Joint Sewer Committee Meeting
Elk Run Heights/Raymond
Thursday, August 20, 2020
Elk Run City Hall
6:00 p.m.

Join Zoom Meeting:

https://zoom.us/j/94953526792

Meeting ID: 949 5352 6792

1. Call the meeting to order and roll call
2. Pledge of Allegiance
3. Approval of the August 13, 2020 Agenda
4. Approval of the May 28, 2020 Minutes
5. Discussion/Possible action: Design Review
   - https://api2.enscape3d.com/v1/view/933e46dc-e4f5-4d51-8a1f-7b9515132db7
6. FY20 Reconciliation
7. Discussion/Possible Action: FY21 Budget
8. Discussion: Unemployment and attorney costs for former Wastewater Treatment Plant Operator
9. Adjournment

The members of the Joint Sewer Committee Meeting for Elk Run Heights/Raymond are holding this meeting by electronic means pursuant to the provisions of the Iowa Open Meetings Law, Section 21.8, Code of Iowa

As a result of substantial community spread of COVID-19 in the state of Iowa and based on the latest guidance from the Centers for Disease Control and Prevention, it is impractical for the City of Elk Run Heights City Council to meet in person. Therefore, the meeting is being held by web conference originating from the Elk Run Heights City Hall in Elk Run Heights, Iowa. It is open to the public and those in attendance can hear the proceedings or the public can access from a remote location and join by phone or web conference. Public notice of the meeting has been issued in accordance with Iowa Code Section 21.4.

"A QUORUM OF RAYMOND CITY COUNCIL MEMBERS AND ELK RUN HEIGHTS CITY COUNCIL MEMBERS MAY BE ATTENDING THIS MEETING. NO CITY BUSINESS WILL BE DECIDED BY THEM AT THIS MEETING."

Joint Sewer Committee Meeting
Elk Run Heights/Raymond
Elk Run City Hall
May 28, 2020
6:00 p.m.

Mayor Kristi Lundy called the meeting to order at 6:01 p.m.

Present: Mayor Gary Vick, Mayor Kristi Lundy, Councilperson Becky Pint, Jason Miller and Justin Robinson with MSA Professional Services

Pint/Vick motion to approve the minutes of April 22, 2020 joint sewer committee meeting. Motion carried 3-0.

Pint/Vick motion to approve the minutes of April 30, 2020 joint sewer committee meeting. Motion carried 3-0.

Discussion/Action of soil boring and concepts developed to address cost increases – Jason Miller with MSA Professional Services discussed the finding of the soil borings. In general the underling structural soils east and west of existing facility are pretty good, some concerns of high ground water and sampled the adjacent quarry for fill. The tests came back that some of the material at this quarry can be used for engineered fill. That means the costs for obtaining material has substantially gone down. The big cost driver of having to haul material 10 miles outside of town is no longer there.

Pint/Bass motion to adjourn at 6:46p.m. Motion carried 4-0.

Respectfully submitted,

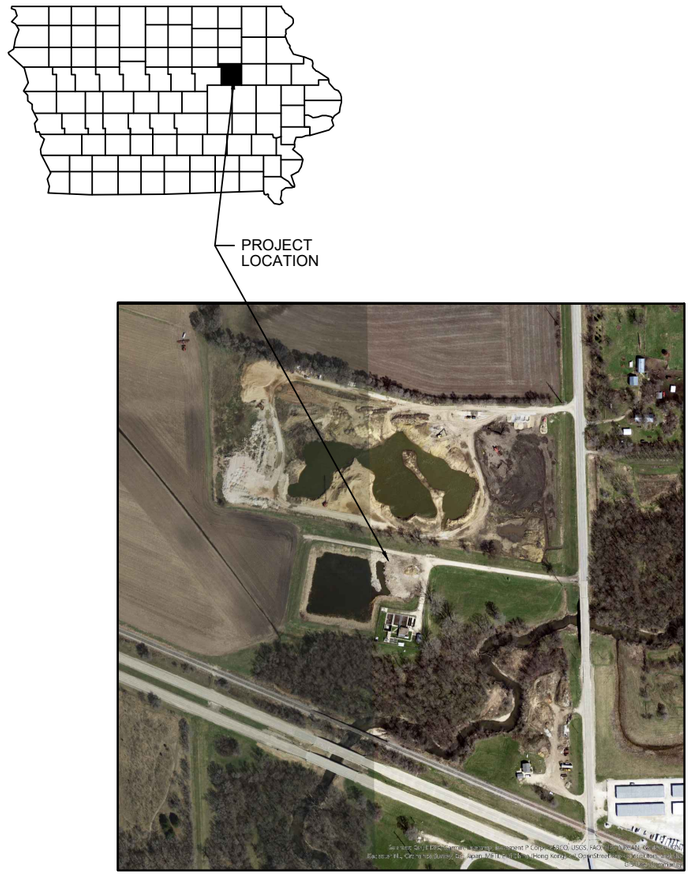
Julie Eastman, City Clerk

Return to Agenda

WASTEWATER TREATMENT FACILITY

2020

CITY OF RAYMOND AND CITY OF ELK RUN HEIGHTS
BLACK HAWK COUNTY, IOWA



LOCATION MAP
NOT TO SCALE

NOTE:
1. LOCATION OF EXISTING UTILITIES ARE SHOWN FOR INFORMATION ONLY AND ARE NOT GUARANTEED TO BE EITHER ACCURATE OR COMPLETE. IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY ACTUAL LOCATIONS PRIOR TO CONSTRUCTION.
2. DO NOT SALE DRAWINGS. IF DIMENSIONS ARE IN QUESTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATION FROM ENGINEER PRIOR TO PROCEEDING WITH WORK.

UTILITIES

GAS:

MIDAMERICAN
JWEBER@MIDAMERICAN.COM
319-291-4728

ELECTRIC:

MIDAMERICAN
JWEBER@MIDAMERICAN.COM
319-291-4728

TELEPHONE:

MEDIACOM
BKADNER@MEDIACOMCC.COM
845-544-9656

SEWER & WATER:

PEOPLE SERVICE
HDRAEGER@PEOPLESERVICE.COM
319-830-5215

WATERLOO WATER
CHAD.COON@WATERLOO-IA.ORG
232-628-5013

IOWA ONE CALL SM
1-800-292-8989
www.iowaonecall.com
811 Know what's below. Call before you dig.

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

SIGNATURE: _____ DATE: _____

NAME

LICENSE NUMBER: 00000

MY LICENSE RENEWAL DATE IS DECEMBER 31, _____

PAGES OR SHEETS COVERED BY THIS SEAL: _____

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PLOT DATE: Tuesday, August 11, 2020 1:01:43 PM, G:\14\14573\14573015\CADD\Construction Documents\00-GENERAL\00-GENERAL.dwg

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CITY OF RAYMOND / CITY OF ELK RUN HEIGHTS
BLACK HAWK COUNTY, IOWA

TITLE SHEET

PROJECT NO. 14573015
SHEET 00G1

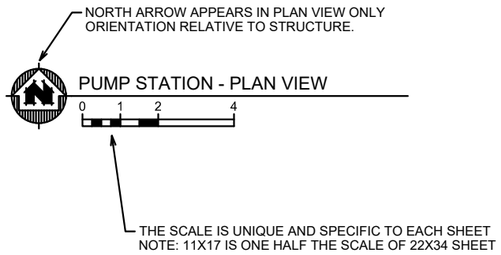
Return to Agenda

DISCIPLINE IDENTIFICATION & SHEET ORDER

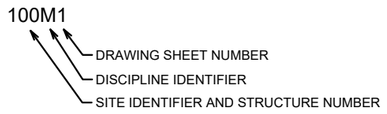
DESIGNATION	DISCIPLINE
G	GENERAL
R	REMOVAL/DEMOLITION
C	SITE CIVIL
PP	UTILITY PLAN & PROFILE
S	STRUCTURAL
A	ARCHITECTURAL
P	PLUMBING
M	PROCESS MECHANICAL
H	HVAC
E	ELECTRICAL

NOTE: FOR CLARITY, PORTIONS OF WORK FOR A DISCIPLINE MAY BE SHOWN ON A SHEET WITH A DIFFERENT DISCIPLINE DESIGNATION. IT IS THE RESPONSIBILTY OF THE GENERAL CONTRACTOR TO COORDINATE THE WORK OF ALL DISCIPLINES SO THAT ALL WORK IS COMPLETED AS SHOWN.

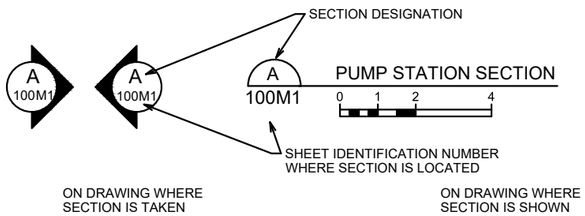
PLAN VIEW LABEL



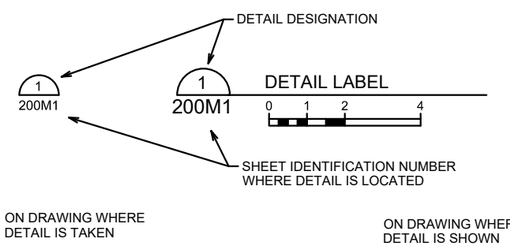
SHEET IDENTIFICATION NUMBERING EXAMPLE



SECTION DESIGNATION



DETAIL DESIGNATION



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CITY OF RAYMOND / CITY OF ELK RUN HEIGHTS
BLACK HAWK COUNTY, IOWA

SHEET INDEX

PROJECT NO. 14573015
SHEET 00G2

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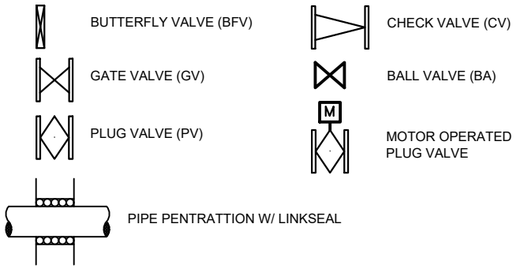
ABBREVIATIONS

