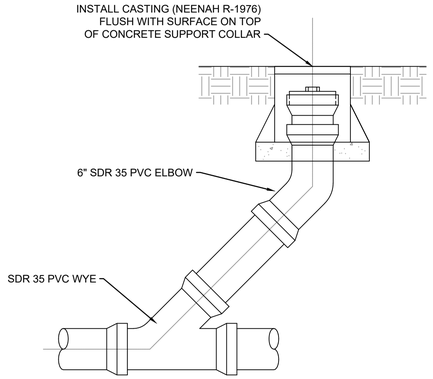
MISCELLANEOUS DETAILS

Drawing No: **MD2**

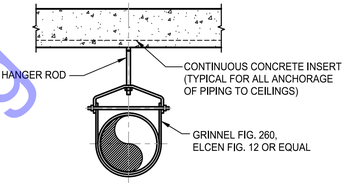
Sheet: 128 OF 205



BURIED PLUG/GATE VALVE AND BOX DETAIL
NO SCALE

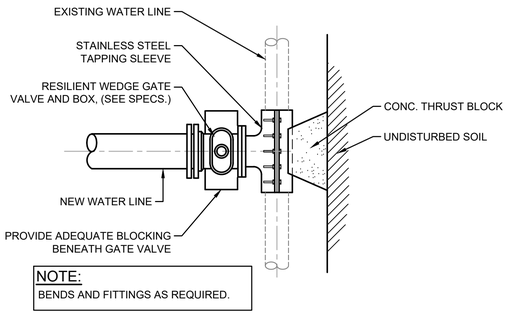


CLEANOUT DETAIL
NO SCALE



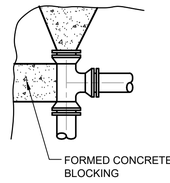
NOTE:
PROVIDE HANGER RODS IN ACCORDANCE WITH THE SPECIFICATIONS. INSTALLATION OF PIPE HANGER SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

ADJUSTABLE CLEVIS PIPE HANGER DETAIL
NO SCALE

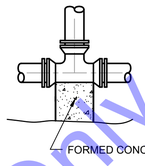


NOTE:
BENDS AND FITTINGS AS REQUIRED.

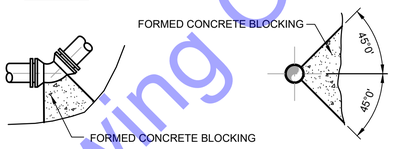
WET CONNECTION TO EXISTING WATER MAIN
NO SCALE



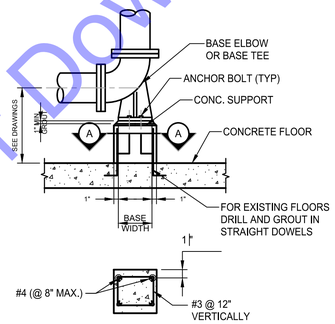
DETAIL A



DETAIL B

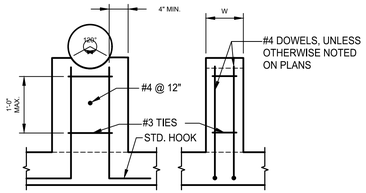


DETAIL C TYP. PROFILE



SECTION A

TYPICAL CONCRETE PIPE SUPPORT DETAIL
NO SCALE



W = 8" FOR PIPE UP TO AND INCLUDING 12" PIPE. 1'-0" FOR PIPE OVER 12"

TYPICAL REINFORCED CONCRETE PIPE SUPPORT
NO SCALE

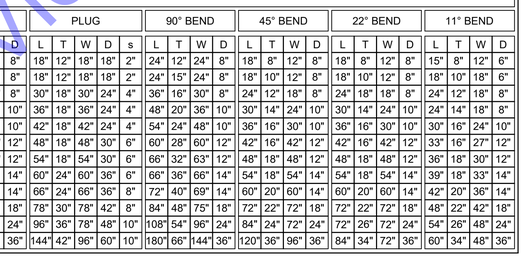
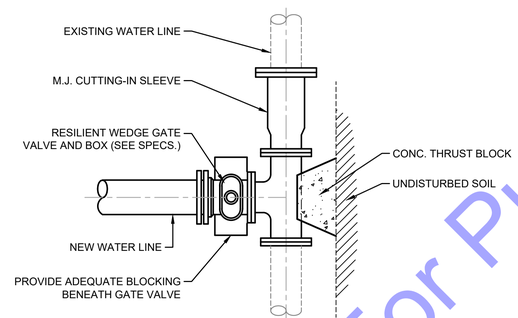


TABLE OF DIMENSION FOR CONCRETE BLOCKING																							
SIZE	TEE				PLUG					90° BEND				45° BEND				22° BEND				11° BEND			
PIPE	L	T	W	D	L	T	W	D	s	L	T	W	D	L	T	W	D	L	T	W	D	L	T	W	D
4"	18"	12"	12"	8"	18"	12"	18"	18"	2"	24"	12"	24"	8"	18"	8"	12"	8"	18"	8"	12"	8"	15"	8"	12"	6"
6"	18"	12"	12"	8"	18"	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"	60"	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"
30"	96"	42"	78"	24"	96"	36"	78"	48"	10"	108"	54"	96"	24"	84"	24"	72"	24"	72"	26"	72"	24"	54"	26"	48"	24"
42"	144"	48"	96"	36"	144"	42"	96"	60"	10"	180"	66"	144"	36"	120"	36"	96"	36"	84"	34"	72"	36"	60"	34"	48"	36"

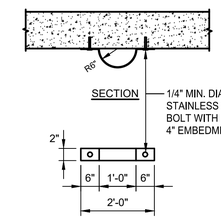
NOTES:
1. FOR TEE WITH BRANCH UNEQUAL TO RUN USE TEE TYPE KICKER WITH D, L, AND W DIMENSIONS THE SAME AS THOSE FOR PLUG WITH SAME DIAMETER AS BRANCH OF TEE, SELECT "T" DIMENSIONS FROM TEE TABLE UNDER COLUMN HEADED BY THE SIZE OF THE BRANCH
2. IF EXACT SIZE PIPE BLOCKING IS NOT SHOWN USE NEXT LARGER SIZE
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.



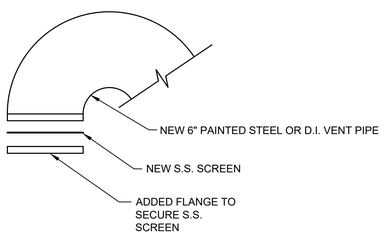
NOTE:
BENDS AND FITTINGS AS REQUIRED.

DRY CONNECTION TO EXISTING WATER MAIN
NO SCALE

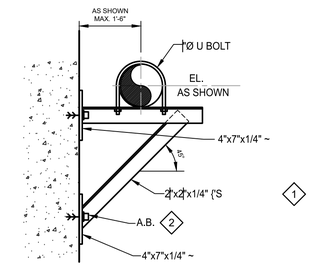


PLAN

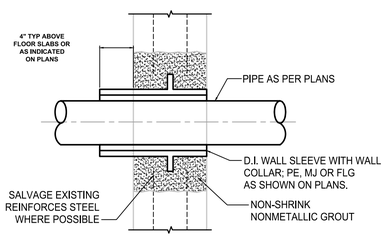
STAINLESS STEEL GUIDE BAND
NO SCALE



VENT DETAIL
NO SCALE



WALL BRACKET PIPE SUPPORT FOR PIPING UNDER 12" DIAMETER
NO SCALE



SLEEVE OPENING AT EXISTING WALLS & SLABS FOR 3"Ø OR SMALLER PIPES ABOVE GRADE
NO SCALE

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CHRIS A. LIMCACO REGISTERED No. 19700338 STATE OF INDIANA PROFESSIONAL ENGINEER
Signature 10/24/2023 Date

TOWN OF NEW PALESTINE
HANCOCK COUNTY, INDIANA

WASTEWATER UTILITY
IMPROVEMENTS PROJECT
DIVISION "A" - MAIN WWTP
IMPROVEMENTS

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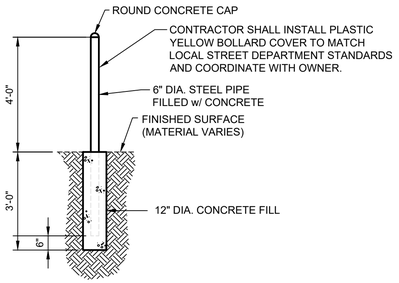
No.	Submittal / Revision	By	Date

Designed By:	Drawn By:	Checked By:
CAL	DAN	ACS
Issue Date: OCT 2023	Project No: S22002	Scale: AS SHOWN

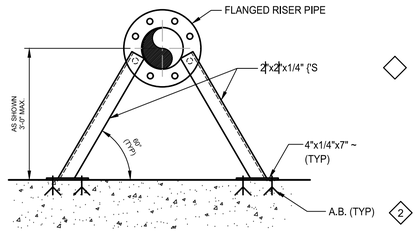
MISCELLANEOUS DETAILS

Drawing No: **MD3**
Sheet: 129 OF 205

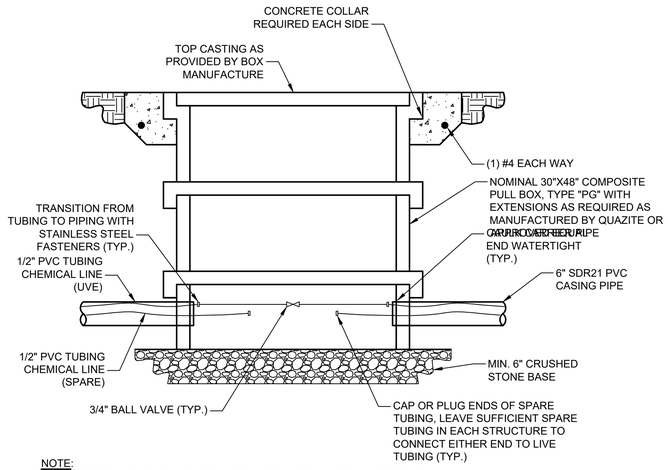


NOTE:
CONTRACTOR SHALL PROVIDE 1/4" NOMINAL THICKNESS POLYETHYLENE COVERS OVER ALL BOLLARDS COORDINATE COLOR WITH OWNER

BOLLARD DETAIL
NO SCALE

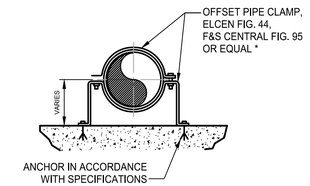


RISER STABILIZER BRACKET FOR VERTICAL, FLANGED PIPING
NO SCALE



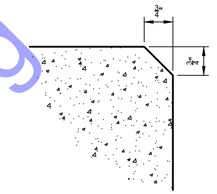
NOTE:
1. THIS DETAIL SHOWS A TYPICAL PULL BOX INSTALLATION. ADDITIONS. ALL BRANCHES OFF OF ANY TEE INSTALLATION TO BE INSTALLED WITH BALL VALVES.
2. INSTALL THE TWO (2) 1/2" PVC TUBING LINES SIDE BY SIDE IN THE 6" SDR21 CASING PIPE UNTWISTED.
3. AT CHEMICAL DELIVERY POINT. INSTALL CHEMICAL SCHEDULE 80 PVC PIPING THROUGH BOX, CAULK WATERTIGHT, AND RUN CHEMICAL PIPING TO FEED POINT, HEAT TRACE PIPING ABOVE GRADE AND TO POINT IT EXITS BOX BELOW GRADE.
4. PULL BOXES THAT ARE INSTALLED WITHIN VEHICLE TRAFFIC LOCATIONS SHALL BE INSTALLED WITH A TRAFFIC RATED LID. REFER TO MANUFACTURER RECOMMENDATIONS FOR ACCEPTABLE LID.

CHEMICAL LINE PULL BOX DETAIL
NO SCALE



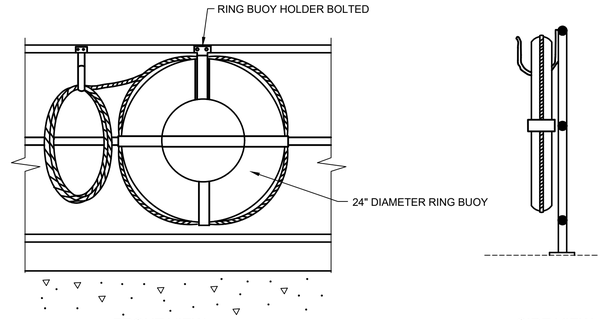
* FOR PIPE AND CONDUIT 1/2"Ø TO 8"Ø

OFFSET TYPE PIPE CLAMP DETAIL
NO SCALE

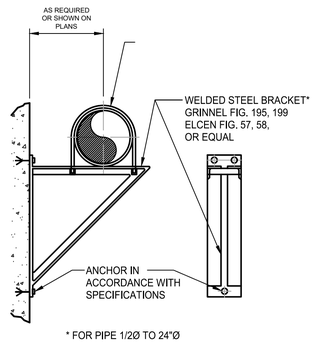


NOTE:
UNLESS OTHERWISE NOTED, CHAMFER SHALL BE PROVIDED ON ALL EXPOSED EDGES OF NEW CONCRETE. CHAMFER ON EXTERIOR VERTICAL EDGES SHALL EXTEND A MINIMUM OF SIX (6) INCHES BELOW FINISHED GRADE.

CONCRETE WALL CHAMFER DETAIL
NO SCALE

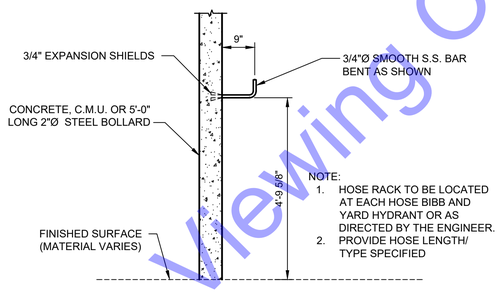


SAFETY FLOTATION DEVICE DETAILS
NO SCALE



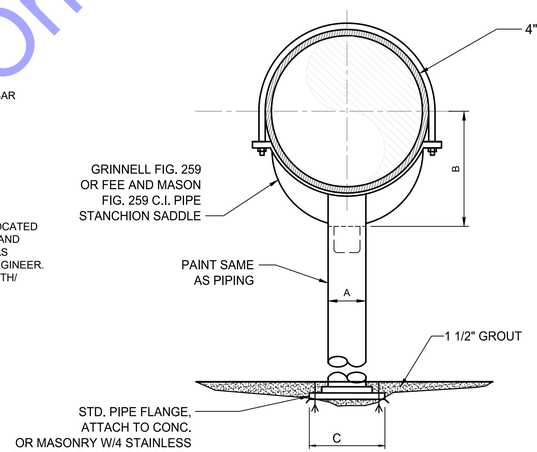
* FOR PIPE 1/2Ø TO 24"Ø

BRACKET TYPE PIPE SUPPORT
NO SCALE



NOTE:
1. HOSE RACK TO BE LOCATED AT EACH HOSE BIBB AND YARD HYDRANT OR AS DIRECTED BY THE ENGINEER.
2. PROVIDE HOSE LENGTH/ TYPE SPECIFIED

HOSE RACK DETAIL
NO SCALE



PIPE SUPPORT
NO SCALE

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"

GENERAL NOTES FOR FABRICATIONS THIS SHEET

1. MISCELLANEOUS FABRICATIONS SHALL BE WELDED CONSTRUCTION, GALVANIZED STEEL OR ALUMINUM, 1" THICK, UNLESS NOTED OTHERWISE, WITH CONTINUOUS ALL AROUND 1" THICK WELDED CONNECTIONS STEEL SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION. ALUMINUM SHALL BE BITUMINOUS COATED ON SURFACES IN CONTACT WITH CONCRETE OR MASONRY.
2. ANCHOR BOLTS SHALL BE HILTI, WEJ-IT OR EQUAL, ANSI 316 STAINLESS STEEL INCLUDING NUTS & WASHERS. ANCHOR BOLTS SHALL 1/2Ø WITH 4" EMBEDMENT IN CONCRETE, UNLESS NOTED OTHERWISE.

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

PIPE SUPPORT AND TABLE DETAIL
NO SCALE

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CHRIS A. LIMCACO REGISTERED No. 19700338 STATE OF INDIANA PROFESSIONAL ENGINEER
Signature 10/24/2023 Date

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HANCOCK COUNTY, INDIANA

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MISCELLANEOUS DETAILS

Drawing No:
MD4
Sheet: 130 OF 205

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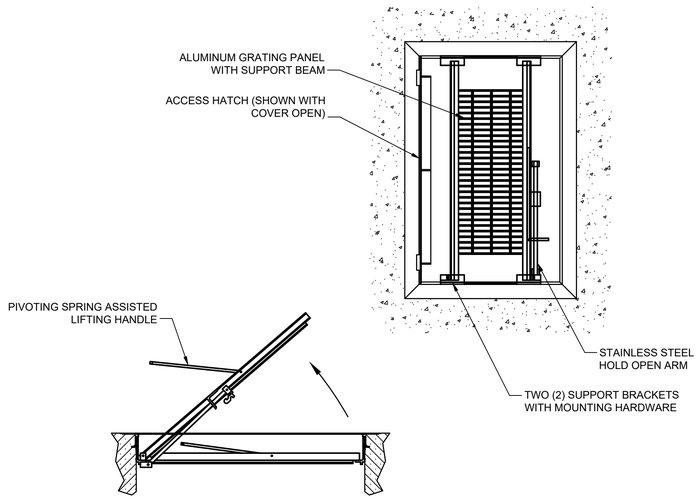


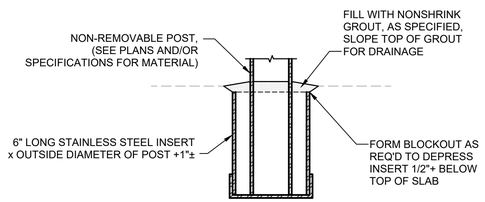
NOTES:
1. DETAIL REFERENCES "HALLIDAY SERIES X RETRO-GRATING" DETAIL. CONTRACTOR SHALL INSTALL THIS PRODUCT OR APPROVED EQUAL WITH ENGINEER APPROVAL.

2. THE SERIES X RETRO-GRATE IS A HINGED ALUMINUM GRATING PANEL THAT IS EASILY INSTALLED BENEATH EXISTING ACCESS COVERS REGARDLESS OF THE ORIGINAL COVER MANUFACTURER. THE RETRO-GRATE PROVIDES ADDITIONAL PROTECTION AGAINST FALL THROUGH ACCIDENTS WHEN THE COVER IS LEFT IN THE OPEN POSITION. THE UNIT IS LOCKABLE BY AN OWNER SUPPLIED PADLOCK AND INCORPORATES A SPRING ASSISTED LIFTING HANDLE THAT POSITIONS THE HANDLE NEAR THE SLAB LEVEL. THE UNIT IS SUPPLIED WITH T-316 STAINLESS STEEL MOUNTING HARDWARE AND AN AUTOMATIC HOLD OPEN ARM WITH ALUMINUM RELEASE LATCH. THE RETRO-GRATE IS DESIGNED TO BE INSTALLED BY MOUNTING THE SUPPORT BRACKETS TO EITHER THE EXISTING FRAMEWORK OR TO THE CONCRETE SLAB BELOW THE FRAMEWORK.

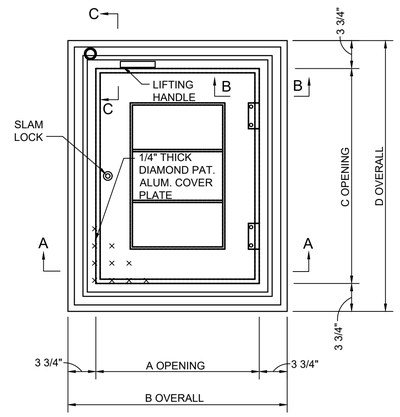
ACCESS HATCH "FALL PROTECTION GRATING" DETAIL
SCALE: NTS

GENERAL NOTE:

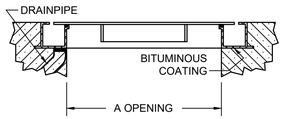
CONTRACTOR SHALL PIPE DRAIN TO EXTERIOR OF STRUCTURE, UNLESS SPECIFICALLY DIRECTED TO THE CONTRARY WITHIN THE CORRESPONDING IMPROVEMENT SHEETS.
(REFER TO PROCESS DRAWINGS AND SPECIFICATIONS FOR MORE DETAILS)



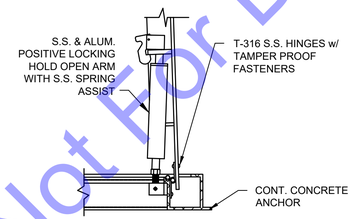
EMBEDDED MOUNTING



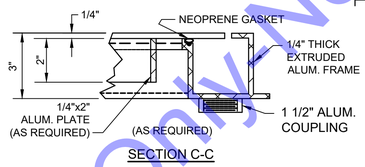
PLAN



SECTION A-A



SECTION B-B
(COVER SHOWN IN OPEN POSITION)



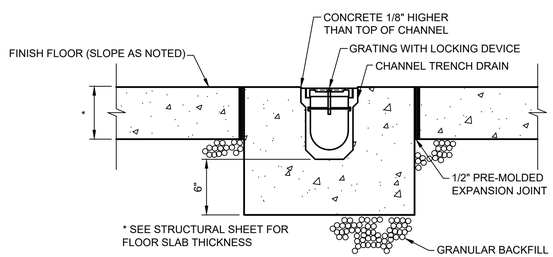
SECTION C-C

NOMINAL OPENING (INCHES)	DIMENSIONS (VARY PER MANUFACTURER)			
	A	B	C	D
24x24	24"	31 1/2"	24"	31 1/2"
30x30	30"	37 1/2"	30"	37 1/2"
36x36	36"	43 1/2"	36"	43 1/2"
30x48	30"	37 1/2"	48"	55 1/2"
36x48	36"	43 1/2"	48"	55 1/2"

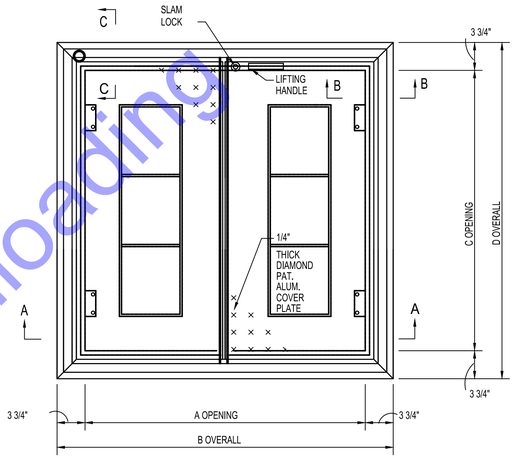
TYPICAL SINGLE LEAF ACCESS HATCH DETAIL
NO SCALE

NOTE:

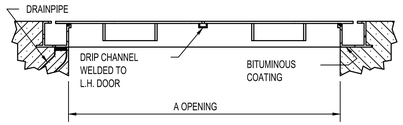
CONTRACTOR SHALL PIPE DRAIN TO EXTERIOR OF STRUCTURE
(REFER TO PROCESS DRAWINGS AND SPECIFICATIONS FOR MORE DETAILS).



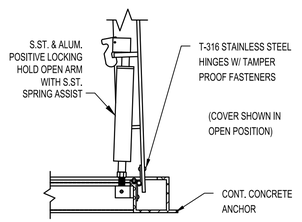
TRENCH DRAIN DETAIL
NO SCALE



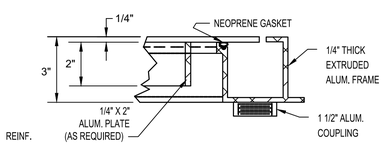
PLAN



SECTION A-A



SECTION B-B



SECTION C-C

NOMINAL OPENING (INCHES)	DIMENSIONS (VARY PER MANUFACTURER)			
	A	B	C	D
42x42	42"	49 1/2"	42"	49 1/2"
48x48	48"	55 1/2"	48"	55 1/2"
48x60	60"	67 1/2"	48"	55 1/2"
72x48	72"	79 1/2"	48"	55 1/2"
60x60	60"	67 1/2"	60"	67 1/2"
72x60	72"	79 1/2"	60"	67 1/2"

TYPICAL DOUBLE LEAF ACCESS HATCH DETAIL
NO SCALE

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REGISTERED
No. 19700338
STATE OF INDIANA
PROFESSIONAL ENGINEER

Signature 10/24/2023 Date

TOWN OF NEW PALESTINE
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Drawing No:
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Sheet: 131 OF 205

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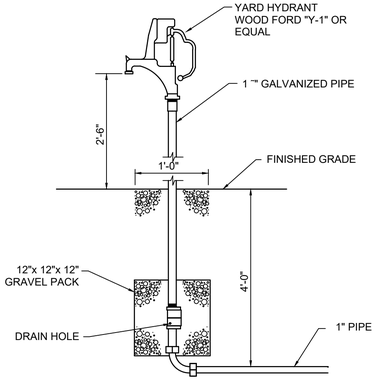
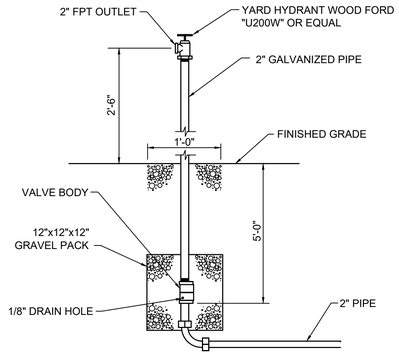


YARD HYDRANT DETAIL
NO SCALE



2" YARD HYDRANT DETAIL
NO SCALE

HYDRANT NOTES:

1. **BOTH HYDRANT DETAILS REPRESENT A SELF-DRAINING SYSTEM. FOR HYDRANTS THAT ARE ELEVATED AND A SELF-DRAINING SYSTEM IS NOT REQUIRED, CONTRACTOR SHALL REMOVE DRAIN HOLE AND GRAVEL PACK.**

CAUTION

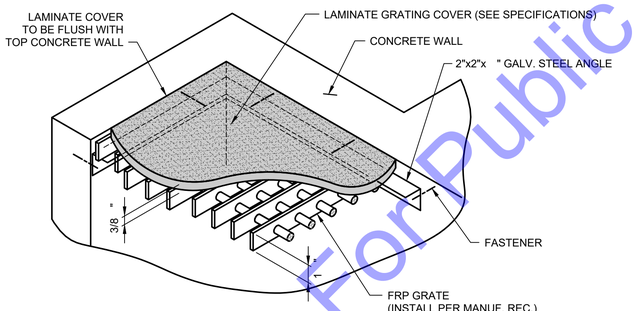
NON-POTABLE WATER

NOT FOR DRINKING

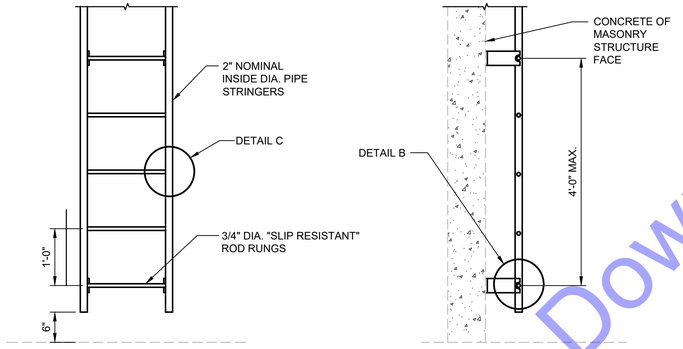
CAUTION SIGN DETAIL
NO SCALE

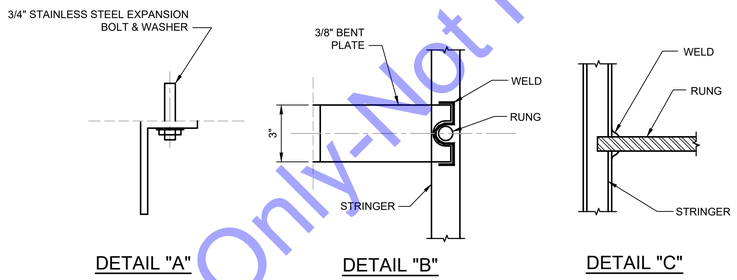
NOTE:

1. SIGNS SHALL BE PLACED AT ALL HOSE BIBBS, YARD HYDRANTS, AND HYDRANT LOCATIONS AS SHOWN ON THE PLANS.
2. SIGNS SHALL BE MINIMUM 14" WIDE x 10" HIGH AND MEET OSHA REQUIREMENTS.



LAMINATE GRATING COVER TYPICAL DETAIL
SCALE: N.T.S.

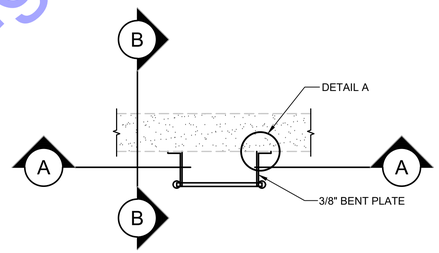




DETAIL "A"

DETAIL "B"

DETAIL "C"

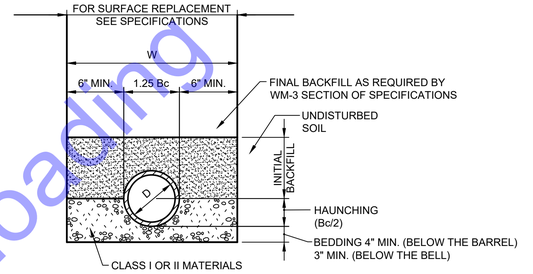


PLAN VIEW

LADDER DETAILS
NO SCALE

NOTES:

1. MATERIAL SHALL BE ALUMINUM UNLESS NOTED OTHERWISE.
2. SAFETY CLIMB DEVICE SHALL BE PROVIDED.

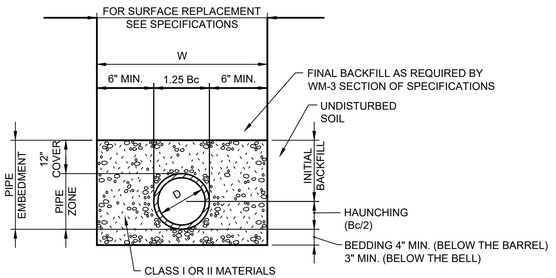


W= MAXIMUM ALLOWABLE TRENCH WIDTH FOR PIPE AS PER ASTM
NOT TO EXCEED FOUR (4) FEET FOR 6" THROUGH 24" PIPE NOT
SIX (6) FEET FOR 27" THROUGH 48" PIPE
D= PIPE DIAMETER (INTERNAL)
Bc= PIPE DIAMETER (EXTERNAL)

NOTES:

1. COMPACTED BEDDING STOPS AT SPRING-LINE OF THE PIPE. BACKFILLING ABOVE THIS POINT SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS AND AS REQUIRED HEREIN.
2. WHEN CLASS I MATERIAL IS USED FOR BEDDING, COMPACTION MAY BE ACCOMPLISHED BY HAND OR MECHANICAL TAMPING.
3. WHEN CLASS II MATERIAL IS USED FOR BEDDING, COMPACTION SHALL BE ACCOMPLISHED ONLY BY HAND OR MECHANICAL TAMPING TO A MIN. OF 95% 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. TRENCH WIDTHS BELOW THE BOTTOM OF TRENCH BOX OR SHORING USED FOR TRENCH SUPPORT. BOTTOM OF TRENCH BOX OR SHORING SHALL BE PLACED NO LOWER THAN THE TOP OF PIPE.

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 NOT
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 MIN. 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 MIN. 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 21 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. TRENCH WIDTHS BELOW THE BOTTOM OF TRENCH BOX OR SHORING USED FOR TRENCH SUPPORT. BOTTOM OF TRENCH BOX OR SHORING SHALL BE PLACED NO LOWER THAN THE TOP OF PIPE.

TRENCH DETAIL FOR FLEXIBLE CONDUITS
NO SCALE

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REGISTERED
No. 19700338
STATE OF INDIANA
PROFESSIONAL ENGINEER
Signature 10/24/2023 Date

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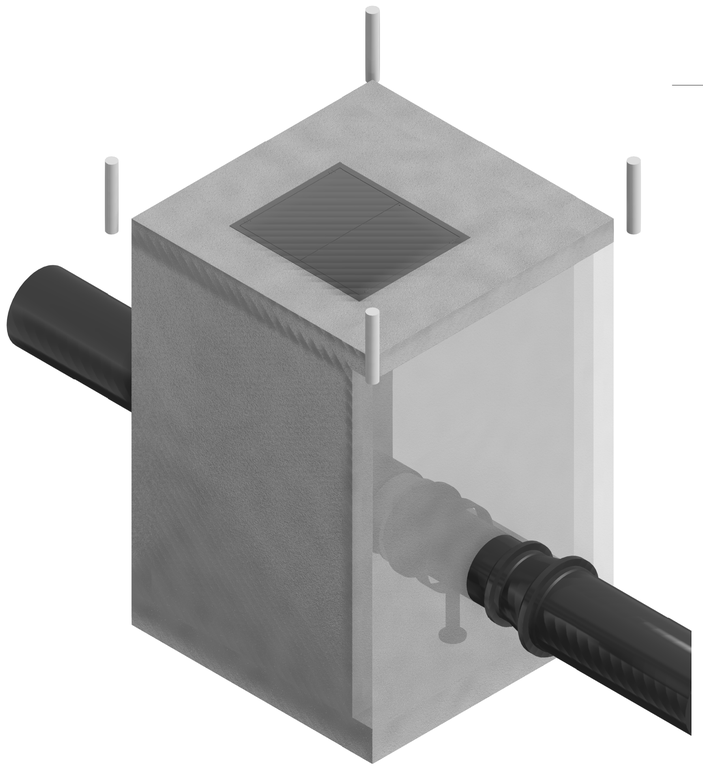

ISOMETRIC
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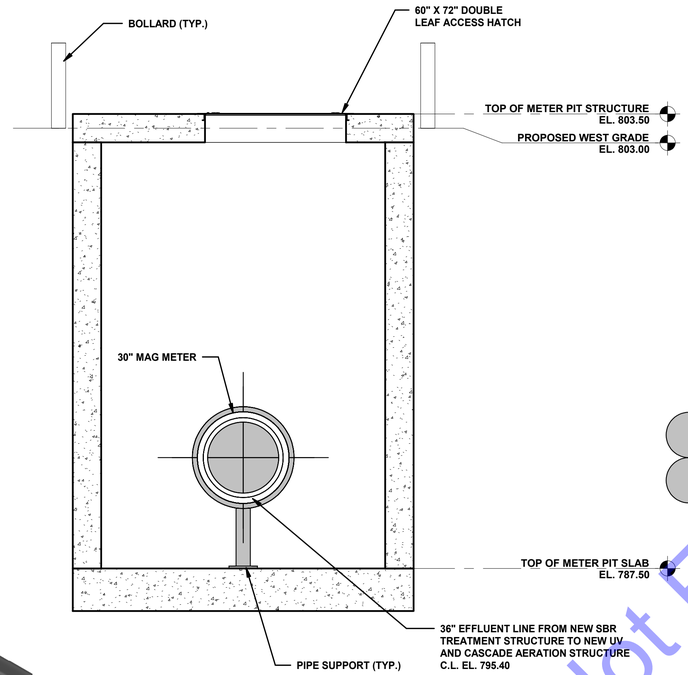
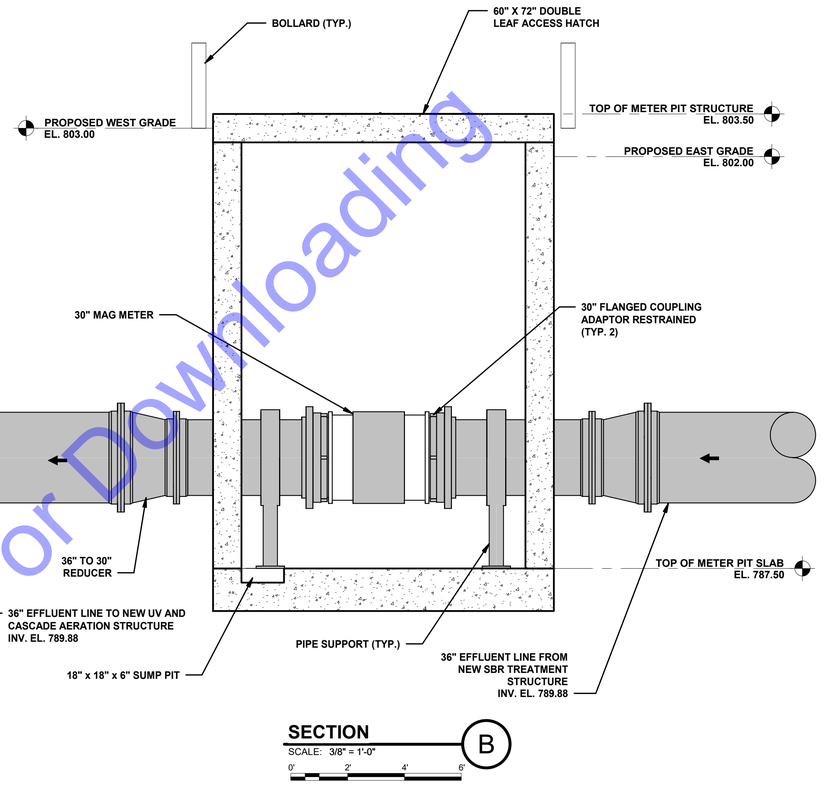
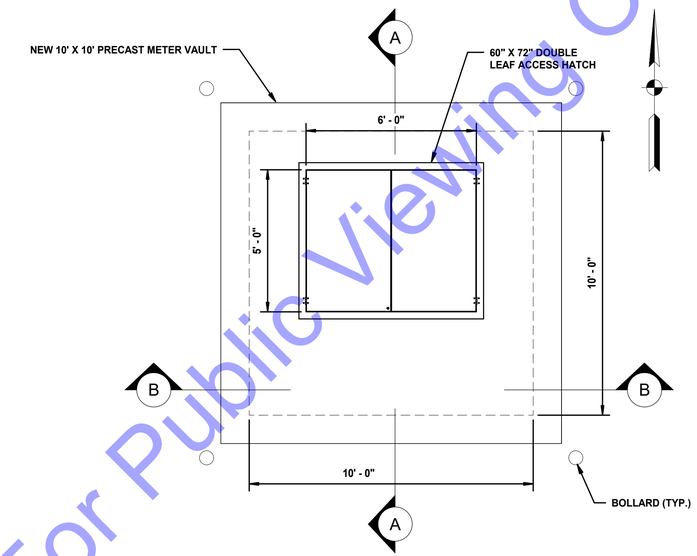


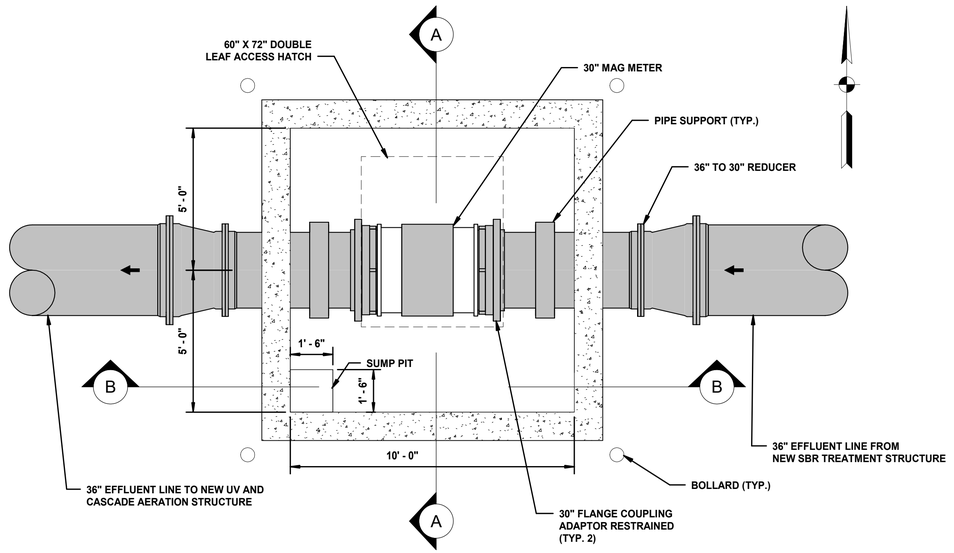
SECTION A
SCALE: 3/8" = 1'-0"
0' 2' 4' 6'



SECTION B
SCALE: 3/8" = 1'-0"
0' 2' 4' 6'



UPPER LEVEL PLAN
SCALE: 3/8" = 1'-0"
0' 2' 4' 6'



LOWER LEVEL PLAN
SCALE: 3/8" = 1'-0"
0' 2' 4' 6'

COMMONWEALTH ENGINEERS, INC.
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OFFICE LOCATIONS IN:
INDIANAPOLIS, IN. (2)
EVANSVILLE, IN.
FORTWAYNE, IN.
CROWN POINT, IN.
BOWLING GREEN, KY.
SOUTHBEND, IN.

CHRIS A. LIMCACO
REGISTERED
No. 19700338
STATE OF INDIANA
PROFESSIONAL ENGINEER
Signature 10/24/2023 Date

TOWN OF NEW PALESTINE
HANCOCK COUNTY, INDIANA

WASTEWATER UTILITY
IMPROVEMENTS PROJECT

DIVISION "A" - MAIN WWTP
IMPROVEMENTS

Indiana811 Know what's below. Call before you dig. 1-800-382-5544 (ITS THE LAW)

No.	Submittal / Revision	By	Date

Designed By:	Drawn By:	Checked By:
CAL	DAN	ACS
Issue Date:	Project No:	Scale:
OCT 2023	S22002	AS SHOWN

NEW MAG METER STRUCTURE DETAILS

Drawing No:
MD7
Sheet: 133 OF 205

Saved: 7/25/2024 9:48:10 AM Current Local File: Autodesk Docs://New Palestine WWTP/NEW UV AND CASCADE AERATION V_23.rvt

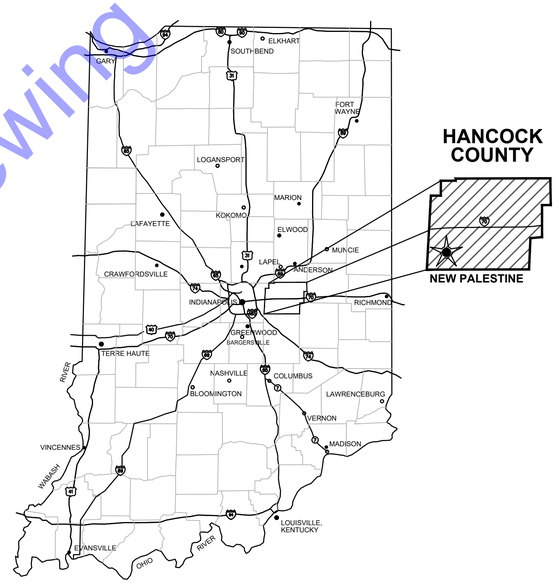
SET NO.

TOWN OF NEW PALESTINE
HANCOCK COUNTY, INDIANA

WASTEWATER UTILITY IMPROVEMENTS PROJECT
DIVISION "A" - WASTEWATER TREATMENT PLANT IMPROVEMENTS - VOLUME II
OCTOBER 2023 / REVISED JANUARY 2024

TOWN COUNCIL

JIM ROBINSON	TOWN MANAGER
BILL NIEMIER	COUNCIL PRESIDENT
TERI REED	MEMBER
ETHAN MAPLE	MEMBER
RYAN HARTLEY	MEMBER
CHAD MOLINDER	MEMBER
YVONNE JONAS	CLERK-TREASURER
KYLER CONNER	WASTEWATER OPERATOR



GENERAL LOCATION MAP

COMMONWEALTH ENGINEERS, INC.™
A wealth of resources to master a common goal.

QA/QC BY : AL STONG — DATE : 10/24/2023

CERTIFIED BY : _____ — DATE : 10/24/2023
CHRIS A. LIMCACO
INDIANA P.E. No. 19700338

CHRIS A. LIMCACO REGISTERED No. 19700338 STATE OF INDIANA PROFESSIONAL ENGINEER

CONTRACT NO. : S22002

File: Z:\SHARED\IN CLIENTS M-Z\NEW PALESTINE\D S22002 WW UTILITY IMPRVS\06 CAD\A CURRENT FILES\1 DRAWINGS\DIV A - WWTP\01-TITLE SHEET.DWG
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GENERAL

1. The structures have 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 RPF and Structural Engineer.
5. 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.
6. 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.
7. The location of sleeves or openings not shown in structural members shall be approved by the Structural Engineer.

FOUNDATIONS

1. Exterior footings shall bear 2'-6" minimum below finish grade and shall bear on undisturbed soil.
2. Foundation and soils related work shall be performed under the direct supervision of a qualified Geotechnical Engineer.
3. Foundation excavations shall be made to plan elevations. The Contractor shall have a qualified Geotechnical Engineer verify that the allowable soil bearing pressure meets or exceeds that assumed for foundation design. 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 as directed by the inspecting Geotechnical Engineer.
   B. Lower the footing to an acceptable soil. Contact the Structural Engineer for potential modifications to the foundation system.
4. 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.
5. 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.
6. 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.
7. Center all column and wall footings under the column or wall above unless otherwise indicated.

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. 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.
7. 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.
8. 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.
9. 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.
10. 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.
11. 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.
12. Place concrete in a manner so as to prevent segregation of the mix. Delay floating and troweling 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).
13. 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).
14. 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.
15. Protect finished concrete surfaces from damage, rain, hail, running water, other injurious effects.
16. 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.
17. Horizontal and vertical joints are not permitted in concrete construction except where indicated.
18. Construction joints and/or contraction joints at locations other than where indicated shall be submitted to the Structural Engineer for approval.
19. 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.
20. Provide 3/4 inch chamfers on all exposed corners of concrete except those abutting masonry.
21. 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.
22. 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	3,000 psi	optional	423 (4.5)	0.58	footings	
B	4,000 psi	optional	517 (5.5)	0.48	mat foundation	crystalline waterproofing admixture
C	4,000 psi	optional	517 (5.5)	0.48	pedestals, foundation walls	crystalline waterproofing admixture
D	4,000 psi	$\leq$ 3%	517 (5.5)	0.48	interior slabs-on-grade	synthetic fibers (1.5 lbs/cys)
E	4,500 psi	6% ± 1.5%	611 (6.5)	0.45	retaining walls, tank structural elevated slabs, columns, beams, walls	crystalline waterproofing admixture
F	4,500 psi	6% ± 1.5%	611 (6.5)	0.40	exterior slabs-on-grade, stoops, curbs, & sidewalks exposed to de-icers	synthetic fibers (1.5 lbs/cys)

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. Synthetic fibers shall be used for temperature and shrinkage reinforcement in concrete slabs-on-grade. Synthetic fibers shall be virgin (non-recycled) nylon or polypropylene fibers conforming to ASTM C1116, Type III. Fibers shall be introduced into the mix at the plant in accordance with the manufacturer's recommendations. The Contractor shall submit the mix design, including the fiber size and quantity, to the Structural Engineer for approval prior to construction. The Contractor shall take adequate measures to manage any difficulty in concrete finishing associated with the use of the fibers.
6. 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.
7. Unless noted otherwise, splicing of reinforcing bars shall conform to the latest edition of ACI 318. Where the length of lap is not indicated, provide a Class "B" lap at tension splices or 30 bar diameter compression laps at compression splices. If the splice type is not defined as tension or compression, provide the splice type that produces the greatest length.
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.

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"

MASONRY

1. Engineered concrete masonry has been designed in accordance with the latest edition of the ACI Building Code Requirements for Masonry Structures (ACI 530/ASCE 5).
2. Concrete masonry construction shall conform to the latest edition of the ACI Specifications for Masonry Structures (ACI 530.1/ASCE 6).
3. Mortar shall be type N for interior non-load bearing walls. For exterior and load bearing walls, mortar shall be type M below grade and type S above grade. Mortar shall conform to the requirements of the latest edition of ASTM C270. Portland Cement-lime without air entrainment shall be used in the mortar mix.
4. Provide standard spacers, etc. as required to prevent reinforcing steel displacement during grout placement.
5. Provide reinforcing steel in vertical cores as indicated. In addition, provide reinforcing steel in vertical cores on each side of all openings and each corner of all walls. Grout cores with reinforcing steel solid.
6. Reinforcing steel lap splices in concrete masonry shall be as indicated in the following table. All splices shall be wired together.

MASONRY REINFORCING STEEL LAP SPLICE SCHEDULE

f'm = 2,000 psi						
BAR SIZE	#3	#4	#5	#6	#7	#8
8" CMU	1'-0"	1'-3"	2'-0"	3'-6"	4'-9"	7'-0"
10" CMU	1'-0"	1'-0"	1'-6"	2'-9"	3'-6"	5'-6"
12" CMU	1'-0"	1'-0"	1'-3"	2'-3"	3'-0"	4'-6"

7. Masonry cores (where specified) and bond beams shall be filled with coarse grout conforming to the requirements of the latest edition of ASTM C476 and having a minimum 28-day compressive strength of 3,000 psi, 3/4 inch maximum aggregate, and an 8 to 11 inch maximum slump.
8. Bearings for beams, lintels, joists, etc. shall be bond beams or hollow masonry units with cores filled solid with grout. The minimum bearing length shall be 8 inches unless otherwise indicated.
9. 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.

STRUCTURAL STEEL

1. Structural steel detailing, fabrication and erection shall conform to the latest editions of the AISC Specification for Structural Steel Buildings, Allowable Stress Design and Plastic Design, and the AISC Code of Standard Practice for Steel Buildings and Bridges.
2. Structural steel shall be shop-painted with a rust inhibiting primer. Steel which will be exposed to weather shall be hot-dip galvanized (G90 finish). All abrasions caused by handling after shop painting shall be touched-up after erection is complete.
3. Design connections not shown in accordance with the latest AISC Specification and Manual of Steel Construction (allowable stress design method). Design simple span non-composite beam connections not shown to support one-half the beam load capacity as given in the AISC Uniform Load Constants for Beams Laterally Supported tables. Connection angles shall be double web angles, 5/16" minimum thickness.
4. Unless otherwise noted, bolted connections for structural steel members shall be bearing-type using 3/4" diameter ASTM A325 high strength bolts with standard 13/16" diameter holes tightened to the snug tight condition. Bolted wind brace connections shall be slip-critical-type (SC) using 3/4" diameter ASTM A325 high strength bolts with oversized 15/16" diameter holes tightened using the turn-of-nut method unless noted otherwise.
5. High strength bolted connections shall conform to the latest edition of the Specification for Structural Joints Using ASTM A325 or A490 Bolts, approved by the Research Council on Structural Connections of the Engineering Foundation. Faying surfaces of slip-critical-type (SC) connections shall meet the minimum requirements for a Class A surface condition (mean slip coefficient not less than 0.33).
6. Welding procedures shall conform to the latest edition of the American Welding Society's (AWS) Structural Welding Codes for: Steel ANSI/AWS D1.1 and Sheet Steel ANSI/AWS D1.3, and Reinforcing Steel ANSI/AWS D1.4.
7. Welded connections using ASTM A572 and A992 steel as a base metal shall be made with E70XX Low Hydrogen electrodes. Unless otherwise noted, other welded connections shall be made with regular E70XX electrodes. Welding shall be performed only where shown and to the extent indicated.
8. Field drilled holes shall be reamed, cleaned and deburred prior to assembly of the connection.
9. Thermal cutting shall preferably be done by machine. Hand thermally cut edges which will be subjected to substantial stress, or which are to have weld metal deposited on them, shall be reasonably free from notches or gouges. Notches or gouges greater than 3/16" that remain from cutting shall be removed by grinding. Re-entrant corners shall be shaped notch-free to a radius of at least 1/2".
10. Paint on surfaces adjacent to joints to be field welded shall be wire brushed to reduce the paint film to a minimum.
11. Surfaces within 2" of any field weld shall be free of materials that would prevent proper welding or produce toxic fumes while welding is being done.
12. Splicing of structural steel members where not detailed is prohibited without the prior approval of the Structural Engineer as to location, type of splice and connection to be made.
13. 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.

STRUCTURAL LUMBER

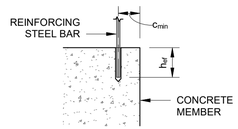
1. Structural lumber shall be detailed, fabricated and erected in accordance with the latest editions of the Timber Construction Manual by the American Institute of Timber Construction (AITC) and the National Design Specification for Wood Construction by the American Forest & Paper Association (ANSI/NFoPA NDS).
2. Bolts, lag screws, nails and other wood fastenings, unless otherwise noted, shall conform to the latest edition of the National Design Specification for Wood Construction. Standard cut washers shall be used between the wood and bolt head and the wood and nut.
3. Joist hangers and connection plates shall be as manufactured by Simpson Strong-Tie Company, Inc. or approved equivalent. Hardware used with PPT wood to be hot-dip galvanized or stainless steel.
4. Except where epoxy injection is specified; bolted, lag screwed, or nailed wood member connections shall be glued using adhesives conforming to APA Specification AFG-01 (PL-400) in accordance with the manufacturer's recommendations.
5. Wood members that are in contact with concrete or masonry or exposed to weather shall be pressure treated with a water borne treatment to a net retention level of 0.3 pcf in accordance with applicable American Wood Preservers' Association latest requirements.
6. Rough sawn timbers shall be treated and finished where specified. Ends exposed to weather shall be treated with CCA.
7. Connections not specifically detailed herein shall be per Table 2304.9.1 of the 2012 International Building Code.

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 type 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. Masonry cores receiving post-installed anchors shall be filled with course grout. Grout must comply with IBC Section 2103.12 or IRC Section R609.1.1, as applicable. Alternatively, the grout must have a minimum compressive strength, when tested in accordance with ASTM C1019, equal to its specified strength, but not less than 2,000 psi. Post-installed anchors shall not be installed in a masonry mortar joints.
7. 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.
8. 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 EQIVALENT
2. STANDARD EMBED DEPTH AND MIN EDGE DISTANCES PROVIDED IN THIS SCHEDULE APPLY AT ALL LOCATIONS UNLESS OTHERWISE NOTED ON SECTIONS AND DETAILS.

PLYWOOD/PERFORMANCE RATED PANELS

1. Plywood and performance rated panels (oriented strand board) shall be detailed, fabricated and erected in accordance with the latest criteria established by the American Plywood Association (APA) including their latest edition of the Plywood Design Specification (and its Supplements).
2. Plywood panels shall be identified with the appropriate trademark of the APA and shall meet the requirements of the latest edition of the U.S. Product Standard PS 1 for Construction and Industrial Plywood. Performance rated panels shall be identified with the appropriate trademark of the APA and shall meet the requirements of the latest edition of the APA PRP-108 Performance Standards and Policies for Structural-Use Panels, or the U.S. Product Standard PS 2 for Wood-Based Structural-Use Panels.
3. Roof panels shall be installed with the long dimension (face grain) across the supports with panels continuous over 2 or more supports (minimum 3 span condition).
4. Stagger panel end joints. End joints shall only occur over a support. Unless recommended otherwise by the panel manufacturer, provide a 1/8" gap between panel ends and edges. Panel edges shall be tongue-and-groove or supported on 2" (nominal) lumber blocking installed between joists.
5. Unless otherwise noted, panels shall be fastened to their supports as follows:
   A. Roof panels (APA Performance Rated Sheathing):

      6" o.c. along supported panel edges and 12" o.c. at intermediate supports, except when support spacing is 48" o.c. or greater, space fasteners at 6" o.c. at all support conditions. Use 6d galvanized common nails for panels less than 1/2" thick and 8d galvanized common nails for panels of greater thickness with 1 1/2" minimum penetration into supporting framing members. Galvanized nails shall be hot-dipped or tumbled.

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JOHN DAVID TAYLOR REGISTERED No. PE19900097 STATE OF INDIANA PROFESSIONAL ENGINEER
Signature 01/26/24 Date

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WASTEWATER UTILITY
IMPROVEMENTS PROJECT

DIVISION "A" - MAIN WWTP
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No.	Submittal / Revision	By	Date

Designed By:	Drawn By:	Checked By:
RGM	MAH	JDT
Issue Date:	Project No:	Scale:
1/26/24	23-177	12" = 1'-0"

GENERAL STRUCTURAL NOTES

Drawing No: **S0-1**

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STEEL DECK

1. Provide and erect roof deck in accordance with the latest edition of the Steel Deck Institute's Specifications and Code of Standard Practice.
2. Steel roof deck and accessories shall be galvanized, aluminized or shop painted with a rust inhibiting primer. Deck which will be exposed to weather shall have one additional finish coat (field applied).
3. Abrasions caused by handling shall be touched-up after erection is complete.
4. Deck manufacturer shall provide all roof deck accessories, including closures, supplementary framing, and sump pans, whether or not such items are detailed in the Contract Documents.
5. Roof deck shall be attached to the structural steel in accordance with the details shown in the plans. Welding shall be performed in accordance with the latest edition of the American Welding Society's Structural Welding Code - Sheet Steel ANSI/AWS D1.3.
6. Field paint puddle welds to roof deck after erection.
7. All deck shall be three or more spans continuous unless otherwise noted.
8. Suspended ceilings, light fixtures, ducts, etc. shall not be supported by the steel roof deck.

STEEL JOISTS

1. Steel bar joists shall be designed, fabricated, erected and braced in accordance with the latest Steel Joist Institute (SJI) specifications and the latest Occupational Safety & Health Administration (OSHA) regulations for open web steel joist erection (Standard 1926.757, Subpart R).
2. Steel joists shall be fabricated in accordance with the design specification shown for each joist on the drawings. Where special design considerations apply, the design specification follows the form:

   DD K SP TL/LL

   where DD indicates the maximum permissible overall joist depth (manufacturer may use a lesser depth if economy dictates), K indicates the joist series, SP identifies the joist as "special", TL indicates the total design load (dead load plus live load) in pounds per lineal foot and LL indicates the design live load in pounds per lineal foot. Deflection due to live load shall be limited to 1/360 of the joist span.
3. The joist supplier shall verify the adequacy of the sizes indicated for all joists with a slope in excess of 1/2 inch/foot and, in addition, those joists subjected to loadings other than uniform gravity loading, such as concentrated loads, snowdrift loads, or continuity forces indicated on the drawings. Wind load moments and forces have been reduced 25% in accordance with the applicable building codes. Deflection due to live load shall be limited to 1/360 of the joist span.
4. Where end anchorages for steel joists are not shown, provide minimum anchorages as required by the SJI specifications.
5. Unless otherwise noted, steel joist end bearing depths shall be 2 1/2" for K-Series and 5" for LH and DLH-Series.
6. Horizontal bridging and diagonal bridging for steel joists shall be located and designed as required by the SJI specifications and the OSHA regulations. Bridging members shall be connected to the joist chords by welding or other mechanical means. The bridging and its connections must be capable of transferring the forces as required by the SJI. The ends of bridging lines terminating at concrete block walls or steel beams shall be securely anchored thereto at top and bottom chords.
7. Hangers and other supports for mechanical, electrical, or plumbing systems shall be located at the intersection of the chord and web members. Concentrated loads in excess of 200 pounds must be approved by the Structural Engineer.
8. Where columns are not framed in at least two directions with solid web structural steel members (beams), the joists ("OSHA joists") at each column line shall be field-bolted to the supporting members during erection. A 6" x 6" vertical stabilizer plate shall be provided on each column between the joist bottom chord angles to stabilize the bottom chord and to brace the joist against rotation during erection. The stabilizer plate shall extend at least 3" below the joist bottom chord and shall have a 13/16" diameter hole for plumbing/guying cable attachment. Do not weld the joist bottom chord angles to the stabilizer plates. Where constructability does not allow a steel joist to be installed at a column, the joist nearest the column on each side shall be field-bolted and stabilized in a similar manner as described above with vertical plates attached to the supporting beams or joist girders.
9. 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 including calculations to the Structural Engineer for review prior to fabrication. Joist bracing as required by the manufacturer shall be shown on these drawings. These shop drawings will be reviewed for design concepts only. The Contractor shall be responsible for all dimensions, accuracy, and fit of work.

METAL-PLATE-CONNECTED WOOD TRUSSES

1. Prefabricated wood trusses shall be detailed, fabricated and erected in accordance with the latest editions of the Timber Construction Manual by the American Institute of Timber Construction (AITC) and the National Design Specification for Wood Construction by the American Forest & Paper Association (ANSI/NFoPA NDS) and the latest criteria established by the Truss Plate Institute (TPI) and the Wood Truss Council of America (WTCA).
2. Temporary and permanent bracing of wood trusses shall be in accordance with the latest edition of the Commentary and Recommendations for Handling, Installing and Bracing Metal Plate Connected Wood Trusses (HIB) by the TPI.
3. Wood roof trusses shall be designed to support the following superimposed loads in addition to the weight of the trusses:

Top Chord Dead Load	10 psf
Top Chord Live Load	25 psf
Bottom Chord Dead Load	10 psf
Bottom Chord Live Load	80 psf
Wind Load (horizontal)	per Indiana Building Code, 2014 Edition
Wind Load (vertical)	per Indiana Building Code, 2014 Edition

4. Deflection due to live load shall be limited to 1/360 of the truss span. For truss cantilevers, the deflection due to live load at the end of the cantilever shall be limited to 1/180 of the cantilever dimension.
5. Truss plates shall be galvanized steel and shall be applied to both faces of the members being connected.
6. Trusses shall conform to the geometry shown. Minimum lumber size for top and bottom chord members shall be 2"x 6" (nominal). Web member size and configuration shall be the option of the fabricator.
7. The truss manufacturer shall prepare detailed working or shop drawings and shall submit one reproducible copy and one blue line copy, including calculations, to the Structural Engineer for review prior to fabrication. These drawings and calculations shall show the design forces in the truss members, the sizes of the truss plates; the lumber species, commercial grade and normal duration design values; required bracing and details necessary to enable the truss manufacturer to fabricate, erect and construct all parts of the work in accordance with the drawings and specifications. These shop drawings will be reviewed for design concepts only. The truss manufacturer shall be responsible for all dimensions, accuracy, and fit of work. The trusses 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.
8. The contractor shall install all permanent truss bracing as shown on the truss manufacturer's shop drawings.

PRESSURE RELIEF VALVES

1. Where shown on the plans, the Contractor shall furnish and install pressure relief valves in the concrete tank mat foundation, which automatically allow the entry of water into the tank to prevent buoyancy instability of the tank when subjected to hydrostatic pressure.
2. Unless noted otherwise, slab mounted pressure relief valves shall be type 367-1544 Floor-Type Pressure Relief Valves, manufactured by Trumbull Manufacturing, Inc., or approved equivalent. Valves shall be 6" diameter, Type 316 cast stainless steel. Floor-type pressure relief valves shall have an integrally cast collar and a removable strainer. The lid shall have locking lugs to prevent separation from the valve body. The length of valve shall be extended using C900 PVC Pipe, having the same outer diameter as ductile iron pipe. The C900 Pipe shall be securely retained by a "Reiber Style, Angled Gasket" inside the casting. O-rings are not acceptable for retaining the C900 PVC Pipe.
3. Seals on both body and lid shall be Neoprene, 40 durometer and be field-replaceable. The surfaces on the body and lid where the seals are installed must be machined to ensure an overall flush and parallel seating surface. Seals shall be the QuadroSeal "wrap-around" design, as provided by Trumbull Manufacturing, that surrounds body and lid on four sides to prevent separation. In addition, seals shall be bonded to body and lid with an adhesive sealant. Designs which rely solely on adhesive are not acceptable. Designs that retain the seal to the lid by means of a screw in the center of the lid are not acceptable.
4. Pressure relief valve covers shall open when the external pressure exceeds internal pressure by approximately 5" of head.
5. Pressure relief valves shall be installed in accordance with the manufacturer's recommendations.
6. A pocket of clean crushed stone approximately ¾" to 2" in diameter shall be placed at the external port of the wall pipe or floor valve. See typical pressure relief valve details for additional information.
7. Upon completion of all work and prior to filling the tanks with water for testing, the pressure relief valves shall be checked to see that they are operating freely and will close securely.
8. Pressure relief valves should be inspected at least on an annual basis, and whenever the valves are accessible. Examine and clean seating surfaces, strainer, and remove any debris from inside the body.

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 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.
2. The Crane / Hoist / Monorail Track System manufacturer shall prepare detailed working or shop drawings to enable fabrication, erection, and construction of all parts of the work in accordance with the drawings and specifications and shall submit one reproducible copy and one blue line copy, including calculations, to the Structural Engineer for review prior to fabrication. These shop drawings shall show the design loads, plans, elevations, sections, connections, required bracing, attachments to other work, and details necessary for Crane / Hoist / Monorail Track System manufacturer to fabricate, erect and construct all parts of the work. These shop drawings will be reviewed for design concepts only. The Crane / Hoist / Monorail Track System manufacturer shall be responsible for all dimensions, accuracy, and fit of work. The Crane / Hoist / Monorail Track System framing 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. The Crane / Hoist / Monorail Track System manufacturer shall submit in a timely manner anchor bolt plans that include anchor bolt location, diameter, and projection as well as maximun column reactions for verification of the foundation design shown in the drawings.

SPECIAL NOTES TO THE OWNER

1. Under normal conditions and for conventional buildings structures such as the subject structure, reinforced concrete will develop cracks. The cracks are due to inherent shrinkage of the concrete, creep, ambient temperature variation, and restraining effects of vertical and other structural elements.
2. The cracks formed are normally cosmetic. The concrete maintains its serviceability and strength requirements. It is possible that a number of hairline cracks, which would normally spread over a wide area, will integrate into a single crack with a width exceeding 0.01 inch. It is emphasized that although special effort is made to reduce the potential causes and number of such cracks, it is not practical to provide total articulation and thereby achieve complete inhibition of all cracks.
3. The majority of these cracks develop within the first three years of service. Cracks which are wider than 0.01 inch may require sealing or epoxy injection.
4. The object of the joints provided in the structure is to allow movement. Movements due to creep and shrinkage may be noticeable at joints up to two years after construction, beyond which movements due to variations in temperature will persist.