A.B.	ANCHOR BOLT
ACOUST	ACOUSTIC(AL)
A/C	AIR CONDITIONER
ADJ	ADJACENT
A.F.F.	ABOVE FINISH FLOOR
ALP	AIR LIFT PUMP
ALT	ALTERNATE
ALUM	ALUMINUM
APPROX	APPROXIMATE(LY)
AVG	AVERAGE
B/	BOTTOM OF
BD	BOARD
BF	BLIND FLANGE
BFP	BACKFLOW PREVENTER
BIT	BITUMINOUS
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BM	BEAM
BRG	BEARING
BTTM	BOTTOM
BUR	BUILT UP ROOF
C.J.	CONTROL JOINT
CL	CENTERLINE
CLG	CEILING
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
COL	COLUMN
CONC	CONCRETE
CONT	CONTINUOUS
CPVC	CHLORINATED POLYVINYL CHLORIDE
DBL	DOUBLE
DEG or °	DEGREE
DF	DRINKING FOUNTAIN
DI	DUCTILE IRON
DIA	DIAMETER
DIM	DIMENSION
DIP	DUCTILE IRON PIPE
DN	DOWN
DS	DOWN SPOUT
D.T.	DRAIN TILE
DWG	DRAWING
E.I.F.S.	EXTERIOR INSULATION FINISH SYSTEM
EA	EACH WAY
EB	ELBOW
ECC	ECCENTRIC
ELEC	ELECTRIC
EL	ELEVATION
EQ	EQUAL
EWC	ELECTRIC WATER COOLER
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
F.E.	FIRE EXTINGUISHER
F.D.	FLOOR DRAIN
FCA	FLANGED COUPLING ADAPTOR
FF	FINISHED FLOOR
FIN	FINISH(ED)
FLG	FLANGE
FLR	FLOOR
FM	FLOW METER
FOC	FACE OF CONCRETE
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FT	FOOT OR FEET
FTG	FOOTING
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GPM	GALLON PER MINUTE
GWB	GYPSUM WALL BOARD
GYP	GYPSUM
HB	HOSE BIBB
HC	HANDICAP
HGT	HEIGHT
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HTG	HEATING
HP	HIGH POINT
HWH	HOT WATER HEATER
HWL	HIGH WATER LEVEL
HVAC	HEATING/VENTILATING/ AIR CONDITIONING
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
INSUL	INSULATION
INV	INVERT
JT	JOINT
LAV	LAVATORY
LP	LOW POINT
LR	LONG RADIUS
LWL	LOW WATER LEVEL
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MFR	MANUFACTURER
MH	MANHOLE
MJ	MECHANICAL JOINT
MIN	MINIMUM
MO	MASONRY OPENING
MR	MOISTURE RESISTANT
MTD	MOUNTED
MTL	METAL
N.I.C.	NOT IN CONTRACT
NO. or #	NUMBER
NPW	NON-POTABLE WATER
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
OD	OUTSIDE DIAMETER
OPP HD	OPPOSITE HAND
P.C.	PRECAST CONCRETE
P&ID	PROCESS AND INSTRUMENTATION DIAGRAM
PDF	POWER DRIVEN FASTENER
PCP	PRESTRESSED CONCRETE PIPE
PLBG	PLUMBING
PLWD	PLYWOOD
PNT.	PAINT(ED)
PRV	PRESSURE REDUCING VALVE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
P.T.	PRESSURE TREATED
R.C.P.	REFLECTED CEILING PLAN
R.D.	ROOF DRAIN
RCP	REINFORCED CONCRETE PIPE
RED	REDUCER
REINF	REINFORCING OR REINFORCED
REQ'D	REQUIRED
RO	ROUGH OPENING
SG	SLUICE GATE
SIM	SIMILAR
SM	SHEET METAL
SPECS	SPECIFICATIONS
SQ	SQUARE
SQ FT	SQUARE FOOT
SR	SHORT RADIUS
SS	SERVICE SINK
SST	STAINLESS STEEL
STD	STANDARD
STL	STEEL
SUSP	SUSPENDED
T&G	TONGUE & GROOVE
T/	TOP OF
T.O.F.	TOP OF FOOTING
TOC	TOP OF CONCRETE
TOG	TOP OF GRATING
TOW	TOP OF WALL
TV	TELESCOPING VALVE
TYP	TYPICAL
UNEXC	UNEXCAVATED
UNO	UNLESS NOTED OTHERWISE
UV	UNIT VENTILATOR
VERT	VERTICAL
WD	WOOD
WH	WALL HYDRANT
W/	WITH
W/O	WITH OUT
WL	WATER LEVEL
WT	WEIGHT
WWM	WIRE WELDED MESH
YR	YEAR

LEGEND

	EXISTING WATER MAIN
	EXISTING GATE VALVE & HYDRANT
	WATER SERVICE & CURB STOP
	PROPOSED WATERMAIN, VALVE, & HYDRANT
	PROPOSED WATER SERVICE & CURB STOP
	EXISTING SANITARY SEWER & MANHOLE
	EXISTING FORCEMAIN
	EXISTING STORM SEWER & INLET
	PROPOSED STORM SEWER & INLET
	PROPOSED SANITARY MANHOLE & SEWER MAIN
	PROPOSED FORCE MAIN
	BURIED ELECTRIC
	BURIED GAS & VALVE
	BURIED CABLE TELEVISION
	BURIED TELEPHONE
	BURIED FIBER OPTICS
	OVERHEAD UTILITY
	RAILROAD TRACKS
	EXISTING CURB & GUTTER
	PROPOSED CURB & GUTTER
	EXISTING SIDEWALK
	PROPOSED SIDEWALK
	EXISTING CULVERT PIPE
	PROPOSED CULVERT PIPE
	FENCE LINE
	DRAINAGE ARROW
	SILT FENCE
	RIGHT-OF-WAY
	BASELINE
	PROPERTY LINE
	TREE LINE
	BENCHMARK
	IRON PIPE
	IRON ROD
	CONTROL POINT
	UTILITY POLE & GUY
	SOIL BORING
	LIGHT POLE
	PEDESTAL
	STREET SIGN
	MAILBOX
	FLAGPOLE
	TREE - DECIDUOUS
	TREE - CONIFEROUS
	TREE TO BE REMOVED
	EROSION BALES
	EXISTING WETLAND

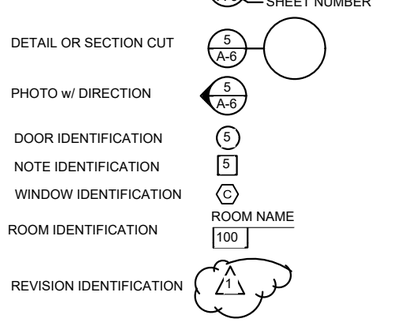
GENERIC PROCESS SYMBOLS ("M" SHEETS)



NOTE: UNDERGROUND PIPING MAY BE SHOWN ON THE PLANS WITH FLANGED JOINTS FOR CONVENIENCE ONLY. SEE DIVISON 40- WASTEWATER PROCESS PIPING SYSTEMS OF THE SPECIFICATIONS FOR CORRECT JOINT TYPE.

GENERIC PROCESS SYMBOLS MAY BE SHOWN ON THE PLANS FOR CONVENIENCE AS AN ALTERNATIVE TO SPECIFIC PROCESS MODELS.

ARCHITECTURAL SYMBOLS



PIPELINE INDENTIFIERS

AIR	AIR LOW PRESSURE
AL/FE	ALUM OR FERRIC CHEMICAL
ALK	ALKALINITY CHEMICAL
BYP	BYPASS
BW	BACKWASH
CHLOR	CHLORINATION CHEMICAL
CA	CAUSTIC SODA CHEMICAL
D	DRAIN
DCT	DECANT
DECHLOR	DECHLORINATION
DS	DIGESTED SLUDGE
EFFL	EFFLUENT
FE	FERRIC CHLORIDE
FEI	FLOW EQUALIZATION INFLUENT
FER	FLOW EQUALIZATION RETURN
FM	FORCEMAIN
G	GAS
HYPO	HYPOCHLORITE
INFL	INFLUENT
ML	MIXED LIQUOR
NG	NATURAL GAS
NPW	NON-POTABLE WATER
OF	OVERFLOW
OXD	OXIDATION DITCH
PLE	PLANT EFFLUENT WATER
POL	POLYMER CHEMICAL
RAS	RETURN ACTIVATED SLUDGE
RYC	RECYCLE
RET	RETURN SIDESTREAM
RW.SAN	RAW WASTEWATER
SAM	SAMPLE
SCE	SECONDARY EFFLUENT
SEL	SELECTOR TANK
SI	SECONDARY INFLUENT
SS	STORM SEWER
TV	TELESCOPING VALVE
TWAS	THICKENED WAS
V	VENT
W	POTABLE WATER
WAS	WASTE ACTIVATED SLUDGE

GENERAL NOTES

1. FOR CLARITY, IN A FEW INSTANCES WORK FOR A DISCIPLINE MAY BE SHOWN ON A SHEET WITH A DIFFERENT DISCIPLINE SHEET DESIGNATION. THE GENERAL CONTRACTOR IS REQUIRED TO PROVIDE A COMPLETE AND OPERABLE SYSTEM.
2. REFER TO ELECTRICAL DRAWINGS AND SCHEDULES FOR WORK REQUIRED FOR ALL ELECTRICAL AND CONTROL DEVICES.
3. THE MEANS OF THE WORK AND THE SAFETY OF THE CONTRACTORS EMPLOYEES ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL COMPLY WITH APPLICABLE REGULATIONS, INCLUDING THOSE OF OSHA.

DEMOLITION GENERAL NOTES

1. THE GENERAL CONTRACTOR SHALL COORDINATE AND PROVIDE ALL DEMOLITION AND REMOVAL OF DEBRIS NECESSARY TO ACCOMMODATE NEW CONSTRUCTION.
2. DEMOLITION PLAN IS PROVIDED AS AN AID IN PLANNING AND DOES NOT RELIEVE CONTRACTORS RESPONSIBILITY TO FIELD VERIFY THE EXISTING JOB SITE.
3. DEMOLITION PLAN SHALL BE USED IN CONJUNCTION WITH THE REMAINDER OF THE SHEETS IN THIS SET.
4. REMOVE EXISTING CONCRETE SLABS AS REQUIRED FOR PROCESS MECHANICAL, HVAC, AND ELECTRICAL WORK.
5. ALL AREAS, FINISHED, AND ITEMS NOT REQUIRING DEMOLITION MUST BE PROTECTED DURING DEMOLITION AND CONSTRUCTION WORK.
6. REFERENCE HVAC AND ELECTRICAL SHEETS FOR ADDITIONAL ITEMS TO BE REMOVED AND OR RELOCATED.
7. PRIOR TO START OF DEMOLITION WORK, VERIFY WITH THE OWNER ALL ITEMS TO BE TURNED OVER TO THE OWNER. ALL OTHER ITEMS TO BE REMOVED SHALL BE RESPONSIBILITY OF THE GC.
8. OWNER SHALL HAVE FIRST RIGHT OF REFUSAL FOR ALL ITEMS.

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BLACK HAWK COUNTY, IOWA

ABBREVIATIONS

PROJECT NO. 14573015
SHEET 00G3

Return to Agenda

INSTRUMENT SOCIETY OF AMERICA
INSTRUMENT IDENTIFICATION

	FIRST LETTER(S)		SUCCEEDING LETTERS		
	PROCESS OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSOUT FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	USER'S CHOICE			CONTROL	
D	USER'S CHOICE	DIFFERENTIAL			
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO(FRACTION)			
G	USER'S CHOICE		GLASS, VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT		INDICATE		
J	POWER	SCAN			
K	TIME OR SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MOISTURE				
N	TORQUE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE, RESTRICTION		
P	PRESSURE (OR VACUUM)		POINT, TEST CONNECTION		
Q	QUANTITY	INTEGRATE			
R	RADIATION		RECORD		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION				
W	WEIGHT, FORCE		WELL		
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	

P&ID SYMBOLS (TYPICAL)

Q A B TRS W-X-Y-Z C (N)

A: DESCRIPTION, TOP LINE

B: DESCRIPTION, BOTTOM LINE

TRS: FIRST LETTER(S) AND SUCCEEDING LETTERS OF INSTRUMENT IDENTIFICATION, REFER TO ISA TABLE

W: UNIT PROCESS NUMBER

X: LOOP NUMBER

Y: UNIT NUMBER, USED FOR MULTIPLE SETS WITH THE SAME X-Y DESIGNATION

Z: SET NUMBER, USED FOR MULTIPLE SETS OF UNITS WITH THE SAME W-X-Y DESIGNATION

N: NUMBER OF UNITS

C: INSTALLATION REQUIREMENT:
- x.p.: CLASS I, DIVISION 1 HAZARDOUS LOCATION
- i.s.: INTRINSICALLY SAFE, INSTALLED IN CLASS I, DIVISION 1 HAZARDOUS LOCATION

Q: PROVISION REQUIREMENT:
- * EXISTING, RE-USED EQUIPMENT
- ** EQUIPMENT SPECIFIED UNDER DIVISION OTHER THAN 26
- *** FUTURE EQUIPMENT
- BLANK : EQUIPMENT SPECIFIED UNDER DIVISION 26

XX (Y) PROGRAMMABLE LOGIC CONTROLLER INPUT/OUTPUT POINT WHERE Y=QUANTITY AND XX
- DI: DIGITAL INPUT
- DO: DIGITAL OUTPUT
- AI: ANALOG INPUT
- AO: ANALOG OUTPUT

MS XX FULL VOLTAGE MOTOR CONTROLLER, XX INDICATES LOCATION

XX / YY MOTOR CONTROLLER, XX INDICATES TYPE OF CONTROLLER AND YY INDICATES LOCATION

XX (Y) NETWORK (DEVICENET, ETC) CONTROL SYSTEM INPUT/OUTPUT POINT WHERE Y=QUANTITY AND XX
- DI: DIGITAL INPUT
- DO: DIGITAL OUTPUT
- AI: ANALOG INPUT
- AO: ANALOG OUTPUT

FIELD DEVICE

CONTROL PANEL DEVICE, FRONT-OF-PANEL, NORMALLY ACCESSIBLE

CONTROL PANEL DEVICE, BACK-OF-PANEL, NOT NORMALLY ACCESSIBLE

MCC DEVICE, FRONT-OF-PANEL, NORMALLY ACCESSIBLE

MCC DEVICE, BACK-OF-PANEL, NOT NORMALLY ACCESSIBLE

SOFTWARE DEVICE OR FUNCTION, NORMALLY ACCESSIBLE

SOFTWARE DEVICE OR FUNCTION, NOT NORMALLY ACCESSIBLE

SOFTWARE ALARM FUNCTION, NORMALLY ACCESSIBLE

INTERLOCK FUNCTION, REFER TO SPECIFICATIONS

NON-CONNECTING LINES

CONNECTING LINES

(2) PARALLEL LINES (PARENTHETICAL NUMBER INDICATES THE NUMBER OF SIGNALS REPRESENTED)

LINETYPE LEGEND

Ax = 2C#16 SHIELDED, TWISTED PAIR CABLE

Dx = #14 THHN WIRE (x = NUMBER OF WIRES)

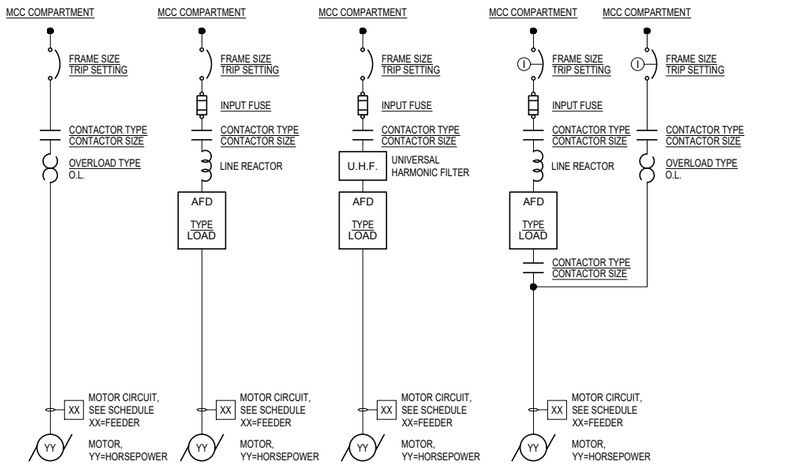
Mx = 1" CONDUIT FOR CABLE SUPPLIED BY MANUFACTURER BY MFG. (x=NUMBER OF CONDUITS)

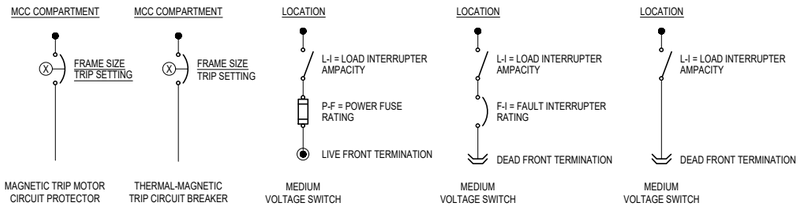
Ex = 3/4" CONDUIT AND CAT5e(x) CABLE(S) (x = NUMBER OF CABLES)

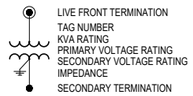
FO = CONDUIT AND FIBER OPTIC CABLE

- SOFTWARE SIGNAL/FUNCTION
- ANALOG SIGNAL, 4-20mADC OR PULSE FREQUENCY
- PULSE FREQUENCY
- DISCRETE SIGNAL, DRY CONTACT
- MANUFACTURER'S SIGNAL
- PNEUMATIC SIGNAL
- MAJOR PROCESS
- MINOR PROCESS

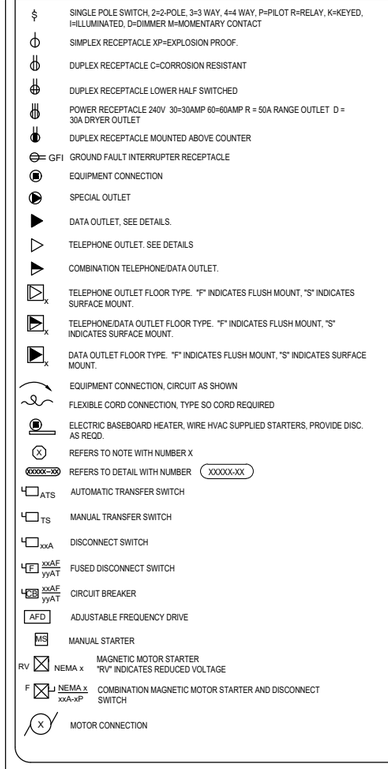
MOTOR CONTROL CENTER (MCC) SYMBOLS







ELECTRICAL PLAN SYMBOLS



GENERAL NOTES:

1. THIS DRAWING IS A STANDARD LEGEND. SYMBOLS SHOWN MAY NOT ALL APPEAR ON DRAWINGS FOR THIS PROJECT.
2. ALL CONTACTS ARE SHOWN IN THE DE-ENERGIZED (SHELF) POSITION. BI-STABLE RELAYS ARE SHOWN IN THE RESET POSITION.
3. ONE-LINE DIAGRAMS FOR POWER SWITCHGEAR, USE ANSI STANDARD SYMBOLS AND ABBREVIATIONS.
4. SEE INSTRUMENTATION DRAWINGS FOR INSTRUMENTATION SYMBOLS AND DETAILS.
5. OTHER ABBREVIATIONS PER ANSI Z32.13 AND ISA S5.1
6. ELEVATIONS ADJACENT TO SYMBOLS ARE BASED ON STATION DATUM. HEIGHTS ADJACENT TO SYMBOLS (+4.0) ARE REFERENCED TO FINISHED FLOOR GRADE.
7. THE LETTERS "GFI" ADJACENT TO A RECEPTACLE INDICATES A GROUND FAULT INTERRUPTER FEED-THROUGH RECEPTACLE ASSEMBLY. THE LETTERS ADJACENT TO A PANELBOARD CIRCUIT BREAKER INDICATES A GROUND FAULT CIRCUIT BREAKER. THE LETTERS "IG" INDICATE AN ISOLATED GROUND RECEPTACLE, PROVIDE SEPARATE GROUND WIRE.
8. SEE SPECIFICATIONS AND SCHEDULES FOR COMPONENT REQUIREMENTS FOR MOTOR CONTROLLERS AND FOR CONTACTORS.

PROCESS NOTES:

1. SIZE CONDUIT PER NEC. MINIMUM SIZE 3/4".
2. PROVIDE SEPARATE CONDUITS FOR THE FOLLOWING:
   a. 4-20mADC
   b. 120 VOLT CONTROL
   c. 120 VOLT POWER
   d. 480 VOLT POWER
   e. LOW VOLTAGE INSTRUMENTATION
   f. COMMUNICATION
3. REFER TO SPECIFICATION 26 90 00 FOR DETAILS ON VARIOUS LOOP FUNCTIONS AS WELL AS DETAILS REGARDING OPERATOR INTERFACE FUNCTIONS.
4. REFER TO DIVISION SPECIFICATIONS FOR ADDITIONAL DETAILS REGARDING INSTRUMENTATION AND CONTROL EQUIPMENT FURNISHED UNDER THOSE SPECIFICATIONS.
5. (1) 1-1/2"C REFERS TO NUMBER OF WIRES AND SIZE OF WIRE REQUIRED, WHERE AS:
   (1) = ONE WIRE
   1-1/2"C = THE SIZE OF WIRE REQUIRED

WIRING & CONDUIT

1. (X) #12 & #12G

   REFERS TO NUMBER OF WIRE(S) AND SIZE OF WIRE(S) REQUIRED, WHERE AS:

   (1) = ONE WIRE
   #12 = THE SIZE OF WIRE REQUIRED
   G = GROUND WIRE

2. (X) 1-1/2"C

   REFERS TO NUMBER OF CONDUIT(S) AND SIZE OF CONDUIT(S) REQUIRED, WHERE AS:

   (1) = ONE CONDUIT
   1-1/2"C = THE SIZE OF CONDUIT REQUIRED

* REFER TO DRAWINGS FOR REQ'D WIRE AND CONDUIT SIZES AND AMOUNTS

ELECTRICAL ABBREVIATIONS

AFD	ADJUSTABLE FREQUENCY DRIVE	EM	EMERGENCY	KVA	KILOVOLT-AMPERES	PC	PHOTO CONTROL
AFG	ABOVE FINISH GRADE	EP	CLASS 1, DIV. 1 EQUIPMENT	KW	KILOWATTS	PFR	PHASE FAIL RELAY
AHU	AIR HANDLING UNIT	EUH	ELECTRIC UNIT HEATER	MAU	MAKE-UP AIR UNIT	PVC	POLYVINYL CHLORIDE
AUTO	AUTOMATIC	EWC	ELECTRIC WATER COOLER	M.C.	MECHANICAL CONTRACTOR	REQ'D	REQUIRED
AUX	AUXILIARY	EWH	ELECTRIC WALL HEATER	MCC	MOTOR CONTROL CENTER	SPEC	SPECIFICATION
AWG	AMERICAN WIRE GAUGE	FBO	FURNISHED BY OTHERS	MFR	MANUFACTURER	SPD	160KAIPHASE MINIMUM SURGE PROTECTIVE DEVICE
BKR	BREAKER	G	GROUND	MS-AUX	MOTOR STARTER AUXILIUARY	SS	STAINLESS STEEL
C	CONDUIT	G.C.	GENERAL CONTRACTOR	mA	MILLIAMPERE	TC	7 DAY TIMECLOCK PROVIDED BY ELECTRICAL CONTRACTOR
CB	CIRCUIT BREAKER	GFI	GROUND FAULT INTERRUPTER	mV	MILLIVOLT	TYP	TYPICAL
CKT	CIRCUIT	GND	GROUND	MOD	MOTOR OPERATED DAMPER	UH	UNIT HEATER
CU	COPPER	HVAC	HEATING, VENTILATING & AIR CONDITIONING	NL	NIGHTLIGHT	UPS	UNINTERRUPTIBLE POWER SUPPLY
DISC	DISCONNECT	HTR	HEATER	N.O.	NORMALLY OPEN	W/	WITH
E.C.	ELECTRICAL CONTRACTOR	I.S.	INTRINSICALLY SAFE	N.C.	NORMALLY CLOSED	WH	WATER HEATER
ECB	ENCLOSED CIRCUIT BREAKER	I/O	INPUT/OUTPUT	NF	NON-FUSED	WP	WEATHER PROOF
EDH	ELECTRIC DUCT HEATER	IG	ISOLATED GROUND	NTS	NOT TO SCALE	XFMR	TRANSFORMER
EF	EXHAUST FAN	J-BOX	JUNCTION BOX	O.L.	OVERLOAD	XLP	CROSS LINKED POLYETHYLENE
ELEV	ELEVATION	KCMIL	THOUSAND CIRCULAR MILS	OHD	OVER HEAD DOOR		
		KV	KILOVOLTS				

PROJECT DATE: 2019-09-20	SCALE: AS SHOWN	NO.	DATE	REVISION	BY
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F.B. :	CHECKED BY: RJJ				
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BLACK HAWK COUNTY, IOWA

ELECTRICAL SYMBOLS & ABBREVIATIONS

FILE NO. 14573015
SHEET 00-G4

Return to Agenda

20 HEADWORKS BUILDING

10 INFLUENT FLOW MEASUREMENT STRUCTURE

(2) FLOW MEASUREMENT 6" PARSHALL FLUMES

18" INFL

GRIT CLASSIFIER

GRIT PUMP

4" GR

STAIR SCREEN & WASHING PRESS

MANUAL SCREEN

GRIT CHAMBER

(2) COMPOSITE SAMPLERS

FLOW MEASUREMENT 9" PARSHALL FLUME

18" INFL

BLOWER #1

BLOWER #2

BLOWER #3

COMPOSITE SAMPLER

STORM FLOW LAGOON

8" INFL FM — 8" INFL FM

8" INFL FM — 8" INFL FM

16" FEI — 16" FEI — 16" FEI — 16" FEI — 16" FEI — 16" FEI

30 FLOW SPLIT STRUCTURE

12" AIR

12" FER

4" FER — 4" FER FM — 4" FER FM — 4" FER FM

4" FER — 4" FER FM — 4" FER FM — 4" FER FM

14" SAN

60 STORM FLOW PUMP STATION

8" INFL FM

8" INFL FM

16" EFFL

4" DS FM — 4" DS FM

4" DS FM — 4" DS FM

4" DS FM

4" DS FM

4" DS FM

4" DS FM

16" EFFL

10" AIR — 10" AIR — 10" AIR — 10" AIR — 10" AIR — 10" AIR — 10" AIR — 10" AIR

4" DS FM — 4" DS FM — 4" DS FM — 4" DS FM — 4" DS FM — 4" DS FM — 4" DS FM — 4" DS FM

4" DS FM — 4" DS FM — 4" DS FM — 4" DS FM — 4" DS FM — 4" DS FM — 4" DS FM — 4" DS FM

4" DS FM

6" AIR

6" AIR

8" INFL FM

8" INFL FM

8" INFL FM

8" INFL FM

8" INFL FM

8" INFL FM

DIGESTER TANK A

SN

14" SAN

SN

DIGESTER TANK B

WAS

AERATION TANK A1 (1ST STAGE)