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:	
Spread Footings	2500 psf (assumed)
Continuous Wall Footings	2000 psf (assumed)
Unit weight of soil	115 pcf
Equivalent fluid pressure on tank walls	90 pcf
Coefficient of friction between soil and concrete footing	0.30 (assumed)

3. Concrete:

28 day compressive strength (f'c)	See Schedule

4. Masonry:

28 day compressive strength (f'm)	2000 psi

5. 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

6. Structural Steel:

Structural tubing members	ASTM A500, Grade B Fy = 46 ksi
Structural steel pipe members	ASTM A53, Type E or S, Grade B Fy = 35 ksi
Structural steel rolled wide flange W shapes (as an alternate, ASTM A572, Grade 50 may be used)	ASTM A992 Fy = 50 ksi
Structural steel rolled S, M, and HP shapes & channels	ASTM A36
Structural steel rolled plates & angles	ASTM A36
All other members	ASTM A36
Connection bolts	ASTM A325N
Anchor bolts	ASTM A36

7. Structural Lumber (surface dry, used at 19% moisture content):

All other members	Southern Pine, No. 2
Truss web member reinforcement	Southern Pine, No. 2
Truss top chord reinforcement	Southern Pine, No. 1 Dense
Bolts/Lag Screws	ANSI/ASME B18.2
Nails	FF-N-105B

8. Plywood/Performance Rated Panels:

Roof:	
Span Rating	32/16
Thickness	5/8"
Exposure	1
IBC Grade	2-M-W

9. Non-shrink grout:

28 day compressive strength	5,000 psi

10. Live loads:

Roof:	25 psf with drift considerations
Floor:	100 psf

11. Live Load Deflection Limitation:

Roof	L/360

12. Risk Category: III
13. Wind loads:

Basic wind speed (3-second gust)	120 mph
Importance factor, Iw	1.0
Exposure	C
Enclosure	
Electrical Building	Enclosed
Chemical Feed Building	Partially Enclosed

14. Seismic loads:

Seismic importance factor, Ie	1.25
Mapped Spectral Response Acceleration at Short Periods, Ss	15.1% g
Mapped Spectral Response Acceleration at 1 Second, S1	8.3% g
Site Class	D
Design Spectral Response Acceleration at Short Periods, Sds	16.1% g
Design Spectral Response Acceleration at 1 Second, Sd1	13.3% g
Seismic Design Category	C

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1/26/24	23-177	12" = 1'-0"

GENERAL STRUCTURAL NOTES

Drawing No: **S0-2**

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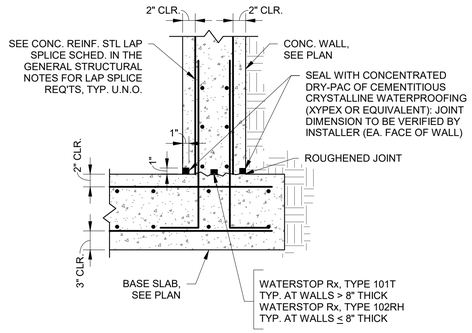
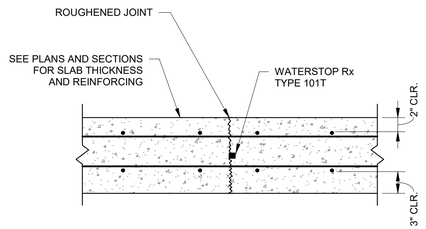
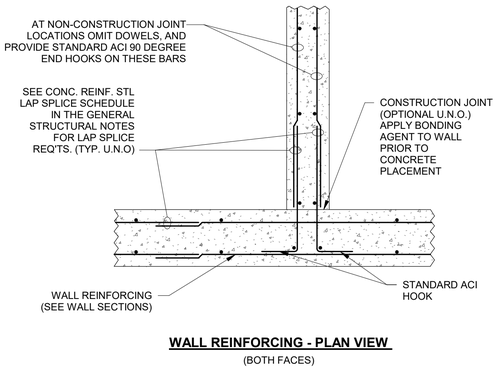


8 S0-3 TYP. WALL TO BASE SLAB

1" = 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.

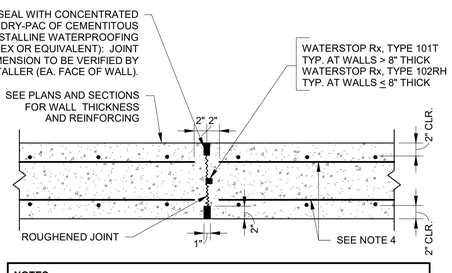


WALL REINFORCING - PLAN VIEW

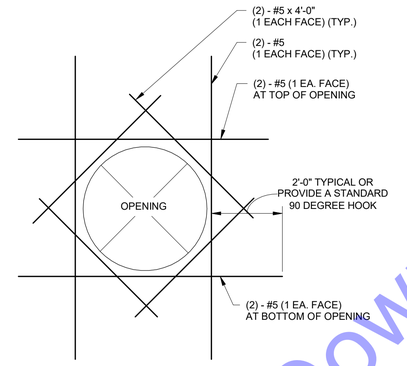
(BOTH FACES)

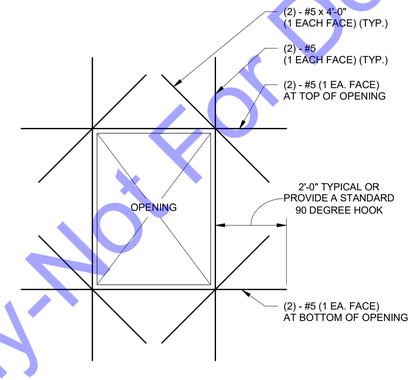
5 S0-3 TYP. CONC. WALL INTERSECTION

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 75 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.

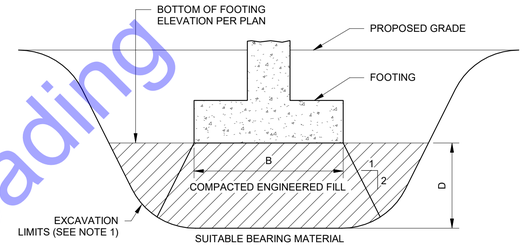




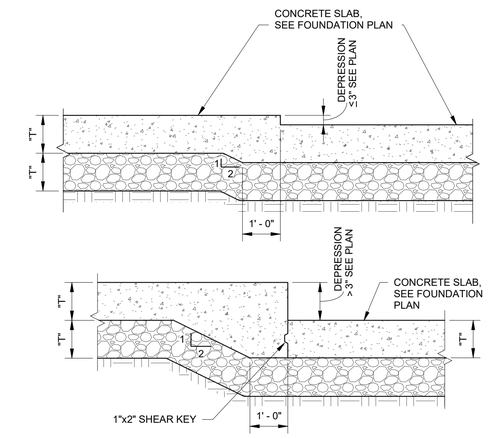
NOTES:
1. WHERE VERTICAL REINFORCING IS INTERRUPTED BY THE OPENING, ONE HALF OF THE INTERRUPTED STEEL SHALL BE ADDED TO EACH SIDE OF THE OPENING. USE FULL LENGTH BARS.
2. THIS DETAIL APPLIES TO ALL OPENINGS IN CONCRETE WALLS UNLESS DETAILED OTHERWISE ON THE PLANS.

1 S0-3 TYP. FOOTING IN UNDERCUT AREA

1" = 1'-0"

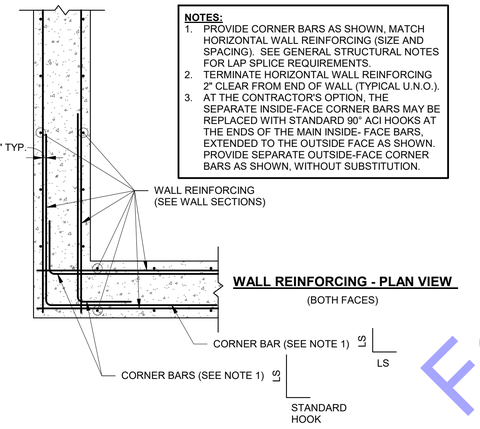


NOTES:
1. DEWATER EXCAVATION AS REQUIRED.
2. WIDTH OF EXCAVATION SHALL EQUAL WIDTH OF FOOTING PLUS DEPTH OF UNDERCUT (W=B+D).



9 S0-3 TYP. BASE SLAB CONSTRUCTION JT.

1" = 1'-0"



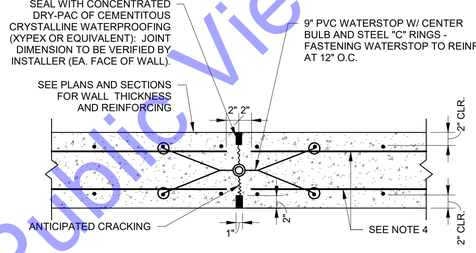
NOTES:
1. PROVIDE CORNER BARS AS SHOWN, MATCH HORIZONTAL WALL REINFORCING (SIZE AND SPACING). SEE GENERAL STRUCTURAL NOTES FOR LAP SPLICE REQUIREMENTS.
2. TERMINATE HORIZONTAL WALL REINFORCING 2" CLEAR FROM END OF WALL (TYPICAL U.N.O.).
3. AT THE CONTRACTOR'S OPTION, THE SEPARATE INSIDE-FACE CORNER BARS 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)

10 S0-3 TYPICAL CONCRETE WALL CORNER REINFORCEMENT - PLAN VIEW

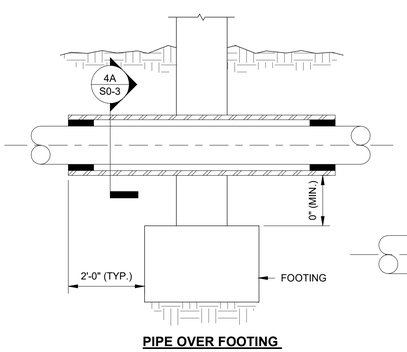
3/4" = 1'-0"



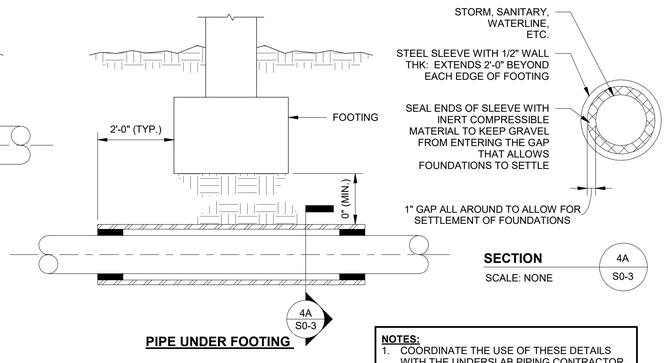
NOTES:
1. CONTRACTION JOINTS SHALL BE LOCATED AT JOINTS MARKED CT.
2. WATERSTOPS AND DRY-PAC REQUIRED AT WATER RETAINING WALLS ONLY.
3. UNLESS NOTED OTHERWISE, CONTRACTION JOINT SPACING NOT TO EXCEED 25 FEET.
4. 50% OF THE HORIZ. REINF. STEEL SHALL BE CONTINUOUS THRU JOINT. HORIZONTAL BARS THAT STOP 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 S0-3 TYP. WALL CONTRACTION JOINT

1" = 1'-0"



PIPE OVER FOOTING



SECTION 4A S0-3

SCALE: NONE

PIPE UNDER FOOTING

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.

4 S0-3 TYP. UNDERGROUND SERVICE PIPE DETAIL AT WALL FOUNDATION

1/8" = 1'-0"

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Signature 01/26/24 Date

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TYPICAL STRUCTURAL DETAILS - CONCRETE - 01

Drawing No: **S0-3**

Sheet: 136 OF 205

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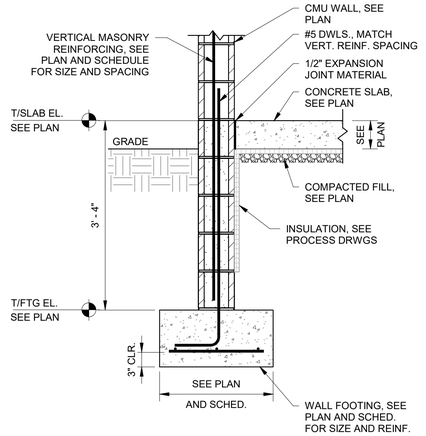
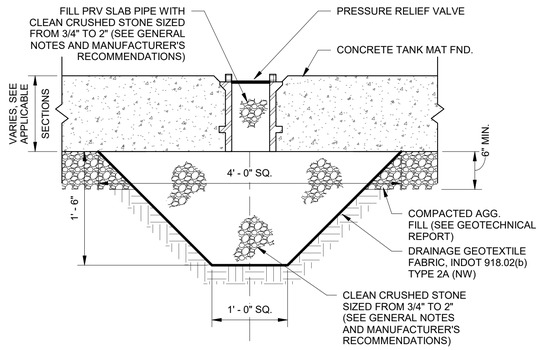
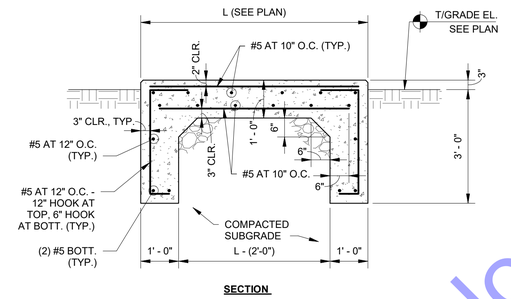


10 S0-4 **TYP. MASONRY WALL FOOTING**
3/4" = 1'-0"



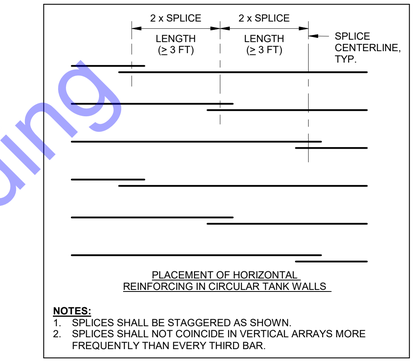
7 S0-4 **TYP. FLOOR MOUNTED PRESSURE RELIEF VALVE**
1" = 1'-0"



SECTION

NOTES:
1. SEE PROCESS DRAWINGS FOR EQUIPMENT PAD LOCATION.
2. TOP OF EQUIPMENT PAD SHALL BE FLAT AND LEVEL.
3. COORDINATE EQUIPMENT PADS WITH THE SELECTED MECHANICAL/ELECTRICAL CONTRACTORS.
4. DIMENSIONS OF PAD SHALL EXTEND 36" AROUND PERIMETER OF NEW GENERATOR

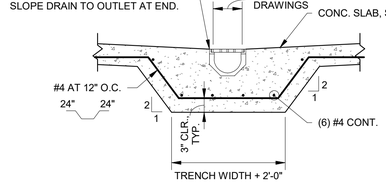
4 S0-4 **TYP. GENERATOR PAD**
1/2" = 1'-0"



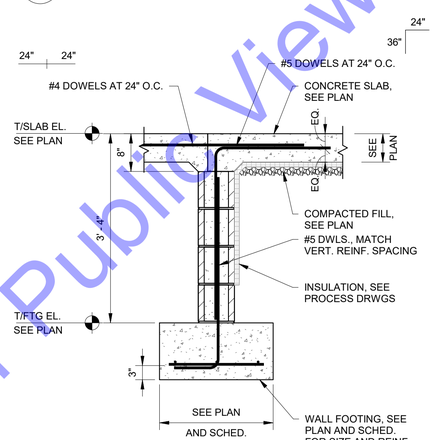
PLACEMENT OF HORIZONTAL REINFORCING IN CIRCULAR TANK WALLS

NOTES:
1. SPLICES SHALL BE STAGGERED AS SHOWN.
2. SPLICES SHALL NOT COINCIDE IN VERTICAL ARRAYS MORE FREQUENTLY THAN EVERY THIRD BAR.

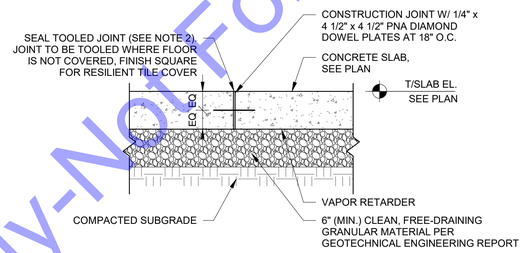
1 S0-4 **HORIZONTAL BAR SPLICE DETAIL**
1" = 1'-0"



8 S0-4 **TYP. TRENCH DRAIN DETAIL**
3/4" = 1'-0"

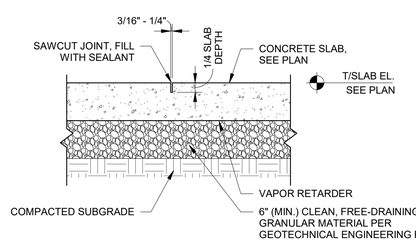


9 S0-4 **TYP. FOUNDATION AT DOOR**
3/4" = 1'-0"



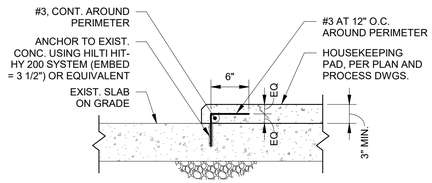
NOTES:
1. INSTALL PNA DIAMOND DOWEL PLATES PER MANUFACTURER'S RECOMMENDATIONS.
2. PRIOR TO SEALING JOINT, PREPARE JOINT PER SEALANT MANUFACTURER'S RECOMMENDATIONS.
3. CONSTRUCTION JOINTS SHALL ONLY OCCUR AT LOCATIONS INDICATED.
4. APPLY LIQUID BOND BREAKER TO FULL DEPTH OF JOINT.

5 S0-4 **TYP. SLAB ON GRADE CONSTRUCTION JOINT**
1" = 1'-0"



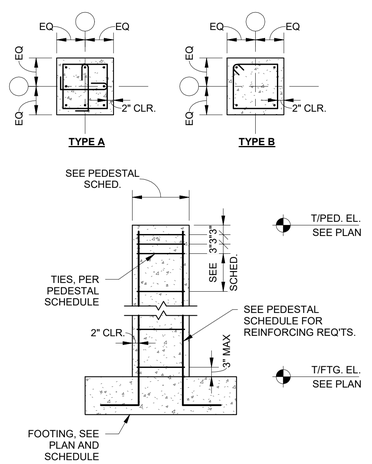
NOTES:
1. SAWCUT JOINT AS SOON AS POSSIBLE WITHOUT RAVELING THE EDGE OF CONCRETE.
2. PRIOR TO SEALING JOINT, PREPARE JOINT PER SEALANT MANUFACTURER'S RECOMMENDATIONS.

6 S0-4 **TYP. SLAB ON GRADE CONTRACTION JOINT**
1" = 1'-0"



NOTES:
1. CONTRACTOR - VERIFY LOCATION OF THE HOUSEKEEPING PADS WITH THE PROCESS DRAWINGS PRIOR TO POURING CONCRETE.
2. CONTRACTOR - VERIFY REQUIRED SIZE AND HEIGHT OF THE HOUSEKEEPING PADS WITH THE SELECTED EQUIPMENT MANUFACTURER PRIOR TO POURING CONCRETE.

2 S0-4 **TYP. HOUSEKEEPING PAD**
1" = 1'-0"



3 S0-4 **TYP. PEDESTAL DETAIL**
1/2" = 1'-0"

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TYPICAL STRUCTURAL DETAILS - CONCRETE - 02

Drawing No:
S0-4
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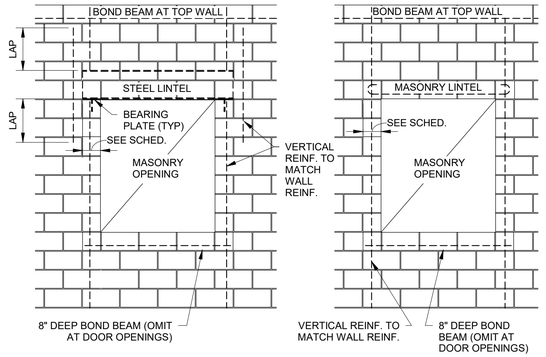
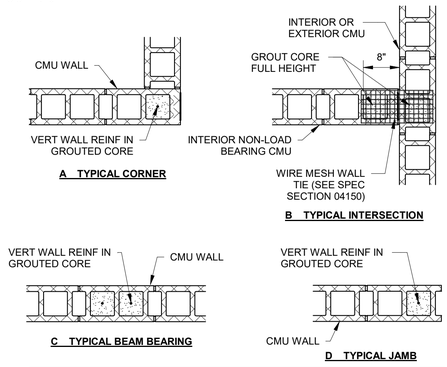


10 S0-5 TYP. WALL OPNG. REINFORCING

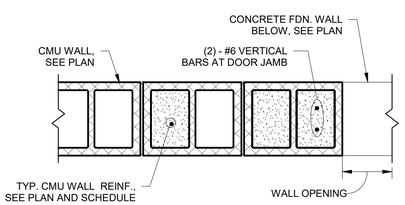
3/8" = 1'-0"



NOTES:
1. REINFORCING SHOWN IS IN ADDITION TO REINFORCING SHOWN ON PLANS AND SPECIAL DETAILS.
2. REINFORCING TO BE THE SAME SIZE AS ADJACENT WALL REINFORCING AS INDICATED ON PLANS.
3. TYPICAL DETAILS APPLY TO ALL EXTERIOR WALLS AND INTERIOR LOAD BEARING WALLS.

11 S0-5 TYP. VERTICAL MASONRY WALL REINF.

3/4" = 1'-0"

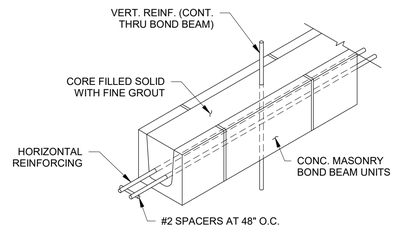


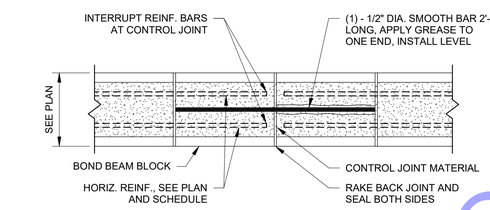
12 S0-5 TYP. MASONRY JAMB REINFORCEMENT DETAIL

1" = 1'-0"

7 S0-5 TYP. MASONRY BOND BEAM

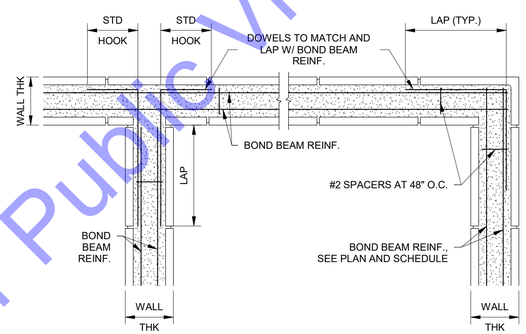
1 1/2" = 1'-0"





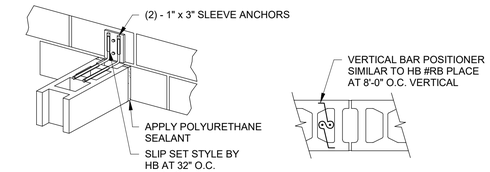
8 S0-5 BOND BEAM DETAIL

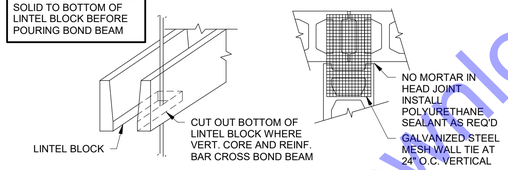
1" = 1'-0"



9 S0-5 TYP. BOND BEAM REINFORCEMENT

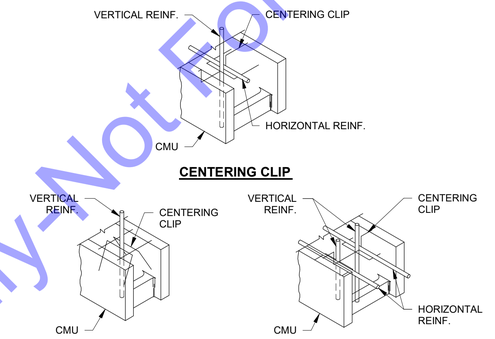
1" = 1'-0"





4 S0-5 MASONRY DETAILS

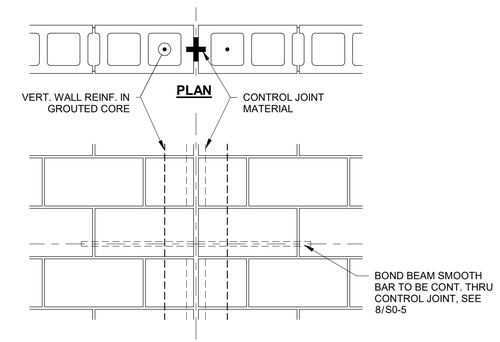
1" = 1'-0"



NOTE:
1. CAGING DEVICES AND CENTERING CLIPS SHALL BE FORMED FROM #9 HARD WIRE; SPOT WELDED AND GALVANIZED.

5 S0-5 TYP. MASONRY REINFORCING CLIPS

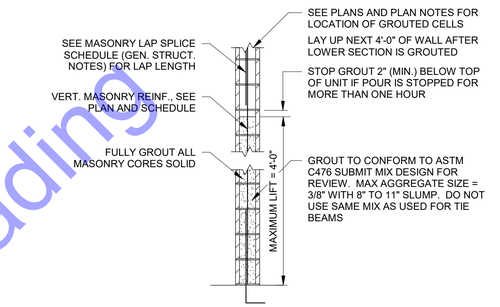
1" = 1'-0"



NOTES:
1. BOND BEAM REINF. SHALL NOT BE LAPPED WITHIN 8'-0" OF CONTROL JOINT.
2. HORIZONTAL JOINT REINF. SHALL BE DISCONTINUOUS AT CONTROL JOINTS.

6 S0-5 TYP. MASONRY CONTROL JOINT

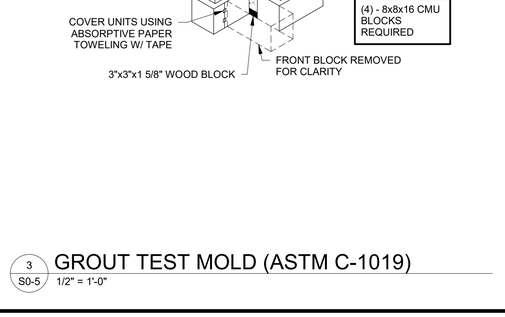
1" = 1'-0"



NOTES:
1. DO NOT GROUT UNTIL MORTAR HAS SET SUFFICIENTLY TO WITHSTAND THE PRESSURE OF THE GROUT. WAIT NOT LESS THAN 24 HOURS.

1 S0-5 LOW LIFT GROUTING DETAIL

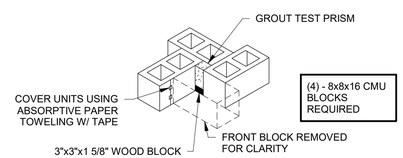
1/2" = 1'-0"



NOTES:
1. DO NOT GROUT UNTIL MORTAR HAS SET SUFFICIENTLY TO WITHSTAND THE PRESSURE OF THE GROUT. WAIT NOT LESS THAN 24 HOURS.

2 S0-5 HIGH LIFT GROUTING DETAIL

1/2" = 1'-0"



3 S0-5 GROUT TEST MOLD (ASTM C-1019)

1/2" = 1'-0"

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TYPICAL STRUCTURAL DETAILS - MASONRY - 01

Drawing No: **S0-5**

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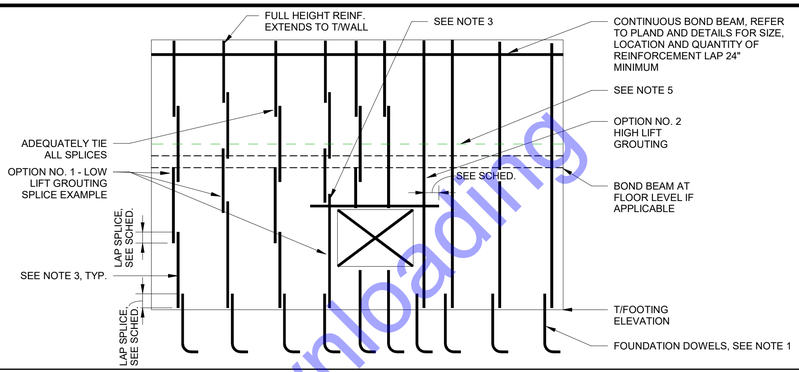

NOTES:

1. VERTICAL WALL REINFORCING SHALL ALIGN WITH VERTICAL FOUNDATION DOWELS. FOUNDATION DOWELS SPACING SHALL MATCH THE VERTICAL REINF. SPACING (SEE PLAN AND MASONRY WALL REINFORCING SCHEDULE) IN CENTER OF C.M.U. WALL WITH A.C.I. STANDARD HOOK.
2. FOR LINTEL REINFORCEMENT, REFER TO C.M.U. LINTEL SCHEDULE FOR SIZE, LOCATION AND QUANTITY OF REINFORCEMENT.
3. SPLICES IN ADJACENT BARS SHALL BE STAGGERED AND ARRANGED SO THAT NOT MORE THAN 1/2 OF THE TOTAL NUMBER OF BARS ARE SPLICED AT ANY ONE HEIGHT. VERTICAL REINFORCING BARS MAY BE SPLICED IN 6' -0" TO 8' - 0" LENGTHS.
4. HORIZONTAL WALL REINFORCING SHALL BE STANDARD TRUSS TYPE AT 16" O.C. ABOVE AND 8" O.C. BELOW GRADE, UNLESS NOTED OTHERWISE.
5. EITHER LOW LIFT (OPTION NO. 1) OR HIGH LIFT (OPTION NO. 2) GROUTING TECHNIQUE MAY BE USED AT CONTRACTOR'S OPTION.

1 / S0-6 TYP. MASONRY WALL REINFORCING DETAIL

3/4" = 1'-0"

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TYPICAL STRUCTURAL DETAILS - MASONRY - 02

Drawing No: **S0-6**

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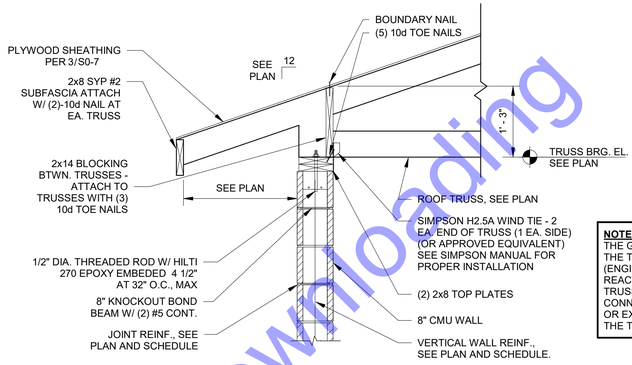


NOTE:
THE GENERAL CONTRACTOR SHALL REVIEW THE TRUSS MANUFACTURERS CALCULATIONS (ENGINEERING DATA SHEETS) FOR UPLIFT REACTIONS AT EACH SUPPORT AT EACH TRUSS AND VERIFY THAT THE TRUSS CONNECTORS CALLED OUT ON PLANS MEET OR EXCEED THE UPLIFT REACTIONS FROM THE TRUSS MANUFACTURER.

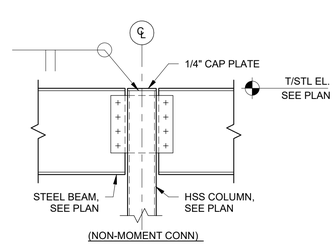
1 S0-7 WALL SECTION
3/4" = 1'-0"

2 S0-7 WALL SECTION
3/4" = 1'-0"

SINGLE SHEAR PLATE BEAM CONNECTION SCHEDULE (SHOP WELDED, FIELD BOLTED)

BEAM SIZE (SEE PLAN)	NO. OF 3/4" DIA. A325-N BOLTS	THRU-PLATE THICKNESS (36 KSI), in.	FILLET WELD SIZE (E70XX), in.	MAXIMUM ALLOWABLE END REACTION, KIPS	LENGTH (L), in.
W8, W10	2	5/16"	1/4"	8.2	6
W12, W14	3	3/8"	1/4"	16.3	9
W16, W18	4	3/8"	1/4"	26.1	12
W21	5	3/8"	5/16"	36.3	15
W24	6	3/8"	5/16"	46.3	18
W27	7	3/8"	5/16"	56.4	21

NOTES:
1. USE THRU PLATE AT STEEL TUBE OR PIPE COLUMNS FOR BEAMS W21 AND LARGER.
2. FOR BEAMS W30 OR LARGER, FABRICATOR SHALL DESIGN THE SHEAR CONNECTION BASED ON THE REACTION SHOWN ON THE PLAN.
3. SEE SCHEDULE ABOVE FOR NUMBER OF BOLTS (3" GA).



5 S0-7 BEAM-TO-COLUMN SCHEDULE
3/4" = 1'-0"

A325 BOLT SCHEDULE FOR SINGLE SHEAR PLATE CONNECTIONS

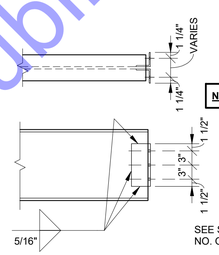
END REACTION	NO. OF BOLT LINES	TOTAL NO. OF BOLTS
0 thru 8.2 kips	2	2- 3/4" DIA.
8.2 thru 16.3 kips	3	3- 3/4" DIA.
16.3 thru 26.1 kips	4	4- 3/4" DIA.
26.1 thru 36.3 kips	5	5- 3/4" DIA.
36.3 thru 46.3 kips	6	6- 3/4" DIA.
46.3 thru 56.4 kips	7	7- 3/4" DIA.

NOTES:
1. VALUES SHOWN ARE APPLICABLE FOR SINGLE SHEAR PLATE CONNECTIONS
2. SEE PLAN FOR END REACTIONS
3. ALL PLATES SHALL BE 3/8" THICK (U.N.O.)
4. NUMBER OF FASTENERS FOR LOADS GREATER THAN 56.4 KIPS SHALL BE BY STEEL SUPPLIER.

A325 BOLT SCHEDULE FOR DOUBLE ANGLE CONNECTIONS

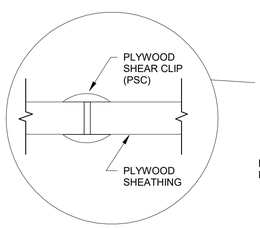
END REACTION	NO. OF BOLT LINES	TOTAL NO. OF BOLTS	TOTAL LENGTH OF ANGLE
0 thru 37.1 kips	2	4- 3/4" DIA.	6"
37.1 thru 55.7 kips	3	6- 3/4" DIA.	9"
55.7 thru 74.2 kips	4	8- 3/4" DIA.	12"
74.2 thru 92.8 kips	5	10- 3/4" DIA.	15"
92.8 thru 111 kips	6	12- 3/4" DIA.	18"

NOTES:
1. SEE PLAN FOR END REACTIONS
2. BOLT PITCH 3", VERTICAL EDGE DIST. 1 1/2" (U.N.O.)
3. VALUES SHOWN ARE APPLICABLE TO DBL. ANGLE CONNECTIONS (WHERE DESIGNATED)
4. ALL ANGLES SHALL BE L3x3x3/8 (U.N.O.)

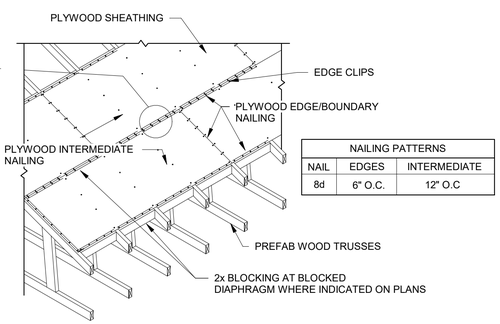


NOTE: FABRICATOR MAY ADJUST

4 S0-7 STEEL BEAM CONNECTION SCHEDULE
3/4" = 1'-0"



SPAN RATING	PLYWOOD THICKNESS	SPAN (IN)	# OF PSC
24/0	3/8", 7/16"	UP TO 24	1
32/16	15/32" 1/2", 5/8"	UP TO 32	1
40/20	19/32" 5/8", 3/4"	UP TO 40	1
48/24	3/4"	UP TO 48	2



NAILING PATTERNS		
NAIL	EDGES	INTERMEDIATE
8d	6" O.C.	12" O.C

3 S0-7 ROOF SHEATHING DETAIL
1/2" = 1'-0"

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TYPICAL STRUCTURAL DETAILS - FRAMING - 01

Drawing No:
S0-7
Sheet: 140 OF 205

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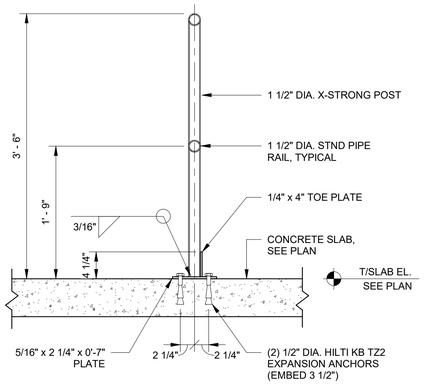
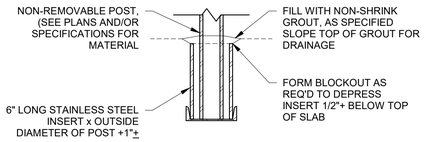


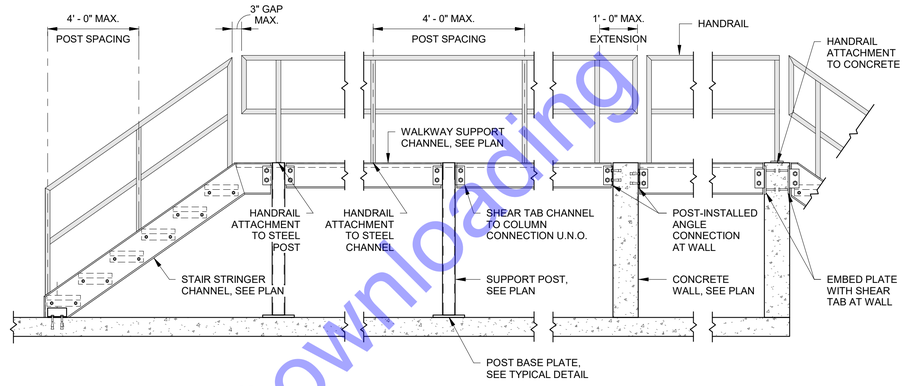
HANDRAIL SECTION - CONCRETE ATTACHMENT

8 / S0-8 — 1" = 1'-0"



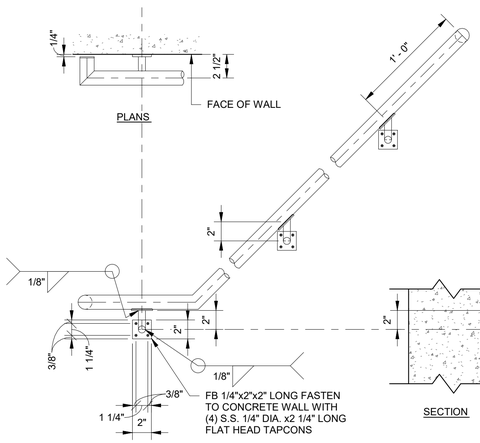
TYP. EMBEDDED MOUNTING

5 / S0-8 — 1" = 1'-0"



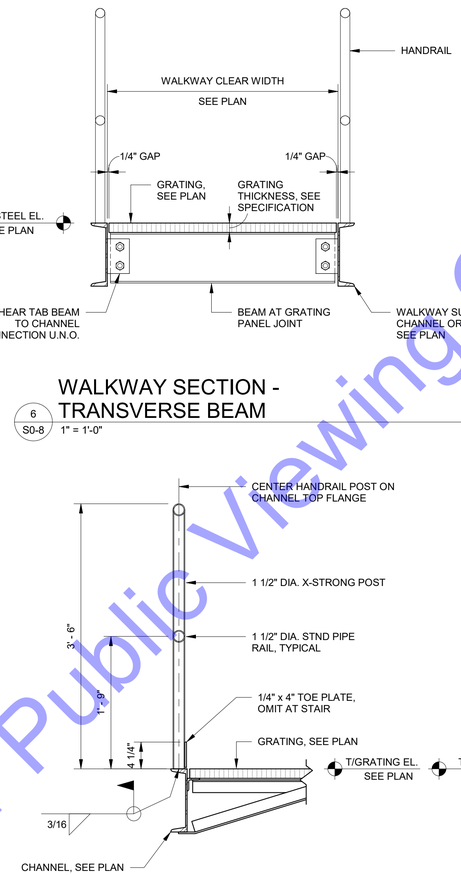
TYP. STAIR AND WALKWAY LAYOUT

1 / S0-8 — 1/2" = 1'-0"



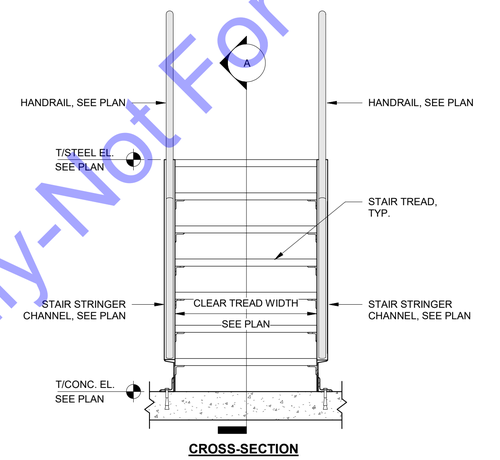
TYP. HANDRAIL DETAIL

9 / S0-8 — 1 1/2" = 1'-0"



WALKWAY SECTION - TRANSVERSE BEAM

6 / S0-8 — 1" = 1'-0"



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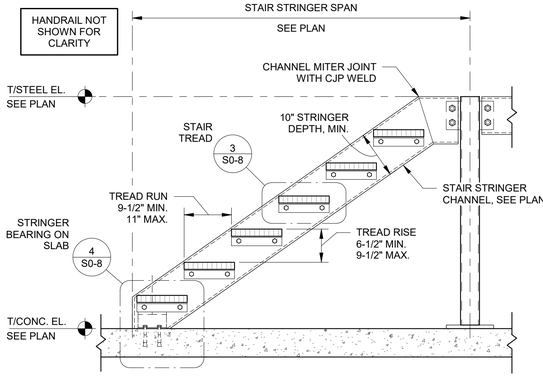
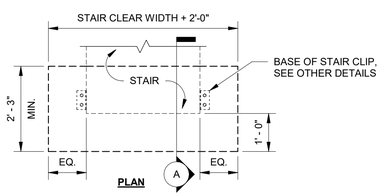


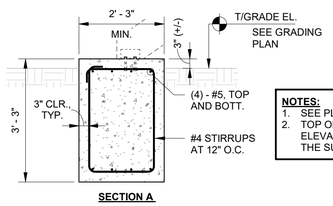
SECTION A

TYP. STAIR DETAIL

2 / S0-8 — 3/4" = 1'-0"



PLAN



SECTION A

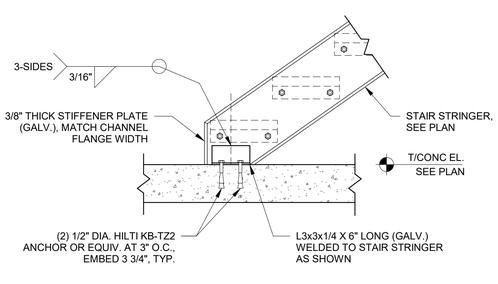
NOTES:
1. SEE PLAN FOR STAIR LOCATIONS.
2. TOP OF STAIR LANDING FOUNDATION ELEVATION SHALL BE SET 3" (+/-) ABOVE THE SURROUNDING GRADE ELEVATION.

TYP. EXTERIOR STAIR LANDING FOUNDATION

10 / S0-8 — 1/2" = 1'-0"

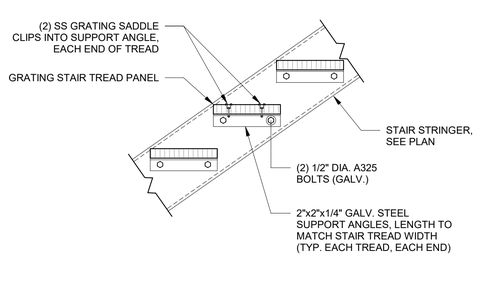
HANDRAIL SECTION - WALKWAY ATTACHMENT

7 / S0-8 — 1" = 1'-0"



SECTION

4 / S0-8 — 1" = 1'-0"



SECTION

3 / S0-8 — 1" = 1'-0"

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TYPICAL STRUCTURAL DETAILS - STAIRS - 01

Drawing No: **S0-8**

Sheet: 141 OF 205

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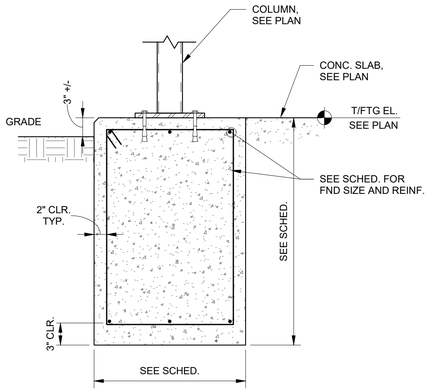
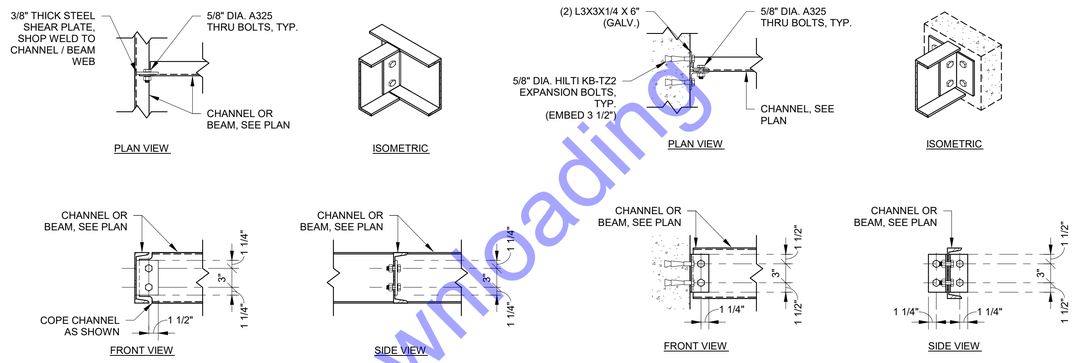
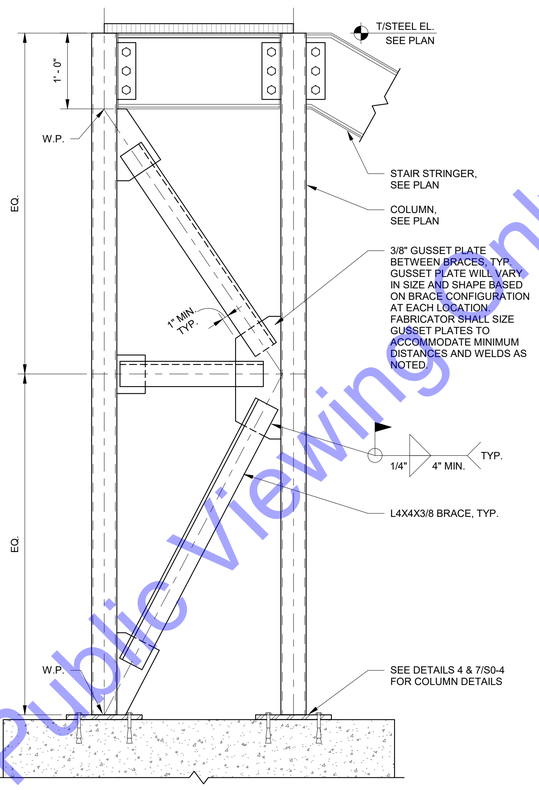


6 S0-9 TYP. STAIR COLUMN FND
1" = 1'-0"

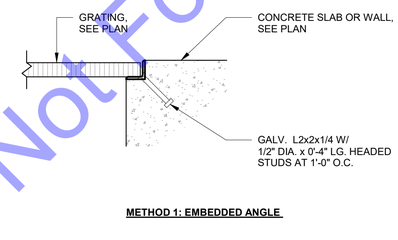


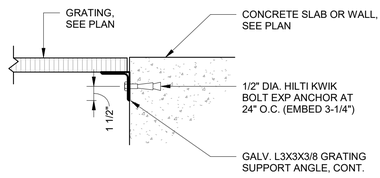
2 S0-9 TYP. CHANNEL TO CHANNEL CONNECTION - SHEAR PLATE
1" = 1'-0"

1 S0-9 TYP. CHANNEL TO WALL POST-INSTALLED CONNECTION
1" = 1'-0"



7 S0-9 TYP. STAIR COLUMN BRACING
1" = 1'-0"

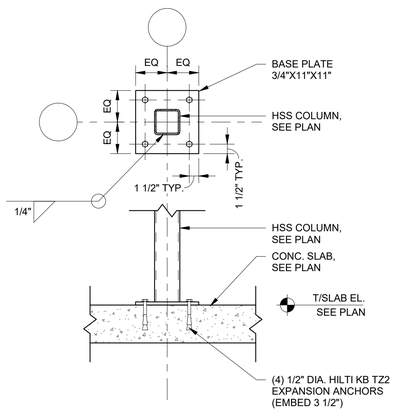




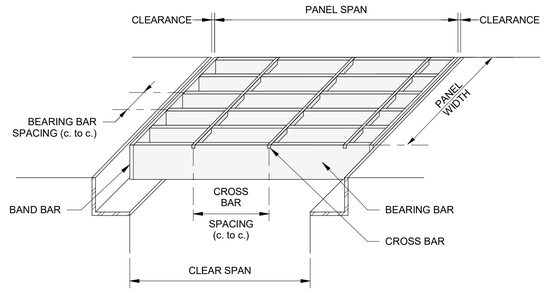
NOTE: THIS METHOD CAN ONLY BE USED WITH GRATING IS LOCATED AT TOP OF WALL OR SLAB

NOTE:
1. CONTRACTOR'S OPTION: UNLESS OTHERWISE NOTED ON PLANS, GRATING SUPPORT CAN BE PROVIDED BY ANY ONE OF THESE METHODS WHERE GRATING EDGE IS SUPPORTED BY CONCRETE SLAB OR WALL.
2. SEE PROCESS DRAWINGS FOR LIMITS OF GRATING SUPPORT

3 S0-9 TYP. GRATING SUPPORT AT CONCRETE SLAB OR WALL
1 1/2" = 1'-0"



5 S0-9 SECTION
1" = 1'-0"



4 S0-9 TYP. GRATING PANEL
3" = 1'-0"

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TYPICAL STRUCTURAL DETAILS - STAIRS - 02

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S0-9
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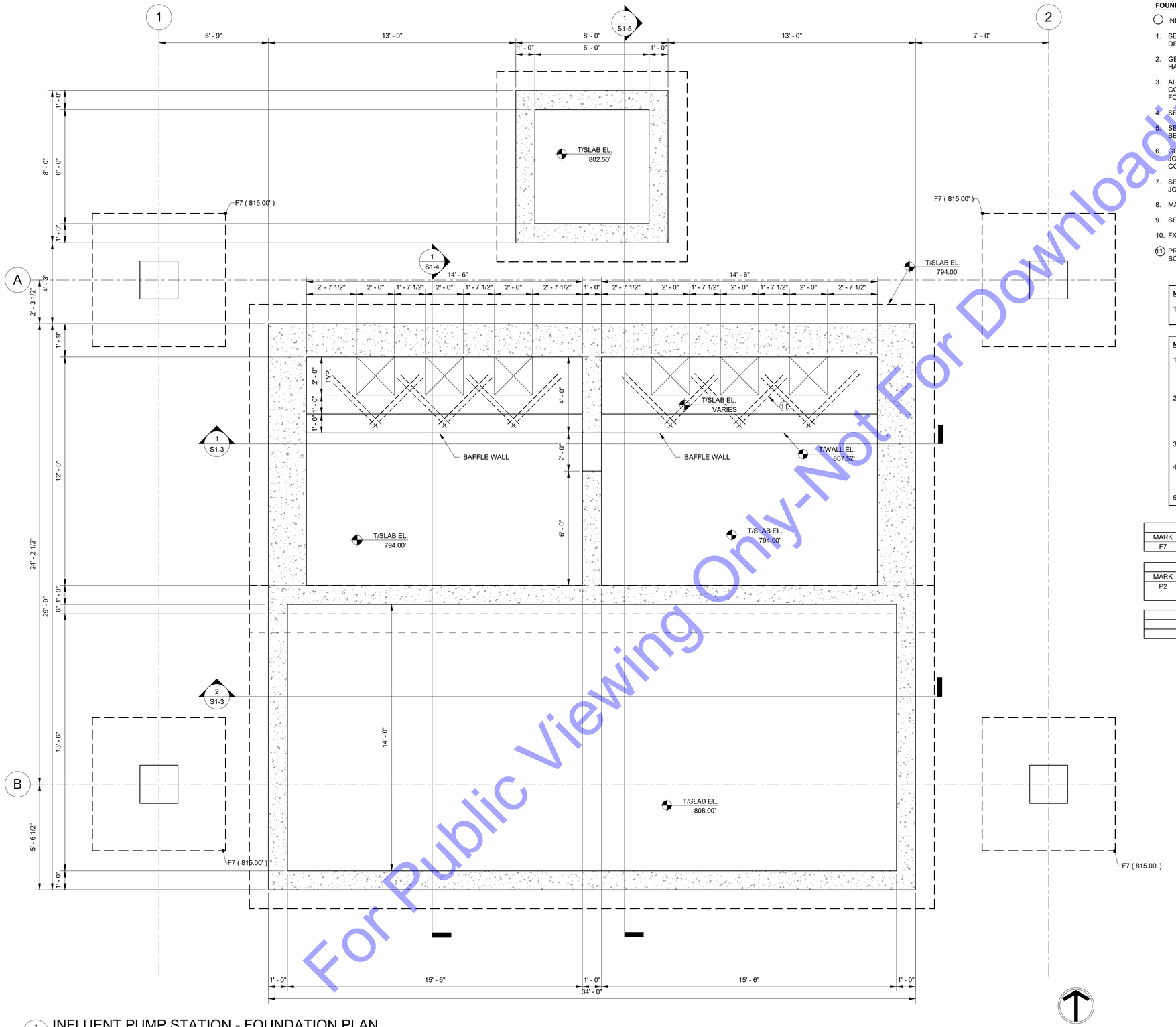

1 S1-1 INFLUENT PUMP STATION - FOUNDATION PLAN

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. FX (XXX.XX') DENOTES FOOTING MARK AND ELEVATION, SEE SCHEDULE.

(11) PROVIDE (2) #5 BARS AT 4'-0" LONG AT 3" O.C. PLACED 2" CLEAR FROM CORNERS, TOP AND BOTTOM, IN SLAB.

NOTE:

1. IF THE RESERVOIR WILL BE TESTED FOR WATER LEAKS WITHOUT THE TOP SLAB, THEN THE WALLS SHALL HAVE TEMPORARY BRACING.

NOTE - BACKFILL BEHIND CONCRETE WALLS:

1. THE MAXIMUM PERMISSIBLE HEIGHT THE CONCRETE WALLS CAN BE BACKFILLED WITHOUT BRACING BEFORE THE TOP SLAB IS IN PLACE SHALL BE 6-FT. THE CONCRETE WALLS SHALL BE ALLOWED TO CURE AT LEAST 7 DAYS WITH A MINIMUM CONCRETE COMPRESSIVE STRENGTH OF 3,000 PSI.
2. THE TOP SLAB SHALL BE IN PLACE PRIOR TO FINISHING THE REST OF THE BACKFILLING BEHIND WALLS ABOVE THE 6-FT LIMIT UNLESS WALL BRACING IS PROVIDED. THE CONCRETE WALLS SHALL HAVE ATTAINED THE DESIGN MINIMUM CONCRETE COMPRESSIVE STRENGTH OF 3,000 PSI PRIOR TO FINISHING THE REST OF THE BACKFILLING ABOVE THE 6-FT LIMIT.
3. AFTER THE TOP SLAB IS IN PLACE, BACKFILL SHALL BE PLACED SIMULTANEOUSLY ON OPPOSING SIDES OF THE RESERVOIR STRUCTURE WHILE BACKFILLING.
4. 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.
5. SEE THE GEOTECHNICAL REPORT FOR BACKFILL COMPACTION REQUIREMENTS.

SPREAD FOOTING SCHEDULE

MARK	WIDTH	LENGTH	THICK.	BOTT. LONG. REINF.	BOTT. TRANS. REINF.
F7	7'-0"	7'-0"	1'-0"	7 - #5	7 - #5

PEDESTAL SCHEDULE

MARK	WIDTH	LENGTH	TYPE	V. REINF.	TIES	REFERENCE
P2	2'-0"	2'-0"	A	8 - #6	3 x #3 AT 3" O.C. TOP, #3 AT 12" O.C. REMAINDER	3/S0-4

COLUMN SCHEDULE

COLUMN SIZE	BASE PLATE	ANCHOR BOLTS	REFERENCE
HSS8x8x3/8	PL 1" x 14" x 14"	4 - 1" DIA.	7/S0-4

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INFLUENT PUMP STATION - FOUNDATION PLAN

Drawing No: **S1-1**

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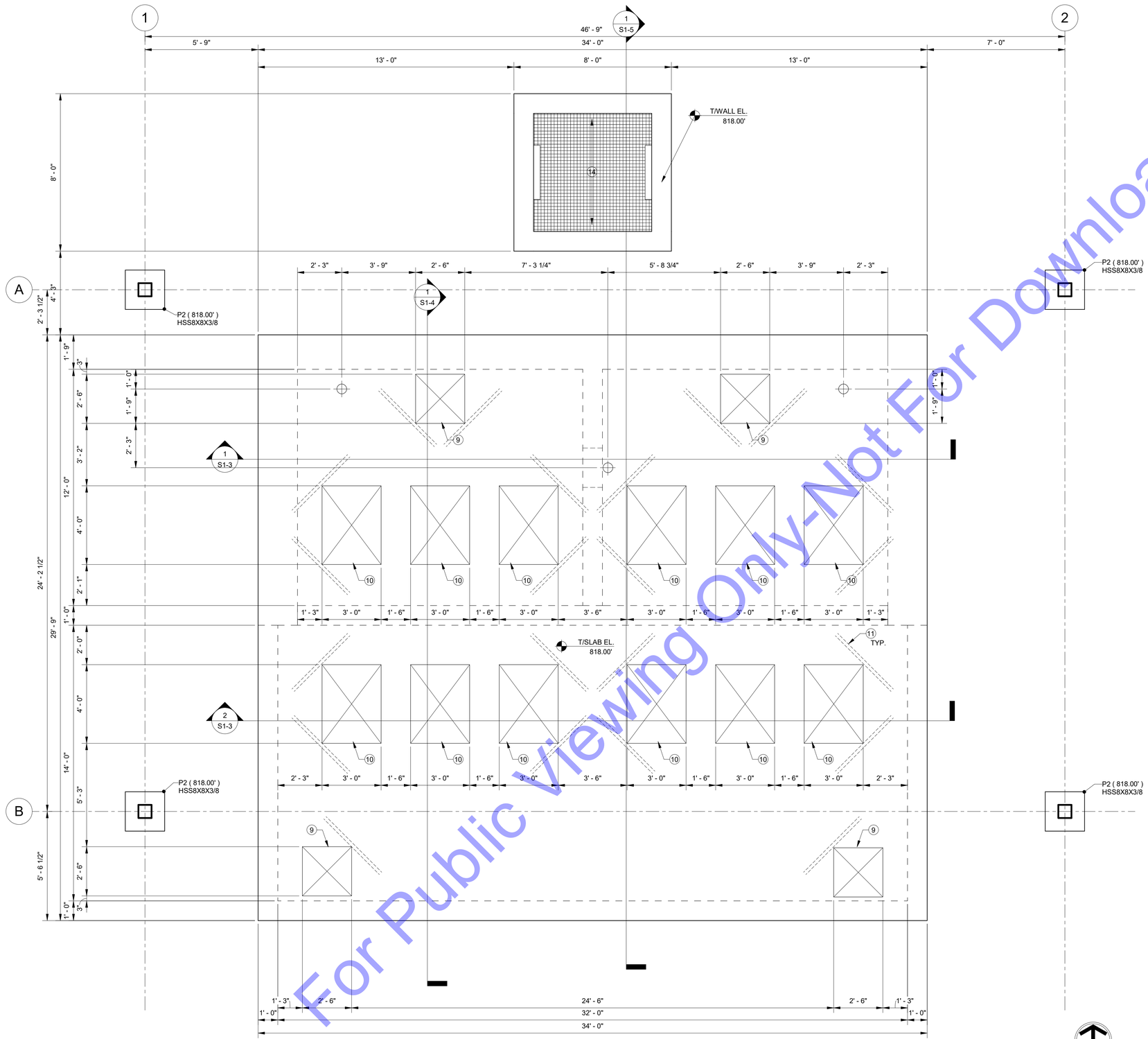

1 S1-2 INFLUENT PUMP STATION - UPPER LEVEL PLAN
3/8" = 1'-0"

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. 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. MAINTAIN STRUCTURAL SLAB THICKNESSES AT ALL FLOOR SLOPES AND DEPRESSIONS.
7. T/SLAB ELEVATION = SEE PLAN
8. ALL EXTERIOR FOOTINGS ARE TO BEAR A MINIMUM 2'-6" BELOW FINISH GRADE, UNLESS NOTED OTHERWISE.
9. NEW 30" X 30" ACCESS HATCH, SEE PROCESS DRAWINGS. INSTALL ACCESS HATCH PER MANUFACTURER'S RECOMMENDATIONS.
10. NEW 36" X 48" ACCESS HATCH, SEE PROCESS DRAWINGS. INSTALL ACCESS HATCH PER MANUFACTURER'S RECOMMENDATIONS.
11. AT RE-ENTRANT CORNER CONDITIONS, PROVIDE (2) #5 x 4'-0" LONG BARS AT 3" O.C. PLACED 2-INCHES CLEAR FROM CORNER, TOP AND BOTTOM, IN SLAB.
12. PX (XXX.XX') DENOTES FOOTING MARK AND ELEVATION, SEE SCHEDULE ON S1-1.
13. HSSX DENOTES COLUMN MARK, SEE SCHEDULE ON S1-1.
14. 2" GRATING, UNLESS NOTED OTHERWISE. SEE SPECIFICATION SECTIONS 'WM 19 - MISCELLANEOUS METALS AND ALUMINUM' AND 'WM 20 - FIBERGLASS MATERIALS' FOR ADDITIONAL INFORMATION.

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INFLUENT PUMP STATION - UPPER LEVEL PLAN

Drawing No:
S1-2
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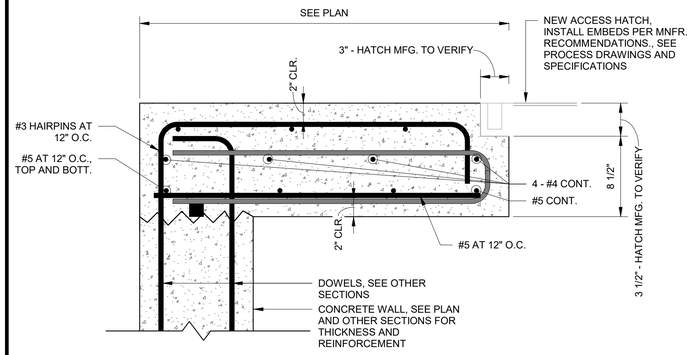
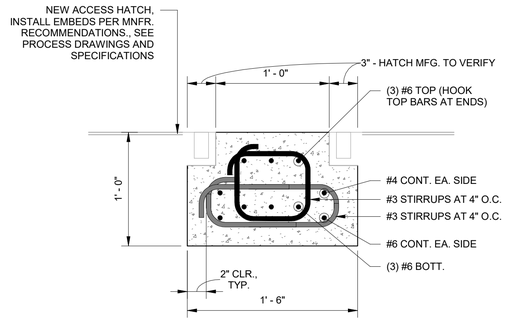


3 / S1-3 SLAB REINFORCEMENT DETAIL AT HATCH

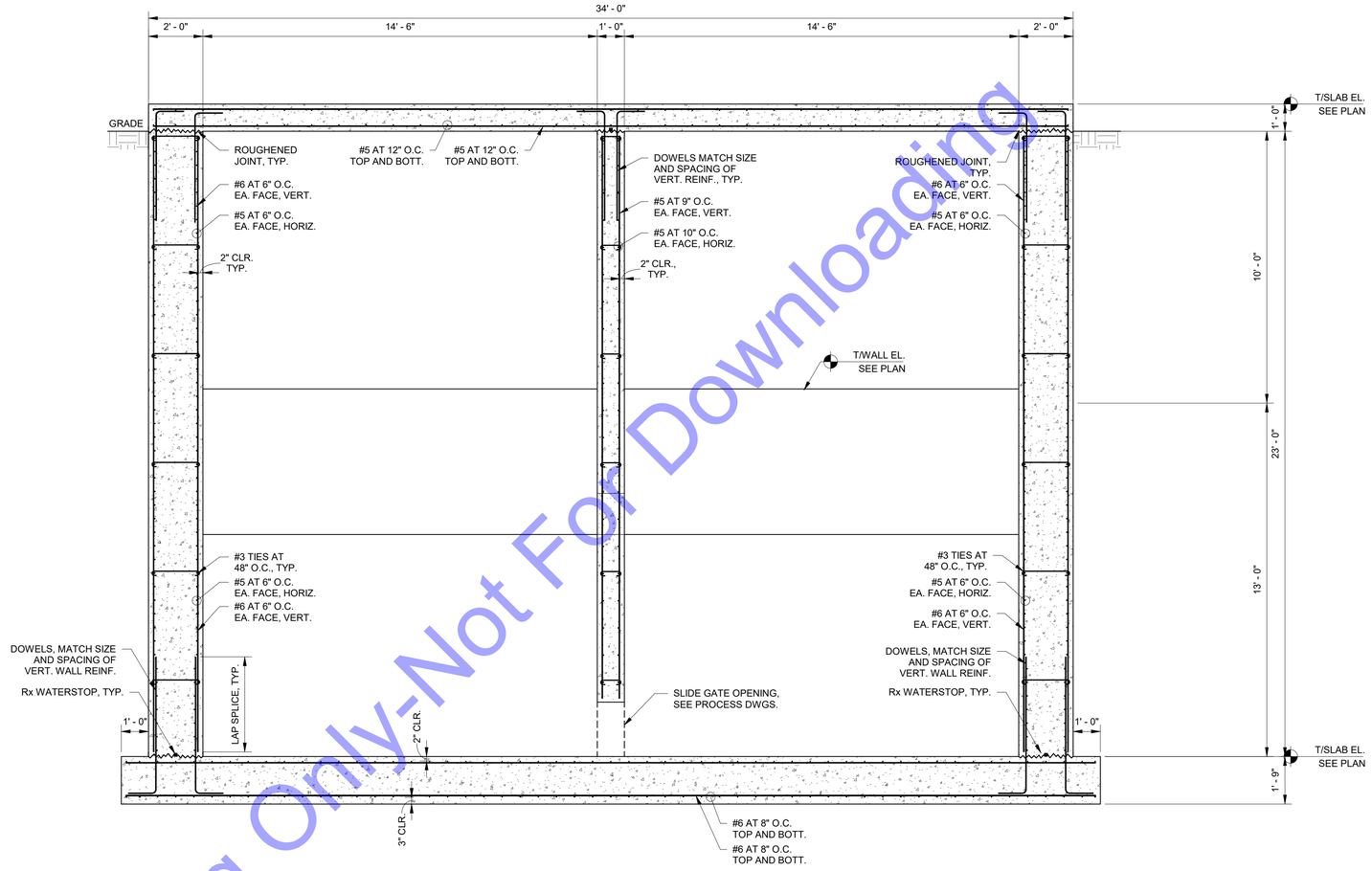
1 1/2" = 1'-0"



NOTE:
BEAM DETAILING SHALL EXTEND FOR THE FULL LENGTH OF THE TANK TOP SLAB.