SAN

SELECTOR TANK A/B

SAN

AERATION TANK B1 (1ST STAGE)

WAS

SAN

RAS

RAS

SAN

AERATION TANK A2 (2ND STAGE)

CLARIFIER TANK A1

CLARIFIER TANK A2

CLARIFIER TANK B1

CLARIFIER TANK B2

AERATION TANK B2 (2ND STAGE)

SAN SAN SAN — SAN SAN SAN — SAN SAN SAN — SAN SAN SAN

SAN

AERATION TANK A3 (3RD STAGE)

AERATION TANK A3 (3RD STAGE)

AERATION TANK B3 (3RD STAGE)

AERATION TANK B3 (3RD STAGE)

SAN

8" AIR

8" AIR

8" AIR

8" AIR

8" AIR

14" SAN

14" SAN

4" AIR

4" AIR

40 AERO-MOD

50 UV BUILDING

COMPOSITE SAMPLER

90° V-NOTCH FLOW MEASUREMENT WEIR

UV DISINFECTION

UV BYPASS

POST AERATION TANK

EFFLUENT PUMPS

14" SAN — 14" SAN — 14" SAN — 14" SAN

16" EFFL — 16" EFFL — 16" EFFL — 16" EFFL — 16" EFFL

18" EFFL

18" EFFL

ELK RUN CREEK

FLOATING ASPIRATING AERATOR

FLOATING ASPIRATING AERATOR

70 SLUDGE LAGOON & SUPERNATANT RETURN STRUCTURE

FLOATING ASPIRATING AERATOR

FLOATING ASPIRATING AERATOR

6" INFL FM — 6" INFL FM — 6" INFL FM — 6" INFL FM

6" INFL FM — 6" INFL FM — 6" INFL FM — 6" INFL FM

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	CHECKED BY: JEM				

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BLACK HAWK COUNTY, IOWA

FLOW SCHEMATIC

PROJECT NO. 14573015

SHEET 00G5

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DESIGN INFORMATION

WWTF FLOWS

ADW	0.21 MGD
AWW	0.50 MGD
MWW	1.28 MGD
PHWW	2.25 MGD

SECONDARY PROCESS DESIGN FLOWS

ADW	0.21 MGD
AWW	0.50 MGD
MWW	1.28 MGD
PHWW	1.92 MGD

DESIGN LOADINGS

BOD	486 LBS/DAY
TSS	812 LBS/DAY
TKN	136 LBS/DAY
NH3	56 LBS/DAY

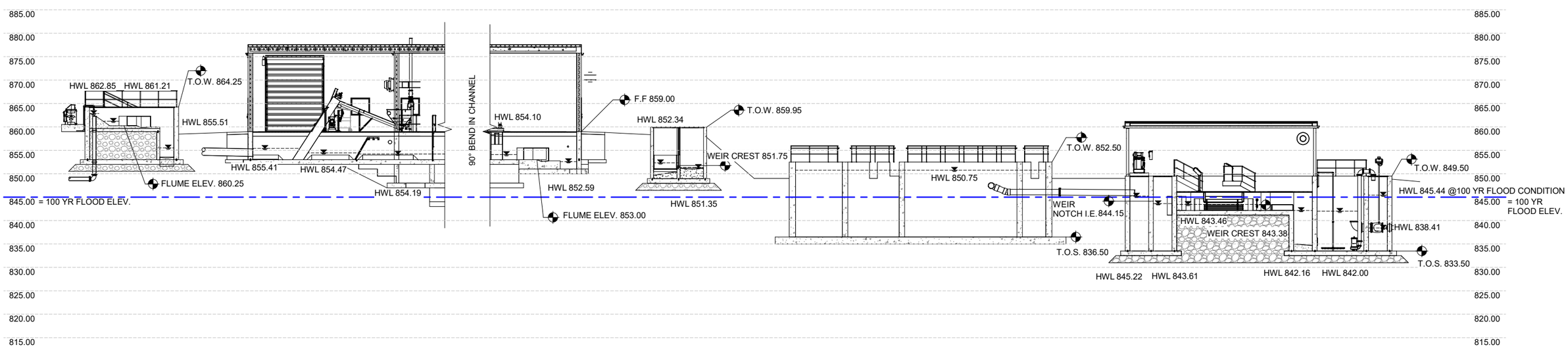
STRUCTURE 10
INFLUENT FLOW MEASUREMENT STRUCTURE

STRUCTURE 20
HEADWORKS BUILDING

STRUCTURE 30
FLOW SPLIT STRUCTURE

STRUCTURE 40
AERO-MOD

STRUCTURE 50
UV BUILDING



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HYDRAULIC PROFILE

PROJECT NO. 14573015
SHEET 00G6

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OVERALL PROJECT MAP

PROJECT NO. 14573015

SHEET 00G7

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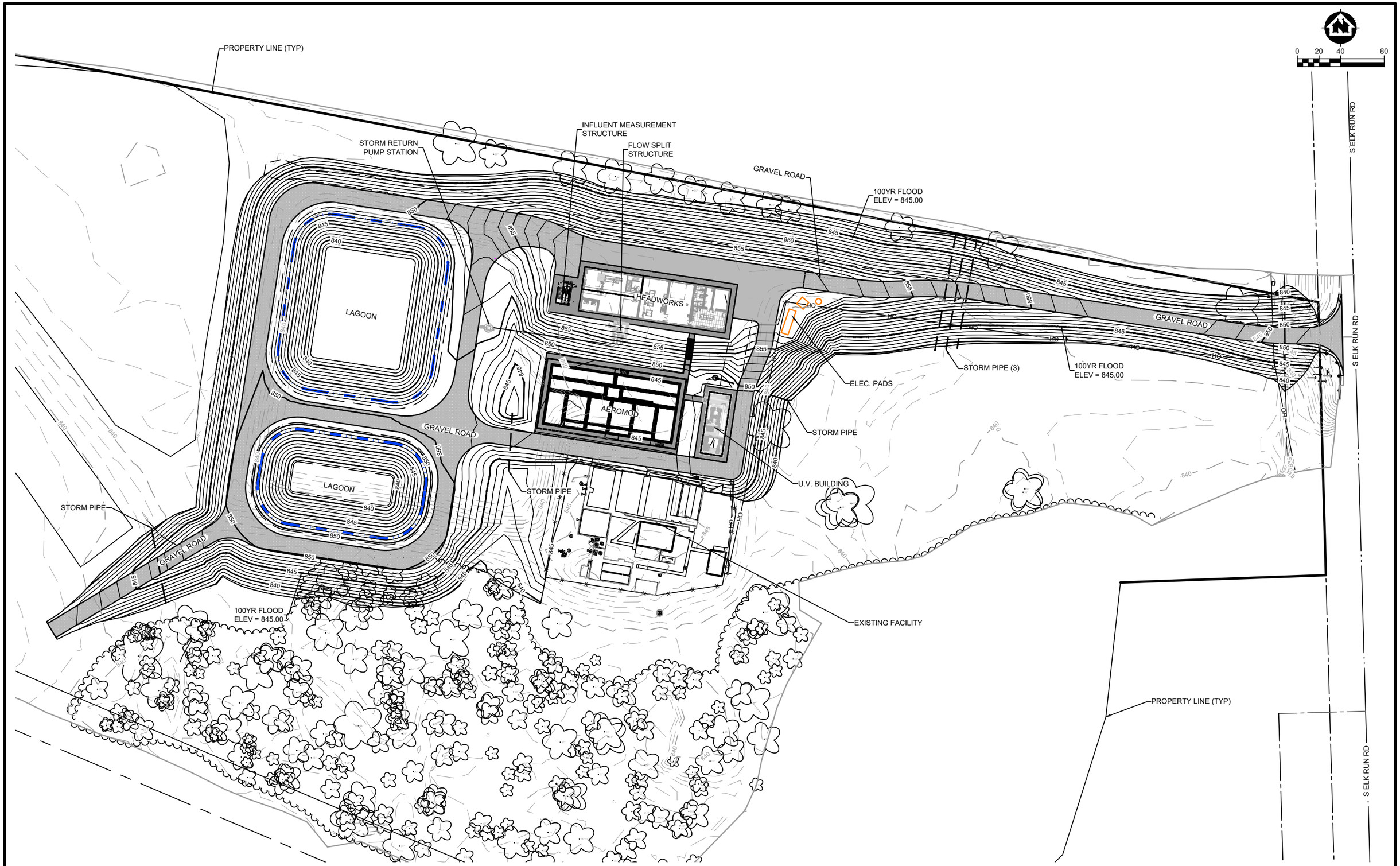

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OVERALL PLAN

PROJECT NO. 14573015

SHEET 05C1

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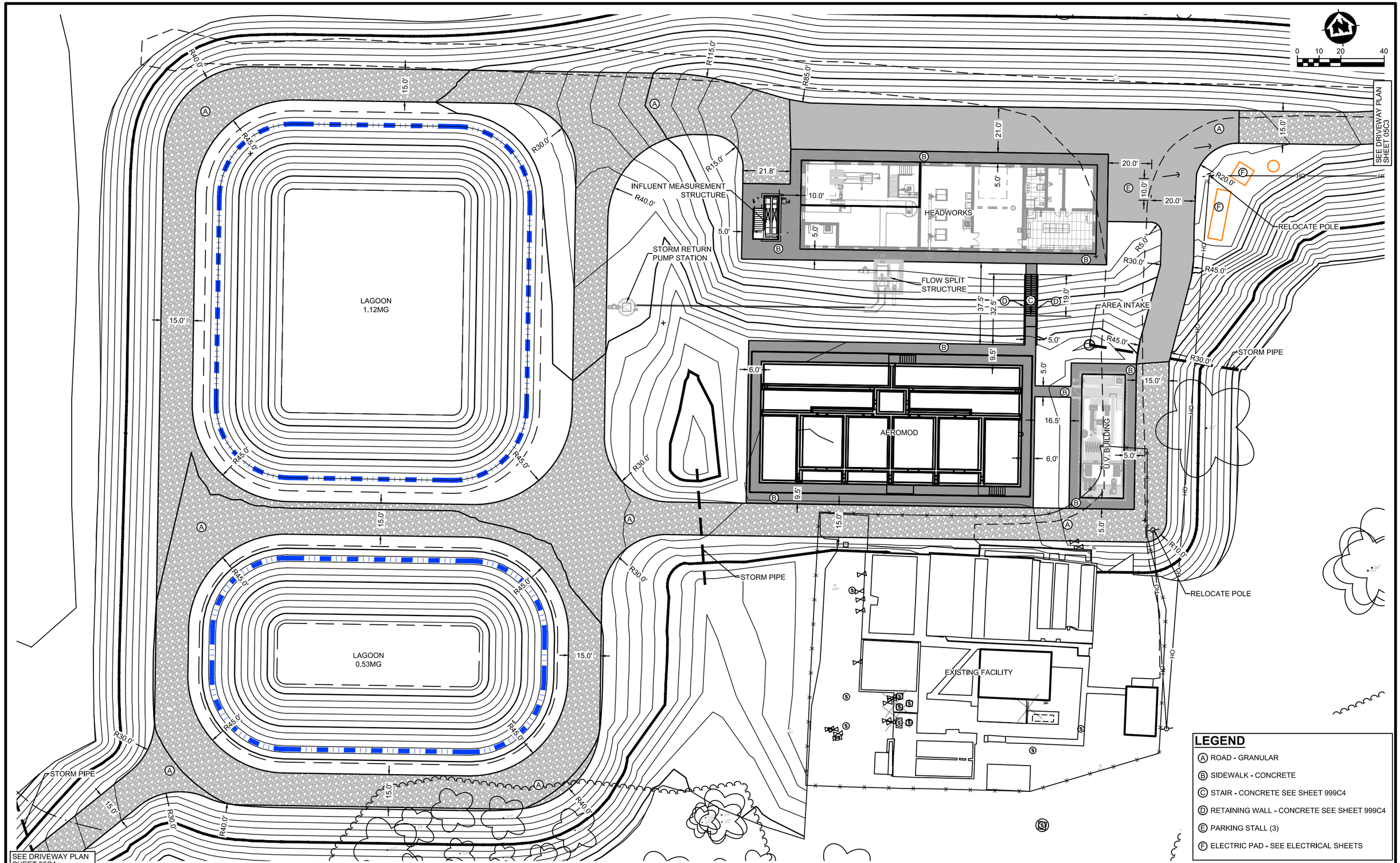