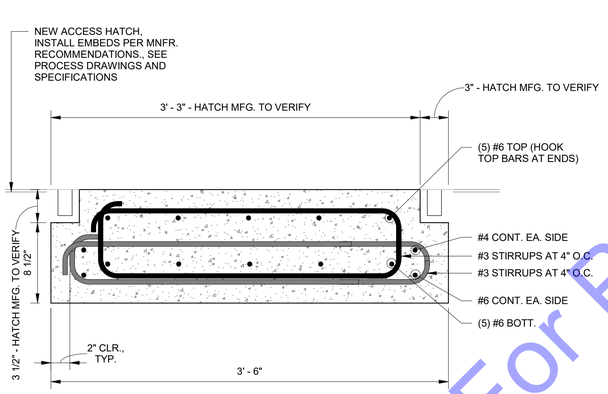
4 / S1-3 BEAM DETAIL

1 1/2" = 1'-0"



1 / S1-3 SECTION

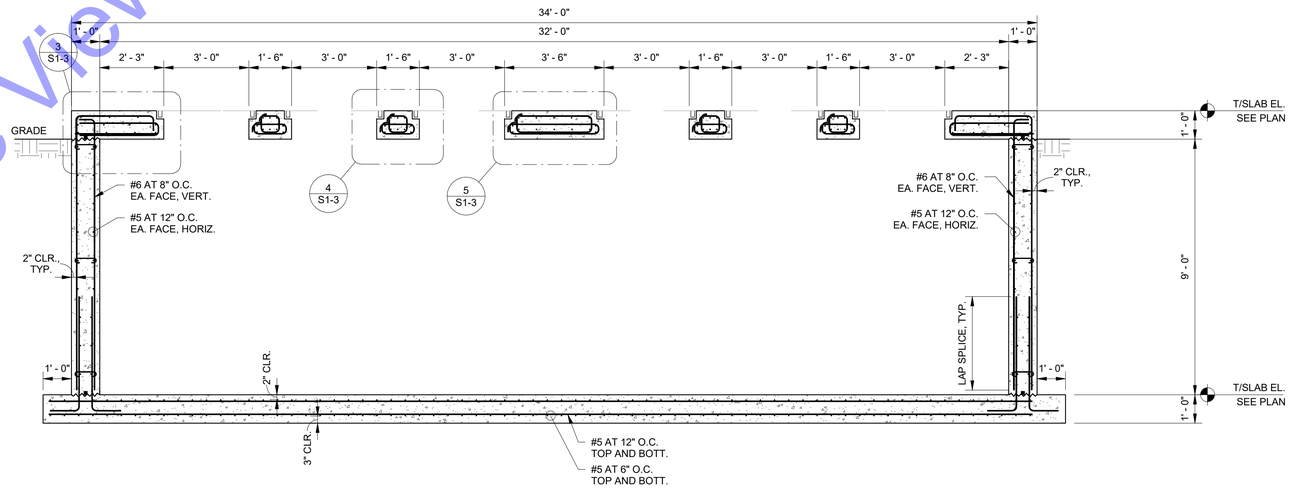
3/8" = 1'-0"



NOTE:
BEAM DETAILING SHALL EXTEND FOR THE FULL LENGTH OF THE TANK TOP SLAB.

5 / S1-3 BEAM DETAIL

1 1/2" = 1'-0"



2 / S1-3 SECTION

3/8" = 1'-0"

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INFLUENT PUMP STATION - SECTIONS AND DETAILS

Drawing No:
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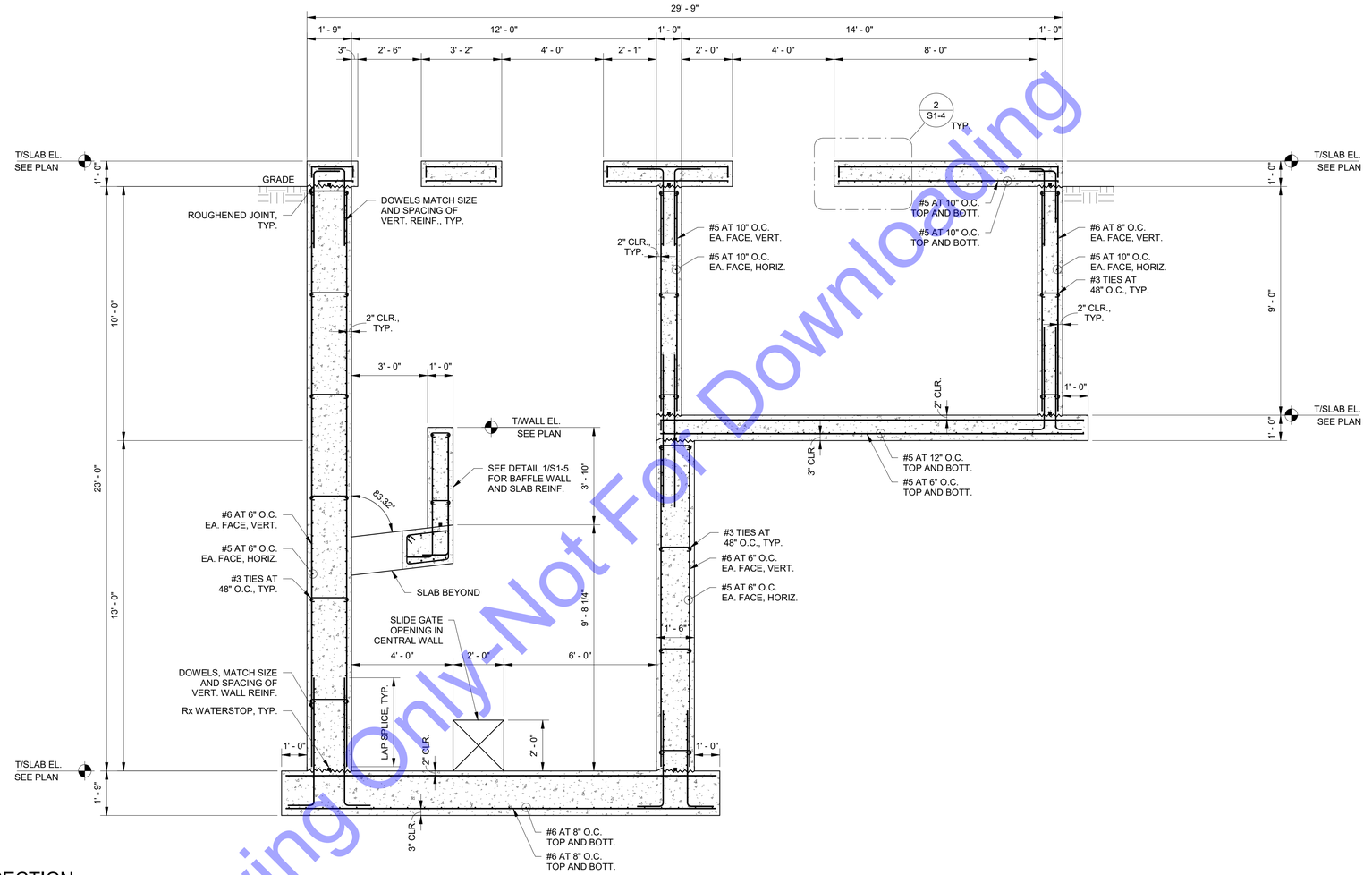
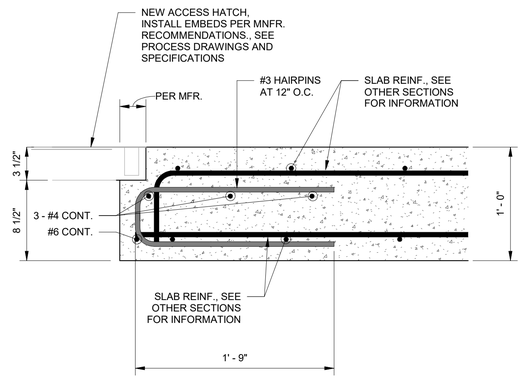


1 S1-4 SECTION
3/8" = 1'-0"



2 S1-4 SLAB REINFORCEMENT DETAIL AT HATCH
1 1/2" = 1'-0"

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INFLUENT PUMP STATION - SECTIONS AND DETAILS

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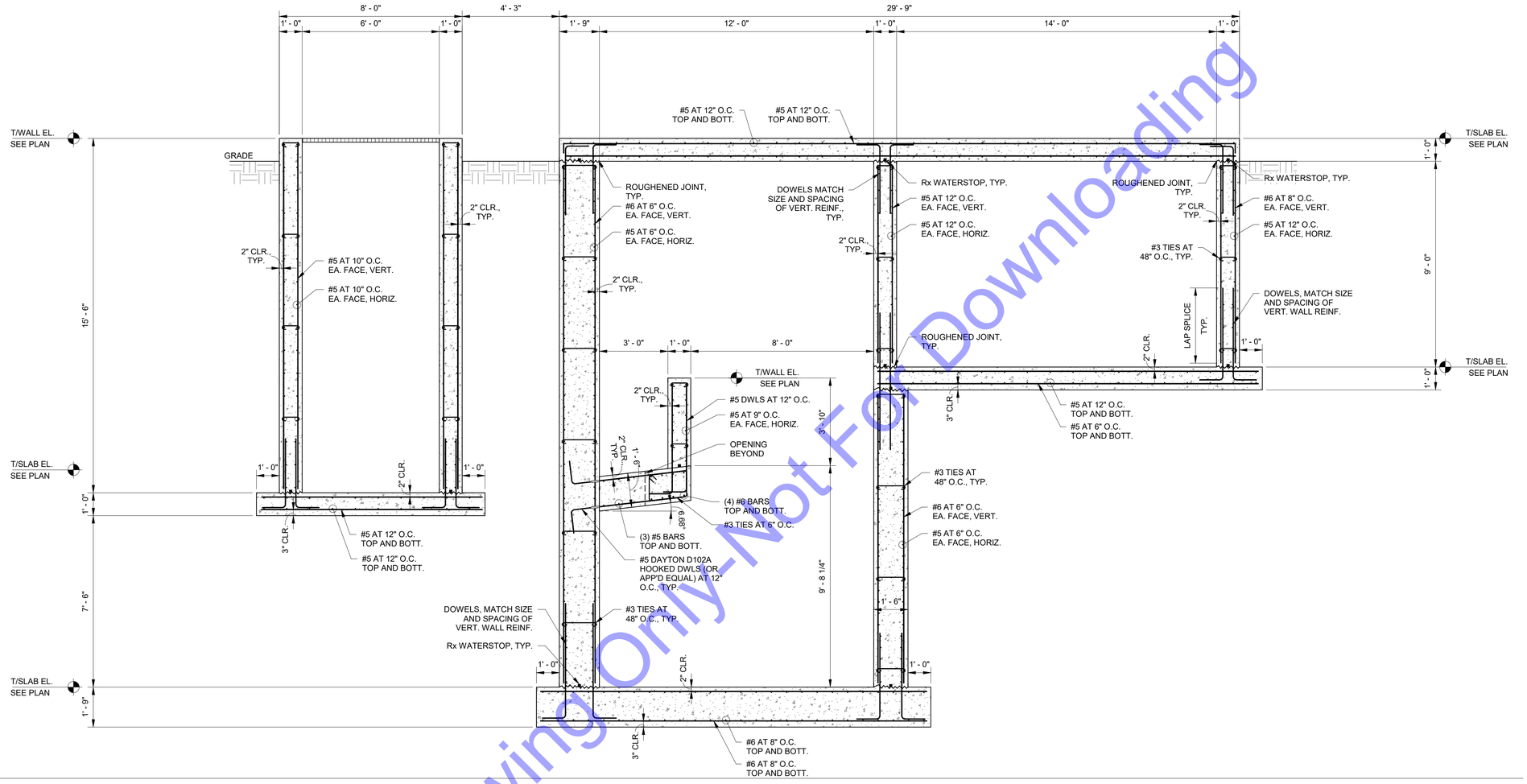

1 S1-5 SECTION
3/8" = 1'-0"

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INFLUENT PUMP STATION - SECTIONS AND DETAILS

Drawing No:
S1-5
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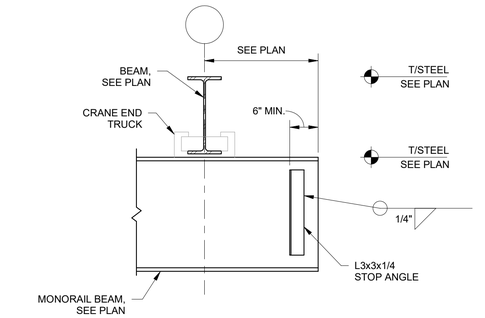
HOIST FRAMING PLAN NOTES

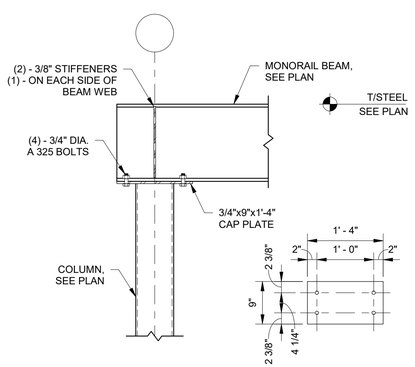
(○) INDICATES NOTE REFERENCED IN PLAN

1. SEE THE S0-SERIES SHEETS FOR GENERAL STRUCTURAL NOTES AND TYPICAL STRUCTURAL DETAILS.
2. ALL STRUCTURAL STEEL SHALL BE HOT DIPPED GALVANIZED.
3. (3) MONORAIL BEAM SIZE SHALL BE COORDINATED WITH TROLLEY MANUFACTURER'S RECOMMENDATIONS PRIOR TO FABRICATION AND ERECTION OF STEEL.
4. (4) HOIST SUPPORT FRAMING WAS DESIGNED FOR A MAXIMUM LOAD OF 2 TONS ON EACH MONORAIL INCLUDING HOIST AND TROLLEY EQUIPMENT.
5. (5) CRANE END TRUCK. ATTACH PER MANUFACTUERS RECOMMENDATIONS. SEE SPECIFICATIONS FOR DESIGN CRITERIA.
6. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF THE SELECTED HOIST / CRANE EQUIPMENT PRIOR TO FABRICATION OF THE STRUCTURAL STEEL. THE SUBMITTAL SHALL INCLUDE INFORMATION ABOUT THE SELECTED TRACK EQUIPMENT INCLUDING, BUT NOT LIMITED TO, LOAD RATING, DIMENSIONS, CONNECTIONS TO SUPPORTING STRUCTURE, WEIGHT OF THE SELECTED TROLLEY, AND INFORMATION ABOUT ANY ADDITIONAL HOIST / CRANE EQUIPMENT TO BE SUPPORTED FROM THE STEEL STRUCTURE.

1 S1-6 INFLUENT PUMP STATION - HOIST FRAMING PLAN
3/8" = 1'-0"



3 S1-6 SECTION
3/4" = 1'-0"



2 S1-6 SECTION
3/4" = 1'-0"

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INFLUENT PUMP STATION - HOIST FRAMING PLAN, SECTIONS AND DETAILS

Drawing No: **S1-6**

Sheet: 148 OF 205

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SPREAD FOOTING SCHEDULE					
MARK	WIDTH	LENGTH	THICK.	LONG. REINF.	TRANS. REINF.
F2X5	2'-0"	5'-0"	3'-3"	(3) - #5 TOP & BOTT.	#4 STIRRUPS AT 12" O.C.
F3	3'-0"	3'-0"	1'-0"	(4) - #5 TOP & BOTT.	#4 STIRRUPS AT 12" O.C.
F3X5	3'-0"	5'-0"	3'-3"	(4) - #5 TOP & BOTT.	#4 STIRRUPS AT 12" O.C.

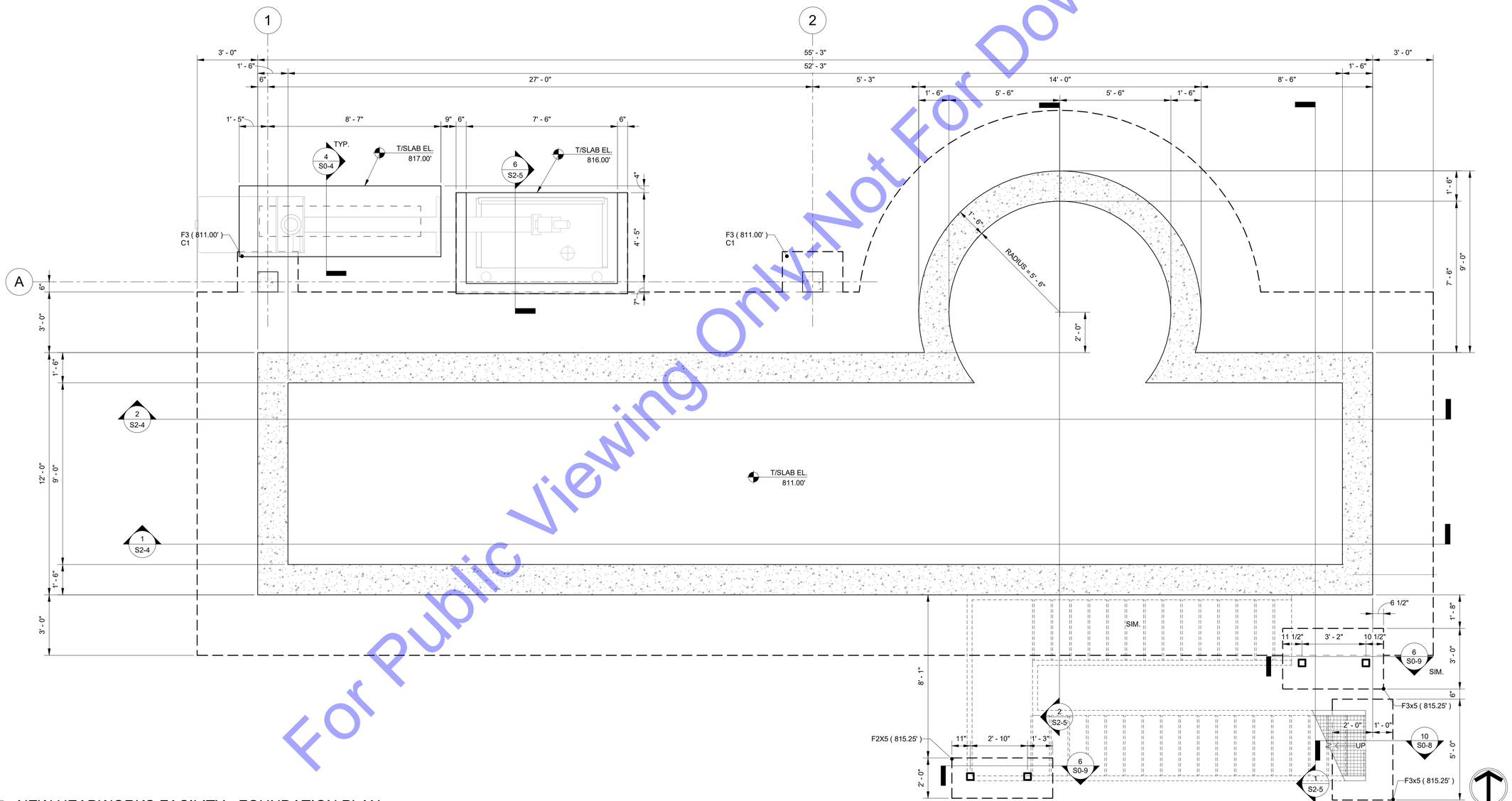
COLUMN SCHEDULE						
MARK	SIZE		VERTICAL REINF.	TIES		REFERENCE
	WIDTH	DEPTH		SPEC	SPA.	
C1	1'-0"	1'-0"	(4) - #6	#4	12" O.C.	5/S2-5

STEEL COLUMN SCHEDULE			
COLUMN SIZE	BASE PLATE	ANCHOR BOLTS	REFERENCE
HSS4X4X1/4	PL 3/4" x 11" x 11"	4 - 1/2" DIA.	6/S0-9

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 & 7/S0-3 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. .



1 S2-1 NEW HEADWORKS FACILITY - FOUNDATION PLAN

3/8" = 1'-0"

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NEW HEADWORKS FACILITY - FOUNDATION PLAN

Drawing No: **S2-1**

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ELEVATED SLAB PLAN NOTES

◯ INDICATES NOTE REFERENCED IN PLAN

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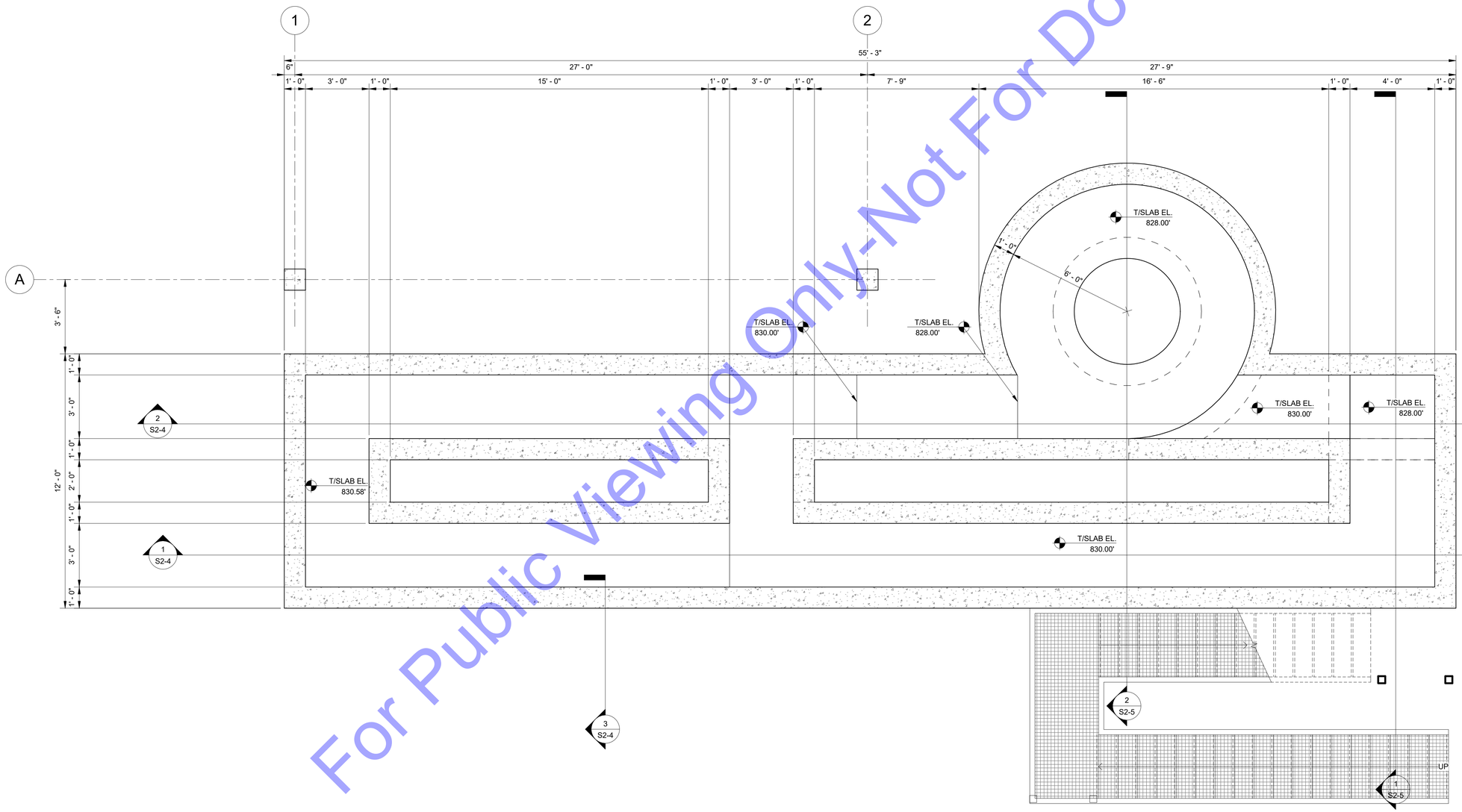
3. ALL DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED PRIOR TO FABRICATION, CONSTRUCTION OR ERECTION. THE GENERAL CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ANY DISCREPANCIES.
4. SEE SITE PLAN FOR ALL FINAL GRADE ELEVATIONS.
5. SEE GEOTECHNICAL REPORT FOR ALL BACKFILLING AND COMPACTION REQUIREMENTS BEHIND 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 & 7/S0-3 FOR WALL CONSTRUCTION JOINT AND WALL CONTRACTION JOINT REQUIREMENTS.
8. MAINTAIN STRUCTURAL SLAB THICKNESSES AT ALL FLOOR SLOPES AND DEPRESSIONS.



1 S2-2 NEW HEADWORKS FACILITY - ELEVATED SLAB PLAN AT BOTTOM OF CHANNEL
3/8" = 1'-0"

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NEW HEADWORKS FACILITY - ELEVATED SLAB PLAN AT BOTTOM OF CHANNEL

Drawing No: **S2-2**

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STAIR PLAN NOTES

◯ INDICATES NOTE REFERENCED IN PLAN

A. SEE THE S0-SERIES SHEETS FOR GENERAL STRUCTURAL NOTES AND TYPICAL STRUCTURAL DETAILS.

B. ALL DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED PRIOR TO FABRICATION, CONSTRUCTION OR ERECTION. THE GENERAL CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ANY DISCREPANCIES.

C. C. SEE SITE PLAN FOR ALL FINAL GRADE ELEVATIONS.

D. ALL STEEL SHALL BE GALVANIZED.

(E) SEE PLAN FOR STEEL STAIR STRINGER MIN. SIZE REQUIREMENTS. STEEL FABRICATOR SHALL DETERMINE REQUIRED STAIR STRINGER PROFILE TO ACCOMODATE PROVIDED STAIR LENGTH DIMENSIONS AND ELEVATION CHANGE.

(F) STAIR TREADS SHALL BE 1-1/2" THICK PULTRUDED FIBER REINFORCED POLYMER UNLESS OTHERWISE NOTED. CONTRACTOR SHALL DETERMINE REQUIRED STAIR STRINGER RISE / RUN LAYOUT. SEE SHEETS S0-8 AND S0-9 FOR TYPICAL STAIR DETAILS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.

(G) STAIR LANDING GRATING SHALL BE 1-1/2" THICK MOLDED FIBER REINFORCED POLYMER GRATING UNLESS OTHERWISE NOTED. SEE TYPICAL STAIR DETAILS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.

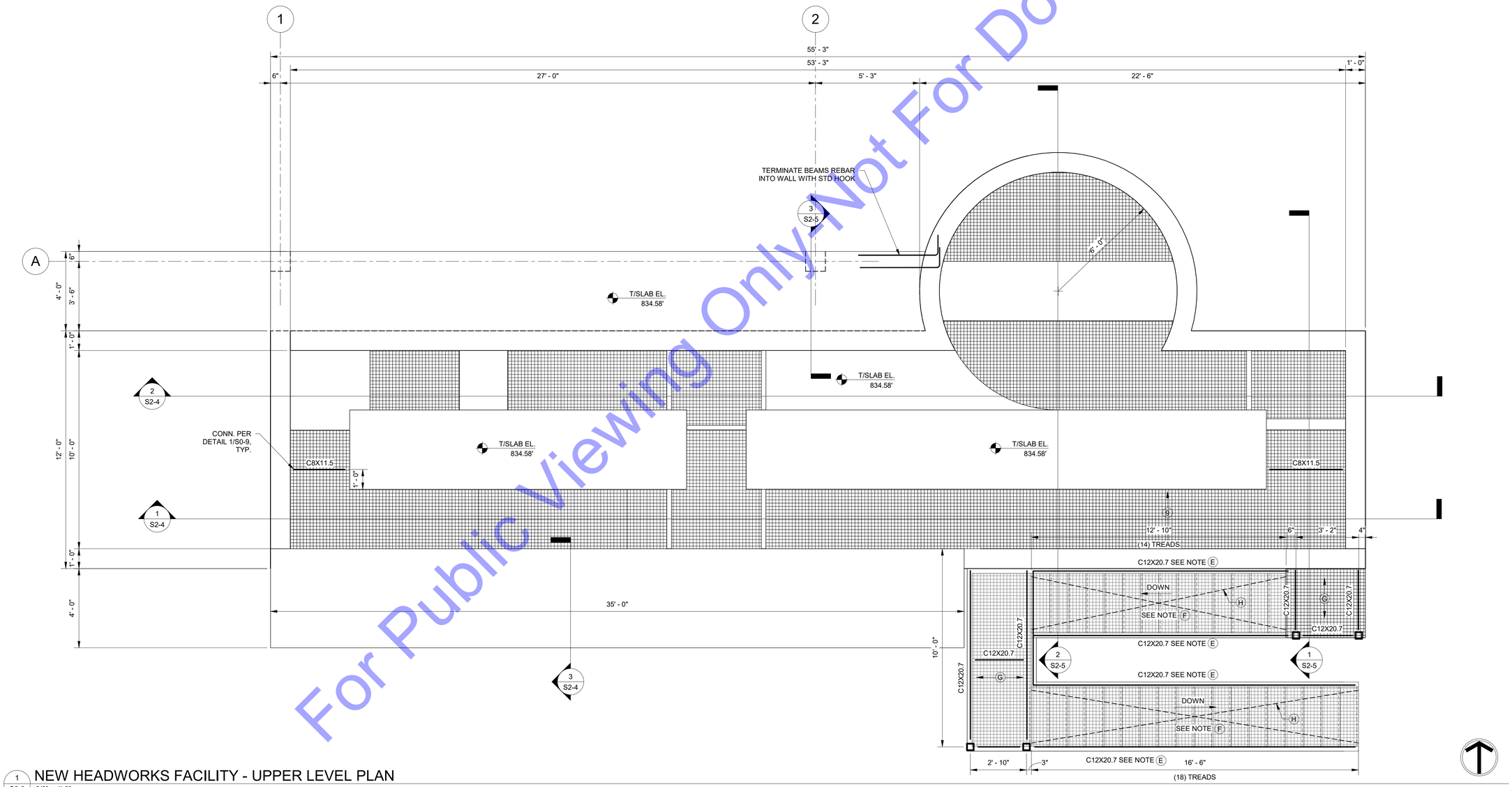
(H) PROVIDE L2X2X1/4 DIAGONAL BRACE AT 5'-0" O.C. MAX ALONG ALL STAIR FLIGHTS AND AT EACH STAIR LANDING; WELD L2X2X1/4 BRACE MEMBERS TO STRINGER BOTTOM CHORDS.

I. SEE DETAIL 6/S0-9 FOR TYPICAL STAIR BRACING.

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 & 7/S0-3 FOR WALL CONSTRUCTION JOINT AND WALL CONTRACTION JOINT REQUIREMENTS.
8. MAINTAIN STRUCTURAL SLAB THICKNESSES AT ALL FLOOR SLOPES AND DEPRESSIONS.
9. 2" GRATING, UNLESS NOTED OTHERWISE. SEE SPECIFICATION SECTIONS 'WM 19 - MISCELLANEOUS METALS AND ALUMINUM' AND 'WM 20 - FIBERGLASS MATERIALS' FOR ADDITIONAL INFORMATION.



1 S2-3 NEW HEADWORKS FACILITY - UPPER LEVEL PLAN

3/8" = 1'-0"

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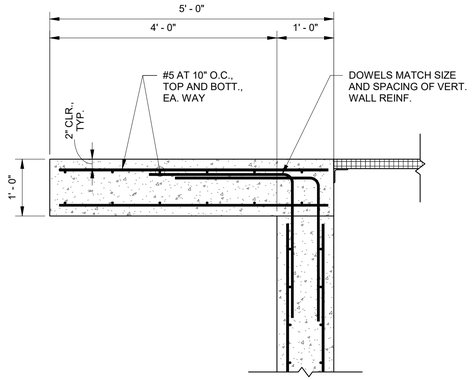
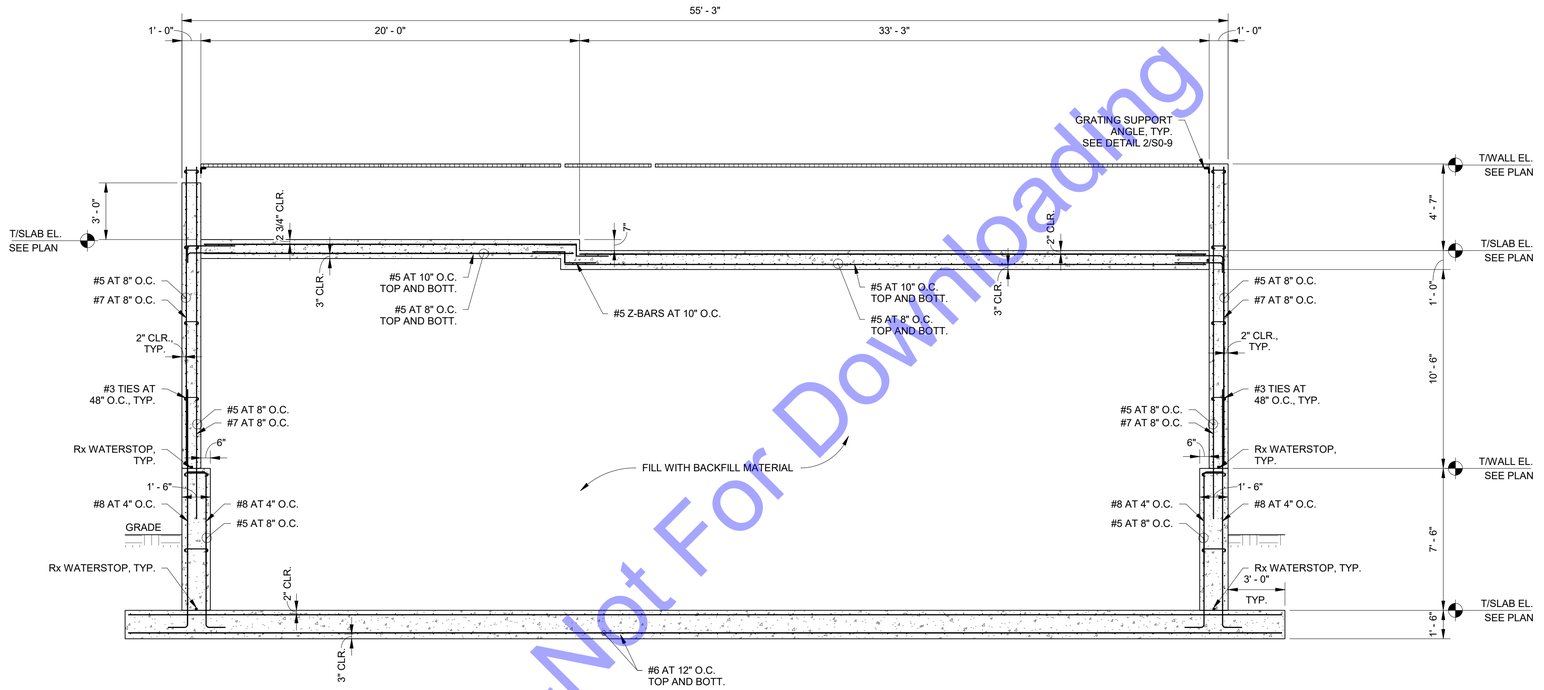
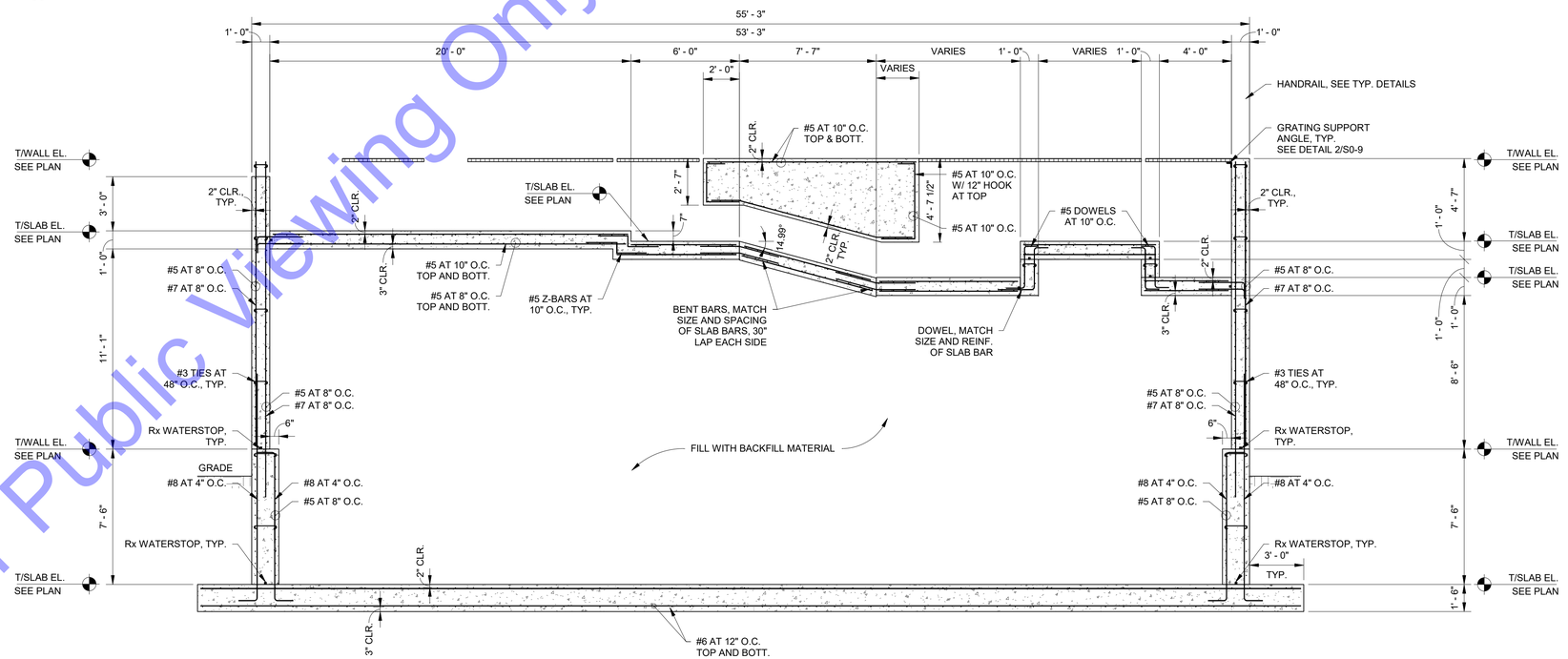


3 S2-4 SECTION
3/4" = 1'-0"



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



2 S2-4 SECTION
1/4" = 1'-0"

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NEW HEADWORKS FACILITY - SECTIONS AND DETAILS

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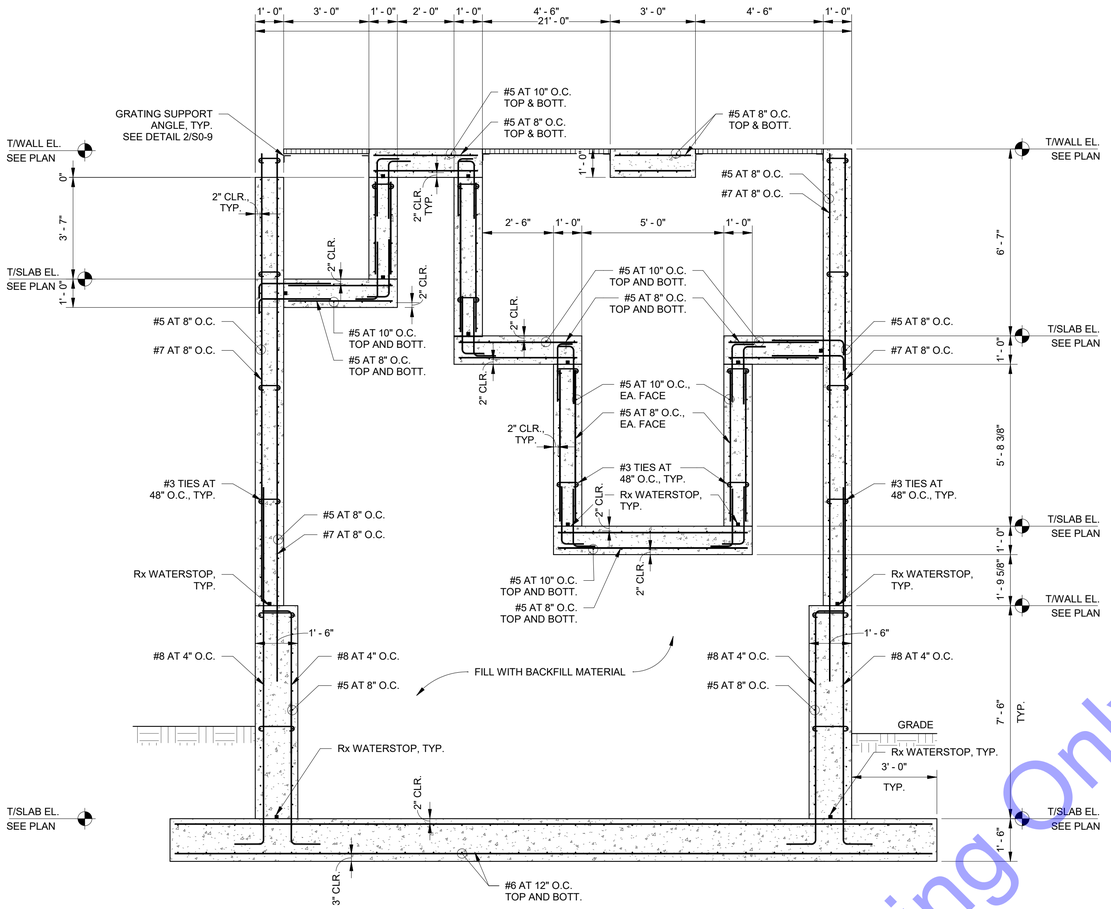
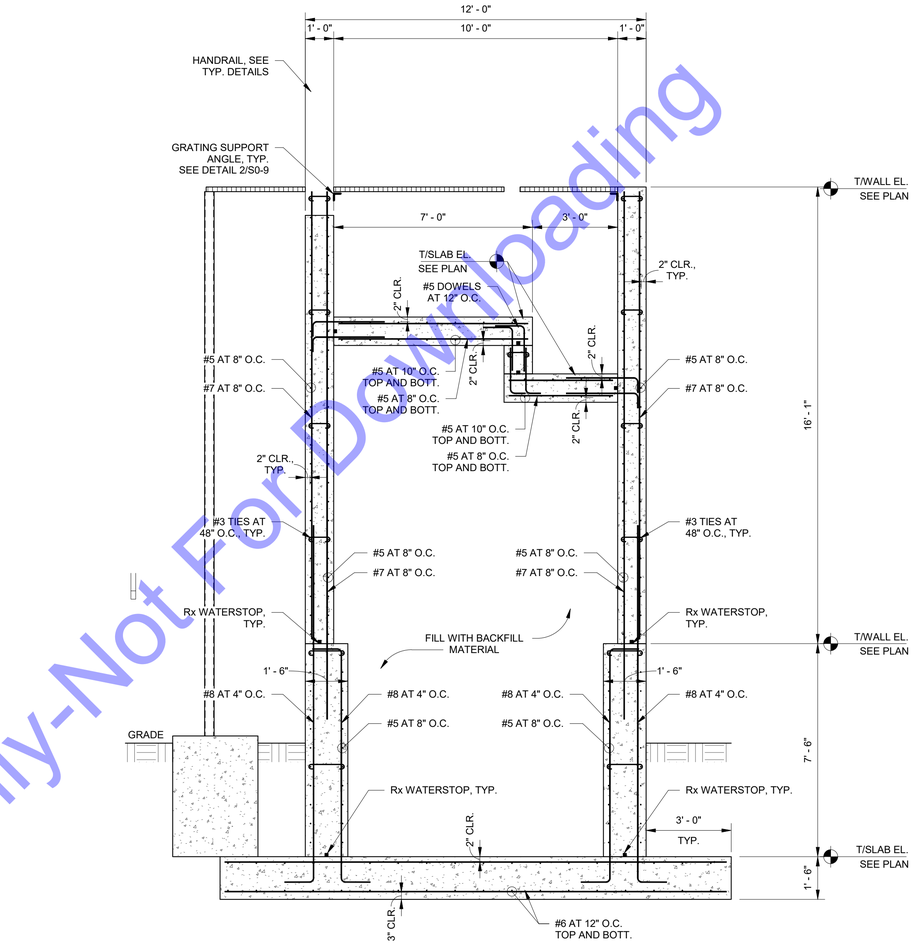


2 S2-5 SECTION
3/8" = 1'-0"



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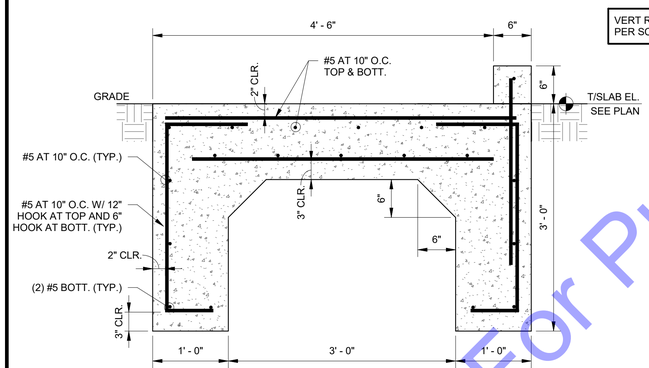
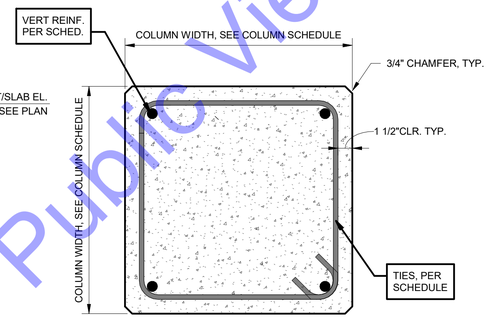
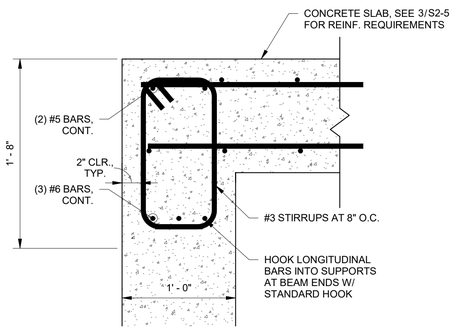


6 S2-5 SECTION
1" = 1'-0"

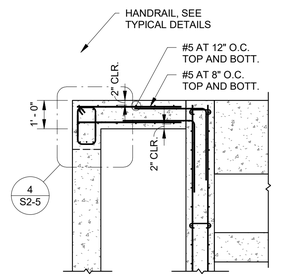


COLUMN WITH 4 VERTICAL BARS (TIE CONFIGURATION "T1")

5 S2-5 TYPICAL COLUMN REINFORCING
1 1/2" = 1'-0"



4 S2-5 BEAM DETAIL
1 1/2" = 1'-0"



3 S2-5 SECTION
3/8" = 1'-0"

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NEW HEADWORKS FACILITY - SECTIONS AND DETAILS

Drawing No:
S2-5
Sheet: 153 OF 205

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SPREAD FOOTING SCHEDULE					
MARK	WIDTH	LENGTH	THICK.	LONG. REINF.	TRANS. REINF.
F2X5	2'-0"	5'-0"	3'-3"	3 - #5 TOP AND BOTT.	#4 TIES AT 12"

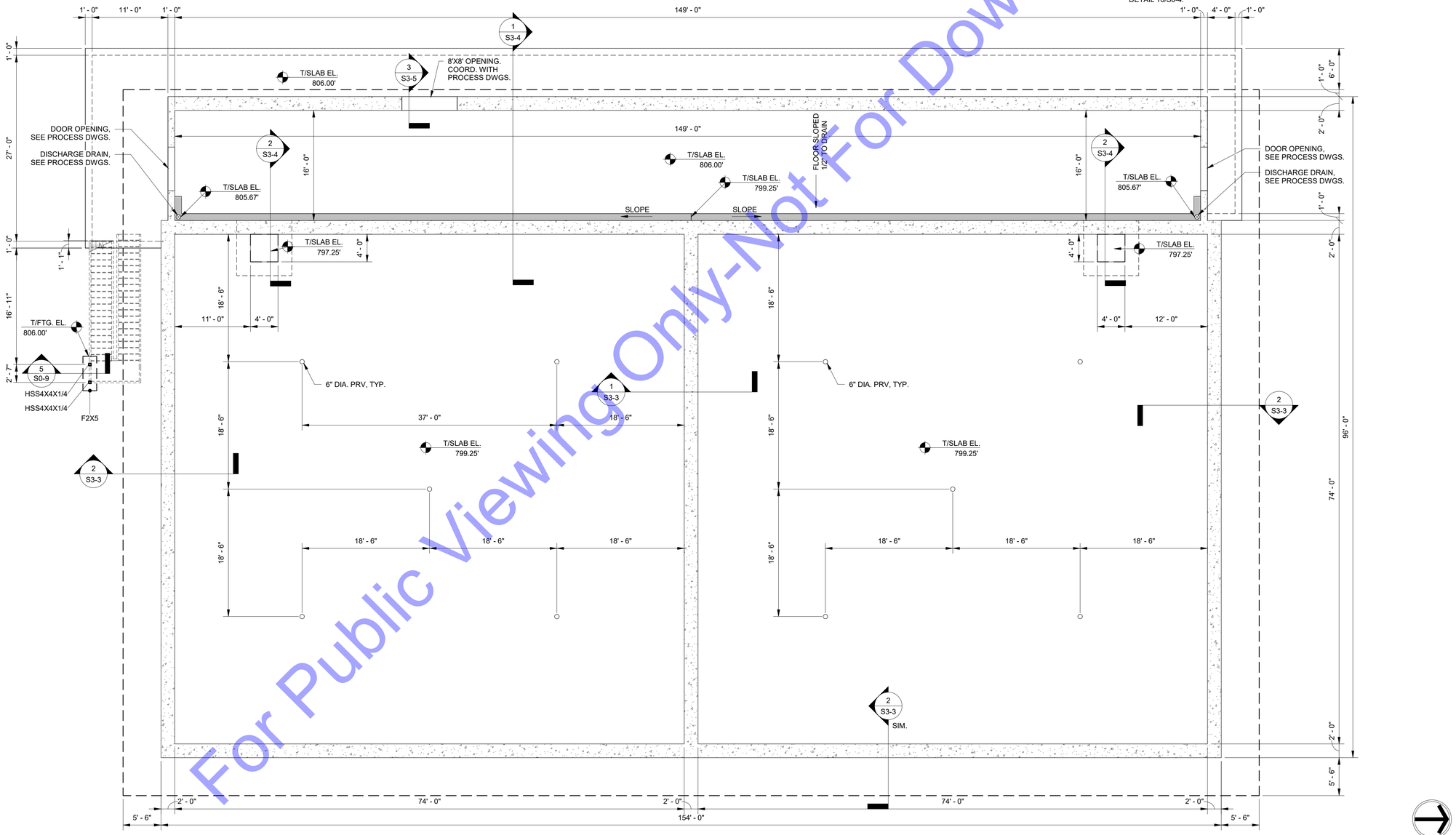
WALL FOOTING SCHEDULE					
MARK	WIDTH	LENGTH	THICK.	BOTT. LONG. REINF.	BOTT. TRANS. REINF.
WF2	2'-0"	CONT.	1'-0"	3 - #5	#5 AT 18" O.C.

COLUMN SCHEDULE			
COLUMN SIZE	BASE PLATE	ANCHOR BOLTS	REFERENCE
HSS4x4x1/4	PL 3/4"x11"x11"	(4) - 3/4" DIA.	5/S0-9

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. COORDINATE ALL LOUVER AND FAN OPENINGS WITH MECHANICAL 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 & 7/S0-3 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. CONTRACTOR TO PLACE PRESSURE RELIEF VALVES (P.R.V) AS SHOWN ON DRAWINGS. SEE DETAIL 10/S0-4.



1 S3-1 SBR TANKS AND PIPE GALLERY - FOUNDATION PLAN
1/8" = 1'-0"

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JOHN DAVID TAYLOR REGISTERED No. PE19900097 STATE OF INDIANA PROFESSIONAL ENGINEER
Signature 01/26/24 Date

CE Solutions structural engineers
8770 North St., Ste. 300 | 317.835.3352
Fishers, IN 46038 | www.cesolutions.com

TOWN OF NEW PALESTINE
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SBR TANKS AND PIPE GALLERY - FOUNDATION PLAN

Drawing No: **S3-1**
Sheet: 154 OF 205

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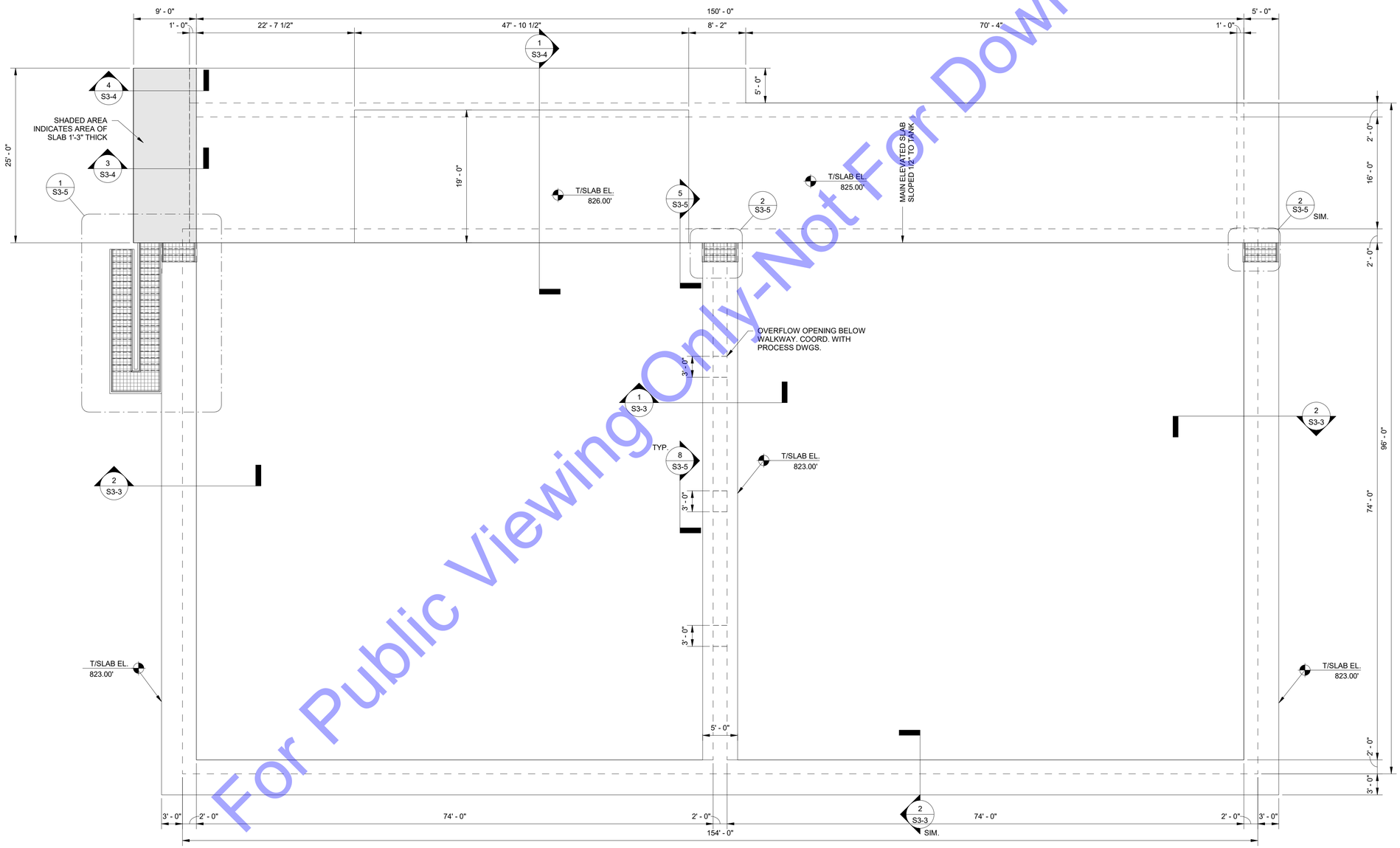
UPPER LEVEL PLAN NOTES

○ 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. ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED.



1 S3-2 SBR TANKS AND PIPE GALLERY - UPPER LEVEL PLAN
1/8" = 1'-0"

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SBR TANKS AND PIPE GALLERY - UPPER LEVEL PLAN

Drawing No: **S3-2**

Sheet: 155 OF 205

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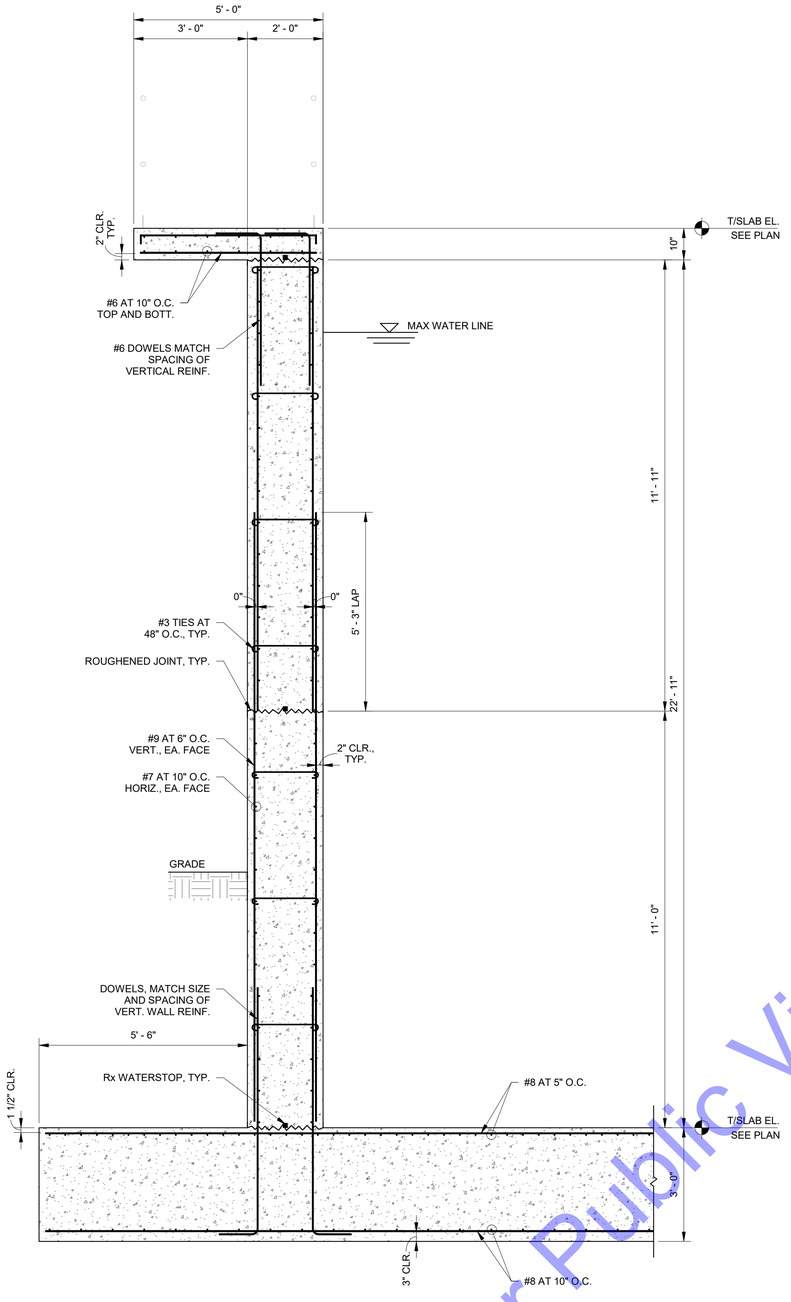
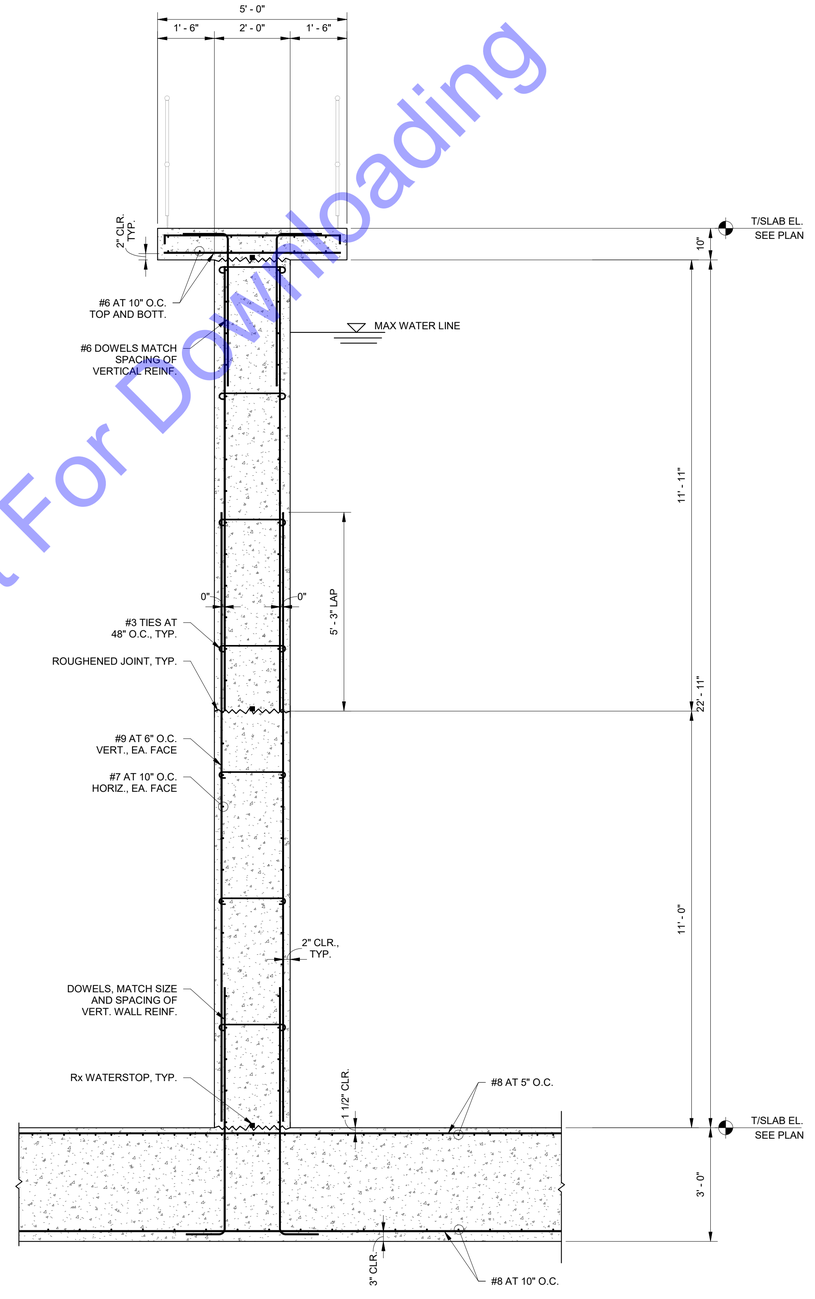


2 S3-3 SECTION
1/2" = 1'-0"



1 S3-3 SECTION
1/2" = 1'-0"

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1/26/24	23-177	1/2" = 1'-0"

SBR TANKS AND PIPE GALLERY - SECTIONS AND DETAILS

Drawing No:
S3-3
Sheet: 156 OF 205

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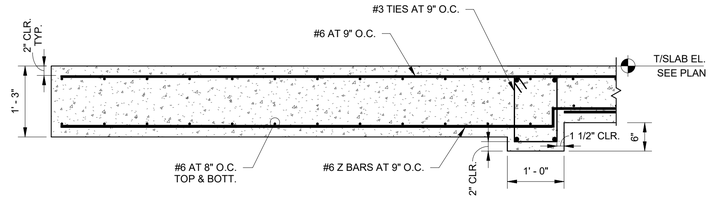
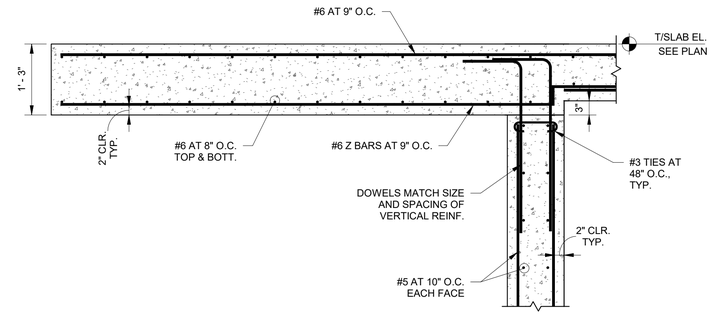
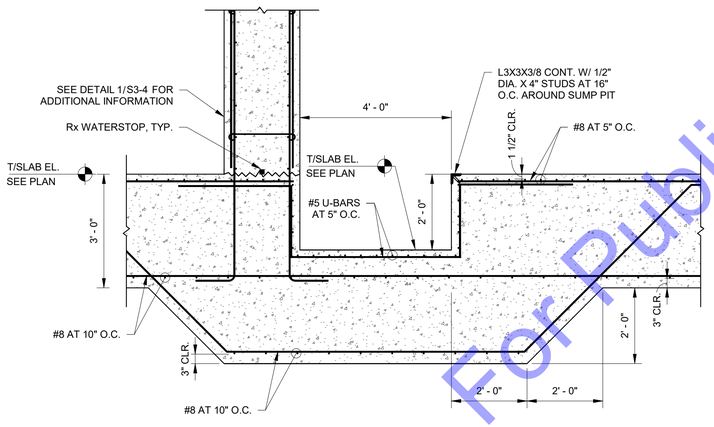


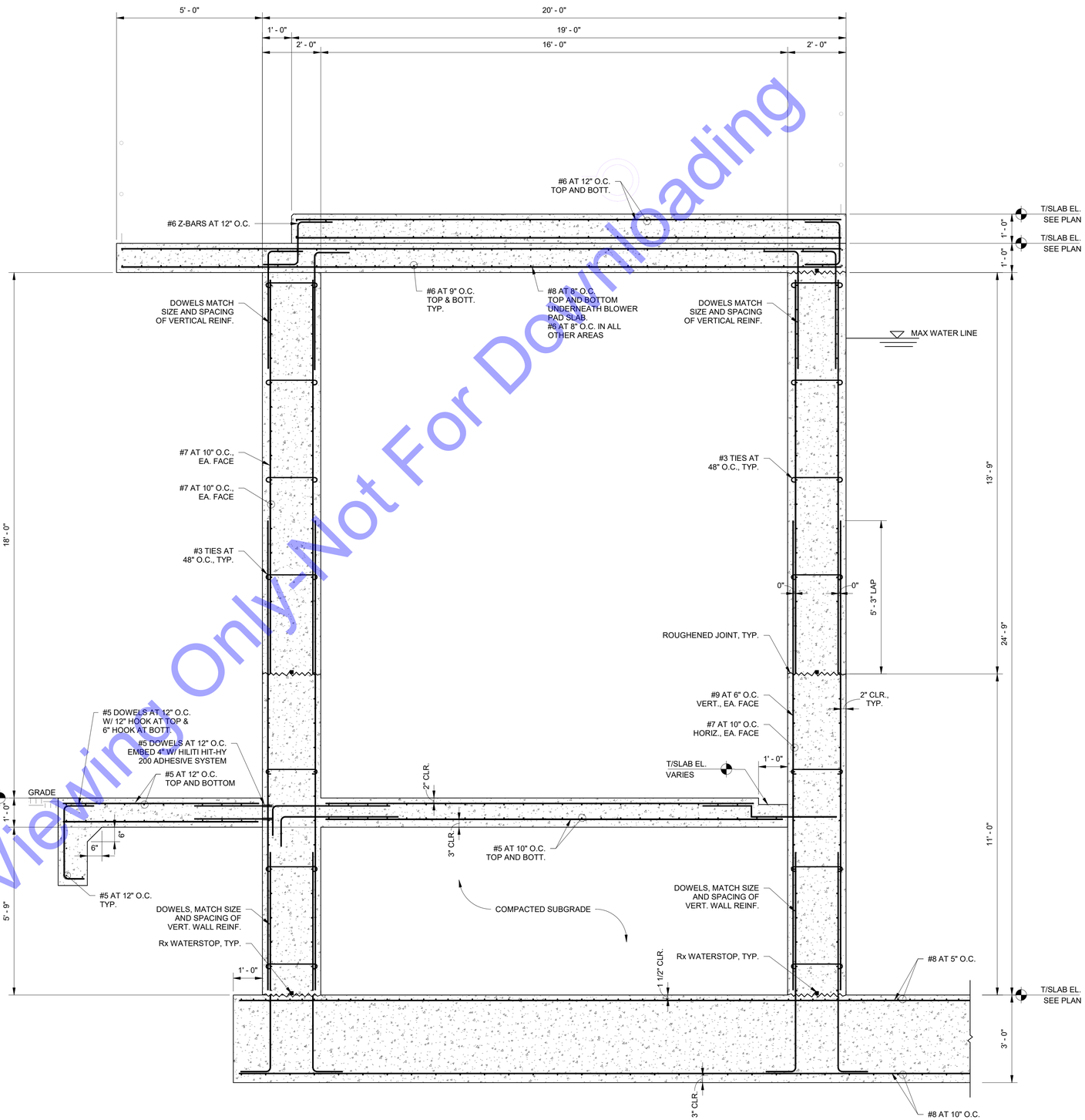
4 SECTION
S3-4 3/4" = 1'-0"



3 SECTION
S3-4 3/4" = 1'-0"



2 SECTION
S3-4 1/2" = 1'-0"



1 SECTION
S3-4 1/2" = 1'-0"

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SBR TANKS AND PIPE GALLERY - SECTIONS AND DETAILS

Drawing No:
S3-4
Sheet: 157 OF 205

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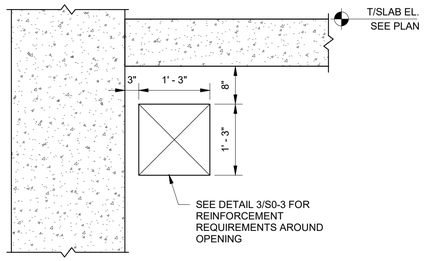
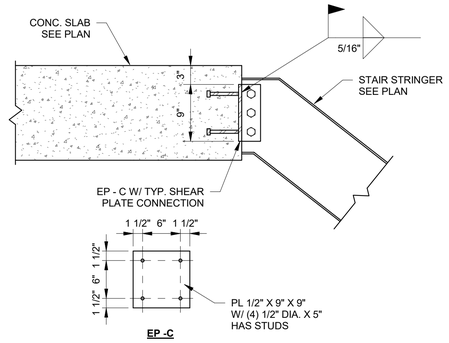
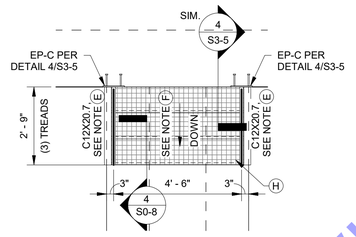




EP -C

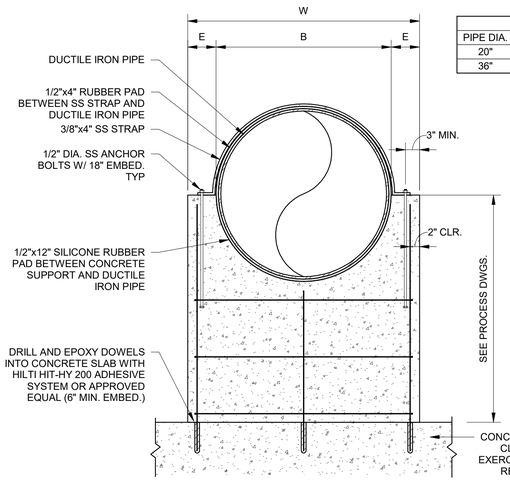
NOTES:
1. HEADED ANCHOR STUDS SHALL BE AUTOMATICALLY END-WELDED USING NELSON STUD WELDING EQUIP. OR APPROVED EQUIVALENT. HAND WELDING IS NOT ACCEPTABLE.
2. COORDINATE PLACEMENT WITH REINFORCING AND OTHER ITEMS EMBEDDED IN CONCRETE.