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SITE PLAN

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SHEET 05C2

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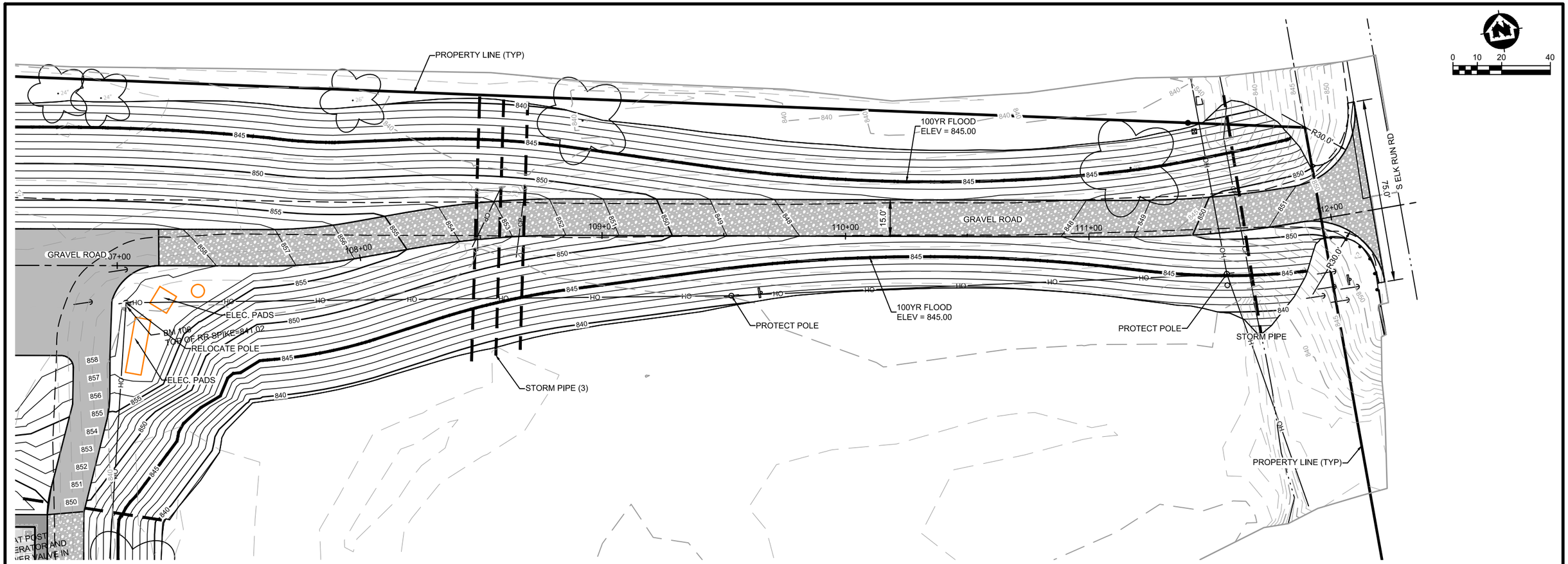

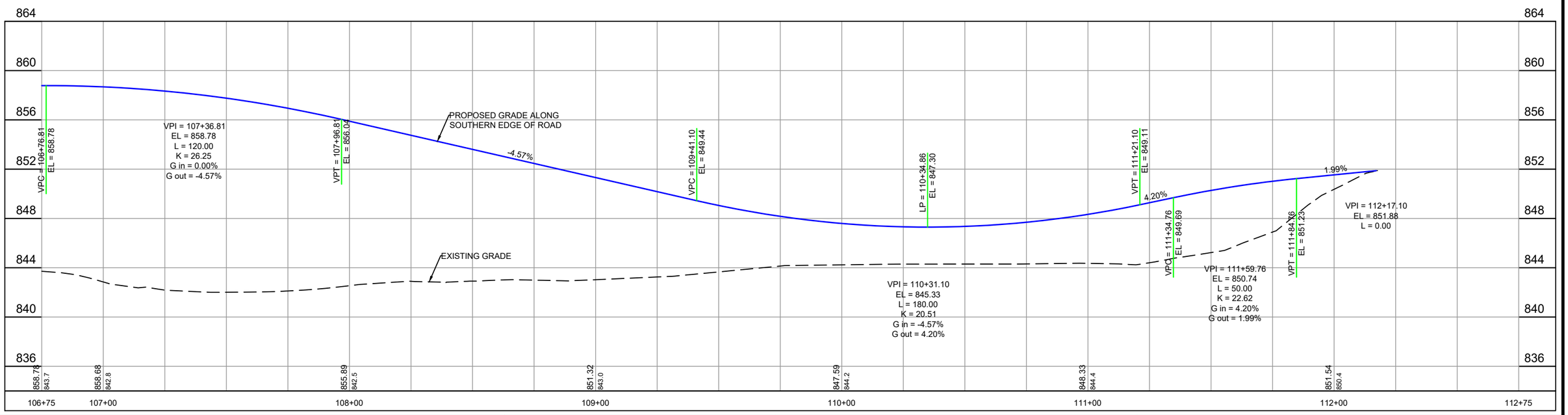

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MAIN DRIVEWAY PLAN & PROFILE

PROJECT NO. 14573015

SHEET 05C3

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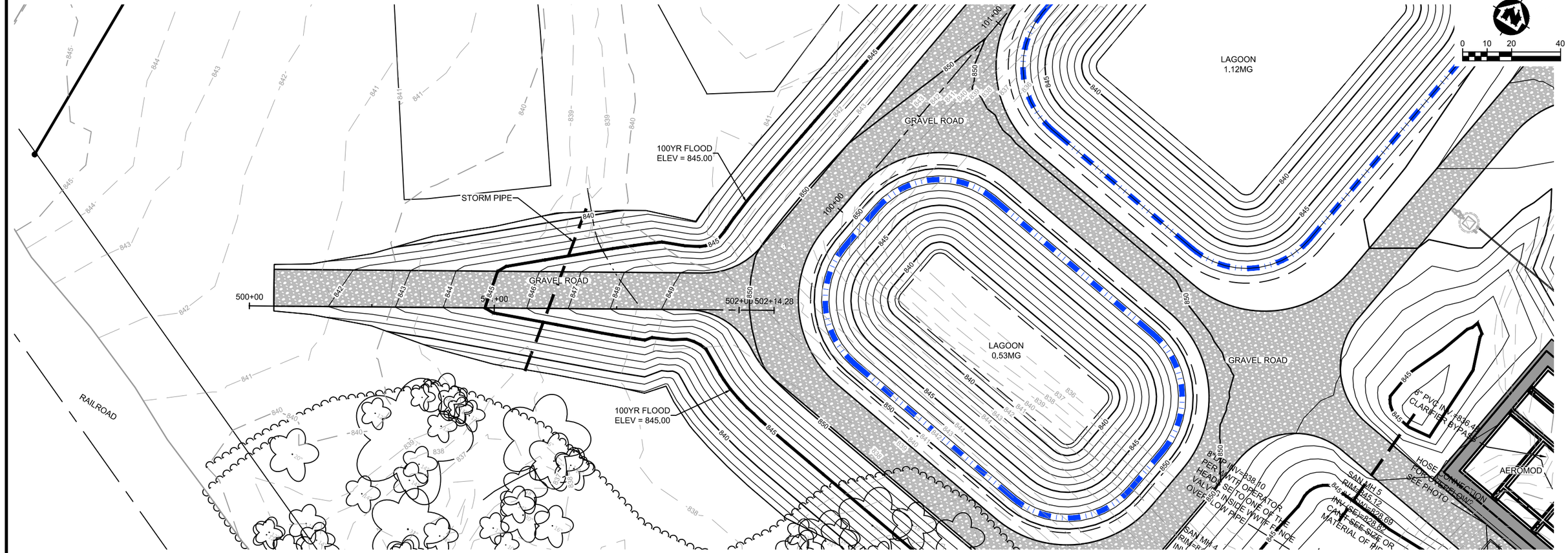

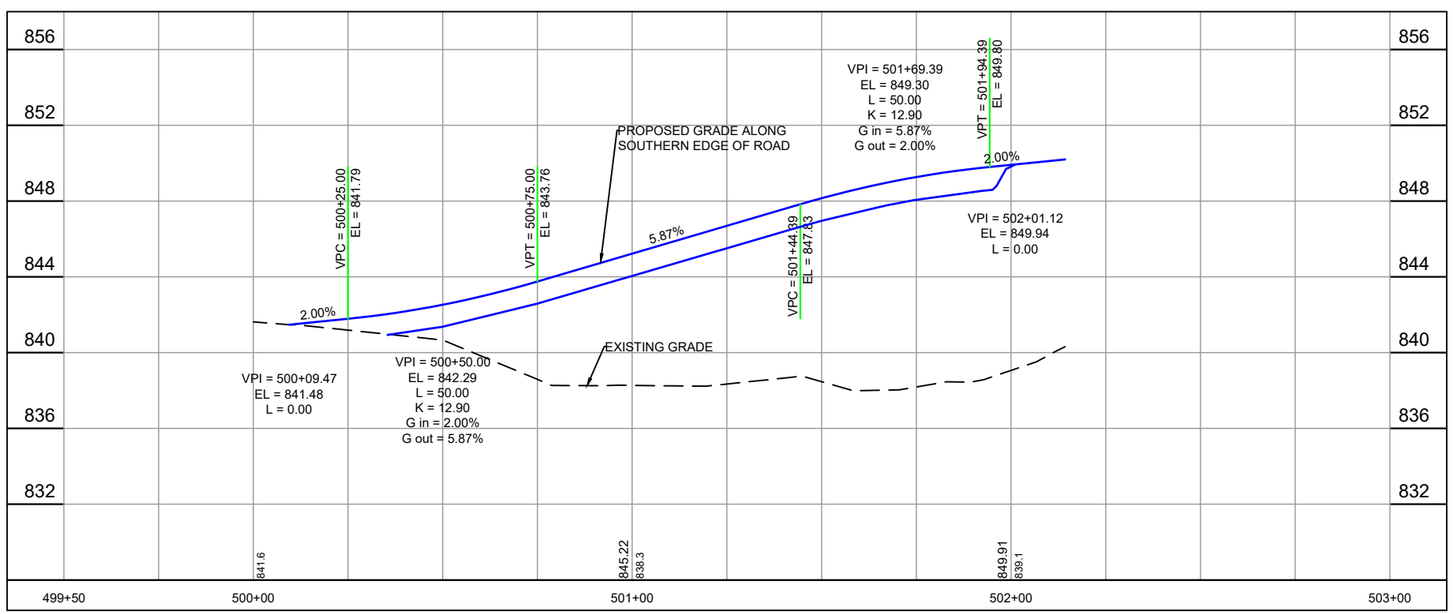

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SOUTHWEST DRIVEWAY PLAN & PROFILE

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CONSTRUCTION SITE EROSION CONTROL REQUIREMENTS

1. IOWA CONSTRUCTION SITE EROSION CONTROL MANUAL IDENTIFIES REQUIREMENTS FOR CONSTRUCTION SITE AND POST-CONSTRUCTION EROSION CONTROL. IT IS THE INTENT OF THESE PLANS TO SATISFY THESE REQUIREMENTS. THE METHODS AND STRUCTURES USED TO CONTROL EROSION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL IMPLEMENT AN APPROPRIATE MEANS OF CONTROLLING EROSION DURING SITE OPERATION AND UNTIL THE VEGETATION IS RE-ESTABLISHED. ADJUSTMENTS TO THE CONTROL SYSTEM SHALL BE MADE AS REQUIRED.
2. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE IOWA DNR'S CONSERVATION PRACTICE STANDARDS. THESE STANDARDS ARE PERIODICALLY UPDATED AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN AND REFERENCE THE MOST RECENTLY RELEASED STANDARD.
3. THE INFORMATION IS ONLY ONE PART OF THE OVERALL EROSION CONTROL REQUIREMENTS. ADDITIONAL REQUIREMENTS MAY ALSO BE SHOWN ON THE PLAN SHEETS AND IN THE ACCOMPANYING SPECIFICATIONS.
4. ADDITIONAL EROSION CONTROL MEASURES, AS REQUESTED IN WRITING BY THE STATE OR LOCAL INSPECTORS, OR THE OWNER'S ENGINEER, SHALL BE INSTALLED WITHIN 24 HOURS.
5. THE AREA OF EROSIVE LAND EXPOSED TO THE ELEMENTS BY GRUBBING, EXCAVATION, TRENCHING, BORROW AND FILL OPERATIONS AT ANY ONE TIME SHALL BE MINIMIZED TO THE MAXIMUM EXTENT PRACTICABLE. FOR ANY DISTURBED AREA THAT REMAINS INACTIVE FOR GREATER THAN 7 WORKING DAYS, OR WHERE GRADING WORK EXTENDS BEYOND THE PERMANENT SEEDING DEADLINES, THE SITE MUST BE TREATED WITH TEMPORARY STABILIZATION MEASURES SUCH AS SOIL TREATMENT, TEMPORARY SEEDING AND/OR MULCHING. ALL DISTURBED AREAS SHALL BE TREATED WITH PERMANENT STABILIZATION MEASURES WITHIN 3 WORKING DAYS OF FINAL GRADING.
6. ALL EROSION CONTROL MEASURES AND STRUCTURES SERVING THE SITE MUST BE INSPECTED AT LEAST WEEKLY OR WITHIN 24 HOURS OF THE TIME 0.5 INCHES OF RAIN IS PRODUCED. ALL MAINTENANCE WILL FOLLOW AN INSPECTION WITHIN 24 HOURS. THIS APPROACH ACKNOWLEDGES THE DIFFICULTY OF WORKING IN WET CONDITIONS AS NECESSARY FOR PREVENTING THE IRRETRIEVABLE "FIRST FLUSH" OF SEDIMENT INTO ADJACENT WATERWAYS, DEGRADING WATER QUALITY AND FISH HABITAT.
7. ALL EROSION CONTROL DEVICES SHALL BE PROPERLY INSTALLED PRIOR TO ANY SOIL DISTURBANCE.
8. GRUBBING AND GRADING OPERATIONS SHALL BE PERFORMED IN PROPER SEQUENCE WITH OTHER WORK TO MINIMIZE EROSION.
9. ALL WASTE AND UNUSED BUILDING MATERIALS (INCLUDING GARBAGE, DEBRIS, CLEANING WASTES, WASTEWATER, TOXIC MATERIALS, OR HAZARDOUS MATERIALS) SHALL BE PROPERLY DISPOSED OF AND NOT ALLOWED TO BE CARRIED OFF-SITE BY RUNOFF OR WIND.
10. WIND EROSION SHALL BE KEPT TO A MINIMUM DURING CONSTRUCTION. WATERING, MULCH, OR A TACKING AGENT MAY NEED TO BE UTILIZED TO PROTECT NEARBY RESIDENCES AND WATER RESOURCES.
11. CHANNELIZED RUNOFF FROM ADJACENT AREAS PASSING THROUGH THE SITE SHALL BE DIVERTED AROUND DISTURBED AREAS, IF PRACTICAL.
12. THE CONTRACTOR SHALL TAKE ALL POSSIBLE PRECAUTIONS TO PREVENT SOILS FROM BEING TRACKED ONTO PUBLIC OR PRIVATE ROADWAYS. PAVED SURFACES ADJACENT TO CONSTRUCTION SITE VEHICLE ACCESS SHALL BE SWEPT AND / OR SCRAPED (NOT FLUSHED) PERIODICALLY TO REMOVE SOIL. DIRT AND / OR DUST.
13. EROSION CONTROLS SHALL BE INSTALLED ON THE DOWNSTREAM SIDE OF TEMPORARY STOCKPILES. ANY SOIL STOCKPILE THAT REMAINS FOR MORE THAN 30 DAYS SHALL BE COVERED OR TREATED WITH STABILIZATION PRACTICES SUCH AS TEMPORARY OR PERMANENT SEEDING AND MULCHING. ALL STOCK PILES SHALL BE PLACED AT LEAST 75 FEET FROM STREAMS OR WETLANDS.
14. EROSION CONTROL FOR UTILITY CONSTRUCTION (STORM SEWER, SANITARY SEWER, WATER MAIN, ETC.):
    a. PLACE EXCAVATED TRENCH MATERIAL ON THE HIGH SIDE OF THE TRENCH.
    b. BACKFILL, COMPACT, AND STABILIZE THE TRENCH IMMEDIATELY AFTER PIPE CONSTRUCTION.
    c. DISCHARGE OF TRENCH WATER OR DEWATERING EFFLUENT MUST BE PROPERLY TREATED TO REMOVE SEDIMENT IN ACCORDANCE WITH THE WDNR CONSERVATION PRACTICE STANDARD 1061 - DEWATERING OR A SUBSEQUENT WDNR DEWATERING STANDARD PRIOR TO DISCHARGE INTO A STORM SEWER, DITCH, DRAINAGEWAY, OR WETLAND OR LAKE.
15. ALL DRAINAGE CULVERTS, STORM DRAIN INLETS, MANHOLES, OR ANY OTHER EXISTING STRUCTURES WHICH COULD BE DAMAGED BY SEDIMENTATION SHALL BE PROTECTED ACCORDING TO THE VARIOUS METHODS PROVIDED IN THE PRINTED CONSERVATION PRACTICE STANDARDS.
16. ANY SOIL EROSION THAT OCCURS AFTER FINAL GRADING AND/OR STABILIZATION MUST BE REPAIRED AND THE STABILIZATION WORK REDONE.
17. THE FIRST SIX WEEKS AFTER INITIAL STABILIZATION (E.G. PLACEMENT OF SEED AND MULCH, EROSION MAT, SOD) A DISTURBED AREA SHALL INCLUDE WATERING PROVISIONS OF ALL NEWLY SEEDED AND MULCHED AREAS WHENEVER 7 DAYS ELAPSE WITHOUT A RAIN EVENT.
18. WHEN THE DISTURBED AREA HAS BEEN STABILIZED BY PERMANENT VEGETATION OR OTHER MEANS, TEMPORARY BMP'S SUCH AS SILT FENCES, STRAW BALES, AND SEDIMENT TRAPS SHALL BE REMOVED AND THESE AREAS STABILIZED.
19. ALL TEMPORARY BEST MANAGEMENT PRACTICES SHALL BE MAINTAINED UNTIL THE SITE IS STABILIZED.
20. ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED WITH SEED AND MULCH UNLESS OTHERWISE SPECIFIED. A MINIMUM OF 4 TO 6 INCHES OF TOPSOIL SHALL BE APPLIED TO ALL AREAS TO BE SEEDED OR SODDED.

POLLUTION PREVENTION PLAN

THIS BASE POLLUTION PREVENTION PLAN (PPP) INCLUDES INFORMATION ON ROLES AND RESPONSIBILITIES, PROJECT SITE DESCRIPTION, CONTROLS, MAINTENANCE PROCEDURES, INSPECTION REQUIREMENTS, NON-STORM WATER CONTROLS, POTENTIAL SOURCES OF OFF RIGHT-OF-WAY POLLUTION, AND DEFINITIONS. THIS PLAN REFERENCES OTHER DOCUMENTS RATHER THAN REPEATING THE INFORMATION CONTAINED IN THE DOCUMENTS. A COPY OF THIS BASE POLLUTION PREVENTION PLAN, AMENDED AS NEEDED PER PLAN REVISIONS OR BY CONTRACT MODIFICATION, WILL BE READILY AVAILABLE FOR REVIEW.

ALL CONTRACTORS SHALL CONDUCT THEIR OPERATIONS IN A MANNER THAT CONTROLS POLLUTANTS, MINIMIZES EROSION, AND PREVENTS SEDIMENTS FROM ENTERING WATERS OF THE STATE AND LEAVING THE HIGHWAY RIGHT-OF-WAY. THE PRIME CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE AND IMPLEMENTATION OF THE PPP FOR THEIR ENTIRE CONTRACT. THIS RESPONSIBILITY SHALL BE FURTHER SHARED WITH SUBCONTRACTORS WHOSE WORK IS A SOURCE OF POTENTIAL POLLUTION AS DEFINED IN THIS PPP.

I. ROLES AND RESPONSIBILITIES

A. DESIGNER:
1. PREPARES EROSION CONTROL PLAN INCLUDED IN THE PROJECT PLAN.
2. PREPARES BASE PPP.
3. PREPARES NOTICE OF INTENT (NOI) SUBMITTED TO IOWA DNR.
4. SIGNATURE AUTHORITY ON THE BASE PPP AND NOI.

B. CONTRACTOR/SUBCONTRACTOR:
1. AFFECTED CONTRACTORS/SUBCONTRACTORS ARE CO-PERMITTEES WITH THE CITY AND WILL SIGN A CERTIFICATION STATEMENT ADHERING TO THE REQUIREMENTS OF THE NPDES PERMIT AND THIS PPP PLAN. ALL CO-PERMITTEES ARE LEGALLY REQUIRED UNDER THE CLEAN WATER ACT AND THE IOWA ADMINISTRATIVE CODE TO ENSURE COMPLIANCE WITH THE TERMS AND CONDITIONS OF THIS PPP.
2. SUBMIT A DETAILED SCHEDULE AND ANY ADDITIONAL PLAN NOTES.
3. INSTALL AND MAINTAIN APPROPRIATE CONTROLS.
4. SUPERVISE AND IMPLEMENT GOOD HOUSEKEEPING PRACTICES.
5. CONDUCT JOINT REQUIRED INSPECTIONS OF THE SITE WITH INSPECTION STAFF.
6. SIGNATURE AUTHORITY ON CO-PERMITTEE CERTIFICATION STATEMENTS AND STORM WATER INSPECTION REPORTS.

C. SWPPP INSPECTOR (CONTRACTOR'S REPRESENTATIVE):
1. UPDATE PPP WHENEVER THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION OR MAINTENANCE, WHICH HAS A SIGNIFICANT EFFECT ON THE DISCHARGE OF POLLUTANTS FROM THE PROJECT.
2. MAINTAIN AN UP-TO-DATE LIST THAT IDENTIFIES CONTRACTORS AND SUBCONTRACTORS AS CO-PERMITTEES.
3. MAKE THESE PLANS AVAILABLE TO THE DNR UPON THEIR REQUEST.
4. CONDUCT JOINT REQUIRED INSPECTIONS OF THE SITE WITH THE CONTRACTOR/SUBCONTRACTOR.
5. COMPLETE AN INSPECTION REPORT AFTER EACH INSPECTION.
6. SIGNATURE AUTHORITY ON STORM WATER INSPECTION REPORTS AND NOTICE OF DISCONTINUATION (NOD).

II. PROJECT SITE DESCRIPTION

A. THIS POLLUTION PREVENTION PLAN (PPP) IS FOR THE ELK RUN WWTF PROJECT.

B. THIS PPP COVERS APPROXIMATELY 15.1 ACRES WITH AN ESTIMATED 5.3 ACRES BEING DISTURBED. THE PORTION OF THE PPP COVERED BY THIS CONTRACT HAS 5.3 ACRES DISTURBED.

C. THE PPP IS LOCATED IN AN AREA OF LOAMY TILL KENYAN, CLYDE, FLOYD PER THE NATURAL RESOURCES CONSERVATION SOIL SURVEY (ONLINE). THE ESTIMATED AVERAGE SCS RUNOFF CURVE NUMBER FOR THIS PPP AFTER COMPLETION WILL BE 79.