STAIR PLAN NOTES

- ◯ INDICATES NOTE REFERENCED IN PLAN
- A. SEE THE S0-SERIES SHEETS FOR GENERAL STRUCTURAL NOTES AND TYPICAL STRUCTURAL DETAILS.
- B. ALL DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED PRIOR TO FABRICATION, CONSTRUCTION OR ERECTION. THE GENERAL CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ANY DISCREPANCIES.
- C. C. SEE SITE PLAN FOR ALL FINAL GRADE ELEVATIONS.
- D. ALL STEEL SHALL BE HOT DIPPED GALVANIZED.
- (E) SEE PLAN FOR STEEL STAIR STRINGER MIN. SIZE REQUIREMENTS. STEEL FABRICATOR SHALL DETERMINE REQUIRED STAIR STRINGER PROFILE TO ACCOMODATE PROVIDED STAIR LENGTH DIMENSIONS AND ELEVATION CHANGE.
- (F) STAIR TREADS SHALL BE 1-1/2" THICK PULTRUDED FIBER REINFORCED POLYMER UNLESS OTHERWISE NOTED. CONTRACTOR SHALL DETERMINE REQUIRED STAIR STRINGER RISE / RUN LAYOUT. SEE SHEET S0-8 AND S0-9 FOR TYPICAL STAIR DETAILS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- (G) STAIR LANDING GRATING SHALL BE 1-1/2" THICK MOLDED FIBER REINFORCED PLOYER GRATING UNLESS OTHERWISE NOTED. SEE TYPICAL STAIR DETAILS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- (H) PROVIDE L2X2X1/4 DIAGONAL BRACE AT 5'-0" O.C. MAX ALONG ALL STAIR FLIGHTS AND AT EACH STAIR LANDING; WELD L2X2X1/4 BRACE MEMBERS TO STRINGER BOTTOM CHORDS.

5 S3-5 SECTION
3/4" = 1'-0"

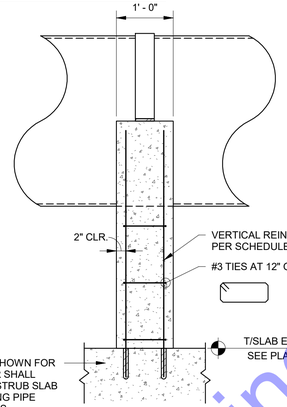


CONCRETE PIPE SUPPORT SCHEDULE

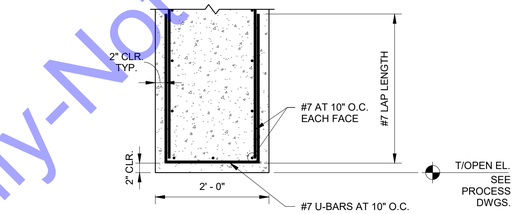
PIPE DIA.	W	B	E	VERT. REINF.
20"	2'-11"	1'-10 1/2"	6 1/4"	6 - #4 (3 EA. SIDE)
36"	4'-1"	3'-0 1/2"	6 1/4"	8 - #4 (4 EA. SIDE)

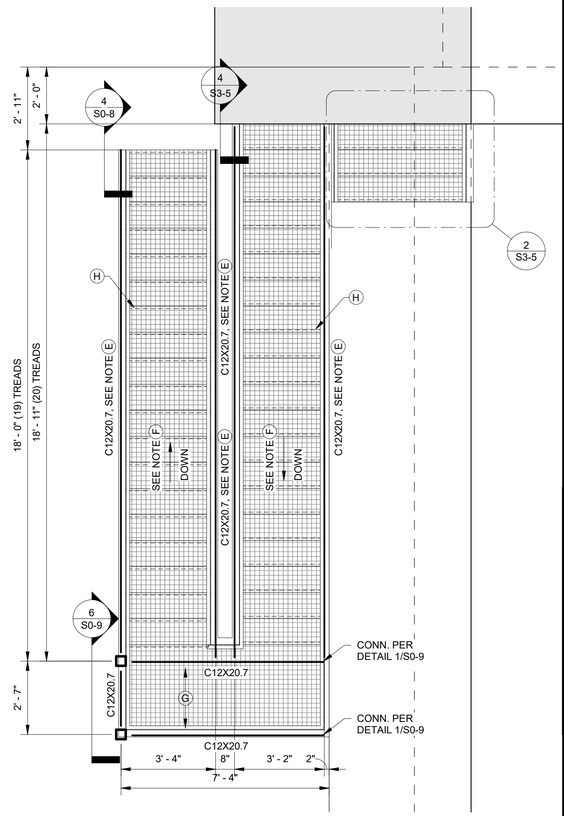
6 S3-5 TYP. CONCRETE PIPE SUPPORT DETAIL
3/4" = 1'-0"

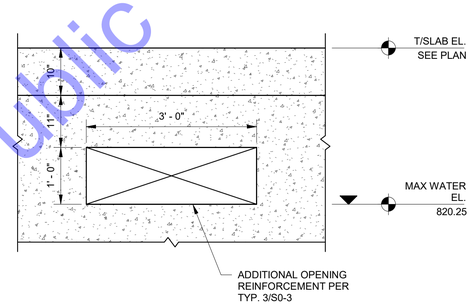
4 S3-5 STAIR STRINGER TO SLAB EDGE CONN.
1" = 1'-0"



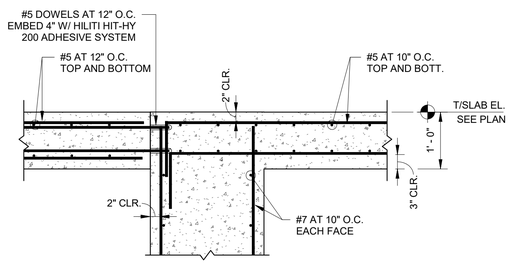
2 S3-5 TYP. ENLARGED STAIR PLAN
3/8" = 1'-0"







8 S3-5 TYP. OVERFLOW SECTION
3/4" = 1'-0"



3 S3-5 SECTION
3/4" = 1'-0"

1 S3-5 ENLARGED STAIR PLAN
3/8" = 1'-0"

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JOHN DAVID TAYLOR
REGISTERED
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SBR TANKS AND PIPE GALLERY - EXTERIOR STAIRS - ELEVATIONS, SECTIONS AND DETAILS

Drawing No:
S3-5
Sheet: 158 OF 205

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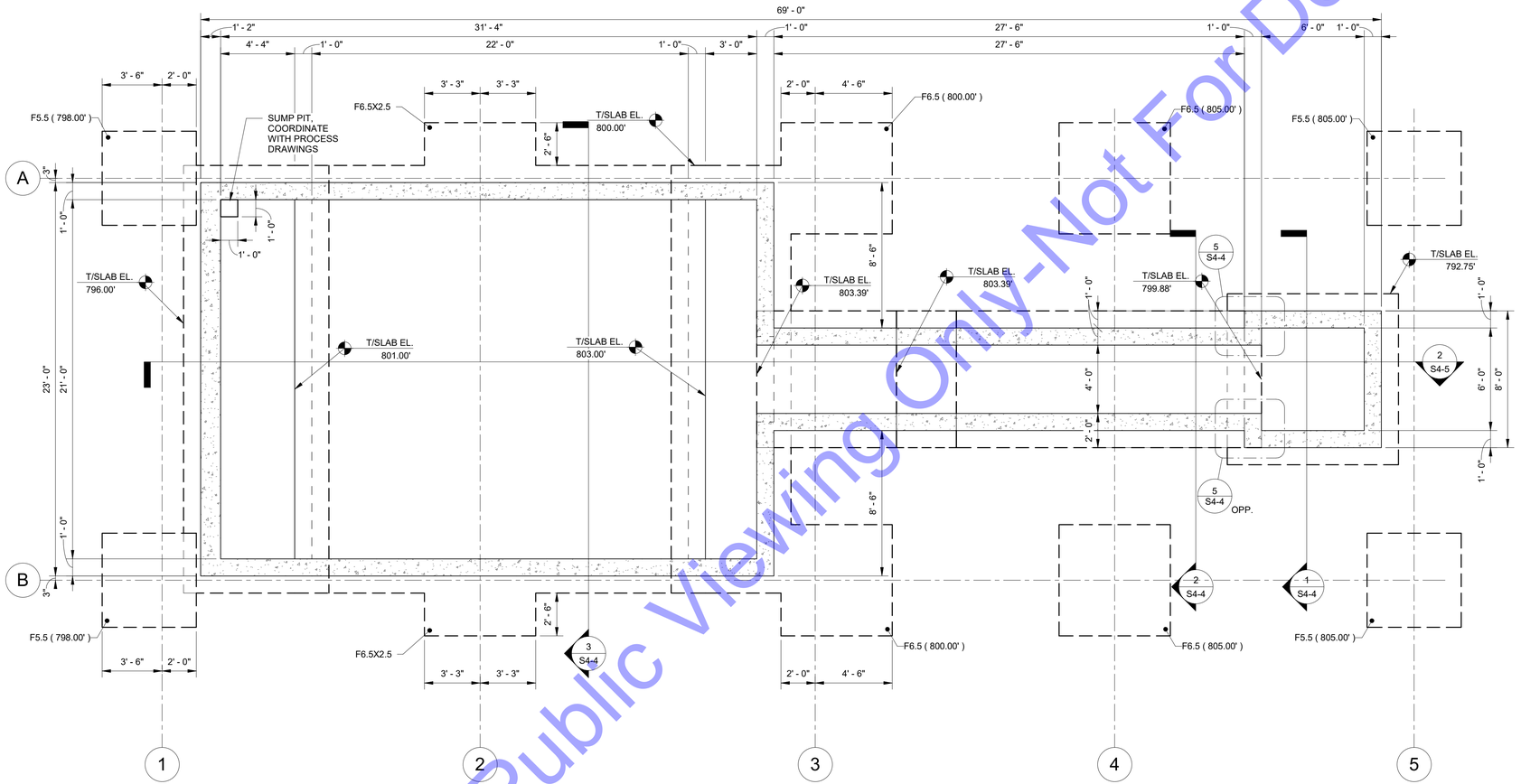
FOUNDATION PLAN NOTES

◯ 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. SEE SITE PLAN FOR ALL FINAL GRADE ELEVATIONS.
4. SEE GEOTECHNICAL REPORT FOR ALL BACKFILLING AND COMPACTION REQUIREMENTS BEHIND WALLS AND UNDER BASE SLABS.
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. MAINTAIN STRUCTURAL SLAB THICKNESSES AT ALL FLOOR SLOPES AND DEPRESSIONS.
8. FX (XXX.XX') DENOTES FOOTING MARK AND ELEVATION, SEE SCHEDULE.

SPREAD FOOTING SCHEDULE

MARK	WIDTH	LENGTH	THICK.	LONG. REINF.	TRANS. REINF.
F5.5	5'-6"	5'-6"	1'-0"	6 - #5 TOP & BOTT.	6 - #5 TOP & BOTT.
F6.5	6'-6"	6'-6"	1'-0"	7 - #5 TOP & BOTT.	7 - #5 TOP & BOTT.
F6.5X2.5	6'-6"	3'-6"	1'-0"	12 - #7 TOP & BOTT.	4 - #5 TOP & BOTT.



1 S4-1 UV AND POST AERATION STRUCTURE - FOUNDATION PLAN
1/4" = 1'-0"

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UV AND POST AERATION STRUCTURE - FOUNDATION PLAN

Drawing No: **S4-1**

Sheet: 159 OF 205

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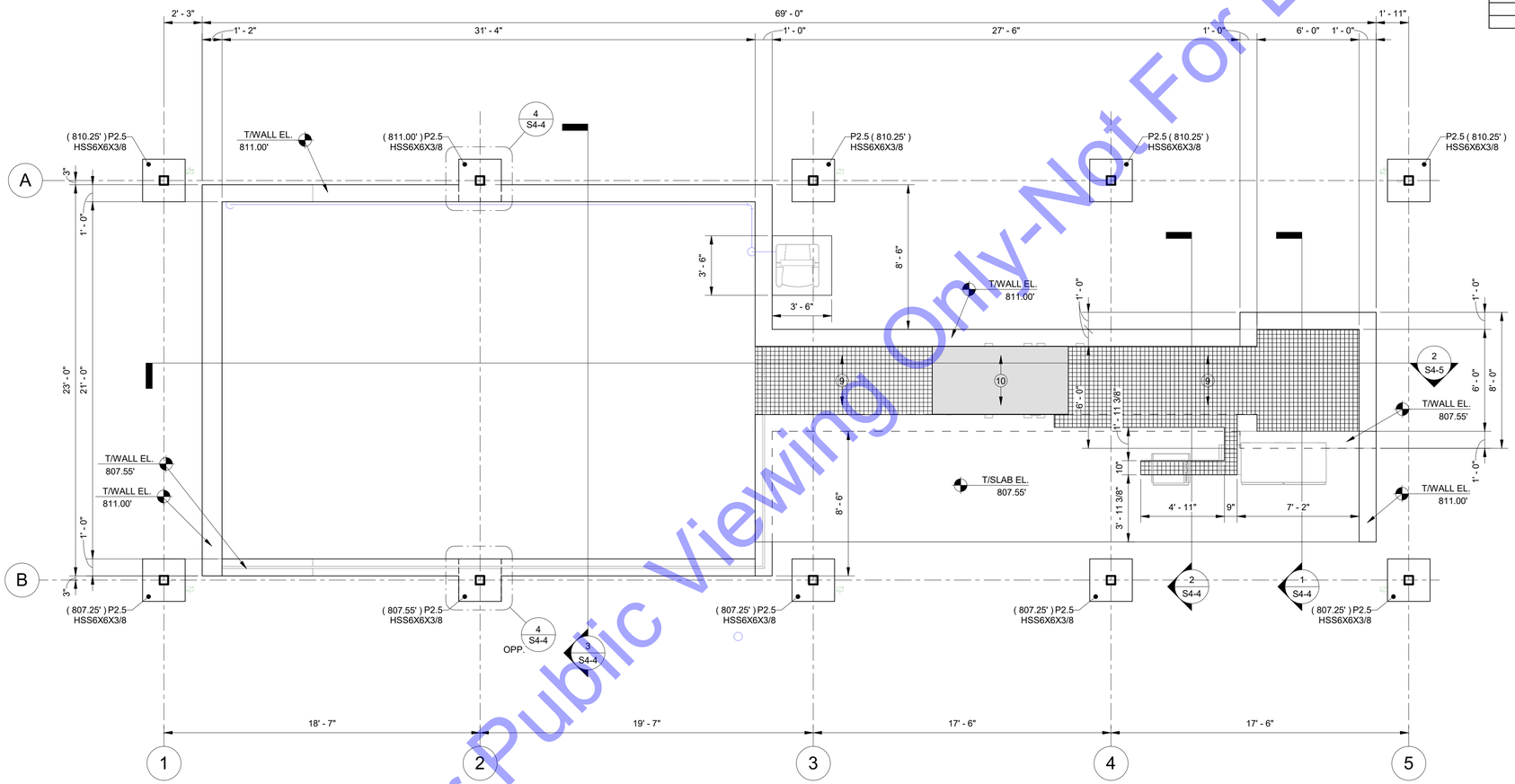

1 S4-2 UV AND POST AERATION STRUCTURE - UPPER LEVEL PLAN
1/4" = 1'-0"

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. SEE SITE PLAN FOR ALL FINAL GRADE ELEVATIONS.
4. SEE GEOTECHNICAL REPORT FOR ALL BACKFILLING AND COMPACTION REQUIREMENTS BEHIND WALLS AND UNDER BASE SLABS.
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. MAINTAIN STRUCTURAL SLAB THICKNESSES AT ALL FLOOR SLOPES AND DEPRESSIONS.
8. PX (XXX.XX') DENOTES PEDESTAL MARK, SEE SCHEDULE ON THIS SHEET.
- (9) 2" GRATING, UNLESS NOTED OTHERWISE. SEE SPECIFICATION SECTIONS 'WM 19 - MISCELLANEOUS METALS AND ALUMINUM' AND 'WM 20 - FIBERGLASS MATERIALS' FOR ADDITIONAL INFORMATION.
- (10) 2" SOLID GRATING, UNLESS NOTED OTHERWISE. SEE SPECIFICATION SECTIONS 'WM 19 - MISCELLANEOUS METALS AND ALUMINUM' AND 'WM 20 - FIBERGLASS MATERIALS' FOR ADDITIONAL INFORMATION.

PEDESTAL SCHEDULE

MARK	WIDTH	LENGTH	TYPE	V. REINF.	TIES	REFERENCE
P2.5	2'-6"	2'-6"	A	8 - #7	3 x #3 AT 3" O.C. TOP, #3 AT 12" O.C. REMAINDER	3/S0-4

COLUMN SCHEDULE

COLUMN SIZE	BASE PLATE	ANCHOR BOLTS	REFERENCE
HSS6x6x3/8	PL 1 1/8"x16"x16"	4 - 1" DIA.	4 & 7/S0-4

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UV AND POST AERATION STRUCTURE - UPPER LEVEL PLAN

Drawing No: **S4-2**

Sheet: 160 OF 205

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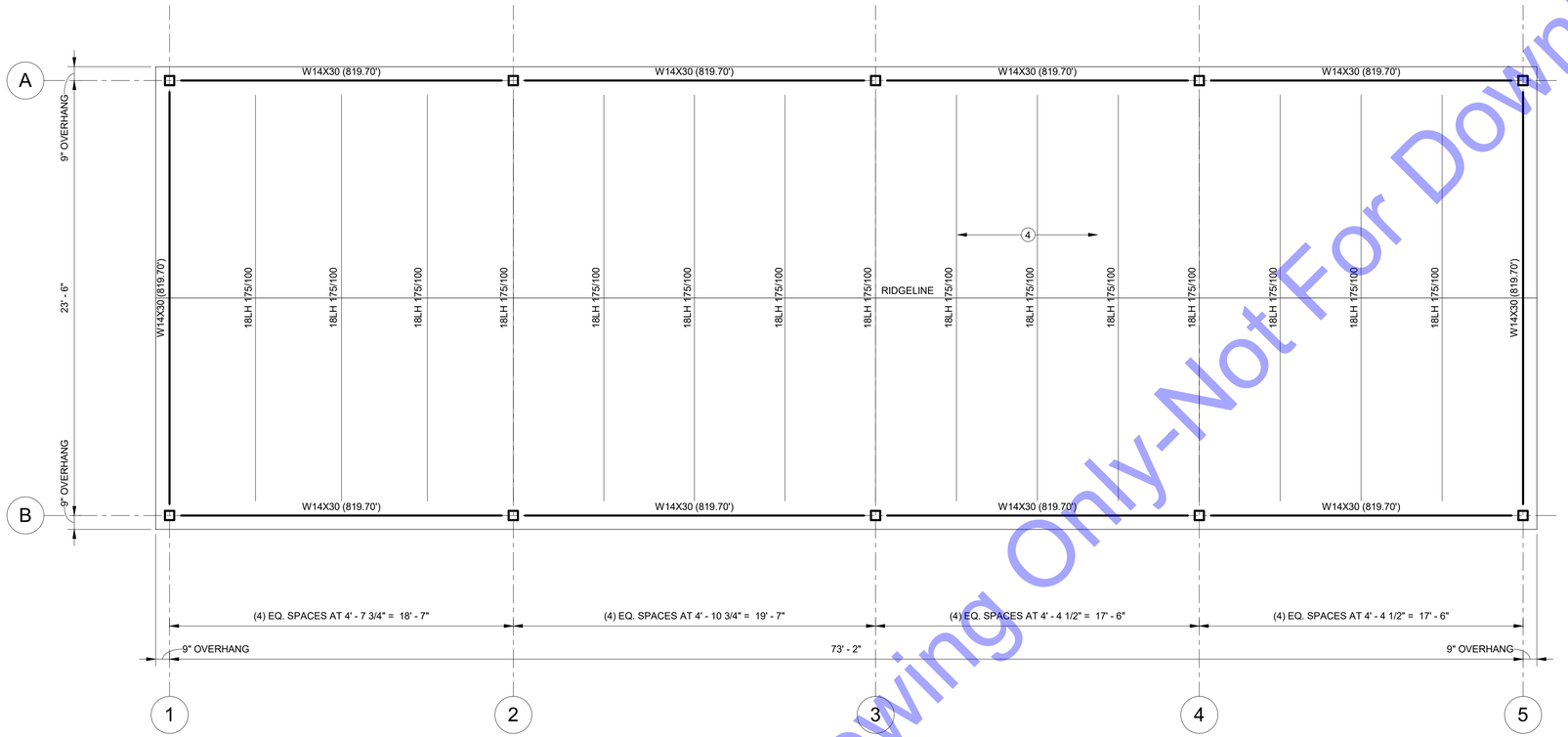
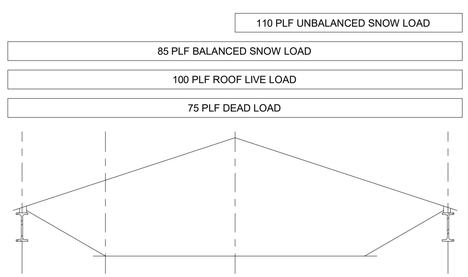


1 S4-3 UV AND POST AERATION STRUCTURE - CANOPY FRAMING PLAN
1/4" = 1'-0"



2 S4-3 SPECIAL JOIST LOAD DIAGRAM
3/4" = 1'-0"

CANOPY FRAMING 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 GUTTERS, SNOW GUARDS, AND ROOF FINISHES 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. ROOF DECK SHALL CONSIST OF 1 1/2", 22 GA. WIDE RIB, GALVANIZED STEEL ROOF DECK (VULCRAFT DECK TYPE 1.5B22 OR APPROVED EQUIVALENT). FASTEN DECK TO SUPPORTS PER FASTEN DECK TO SUPPORTS AS FOLLOWS:
   AT SUPPORTS: 36/4 PATTERN w/ 5/8" DIA. PUDDLE WELDS
   AT SIDELAPS: (2) #10 TEK SCREWS
   AT PARALLELATTACHMENTS: 5/8" DIA. PUDDLE WELDS AT 12" O.C.
5. T/STEEL ELEVATION = SEE PLAN
   JOIST BEARING ELEVATION = SEE PLAN
6. ALL JOISTS SHALL HAVE 5" DEEP SHOES, UNLESS NOTED OTHERWISE.
7. HORIZONTAL BRIDGING AND DIAGONAL BRIDGING FOR STEEL JOISTS SHALL BE DESIGNED AS REQUIRED BY THE SJI SPECIFICATIONS AND THE OSHA REGULATIONS. BRIDGING MEMBERS SHALL BE CONNECTED TO THE JOIST CHORDS BY WELDING OR OTHER MECHANICAL MEANS. THE BRIDGING AND ITS CONNECTIONS MUST BE CAPABLE OF TRANSFERRING THE FORCES AS REQUIRED BY THE SJI. THE ENDS OF BRIDGING LINES TERMINATING AT STEEL BEAMS SHALL BE SECURELY ANCHORED THERETO AT TOP AND BOTTOM CHORDS.
8. ALL STRUCTURAL STEEL SHALL BE HOT DIPPED GALVANIZED.

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UV AND POST AERATION STRUCTURE - CANOPY FRAMING PLAN

Drawing No: **S4-3**

Sheet: 161 OF 205

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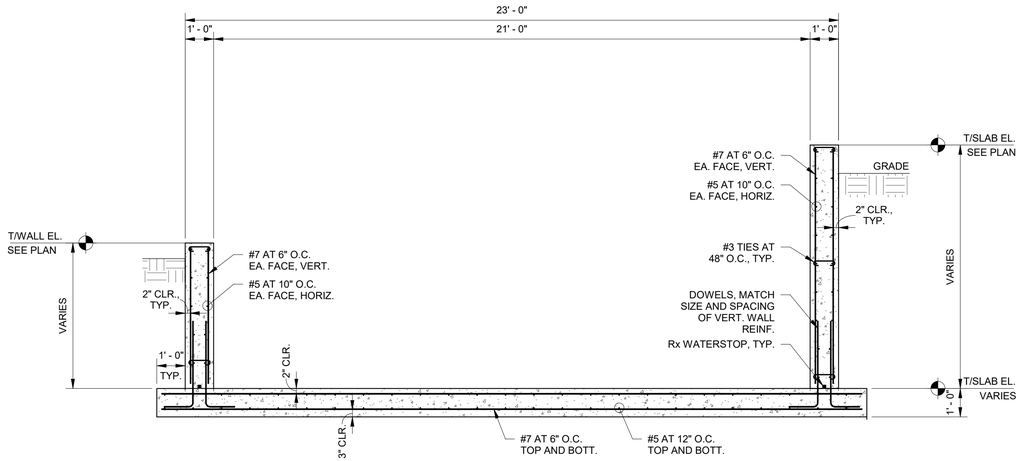
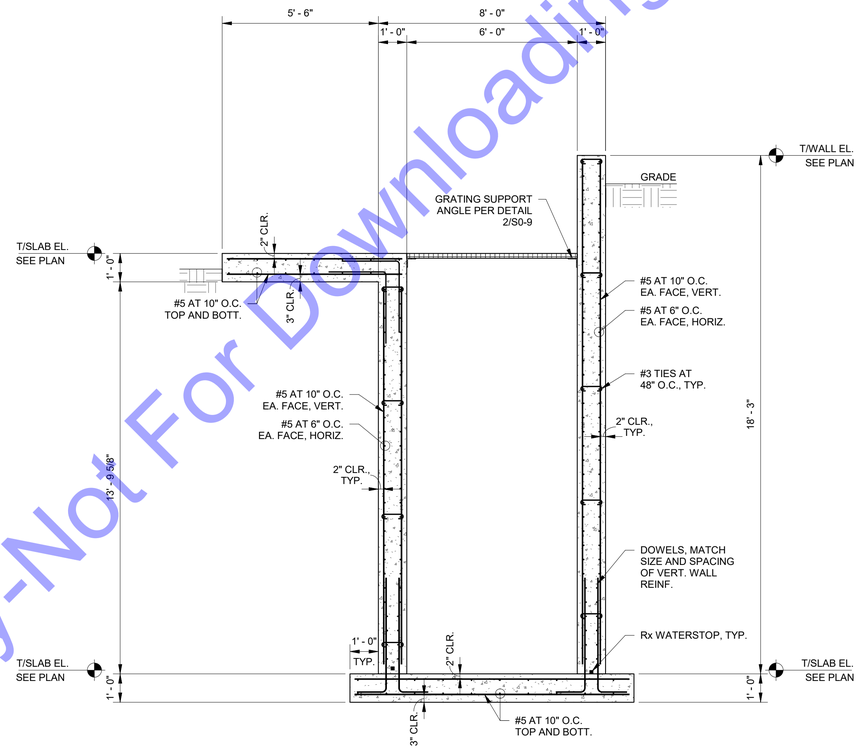
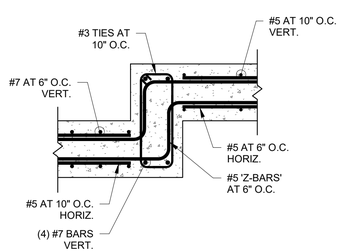


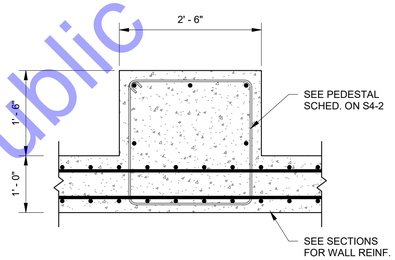
3 S4-4 SECTION
3/8" = 1'-0"



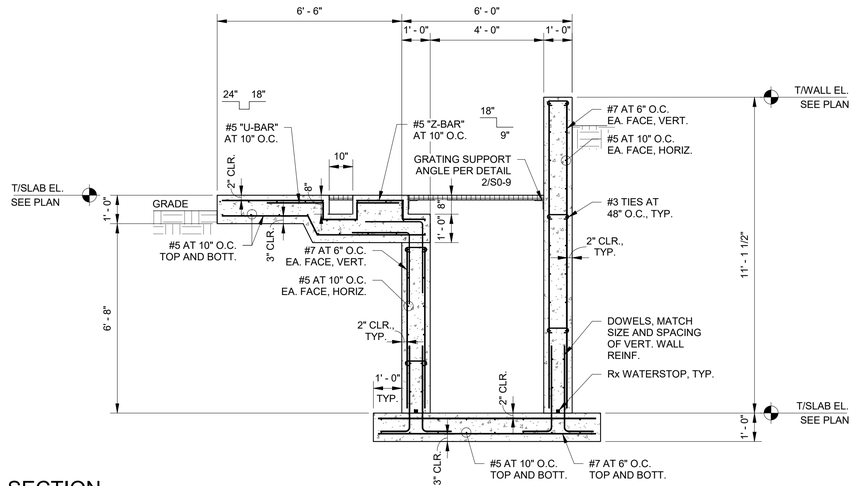
1 S4-4 SECTION
3/8" = 1'-0"



5 S4-4 PLAN DETAIL
3/4" = 1'-0"



4 S4-4 PLAN DETAIL
3/4" = 1'-0"



2 S4-4 SECTION
3/8" = 1'-0"

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UV AND POST AERATION STRUCTURE - SECTIONS AND DETAILS

Drawing No:
S4-4
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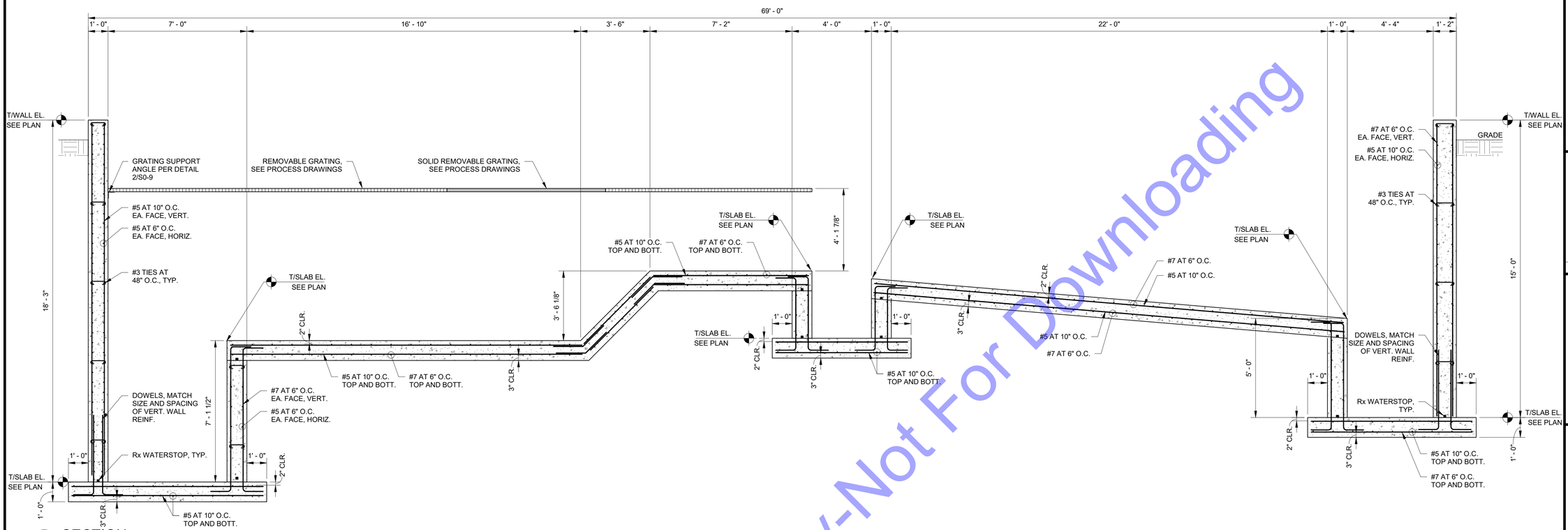

2 S4-5 SECTION
3/8" = 1'-0"

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UV AND POST AERATION STRUCTURE - SECTIONS AND DETAILS

Drawing No:
S4-5
Sheet: 163 OF 205

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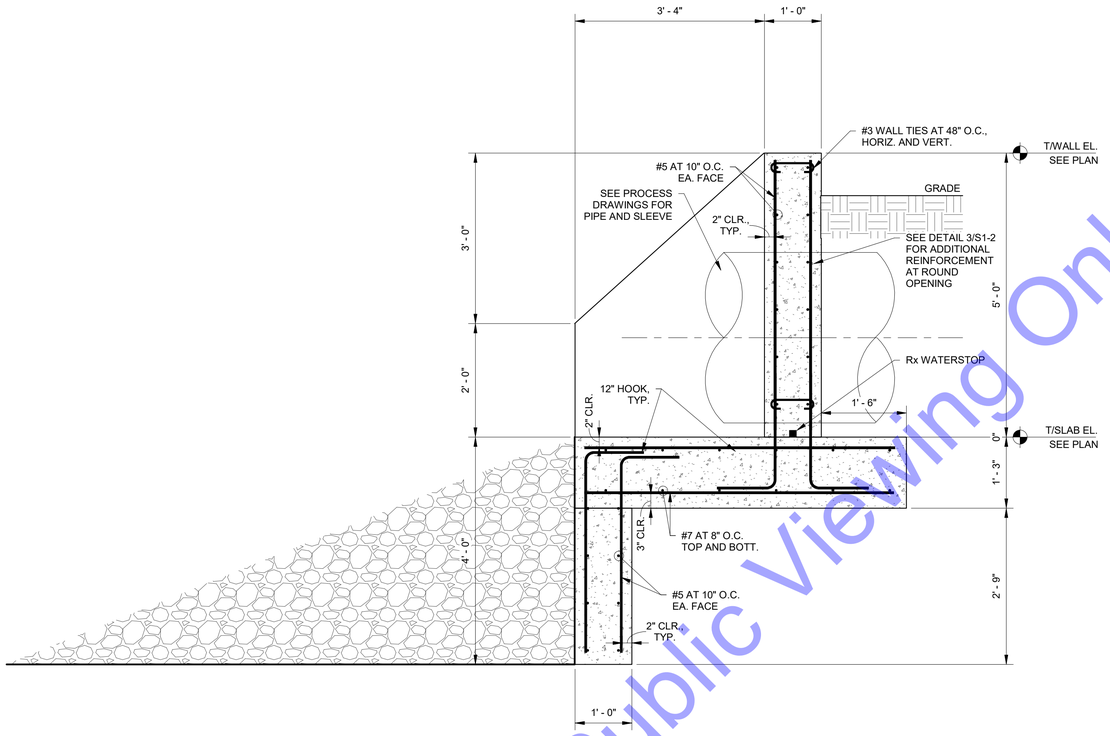
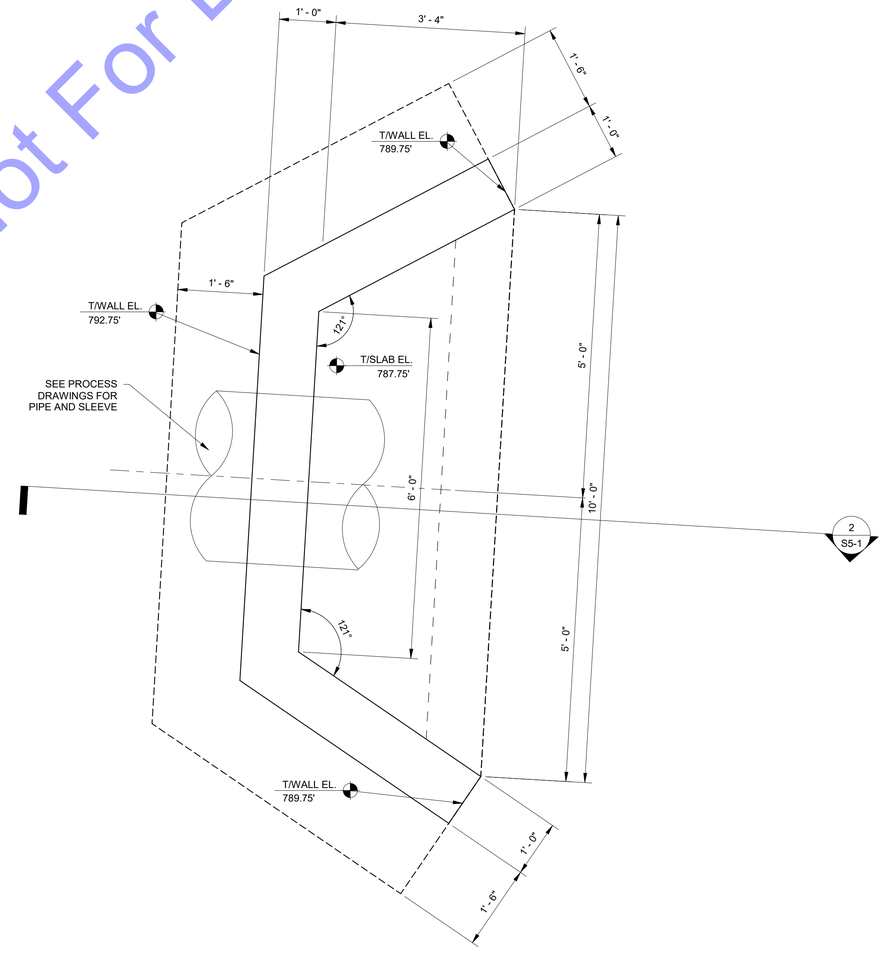
FOUNDATION PLAN NOTES

◯ 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. ALL BACKFILLING AND COMPACTION BEHIND WALLS AND UNDER BASE SLABS SHALL BE PERFORMED UNDER THE DIRECT SUPERVISION OF A QUALIFIED GEOTECHNICAL ENGINEER TO CONFIRM THAT THE COMPACTED SOIL MEETS REQUIREMENTS FOR ASSUMED DESIGN CAPACITY.



2 S5-1 SECTION
3/4" = 1'-0"



1 S5-1 FOUNDATION PLAN
3/4" = 1'-0"

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NEW EFFLUENT OUTFALL STRUCTURE - FOUNDATION PLAN, SECTIONS, AND DETAILS

Drawing No:
S5-1
Sheet: 164 OF 205

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WALL FOOTING SCHEDULE					
MARK	WIDTH	LENGTH	THICK.	BOTT. LONG. REINF.	BOTT. TRANS. REINF.
WF2	2'-0"	CONT.	1'-0"	3 - #5	#5 AT 12" O.C.

MASONRY WALL REINFORCING SCHEDULE	
(A)	8-INCH CMU WALL 8-INCH NORMAL WEIGHT CMU BLOCK VERTICAL: #5 BARS AT 48" O.C. HORIZONTAL: (2) #5 BARS AT T/BB ELEV. = T/WALL #9 TRUSS TYPE JOINT REINF. AT 16-INCHES O.C. (8" LAP)

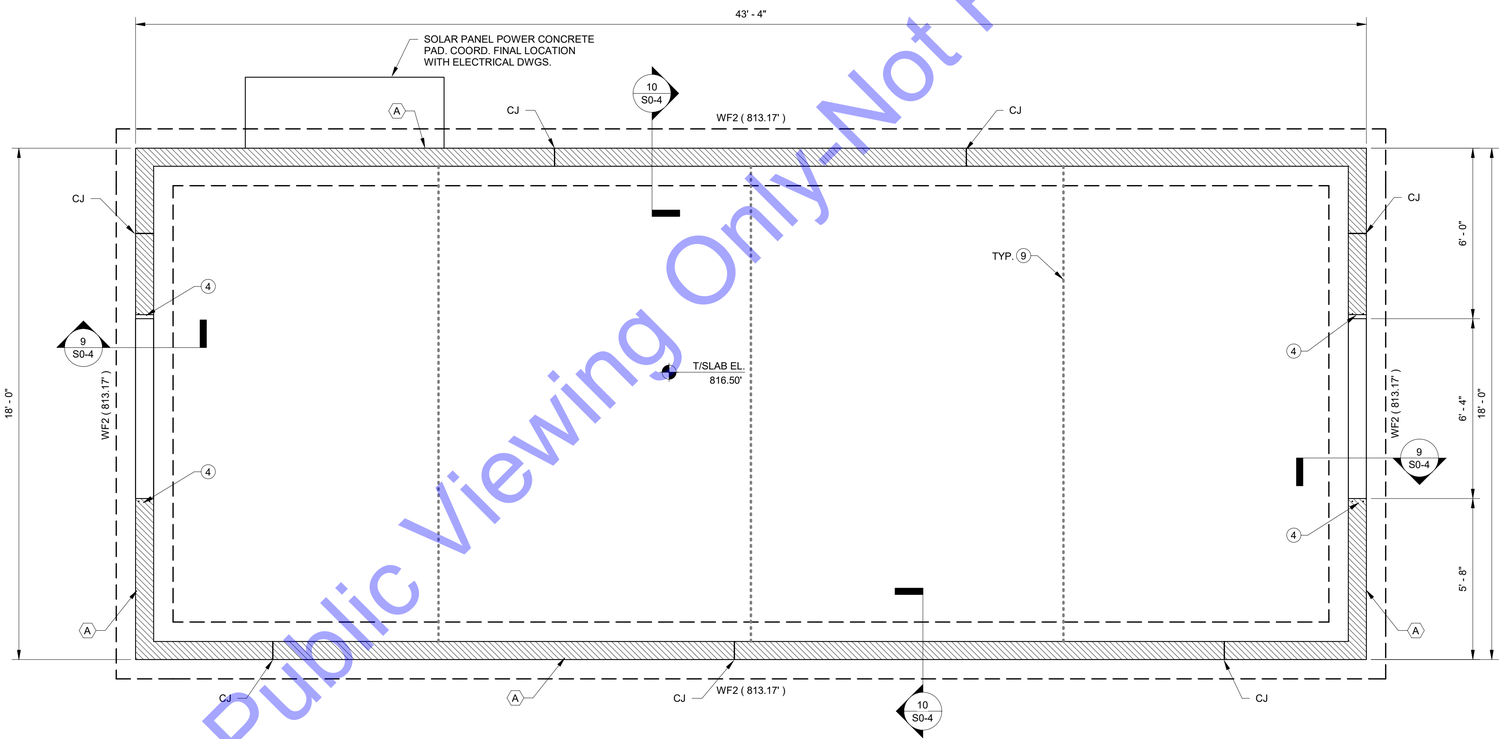
NOTES:

1. REINFORCE ALL WALLS AS NOTED BY SCHEDULE EXCEPT AS NOTED ON PLANS AND/OR DETAILS.
2. PROVIDE TOP BAND BEAM (BB) TO ALL WALLS. WHEN WALL COURSING DOES NOT FINISH ON A FULL BLOCK, TOP BB DEPTH SHALL BE THE LAST FULL BLOCK PLUS THE PARTIAL DEPTH OF THE REMAINING BLOCK AT TOP OF THE WALL.
3. PROVIDE A 1'-0" HOOK AT TOP OF ALL VERTICAL BARS.
4. PROVIDE #5 DOWELS WITH 1'-0" HOOK AT BOTTOM OF WALL INTO CONCRETE SLAB. DOWELS TO MATCH VERTICALS IN SPACING.
5. INSULATE EXTERIOR CMU WALLS USING KORFIL IN-CORE INSULATION OR APPROVED EQUAL. MASONRY CORE INSULATION IS TO BE PLACED AT ALL NON-REINFORCED/NON-GROUTED CMU CORES. MASONRY CORE INSULATION IS NOT PERMITTED AT REINFORCED/GROUTED CMU CORES.

FOUNDATION PLAN NOTES

(○) INDICATES NOTE REFERENCED IN PLAN

1. SEE THE S0-SERIES SHEETS FOR GENERAL STRUCTURAL NOTES AND TYPICAL STRUCTURAL DETAILS.
2. T/SLAB ELEVATION = SEE PLAN
   T/FOOTING ELEVATION = SEE PLAN
3. FLOOR SLAB SHALL CONSIST OF A 6-INCH SLAB-ON-GRADE OVER 6-INCHES OF COMPACTED FILL AND A 10-MIL VAPOR RETARDER. REINFORCE SLAB WITH SYNTHETIC FIBERS PER THE CONCRETE SCHEDULE ON S0-1.
4. (4) GROUT AND PROVIDE 2 - #6 VERTICAL BARS AT MANSONRY JAMB.
5. GENERAL CONTRACTOR TO COORDINATE ALL OPENING, PIPE SLEEVES, EMBEDDED ITEMS, HANDRAILS, GRATING, ETC. WITH THE PROCESS DRAWINGS.
6. ALL DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED PRIOR TO FABRICATION, CONSTRUCTION OR ERECTION. THE GENERAL CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ANY DISCREPANCIES.
7. SEE SITE PLAN FOR ALL FINAL GRADE ELEVATIONS.
8. MAINTAIN STRUCTURAL SLAB THICKNESSES AT ALL FLOOR SLOPES AND DEPRESSIONS.
9. (9) SAW CUT OR WET CUT CONTRACTION JOINTS IN SLABS AS SHOWN ON PLANS. WET CUTS ARE TO BE MADE AFTER FINAL FLOATING WHILE CONCRETE IS STILL PLIABLE. SAW CUTS ARE TO BE MADE AS SOON AS PRACTICAL AFTER FINAL HARD TROWELING BUT MUST BE COMPLETED WITHIN 2-HOURS OF FINAL TROWELING. SEE SHEET S0-4 FOR TYPICAL CONSTRUCTION AND CONTRACTION JOINT DETAILS.
10. "CJ" INDICATES MASONRY CONTROL JOINT, SEE TYPICAL DETAILS.
11. ANY REQUIRED HOUSEKEEPING PADS SHALL BE PER DETAIL 2/S0-4.



1 S6-1 NEW ELECTRICAL BUILDING - FOUNDATION PLAN
3/8" = 1'-0"

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NEW ELECTRICAL BUILDING - FOUNDATION PLAN

Drawing No: **S6-1**

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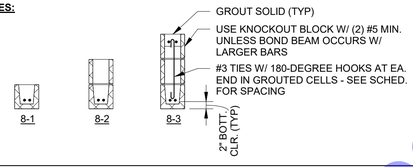
CMU LINTEL SCHEDULE						
MARK	SIZE	BOTT. BARS	TOP BARS	EXTEND PAST OPNG.	TIES	SPAN
8-1	8" x 8"	2 - #5	-	8"	-	SEE PLAN
8-2	8" x 16"	2 - #5	-	16"	-	SEE PLAN
8-3	8" x 24"	2 - #5	2 - #5	16"	#3 AT 8" O.C.	SEE PLAN

LINTEL TYPES:



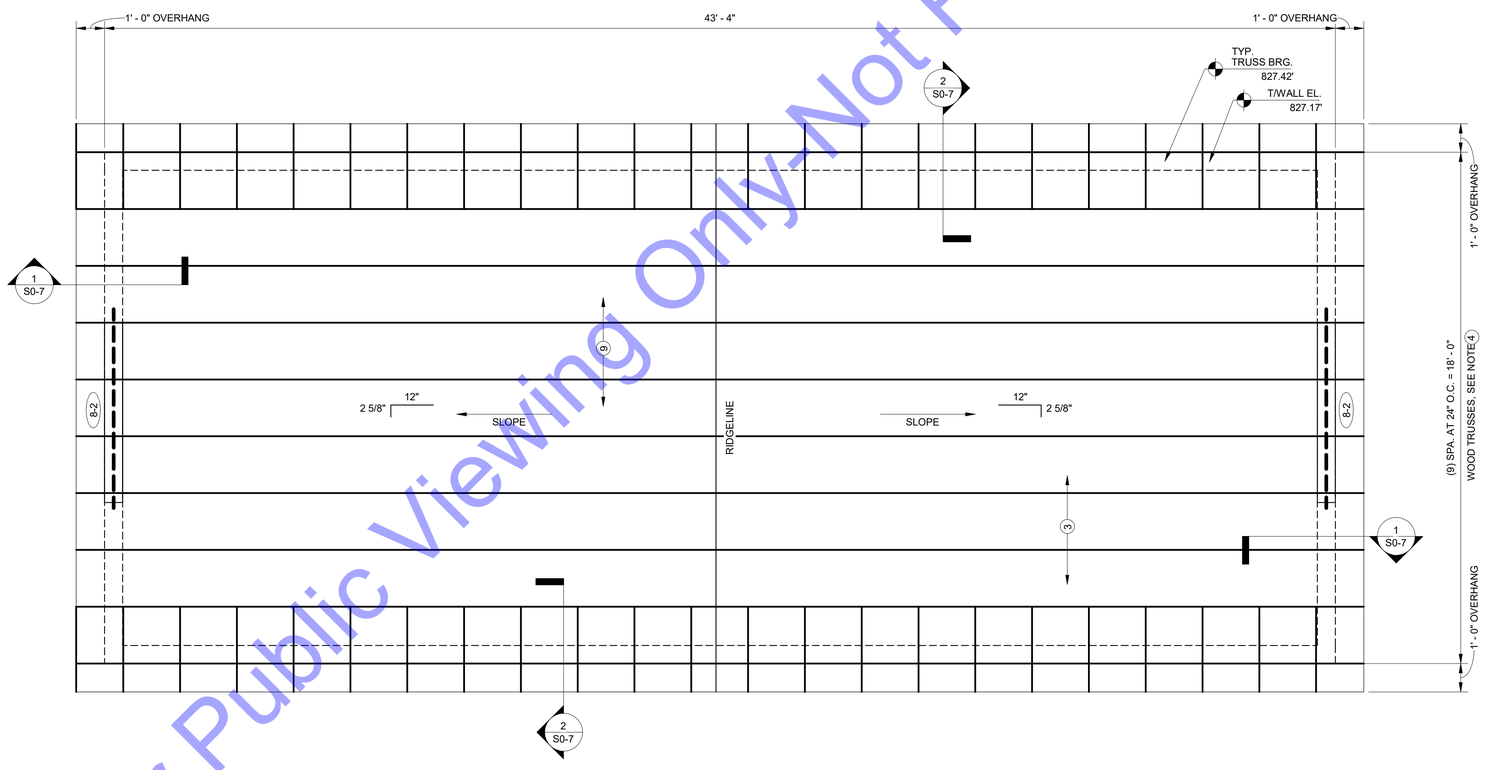
NOTES:

1. LINTEL BLOCKS AND BOTTOM BARS TO EXTEND PAST CMU OPENING TO WIDTHS INDICATED IN SCHEDULE. CUT OUT BOTTOM SHELL OF LINTEL BLOCKS AT BEARING TO ALLOW INTEGRAL GROUTING OF LINTEL & FILLED CELLS BELOW AT BEARING. PROVIDE FILLED CELLS FULL WIDTH OF BEARINGS INDICATED WITH VERTICAL IN EACH CELL EXTENDING FROM FLOOR TO FLOOR TO ROOF. USE BAR SIZE INDICATED FOR WALL THICKNESS/TYPE.
2. CONSTRUCTION JOINTS SHALL NOT OCCUR WITHIN 2" OF THE ENDS OF THE LINTEL BEARINGS.
3. LINTELS SHALL BE GROUTED SIMILAR TO WALLS. ALL GROUT MUST BE CONSOLIDATED TWICE, ONCE WITHIN 5 MINUTES OF PLACEMENT AND ONCE 15-20 MINUTES AFTER PLACEMENT.

ROOF FRAMING PLAN NOTES

(○) INDICATES NOTE REFERENCED IN PLAN

1. SEE THE S0-SERIES SHEETS FOR GENERAL STRUCTURAL NOTES AND TYPICAL STRUCTURAL DETAILS.
2. PROVIDE DOUBLE 2x TOP PLATES AT TRUSS BEARING PER SECTION 1/S0-7 AND TRUSS ELEVATIONS.
   TRUSS BEARING ELEVATIONS = SEE PLAN
   T/WALL ELEV. = SEE PLAN
3. ROOF DECK SHALL BE APA 32/16 SPAN RATED SHEATHING, 5/8-INCH NOMINAL THICKNESS, EXPOSURE 1. ATTACH WITH 8d COMMON NAILS AT 12-INCHES O.C. IN FIELD AND 6-INCHES O.C. AT EDGES AND DIAPHRAGM BOUNDARIES, UNLESS NOTED OTHERWISE ON PLANS. PROVIDE SHEATHING SUPPORT CLIPS BETWEEN TRUSSES AT UNBLOCKED PANEL EDGES (SIMPSON PSCL OR EQUAL).
4. PREFABRICATED WOOD ROOF TRUSSES SHALL BE DESIGNED TO SUPPORT LOADING AS SPECIFIED IN GENERAL STRUCTURAL NOTES SHEET S0-2.
5. PROVIDE BLOCKING IN ROOF TRUSSES AT EXTERIOR WALL LOCATIONS AS INDICATED ON PLANS AND SECTIONS.
6. THE TRUSS MANUFANUFACTURER SHALL COORDINATE THE SIZE, LOCATIONS, AND WEIGHT OF ALL ROOF-SUPPORTED DUCTS WITH THE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS AND THE GENERAL CONTRACTOR.
7. (8-X) DENOTES MASONRY LINTEL - SEE SCHEDULE ON THIS SHEET.
8. LINTELS SHALL BE PROVIDED FOR ALL MECHANICAL AND ELECTRICAL OPENINGS IN BLOCK WALL.
9. COORDINATE ATTIC ACCESS WITH PROCESS DRAWINGS.



1 S6-2 NEW ELECTRICAL BUILDING - ROOF FRAMING PLAN
3/8" = 1'-0"

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NEW ELECTRICAL BUILDING - ROOF FRAMING PLAN

Drawing No: **S6-2**

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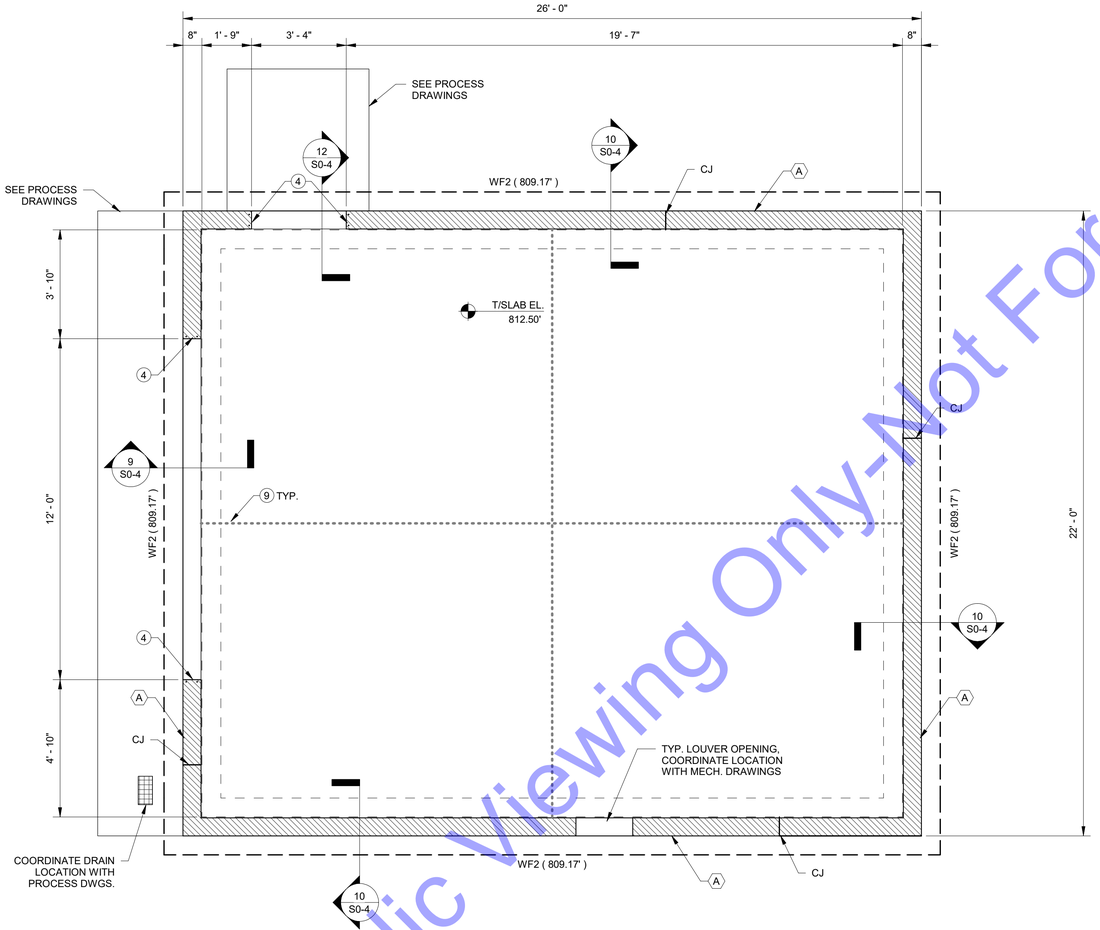

1 S7-1 NEW CHEMICAL FEED BUILDING - FOUNDATION PLAN

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. T/SLAB ELEVATION = SEE PLAN
   T/FOOTING ELEVATION = SEE PLAN
3. FLOOR SLAB SHALL CONSIST OF A 6-INCH SLAB-ON-GRADE OVER 6-INCHES OF COMPACTED FILL AND A 10-MIL VAPOR RETARDER. REINFORCE SLAB WITH SYNTHETIC FIBERS PER THE CONCRETE SCHEDULE ON S0-1.
4. (4) GROUT AND PROVIDE 2 - #6 VERTICAL BARS AT MANSONRY JAMB.
5. GENERAL CONTRACTOR TO COORDINATE ALL OPENING, PIPE SLEEVES, EMBEDDED ITEMS, HANDRAILS, GRATING, ETC. WITH THE PROCESS DRAWINGS.
6. ALL DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED PRIOR TO FABRICATION, CONSTRUCTION OR ERECTION. THE GENERAL CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ANY DISCREPANCIES.
7. SEE SITE PLAN FOR ALL FINAL GRADE ELEVATIONS.
8. MAINTAIN STRUCTURAL SLAB THICKNESSES AT ALL FLOOR SLOPES AND DEPRESSIONS.
9. (9) SAW CUT OR WET CUT CONTRACTION JOINTS IN SLABS AS SHOWN ON PLANS. WET CUTS ARE TO BE MADE AFTER FINAL FLOATING WHILE CONCRETE IS STILL PLIABLE. SAW CUTS ARE TO BE MADE AS SOON AS PRACTICAL AFTER FINAL HARD TROWELING BUT MUST BE COMPLETED WITHIN 2-HOURS OF FINAL TROWELING. SEE SHEET S0-4 FOR TYPICAL CONSTRUCTION AND CONTRACTION JOINT DETAILS.
10. "CJ" INDICATES MASONRY CONTROL JOINT, SEE TYPICAL DETAILS.
11. ANY REQUIRED HOUSEKEEPING PADS SHALL BE PER DETAIL 2/S0-4.

WALL FOOTING SCHEDULE

MARK	WIDTH	LENGTH	THICK.	BOTT. LONG. REINF.	BOTT. TRANS. REINF.
WF2	2'-0"	CONT.	1'-0"	3 - #5	#5 AT 12" O.C.

MASONRY WALL REINFORCING SCHEDULE

(A)	8-INCH CMU WALL 8-INCH NORMAL WEIGHT CMU BLOCK VERTICAL: #5 BARS AT 32" O.C. HORIZONTAL: (2) #5 BARS AT T/BB ELEV. = T/WALL #9 TRUSS TYPE JOINT REINF. AT 16-INCHES O.C. (8" LAP)

NOTES:

1. REINFORCE ALL WALLS AS NOTED BY SCHEDULE EXCEPT AS NOTED ON PLANS AND/OR DETAILS.
2. PROVIDE TOP BAND BEAM (BB) TO ALL WALLS. WHEN WALL COURSING DOES NOT FINISH ON A FULL BLOCK, TOP BB DEPTH SHALL BE THE LAST FULL BLOCK PLUS THE PARTIAL DEPTH OF THE REMAINING BLOCK AT TOP OF THE WALL.
3. PROVIDE A 1'-0" HOOK AT TOP OF ALL VERTICAL BARS.
4. PROVIDE #5 DOWELS WITH 1'-0" HOOK AT BOTTOM OF WALL INTO CONCRETE SLAB. DOWELS TO MATCH VERTICALS IN SPACING.
5. INSULATE EXTERIOR CMU WALLS USING KORFIL IN-CORE INSULATION OR APPROVED EQUAL. MASONRY CORE INSULATION IS TO BE PLACED AT ALL NON-REINFORCED/NON-GROUTED CMU CORES. MASONRY CORE INSULATION IS NOT PERMITTED AT REINFORCED/GROUTED CMU CORES.