D. STORM WATER SITE MAP - MULTIPLE SOURCES OF INFORMATION COMPRISE THE BASE STORM WATER SITE MAP INCLUDING:
1. DRAINAGE PATTERNS – PLAN AND PROFILE SHEETS AND SITUATION PLANS.
2. PROPOSED SLOPES – CROSS SECTIONS.
3. AREAS OF SOIL DISTURBANCE – CONSTRUCTION LIMITS SHOWN ON PLAN AND PROFILE SHEETS.
4. LOCATION OF STRUCTURAL CONTROLS – TABULATIONS ON C SHEETS.
5. LOCATIONS OF NON-STRUCTURAL CONTROLS – TABULATIONS ON C SHEETS.
6. LOCATIONS OF STABILIZATION PRACTICES – GENERALLY WITHIN CONSTRUCTION LIMITS SHOWN ON PLAN AND PROFILE SHEETS.
7. SURFACE WATERS (INCLUDING WETLANDS) – PLAN AND PROFILE SHEETS.
8. LOCATIONS WHERE STORM WATER IS DISCHARGED – PLAN AND PROFILE SHEETS.

E. THE BASE SITE MAP IS AMENDED BY CONTRACT MODIFICATIONS AND PROGRESS PAYMENTS OF COMPLETED EROSION CONTROL WORK.

F. RUNOFF FROM THIS WORK WILL FLOW INTO UNNAMED TRIBUTARY OF ELK RUN CREEK.

III. CONTROLS

A. THE CONTRACTOR'S WORK PLAN AND SEQUENCE OF OPERATIONS SPECIFIED IN PROJECT SPECIFICATIONS FOR ACCOMPLISHMENT OF STORM WATER CONTROLS SHOULD CLEARLY DESCRIBE THE INTENDED SEQUENCE OF MAJOR ACTIVITIES AND FOR EACH ACTIVITY DEFINE THE CONTROL MEASURE AND THE TIMING DURING THE CONSTRUCTION PROCESS THAT THE MEASURE WILL BE IMPLEMENTED.

B. PRESERVE VEGETATION IN AREAS NOT NEEDED FOR CONSTRUCTION.

C. PROJECT SPECIFICATIONS DEFINE REQUIREMENTS TO IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES. ACTUAL QUANTITIES USED MAY VARY FROM THE BASE PPP AND AMENDMENT OF THE PLAN WILL BE DOCUMENTED VIA FIELDBOOK ENTRIES OR BY CONTRACT MODIFICATION. ADDITIONAL EROSION AND SEDIMENT CONTROL ITEMS MAY BE REQUIRED AS DETERMINED BY THE INSPECTOR AND/OR CONTRACTOR DURING STORM WATER MONITORING INSPECTIONS.

1. EROSION AND SEDIMENT CONTROLS
    A. STABILIZATION PRACTICES
        1) SITE PLANS WILL ENSURE THAT EXISTING VEGETATION IS PRESERVED WHERE ATTAINABLE AND DISTURBED PORTIONS OF THE SITE WILL BE STABILIZED.
        2) STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED.
        3) TEMPORARY STABILIZING SEEDING SHALL BE COMPLETED AS THE DISTURBED AREAS ARE CONSTRUCTED. IF CONSTRUCTION ACTIVITY IS NOT PLANNED TO OCCUR IN A DISTURBED AREA FOR AT LEAST 21 DAYS, THE AREA SHALL BE STABILIZED BY TEMPORARY SEEDING OR MULCHING WITHIN 14 DAYS. OTHER STABILIZING METHODS SHALL BE USED OUTSIDE THE SEEDING TIME PERIOD.
        4) STABILIZATION MEASURES TO BE USED FOR THIS PROJECT ARE LOCATED IN THE ESTIMATED PROJECT QUANTITIES (100-1A) AND ESTIMATE REFERENCE INFORMATION (100-4A) LOCATED ON THE C SHEETS OF THE PLAN. ADDITIONAL ITEMS MAY BE FOUND IN THE INSPECTOR'S DAILY REPORTS OR CONTRACT MODIFICATIONS.
    B. STRUCTURAL PRACTICES
        1) STRUCTURAL PRACTICES WILL BE IMPLEMENTED TO DIVERT FLOWS FROM EXPOSED SOILS AND DETAIN OR OTHERWISE LIMIT RUNOFF AND THE DISCHARGE OF POLLUTANTS FROM EXPOSED AREAS OF THE SITE.
        2) STRUCTURAL ITEMS TO BE USED FOR THIS PROJECT ARE LOCATED IN THE ESTIMATED PROJECT QUANTITIES AND ESTIMATE REFERENCE INFORMATION LOCATED ON THE C SHEETS OF THE PLAN, AS WELL AS ALL OTHER ITEM SPECIFIC TABULATIONS. TYPICAL DRAWINGS DETAILING CONSTRUCTION OF THE DEVICES TO BE USED ON THIS PROJECT CAN BE FOUND ON THE B SHEETS OF THE PLAN OR ARE REFERENCED IN THE SUDAS FIGURE LIST OR THE DOT STANDARD ROAD PLANS LIST.
    C. STORM WATER MANAGEMENT
        1) MEASURES SHALL BE INSTALLED DURING THE CONSTRUCTION PROCESS TO CONTROL POLLUTANTS IN STORM WATER DISCHARGES THAT WILL OCCUR AFTER CONSTRUCTION OPERATIONS HAVE BEEN COMPLETED. THE INSTALLATION OF THESE DEVICES MAY BE SUBJECT TO SECTION 404 OF THE CLEAN WATER ACT.
2. OTHER CONTROLS
    A. CONTRACTOR DISPOSAL OF UNUSED CONSTRUCTION MATERIALS AND CONSTRUCTION MATERIAL WASTES SHALL COMPLY WITH APPLICABLE STATE AND LOCAL WASTE DISPOSAL, SANITARY SEWER, OR SEPTIC SYSTEM REGULATIONS. IN THE EVENT OF A CONFLICT WITH OTHER GOVERNMENTAL LAWS, RULES AND REGULATIONS, THE MORE RESTRICTIVE LAWS, RULES OR REGULATIONS SHALL APPLY.
        1) VEHICLE ENTRANCES AND EXITS - CONSTRUCT AND MAINTAIN ENTRANCES AND EXITS TO PREVENT TRACKING OF SEDIMENTS ONTO ROADWAYS.
        2) MATERIAL DELIVERY, STORAGE AND USE - IMPLEMENT PRACTICES TO PREVENT DISCHARGE OF CONSTRUCTION MATERIALS DURING DELIVERY, STORAGE, AND USE.
        3) STOCKPILE MANAGEMENT - INSTALL CONTROLS TO REDUCE OR ELIMINATE POLLUTION OF STORM WATER FROM STOCKPILES OF SOIL AND PAVING.
        4) WASTE DISPOSAL - DO NOT DISCHARGE ANY MATERIALS, INCLUDING BUILDING MATERIALS, INTO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT.
        5) SPILL PREVENTION AND CONTROL - IMPLEMENT PROCEDURES TO CONTAIN AND CLEAN-UP SPILLS AND PREVENT MATERIAL DISCHARGES TO THE STORM DRAIN SYSTEM AND WATERS OF THE STATE.
        6) CONCRETE RESIDUALS AND WASHOUT WASTES - DESIGNATE TEMPORARY CONCRETE WASHOUT FACILITIES FOR RINSING OUT CONCRETE TRUCKS. PROVIDE DIRECTIONS TO TRUCK DRIVERS WHERE DESIGNATED WASHOUT FACILITIES ARE LOCATED.
        7) VEHICLE AND EQUIPMENT CLEANING - EMPLOY WASHING PRACTICES THAT PREVENT CONTAMINATION OF SURFACE AND GROUND WATER FROM WASH WATER.
        8) VEHICLE AND EQUIPMENT FUELING AND MAINTENANCE - PERFORM ON SITE FUELING AND MAINTENANCE IN ACCORDANCE WITH ALL ENVIRONMENT LAWS SUCH AS PROPER STORAGE OF ONSIDE FUELS AND PROPER DISPOSAL OF USED ENGINE OIL OR OTHER FLUIDS ON SITE.
        9) LITTER MANAGEMENT - ENSURE EMPLOYEES PROPERLY DISPOSE OF LITTER.
    3. APPROVED STATE OR LOCAL PLANS
        DURING THE COURSE OF THIS CONSTRUCTION, IT IS POSSIBLE THAT SITUATIONS WILL ARISE WHERE UNKNOWN MATERIALS WILL BE ENCOUNTERED. WHEN SUCH SITUATIONS ARE ENCOUNTERED, THEY WILL BE HANDLED ACCORDING TO ALL FEDERAL, STATE, AND LOCAL REGULATIONS IN EFFECT AT THE TIME.

IV. MAINTENANCE PROCEDURES

THE CONTRACTOR IS REQUIRED TO MAINTAIN ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES IN PROPER WORKING ORDER, INCLUDING CLEANING, REPAIRING, OR REPLACING THEM THROUGHOUT THE CONTRACT PERIOD. THIS SHALL BEGIN WHEN THE FEATURES HAVE LOST 50% OF THEIR CAPACITY.

V. INSPECTION REQUIREMENTS

A. INSPECTIONS SHALL BE MADE BY THE SWPPP INSPECTOR (CONTRACTOR'S REPRESENTATIVE) AT LEAST ONCE EVERY SEVEN CALENDAR DAYS. STORM WATER MONITORING INSPECTIONS WILL INCLUDE:
1. DATE OF THE INSPECTION.
2. SUMMARY OF THE SCOPE OF THE INSPECTION.
3. NAME AND QUALIFICATIONS OF THE PERSONNEL MAKING THE INSPECTION.
4. RAINFALL AMOUNT.
5. REVIEW EROSION AND SEDIMENT CONTROL MEASURES WITHIN DISTURBED AREAS FOR THE EFFECTIVENESS IN PREVENTING IMPACTS TO RECEIVING WATERS.
6. MAJOR OBSERVATIONS RELATED TO THE IMPLEMENTATION OF THE PPP.
7. IDENTIFY CORRECTIVE ACTIONS REQUIRED TO MAINTAIN OR MODIFY EROSION AND SEDIMENT CONTROL MEASURES.

B. INCLUDE STORM WATER MONITORING INSPECTION REPORTS IN THE AMENDED PPP. INCORPORATE ANY ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES DETERMINED AS A RESULT OF THE INSPECTION. IMMEDIATELY BEGIN CORRECTIVE ACTIONS ON ALL DEFICIENCIES FOUND AND COMPLETE ALL ACTIONS WITHIN 3 CALENDAR DAYS OF THE INSPECTION.

VI. NON-STORM WATER DISCHARGES

THIS INCLUDES SUBSURFACE DRAINS (I.E. LONGITUDINAL AND STANDARD SUBDRAINS) AND SLOPE DRAINS. THE VELOCITY OF THE DISCHARGE FROM THESE FEATURES MAY BE CONTROLLED BY THE USE OF PATIO BLOCKS, CLASS A STONE, EROSION STONE OR OTHER APPROPRIATE MATERIALS.

VII. POTENTIAL SOURCES OF OFF RIGHT-OF-WAY (ROW) POLLUTION

SILTS, SEDIMENT, AND OTHER FORMS OF POLLUTION MAY BE TRANSPORTED ONTO HIGHWAY RIGHT-OF-WAY (ROW) AS A RESULT OF A STORM EVENT. POTENTIAL SOURCES OF POLLUTION LOCATED OUTSIDE HIGHWAY ROW ARE BEYOND THE CONTROL OF THIS PPP. POLLUTION WITHIN HIGHWAY ROW WILL BE CONVEYED AND CONTROLLED PER THIS PPP.

VIII. DEFINITIONS

A. BASE PPP - INITIAL POLLUTION PREVENTION PLAN.

B. AMENDED PPP - MAY INCLUDE PLAN REVISIONS OR CONTRACT MODIFICATIONS FOR NEW ITEMS AND FIELDBOOK ENTRIES MADE BY THE INSPECTOR.

C. IDR - INSPECTOR'S DAILY REPORT – THIS CONTAINS THE INSPECTOR'S DAILY DIARY AND ITEM POSTINGS.

D. CONTROLS - METHODS, PRACTICES, OR MEASURES TO MINIMIZE OR PREVENT EROSION, CONTROL SEDIMENTATION, CONTROL STORM WATER, OR MINIMIZE CONTAMINANTS FROM OTHER TYPES OF WASTE OR MATERIALS.