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NEW CHEMICAL FEED BUILDING - FOUNDATION PLAN

Drawing No: **S7-1**

Sheet: 167 OF 205

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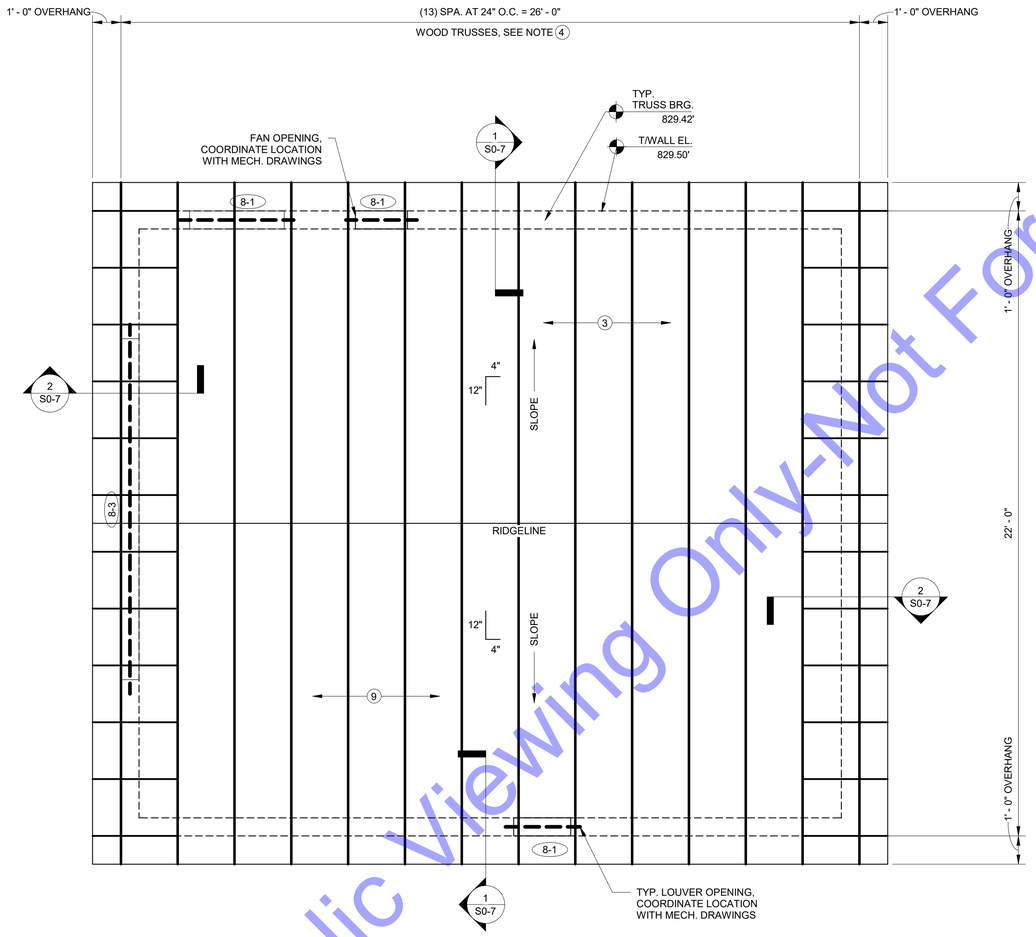


1 S7-2 NEW CHEMICAL FEED BUILDING - ROOF FRAMING PLAN
3/8" = 1'-0"

ROOF FRAMING PLAN NOTES

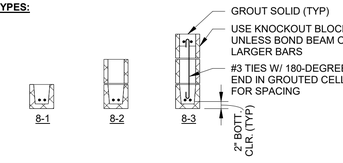
◯ INDICATES NOTE REFERENCED IN PLAN

1. SEE THE S0-SERIES SHEETS FOR GENERAL STRUCTURAL NOTES AND TYPICAL STRUCTURAL DETAILS.
2. PROVIDE DOUBLE 2x TOP PLATES AT TRUSS BEARING PER SECTION 1/S0-7 AND TRUSS ELEVATIONS.
   TRUSS BEARING ELEVATIONS = SEE PLAN
   T/WALL ELEV. = SEE PLAN
3. ROOF DECK SHALL BE APA 32/16 SPAN RATED SHEATHING, 5/8-INCH NOMINAL THICKNESS, EXPOSURE 1. ATTACH WITH 8d COMMON NAILS AT 12-INCHES O.C. IN FIELD AND 6-INCHES O.C. AT EDGES AND DIAPHRAGM BOUNDARIES, UNLESS NOTED OTHERWISE ON PLANS. PROVIDE SHEATHING SUPPORT CLIPS BETWEEN TRUSSES AT UNBLOCKED PANEL EDGES (SIMPSON PSCL OR EQUAL).
4. PREFABRICATED WOOD ROOF TRUSSES SHALL BE DESIGNED TO SUPPORT LOADING AS SPECIFIED IN GENERAL STRUCTURAL NOTES SHEET S0-2.
5. PROVIDE BLOCKING IN ROOF TRUSSES AT EXTERIOR WALL LOCATIONS AS INDICATED ON PLANS AND SECTIONS.
6. THE TRUSS MANUFANUFACTURER SHALL COORDINATE THE SIZE, LOCATIONS, AND WEIGHT OF ALL ROOF-SUPPORTED DUCTS WITH THE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS AND THE GENERAL CONTRACTOR.
7. (8-X) DENOTES MASONRY LINTEL - SEE SCHEDULE ON THIS SHEET.
8. LINTELS SHALL BE PROVIDED FOR ALL MECHANICAL AND ELECTRICAL OPENINGS IN BLOCK WALL.
9. COORDINATE ATTIC ACCESS WITH PROCESS DRAWINGS.

CMU LINTEL SCHEDULE

MARK	SIZE	BOTT. BARS	TOP BARS	EXTEND PAST OPNG.	TIES	SPAN
8-1	8" x 8"	2 - #5	-	8"	-	SEE PLAN
8-2	8" x 16"	2 - #5	-	16"	-	SEE PLAN
8-3	8" x 24"	2 - #5	2 - #5	16"	#3 AT 8" O.C.	SEE PLAN

LINTEL TYPES:



NOTES:

1. LINTEL BLOCKS AND BOTTOM BARS TO EXTEND PAST CMU OPENING TO WIDTHS INDICATED IN SCHEDULE. CUT OUT BOTTOM SHELL OF LINTEL BLOCKS AT BEARING TO ALLOW INTEGRAL GROUTING OF LINTEL & FILLED CELLS BELOW AT BEARING. PROVIDE FILLED CELLS FULL WIDTH OF BEARINGS INDICATED WITH VERTICAL IN EACH CELL EXTENDING FROM FLOOR TO FLOOR TO ROOF. USE BAR SIZE INDICATED FOR WALL THICKNESS/TYPE.
2. CONSTRUCTION JOINTS SHALL NOT OCCUR WITHIN 2" OF THE ENDS OF THE LINTEL BEARINGS.
3. LINTELS SHALL BE GROUTED SIMILAR TO WALLS. ALL GROUT MUST BE CONSOLIDATED TWICE, ONCE WITHIN 5 MINUTES OF PLACEMENT AND ONCE 15-20 MINUTES AFTER PLACEMENT.

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NEW CHEMICAL FEED BUILDING - ROOF FRAMING PLAN

Drawing No: **S7-2**

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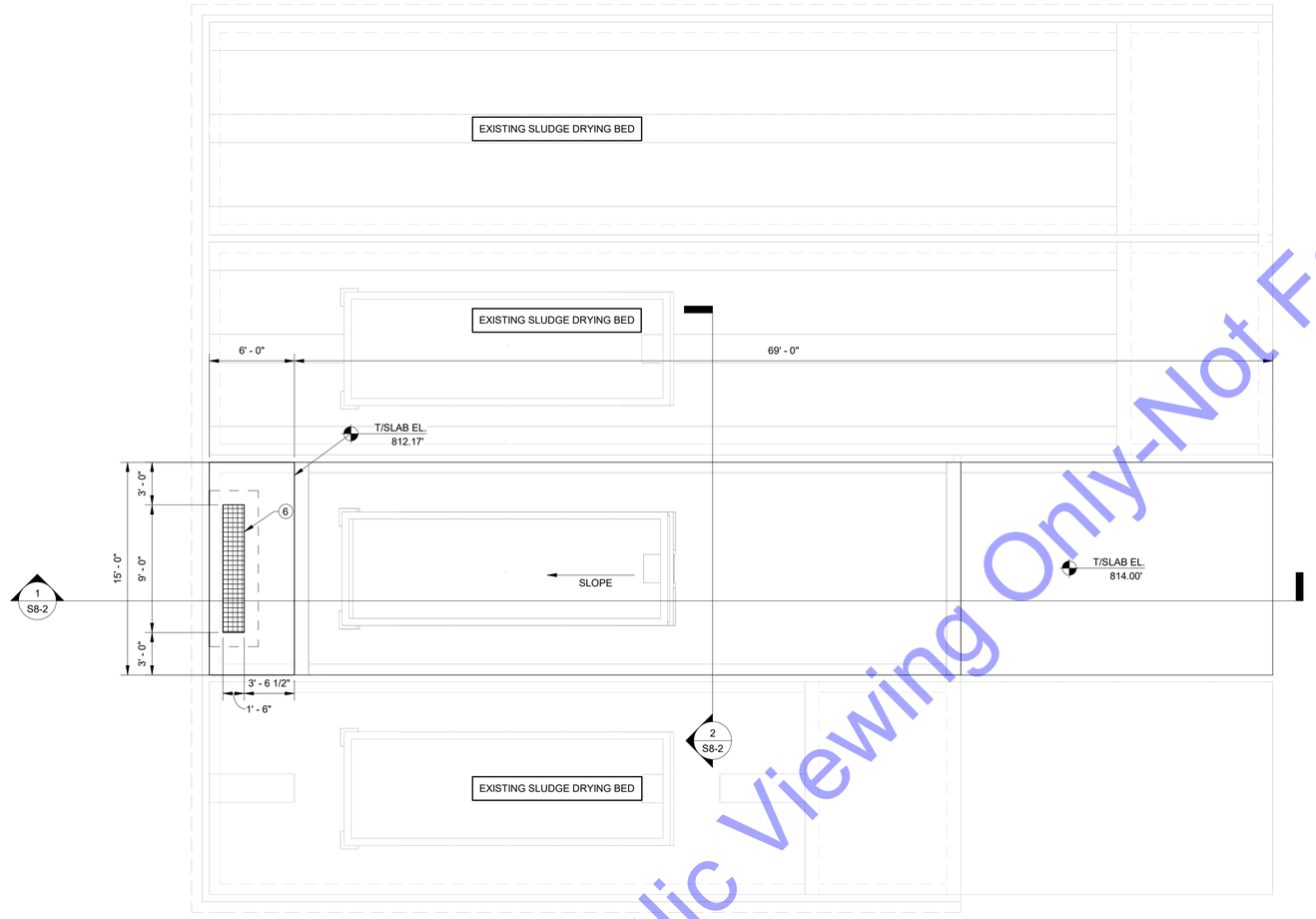
FOUNDATION PLAN NOTES

(○) 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. SEE SITE PLAN FOR ALL FINAL GRADE ELEVATIONS.
4. SEE GEOTECHNICAL REPORT FOR ALL BACKFILLING AND COMPACTION REQUIREMENTS BEHIND WALLS AND UNDER BASE SLABS.
5. MAINTAIN STRUCTURAL SLAB THICKNESSES AT ALL FLOOR SLOPES AND DEPRESSIONS.
6. TRENCH DRAIN, COVER WITH 2" THICK MOLDED FIBER REINFORCED PLATFORM GRATING, SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.



1 S8-1 EXISTING SLUDGE BAGGING SYSTEM IMPROVEMENTS - FOUNDATION PLAN

3/16" = 1'-0"

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EXISTING SLUDGE BAGGING SYSTEM IMPROVEMENTS - FOUNDATION PLAN

Drawing No:
S8-1
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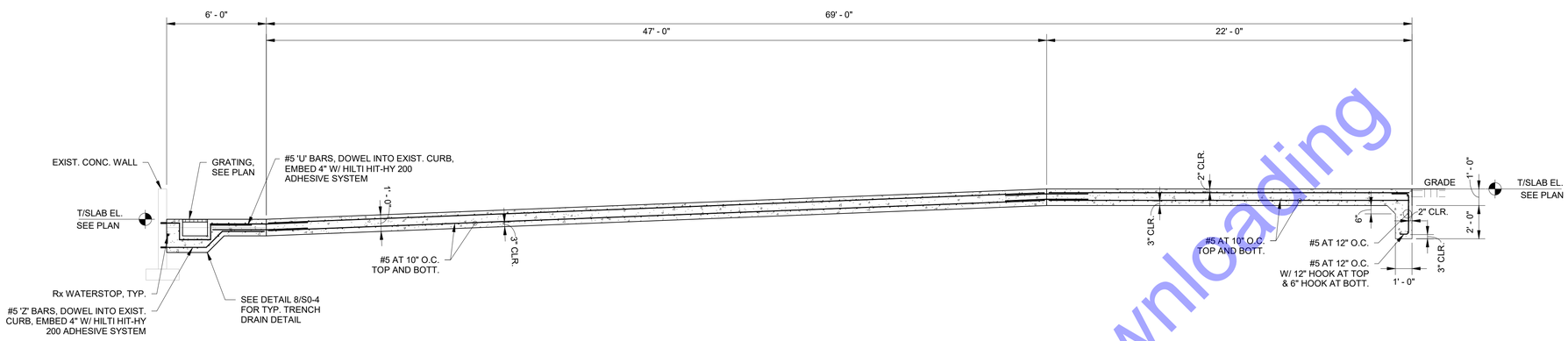
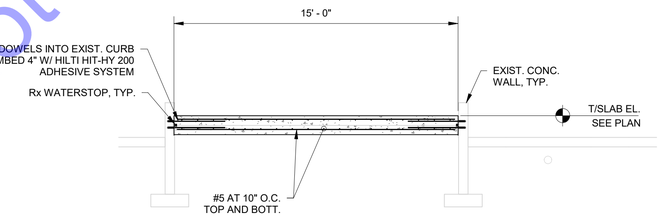


1 S8-2 SECTION
1/4" = 1'-0"



2 S8-2 SECTION
1/4" = 1'-0"

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EXISTING SLUDGE BAGGING SYSTEM IMPROVEMENTS - SECTIONS AND DETAILS

Drawing No:
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APPLICABLE CODES AND STANDARDS

1. MECHANICAL INSTALLATION TO BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, AND FEDERAL CODES HAVING JURISDICTION.
2. CODES CONSIDERED APPLICABLE TO THIS PROJECT INCLUDE BUT ARE NOT LIMITED TO:
   - A. OBC; 2011 INDIANA BUILDING CODE - BASED ON IBC 2009.
   - B. OMC; 2011 INDIANA MECHANICAL CODE - BASED ON IMC 2009.
   - C. OPC; 2011 INDIANA PLUMBING CODE - BASED ON IPC 2009.
   - D. OFC; 2011 INDIANA FIRE CODE - BASED ON IFC 2009
   - E. IECC; 2009 INTERNATIONAL ENERGY CONSERVATION CODE.
   - F. ASHRAE STANDARD 90.1 2007 ENERGY STANDARDS FOR BUILDINGS EXCEPT LOW-RISE RESIDENTIAL BUILDINGS.
   - G. NFPA 13: 2010 SPRINKLER SYSTEM INSTALLATION.
   - H. NFPA 14: 2010 STANDPIPE AND HOSE SYSTEMS.
   - I. NFPA 70, 2011 NATIONAL ELECTRIC CODE,(NEC)
   - J. NFPA 72, 2010 FIRE ALARM AND SIGNALING CODE.
   - K. ANSI HANDICAPPED CODE A117.1
   - L. AGA: AMERICAN GAS ASSOCIATION.
   - M. AMCA: AIR MOVING AND CONDITIONING ASSOCIATIONS, INC.
   - N. ANSI: AMERICAN NATIONAL STANDARDS INSTITUTE.
   - O. ARI: AMERICAN REFRIGERATION INSTITUTE.
   - P. ASHRAE: AMERICAN SOCIETY OF HEATING REFRIGERATION AND AIR CONDITIONING ENGINEERS.
   - Q. ASME: AMERICAN SOCIETY OF MECHANICAL ENGINEERS.
   - R. ASTM: AMERICAN SOCIETY FOR TESTING AND MATERIALS.
   - S. MSS: MANUFACTURER'S STANDARDIZATION SOCIETY OF THE VALVE AND FITTING INDUSTRY.
   - T. NEMA: NATIONAL ELECTRIC MANUFACTURER'S ASSOCIATION.
   - U. NFPA: NATIONAL FIRE PROTECTION ASSOCIATION.
   - V. SMACNA: SHEET METAL CONSTRUCTION FOR VENTILATING AND AIR-CONDITIONING SYSTEMS.
   - W. UL: UNDERWRITER'S LABORATORIES, INC.
3. INSTALL ALL WORK IN STRICT CONFORMITY WITH APPLICABLE CODES.
4. SUBMIT AND/OR FILE WITH PROPER AUTHORITIES NECESSARY CONTRACT DOCUMENTS AS REQUIRED BY GOVERNING AUTHORITIES.

HEAT/COOL DUCTLESS SPLIT SYSTEM HEAT PUMP UNIT

GENERAL NOTES:

(1) - COOLING CAPACITY BASED ON 95° O.A.T. AND 80°/67° INDOOR TEMPERATURE

UNIT ACCESSORIES:

1. - OPERATION TO -20° HEAD PRESSURE CONTROL
2. - WALL MOUNTED T'STAT WITH SUBBASE-HEATING/COOLING WITH AUTOMATIC CHANGEOVER
3. - CONDENSATE PUMP
4. - COLD TEMPERATURE KIT & OUTDOOR DRAIN PAN HEATER
5. - HEAT PUMP WALL MOUNT BRACKET
6. - LINE SET COVER AND WALL SLEEVE

IDENTIFICATION		FC-1,2/HP-1,2 ELECTRICAL ROOM SPLIT SYSTEM
MANUFACTURER		TRANE/MITSUBISHI
A/C UNIT MODEL NO.		PLA-A30EA7 (-BS)
A/C UNIT TYPE		CEILING CASSETTE
HEAT PUMP UNIT MODEL NO.		PUZ-A30NHA7 (-BS)
HEAT PUMP UNIT TYPE		REMOTE
SEER		22.8
UNIT ACCESSORIES		1 2 3 4 5 6
INDOOR COIL	CFM	840 (HIGH SPD, WET COIL)
	MIN. OUTSIDE AIR	0
	ELEC MCA/MOCP	1A/20
	COOL/HEAT CAPACITY	30,000/32,000
COND. UNIT	ELEC	208/1/60
	ELEC MCA/MOCP	19A/30
REMARKS		WIRED THERMOSTAT

COORDINATION NOTES

1. VISIT SITE AND BE INFORMED OF CONDITIONS UNDER WHICH WORK MUST BE PERFORMED.
2. GENERAL CONTRACTOR OR CONSTRUCTION MANAGER SHALL COORDINATE LOCATION AND PROVIDE SUPPORT FRAMING FOR ALL ROOF-MOUNTED HVAC EQUIPMENT.
3. GENERAL CONTRACTOR OR CONSTRUCTION MANAGER SHALL INCLUDE ADEQUATE TIME IN THE CONSTRUCTION SCHEDULE FOR THE TEST & BALANCE SUBCONTRACTOR TO COMPLETE THE SETUP AND BALANCE OF ALL AIR AND WATER FLOW SYSTEMS IN THE PROJECT AFTER THE MECHANICAL SUBCONTRACTOR HAS ALL AIR AND WATER SYSTEMS IN CONTINUOUS, STABLE OPERATION AND UNDER CONTROL. PRIOR TO STARTING THE TESTING AND BALANCING WORK, THE DIVISION 23 SUBCONTRACTOR SHALL FURNISH COMPLETED SETUP AND COMMISSIONING WORKSHEETS AS LISTED IN SECTION 230800 TO THE TEST AND BALANCE SUBCONTRACTOR AS EVIDENCE THAT THE SYSTEMS HAVE BEEN SETUP, CHECKED AND ARE OPERATIONALLY READY FOR BALANCING.
4. NO SUBSEQUENT ALLOWANCE WILL BE MADE BECAUSE OF ERROR OR FAILURE TO OBTAIN NECESSARY INFORMATION TO COMPLETELY ESTIMATE AND PERFORM ALL WORK INVOLVED.
5. CAREFULLY EXAMINE DRAWINGS AND SPECIFICATIONS TO BE THOROUGHLY FAMILIAR WITH ITEMS WHICH REQUIRE PLUMBING OR HVAC CONNECTIONS AND COORDINATION.
6. NOTIFY OTHER TRADES OF ANY DEVIATIONS OR SPECIAL CONDITIONS NECESSARY FOR INSTALLATION OF WORK.
7. RESOLVE INTERFERENCES BETWEEN WORK OF OTHER TRADES PRIOR TO INSTALLATION.
8. ADVISE OTHER TRADES TO LEAVE PROPER CHASES AND OPENINGS, PLACE OUTLETS, ANCHORS, SLEEVES, AND SUPPORTS PRIOR TO POURING CONCRETE OR INSTALLATION OF MASONRY WORK.
9. IN AREAS OF RENOVATION, INSTALLATION OF NEW PIPING, DUCTWORK, AND EQUIPMENT WILL REQUIRE REMOVAL OF THE EXISTING CEILING AND GRID. SURVEY THE SITE AND BE INFORMED OF EXISTING CONDITIONS WHICH WILL REQUIRE CEILING REMOVAL. INCLUDE THE COST OF THE CEILING WORK OR COORDINATE ITS REMOVAL WITH THE GENERAL CONTRACTOR.
10. ADDITIONAL INSTALLATION COST ASSOCIATED WITH SUBSTITUTED EQUIPMENT REQUIRING ADDITIONAL WORK ON THE PART OF THIS CONTRACTOR OR OTHER SUBCONTRACTORS TO SATISFY THE MANUFACTURER'S INSTALLATION REQUIREMENTS SHALL BE THE RESPONSIBILITY OF THE SUBMITTING CONTRACTOR.
11. COORDINATE ALL NECESSARY POWER CONNECTIONS AS RECOMMENDED BY THE MANUFACTURERS OF INSTALLED EQUIPMENT WITH ELECTRICAL TRADESMEN.
12. COORDINATE WITH ELECTRICAL TRADESMEN FOR PROPER SIZING OF CIRCUIT BREAKERS, FUSES, SAFETY SWITCHES, CONDUIT AND WIRING FOR ALL EQUIPMENT FURNISHED BY DIVISION 23 EQUIPMENT PRIOR TO ROUGH-IN.
13. DO NOT ROUTE ANY PIPING DIRECTLY ABOVE OR 42 INCHES IN FRONT OF ELECTRICAL SWITCHGEAR, PANELS OR TRANSFORMERS.
14. IN CERTAIN AREAS OF RENOVATION, INSTALLATION OF NEW PIPING, DUCTWORK, AND EQUIPMENT AS WELL AS HIGHER CEILING HEIGHTS, WILL REQUIRE OFFSETTING, RAISING AND IN SOME INSTANCES RELOCATING OF EXISTING PIPING, DUCTWORK, RAIN WATER LEADERS, SPRINKLERS, AND CONDUIT. SURVEY THE SITE AND BE INFORMED OF EXISTING CONDITIONS IN PARTICULAR ABOVE CEILINGS WHICH WILL REQUIRE OFFSETTING AND OR RELOCATION OF EXISTING PIPING, DUCTWORK AND CONDUIT AND INCLUDE THE COST OF THIS WORK.

MECHANICAL LEGEND

PIPING		DUCTWORK	
CHS	CHILLED WATER SUPPLY		SUPPLY DUCTWORK
CHR	CHILLED WATER RETURN		RETURN OR EXHAUST DUCTWORK
HWS	HOT WATER SUPPLY	FD	FIRE DAMPER
HWR	HOT WATER RETURN	SD	SMOKE DAMPER
HWRR	HOT WATER REVERSE RETURN	F/SD	COMBINATION FIRE & SMOKE DAMPER
CWS	CONDENSER WATER SUPPLY	240	SUPPLY DIFFUSER & AIR QUANTITY (INDICATES 4-WAY BLOW)
CWR	CONDENSER WATER RETURN	150 3W (2W)	SUPPLY DIFFUSER & AIR QUANTITY INDICATES 3-WAY BLOW (2-WAY BLOW)
STM.(PSI)	STEAM SUPPLY PIPING AND IT'S PRESSURE	160R	RETURN AIR GRILLE & AIR QUANTITY
C.R.	STEAM CONDENSATE RETURN	155E	EXHAUST AIR GRILLE & AIR QUANTITY
P.C.R.	PUMPED STEAM CONDENSATE RETURN		REDUCER/TRANSITION
D	DRAIN LINE	H	STEAM HUMIDIFIER
RS	REFRIGERANT SUCTION	T	THERMOSTAT (ADJUSTABLE)
RL	REFRIGERANT LIQUID	T_C	THERMOSTAT (CONCEALED / KEY OPER.)
FTS	FINNED TUBE SUPPLY	H	HUMIDISTAT
FTR	FINNED TUBE RETURN	R	RISE IN DUCTWORK
FOS	FUEL OIL SUPPLY	D	DROP IN DUCT
FOR	FUEL OIL RETURN		CONICAL TEE
V	EQUIPMENT VENT		BELLMOUTH CONNECTION
E.O.M.	END OF MAIN DRIP		DUCT WITH INTERNAL SOUND LINER
P.R.V.	PRESSURE REDUCING VALVE	SP.D.	SPLITTER DAMPER
FT	STEAM TRAP		REHEAT COIL
	BALL VALVE	[2]	ELECTRIC REHEAT BOX, CLEARANCE SPACE AND IDENTIFICATION
	GATE VALVE		SQUARE ELBOW WITH TURNING VANES
	GLOBE VALVE	M.B.D.	MANUAL BALANCE DAMPER
	BUTTERFLY VALVE	A.T.C.	AUTOMATIC TEMP. CONTROL PANEL
	CONTROL VALVE	A.D.	ACCESS DOOR
	STRAINER WITH HOSE END DRAIN CONNECTION	M.L.	MARINE LIGHT
	STRAINER AND BLOWDOWN VALVE	S_D	DUCT MOUNTED SMOKE DETECTOR
	B&G CIRCUIT SETTER, OR EQUAL, BALANCING VALVE	S_P	DUCT MOUNTED STATIC PRESSURE CONTROLLER
	PLUG COCK (BALANCING VALVE)	A.F.F.	ABOVE FINISHED FLOOR
	UNION	A.F.R.	ABOVE FINISHED ROOF
	COMPANION FLANGE		MANUAL BALANCING DAMPER
	CHECK VALVE	PI	PRESSURE INDICATOR (GAUGE)
	GUIDE		THERMOMETER
	ANCHOR		MOTORIZED VALVE
	GAUGE & GAUGE COCK		

HVAC GENERAL NOTES:

1. DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE APPROXIMATE ROUTING OF PIPING AND DUCTWORK. THE CONTRACTOR SHALL COORDINATE WITH OTHER TRADES TO AVOID CONFLICTS AND DELAYS. MINOR OFFSETS AND ADJUSTMENTS SHALL BE PROVIDED WHERE REQUIRED AT NO ADDITIONAL COST TO THE OWNER.
2. COORDINATE LOCATIONS OF EQUIPMENT WITH OTHER TRADES, AND WITH STRUCTURAL AND ARCHITECTURAL ELEMENTS.
3. ALL EXHAUST FANS, SUPPLY FANS, DAMPERS, AND RELIEF VENTS SHALL BE MOUNTED 18" BELOW CEILING HEIGHT. COORDINATE FINAL HEIGHT LOCATIONS WITH OWNER/RPR.
4. DUCT DIMENSIONS INDICATED ON THE DRAWINGS ARE NET AIRSIDE DIMENSIONS.
5. DUCTWORK SHALL BE FABRICATED OF FIBERGLASS (UNLESS NOTED OTHERWISE) AND INSTALLED IN ACCORDANCE WITH SMACNA STANDARDS. SEAL ALL DUCTS, JOINTS, AND SEAMS IN DUCTWORK TO INSURE AGAINST LEAKAGE.
6. PENETRATIONS OF THE WALLS AND FLOORS SHALL BE FLASHED WITH ALUMINUM SHEET ANGLES AND SEALED WITH INSULATING FOAM PER SMACNA ARCHITECTURAL SHEETMETAL DETAILS STANDARDS.
7. ELECTRIC MOTORS FOR EQUIPMENT SHALL BE TEFC, SELECTED FOR NON-OVERLOADING OPERATION. MOTORS SHALL NOT OPERATE IN THEIR SERVICE FACTOR.
8. GRILLES AND DIFFUSERS SHALL BE TITUS OR EQUAL ALUMINUM SIDE WALL GRILLES. RETURN REGISTER SHALL BE TITUS OR EQUAL ALUMINUM LOUVERED SURFACE MOUNT. PROVIDE STANDARD WHITE PAINTED FACE.

FAN SCHEDULE

GENERAL NOTES:		ABBREVIATIONS:			
(1) - HIGH EFFICIENCY MOTOR	(3) - UPBLAST DISCHARGE	PRE - POWER ROOF EXHAUST FAN	SWSI - SINGLE WIDTH, SINGLE INLET	BVS - BELTED VENT SET	PWE - POWERED WALL EXHAUST FAN
(2) - INCL. WEIGHT OF INERTIA BASE	(4) - TOP HORIZONTAL DISCHARGE	PRS - POWER ROOF SUPPLY FAN	DWDI - DOUBLE WIDTH, DOUBLE INLET	C.T. - CONTROL TRANSFORMER	E.P. - EMERGENCY POWER
UNIT ACCESSORIES:					STARTER ACCESSORIES:
1 - INLET SCREEN	6 - MOTORIZED OUTLET DAMPERS	11 - SMOKE DETECTOR	16 - DISCHARGE MIN. 7'0" A.F.R.	21 - WEATHERPROOF HOUSING/TEFC	A - COMBINATION MAG-X-LINE
2 - MOTORIZED INLET VANES	7 - OUTLET GRAVITY DAMPERS	12 - 24" HIGH ROOF CURB	17 - U.L. 762 LISTED	22 - 2 SPEED, 2 WINDING MOTOR	B - AUTO. TRANSFORMER
3 - MOTORIZED INLET DAMPERS	8 - INERTIA BASE	13 - ACCESS DOOR & DRAIN	18 - EXPLOSION PROOF MOTOR	23 - 3ϕ DISC. SWITCH IN HOUSING	C - MANUAL MOTOR STARTER
4 - INLET GRAVITY DAMPERS	9 - SPRING ISOLATORS	14 - 2" WASHABLE FILTERS	19 - THERMAL OVERLOAD PROTECTION	24 - PRE-WIRED DISC. SWITCH	D - VFD WITH LINE REACTOR AND DISCONNECT
5 - OUTLET SCREEN	10 - BELT GUARD	15 - FAN SAFETY CAGE/WALL SLEEVE	20 - SOLID STATE SPEED CONTROLLER	25 - DOOR LIMIT SWITCH	E - HAND/OFF/AUTO SWITCH/PILOT LIGHT/120V XFMR

UNIT ID	SYSTEM	TYPE	MANUFACTURER	MODEL NO.	CFM	S.P.	MAX. SONES	ROOF/WALL OPENING	UNIT WEIGHT (LBS)	FAN ACCESSORIES	MOTOR (1)			STARTER										NOTES:
											MIN. H.P.	RPM	V/ϕ/Hz	LOCATION	TYPE	DISC. TYPE	ACCESSORIES							
EF-1	CHEMICAL BUILDING	PWE	GREENHECK (OR EQUAL)	CUE-140-C	1000	0.30"	6.6	18"X18"	70	4,5	1/8	860	120/1/60											NOTE 1:
EF-2,3	SBR PIPE GALLERY	PWE	GREENHECK (OR EQUAL)	CUE-160-VG	2250	0.30"	10.7	18"X18"	74	4,5	1/2	923	120/1/60											
NOTE 1:	ENTIRE UNIT INCLUDING FAN CURB SHALL BE COATED WITH HI-PROZ (OR EQUIVELANT PERFORMANCE) COATING FOR CORROSSION PROTECTION.																							

ELECTRIC UNIT HEATER SCHEDULE

MARK	LOCATION	CONFIGURATION	AIRFLOW		FAN DATA					HEATER DATA						ELECTRICAL DATA			ACCESSORIES		FILTER DATA		MANUFACTURER WITH MODEL NUMBER (OR EQUAL)	NOTES
			SUPPLY CFM		TYPE	VOLTAGE	RPM	FLA		KW	MBH	TEMP RISE				FLA	VOLTS	PH	MOUNTING BRACKET	DISCONNECT SWITCH	TYPE	EFF		
EUH-1	CHEMICAL BUILDING	HORIZONTAL	700							5	17	24				16	208-230	3	YES	YES			INDEECO 234-U11N-0050D OPTION CODES C, D and V	1
NOTES:																								
1.	PROVIDE INDEECO 1004328 NEMA 4X THERMOSTAT																							

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TOBY L.E.E. CHURCH REGISTERED No. 11300603 STATE OF INDIANA PROFESSIONAL ENGINEER

Signature 10/24/2023 Date

TOWN OF NEW PALESTINE
HANCOCK COUNTY, INDIANA

WASTEWATER UTILITY
IMPROVEMENTS PROJECT
DIVISION "A" - MAIN WWTP
IMPROVEMENTS

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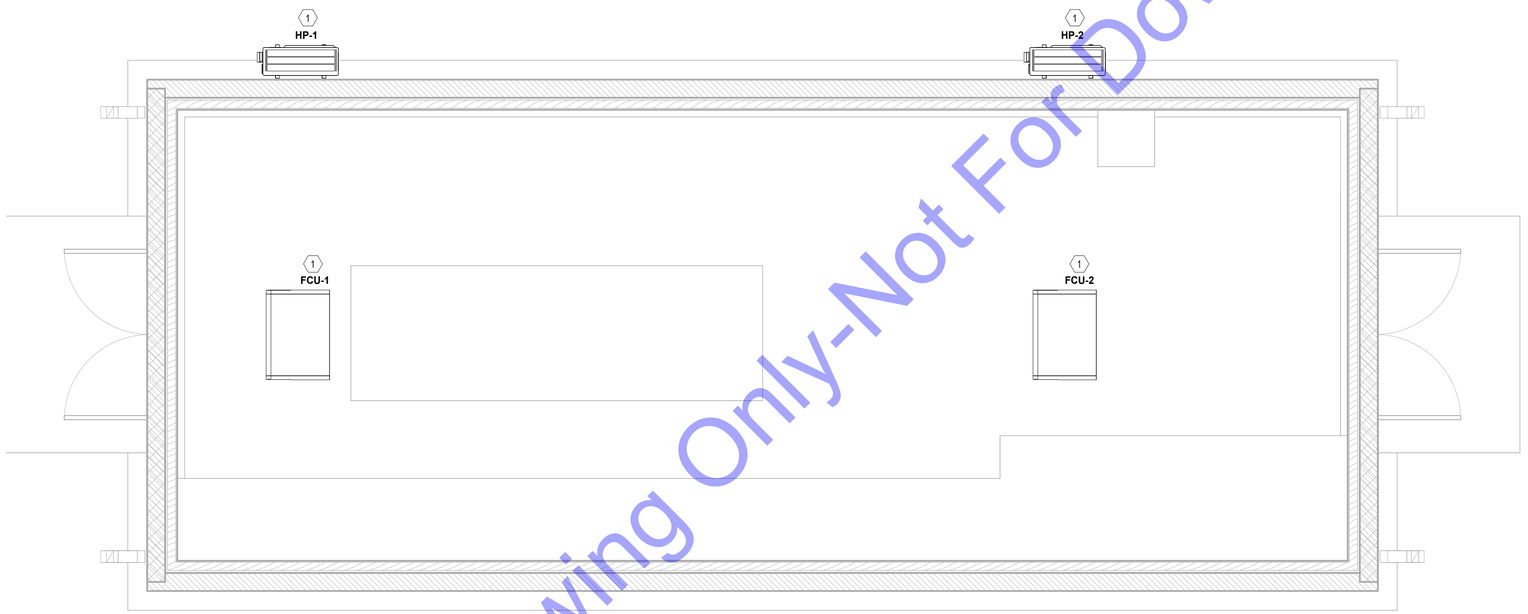
Designed By:	Drawn By:	Checked By:
SD	CM	TLC
Issue Date: OCT 2023	Project No: S22002	Scale: AS SHOWN

MECHANICAL LEGENDS AND SCHEDULES

Drawing No: **M0-0**

Sheet: 171 OF 205

File: Z:\SHARED\IN CLIENTS M-Z\NEW PALESTINE\D S22002 NW UTILITY IMPR\SV06 CAD\X MECH-ELEC\ELECTRICAL DRAWINGS - DIV A - NWTP.DWG
Saved: 7/24/2024 5:02:59 PM PlotId: 8/1/2024 9:45:14 AM Current User: Chris Means LastSavedBy: cmeans



PLAN VIEW

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

0' 2' 4' 6'

PLAN NOTES

1. THE CONTRACTOR SHALL FURNISH AND INSTALL FAN COILS AND HEAT PUMPS AS SHOWN ON DRAWING. FAN COILS SHALL NOT BE MOUNTED ABOVE ELECTRICAL EQUIPMENT. FURNISH AND INSTALL FACTORY REFRIGERENT LINES. PIPE CONDENSATE DRAINS INSIDE BUILDING STRUCTURE TO 1' ABOVE GRADE. DRAIN LINES SHALL BE 1/2" SCHEDULE PVC AND PIPED TO GRASS OR GRAVEL AREAS. MOUNT HEAT PUMPS ABOVE SNOW LEVEL (18" ABOVE GRADE). REFER TO MECHANICAL DRAWING M0-0 FOR FAN COILS AND HEAT PUMP SPECIFICATIONS.

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DIVISION "A" - MAIN WWTP IMPROVEMENTS

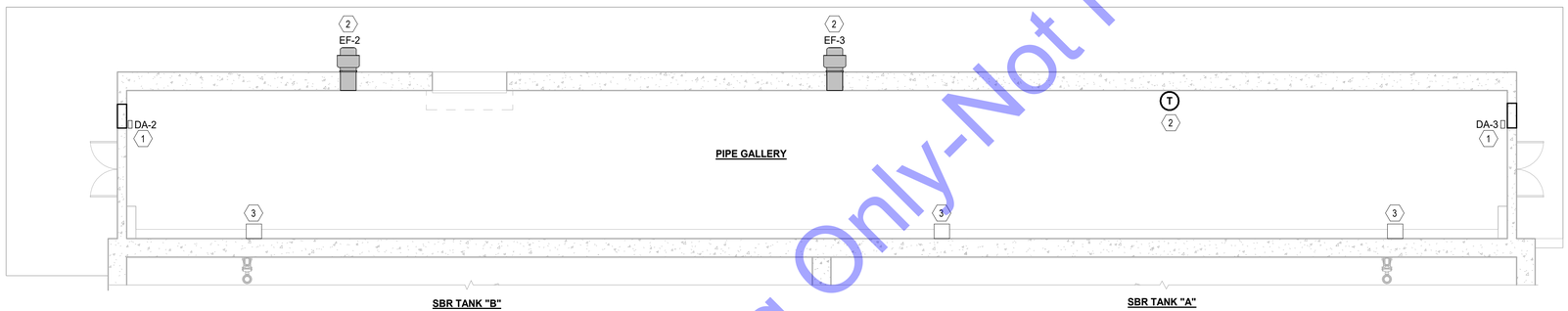
NEW ELECTRICAL BUILDING MECHANICAL PLAN

Drawing No:

M1-0

Sheet: 172 OF 205

Saved: 8/1/2024 9:53:09 AM Current Local File: Autodesk Docs://New Palestine WWTP/NEW HEADWORKS_v23.rvt



PLAN VIEW

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

0' 4' 8' 16'

PLAN NOTES

1. THE CONTRACTOR SHALL FURNISH AND INSTALL GREENHECK EA-635-32"X32" (OR EQUAL) WITH MOTORIZED INTAKE DAMPER ACTUATORS (DA-2 AND DA-3) WITH BIRD SCREEN. DAMPERS SHALL BE BELIMO OR EQUAL.
2. THE CONTRACTOR SHALL FURNISH AND INSTALL EXHAUST FANS (EF-2 & 3). EXHAUST FANS SHALL OPERATE FROM HONEYWELL THERMOSTAT WITH A LOCKABLE SETPOINT. EXHAUST FANS SHALL START ON A TEMPERATURE RISE ABOVE THERMOSTAT SETPOINT. INTERLOCK DAMPERS TO OPEN WITH EXHAUST FANS OPERATION. CONTRACTOR SHALL PROVIDE AND INSTALL ALL CONDUIT, WIRING AND RELAYS REQUIRED FOR PROPER OPERATION. THE CONTRACTOR SHALL FURNISH AND INSTALL MANUAL SWITCHES ALLOWING MAINTENANCE TO OVERRIDE THERMOSTAT SETPOINT IF REQUIRED. ALL CONTROL WIRING SHALL BE IN CONDUIT, REFER TO MECHANICAL DRAWING M0-0 FOR EXHAUST FAN SPECIFICATIONS.
3. THE CONTRACTOR SHALL FURNISH AND INSTALL THREE (3) QUEST (OR EQUAL) HI-E DRY 195 DEHUMIDIFIERS IN SBR PIPE GALLERY. THE CONTRACTOR SHALL PIPE DEHUMIDIFIERS TO TRENCH DRAIN. COORDINATE EXACT LOCATIONS WITH OWNER.

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NEW SBR PIPE GALLERY MECHANICAL PLAN

Drawing No:
M2-0
Sheet: 173 OF 205

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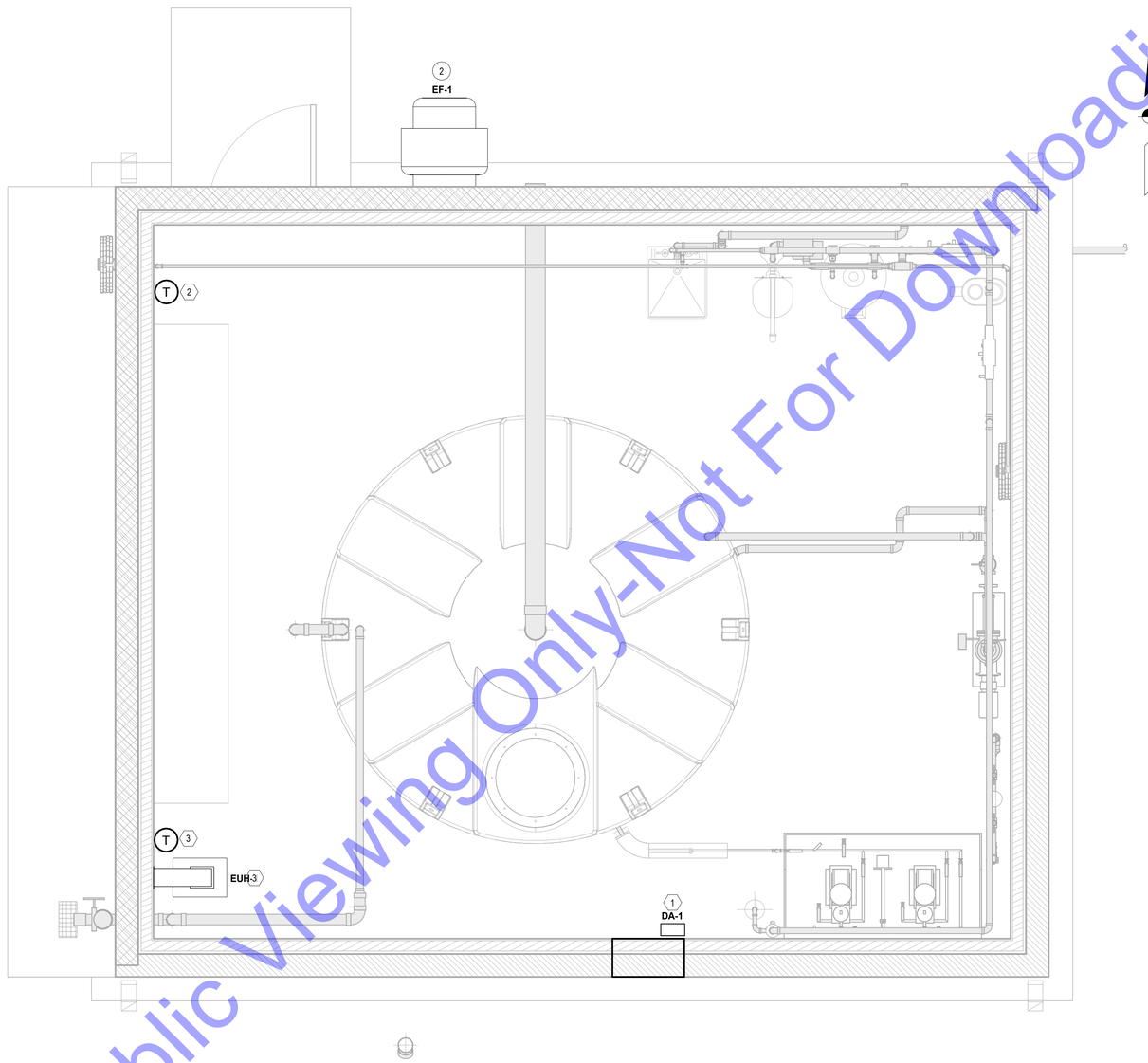

PLAN VIEW
SCALE: 1/2" = 1'-0"
0' 1' 2' 4'

PLAN NOTES

1. CONTRACTOR SHALL FURNISH AND INSTALL GREENHECK EA 635-20" X 24" (OR EQUAL) WITH MOTORIZED INTAKE DAMPER (DA-1) WITH BIRD SCREEN. DA-1 SHALL BE BELIMO OR EQUAL.
2. THE CONTRACTOR SHALL FURNISH AND INSTALL EXHAUST FAN (EF-1). EF-1 SHALL OPERATE FROM HONEYWELL (OR EQUAL) THERMOSTAT WITH LOCKABLE SETPOINT. EF-1 SHALL START ON A TEMPERATURE RISE ABOVE THERMOSTAT SET POINT. INTERLOCK DA-1 TO OPEN WITH EF-1 OPERATION. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL CONDUIT, WIRING, AND RELAYS REQUIRED FOR PROPER OPERATION. THE CONTRACTOR SHALL FURNISH AND INSTALL MANUAL SWITCH ALLOWING MAINTENANCE TO OVERRIDE THERMOSTAT SETPOINT IF REQUIRED. ALL CONTROL WIRING SHALL BE IN CONDUIT. REFER TO MECHANICAL DRAWING M0-0 FOR EXHAUST FAN SPECIFICATIONS.
3. THE CONTRACTOR SHALL FURNISH AND INSTALL INDEECO (OR EQUAL) 5KW ELECTRIC UNIT HEATER. INSTALL HEATERS WHERE HEATERS CAN BE ACCESSED FOR MAINTENANCE PURPOSES. HEATERS SHALL HAVE INTEGRAL DISCONNECT. HEATERS SHALL HAVE INDIVIDUAL NEMA 4X THERMOSTAT WITH LOCKABLE SETPOINT. REFER TO MECHANICAL DRAWING M0-0 FOR ELECTRIC UNIT HEATER SPECIFICATIONS.

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DIVISION "A" - MAIN WWTP IMPROVEMENTS

NEW CHEMICAL FEED BUILDING
MECHANICAL PLAN

Drawing No:
M3-0
Sheet: 174 OF 205

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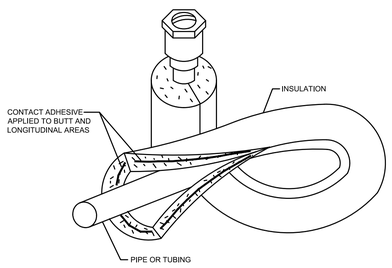
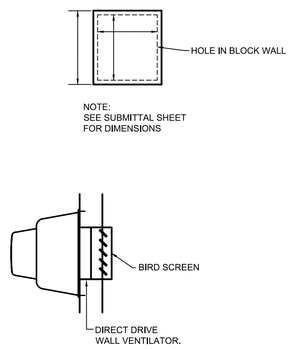


NOTES:

1. LONGITUDINAL JOINTS ON HORIZONTAL PIPE TO BE ON BOTTOM (SHOWN ON SIDE FOR EASE OF ILLUSTRATION).

ELASTOMERIC TUBING INSULATION

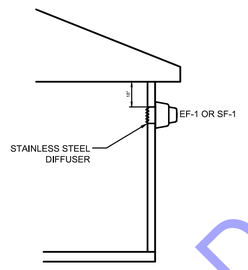
CAD ID: 07M103 NOT TO SCALE



NOTE:
SEE SUBMITTAL SHEET FOR DIMENSIONS

WALL FAN INSTALLATION DETAIL

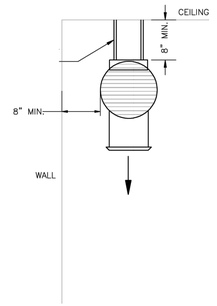
NOT TO SCALE



ALL EXHAUST FANS, SUPPLY FANS SHALL BE MOUNTED 18" BELOW CEILING HEIGHT. IF THERE IS A CONFLICT WITH EQUIPMENT, HEIGHT AND LOCATION ARE FLEXIBLE, COORDINATE NEW LOCATION AND HEIGHT WITH OWNER/RPR.

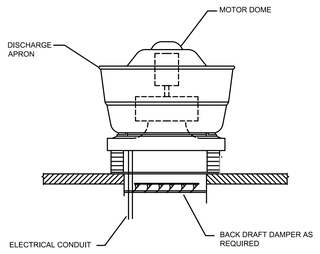
EF, SF, RELIEF VENTS, AND DAMPER LOCATION HEIGHTS

NOT TO SCALE



CEILING MOUNTED WASH DOWN HEATER

NOT TO SCALE



NOTES:

1. PROVIDE UNIT COMPLETE WITH CURB, DIRECT OR BELT DRIVEN AS REQUIRED. BELT DRIVEN SHOWN.
2. PROVIDE LOCAL POWER DISCONNECT.
3. PROVIDE BIRD AND DEBRIS SCREEN INTERNAL TO HOUSING.

DIRECT DRIVE UPBLAST CENTRIFUGAL

NOT TO SCALE

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No. 11300603
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PROFESSIONAL ENGINEER

Signature 10/24/2023 Date

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MECHANICAL DETAILS

Drawing No:
M4-0
Sheet: 175 OF 205

PROCESS AND INSTRUMENTATION DIAGRAM LEGEND

INSTRUMENT TAG IDENTIFICATION

AREA — TAG TYPE / TAG NUMBER — TAG FUNCTION — (QUAN)

0350 — PAH / 1234A — HOA — (2)

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

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

SINGLE FUNCTION SINGLE/MULTI I/O DEVICE NON-CONFIGURABLE NON-PROGRAMMABLE — MULTI FUNCTION MULTI I/O PROGRAMMABLE DEVICE

FIELD MOUNTED
MAIN CONTROL ROOM PANEL NORMALLY ACCESSIBLE
BEHIND MAIN CONTROL PANEL NOT NORMALLY ACCESSIBLE
LOCAL PANEL NORMALLY ACCESSIBLE
LOCAL PANEL - NOT NORMALLY ACCESSIBLE

CONTROL AND I/O DEVICES
DISPLAY

[ADD APPROPRIATE HORZ. BAR(S)]

NON-DISPLAYED CONFIGURABLE DEVICE (SEMI-PROGRAMMABLE)
NON-DISPLAYED PROGRAMMABLE DEVICE (ie: PLC)
DISPLAYED CONFIGURABLE DEVICE (SEMI-PROGRAMMABLE)
DISPLAYED PROGRAMMABLE DEVICE
DISPLAYED PROGRAMMABLE POINT (HMI TOUCH SCREEN OR SCADA SOFTWARE)

INSTRUMENT SOCIETY OF AMERICA TABLE

LETTER	FIRST LETTER(S): PROCESS OR INITIATING VARIABLE	FIRST LETTER(S): MODIFIER	SUCCEEDING LETTER(S): READOUT OR PASSIVE FUNCTION	SUCCEEDING LETTER(S): OUTPUT FUNCTION	SUCCEEDING LETTER(S): MODIFIER
A	ANALYSIS		ALARM(W. LOGGING)	ANNUNCIATE	
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(*)	
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.

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)

G0. 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.

G1. 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 OR SHOWN ON THE DRAWINGS BUT WHICH ARE NECESSARY TO FULLY COMPLETE THE WORK.

G2. 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).

G3. REVIEW THE CONTRACT DOCUMENTS OF OTHER DIVISIONS, AND COORDINATE ELECTRICAL AND CONTROL WORK WITH THE WORK OF OTHER DISCIPLINES TO AVOID CONFLICTS AND INTERFERENCE.

G4. 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.

G5. ALL MOUNTING HEIGHTS INDICATED ON DRAWINGS ARE TO CENTERLINE, UON.

G6. PROVIDE LIGHTING FIXTURES COMPATIBLE WITH CEILING CONSTRUCTION. COORDINATE WITH ARCHITECTURAL ROOM FINISH SCHEDULES.

G7. 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.

G8. 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.

G9. DO NOT USE ANY LIGHTING FIXTURE AS A RACEWAY FOR CONDUCTORS NOT SERVING THAT PARTICULAR FIXTURE.

G10. 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.

G11. 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.

G12. 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.

G13. 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.

G14. PROVIDE APPROPRIATE PULL WIRE IN EACH EMPTY SYSTEMS CONDUIT INCLUDED IN THIS PROJECT.

G15. 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 8'-0".

G16. MATCH A.I.C. RATINGS AND OTHER CHARACTERISTICS OF EXISTING DEVICES IN PANELBOARD WHEN ADDING BREAKERS TO EXISTING PANELBOARDS.

G17. ALL WORK SHALL BE IN CONFORMANCE WITH THE NATIONAL ELECTRICAL CODE - LASTEST EDITION ADOPTED BY INDIANA, THE INDIANA CODE AMENDMENT, LOCAL/MUNICIPAL CODE, AND THE AUTHORITIES HAVING JURISDICTION.

G18. 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.

G19. ALL CONDUIT PENETRATIONS SHALL BE SEALED WITH APPROPRIATE CONDUIT SEALING MATERIAL.

G20. ALL CABLE SIZES SHALL UTILIZE COPPER CONDUCTORS.

G21. 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.

G22. 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.

G23. 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.

G24. EACH SINGLE PHASE BRANCH CONDUCTOR SHALL HAVE A DEDICATED NEUTRAL BACK TO THE PANEL.

G25. ALL PENETRATIONS BELOW GRADE SHALL USE LINK SEALS.

G26. 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.

G27. ALL MOUNTING HARDWARE INCLUDING NUTS, BOLTS, SCREWS, WASHERS, ETC. SHALL BE STAINLESS STEEL.

G28. MOUNT JUNCTION BOXES AND DISCONNECT SWITCHES ON STAINLESS STEEL UNISTRUT.

G29. ALL UNISTRUT, MOUNTING BRACKETS AND SUPPORTING STRUCTURES SHALL BE STAINLESS STEEL.

G30. DO NOT MIX CONTROL AND POWER CONDUCTORS IN THE SAME CONDUIT. DO NOT MIX DISCRETE AND ANALOG CONTROL CONDUCTORS IN THE SAME CONDUIT.

G31. ADJUSTABLE SPEED DRIVES (ASD) LINE AND LOAD WIRE SHALL BE RUN IN SEPARATE RACEWAYS.

G32. 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.

PUMP AND METER LEGEND

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

LIGHTING LEGEND

SYMBOL	DESCRIPTION
	FIXTURE WITH STANDARD BALLAST.
	FIXTURE WITH STANDARD BALLAST AND EMERGENCY BALLAST.

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"
OS_W	DUAL TECHNOLOGY, WALL MNTD OCCUPANCY SENSOR WITH MANUAL OVERRIDE SWITCH	3'-10"
OS_C	DUAL TECHNOLOGY, CEILING MNTD OCCUPANCY SENSOR WITH REMOTE MANUAL OVERRIDE SWITCH	
S_{OR}	SINGLE-POLE REMOTE OVERRIDE SWITCH FOR CEILING MNTD OCCUPANCY SENSOR	3'-10"
S_D	DIMMER SWITCH	3'-10"
S_D^3	THREE-WAY DIMMER SWITCH	3'-10"
S_P	SINGLE-POLE TOGGLE SWITCH WITH PILOT LIGHT	3'-10"
S_M	SINGLE-POLE MOTOR-RATED TOGGLE SWITCH DISCONNECT	3'-10"
S_T	SINGLE-POLE OR DOUBLE-POLE MANUAL MOTOR STARTER WITH MELTING ALLOY ELEMENTS FOR THERMAL OVERLOAD PROTECTION	3'-10"
S_{IR}	OCCUPANCY SENSOR SWITCH	3'-10"
S_{IT}	INTERVAL TIMER RESET AND CONTROL SWITCH	3'-10"
S_J	JOG SWITCH	3'-10"
	MUSHROOM HEAD TYPE PUSHBUTTON STATION	5'-0"
P	AUTO DOOR CONTROL PUSHPLATE	-----
S_V	VARIABLE INTENSITY CONTROLLER INCLUDED WITH OWNER-FURNISHED-CONTRACTOR-INSTALLED SURGICAL LIGHTING FIXTURE	5'-0"
S_{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	-----
	RECPTACLE 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	-----
D_S	FIRE ALARM SUPPLY AIR DUCT-MOUNTED SMOKE DETECTOR	-----
D_R	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
Y	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/VISUAL NOTIFICATION DEVICE-HORN & STROBE	6'-8"
F	FIRE ALARM VISUAL ONLY NOTIFICATION DEVICE - STROBE LIGHT	6'-8"
FS FS	FIRE ALARM SPEAKER: CEILING-MOUNTED, WALL-MOUNTED	6'-8"
FH	FIRE ALARM HORN, WALL-MOUNTED	AS NOTED
RI RI	DUCT SMOKE DETECTOR ALARM REMOTE INDICATOR LIGHT: CEILING-MOUNTED, WALL-MOUNTED	6'-8"
SAI SAI	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	-----
ID	DESK MOUNTED INTERCOM	-----
IW	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"

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	WP	WEATHERPROOF
FBO	FURNISHED BY OTHERS	T	TAMPERPROOF DEVICE
GFCI	GROUND FAULT CIRCUIT INTERRUPT-ING - PERSONNEL PROTECTION	UON	UNLESS OTHERWISE NOTED
GFI	GROUND FAULT INTERRUPTING - EQUIPMENT PROTECTION	UCR	UNDER-COUNTER REFRIGERATOR
HGT	HEIGHT		
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 CONTRACT DOCUMENTS. REFER ONLY TO THOSE THAT APPLY.

ABBREVIATIONS

ABBREVIATION	MEANING
GFI	GROUND FAULT INTERRUPTER
WP	WEATHER PROOF
AFF	ABOVE FINISHED FLOOR
UNO	UNLESS NOTED OTHERWISE
FPMR	FUSE PER MANUFACTURERS RECOMMENDATIONS
IG	ISOLATED GROUND-ORANGE RECEPTACLE
M	MONITOR RECEPTACLE- CRITICAL POWER- RED RECEPTACLE- 60"A.F.F. (UNO) (UNLESS VENDOR DRAWINGS REQUIRE DIFFERENT HEIGHT)
TSP	TWISTED SHIELDED PAIR

MOTOR CONTROLLER LEGEND

SYMBOL	DESCRIPTION
MS	ACROSS THE LINE MOTOR STARTER
SS	SOFT STARTER
VFD	VARIABLE FREQUENCY DRIVE
MS	ACROSS THE LINE MOTOR STARTER WITH INTEGRAL DISCONNECT
SS	SOFT STARTER WITH INTEGRAL DISCONNECT
VFD	VARIABLE FREQUENCY DRIVE WITH INTEGRAL DISCONNECT

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TOBY LEE CHURCH
REGISTERED
No. 11300603
STATE OF INDIANA
PROFESSIONAL ENGINEER

Signature 10/24/2023 Date

TOWN OF NEW PALESTINE
HANCOCK COUNTY, INDIANA

WASTEWATER UTILITY IMPROVEMENTS PROJECT
DIVISION "A" - MAIN WWTP IMPROVEMENTS

No.	Submittal / Revision	By	Date

Designed By:	Drawn By:	Checked By:
SD	CM	TLC
Issue Date:	Project No:	Scale:
OCT 2023	S22002	AS SHOWN

ELECTRICAL LEGENDS AND SCHEDULES

Drawing No:
E0-0

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File: Z:\SHARED\IN CLIENTS M-Z\NEW PALESTINE\D S22002 WW UTILITY IMPRVS\06 CAD\K MECH-ELECT\ELECTRICAL DRAWINGS - DIV A - WWTP.DWG
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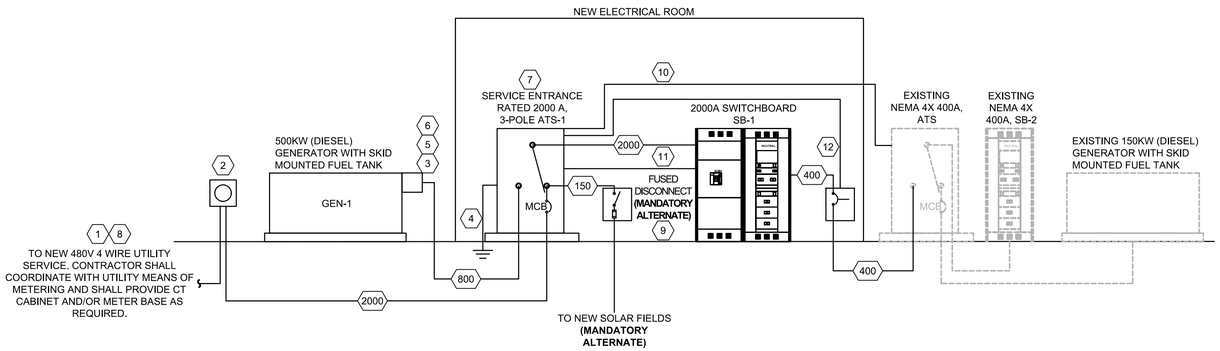


RISER DIAGRAM
SCALE: NTS

PLAN NOTES

1. ELECTRIC UTILITY SHALL PROVIDE WIRE FROM UTILITY TO THE METER. CONTRACTOR SHALL PROVIDE CONDUIT FROM UTILITY TO METER. CONTRACTOR SHALL PROVIDE ALL OTHER CONDUIT AND WIRING. ELECTRICAL CONTRACTOR TO COORDINATE WITH LOCAL UTILITY (DUKE) FOR SERVICE UPGRADE.
2. ELECTRICAL CONTRACTOR TO PROVIDE METER BASE AND MOUNTING AS REQUIRED BY LOCAL UTILITY. COORDINATE DURING BIDDING AND CONSTRUCTION. PROVIDE CT CABINETS AS REQUIRED BY UTILITY.
3. PROVIDE GENERATOR INTEGRAL CIRCUIT BREAKER TO PROVIDE MEANS OF CURRENT PROTECTION AND DISCONNECTION AT THE GENERATOR.
4. PROVIDE BUILDING GROUNDING RING SYSTEM FOR NEW ELECTRICAL BUILDING. PROVIDE GROUND RODS AT EACH INTERIOR AND EXTERIOR CORNER OF THE STRUCTURE. PROVIDE GROUND ROD AT GENERATOR WITH 3/0 WIRE MINIMUM. REFERENCE DETAILS FOR ADDITIONAL INFORMATION.
5. COORDINATE WITH GENERATOR AND ATS SUPPLIER/MANUFACTURER FOR WIRING REQUIREMENTS DURING BIDDING AND CONSTRUCTION.
6. DO NOT BOND NEUTRAL TO GROUND AT GENERATOR. VERIFY THAT THE NEUTRAL TO GROUND IS NOT BONDED AT GENERATOR BY THE GENERATOR MANUFACTURER. NUETRAL TO BE BONDED TO GROUND AT AUTOMATIC TRANSFER SWITCH ONLY.
7. POWER REQUIREMENTS FOR ANCILLARY DEVICES VARY BETWEEN GENERATOR MANUFACTURERS. CONTRACTOR TO COORDINATE WITH THE GENERATOR SUPPLIER/MANUFACTURER FOR POWER REQUIREMENTS TO THE ANCILLARY DEVICES. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL CONDUIT/WIRE FOR GENERATOR ANCILLARY DEVICES REQUIRED FOR PROPER OPERATION OF SELECTED GENERATOR.
8. COORDINATE WITH UTILITY DURING BIDDING AND CONSTRUCTION ON TRANSFORMER TYPE FOR NEW UTILITY FEED. TRANSFORMER PAD BY CONTRACTOR.
9. CONTRACTOR TO MAKE SOLAR CONNECTION ON THE UTILITY SIDE OF THE ATS. REFERENCE MANDATORY ALTERNATE SOLAR DRAWINGS FOR MORE DETAILS.
10. CONTRACTOR TO RUN 8#12'S TO INTERLOCK ATS-1 AND EXISTING ATS.
11. CONTRACTOR TO RUN 8#12'S TO INTERLOCK ATS-1 AND SB-1.
12. CONTRACTOR TO RUN 8#12'S TO INTERLOCK 400A AUTO RESET SHUNT TRIP BREAKER TO ATS-1.

GENERAL NOTES:

SEE E0.0 FOR PROJECT CONDUIT REQUIREMENTS.

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#8 & #10 GROUND	1"	1"	#8
65	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#3 & #8 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	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	2-1/2"	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
380	4#500MCM & #3 GROUND	4"	4"	#1/0
420	4#600MCM & #2 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	4"	3"	#1/0
600	(2 SETS)4#350MCM & #1 GROUND	4"	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#500MCM & #2/0 GND	4"	4"	#3/0
1200	(4 SETS) 4#350 MCM & 33/0 GND	4"	4"	#3/0
1600	(5 SETS) 4#600 MCM & #3/0 GND	4"	3 1/2"	#3/0
2000	(6 SETS) 4#600MCM &# 3/0 GND	4"	3 1/2"	#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
ALL CIRCUITS SHALL BE RUN IN PVC BELOW GROUND/PVC COATED RIGID ABOVE GROUND

GENERATOR

MINIMUM RATED CAPACITY: 500kW

BASIS OF DESIGN: MANUFACTURER: KOHLER, MODEL: KOHLER 500REOZJC OR EQUAL MEETING SPECIFICATIONS

RATED VOLTAGE: 480/277 3-PHASE/4-WIRE

ENCLOSURE RATING: SEE SPECIFICATIONS FUEL TYPE: DIESEL

FUEL TANK CAPACITY: 24 HOURS

SEE SPECIFICATIONS FOR ADDITIONAL FEATURES

AUTOMATIC TRANSFER SWITCH

TRANSFER SWITCH TYPE: AUTOMATIC CURRENT RATING: 2000A

RATED VOLTAGE: 480/277 3-PHASE/4-WIRE # OF POLES: 3

NEUTRAL CONFIGURATION: SOLID IN-SYNC TRANSFER: YES

MAIN CIRCUIT BREAKER: 2000A GROUND FAULT ON MAIN: NO

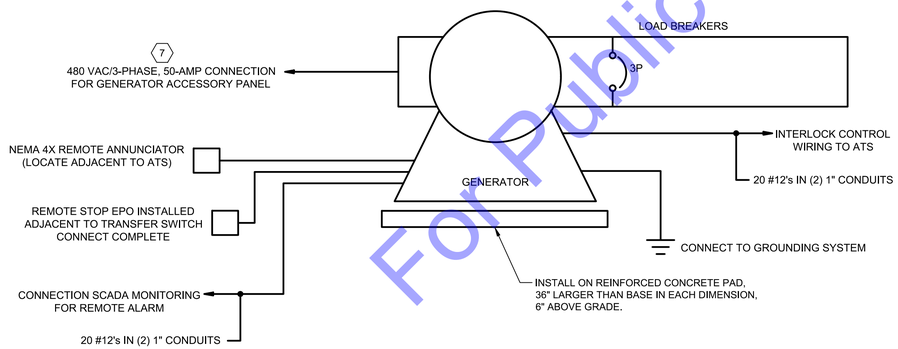
SERVICE ENTRANCE RATED: YES REMOTE ANNUNCIATION: YES

BY-PASS/ISOLATION: NO NEC LOAD BRANCH: 702 KAIC: 42

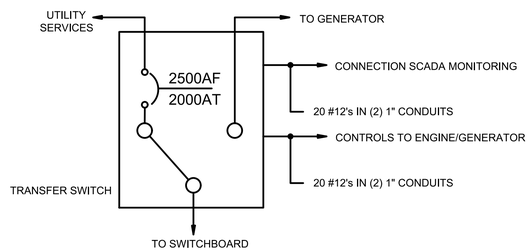
SEE SPECIFICATIONS FOR ADDITIONAL FEATURES

NEMA RATING: 12 CYCLE RATING: 3

NOTE: AUTOMATIC TRANSFER SWITCH SHALL BE PROVIDED WITH A CONDENSATION HEATER.



GENERATOR DETAIL



AUTOMATIC TRANSFER SWITCH

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TOBY L.E.E. CHURCH
REGISTERED
No. 11300603
STATE OF INDIANA
PROFESSIONAL ENGINEER
Signature 10/24/2023 Date

TOWN OF NEW PALESTINE
HANCOCK COUNTY, INDIANA

WASTEWATER UTILITY
IMPROVEMENTS PROJECT

DIVISION "A" - MAIN WWTP
IMPROVEMENTS

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No.	Submittal / Revision	By	Date

Designed By:	Drawn By:	Checked By:
SD	CM	TLC
Issue Date: OCT 2023	Project No: S22002	Scale: AS SHOWN

RISER DIAGRAM

Drawing No: **E1-0**

Sheet: 177 OF 205

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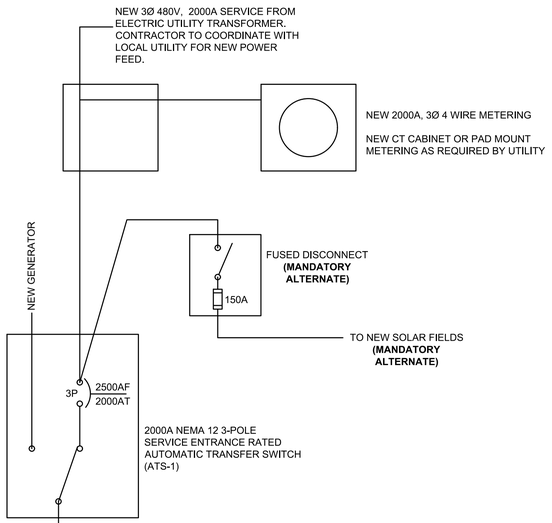
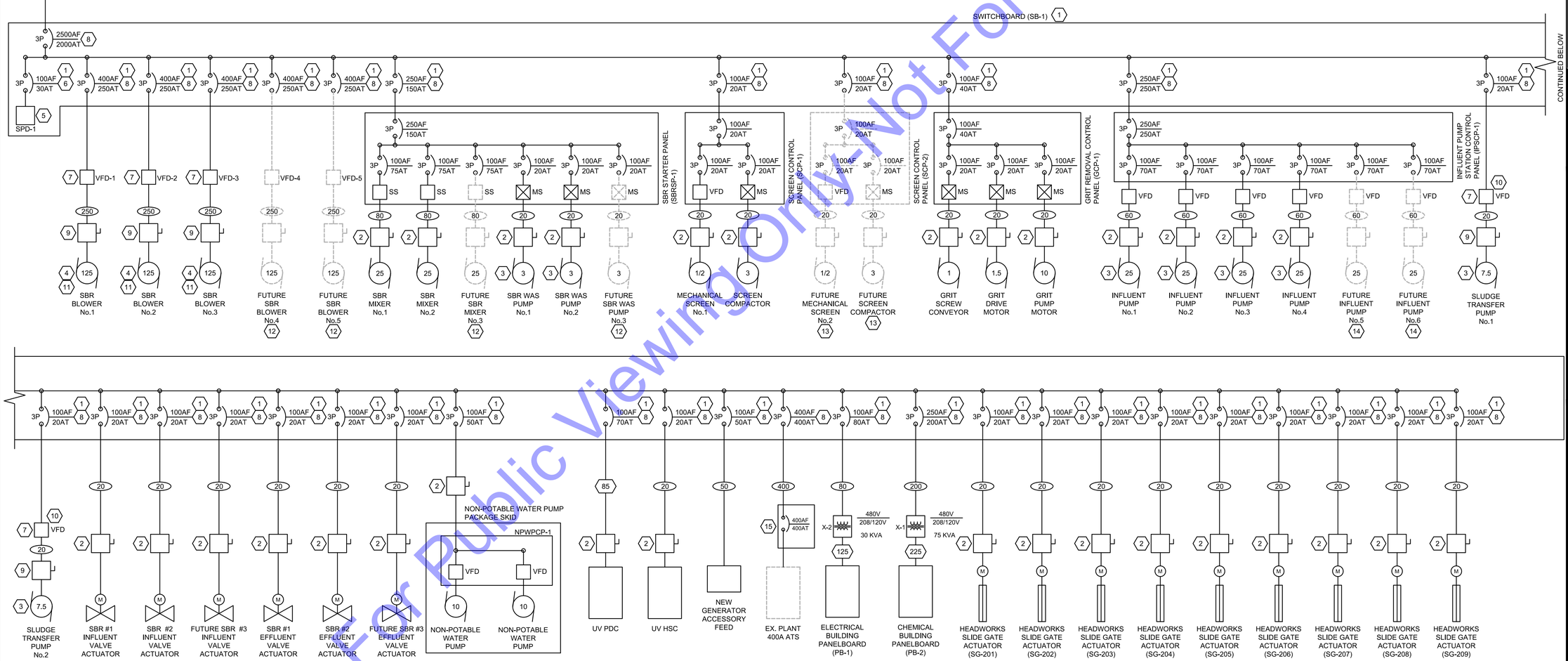


PLAN NOTES

1. COORDINATE WITH THE CONTRACTOR AND EQUIPMENT SUPPLIERS WHEN SELECTING THE CIRCUIT BREAKER SIZES TO ENSURE PROPER SIZING.
2. NEMA 4X STAINLESS STEEL DISCONNECT SIZED AS REQUIRED FOR THE LOAD PER NEC.
3. WIRE PUMP SAFETIES AS REQUIRED. REFERENCE DS SPECIFICATIONS AND COORDINATE WITH CONTRACTOR DURING BIDDING AND CONSTRUCTION.
4. WIRE BLOWER SAFETIES AS REQUIRED. PROVIDE BLOWER SAFETY PANEL TO HOUSE BLOWER SAFTIES AND INTEGRATE WITH BLOWER MOTOR STARTERS. REFERENCE DS SPECIFICATIONS AND COORDINATE WITH CONTRACTOR DURING BIDDING AND CONSTRUCTION.
5. SURGE PROTECTION DEVICE, SEE SPECIFICATIONS FOR DETAILS. PROVIDE GROUNDING AND INSTALLATION PER MANUFACTURERS RECOMMENDATIONS. ELECTRICAL CONTRACTOR TO SUPPLY AND INSTALL SURGE PROTECTION DEVICE AT SB-1.
6. SIZE BREAKER PER SURGE PROTECTION DEVICE MANUFACTURER RECOMMENDATION.
7. NEMA 1 WALL MOUNTED VFD.
8. BREAKER SHALL HAVE THE CAPABILITY FOR A MEANS OF LOCKOUT/TAG OUT.
9. NEMA 4X STAINLESS STEEL DISCONNECT SIZED AS REQUIRED FOR THE LOAD PER NEC. PROVIDE DISCONNECT WITH AUXILIARY CONTACTS TO INTERRUPT VFD CONTROL CIRCUIT TO STOP VFD WHEN DISCONNECT IS OPEN.
10. CONTRACTOR SHALL PROVIDE NEMA 12 PUMP SAFETY PANEL TO HOUSE PUMP SAFETY HARDWARE AND SHALL INTEGRATE PUMP SAFETIES INTO THE PUMP MOTOR CONTROLLER PER MANUFACTURER RECOMMENDATIONS.
11. PROVIDE POWER AND CONTROL FOR BLOWER COOLING FAN AND/OR HEATER AS REQUIRED. COORDINATE WITH BLOWER MANUFACTURER DURING BIDDING AND CONSTRUCTION REGARDING BLOWER COOLING FAN AND/OR HEATER POWER AND CONTROL. CERTAIN BLOWER FANS REQUIRE A SEPARATELY CONTROLLED SINGLE PHASE POWER SOURCE FOR THE COOLING FAN AND/OR HEATER.
12. CONTRACTOR TO RUN POWER AND CONTROL CONDUITS FROM THE ELECTRICAL ROOM TO ALL FUTURE EQUIPMENT LOCATIONS. THE CONDUITS FOR THE FUTURE SBR EQUIPMENT (BLOWERS, MIXERS, PUMPS, AND VALVES) SHALL TERMINATE AND BE TAGGED IN THE SBR VALVE VAULT. CONTRACTOR SHALL NOT COMBINE CONDUITS FOR FUTURE USE. ALL CONDUITS SHALL CONTAIN A PULL STRING.
13. CONTRACTOR TO RUN POWER AND CONTROL CONDUITS FROM THE ELECTRICAL ROOM TO ALL FUTURE EQUIPMENT LOCATIONS. THE CONDUITS FOR THE FUTURE SCREEN EQUIPMENT (SCREEN AND COMPACTOR) SHALL STUB UP ABOVE GRADE AND BE TAGGED ADJACENT TO THE SOUTH SIDE OF THE HEADWORKS STRUCTURE. CONTRACTOR SHALL NOT COMBINE CONDUITS FOR FUTURE USE. ALL CONDUITS SHALL CONTAIN A PULL STRING.
14. CONTRACTOR TO RUN POWER AND CONTROL CONDUITS FROM THE ELECTRICAL ROOM TO ALL FUTURE EQUIPMENT LOCATIONS. THE CONDUITS FOR THE FUTURE INFLUENT PUMPS SHALL STUB UP ABOVE GRADE AND BE TAGGED ADJACENT TO THE SOUTH SIDE OF LIFT STATION. CONTRACTOR SHALL NOT COMBINE CONDUITS FOR FUTURE USE. ALL CONDUITS SHALL CONTAIN A PULL STRING.
15. CONTRACTOR SHALL PROVIDE AND INSTALL IN ELECTRICAL ROOM A I-LINE SPD PANEL (INTERIOR)-I-LINE PANELBOARD RATED 480Y/277V 3PH 4W 60Hz SCCR: 65kA, FULLY RATED WITH A SINGLE PJ CIRCUIT BREAKER 80% RATED, 400AS/400AT/3P, WITH LI TRIP FUNCTION WITH STANDARD TRIP UNIT. CONTACT RATING - FORM C. ELECTRICAL OPERATOR 120VAC, SHUNT TRIP 120VAC, HOUSED IN A NEMA 12 ENCLOSURE (OR EQUAL) INTERLOCKED TO NEW ATS-1. CONTRACTOR SHALL PROVIDE 120VAC POWER TO SHUNT TRIP BREAKER FROM PANELBOARD PB-1 CIRCUIT #22.

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"



ONE LINE DIAGRAM

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ONE LINE DIAGRAM

Drawing No: **E1-1**

Sheet: 178 OF 205

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Panel Name: PB-1			Panel Amperage: 125				
Voltage & Phase: 120/208Y—3Ø			Panel A.I.C. Rating: 10kAIC				
Mounting: Surface			Other: MCB/125				
Description	Brk	Phase			Brk	Description	
EMERGENCY LIGHTING	20	1	A	2	20	ELECTRICAL ROOM LIGHTING	
ELECTRICAL ROOM RECEPTACLES	20	3	B	4	20	EXTERIOR LIGHTING	
FCU-1	20	5	C	6	20	FCU-2	
FCU-1	-	7	A	8	-	FCU-2	
HP-1	30	9	B	10	30	HP-2	
HP-1	-	11	C	12	-		
SITE LIGHTING	20	13	A	14	20	SITE LIGHTING	
SITE LIGHTING	20	15	B	16	30	SITE LIGHTING	
HEAT TRACE	20	17	C	18	20	INFLUENT SAMPLER	
HEADWORKS RECEPTACLES	20	19	A	20	20	HEAT TRACE	
HEAT TRACE	20	21	B	22	20	SHUNT TRIP BREAKER	
SPARE	20	23	C	24	20	SPARE	

Panel Name: PB-2A			Panel Amperage: 100A				
Voltage & Phase: 120/208Y—3Ø			Panel A.I.C. Rating: 10kAIC				
Mounting: Surface			Other: MCB/100A				
Description	Brk	Phase			Brk	Description	
HEAT TRACE	20	1	A	2	20	HEAT TRACE	
HEAT TRACE	20	3	B	4	20	HEAT TRACE	
HEAT TRACE	20	5	C	6	20	INSTRUMENTATION	
HEAT TRACE	20	7	A	8	20	HEAT TRACE	
SBR WEIR ACTUATOR	20	9	B	10	20	SPARE	
SPARE	20	11	C	12	20	SPARE	
SPARE	20	13	A	14	20	SPARE	
SPARE	20	15	B	16	20	SPARE	
SPARE	20	17	C	18	20	SPARE	
SPARE	20	19	A	20	20	SPARE	
SPARE	20	21	B	22	20	SPARE	
SPARE	20	23	C	24	20	SPARE	

Panel Name: PB-2			Panel Amperage: 225				
Voltage & Phase: 120/208Y—3Ø			Panel A.I.C. Rating: 10kAIC				
Mounting: Surface			Other: MCB/225				
Description	Brk	Phase			Brk	Description	
CHEM BLDG EMERGENCY LIGHTING	20	1	A	2	20	CHEM BLDG LIGHTING	
CHEM BLDG RECEPTACLES	20	3	B	4	20	RECIRCULATION PUMP SKID	
CHEM FEED PUMPS	20	5	C	6	20	CHEM BLDG INSTRUMENTATION/CONTROL	
CHEM BLDG WATER HEATER	30	7	A	8	20	CHEMICAL BUILDING EF-1	
CHEM BLDG WATER HEATER	-	9	B	10	30	EUH-1	
UV LIGHTING	20	11	C	12	-	EUH-1	
UV RECEPTACLES	20	13	A	14	-	EUH-1	
EFFLUENT SAMPLER	20	15	B	16	20	SBR PIPE GALLERY LIGHTING	
SBR PIPE GALLERY EMERGENCY LIGHTING	20	17	C	18	20	SBR PIPE GALLERY RECEPTACLES	
SBR PIPE GALLERY SUMP PUMP	20	19	A	20	20	SBR INSTRUMENTATION	
SBR BLOWER 1 COOLING FAN	20	21	B	22	20	SBR TANK "B" RECEPTACLES	
SBR BLOWER 2 COOLING FAN	20	23	C	24	20	SBR TANK "A" RECEPTACLES	
SBR BLOWER 3 COOLING FAN	20	25	A	26	20	SBR RECEPTACLES	
SBR PIPE GALLERY EF-2	20	27	B	28	20	SBR DEHUMIDIFIER -1	
SBR PIPE GALLERY EF-3	20	29	C	30	20	SBR DEHUMIDIFIER-2	
HEAT TRACE	20	31	A	32	20	SBR DEHUMIDIFIER-3	
SBR STAIR LIGHTING	20	33	B	34	20	HEAT TRACE (SBR)	
SBR BLOWER HEATERS	20	35	C	36	20	SITE LIGHTING	
SITE LIGHTING	30	37	A	38	20	SITE LIGHTING	
SBR BLOWER 1 HEATER	20	39	B	40	20	SBR BLOWER 3 HEATER	
SBR BLOWER 2 HEATER	20	41	C	42	20	HEAT TRACE	
HEAT TRACE	20	43	A	44	20	HEAT TRACE	
BLOWER AIR CONTROL VALVES	20	45	B	46	20	BLOWER AIR CONTROL VALVES	
BLOWER AIR CONTROL VALVES	20	47	C	48	20	BLOWER AIR CONTROL VALVES	
UV SCC	20	49	A	50	100	PB-2A FEED	
HEAT TRACE	20	51	B	52	-	PB-2A FEED	
SPARE	20	53	C	54	-	PB-2A FEED	

PLAN NOTES

1. THE CONTRACTOR SHALL COORDINATE WITH EQUIPMENT MANUFACTURERS AND SUPPLIERS DURING BIDDING AND CONSTRUCTION TO ENSURE THE VOLTAGE DROP TO EQUIPMENT DOES NOT EXCEED 3%.
2. THE CONTRACTOR SHALL PROVIDE BREAKERS AS REQUIRED BY THE SELECTED HEAT TRACE MANUFACTURERS REQUIREMENTS.

Single Phase Load Conduit and Wire 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
2 Pole 250A	2-1/2" Conduit with 3 - 250 MCM Conductors and 1 #3 Ground Conductor

LIGHTING FIXTURE SCHEDULE

IMAGE	TYPE	MFR	CATALOG NUMBER	LAMPS	VOLT	MOUNTING	NOTES
	F1	LITHONIA, CREE, OR EQUAL	CLX L48 5000LM SEF WDL MVOLT 40K 80CRI WH	LED	120-277	SURFACE	PROVIDE WITH REQUIRED MOUNTING BRACKETS OR CHAINS AS REQUIRED FOR INSTALLATION.
	F2	LITHONIA, CREE, OR EQUAL	CLX L48 5000LM SEF WDL MVOLT 40K 80CRI WH E10WLCP	LED	120-277	SURFACE	PROVIDE WITH REQUIRED MOUNTING BRACKETS OR CHAINS AS REQUIRED FOR INSTALLATION. BATTERY BACKED EMERGENCY LIGHT. TWO BALLASTED LIGHT, STANDARD FUNCTION AND EMERGENCY BACKUP.
	F3	LITHONIA, CREE, OR EQUAL	CSVT L96 10000LM MVOLT 40K 80CRI	LED	120-277	SURFACE	PROVIDE WET LOCATION FITTINGS AS REQUIRED. PROVIDE MOUNTING BRACKETS AS REQUIRED.
	F4	LITHONIA, CREE, OR EQUAL	JHBL 12000LM PCL WD MVOLT 40K 80CRI	LED	120-277	SURFACE	PROVIDE WET LOCATION FITTINGS AS REQUIRED. PROVIDE MOUNTING BRACKETS AS REQUIRED.
	F5	LITHONIA, CREE, OR EQUAL	JHBL 12000LM PCL WD MVOLT 40K 80CRI E10WCP	LED	120-277	SURFACE	BATTERY BACKED EMERGENCY LIGHT PROVIDE WET LOCATION FITTINGS AS REQUIRED. PROVIDE MOUNTING BRACKETS AS REQUIRED. TWO BALLASTED LIGHT, STANDARD FUNCTION AND EMERGENCY BACKUP.
	F6	LITHONIA, CREE, OR EQUAL	CSVT L96 12000LM MVOLT 40K 80CRI	LED	120-277	SURFACE	PROVIDE WET LOCATION FITTINGS AS REQUIRED. PROVIDE MOUNTING BRACKETS AS REQUIRED.
	F7	LITHONIA, CREE, OR EQUAL	CSVT L96 12000LM MVOLT 40K 80CRI IE7WCP	LED	120-277	SURFACE	PROVIDE WET LOCATION FITTINGS AS REQUIRED. PROVIDE MOUNTING BRACKETS AS REQUIRED. BATTERY BACKED EMERGENCY LIGHT. TWO BALLASTED LIGHT. STANDARD FUNCTION AND EMERGENCY BACKUP.
	EX	SYLVANIA, CREE, OR EQUAL	TWP/L/030/740/CS/UNV/BZ	LED	120-277	SURFACE	WALL MOUNTED OUTDOOR SCONCE WITH TEMPERED GLASS LENS. PROVIDE WITH PHOTOCELL. 2800 LUMENS.
EXIT	LX	EMERGI-LITE OR EQUAL	LEDP-1-R	INCLUDED	120-277	UNIVERSAL	LED EXIT SIGN WITH RED LETTERING ON BRUSHED ALUMINUM PANEL. CHEVRONS SHALL BE REQUIRED AS SHOWN ON DRAWINGS.
	A3-IVW	BEACON VIPER OR EQUAL	VP-3-480L-285-4K7-4W	LED	120-277	POLE	LED AREA/SITE/ROAD LIGHT ON SQUARE STEEL POLE WITH INTEGRAL DUSK TO DAWN SENSOR.
	A3-V	BEACON VIPER OR EQUAL	VP-3-480L-470-4K7-5QW	LED	120-277	POLE	LED AREA/SITE/ROAD LIGHT ON SQUARE STEEL POLE WITH INTEGRAL DUSK TO DAWN SENSOR.
	F2-M	BEACON VIPER OR EQUAL	VP-F-2-264L-175-4K7-4X4	LED	120-277	POLE	LED FLOODLIGHT ON SQUARE STEEL POLE WITH INTEGRAL DUSK TO DAWN SENSOR.
	F2-N	BEACON VIPER OR EQUAL	VP-F-2-264L-175-4K7-2X2	LED	120-277	POLE	LED FLOODLIGHT ON SQUARE STEEL POLE WITH INTEGRAL DUSK TO DAWN SENSOR.
	F2-W	BEACON VIPER OR EQUAL	VP-F-2-264L-175-4K7-6X6	LED	120-277	POLE	LED FLOODLIGHT ON SQUARE STEEL POLE WITH INTEGRAL DUSK TO DAWN SENSOR.

PROVIDE BULBS FOR ALL FIXTURES. PROVIDE 10% SPARE BULBS TO THE OWNER AT THE END OF THE PROJECT.

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PANELBOARD SCHEDULES

Drawing No: **E1-2**

Sheet: 179 OF 205

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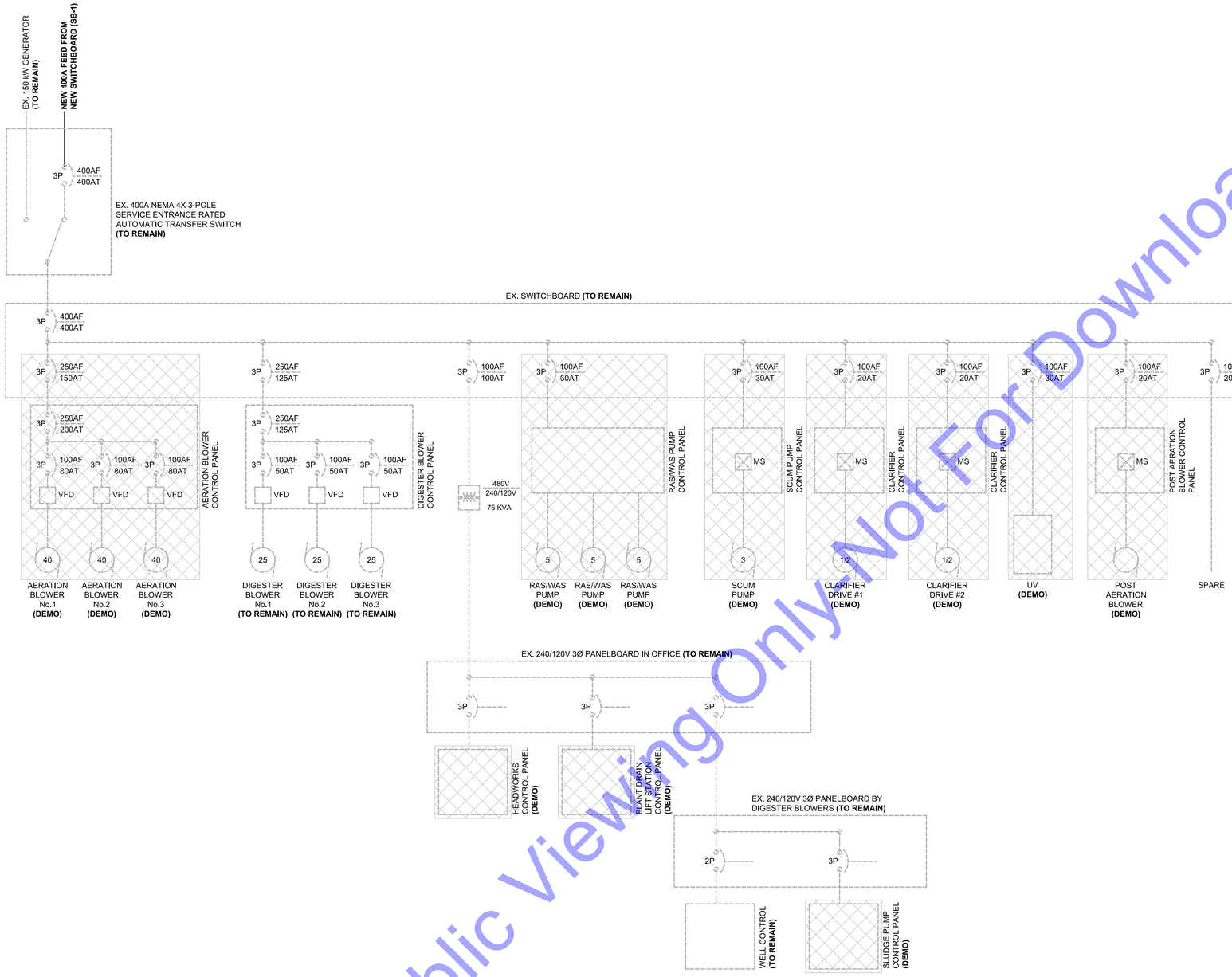

ONE LINE DIAGRAM - EXISTING WWTP

ELECTRICAL DEMOLITION NOTES:

1. DEMO ALL EXISTING ASSOCIATED ELECTRICAL AND CONTROLS. REMOVE ALL ELECTRICAL AND CONTROL WIRING BACK TO ITS SOURCE AND LAWFULLY DISPOSE OF. REMOVE CONDUIT TO 12" BELOW GRADE AND CAP. ALL ASSOCIATED ELECTRICAL AND CONTROL PANELS TO BE LAWFULLY DISPOSED OF.

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ONE LINE DIAGRAM - EXISTING WWTP

Drawing No:
E1-3
Sheet: 180 OF 205

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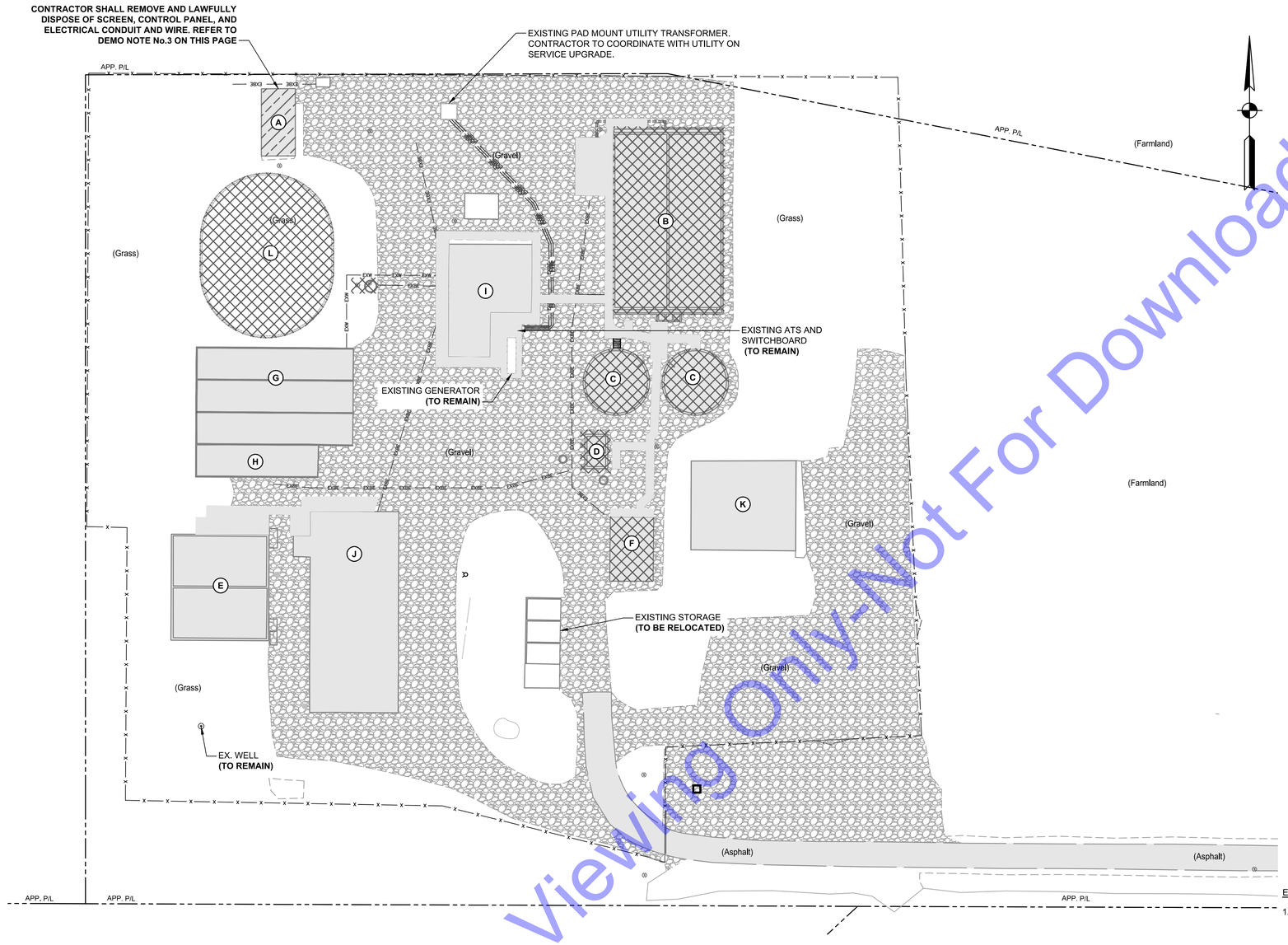

SITE PLAN

SCALE: 1"=30'-0"

0 30' 60'

EXISTING STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION	DEMO NOTES
A	EXISTING HEADWORKS	TO BE ABANDONED
B	EXISTING AERATION TANKS	TO BE DEMOLISHED
C	EXISTING CLARIFIERS	TO BE DEMOLISHED
D	EXISTING RAS/WAS STATION	TO BE DEMOLISHED
E	EXISTING DIGESTER	TO BE MODIFIED
F	EXISTING UV	TO BE DEMOLISHED
G	EXISTING DRYING BEDS	TO BE MODIFIED
H	EXISTING SLUDGE BAGGING SYSTEM	TO BE MODIFIED
I	EXISTING LAB BUILDING	TO REMAIN
J	EXISTING STREET DEPARTMENT BUILDING	TO REMAIN
K	EXISTING SALT BARN	TO REMAIN
L	EXISTING OXIDATION DITCH	TO BE REMOVED

ELECTRICAL DEMOLITION NOTES:

1. CONTRACTOR SHALL TAKE INTO CONSIDERATION EXISTING BURIED UNDERGROUND UTILITIES WHEN PLANNING THE INSTALLATION OF THE NEW EQUIPMENT OUTLINED IN THIS PROJECT. CONTRACTOR SHALL VISIT THE SITE TO BECOME ACQUAINTED WITH ALL THE PROJECT CONDITIONS INCLUDING THE EXISTING CONDITIONS. EXECUTION OF THE 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. CLAIMS FOR LABOR, MATERIAL, OR TIME EXTENSIONS REQUIRED DUE TO DIFFICULTIES ENCOUNTERED, WHICH COULD HAVE BEEN FORESEEN HAD EXAMINATIONS BEEN MADE, WILL NOT BE RECOGNIZED. REFER TO PROCESS AND STRUCTURAL DRAWINGS FOR ADDITIONAL DETAILS REGARDING BURIED EQUIPMENT.
2. ITEMS TO BE DEMOLISHED, REMOVED, AND LAWFULLY DISPOSED OF COMPLETE TO ACCOMMODATE IMPROVEMENTS (THIS IS NOT INTENDED TO BE ALL INCLUSIVE, MERELY A REFERENCE). CONTRACTOR SHALL PERFORM ANY AND ALL DEMOLITION, REMOVAL, AND DISPOSAL ACTIVITIES AS REQUIRED FOR COMPLETE AND OPERATIONAL FACILITIES/INSTALLATIONS. REQUIRED DEMOLITION FOR SMALL DIAMETER PIPING, CONDUIT, ETC. NOT SHOWN ON THIS SHEET FOR CLARITY.
3. DEMO ALL EXISTING ASSOCIATED ELECTRICAL AND CONTROLS. REMOVE ALL ELECTRICAL AND CONTROL WIRING BACK TO ITS SOURCE AND FURNISH TO OWNER FOR SALVAGE. REMOVE CONDUIT TO 12" BELOW GRADE AND CAP. ALL ASSOCIATED ELECTRICAL AND CONTROL PANELS TO BE TURNED OVER TO OWNER.
4. DEMO ALL EXISTING SITE LIGHTING (POLES, LIGHTS, AND CONCRETE BASES). REMOVE ALL ELECTRICAL WIRING BACK TO ITS SOURCE AND FURNISH TO OWNER FOR SALVAGE. REMOVE CONDUIT TO 12" BELOW GRADE AND CAP.
5. PLANT IS TO REMAIN FULLY FUNCTIONAL DURING CONSTRUCTION.
6. OWNER SHALL HAVE FIRST RIGHT OF REFUSAL FOR ALL DEMOLISHED EQUIPMENT BEFORE CONTRACTOR DISPOSES OF EQUIPMENT.
7. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE CONTRACTOR DURING BIDDING AND CONSTRUCTION. THE CONTRACTOR SHALL MAINTAIN OPERATION OF THE WWTP DURING THE ENTIRE CONSTRUCTION OF THE PROJECT. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH MAINTAINING OPERATION OF THE PLANT INCLUDING PRIMARY POWER AND BACKUP POWER.

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TOBY L.E.E. CHURCH
REGISTERED
No. 11300603
STATE OF INDIANA
PROFESSIONAL ENGINEER
Signature
10/24/2023
Date

TOWN OF NEW PALESTINE HANCOCK COUNTY, INDIANA

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DIVISION "A" - MAIN WWTP IMPROVEMENTS

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EXISTING WWTP SITE ELECTRICAL DEMOLITION PLAN

Drawing No:
E2-0
Sheet: 181 OF 205

File: Z:\SHARED\IN CLIENTS M-Z\NEW PALESTINE\D S22002 WW UTILITY IMPR\SV08 CAD\K MEO\H-ELEC\ELECTRICAL DRAWINGS - DIV A - WWTP.DWG
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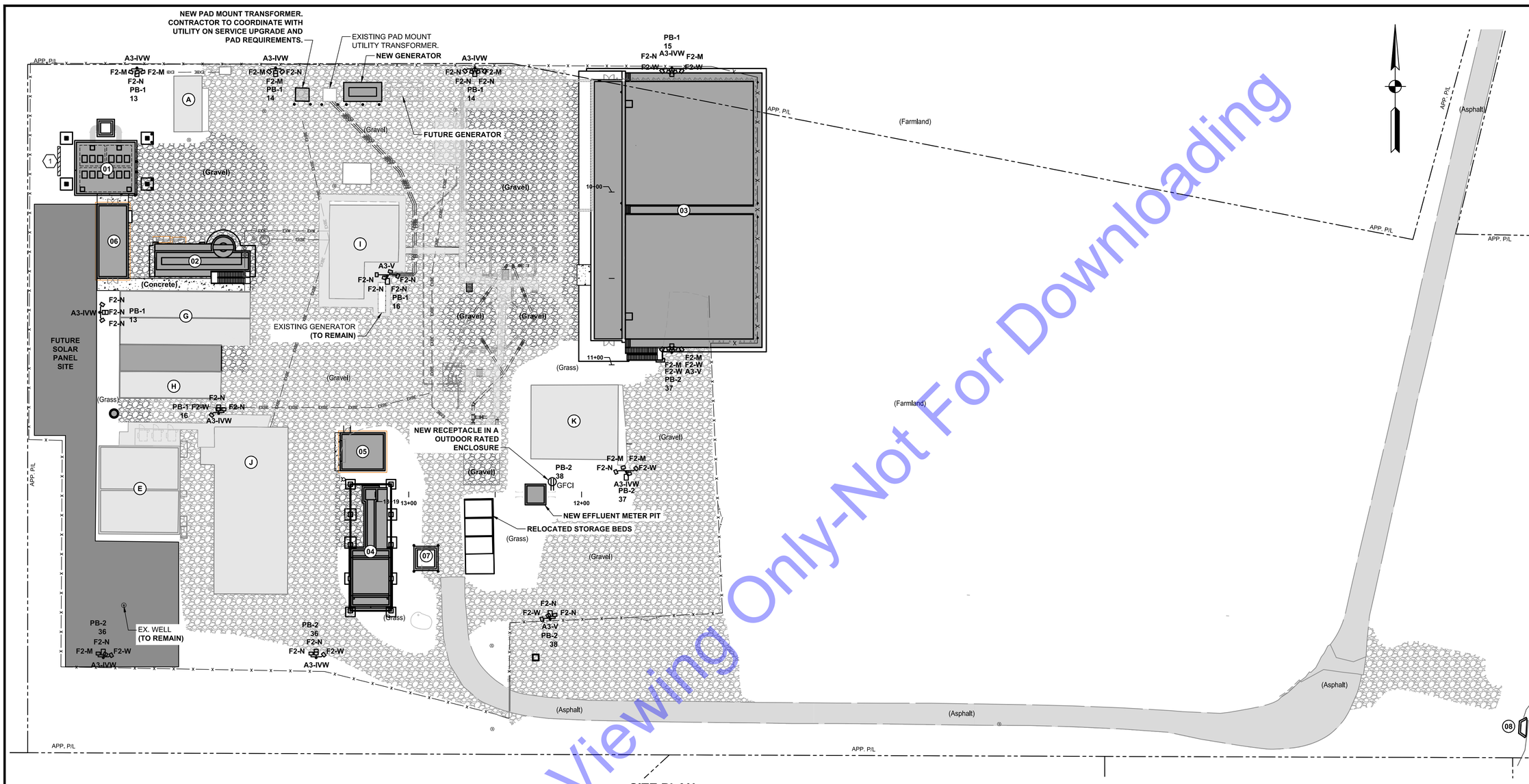

SITE PLAN

SCALE: 1"=30'-0"

0 30' 60'

EXISTING STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION	DEMO NOTES
A	EXISTING HEADWORKS	TO BE ABANDONED
E	EXISTING DIGESTER	TO BE MODIFIED
G	EXISTING DRYING BEDS	TO BE MODIFIED
H	EXISTING SLUDGE BAGGING SYSTEM	TO BE MODIFIED
I	EXISTING LAB BUILDING	TO REMAIN
J	EXISTING STREET DEPARTMENT BUILDING	TO REMAIN
K	EXISTING SALT BARN	TO REMAIN

NEW STRUCTURE LEGEND

IDENTIFIER	DESCRIPTION
01	NEW INFLUENT PUMP STATION
02	NEW HEADWORKS FACILITY
03	NEW SBR TREATMENT STRUCTURE
04	NEW UV AND POST AERATION STRUCTURE
05	NEW CHEMICAL FEED BUILDING
06	NEW ELECTRICAL BUILDING
07	NEW NON-POTABLE WATER SYSTEM
08	NEW OUTFALL STRUCTURE

PLAN NOTES

1. CONTRACTOR TO STANCHION MOUNT J-BOXES AND DISCONNECTS FOR INFLUENT PUMPS ADJACENT TO WET WELL IN A LOCATION NOT TO INTERFERE WITH THE REMOVAL OF THE PUMPS. REFERENCE DRAWING E0-0 FOR ROUTING OF CONDUIT.

ELECTRICAL NOTES:

1. EXPLORATORY EXCAVATIONS SHALL BE PERFORMED IN ADVANCE OF CONSTRUCTION AT LOCATIONS CONTRACTOR MAY COME INTO CONTACT WITH EXISTING UTILITIES. DETERMINE THE EXACT LOCATION OF ALL PIPES, CONDUITS, DUCT, OR OTHER INTERFERING STRUCTURES IN BOTH HORIZONTAL AND VERTICAL LOCATIONS. EXCAVATE TO THE DEPTH AND WIDTH NECESSARY TO ACCURATELY DETERMINE THE LOCATIONS OF THE UTILITIES OF INTEREST. VERIFY EXISTING UTILITIES EXACT LOCATION PRIOR TO ORDERING MATERIALS FOR IMPROVEMENTS TO BE MADE TO SAID EXISTING UTILITIES. ALL COSTS ASSOCIATED WITH EXPLORATORY EXCAVATIONS SHALL BE BORNE BY THE CONTRACTOR AND SHALL BE INCLUDED IN THE CONTRACTORS BID PRICE. ANY ISSUES OR COST ENCOUNTERED DURING CONSTRUCTION DUE TO LACK OF EXPLORATORY EXCAVATION NOT BEING PERFORMED SHALL BE ADDRESSED AND COSTS COVERED BY THE CONTRACTOR INCLUSIVE OF ANY REPAIRS TO EXISTING UTILITIES.
2. ALL SITE LIGHTING TO BE ON DUSK TO DAWN SENSORS. ALL POLES ARE TO HAVE OVERRIDE LIGHT SWITCHES AND OUTDOOR RATED CONVENIENCE OUTLETS. CONTRACTOR TO HYDRO EXCAVATE POLE HOLE TO AVOID DAMAGING EXISTING UTILITIES.
3. CONTRACTOR SHALL PROVIDE AND INSTALL TWO EXTRA 2" CONDUITS FROM THE NEW ELECTRICAL ROOM TO ALL NEW BUILDINGS AND EQUIPMENT STRUCTURES, AS WELL AS THE EXISTING LAB BUILDING. ALL CONDUITS SHALL CONTAIN A PULL STRING.
4. ALL ELECTRICAL EQUIPMENT SHALL BE CLASS 1 DIVISION 1, INCLUDING CONDUIT SEAL OFFS, IF INSTALLED WITHIN THE FOLLOWING LOCATIONS:
   - 4.1. NEW INFLUENT PUMP STATION: WET WELL IS CLASS 1 DIVISION 1 AND VALVE VAULT IS CLASS 1 DIVISION 2.
   - 4.2. NEW HEADWORKS FACILITY IS CLASS 1 DIVISION 1.
5. ALL ELECTRICAL EQUIPMENT SHALL BE CLASS 1 DIVISION 2, INCLUDING CONDUIT SEAL OFFS, IF INSTALLED WITHIN THE FOLLOWING LOCATIONS:
   - 5.1. SBR: INTERIOR OF THE SBR TANK FROM THE MINIMUM OPERATING WATER SURFACE TO THE TOP OF THE TANK WALL; ENVELOPE 18IN. ABOVE THE TOP OF THE SBR TANK AND EXTENDING 18IN. BEYOND THE EXTERIOR WALL; ENVELOPE 18IN. ABOVE GRADE EXTENDING 10FT. HORIZONTALLY FROM THE EXTERIOR SBR TANK WALLS.

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DIVISION "A" - MAIN WWTP IMPROVEMENTS

EXISTING WWTP SITE ELECTRICAL IMPROVEMENTS PLAN

Drawing No: **E2-1**

Sheet: 182 OF 205

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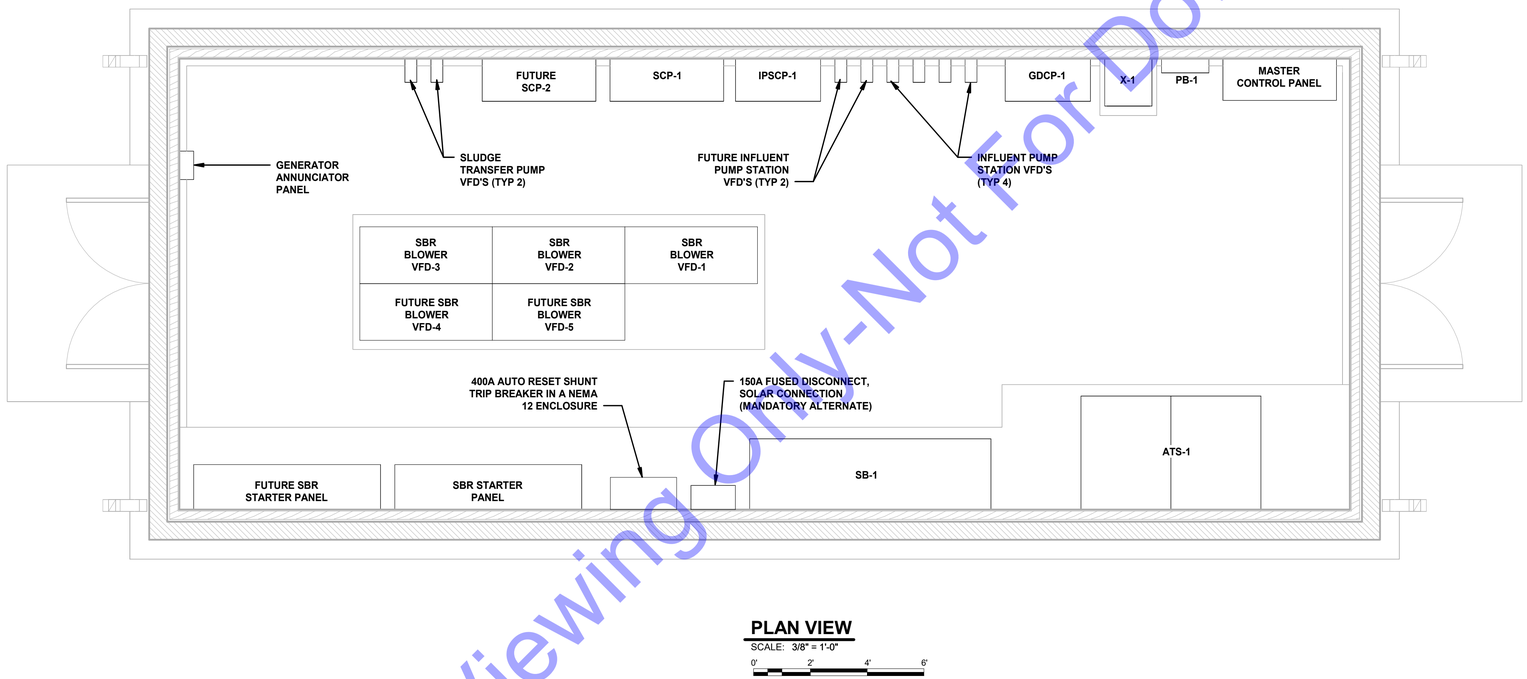

PLAN VIEW

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

0' 2' 4' 6'

NOTE:

1. ALL CONTROL PANELS AND VFD'S NOT FLOOR MOUNTED ARE TO BE STAINLESS STEEL UNISTRUT MOUNTED WITH FOUR BOLT FLOOR PLATES, BRACED TO SUPPORT EQUIPMENT.
2. CONTRACTOR IS RESPONSIBLE FOR SUBMITTING ELECTRICAL ROOM LAYOUT BASED ON SELECTED EQUIPMENT AND EQUIPMENT ACCESS REQUIREMENTS. EQUIPMENT LAYOUT SHALL MAINTAIN CLEARANCES REQUIRED BY NEC AND MANUFACTURER.

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NEW ELECTRICAL BUILDING LAYOUT

Drawing No:

E3-0

Sheet: 183 OF 205

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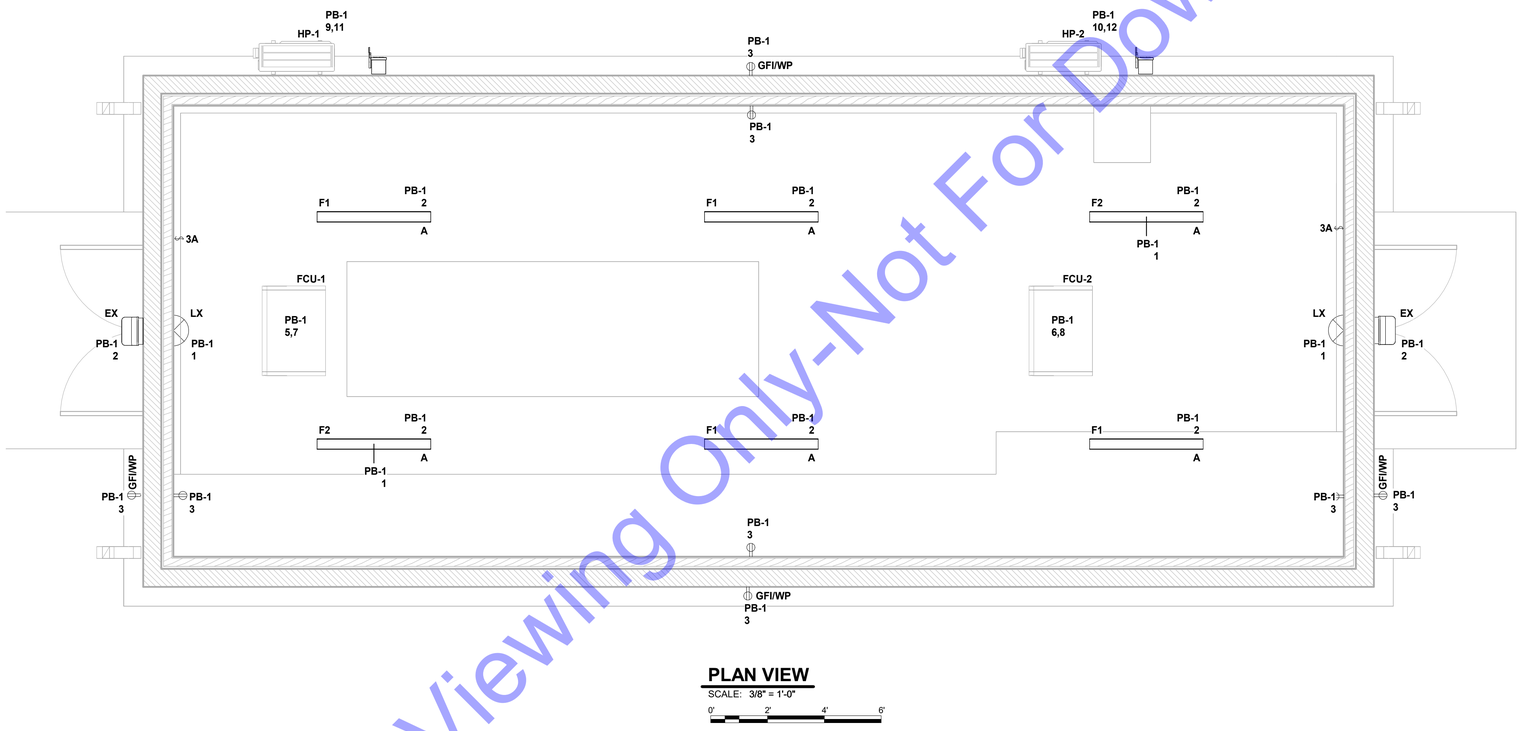

PLAN VIEW

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

0' 2' 4' 6'

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NEW ELECTRICAL BUILDING LIGHTING AND POWER PLAN

Drawing No:

E3-1

Sheet: 184 OF 205

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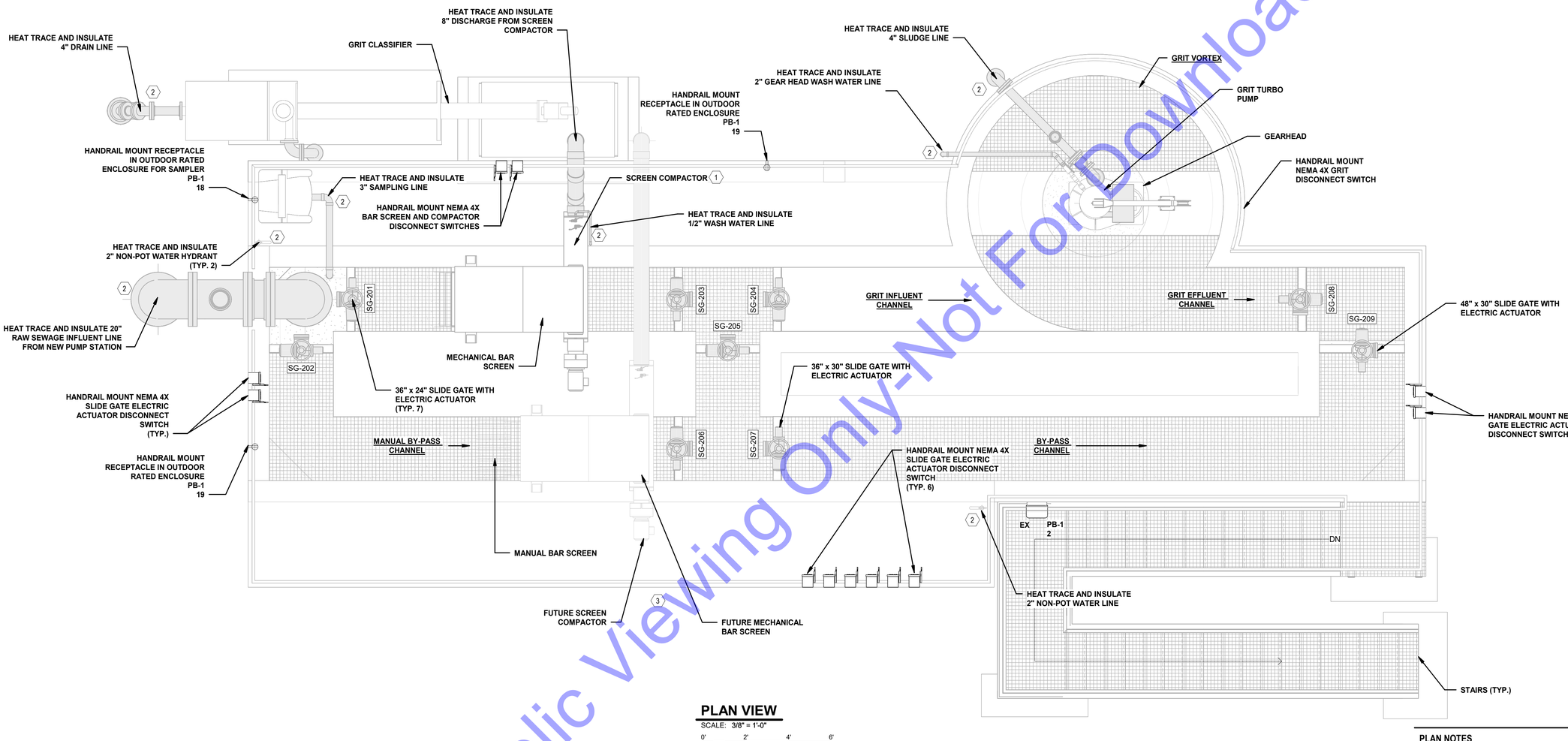

PLAN VIEW

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

0' 2' 4' 6'

PLAN NOTES

1. HEAT TRACING IS BEING PROVIDED AS PART OF THE SCREEN PACKAGE. CONTRACTOR TO COORDINATE HEAT TRACE REQUIREMENTS WITH SCREEN MFR. DURING BIDDING AND CONSTRUCTION TO ENSURE THAT IT IS PROPERLY INSTALLED AND POWERED.
2. CONTRACTOR SHALL PROVIDE AND INSTALL CONDUIT, WIRE, AND HEAT TRACE FOR ALL EXPOSED PIPING. HEAT TRACE TO BE COVERED WITH TWO INCH FIBERGLASS INSULATION AND WRAPPED WITH WEATHERPROOF STAINLESS STEEL JACKET. HEAT TRACE THERMOSTAT/CONTROLLER SHALL HAVE A LOW TEMPERATURE ALARM CONTACT TO SCADA IN THE EVENT OF HEAT TRACE FAILURE. THE CONTRACTOR SHALL COORDINATE WITH HEAT TRACE SUPPLIER/MANUFACTURER DURING BIDDING AND CONSTRUCTION AND SHALL PROVIDE ALL CONDUIT, WIRING AND CIRCUITS REQUIRED. HEAT TRACE SHALL BE PROVIDED/INSTALLED COMPLETE.
3. CONDUITS FOR FUTURE SCREEN EQUIPMENT (SCREEN AND COMPACTOR) SHALL STUB UP ABOVE GRADE AND BE TAGGED ADJACENT TO HEADWORKS STRUCTURE. CONTRACTOR SHALL NOT COMBINE CONDUITS FOR FUTURE USE. ALL CONDUITS SHALL CONTAIN A PULL STRING.

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NEW HEADWORKS FACILITY ELECTRICAL PLAN

Drawing No:
E3-2
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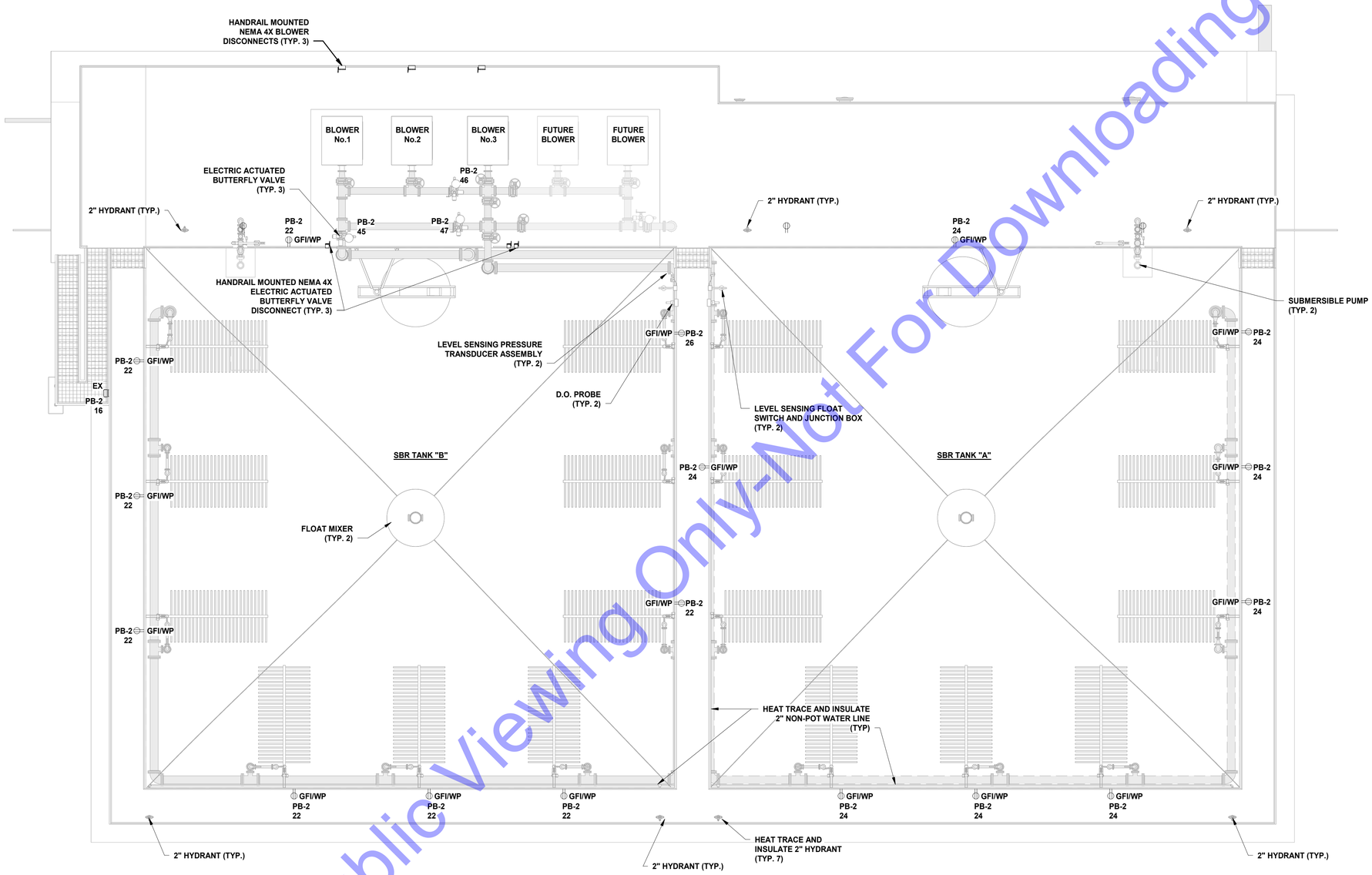

PLAN VIEW

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

0' 4' 8' 16'

PLAN NOTES

1. CONTRACTOR SHALL PROVIDE AND INSTALL CONDUIT, WIRE, AND HEAT TRACE FOR ALL EXPOSED PIPING. HEAT TRACE TO BE COVERED WITH TWO INCH FIBERGLASS INSULATION AND WRAPPED WITH WEATHERPROOF STAINLESS STEEL JACKET. HEAT TRACE THERMOSTAT/CONTROLLER SHALL HAVE A LOW TEMPERATURE ALARM CONTACT TO SCADA IN THE EVENT OF HEAT TRACE FAILURE. CONTRACTOR SHALL COORDINATE WITH HEAT TRACE SUPPLIER/MANUFACTURER DURING BIDDING AND CONSTRUCTION AND SHALL PROVIDE ALL CONDUIT, WIRING, AND CIRCUITS REQUIRED. HEAT TRACE SHALL BE PROVIDED/INSTALLED COMPLETE.

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NEW SBR TREATEMENT STRUCTURE ELECTRICAL PLAN

Drawing No:

E4-0

Sheet: 186 OF 205

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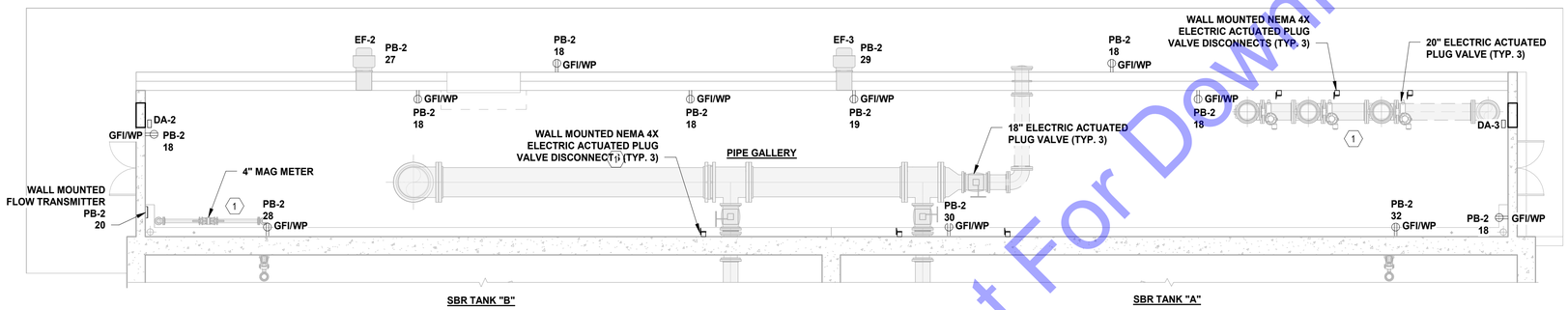
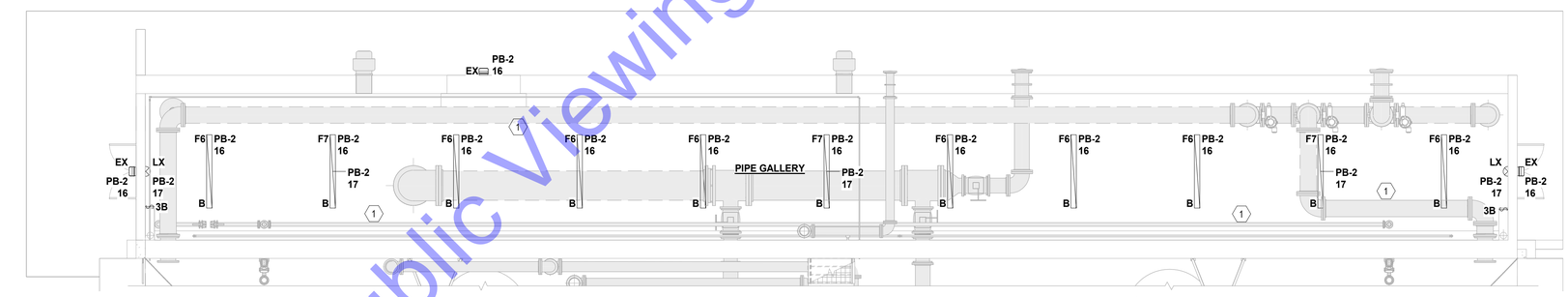


PLAN VIEW

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

0' 4' 8' 16'



PLAN VIEW

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

0' 4' 8' 16'

PLAN NOTES

1. CONTRACTOR SHALL PROVIDE AND INSTALL CONDUIT, WIRE, AND HEAT TRACE FOR ALL FLUID PIPING IN THE SBR PIPE GALLERY. HEAT TRACE TO BE COVERED WITH TWO INCH FIBERGLASS INSULATION AND WRAPPED WITH WEATHERPROOF STAINLESS STEEL JACKET. HEAT TRACE THERMOSTAT/CONTROLLER SHALL HAVE A LOW TEMPERATURE ALARM CONTACT TO SCADA IN THE EVENT OF HEAT TRACE FAILURE. THE CONTRACTOR SHALL COORDINATE WITH HEAT TRACE SUPPLIER/MANUFACTURER DURING BIDDING AND CONSTRUCTION AND SHALL PROVIDE ALL CONDUIT, WIRING, AND CIRCUITS REQUIRED. HEAT TRACE SHALL BE PROVIDED/INSTALLED COMPLETE.

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NEW SBR PIPE GALLERY POWER AND LIGHTING PLAN

Drawing No:
E4-1
Sheet: 187 OF 205

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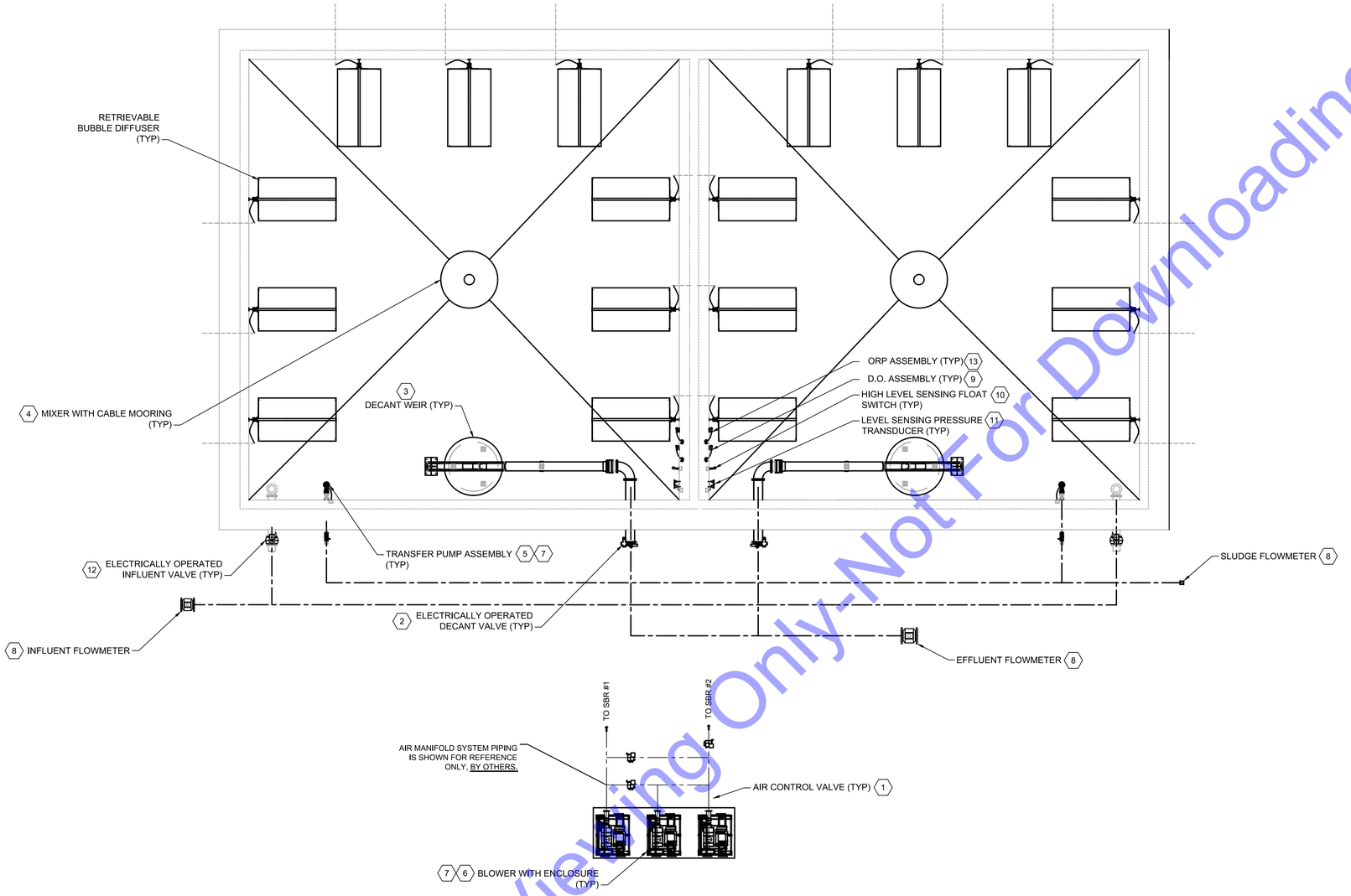

PLAN NOTES:

1. CONTRACTOR TO FURNISH AND INSTALL CONDUIT AND WIRE FROM SBR PANEL TO THREE (3) AIR CONTROL VALVES. EACH AIR CONTROL VALVE REQUIRES SEVEN (7) #12 THWN CONDUCTORS AND ONE (1) #12 GROUND.

2. CONTRACTOR TO FURNISH AND INSTALL CONDUIT AND WIRE FROM SWITCH BOARD PANEL AND SBR PANEL TO TWO (2) DECANT CONTROL VALVES

   EACH DECANT VALVE REQUIRES THREE (3) #12 THWN CONDUCTORS AND ONE (1) #12 THWN GROUND FOR THREE PHASE POWER FROM SWITCH BOARD PANEL, REFER TO ONE LINE DIAGRAMS.

   EACH DECANT VALVE REQUIRES SIX (6) #12 THWN CONDUCTORS AND ONE (1) #12 THWN GROUND FOR CONTROL WIRING FROM SBR PANEL.

   EACH DECANT VALVE REQUIRES TWO (2) #16 TWISTED SHIELDED PAIR CABLE FOR MODULATION AND FEEDBACK FROM SBR PANEL.

   POWER, CONTROL AND TWISTED PAIR TO DECANT VALVES SHALL BE IN SEPARATE CONDUITS FROM SWITCH BOARDS AND SBR PANEL.

3. CONTRACTOR TO FURNISH AND INSTALL CONDUIT AND WIRE FROM SWITCH BOARD PANEL AND SBR PANEL TO TWO (2) DECANT WEIRS.
   EACH DECANT WEIR REQUIRES THREE (3) #12 THWN CONDUCTORS AND ONE (1) #12 THWN GROUND FOR THREE PHASE POWER FROM SWITCH BOARD PANE, REFER TO ONE LINE DIAGRAMS.

   EACH DECANT WEIR REQUIRES EIGHT (8) #12 THWN CONDUCTORS AND TWO (2) #12 THWN GROUND FOR CONTROL WIRING FROM SBR PANEL. ALSO PROVIDE 5 SPARES.

   EACH DECANT VALVE REQUIRES TWO (2) #16 TWISTED SHIELDED PAIR CABLE FOR MODULATION AND FEEDBACK FROM SBR PANEL.

   POWER, CONTROL AND TWISTED PAIR TO DECANT WEIRS SHALL BE IN SEPARATE CONDUITS.

4. CONTRACTOR TO FURNISH AND INSTALL CONDUIT AND WIRE FROM SBR PANEL TO TWO (2) TANK MIXERS. EACH MIXER REQUIRES THREE (3) #4 THWN CONDUCTORS AND ONE (1) #8 THWN GROUND FOR THREE PHASE POWER.

5. CONTRACTOR TO FURNISH AND INSTALL CONDUIT AND WIRE FROM SBR PANEL TO TWO (2) SLUDGE PUMPS. EACH SLUDGE PUMP REQUIRES THREE (3) #12 THWN CONDUCTORS AND ONE (1) #12 GROUND FOR THREE PHASE POWER.

   EACH SLUDGE PUMP REQUIRES TWO (2) #12 THWN CONDUCTORS AND ONE (1) #12 THWN GROUND FOR PUMP SAFETIES

6. CONTRACTORS TO FURNISH CONDUIT AND WIRE FROM SBR VFD'S TO THREE (3) BLOWERS. EACH SBR BLOWER REQUIRES THREE (3) #300's THWN CONDUCTORS AND ONE (1) #4 GROUND FOR THREE PHASE POWER.

   EACH BLOWER SHALL HAVE A HIGH TEMPERATURE SWITCH WIRED BACK TO THE VFD TO STOP BLOWER ON HIGH TEMPERATURE CONDITION. CONTRACTOR TO PROVIDE CONDUIT AND WIRE. TWO (2) #12 THWN CONDUCTORS AND ONE (1) #12 THWN GROUND.

   EACH BLOWER REQUIRES TWO (2) #16 TWISTED SHIELDED PAIR CABLES.

7. CONTRACTOR RESPONSIBLE FOR ANY ADDITIONAL WIRING NEEDED FOR PUMP AND BLOWER SAFETIES.

   CONTRACTOR TO ENSURE DISCONNECT SWITCH HAS AUXILIARY CONTACTS TO STOP VFD WHEN DISCONNECT IS OPENED.

8. CONTRACTOR TO FURNISH CONDUIT AND WIRE FROM SBR PANEL TO THREE (3) MAGNETIC FLOW METERS(INFLUENT, EFFLUENT, AND SLUDGE) FOR SBR SYSTEM. FLOW METERS REQUIRE TWO (2) #12 THWN CONDUCTORS AND ONE (1) #12 THWN GROUND. FLOW METER IS LOCATED IN SBR PIPE GALLERY.

   FLOW METERS REQUIRES ONE (1) #16 TWISTED SHIELDED PAIR CABLE FOR TRANSMITTER OUTPUT.

   POWER AND FLOW METER OUTPUT WIRING TO BE IN SEPARATE CONDUITS.

9. CONTRACTOR TO FURNISH AND INSTALL CONDUIT AND WIRE FROM SBR PANEL TO TWO (2) DISSOLVED OXYGEN TRANSMITTERS. EACH DISSOLVED OXYGEN TRANSMITTER REQUIRES TWO (2) #12 THWN CONDUCTORS AND ONE (1) #12 GROUND.

   EACH DISSOLVED OXYGEN TRANSMITTER REQUIRES ONE (1) #16 TWISTED SHIELDED PAIR FOR TRANSMITTER OUTPUT.

10. CONTRACTOR TO FURNISH AND INSTALL CONDUIT FROM SBR PANEL TO TWO (2) FLOAT SWITCHES. EACH FLOAT SWITCH REQUIRES TWO (2) #12 THWN CONDUCTOR AND ONE (1) #12 THWN GROUND.

11. CONTRACTOR TO FURNISH AND INSTALL CONDUIT AND WIRE FROM SBR PANEL TO TWO (2) SUBMERSIBLE LEVEL TRANSMITTERS. EACH SUBMERSIBLE LEVEL TRANSMITTER REQUIRES ONE (1) #16 TWISTED SHIELDED PAIR CABLE.

12. CONTRACTOR TO FURNISH AND INSTALL CONDUIT AND WIRE FROM SBR PANEL TO TWO (2) SBR INFLUENT VALVES.

    EACH INFLUENT VALVE REQUIRES THREE (3) #12 THWN CONDUCTORS AND ONE (1) #12 THWN GROUND FOR THREE PHASE POWER.

    EACH INFLUENT VALVE REQUIRES SIX (6) #12 THWN CONDUCTORS AND ONE (1) #12 THWN GROUND FOR CONTROL WIRING.

13. CONTRACTOR TO FURNISH AND INSTALL CONDUIT AND WIRE FROM SBR PANEL TO TWO (2) ORP TRANSMITTERS. EACH ORP TRANSMITTER REQUIRES TWO (2) #12 THWN CONDUCTORS AND ONE (1) #12 GROUND.

    EACH ORP TRANSMITTER REQUIRES ONE (1) #16 TWISTED SHIELDED PAIR FOR TRANSMITTER OUTPUT.

ELECTRICAL NOTES:

SBR: ALL ELECTRICAL EQUIPMENT SHALL BE CLASS I DIVISION 2, INCLUDING CONDUIT SEAL OFFS, IF INSTALLED IN THE FOLLOWING LOCATIONS (REFERENCE 2020 NFPA 820): INTERIOR OF THE SBR TANK FROM THE MINIMUM OPERATING WATER SURFACE TO THE TOP OF THE TANK WALL; ENVELOPE 18IN. ABOVE THE TOP OF THE SBR TANK AND EXTENDING 18IN. BEYOND THE EXTERIOR WALL; ENVELOPE 18IN. ABOVE GRADE EXTENDING 10FT HORIZONTALLY FROM THE EXTERIOR SBR TANK WALLS.

ANY DISCONNECT BOXES SHOWN ARE FOR REFERENCE ONLY AND ARE TO BE SUPPLIED AND INSTALLED BY CONTRACTOR

BASIS OF DESIGN IS AQUA-AEROBIC SYSTEMS INC. DRAWINGS PROVIDED BY SBR MANUFACTURER AND ARE GENERIC IN NATURE AND PROVIDED AS A REFERENCE FOR CONTRACTOR CONVENIENCE. CONTRACTOR SHALL COORDINATE WITH SBR MANUFACTURER DURING BIDDING AND CONSTRUCTION TO ENSURE A COMPLETE AND FUNCTIONAL SYSTEM IS PROVIDED.

CONTRACTOR TO RUN POWER AND CONTROL CONDUITS FROM THE ELECTRICAL ROOM TO ALL FUTURE EQUIPMENT LOCATIONS. THE CONDUITS FOR THE FUTURE SBR TANK SHALL TERMINATE AND BE TAGGED IN THE SBR VALVE VAULT. CONTRACTOR SHALL NOT COMBINE CONDUITS FOR FUTURE USE. ALL CONDUITS SHALL CONTAIN A PULL STRING.

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REGISTERED
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STATE OF INDIANA
PROFESSIONAL ENGINEER

Signature 10/24/2023 Date

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HANCOCK COUNTY, INDIANA

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NEW SBR ELECTRICAL DETAILS

Drawing No:
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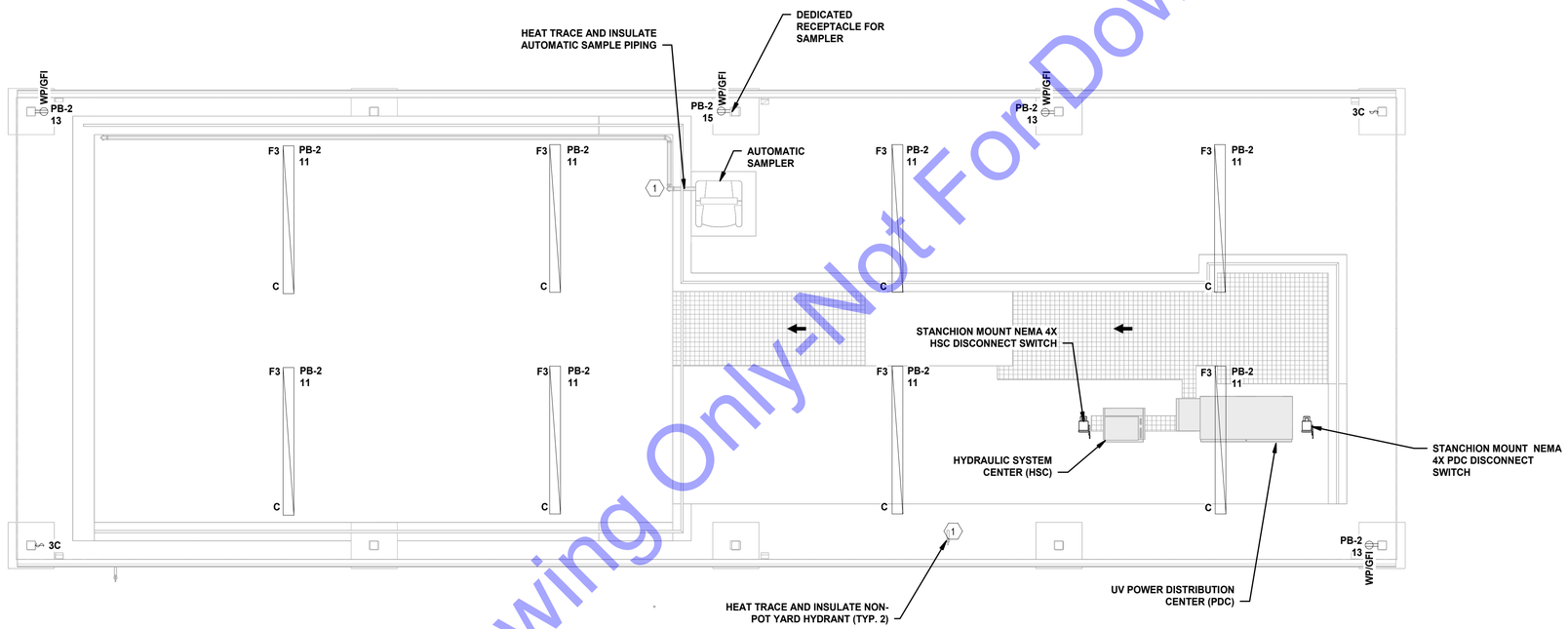

PLAN VIEW

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

0' 2' 4' 8'

PLAN NOTES

1. CONTRACTOR SHALL PROVIDE AND INSTALL CONDUIT, WIRE, AND HEAT TRACE FOR ALL EXPOSED PIPING. HEAT TRACE TO BE COVERED WITH TWO INCH FIBERGLASS INSULATION AND WRAPPED WITH WEATHERPROOF STAINLESS STEEL JACKET. HEAT TRACE THERMOSTAT/CONTROLLER SHALL HAVE A LOW TEMPERATURE ALARM CONTACT TO SCADA IN THE EVENT OF HEAT TRACE FAILURE. THE CONTRACTOR SHALL COORDINATE WITH HEAT TRACE SUPPLIER/MANUFACTURER DURING BIDDING AND CONSTRUCTION AND SHALL PROVIDE ALL CONDUIT, WIRING, AND CIRCUITS REQUIRED. HEAT TRACE SHALL BE PROVIDED/INSTALLED COMPLETE.

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NEW UV AND POST AERATION ELECTRICAL PLAN

Drawing No: **E5-0**

Sheet: 189 OF 205

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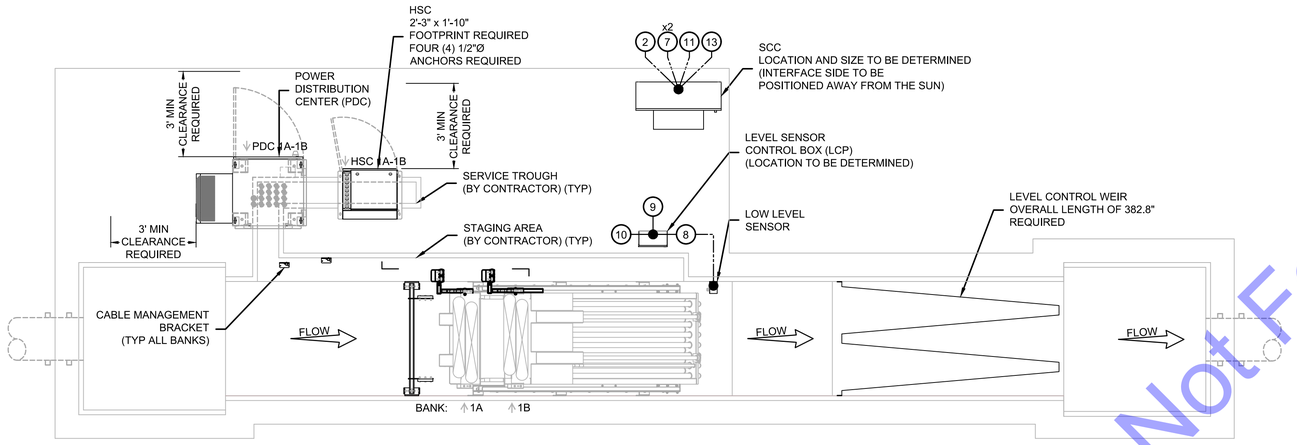


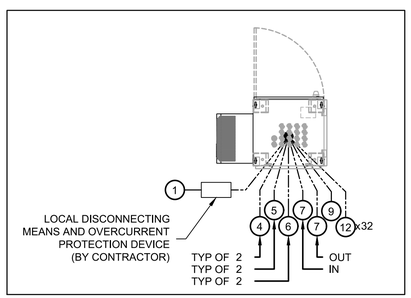
PLAN VIEW

SCALE: AS SHOWN

TROJAN UVSIGNA™
EQUIPMENT INTERCONNECTIONS

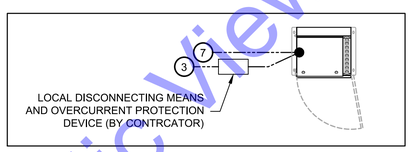
No.	DESCRIPTION	FROM	TO
1	POWER DISTRIBUTION CENTER (PDC)* POWER SUPPLY 480Y/277V, 3 PHASE, 4 WIRE + GROUND 49 AMPS MAXIMUM CURRENT/PHASE 35.9 kVA/PDC POWER DRAW	DISTRIBUTION PANEL (DP) (BY CONTRACTOR) (NOT SHOWN)	PDC(s) (TOP OF PANEL)
2	SYSTEM CONTROL CENTER (SCC)* POWER SUPPLY 120V, 1 PHASE, 2 WIRE + GROUND, 1.8 kVA, 15 AMPS	DISTRIBUTION PANEL (DP) (BY CONTRACTOR) (NOT SHOWN)	SCC
3	HYDRAULIC SYSTEM CENTER (HSC)* POWER SUPPLY 480V, 3 PHASE, 3 WIRE + GROUND, 2.5 kVA, 3 AMPS	DISTRIBUTION PANEL (DP) (BY CONTRACTOR) (NOT SHOWN)	HSC
4	BONDING CONDUCTOR 8 AWG TYPE TWH STRANDED	PDC(s) (UNDERSIDE OF PANEL)	UV BANK(s)
5	UV INTENSITY 4-20MA ANALOG INPUT	UV BANK(s)	PDC(s) (UNDERSIDE OF PANEL)
6	BANK IN PLACE PROXIMITY SENSOR 3 CONDUCTOR CABLES	PROXIMITY SENSOR(s)	PDC(s) (UNDERSIDE OF PANEL)
7	MODBUS BELDEN 3106A OR EQUIVALENT (ONE LINE PER CHANNEL)	SCC	HSC(s) & PDC(s) (UNDERSIDE OF PANEL) (DAISY CHAINED)
8	DISCRETE LOW LEVEL SIGNAL 12 VDC - 2 CONDUCTORS	LOW LEVEL SENSOR	LEVEL SENSOR CONTROL BOX (LCP)
9	DISCRETE WATER LEVEL SIGNAL 2 CONDUCTORS	LEVEL SENSOR CONTROL BOX (LCP)	PDC(s) (UNDERSIDE OF PANEL)
10	LEVEL SENSOR CONTROL BOX (LCP)* POWER SUPPLY 120V, 1 PHASE, 2 WIRE + GROUND, 0.12 kVA	DP (BY CONTRACTOR) (NOT SHOWN)	LEVEL SENSOR CONTROL BOX (LCP)
11	FLOW METER 4-20 mA, DC ANALOG INPUT (BY CONTRACTOR)	FLOW METER PANEL (NOT SHOWN) (BY CONTRACTOR)	SCC
12	LAMP CABLES (SUPPLIED BY TROJAN) (ROUTED BY CONTRACTOR)	UV BANK	PDC (UNDERSIDE OF PANEL)
13	ETHERNET/IP COMMUNICATION	SCC	PLANT SCADA (BY CONTRACTOR) (NOT SHOWN)

* GROUND CONNECTION REQUIRED TO PLANT GRID (BY CONTRACTOR).



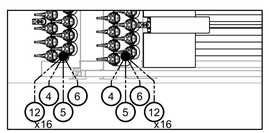
PDC INTERCONNECT DETAIL

SCALE: NOT TO SCALE



HSC INTERCONNECT DETAIL

SCALE: NOT TO SCALE



UV BANK INTERCONNECT DETAIL

SCALE: NOT TO SCALE
NOTE: TYPICAL FOR ALL UV BANKS.
TROUGH NOT SHOWN FOR CLARITY.

NOTES:

: ELECTRICAL REQUIREMENTS SHOWN ARE TO SUPPLY TROJAN UV EQUIPMENT ONLY.
: CONTRACTOR TO REVIEW ALL TROJAN TECHNOLOGIES INSTALLATION INSTRUCTIONS PRIOR TO EQUIPMENT INSTALLATION.
: EFFLUENT LEVELS SHOWN REFLECT HYDRAULICS ASSOCIATED WITH TROJAN EQUIPMENT ONLY. EFFLUENT LEVELS MAY BE ALTERED DUE TO CHANNEL DEBRIS OR GEOMETRY.
: HYDRAULIC HOSE ELEVATIONS NOT TO EXCEED 12" ABOVE HSC MOUNTING ELEVATION.
: INCLUDED CABLE LENGTH ALLOWS FOR 11.5' ROUTING (RISE + RUN) BETWEEN CABLE/HOSE MANAGEMENT BRACKET AND UNDERSIDE OF PDC. (6' ROUTING ASSUMED BASED ON THIS LAYOUT.)
: INCLUDED HOSE LENGTH ALLOWS FOR 15.5' ROUTING (RISE + RUN) BETWEEN CABLE/HOSE MANAGEMENT BRACKET AND HOSE CONNECTION ON THE HSC. (9' ROUTING ASSUMED BASED ON THIS LAYOUT.)
:

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NEW UV WIRING DIAGRAM

Drawing No:
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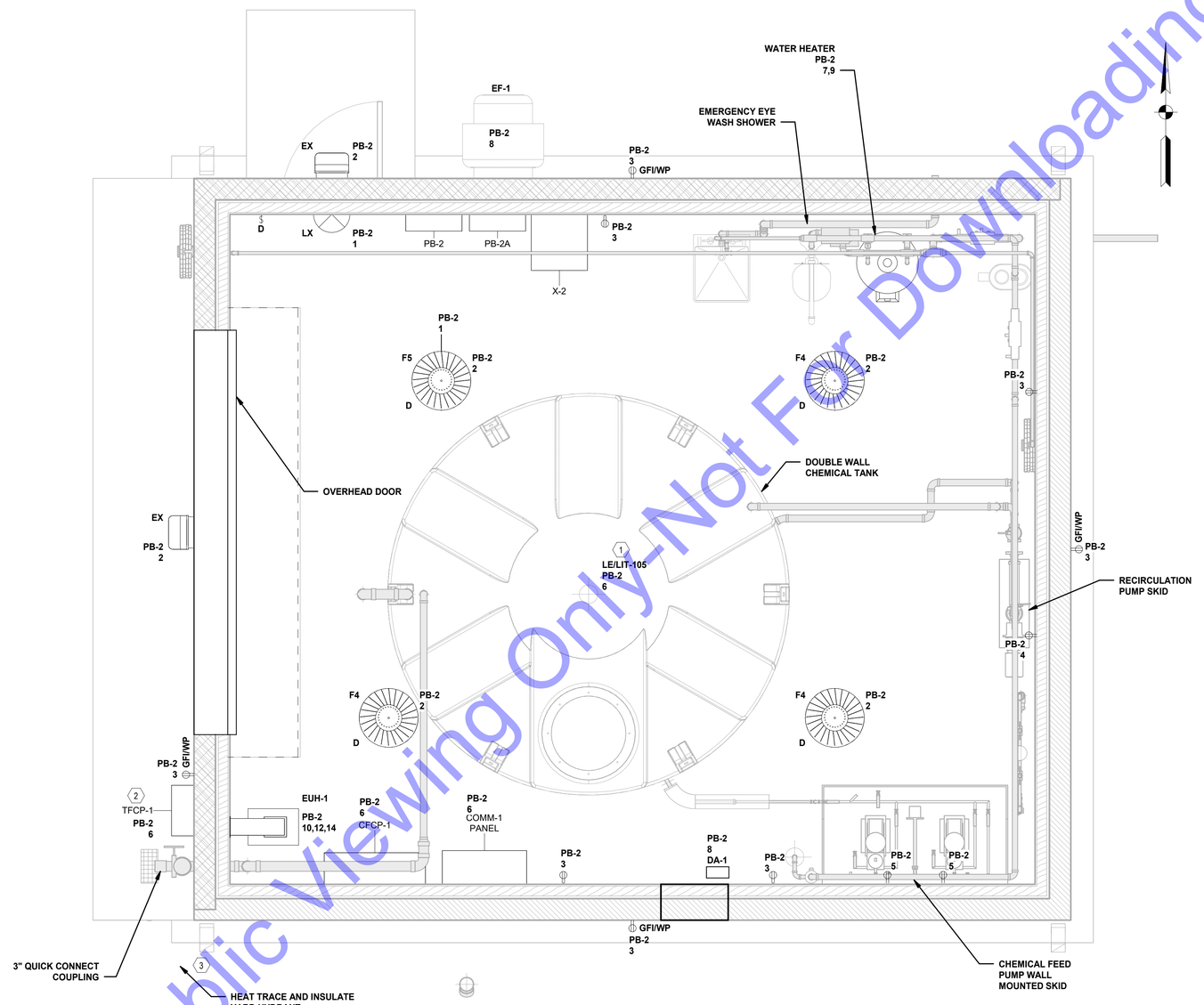

PLAN VIEW

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

0' 1' 2' 4'

PLAN NOTES

1. PROVIDE LEVEL SENSOR/TRANSMITTER PER SPECIFICATIONS. SENSOR SHALL BE MOUNTED ON FLANGE ON STORAGE TANK. MOUNT TRANSMITTER ON ADJACENT WALL. PROVIDE 120VAC TO THE TRANSMITTER AND WIRE 16/2 ANALOG TWISTED SHIELDED PAIR TO THE TRUCK LOADING PANEL.
2. PROVIDE TRUCK LOADING PANEL TO DISPLAY TANK LEVEL AT THE TRUCK LOADING AREA. TRUCK LOADING PANEL TO BE NEMA 4X FIBERGLASS WITH PRECISION DIGITAL PD765 DISPLAYING LEVEL. PROVIDE 120VAC TO THE PANEL AND RECEIVE THE 4-20mA LEVEL SIGNAL FROM LIT-105.
3. CONTRACTOR SHALL PROVIDE AND INSTALL CONDUIT, WIRE, AND HEAT TRACE FOR ALL EXPOSED PIPING. HEAT TRACE TO BE COVERED WITH TWO INCH FIBERGLASS INSULATION AND WRAPPED WITH WEATHERPROOF STAINLESS STEEL JACKET. HEAT TRACE THERMOSTAT/CONTROLLER SHALL HAVE A LOW TEMPERATURE ALARM CONTACT TO SCADA IN THE EVENT OF HEAT TRACE FAILURE. THE CONTRACTOR SHALL COORDINATE WITH HEAT TRACE SUPPLIER/MANUFACTURER DURING BIDDING AND CONSTRUCTION AND SHALL PROVIDE ALL CONDUIT, WIRING, AND CIRCUITS REQUIRED. HEAT TRACE SHALL BE PROVIDED/INSTALLED COMPLETE.

NOTE:

1. ALL CONTROL PANELS AND ELECTRICAL PANELS NOT FLOOR MOUNTED ARE TO BE STAINLESS STEEL UNISTRUT MOUNTED WITH FOUR BOLT FLOOR PLATES, BRACED TO SUPPORT EQUIPMENT.
2. CONTRACTOR IS RESPONSIBLE FOR SUBMITTING ELECTRICAL EQUIPMENT AND CONTROL PANEL LAYOUT BASED ON SELECTED EQUIPMENT AND EQUIPMENT ACCESS REQUIREMENTS. EQUIPMENT LAYOUT SHALL MAINTAIN CLEARANCES REQUIRED BY NEC AND MANUFACTURER.

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NEW CHEMICAL FEED BUILDING ELECTRICAL PLAN

Drawing No:

E6-0

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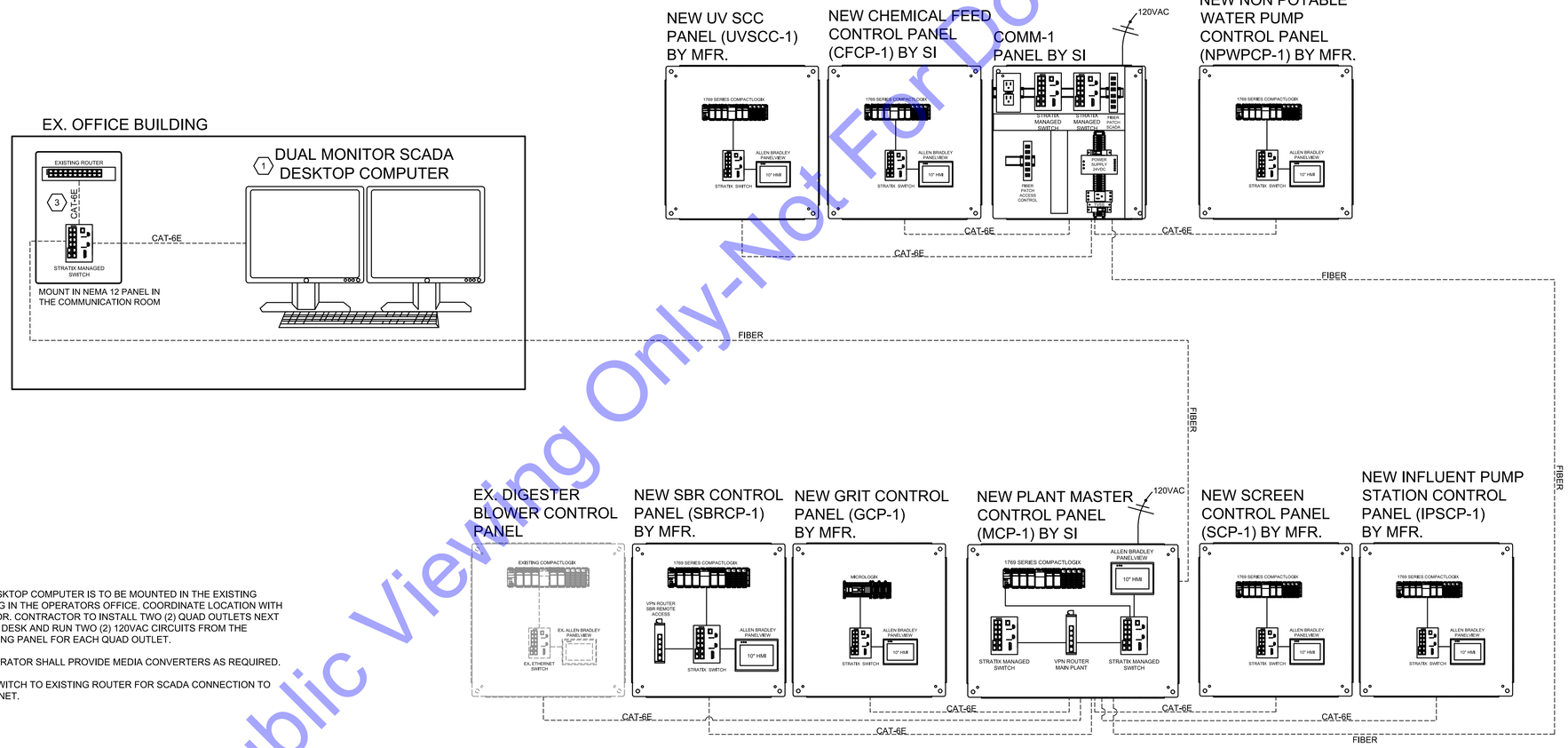

PLAN NOTES

1. NEW SCADA DESKTOP COMPUTER IS TO BE MOUNTED IN THE EXISTING OFFICE BUILDING IN THE OPERATORS OFFICE. COORDINATE LOCATION WITH PLANT OPERATOR. CONTRACTOR TO INSTALL TWO (2) QUAD OUTLETS NEXT TO OPERATORS DESK AND RUN TWO (2) 120VAC CIRCUITS FROM THE EXISTING LIGHTING PANEL FOR EACH QUAD OUTLET.
2. SYSTEMS INTEGRATOR SHALL PROVIDE MEDIA CONVERTERS AS REQUIRED.
3. CAT-6E FROM SWITCH TO EXISTING ROUTER FOR SCADA CONNECTION TO EXISTING INTERNET.

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NETWORK DIAGRAM

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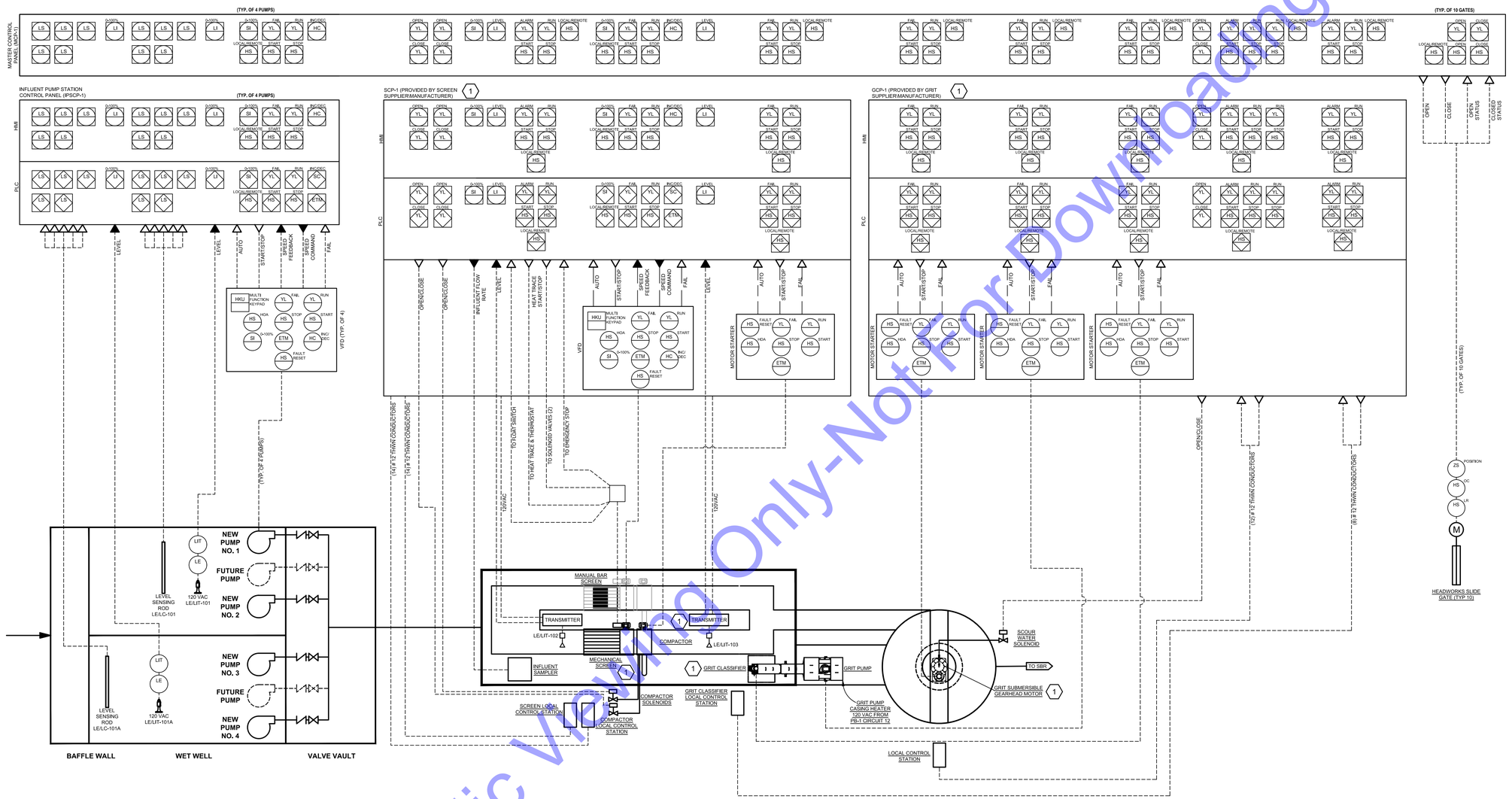

PLAN NOTES

1. CONTRACTOR TO COORDINATE DURING BIDDING AND CONSTRUCTION FOR ALL WIRING AND INSTALLATION REQUIREMENTS.

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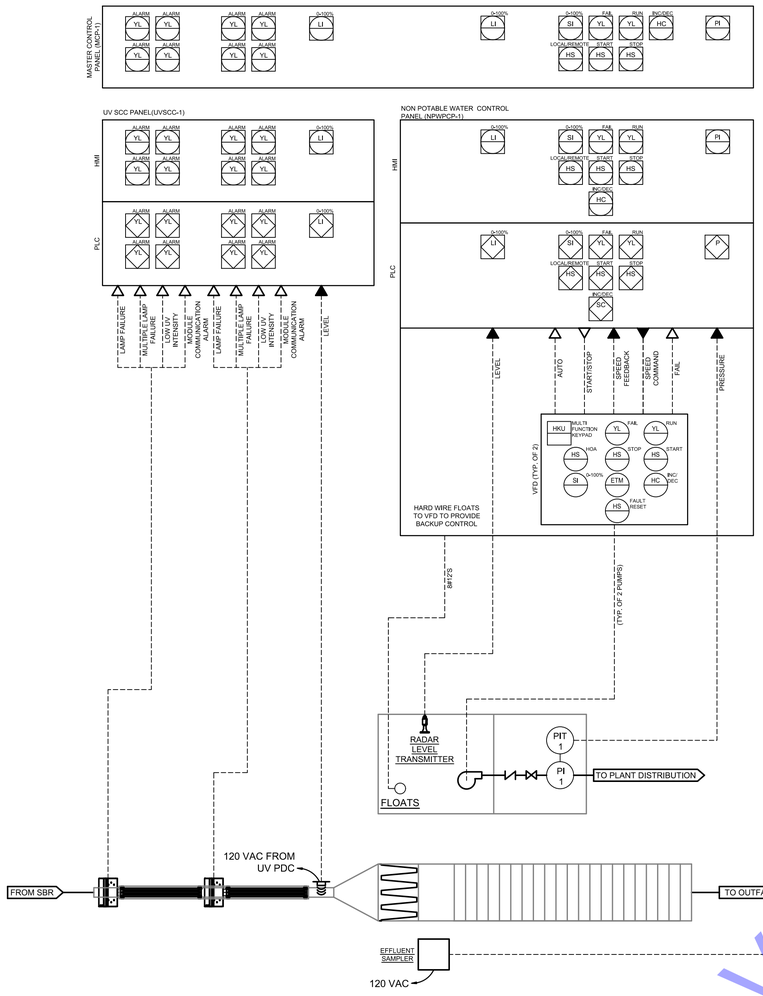

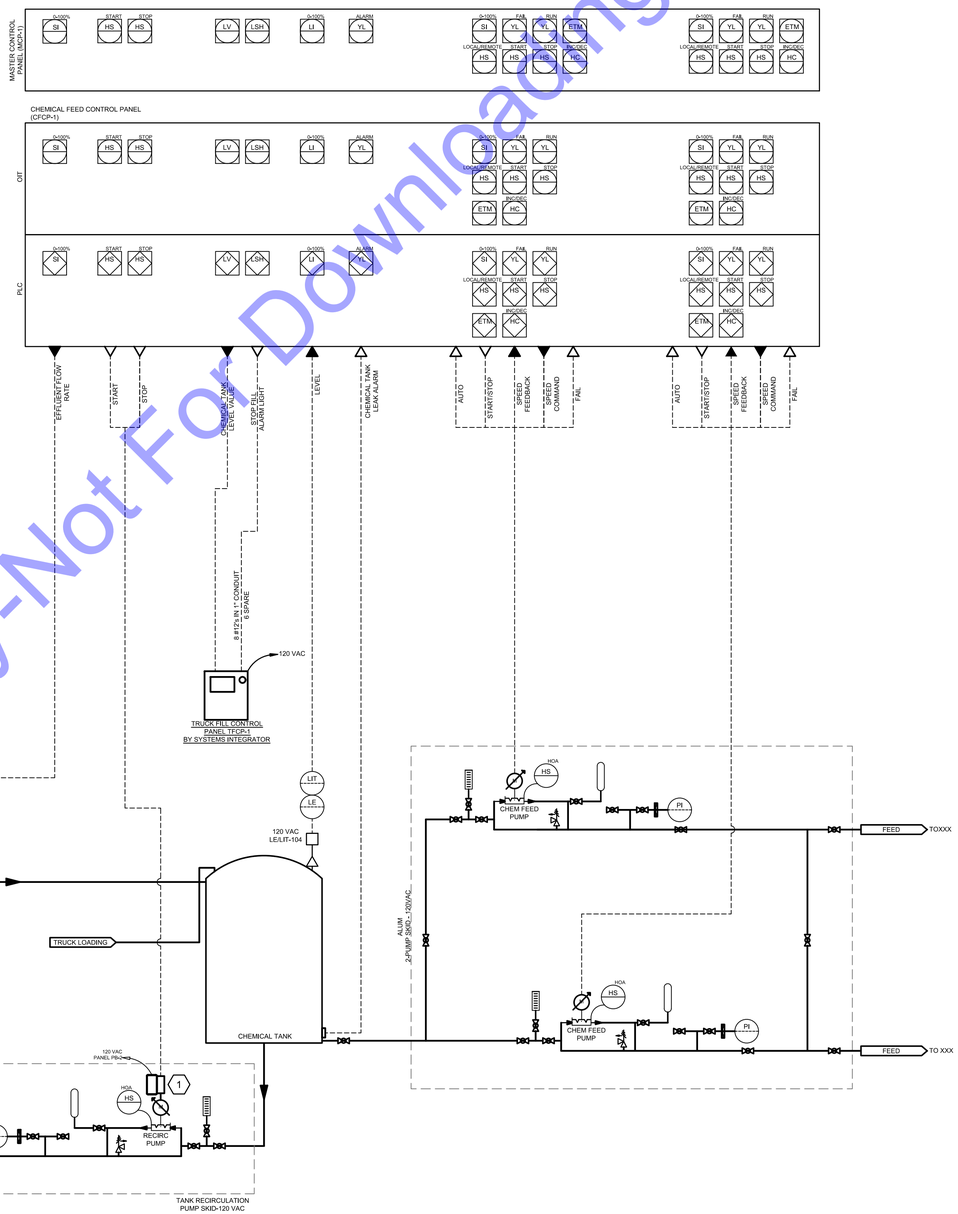

PLAN NOTES

1. CONTRACTOR TO PROVIDE AND INSTALL RIBM2401B 20 AMP RELAYS WITH PE6010-N4 NEMA 4X ENCLOSURE TO START/STOP RECIRCULATION PUMP. CONTRACTOR TO PROVIDE 120 VAC POWER TO DEVICE AS SHOWN ON SYSTEMS P&ID DRAWINGS. PROVIDE HAND/AUTO OVERRIDE SWITCHES ON CONTROL PANEL CONTROLLING ABOVE EQUIPMENT.

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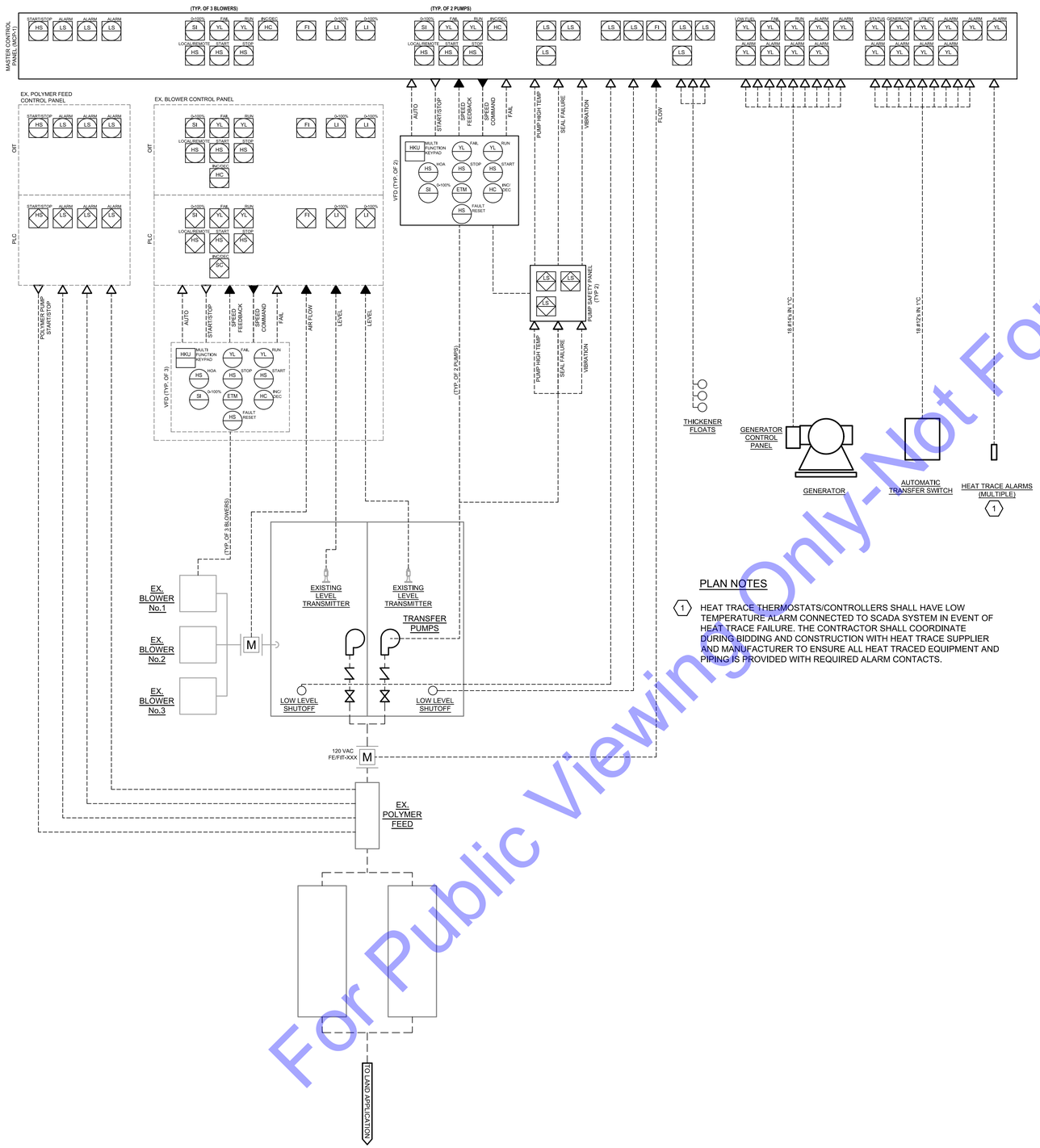

PLAN NOTES

1. HEAT TRACE THERMOSTATS/CONTROLLERS SHALL HAVE LOW TEMPERATURE ALARM CONNECTED TO SCADA SYSTEM IN EVENT OF HEAT TRACE FAILURE. THE CONTRACTOR SHALL COORDINATE DURING BIDDING AND CONSTRUCTION WITH HEAT TRACE SUPPLIER AND MANUFACTURER TO ENSURE ALL HEAT TRACED EQUIPMENT AND PIPING IS PROVIDED WITH REQUIRED ALARM CONTACTS.

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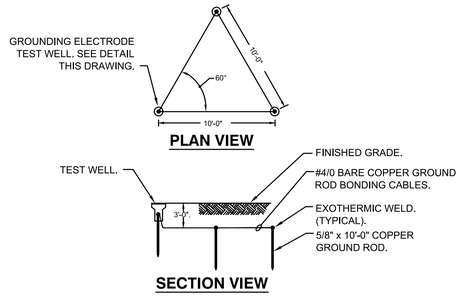
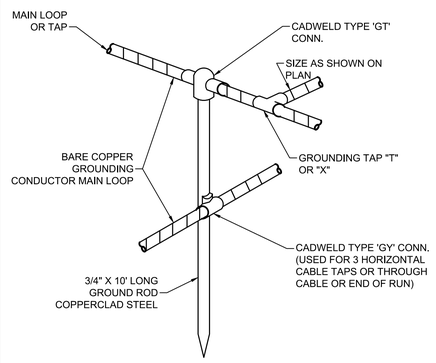


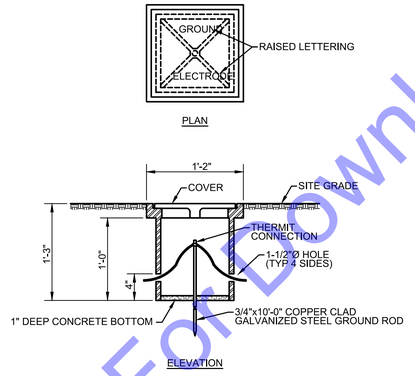
GROUNDING ELECTRODE SYSTEM

NOT TO SCALE



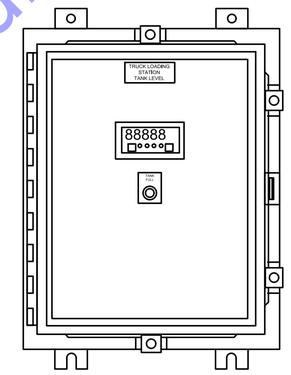
CONDUCTOR TO GROUND ROD CONNECTION DETAIL

NOT TO SCALE



TYPICAL GROUND ROD AND ACCESS BOX DETAIL

NOT TO SCALE



NEMA 4X CONTROL PANEL WITH RED LION DISPLAY.

TRUCK LOAD STATION

NOT TO SCALE

Single Eye, Split Mesh, Lace Closing

Single Eye, Split Mesh, Lace Closing*

For permanent support when cable end is not available to be installed through grip.

Cable Diameter Range Inches (cm)	Approx. Breaking Strength Lbs. (N)	E Inches (cm)	M Inches (cm)	Catalog Number
.75"-.99" (1.90-2.51)	2,820 (12,543)	10" (25.40)	25" (63.50)	**02207010**
1.00"-1.24" (2.54-3.15)	4,280 (19,037)	12" (30.48)	28" (71.12)	**02207011**
1.25"-1.49" (3.17-3.78)	4,280 (19,037)	12" (30.48)	30" (76.20)	**02207012**
1.50"-1.99" (3.81-5.05)	4,280 (19,037)	12" (30.48)	34" (86.36)	**02207013**

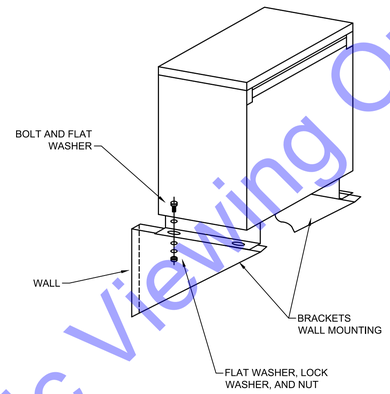
Note: E-Eye length.
M-Mesh length at nominal diameter.
** Change catalog number from 022 to 024 for stainless steel. Consult factory for availability.*

NOTE:

PROVIDE CABLE SUPPORT GRIPS ON ALL PUMP AND FLOAT CABLES ENTERING WET WELLS. SUSPEND CABLE SUPPORTS WITH STAINLESS STEEL HARDWARE AND STAINLESS STEEL BRACKETS USING HILTI HY-200R SYSTEM. CABLES TO BE SUSPENDED IN A MANNER THAT IS EASILY ACCESSIBLE FROM ACCESS HATCH.

CABLE SUPPORT DETAIL

NOT TO SCALE

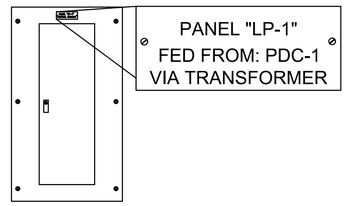


NOTES:

TRANSFORMER TO BE MOUNTED ON WALL USING TRANSFORMER MANUFACTURERS SPECIFICALLY DESIGNED WALL MOUNTING BRACKET SUPPLIED IN KITS AND SPECIFIC TO THE ENCLOSURE. THEY MUST BE INSTALLED FOLLOWING DIRECTIONS INCLUDED IN THE KIT. IT IS IMPORTANT TO CHECK THE WEIGHT OF THE UNIT AND CONFIRM THAT THE WALL AND THE FASTENERS (NOT SUPPLIED WITH THE KIT) CAN SUPPORT THE UNIT. MOUNT AS CLOSE TO CEILING AS MANUFACTURERS REQUIREMENTS ALLOW.

TRANSFORMER MOUNTING DETAIL

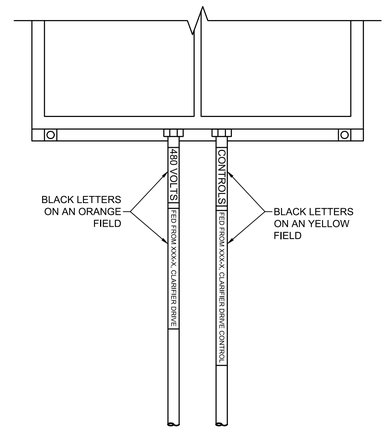
NOT TO SCALE



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.

PANELBOARD IDENTIFICATION

NOT TO SCALE



CONDUIT IDENTIFICATION

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SOUTH BEND, IN.

TOBY L.E.E. CHURCH
REGISTERED
No. 11300603
STATE OF INDIANA
PROFESSIONAL ENGINEER

Signature 10/24/2023 Date

TOWN OF NEW PALESTINE
HANCOCK COUNTY, INDIANA

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SD	CM	TLC
Issue Date: OCT 2023	**Project No:** S22002	**Scale:** AS SHOWN

ELECTRICAL DETAILS

Drawing No:
E8-0
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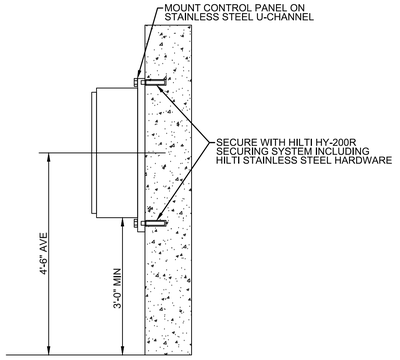
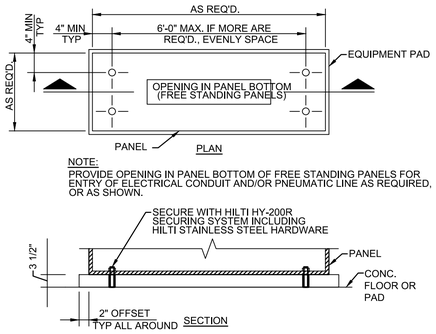


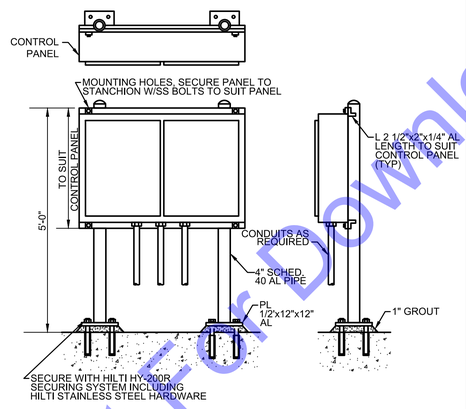
WALL MOUNT CONTROL PANEL INSTALLATION

NOT TO SCALE



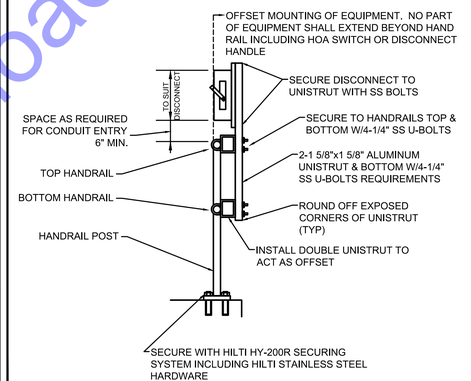
FREE STANDING OR FLOOR MOUNT CONTROL PANEL INSTALLATION

NOT TO SCALE



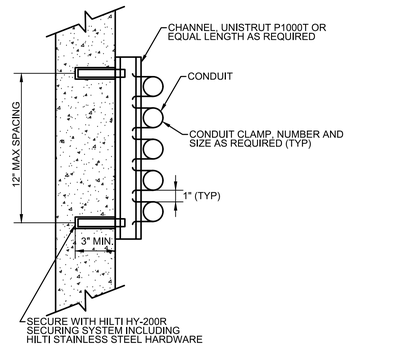
DOUBLE POST STANCHION MOUNT CONTROL PANEL INSTALLATION

NOT TO SCALE



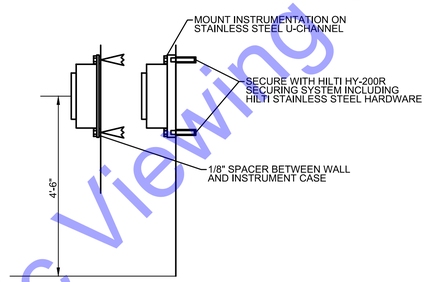
HANDRAIL MOUNT DISCONNECT

NOT TO SCALE



WALL MOUNTED CONDUIT RACK

NOT TO SCALE



WALL MOUNT SMALL CASE INSTRUMENTATION

NOT TO SCALE

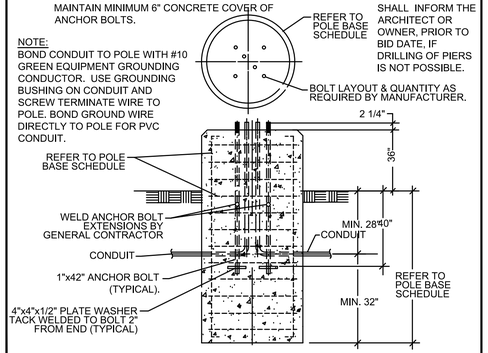
POLE BASE SCHEDULE

POLE HEIGHT	MAXIMUM TOTAL EPA	MINIMUM PIER SIZE	DEPTH BELOW GRADE*	VERTICAL REINFORCEMENT	CIRCULAR TIES
15'-0"	0-10	20" DIA.	5'-0"	6-#6	#3 @ 12"
20'-0"	0-10	20" DIA.	6'-0"	6-#6	#3 @ 12"
25'-0"	0-10	20" DIA.	7'-0"	6-#6	#3 @ 12"
30'-0"	0-10	20" DIA.	8'-0"	6-#6	#3 @ 12"
35'-0"	0-10	24" DIA.	8'-0"	8-#6	#3 @ 12"
35'-0"	10-20	24" DIA.	10'-0"	8-#6	#3 @ 12"
40'-0"	0-10	30" DIA.	10'-0"	8-#6	#3 @ 16"
40'-0"	10-20	30" DIA.	12'-0"	8-#6	#3 @ 16"

* INCREASE DIAMETER IF NECESSARY TO MAINTAIN MINIMUM 6" CONCRETE COVER OF ANCHOR BOLTS.

REFER TO GEOTECHNICAL REPORT (IF AVAILABLE) FOR SOIL CONDITIONS THAT MAY AFFECT THE CONSTRUCTION OF POLE FOUNDATIONS. CONTRACTOR SHALL INFORM THE ARCHITECT OR OWNER, PRIOR TO BID DATE, IF DRILLING OF PIERS IS NOT POSSIBLE.

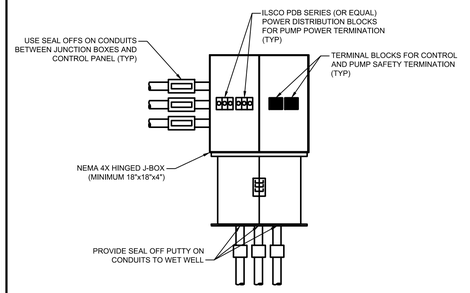
NOTE:
BOND CONDUIT TO POLE WITH #10 GREEN EQUIPMENT GROUNDING CONDUCTOR. USE GROUNDING BUSHING ON CONDUIT AND SCREW TERMINATE WIRE TO POLE. BOND GROUND WIRE DIRECTLY TO POLE FOR PVC CONDUIT.



ABOVE SURFACE FOR FIXTURES IN ASPHALT OR GRASS AREAS

ROUND POLE BASE

NOT TO SCALE



J-BOX INTERIOR DETAIL

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TOBY L.E.E. CHURCH REGISTERED No. 11300603 STATE OF INDIANA PROFESSIONAL ENGINEER

Signature 10/24/2023 Date

TOWN OF NEW PALESTINE
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WASTEWATER UTILITY
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ELECTRICAL DETAILS

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E8-1
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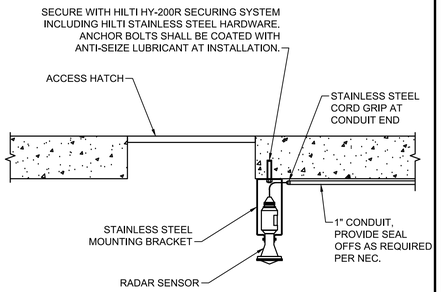
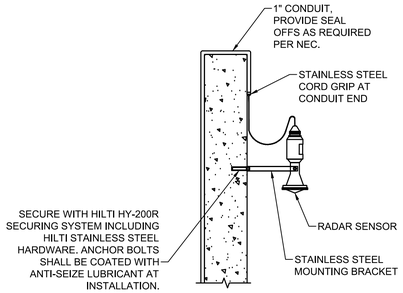


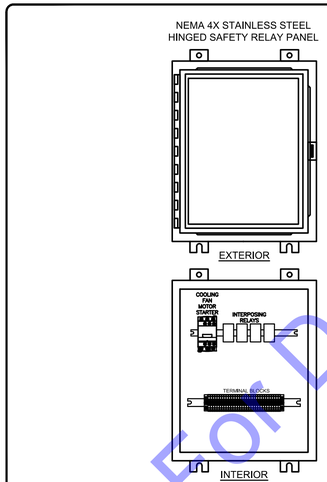
WET WELL RADAR MOUNTING DETAIL

NOT TO SCALE



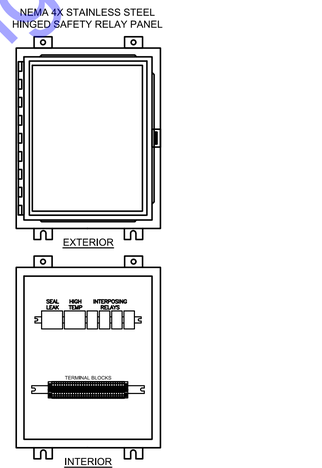
RADAR WALL MOUNTING DETAIL

NOT TO SCALE



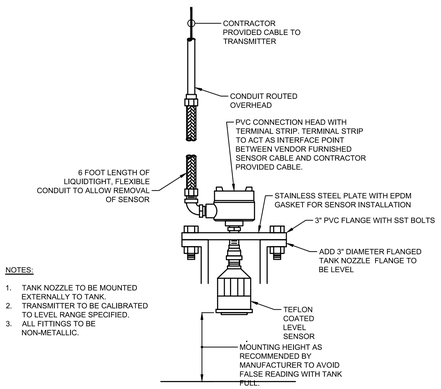
PROVIDE ALL RELAYS AND TERMINAL BLOCKS AS REQUIRED.

BLOWER SAFETY RELAY PANEL



PROVIDE ALL RELAYS AND TERMINAL BLOCKS AS REQUIRED.

PUMP SAFETY RELAY PANEL



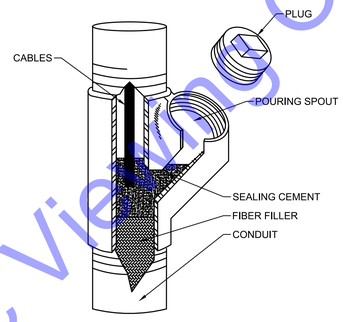
NOTES:

1. TANK NOZZLE TO BE MOUNTED EXTERNALLY TO TANK.
2. TRANSMITTER TO BE CALIBRATED TO LEVEL RANGE SPECIFIED.
3. ALL FITTINGS TO BE NON-METALLIC.

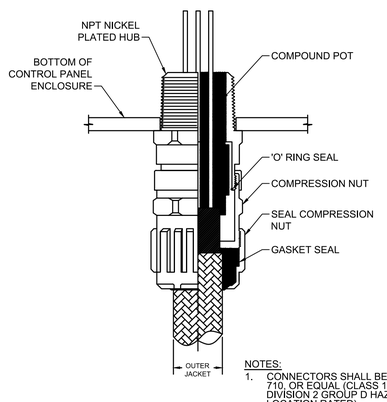
INSTRUMENT MOUNTING DETAILS ARE PROVIDED FOR REFERENCE. CONSULT INSTRUMENT MANUFACTURER FOR SPECIFIC INSTALLATION INSTRUCTIONS.

LEVEL SENSOR - ULTRASONIC TANK NOZZLE MOUNT

NOT TO SCALE



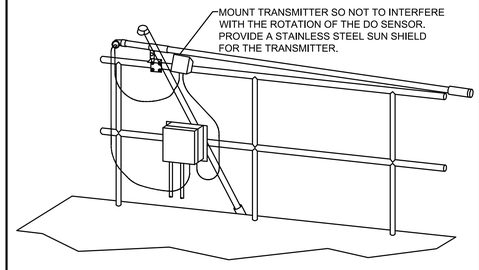
CONDUIT SEAL FITTING



NOTES:

1. CONNECTORS SHALL BE HAWKE 710, OR EQUAL (CLASS 1 DIVISION 2 GROUP D HAZARDOUS LOCATION RATED).
2. PROVIDE SEALING WASHER FOR INGRESS PROTECTION WHERE SPECIFIED.

PUMP POWER AND CONTROL CABLE GLAND CONNECTION



DO SENSOR AND TRANSMITTER HANDRAIL MOUNT DETAIL

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REGISTERED
No. 11300603
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PROFESSIONAL ENGINEER

Signature 10/24/2023 Date

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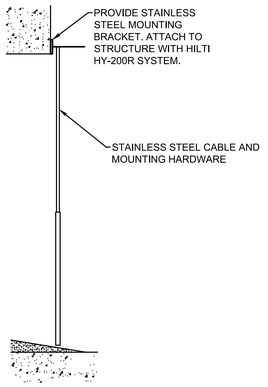
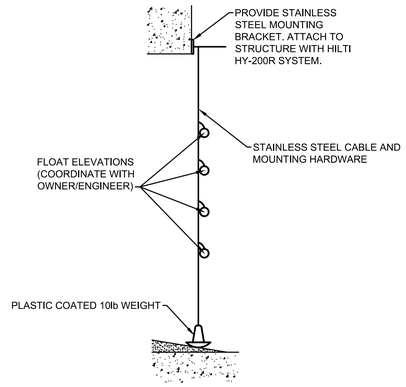


LEVEL ROD MOUNTING DETAIL

NOT TO SCALE



FLOAT MOUNTING DETAIL

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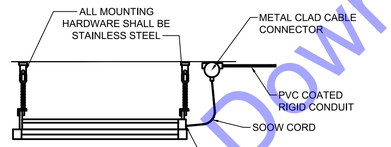
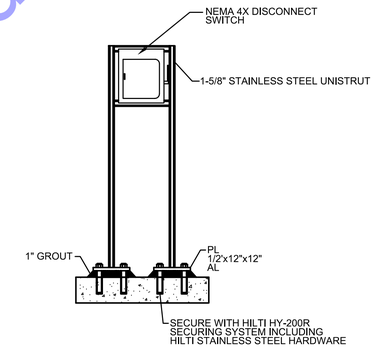


LIGHT FIXTURE MOUNTING DETAIL

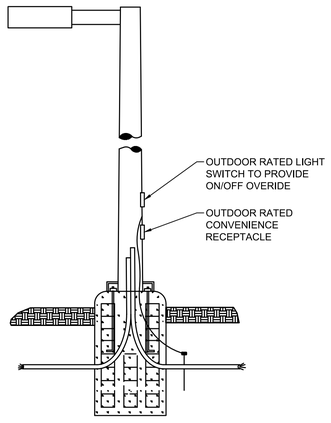
NOT TO SCALE



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 DISCONNECT SWITCH

NOT TO SCALE



NOTES:
1. CONTRACTOR TO ENSURE OVERRIDE SWITCH AMPERAGE CAPACITY IS ADEQUATE FOR LIGHTS AT POLE.
2. CONTRACTOR TO ENSURE RECEPTACLE IS RATED BASED ON BREAKER SERVING IT.

SITE LIGHTING POLE SWITCH/RECEPTACLE DETAIL

NOT TO SCALE

NOTE:
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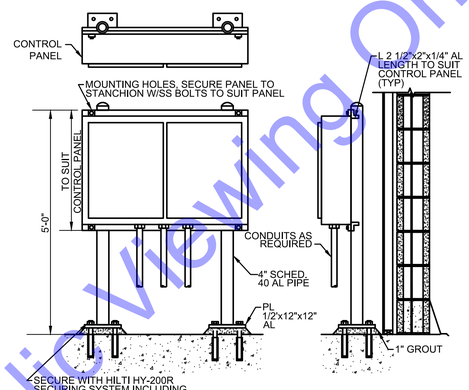
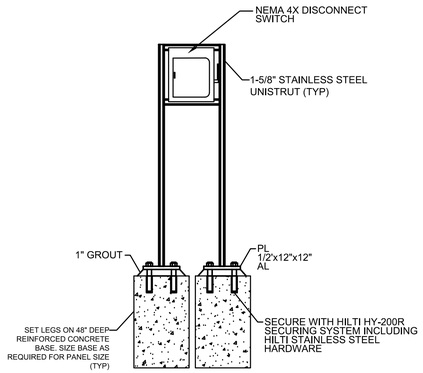
2. PAINT METAL IN CONTACT WITH CONCRETE ACCORDING TO SPECIFICATIONS FOR PAINTING.



DOUBLE POST STANCHION MOUNT CONTROL PANEL INSTALLATION

NOT TO SCALE



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SOLAR GENERAL NOTES

(GENERAL NOTES APPLICABLE TO ALL SOLAR SHEETS)

1. INSTALLATION TO BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE, TEP, FERC, NERC, AND ALL AUTHORITIES HAVING JURISDICTION. SYSTEM TO BE BONDED AND GROUNDED IN ACCORDANCE WITH NEC ARTICLES 690 AND 250.
2. ALL EQUIPMENT SHALL BE INSTALLED PER THE MANUFACTURERS RECOMMENDATIONS AND INSTRUCTIONS. THE DRAWINGS ARE DIAGRAMATIC IN NATURE AND DETAILS ARE FROM BASIS OF DESIGN EQUIPMENT WHICH OFTEN HAVE ALTERNATIVES APPROVED WHICH CAN BE USED AT THE DISCRETION OF THE CONTRACTOR. FOR THIS REASON, IT IS IMPERITIVE THAT THE CONTRACTOR AND EQUIPMENT SUPPLIER COORDINATE DURING THE BIDDING AND CONSTRUCTION PHASE. ULTIMATELY IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE AND INSTALL A COMPLETE AND FUNCTIONING SYSTEM MEETING THE INTENT OF THE DESIGN DOCUMENTS.
3. IN THE EVENT OF A DISCREPANCY IN QUANTITY OR SIZE OF CONDUIT, WIRE, EQUIPMENT, CIRCUIT BREAKERS, GROUND FAULT PROTECTION SYSTEMS, ETC. (ALL MATERIAL), DEPICTED ON THE DOCUMENTS OR SPECIFICATIONS, THE INSTALLATION CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL MATERIAL AND SERVICE EQUIPMENT IN COMPLIANCE WITH ALL REGULATIONS, LAWS, ORDINANCES, OR AHJ.
4. AN INVERTER OR AC MODULE IN AN INTERACTIVE SOLAR PV SYSTEM SHALL AUTOMATICALLY DE-ENERGIZE ITS OUTPUT TO THE CONNECTED ELECTRICAL PRODUCTION AND DISTRIBUTION NETWORK UPON LOSS OF VOLTAGE IN THAT SYSTEM AND SHALL REMAIN IN THAT STATE UNTIL THE ELECTRICAL PRODUCTION AND DISTRIBUTION NETWORK VOLTAGE HAS BEEN RESTORED PER CEC 690.61 THE CONTRACTOR SHALL VERIFY ALL SPECIFICATIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING CURRENT PROJECT DOCUMENTS AND SPECIFICATIONS ON SITE DURING CONSTRUCTION.
6. SEE PROVIDED ELECTRICAL SPECIFICATIONS AND DRAWING SHEETS FOR ADDITIONAL EQUIPMENT SPECIFICATIONS AND REQUIREMENTS.
7. THE ELECTRICAL CONTRACTOR SHALL VERIFY THE EXACT LOCATIONS OF SERVICE POINTS AND COMPLY WITH ALL UTILITY REQUIREMENTS.
8. IF DISTANCES OF CONDUCTOR RUNS ARE DIFFERENT THAN SHOWN, THE CONTRACTOR SHALL NOTIFY THE SYSTEM DESIGNER TO VALIDATE THE WIRE SIZE. FINAL DRAWINGS WILL BE REVISED AS APPROPRIATE.
9. THE INSTALLATION CONTRACTOR IS RESPONSIBLE FOR NOTIFICATION AND COORDINATION WITH ALL PROPERTY OWNERS, UTILITIES AND APPROPRIATE DIG-ALERT UNDERGROUND MARKING AGENCIES. THE CONTRACTOR SHALL ALWAYS USE EXTREME CAUTION WHEN TRENCHING FOR INSTALLATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER AND APPROVED REPAIR OF ANY AND ALL DAMAGES CAUSED DURING THE INSTALLATION. DIG ALERT PHONE NUMBER: 800-422-4133 OR 811. HOURS OF OPERATION ARE 6AM TO 7PM, MONDAY THROUGH FRIDAY, EXCEPT HOLIDAYS.
10. PROVIDE ALL WORKING CLEARANCES AT NEW AND EXISTING EQUIPMENT PER NEC 110.26, 110.30 AND 110.3(8)
11. ALL EXISTING OVERHEAD AND UNDERGROUND FACILITIES SHOWN ON THE LAYOUT PLANS ARE DIAGRAMMATIC IN NATURE AND FOR INFORMATIONAL PURPOSES ONLY. ACTUAL LOCATIONS SHALL BE FIELD VERIFIED AND DOCUMENTED PRIOR TO EXCAVATION OR EXECUTION OF THE WORK. ADDITIONALLY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF THE ACCURACY OF ALL AS-BUILT DOCUMENTS USED IN THE PROCESS OF THE WORK.
12. THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS ON THE DRAWINGS, INCLUDING EXISTING STRUCTURES, AND NOTIFY THE DESIGNER OF ANY DESCREPANCY IN THE DRAWINGS AND/OR EXISTING CONDITIONS BEFORE STARTING THE WORK.
13. ALL ELECTRICAL MATERIALS, EQUIPMENT, AND INSTALLATION THEREOF SHALL MEET THE REQUIREMENTS OF THE INDIANA ELECTRICAL CODE. LISTED OR LABELED EQUIPMENT SHALL BE INSTALLED AND USED IN ACCORDANCE WITH INSTRUCTIONS INCLUDED IN THE LISTING OR LABELING.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING OPERATIONS WITH THE AUTHORITY HAVING JURISDICTION. EACH PHASE OF CONSTRUCTION SHALL BE TESTED AND APPROVED BY THE AHJ PRIOR TO PROCEEDING TO SUBSEQUENT PHASES.
15. THE CONTRACTOR SHALL NOT BEGIN ANY WORK SHOWN ON THESE PLANS UNTIL THE SIGNATURE OF APPROVAL OF THE AHJ IS AFFIXED HEREON AND ALL APPLICABLE PERMITS HAVE BEEN OBTAINED.
16. EQUIPMENT GROUNDING CONDUCTORS SHALL BE ROUTED WITH CIRCUIT CONDUCTORS. ALL PV OUTPUT CIRCUITS, INVERTER OUTPUT CIRCUITS, AND AUXILLARY POWER CIRCUITS SHALL CONTAIN AN EQUIPMENT GROUNDING CONDUCTOR SIZED PER NEC ARTICLES 690 AND 250.
17. ALL NON-CURRENT CARRYING, EXPOSED METAL PARTS OF THE SYSTEM THAT MAY BECOME ACCIDENTALLY ENERGIZED SHALL BE GROUNDED.
18. ALL GROUND LUGS NOT INSTALLED IN AN ENCLOSURE SHALL BE LISTED FOR THE APPLICATION.
19. ALL BELOW GRADE CONNECTIONS SHALL BE EXOTHERMIC AND LISTED FOR THE APPLICATION.
20. EQUIPMENT GROUNDING CONDUCTORS SHALL BE THE SAME MATERIAL AS THEIR ASSOCIATED UNGROUNDED AND GROUNDED CIRCUIT CONDUCTOR
21. ALL INVERTER/ TRANSFORMER PADS SHALL UTILIZE A GROUNDING ELECTRODE SYSTEM CONSISTING OF A BONDING JUMPER CONNECTED TO A MINIMUM OF FOUR GROUND RODS.
22. BONDING JUMPERS BETWEEN ARRAY RACKING SECTIONS SHALL BE IDENTIFIED FOR THE APPLICATION AND BE OF SUITABLE MATERIAL. BRAIDED ALUMINUM OR TINNED COPPER CONDUCTORS MUST BE APPROVED BY THE ENGINEER.
23. WHEN GROUNDING CONNECTIONS REQUIRE THE MATING OF DISSIMILAR METALS, SUCH AS COPPER TO STEEL OR ALUMINUM, A LISTED CONNECTOR SUITABLE FOR THE SPECIFIC MATERIALS BEING MATED SHALL BE USED.
24. CONNECTORS, TERMINATIONS, ANO EQUIPMENT HARDWARE SHALL BE TORQUED PER DEVICE LISTING OR INSTALLATION DOCUMENTATION.
25. ALL FACTORY AND FIELD-MADE MECHANICAL CONNECTIONS SHALL BE TIGHTENED TO THE MANUFACTURERS' TORQUE SPECIFICATION AND MARKED WITH TAMPER-PROOF TORQUE PAINT. SHARPIES OR OTHER MARKERS ARE NOT ACCEPTABLE FOR TORQUE MARKING.
26. ALL SWITCHES SHALL BE IN THE "OFF/OPEN" POSITION AND FUSES SHALL BE REMOVED PRIOR TO INSTALLATION OF COMBINERS AND DISCONNECT SWITCHES.
27. ALL MOUNTING HARDWARE AND FASTENERS SHALL BE RATED FOR OUTDOOR USE, AND BE EITHER STAINLESS STEEL, GALVANIZED, OR NON-FERROUS.
28. ALL ENCLOSURES, MOUNTING MATERIAL, AND CONDUITS SHALL HAVE TOUCH-UP PAINT OR GALVANIZATION PAINT APPLIED TO ALL SCRATCHES AND OTHER WEAR THAT MAY HAVE OCCURRED DURING SHIPPING OR CONSTRUCTION AT THE TIME OF INSTALLATION IN ACCORDANCE WITH THE MANUFACTURERS' INSTRUCTIONS AND ASTM A780 STANDARDS.
29. ALL CUT EDGES OF GALVANIZED MATERIAL SHALL BE COLD GALVANIZED ACCORDING TO ASTM A780 STANDARDS AT THE TIME OF INSTALLATION.
30. TEMPORARY MEANS SHALL BE PROVIDED AS NECESSARY TO RESIST WIND LOADING AND DAMAGE, BOTH DURING WORKING AND NON-WORKING HOURS, FOR ALL COMPONENTS NOT YET, OR NOT YET FULLY INSTALLED. PV MODULES SHALL NEVER BE WALKED, KNEELED, OR SAT UPON, TRANSPORTED ATOP A WORKERS HEAD, OR HELD SOLELY BY THE LONG EDGE OF THE FRAME.
31. EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH 2008 NEC ARTICLE 690, MUNICIPAL REQUIREMENTS, AND UTILITY REQUIREMENTS
32. ALL CONDUCTORS EXPOSED TO SUNLIGHT SHALL BE LISTED AS SUNLIGHT RESISTANT.
33. MINIMUM 90° C MOISTURE RATED INSULATION WIRE IS REQUIRED ON ALL OUTDOOR WIRING.
34. ALL EQUIPMENT SHALL BE UL LISTED, MINIMUM NEMA 3R RATED, LABELED AND INSTALLED IN ACCORDANCE WITH MANUFACTURES' INSTRUCTIONS.
35. EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED IN ACCORDANCE WITH NEC 690.43, NEC 690.45, NEC 690.46.
36. EQUIPMENT GROUNDING CONDUCTOR TO BE CONTINUOUS PER NEC 690.48. GROUNDING ELECTRODE CONDUCTOR SHALL BE INSTALLED IN ACCORDANCE WITH NEC 690.47
37. GROUNDING ELECTRODE CONDUCTOR SHALL BE CONTINUOUS PER NEC 250.64 (C). ALL GROUNDING CONNECTIONS SHALL BE MADE WITH UL LISTED CONNECTORS. GROUNDING CONNECTION TO MODULES SHALL BE SECURELY FASTENED PER MANUFACTURERS' SPECS.
38. WHERE GROUNDING CONNECTIONS ARE MADE TO GROUNDING ELECTRODE(S), ONLY CAD-WELD EXOTHERMIC CONNECTIONS OR IRREVERSIBLE CRIMP SHALL BE USED.
39. WHEN POSSIBLE, INSTALL WIRING AND BALANCE OF SOLAR PV SYSTEM EQUIPMENT IN A MANNER THAT MINIMIZES SUNLIGHT EXPOSURE.
40. ALL CONDUIT SYSTEMS EXPOSED TO TEMPERATURE DIFFERENTIALS SHALL BE INSTALLED WITH EXPANSION FITTINGS AND BONDING JUMPERS IN ACCORDANCE WITH NEC 300.7(8).
41. ALL INVERTERS SHALL BE UL 1741 AND IEEE 1547 COMPLIANT AND INSPECTED BY LOCAL UTILITY PRIOR TO COMMISSIONING AND OPERATION.
42. INVERTERS ARE EQUIPPED WITH ANTI-ISLANDING FEATURES WHERE OUTPUT WILL SHUTDOWN INTERNALLY UPON LOSS OF UTILITY 60Hz SIGNAL THIS COMPLIES WITH IEEE 1547 AND WILL IMMEDIATELY DISCONNECT FROM GRID UNDER GROUND FAULT, THREE-PHASE BOLTED FAULT, PHASE TO PHASE FAULT OR PHASE TO NEUTRAL FAULT.
43. RE-TIGHTEN CURRENT-CARRYING CONNECTIONS, ENCLOSURE SUPPORT FRAMING AND PANELS TO MANUFACTURERS' RECOMMENDATIONS.
44. ARRAY LAYOUT SHALL BE CONSISTENT WITH THE ORDERING (AND LABELING) OF SOURCE CIRCUITS IN THE ARRAY COMBINER BOXES.
45. ALL WIRE SIZING SHALL BE IN ACCORDANCE WITH NEC 110.14 FIELD VERIFY ALL SPECIFICATIONS PRIOR TO INSTALLATION.
46. FIELD VERIFY EXACT REQUIREMENTS WITH UTILITY AND CLIENT, INCLUDING AVAILABLE FAULT CURRENT, PRIOR TO ORDERING EQUIPMENT.
47. ALL DC CONDUCTORS (FROM ARRAY TO INVERTER) SHALL BE UL 1518, UL 44, UL 854 LISTED AND 1500V RATED (SEE SPEC SHEETS).
48. ALL DC EQUIPMENT GROUNDING CONDUCTORS (FROM ARRAY TO INVERTER) SHALL BE UL 2703 LISTED AND *1500V* RATED (SEE SPEC SHEETS)
49. MODULES, COMBINER BOXES, AND INVERTERS SHALL BE LISTED FOR *1500V* OPERATION.
50. IN ACCORDANCE WITH NEC 110.31, A FENCE SHALL BE USED TO ENCLOSE THE OUTDOOR ELECTRICAL INSTALLATION. FENCE SHALL BE A MINIMUM OF 7FT IN HEIGHT, UTILIZING A MINIMUM OF (3) STRANDS OF BARBED WIRE. DISTANCE FROM FENCE TO ELECTRICAL EQUIPMENT SHALL MAINTAIN 15FT OR MORE. OVERCURRENT PROTECTION SHALL BE DESIGNED IN ACCORDANCE WITH NEC 240.100 AND NEC 240.101
51. WIRING EXPOSED TO RAIN AND SUNLIGHT IN BETWEEN SECTIONS OF RACKING FOR DISTANCES GREATER THAN 1 FOOT SHALL HAVE MEANS FOR PROTECTION FROM UV EXPOSURE AND ALL WIRING SHALL BE PROTECTED WHERE SUBJECT TO ABRASION. ALL WIRING THAT SPANS GAPS IN RACKING OF GREATER THAN 16" SHALL REQUIRE A SUITABLE SUPPORT SUCH AS CONDUIT OR A COVERED TRAY.
52. ALL CABLE TIES USED FOR WIRE MANAGEMENT SHALL BE TYPE 12 NYLON, UV STABILIZED, WITH A MINIMUM TENSILE STRENGTH 45 LBS. WHEN USED TO SECURE MORE THAN 20
53. CONDUCTORS, CABLE TIES SHALL HAVE A MINIMUM TENSILE STRENGTH OF 120 LBS.
54. ALL CONDUCTORS THAT PASS OVER METAL EDGES THAT ARE NOT ROLLED MUST BE PROTECTED FROM PHYSICAL DAMAGE AND BE SECURED WITH UV RESISTANT CABLE TIES.
55. ALL LUGS AND TERMINATIONS SHALL BE RATED FOR THE CONDUCTORS. LUGS SHALL BE INSTALLED WITH THE COMPRESSION TOOL LISTED FOR USE WITH THE SELECTED LUG. IRREVERSIBLE, DOUBLE CRIMP, LONG BARREL, TWO BOLT COMPRESSION TYPE LUGS RATED AT 90°C AND FILLED WITH OXIDE INHIBITOR SHALL BE USED WHERE REQUIRED. ALL CRIMPED CONNECTIONS SHALL BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS. MECHANICAL SET SCREW TERMINATIONS ARE ACCEPTABLE WHEN FACTORY INSTALLED IN EQUIPMENT. COLD SHRINK OR APPROVED EQUIVALENT SHALL BE USED TO COVER ANY EXPOSED CONDUCTOR AT THE JUNCTION WITH FIELD INSTALLED LUGS.
56. BUSHINGS AND THROATS SHALL BE INSTALLED FOR FITTINGS, RACEWAYS, AND OTHER ENCLOSURES PRIOR TO INSTALLATION OF CONDUCTORS AND WIRING SYSTEMS.
57. ALL DIRECT BURIED PV CONDUCTORS SHALL BE AT LEAST 24" BELOW GRADE IN A CLEAN BED OF SCREENED NATIVE BACKFILL COMPLYING WITH NEC ARTICLE 300.5(F). DETECTABLE MARKER TAPE SHALL BE PLACED 12" BELOW GRADE IN TRENCHES CONTINUOUSLY OVER CONDUCTORS.
58. X.
59. INSULATION RESISTANCE TESTING SHALL BE PERFORMED ON ALL CONDUCTORS IN CONDUIT PRIOR TO TERMINATING AND TORQUEING THEM.
60. CONTRACTOR SHALL PROVIDE PULL OR JUNCTION BOXES OR HANDHOLES WHERE REQUIRED TO FACILITATE THE INSTALLATION OF WIRING IN ADDITION TO THOSE SHOWN ON THE DRAWINGS. BENDS IN CONDUITS BETWEEN ACCESS POINTS SHALL NOT EXCEED THE EQUIVALENT OF FOUR 90 DEGREE BENDS.
61. ALL DC CONDUCTORS (FROM ARRAY TO INVERTER) SHALL BE UL 1518, UL 44, UL 854 LISTED AND *1500V* RATED.
62. ALL DC EQUIPMENT GROUNDING CONDUCTORS (FROM ARRAY TO INVERTER) SHALL BE UL 2703 LISTED AND *1500V* RATED.
63. PV MODULES, TERMINATIONS, AND INVERTERS SHALL BE LISTED FOR 1500V OPERATION.
64. PV BREAKERS SHALL BE SUITABLE FOR BACKFEED PER NEC 705.12 (0)(5).
65. PROVIDE SAFETY LABELING AS REQUIRED PER NEC 690 AND NEC 705.

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 OR SHOWN 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. DO NOT USE ANY LIGHTING FIXTURE AS A RACEWAY FOR CONDUCTORS NOT SERVING THAT PARTICULAR FIXTURE.
8. 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.
9. 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.
10. 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.
11. 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.
12. PROVIDE APPROPRIATE PULL WIRE IN EACH EMPTY SYSTEMS CONDUIT INCLUDED IN THIS PROJECT.
13. 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 8'-0".
14. MATCH A.I.C. RATINGS AND OTHER CHARACTERISTICS OF EXISTING DEVICES IN PANELBOARD WHEN ADDING BREAKERS TO EXISTING PANELBOARDS.
15. ALL WORK SHALL BE IN CONFORMANCE WITH THE NATIONAL ELECTRICAL CODE - LASTEST EDITION ADOPTED BY INDIANA, THE INDIANA CODE AMENDMENT, LOCAL/MUNICIPAL CODE, AND THE AUTHORITIES HAVING JURISDICTION.
16. 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.
17. ALL CONDUIT PENETRATIONS SHALL BE SEALED WITH APPROPRIATE CONDUIT SEALING MATERIAL.
18. ALL CABLE SIZES SHALL UTILIZE COPPER CONDUCTORS.
19. 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.
20. 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.
21. EACH SINGLE PHASE BRANCH CONDUCTOR SHALL HAVE A DEDICATED NEUTRAL BACK TO THE PANEL.
22. 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.
23. MOUNT JUNCTION BOXES AND DISCONNECT SWITCHES ON STAINLESS STEEL UNISTRUT.
24. ALL UNISTRUT, MOUNTING BRACKETS AND SUPPORTING STRUCTURES SHALL BE STAINLESS STEEL.
25. DO NOT MIX CONTROL AND POWER CONDUCTORS IN THE SAME CONDUIT. DO NOT MIX DISCRETE AND ANALOG CONTROL CONDUCTORS IN THE SAME CONDUIT.

LEGEND

SYMBOL	DESCRIPTION	MTG HGT AFF TO CL, UON
	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"
OS_W	DUAL TECHNOLOGY, WALL MNTD OCCUPANCY SENSOR WITH MANUAL OVERRIDE SWITCH	3'-10"
OS_C	DUAL TECHNOLOGY, CEILING MNTD OCCUPANCY SENSOR WITH REMOTE MANUAL OVERRIDE SWITCH	
S_{OR}	SINGLE-POLE REMOTE OVERRIDE SWITCH FOR CEILING MNTD OCCUPANCY SENSOR	3'-10"
S_D	DIMMER SWITCH	3'-10"
$S_D{}^3$	THREE-WAY DIMMER SWITCH	3'-10"
S_P	SINGLE-POLE TOGGLE SWITCH WITH PILOT LIGHT	3'-10"
S_M	SINGLE-POLE MOTOR-RATED TOGGLE SWITCH DISCONNECT	3'-10"
S_T	SINGLE-POLE OR DOUBLE-POLE MANUAL MOTOR STARTER WITH MELTING ALLOY ELEMENTS FOR THERMAL OVERLOAD PROTECTION	3'-10"
S_{IR}	OCCUPANCY SENSOR SWITCH	3'-10"
S_{IT}	INTERVAL TIMER RESET AND CONTROL SWITCH	3'-10"
S_J	JOG SWITCH	3'-10"
	MUSHROOM HEAD TYPE PUSHBUTTON STATION	5'-0"
P	AUTO DOOR CONTROL PUSHPLATE	-----
S_V	VARIABLE INTENSITY CONTROLLER INCLUDED WITH OWNER-FURNISHED-CONTRACTOR-INSTALLED SURGICAL LIGHTING FIXTURE	5'-0"
S_{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	-----
	RECPTACLE 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	-----
$\$_X$	EXPLOSION PROOF SWITCH	3'-10"
$\$_3$	3 WAY SWITCH	3'-10"
$\$_4$	4 WAY SWITCH	3'-10"
$\$_{WP}$	NEMA 4X SWITCH	3'-10"
	PHOTOVOLTAIC	-----
	BATTERY	-----
	DC SOURCE CIRCUIT	-----
	DC TO AC UTILITY INTER-ACTIVE INVERTER	-----
	TRANSFORMER	-----
	DISCONNECT SWITCH	-----
	FUSED DISCONNECT SWITCH	-----
	CIRCUIT BREAKER	-----
	DRAW OUT CIRCUIT BREAKER	-----
	FUSE	-----
	FUSE	-----
L1	AC LINE 1	-----
L2	AC LINE 2	-----
L3	AC LINE 3	-----
E.G.C.	EQUIPMENT GROUNDING CONDUCTOR	-----
G.E.C.	GROUNDING EQUIPMENT CONDUCTOR	-----
	GROUND	-----
	CIRCUIT CONDUCTOR	-----
	GROUND CONDUTCOR	-----
	POINT OF INTER-CONNECTION	-----
	BREAK SYMBOL	-----
MATCH LINE	MATCH LINE	-----
	BUS DUCT	-----
M	METER	-----
	CURRENT TRANSFORMER	-----
	POTENTIAL TRANSFORMER	-----

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	WP	WEATHERPROOF
FBO	FURNISHED BY OTHERS	T	TAMPERPROOF DEVICE
GFCI	GROUND FAULT CIRCUIT INTERRUPT-ING - PERSONNEL PROTECTION	UON	UNLESS OTHERWISE NOTED
GFI	GROUND FAULT INTERRUPTING - EQUIPMENT PROTECTION	UCR	UNDER-COUNTER REFRIGERATOR
HGT	HEIGHT		
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 CONTRACT DOCUMENTS. REFER ONLY TO THOSE THAT APPLY.

ABBREVIATIONS

ABBREVIATION	MEANING
GFI	GROUND FAULT INTERRUPTER
WP	WEATHER PROOF
AFF	ABOVE FINISHED FLOOR
UNO	UNLESS NOTED OTHERWISE
FPMR	FUSE PER MANUFACTURERS RECOMMENDATIONS
IG	ISOLATED GROUND-ORANGE RECEPTACLE
M	MONITOR RECEPTACLE- CRITICAL POWER- RED RECEPTACLE- 60"A.F.F. (UNO) (UNLESS VENDOR DRAWINGS REQUIRE DIFFERENT HEIGHT)
TSP	TWISTED SHIELDED PAIR

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 IN THE CONCRETE SLABS. ALL NON FEEDER CONDUITS SHALL BE SURFACE MOUNTED OR AS OTHERWISE INDICATED ON THE DRAWINGS. FEEDER CONDUITS SHALL BE RAN BELOW SLAB WITH THROUGH FLOOR SLAB PENETRATIONS.

ALL UNDERGROUND CONDUITS SHALL BE SEALED AT BOTH ENDS.

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

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.

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TOBY LEE CHURCH
REGISTERED
No. 11300603
STATE OF INDIANA
PROFESSIONAL ENGINEER
Signature 10/24/2023 Date

TOWN OF NEW PALESTINE
HANCOCK COUNTY, INDIANA

WASTEWATER UTILITY IMPROVEMENTS PROJECT

DIVISION "A" - MAIN WWTP IMPROVEMENTS

No.	Submittal / Revision	By	Date

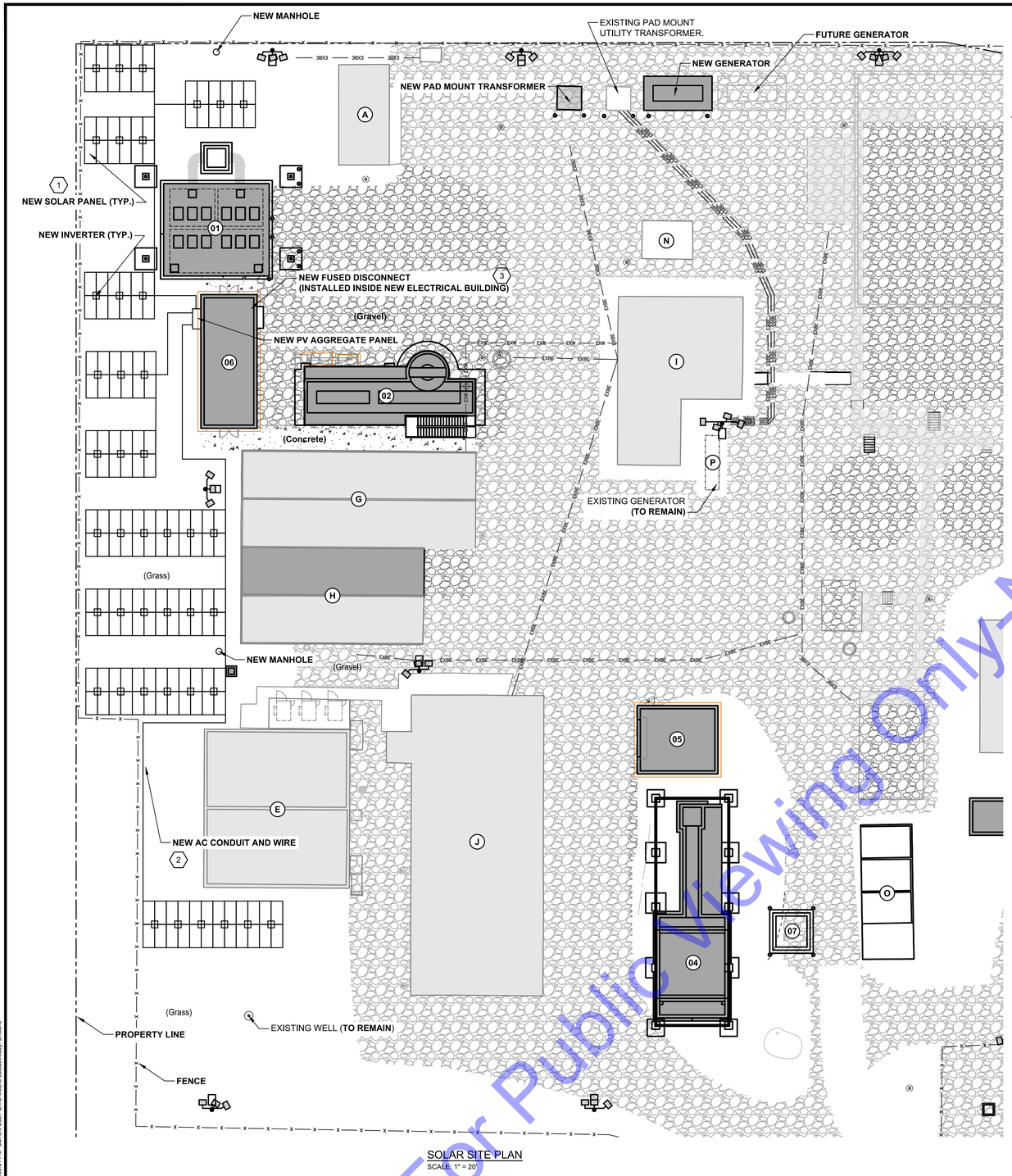
Designed By:	Drawn By:	Checked By:
SD	CM	TLC
Issue Date: 8-10-2023	Project No: S22002	Scale: AS SHOWN

MANDATORY ALTERNATE - SOLAR LEGEND

Drawing No:

MA1-0

File: Z:\SHARED\IN CLIENTS M-Z\NEW PALESTINE\D S22002 WW UTILITY IMPRVS\06 CAD\K MECH-ELECT\NEW PAL SOLAR FIELD.DWG
Saved: 6/12/2024 11:56:33 AM Plotted: 6/13/2024 1:59:35 PM Current User: Chris Means LastSavedBy: cmeans



NEW STRUCTURE LEGEND	
IDENTIFIER	**DESCRIPTION**
01	NEW INFLUENT PUMP STATION
02	NEW HEADWORKS FACILITY
03	NEW SBR TREATMENT STRUCTURE
04	NEW UV AND POST AERATION STRUCTURE
05	NEW CHEMICAL FEED BUILDING
06	NEW ELECTRICAL BUILDING
07	NEW NON-POTABLE WATER SYSTEM
08	NEW OUTFALL STRUCTURE

EXISTING STRUCTURE LEGEND		
IDENTIFIER	**DESCRIPTION**	**DEMO NOTES**
A	EXISTING HEADWORKS	TO BE ABANDONED
E	EXISTING DIGESTER	TO BE MODIFIED
G	EXISTING DRYING BEDS	TO BE MODIFIED
H	EXISTING SLUDGE BAGGING SYSTEM	TO BE MODIFIED
I	EXISTING LAB BUILDING	TO REMAIN
J	EXISTING STREET DEPARTMENT BUILDING	TO REMAIN
K	EXISTING SALT BARN	TO REMAIN

GENERAL NOTES:

1. EQUIPMENT REQUIRED FOR THE SOLAR FIELD, INCLUDING BUT NOT EXCLUSIVE TO THE SOLAR MODULES, INVERTERS, AND RACKING STRUCTURES, SHALL BE PROVIDED BY AG TECHNOLOGIES INC., NO EXCEPTIONS. CONTRACTOR SHALL COORDINATE PROCUREMENT AND INSTALLATION DETAILS WITH JIM STRAETER DEALER@NHREQ.COM.
2. EXPLORATORY EXCAVATIONS SHALL BE PERFORMED IN ADVANCE OF CONSTRUCTION AT LOCATIONS CONTRACTOR MAY COME INTO CONTACT WITH EXISTING UTILITIES. DETERMINE THE EXACT LOCATION OF ALL PIPES, CONDUITS, DUCT, OR OTHER INTERFERING STRUCTURES IN BOTH HORIZONTAL AND VERTICAL LOCATIONS. EXCAVATE TO THE DEPTH AND WIDTH NECESSARY TO ACCURATELY DETERMINE THE LOCATIONS OF THE UTILITIES OF INTEREST. VERIFY EXISTING UTILITIES EXACT LOCATION PRIOR TO ORDERING MATERIALS FOR IMPROVEMENTS TO BE MADE TO SAID EXISTING UTILITIES. ALL COSTS ASSOCIATED WITH EXPLORATORY EXCAVATIONS SHALL BE BORNE BY THE CONTRACTOR AND SHALL BE INCLUDED IN THE CONTRACTORS BID PRICE. ANY ISSUES OR COST ENCOUNTERED DURING CONSTRUCTION DUE TO LACK OF EXPLORATORY EXCAVATION NOT BEING PERFORMED SHALL BE ADDRESSED AND COSTS COVERED BY THE CONTRACTOR INCLUSIVE OF ANY REPAIRS TO EXISTING UTILITIES.
3. MINIMUM 90 DEGREE C MOISTURE RATED INSULATION WIRE IS REQUIRED ON ALL OUTDOOR WIRING FOR THE SOLAR FIELD.
4. ALL EXPOSED NON-CURRENT-CARRYING METAL PARTS OF THE SOLAR MODULE FRAMES, ELECTRICAL EQUIPMENT, AND CONDUCTOR ENCLOSURES OF THE PV SYSTEM SHALL BE GROUNDED IN ACCORDANCE WITH NEC 250.134 OR 250.136(A), REGARDLESS OF VOLTAGE. ALL GROUNDING SHALL BE PROVIDED AS REQUIRED IN NEC 690.
5. WHEN POSSIBLE, INSTALL WIRING IN A MANNER THAT MINIMIZES SUNLIGHT EXPOSURE. WIRING EXPOSED TO RAIN AND SUNLIGHT IN BETWEEN SECTIONS OF RACKING FOR DISTANCES GREATER THAN 1FT SHALL HAVE MEANS OF PROTECTION FROM UV EXPOSURE AND ALL WIRING SHALL BE PROTECTED WHERE SUBJECT TO ABRASION.
6. CONTRACTOR SHALL COORDINATE AS NECESSARY TO ENSURE SOLAR PANEL INSTALLATION DOES NOT INTERFERE WITH OTHER STRUCTURES, INCLUDING UNDERGROUND PIPING, ETC.
7. PROVIDE SAFETY LABELING AS REQUIRED PER NEC 690 AND 705. ALL LABELING SHALL COMPLY WITH NEC 110.21 (B). LABELING SHALL INCLUDE BUT IS NOT LIMITED TO:

- MAIN CIRCUIT BREAKER IN PV AGGREGATE PANEL SHALL SERVE AS THE PV SYSTEM DISCONNECTING MEANS. AGGREGATE PANEL SHALL BE EQUIPPED WITH A PROMINENT, PERMANENT PLACARD OR LABEL WITH THE WORDING "PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SHUTDOWN" PER NEC 690.56. DISCONNECT SHALL ALSO BE LABELED "PV SYSTEM DISCONNECT. WARNING ELECTRIC SHOCK HAZARD. TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION" PER NEC 690.13(B).

- ALL POINTS WHERE THE SOLAR IS INTERCONNECTED WITH OTHER SOURCES (PV AGGREGATE PANEL, NEW FUSED DISCONNECT, ATS-1, SB-1) SHALL BE LABELED AS FOLLOWS:
  "SOLAR POWER SOURCE PRESENT
  MAXIMUM AC OUTPUT OPERATING CURRENT = 91.14A
  NOMINAL OPERATING AC VOLTAGE = 480VAC"

ELECTRICAL NOTES:

1. SOLAR PANELS SHALL BE ASSEMBLED AND MOUNTED IN 12-PANEL ARRAYS (2 X 6), THIS SHALL HELP TO COUNTERACT SIGNIFICANT EAST-WEST SLOPE PRESENT IN INSTALLATION LOCATION. ARRAYS MOUNTED IMMEDIATELY NEXT TO EACH OTHER SHALL BE WIRED TOGETHER INTO A SINGLE TRUNKLINE (SEE FOLLOWING PAGE), BUT SHALL BE MOUNTED AND INSTALLED SEPARATELY AS TWO 12-PANEL ARRAYS. COORDINATE WITH MOUNTING STRUCTURE MANUFACTURER FOR ADDITIONAL DETAILS.
2. SIMPLIFIED CONDUIT ROUTING IS SHOWN; CONTRACTOR IS RESPONSIBLE FOR FINAL CONDUIT PATH. CONDUCTORS HAVE BEEN SIZED (SEE FOLLOWING PAGES FOR WIRE SIZING) TO LIMIT VOLTAGE DROP TO 3% OVER ENTIRE CONDUIT RUN FROM FARTHEST SOLAR PANEL TO ATS-1 BASED UPON CONDUIT ROUTING SHOWN. CONTRACTOR SHALL RECALCULATE VOLTAGE DROP IF SIGNIFICANTLY DEVIATING FROM CONDUIT PATH SHOWN. CONTRACTOR IS RESPONSIBLE FOR WIRE SIZING BASED UPON CONDUIT ROUTING AND LENGTH OF FINAL WIRE RUN.
3. NEW FUSED DISCONNECT SHALL BE INSTALLED WITHIN 10FT OF ATS-1. THE LENGTH OF THE CONDUCTOR BETWEEN DISCONNECT AND THE MAIN BREAKER OF ATS-1 (POINT WHERE SOLAR CONDUCTORS ARE CONNECTED TO UTILITY SERVICE) SHALL NOT EXCEED 10FT., PER NEC 705.31. FUSED DISCONNECT SHALL BE INSTALLED INTERNAL TO NEW ELECTRICAL BUILDING.

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TOWN OF NEW PALESTINE
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8-10-2023	S22002	AS SHOWN

MANDATORY ALTERNATE - SOLAR SITE PLAN

Drawing No:
MA1-1
Sheet: 202 OF 205

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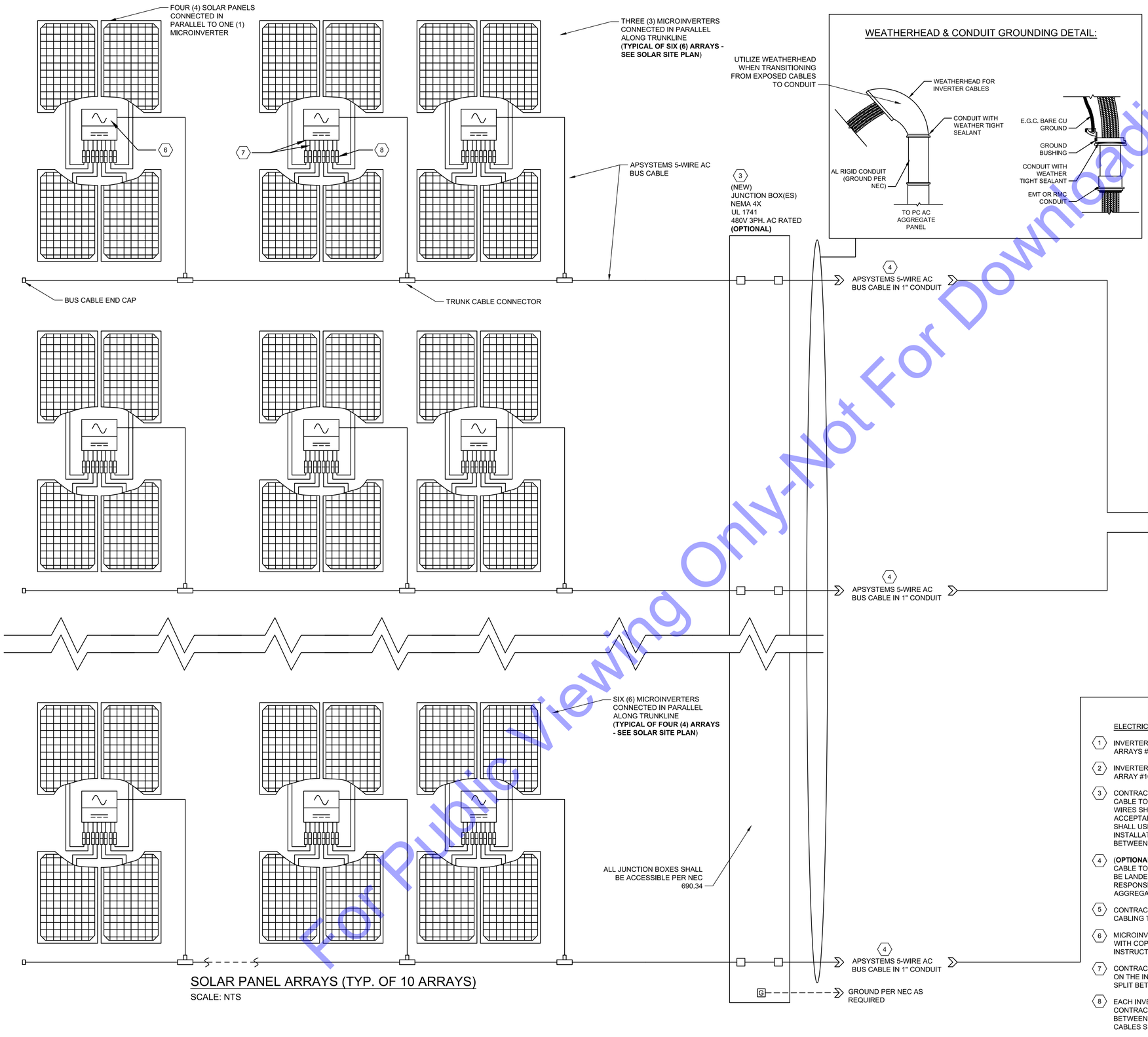


SOLAR PANEL ARRAYS (TYP. OF 10 ARRAYS)

SCALE: NTS

WEATHERHEAD & CONDUIT GROUNDING DETAIL:

PV SUB-SYSTEM ELECTRICAL DATA:

STC: 89.04 kW (DC); 75.6 kW (AC)

(168) TOTAL HELIENE 144HC M10 SL BIFACIAL 530W MODULES

(42) TOTAL 1800kW APSYSTEMS QT2-480 MICRO INVERTERS

(4) SOLAR MODULES ARE CONNECTED IN PARALLEL TO (1) MICRO INVERTER

(6) SETS OF (3) INVERTERS ARE CONNECTED IN PARALLEL TO (1) 20A AC CIRCUIT BREAKER (5.4kW / ARRAY)

(4) SETS OF (6) INVERTERS ARE CONNECTED IN PARALLEL TO (1) 20A AC CIRCUIT BREAKER (10.8 kW / ARRAY)

(10) TOTAL AC ARRAYS FED INTO ONE (1) 150A PV SYSTEM AGGREGATE AC PANEL

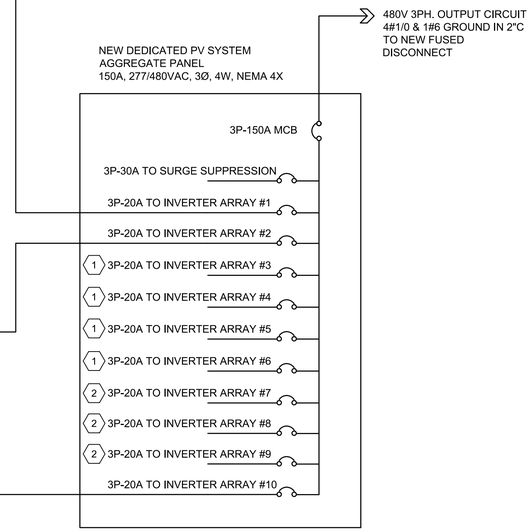
SOLAR MODULE: ELECTRICAL DATA

HELIENE 144HC M10 SL BIFACIAL 530W MODULES

SPECIFICATIONS AT STC:

MAXIMUM POWER VOTAGE (Vmp)	41.94V
MAXIMUM POWER CURRENT (Imp)	12.64A
OPEN CIRCUIT VOLTAGE (Voc)	49.72V
SHORT CIRCUIT CURRENT (Isc)	13.46A
MAX. SERIES FUSE RATING	30A
MAX. SYSTEM VOLTAGE:	1500V
CELL TYPE:	MONO
Voc TEMPERATURE COEFFICIENT	-0.25/C°
WEIGHT	64.3 LBS
DIMENSION	89.72" x 44.65" x 1.38"

STC = 25°C, 1000W/M², 1.5 AIR MASS



ELECTRICAL NOTES:

1. INVERTER ARRAYS #3-6 NOT SHOWN THIS SHEET. ARRAYS ARE 5.4kW AND ARE TYPICAL OF ARRAYS #1 & 2 SHOWN.
2. INVERTER ARRAYS #7-9 NOT SHOWN THIS SHEET. ARRAYS ARE 10.8kW AND ARE TYPICAL OF ARRAY #10 SHOWN.
3. CONTRACTOR MAY UTILIZE OPTIONAL JUNCTION BOX(ES) TO CONNECT APSYSTEMS AC BUS CABLE TO APSYSTEMS AC EXTENSION CABLE(S) AS NEEDED TO REACH AGGREGATE PANEL. ALL WIRES SHALL BE LANDED ON TERMINAL BLOCKS WITHIN JUNCTION BOX; SPLICES ARE NOT ACCEPTABLE. IF CONTRACTOR DOES NOT ELECT TO USE JUNCTION BOXES, CONTRACTOR SHALL USE APSYSTEMS MALE / FEMALE CONNECTORS AS PER APSYSTEMS INVERTER INSTALLATION MANUAL. CONTRACTOR IS RESPONSIBLE FOR PROVIDING SUFFICIENT CABLING BETWEEN INVERTER ARRAY AND PV AGGREGATE PANEL.
4. (**OPTIONAL**) CONTRACTOR MAY UTILIZE JUNCTION BOX TO TRANSITION APSYSTEMS AC BUS CABLE TO (4) #10 AWG XHHW-2 CU & (1) #10 AWG XHHW-2 CU GROUND IN 1" C. ALL WIRES SHALL BE LANDED ON TERMINAL BLOCKS; SPLICES ARE NOT ACCEPTABLE. CONTRACTOR IS RESPONSIBLE FOR PROVIDING SUFFICIENT CABLING BETWEEN INVERTER ARRAY AND PV AGGREGATE PANEL.
5. CONTRACTOR SHALL SEAL CONDUIT APPROPRIATELY WHEN TRANSITIONING FROM EXPOSED CABLING TO CABLING IN CONDUIT TO LIMIT INGRESS OF MOISTURE INTO CONDUIT.
6. MICROINVERTERS SHALL BE GROUNDED TO RACKING FRAME WITH GROUNDING WASHER OR WITH COPPER WIRE AND GROUNDING LUG PER APSYSTEMS INVERTER INSTALLATION MANUAL INSTRUCTION.
7. CONTRACTOR SHALL ENSURE EACH SOLAR PANEL IS CONNECTED TO THE SAME DC CHANNEL ON THE INVERTER; CONTRACTOR SHALL ENSURE POSITIVE AND NEGATIVE DC CABLES ARE NOT SPLIT BETWEEN TWO DIFFERENT INPUT CHANNELS. REFER TO INVERTER INSTALLATION MANUAL.
8. EACH INVERTER ANTICIPATES STAUBLI MC4 PV-ADBP4-S2&ADSP4-S2 DC CONNECTORS. CONTRACTOR SHALL PROVIDE AND INSTALL APPROPRIATE DC CABLES FOR CONNECTION BETWEEN SOLAR PANELS AND INVERTERS. COORDINATE WITH MANUFACTURERS AS REQUIRED. CABLES SHALL COMPLY WITH NEC 690.31.

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SD	CM	TLC
Issue Date: 8-10-2023	Project No: S22002	Scale: AS SHOWN

MANDATORY ALTERNATE - MODULE AND INVERTER WIRING DIAGRAM

Drawing No:

MA1-2

Sheet: 203 OF 205

File: Z:\SHARED\IN CLIENTS M-Z\NEW PALESTINE\D S22002 NW UTILITY IMPR\5\08 CAD\K MECH-ELEC\NEW PAL SOLAR FIELD.DWG
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PV SUB-SYSTEM ARRAY DATA

PV ARRAY: 89.04 kW (DC), 75.6 kW (AC)

MODULES: (168) TOTAL HELIENE 144HC M10 SL BIFACIAL 530W MODULES
INVERTER: (42) (NEW) 1800kW APSYSTEMS QT2-480 MICRO INVERTERS

ROOF: N/A
RACKING: SOLARCAM TRACKING BY AG TECHNOLOGIES INC
MODULE TILT: ADJUSTABLE
AZIMUTH: 180° DEG.
DC / AC RATIO: 1.18:1

480VAC (<10FT RUN)
(3) 1/0 AWG XHHW-2 CU
(1) 1/0 AWG XHHW-2 CU (NEUTRAL)
(1) #6 AWG XHHW-2 CU (GROUND)
IN 2" CONDUIT (REFER TO CONDUIT SCHEDULE)

FUSED DISCONNECT SHALL BE LOCATED WITHIN 10FT (CONDUCTOR LENGTH) OF POINT WHERE SOLAR CONDUCTORS ARE CONNECTED TO UTILITY SERVICE PER NEC 705.31

NEW 3Ø 480V, 2000A SERVICE FROM ELECTRIC UTILITY TRANSFORMER. CONTRACTOR TO COORDINATE WITH LOCAL UTILITY FOR NEW POWER FEED.

NEW 2000A, 3Ø 4 WIRE METERING

NEW CT CABINET OR PAD MOUNT METERING AS REQUIRED BY UTILITY

SOLAR CONDUCTORS SHALL BE LANDED ON THE UTILITY SIDE OF THE AUTOMATIC TRANSFER SWITCH MAIN CIRCUIT BREAKER PER 2017 NEC 705.12(A)

NEW GENERATOR

3P 2500AF 2000AT

2000A NEMA 12 3-POLE SERVICE ENTRANCE RATED AUTOMATIC TRANSFER SWITCH (ATS-1)

G N

G-TO-N BOND

SWITCHBOARD (SB-1)

3P 2500AF 2000AT

3P 100AF 30AT — SPD-1

3P 400AF 250AT — VFD-1 — 250 — 125 — SBR BLOWER No.1

3P 400AF 250AT — VFD-2 — 250 — 125 — SBR BLOWER No.2

3P 400AF 250AT — VFD-3 — 250 — 125 — SBR BLOWER No.3

3P 400AF 250AT — VFD-4 — 250 — 125 — FUTURE SBR BLOWER No.4

3P 400AF 250AT — VFD-5 — 250 — 125 — FUTURE SBR BLOWER No.5

3P 250AF 150AT — SBR STARTER PANEL (SBRSP-1)

3P 100AF 75AT — SS — 80 — 25 — SBR MIXER No.1

3P 100AF 75AT — SS — 80 — 25 — SBR MIXER No.2

3P 100AF 75AT — SS — 80 — 25 — FUTURE SBR MIXER No.3

3P 100AF 20AT — MS — 20 — 3 — SBR WAS PUMP No.1

3P 100AF 20AT — MS — 20 — 3 — SBR WAS PUMP No.2

3P 100AF 20AT — MS — 20 — 3 — FUTURE SBR WAS PUMP No.3

3P 100AF 20AT — SCREEN CONTROL PANEL (SCP-1)

3P 100AF 20AT — VFD — 20 — 1/2 — MECHANICAL SCREEN No.1

3P 100AF 20AT — MS — 20 — 3 — SCREEN COMPACTOR

3P 100AF 20AT — SCREEN CONTROL PANEL (SCP-2)

3P 100AF 20AT — VFD — 20 — 1/2 — FUTURE MECHANICAL SCREEN No.2

3P 100AF 20AT — MS — 20 — 3 — FUTURE SCREEN COMPACTOR

ADDITIONAL LOADS NOT SHOWN REFER TO E1-1

ITEMS GRAYED OUT ARE PART OF BASE BID CONTRACT
SHOWN HERE FOR REFERENCE FOR SOLAR CONNECTION

1 — 5.4kW ARRAY (1) OF (6) (SEE PREVIOUS SHEET)
(3) INVERTERS EACH CONNECTED TO (4) SOLAR PANELS
(12) SOLAR PANELS TOTAL

2 — 5.4kW ARRAY (2) OF (6) (SEE PREVIOUS SHEET)
(3) INVERTERS EACH CONNECTED TO (4) SOLAR PANELS
(12) SOLAR PANELS TOTAL

3 — 5.4kW ARRAY (3) OF (6) (SEE PREVIOUS SHEET)
(3) INVERTERS EACH CONNECTED TO (4) SOLAR PANELS
(12) SOLAR PANELS TOTAL

10 — 10.8kW ARRAY (4) OF (4) (SEE PREVIOUS SHEET)
(6) INVERTERS EACH CONNECTED TO (4) SOLAR PANELS
(24) SOLAR PANELS TOTAL

480VAC (<250FT RUN)
(TYP. FOR EACH ARRAY)

AP SYSTEMS 5-WIRE AC BUS CABLE (10 AWG)
IN 1" CONDUIT (SEE CONDUIT SCHEDULE)
OR
(3) #10 AWG XHHW-2 CU
(1) #10 AWG XHHW-2 CU (NEUTRAL)
(1) #10 AWG XHHW-2 CU (GROUND)
IN 1" CONDUIT (SEE CONDUIT SCHEDULE)

3P-150A MCB

3P-30A TO SURGE PROTECTION

3P-20A TO ARRAY #1 (5.4kW)
3P-20A TO ARRAY #2 (5.4kW)
3P-20A TO ARRAY #3 (5.4kW)
3P-20A TO ARRAY #4 (5.4kW)
3P-20A TO ARRAY #5 (5.4kW)
3P-20A TO ARRAY #6 (5.4kW)
3P-20A TO ARRAY #7 (10.8kW)
3P-20A TO ARRAY #8 (10.8kW)
3P-20A TO ARRAY #9 (10.8kW)
3P-20A TO ARRAY #10 (10.8kW)

NEW DEDICATED PV SYSTEM AGGREGATE PANEL
150A, 277/480VAC, 3Ø, 4W, NEMA 4X
(1) 3P-150A MAIN BREAKER
(10) 3P-20A PV BREAKERS - TO SOLAR ARRAYS
(1) 3P-30A BREAKER - TO SURGE SUPPRESSION

(DO NOT ADD ADDITIONAL LOADS TO THIS PANEL)
(LOCATED AT ARRAY; SEE SITE PLAN)

3P-150A MAIN BREAKER SHALL SERVE AS LOCAL PHOTOVOLTAIC SYSTEM DISCONNECTING MEANS. BREAKER SHALL BE LOTO CAPABLE AND SHALL BE ACCESSIBLE 24/7.

IRREVERSIBLE CONNECTION

NEW SYSTEM GROUND:
- REFER TO E1-0

WWTP - SOLAR

G N

NEW FUSED DISCONNECT SWITCH
3-POLE, 200A, 277/480VAC, NEMA 12
(3) 150A FUSES (FAST ACTING)
(SERVICE ENTRANCE RATED, VISIBLE BLADE TYPE, LOCKABLE, LABELED)
(TO BE INSTALLED INSIDE NEW ELECTRICAL BUILDING WITHIN 10FT OF INTERCONNECTION WITH UTILITY SECONDARIES)

NEW SYSTEM GROUND:
- #6 CU
- (1) 10FT GROUND ROD (SPACED 6FT APART MIN.) (25 OHMS OR LESS)

480VAC (<50FT RUN)
(3) 1/0 AWG XHHW-2 CU
(1) 1/0 AWG XHHW-2 CU (NEUTRAL)
(1) #6 AWG XHHW-2 CU (GROUND)
IN 2" CONDUIT (REFER TO CONDUIT SCHEDULE)

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MANDATORY ALTERNATE - SOLAR ONE LINE

Drawing No:
MA1-3
Sheet: 204 OF 205

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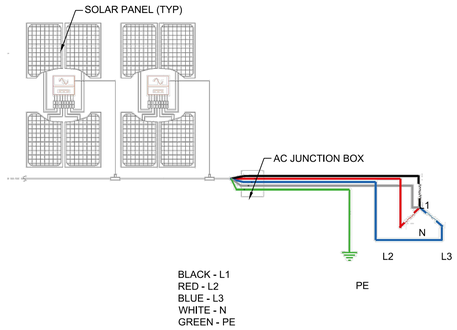
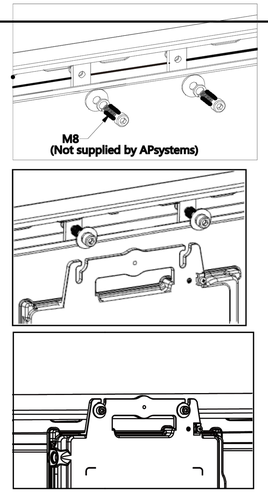


BLACK - L1
RED - L2
BLUE - L3
WHITE - N
GREEN - PE

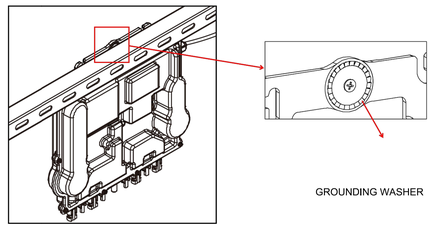
QT2 - 3-PHASE WIRING DIAGRAM



NOTES:

1. MOUNT USING RECOMMENDED HARDWARE FROM VENDOR.

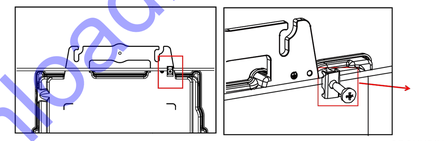
MICROINVERTER MOUNTING SYSTEM



NOTES:

1. AFTER THE MICROINVERTERS AND RACKING ARE RELIABLY INSTALLED, THE MICROINVERTER'S GROUNDING WASHER CAN CONNECT TO THE RACKING SYSTEM TO ENSURE PROPER EARTHING.

GROUND THE SYSTEM - BY GROUNDING WASHER

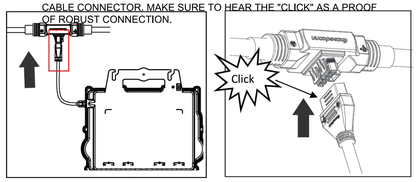


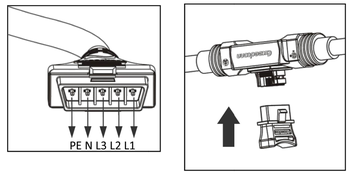
NOTES:

1. FIX THE GROUNDING COPPER WIRE BY THE GROUNDING LUG.

GROUND THE SYSTEM - BY GROUNDING COPPER WIRE

INSERT THE MICROINVERTER AC CONNECTOR INTO THE TRUNK CABLE CONNECTOR. MAKE SURE TO HEAR THE "CLICK" AS A PROOF OF ROBUST CONNECTION.

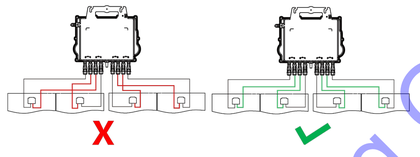




AC CONNECTOR INTERFACE AS FROM LEFT TO RIGHT.

COVER ANY UNUSED CONNECTORS WITH BUS CABLE T-CONN CAP TO PROTECT THE UNUSED CONNECTORS.

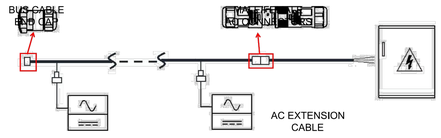
CONNECT MICROINVERTER TO AC BUS CABLE



NOTES:

1. EACH PV PANEL MUST BE CAREFULLY CONNECTED TO THE SAME CHANNEL.
2. MAKE SURE TO NOT SPLIT POSITIVE AND NEGATIVE DC CABLES INTO TWO DIFFERENT INPUT CHANNELS. MICROINVERTER WILL BE DAMAGED AND WARRANTY WILL NOT APPLY.

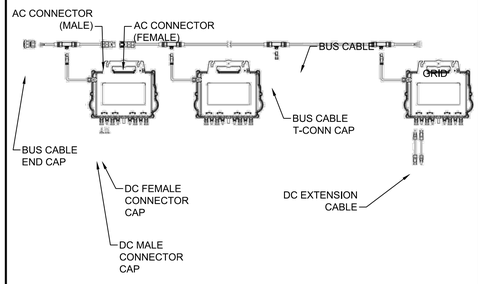
CONNECT MICROINVERTER TO PV MODULES



NOTES:

1. WHEN AC EXTENSION CABLE IS NEEDED, USERS COULD CONNECT THE AC BUS CABLE AND AC EXTENSION CABLE IN A JUNCTION BOX OR USE A PAIR OF MALE/FEMALE AC CONNECTORS THAT MANUFACTURER PROVIDES AS OPTIONAL ACCESSORY.

AC EXTENSION CABLE



WIRING DIAGRAM

COMMONWEALTH ENGINEERS, INC.
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OFFICE LOCATIONS IN:
INDIANAPOLIS, IN. (2)
EVANSVILLE, IN.
FORT WAYNE, IN.
CROWN POINT, IN.
BOWLING GREEN, KY.
SOUTH BEND, IN.

TODD L.E.E. CHURCH
REGISTERED
No. 11300603
STATE OF INDIANA
PROFESSIONAL ENGINEER

Signature 10/24/2023 Date

TOWN OF NEW PALESTINE
HANCOCK COUNTY, INDIANA

WASTEWATER UTILITY
IMPROVEMENTS PROJECT
DIVISION "A" - MAIN WWTP
IMPROVEMENTS

Indiana 811
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(ITS THE LAW)

No.	Submittal / Revision	By	Date

Designed By:	Drawn By:	Checked By:
SD	CM	TLC
Issue Date: 8-10-2023	Project No: S22002	Scale: AS SHOWN

MANDATORY ALTERNATE - SOLAR DETAILS

Drawing No:
MA1-4
Sheet: 205 OF 205

File: Z:\SHARED\IN CLIENTS M-Z\NEW PALESTINE\D S22002 NW UTILITY IMPR\CS\08 CAD\X MECH-ELECT\NEW PAL- SOLAR FIELD.DWG
Saved: 6/12/2024 11:56:33 AM Plotted: 6/13/2024 2:00:15 PM Current User: Chris Means LastSavedBy: cmeans