E. SIGNATURE AUTHORITY - REPRESENTATIVE FROM DESIGNER, CONTRACTOR/SUBCONTRACTOR, OR SWPPP INSPECTOR AUTHORIZED TO SIGN VARIOUS STORM WATER DOCUMENTS.

CERTIFICATION STATEMENT

I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHERED AND EVALUATED THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS.

_____
SIGNATURE

_____
PRINTED OR TYPED NAME

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EROSION CONTROL AND DRAINAGE PLAN

PROJECT NO. 14573015
SHEET 05C5

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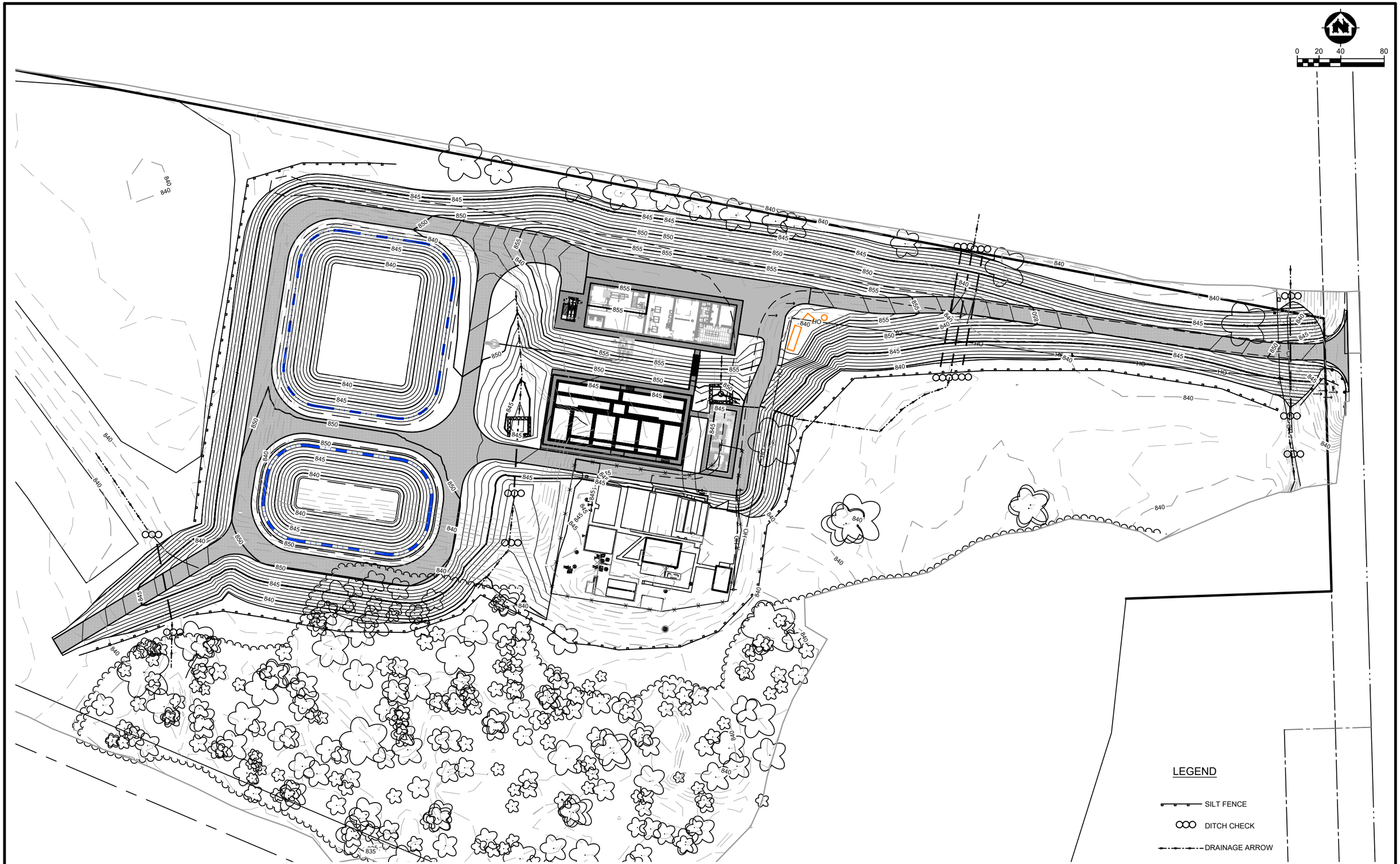

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EROSION CONTROL & DRAINAGE PLAN

PROJECT NO. 14573015

SHEET 05C6

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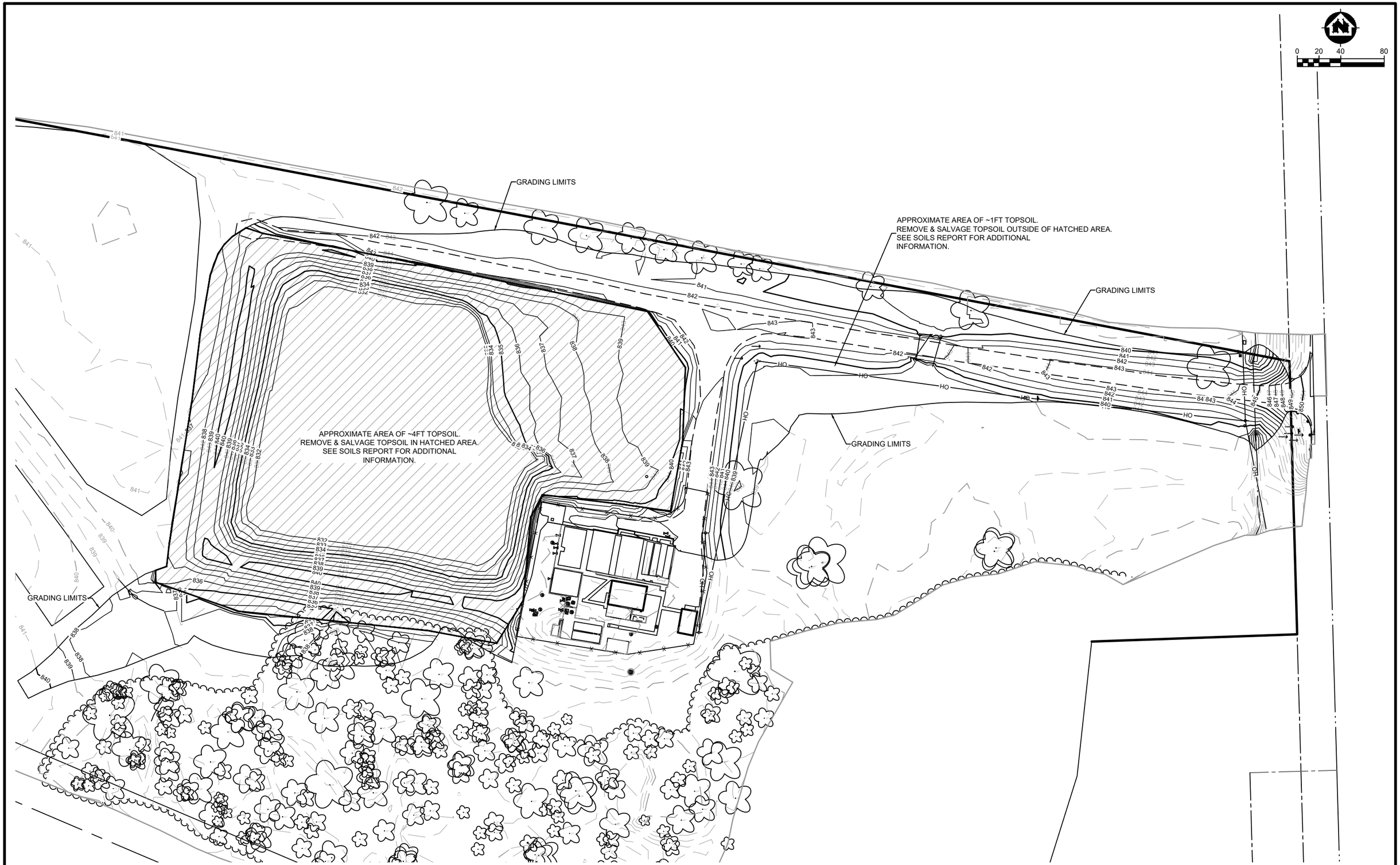

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INITIAL GRADING PLAN

PROJECT NO. 14573015

SHEET 05C7

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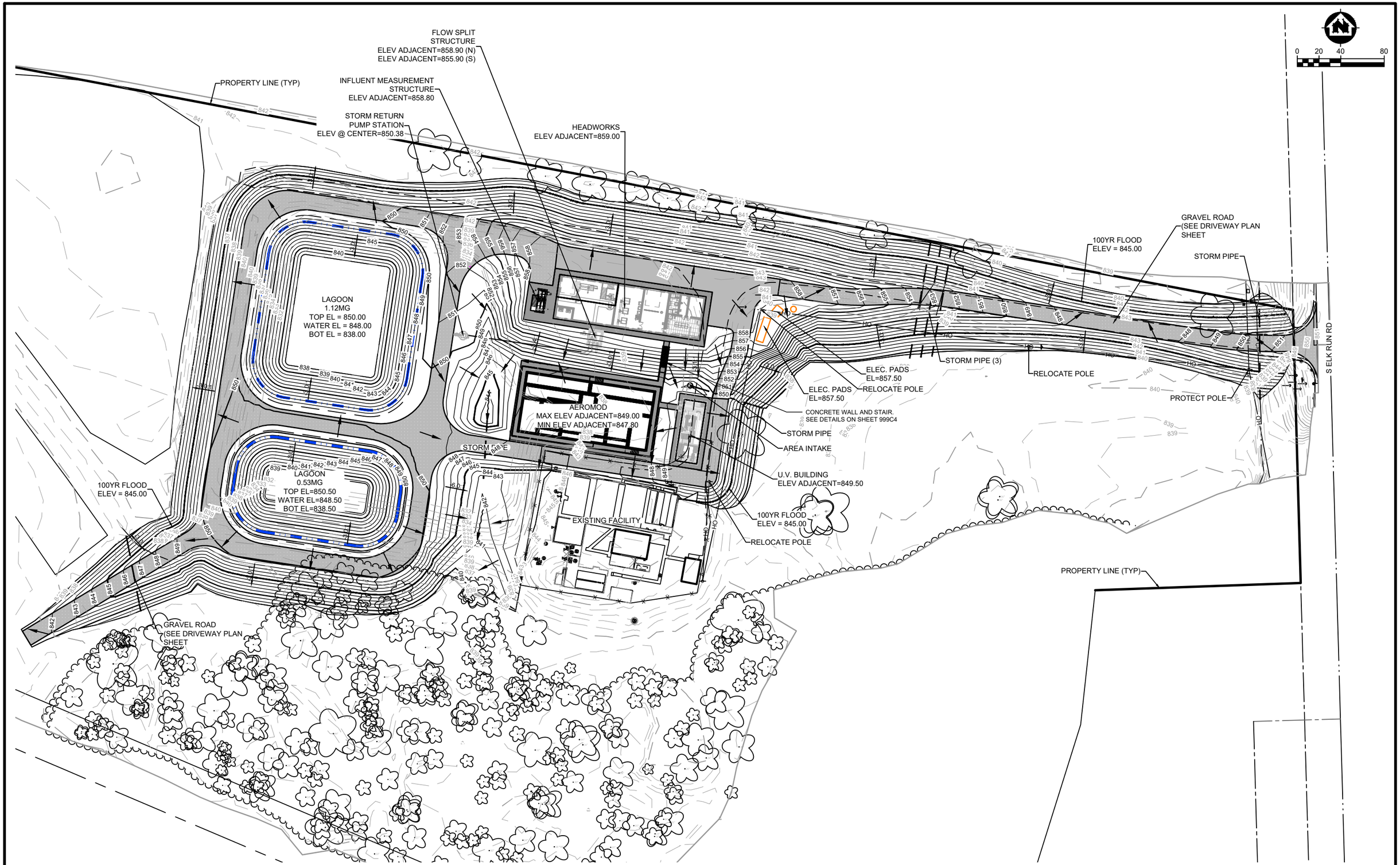

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BLACK HAWK COUNTY, IOWA

OVERALL GRADING PLAN

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SHEET 05C8

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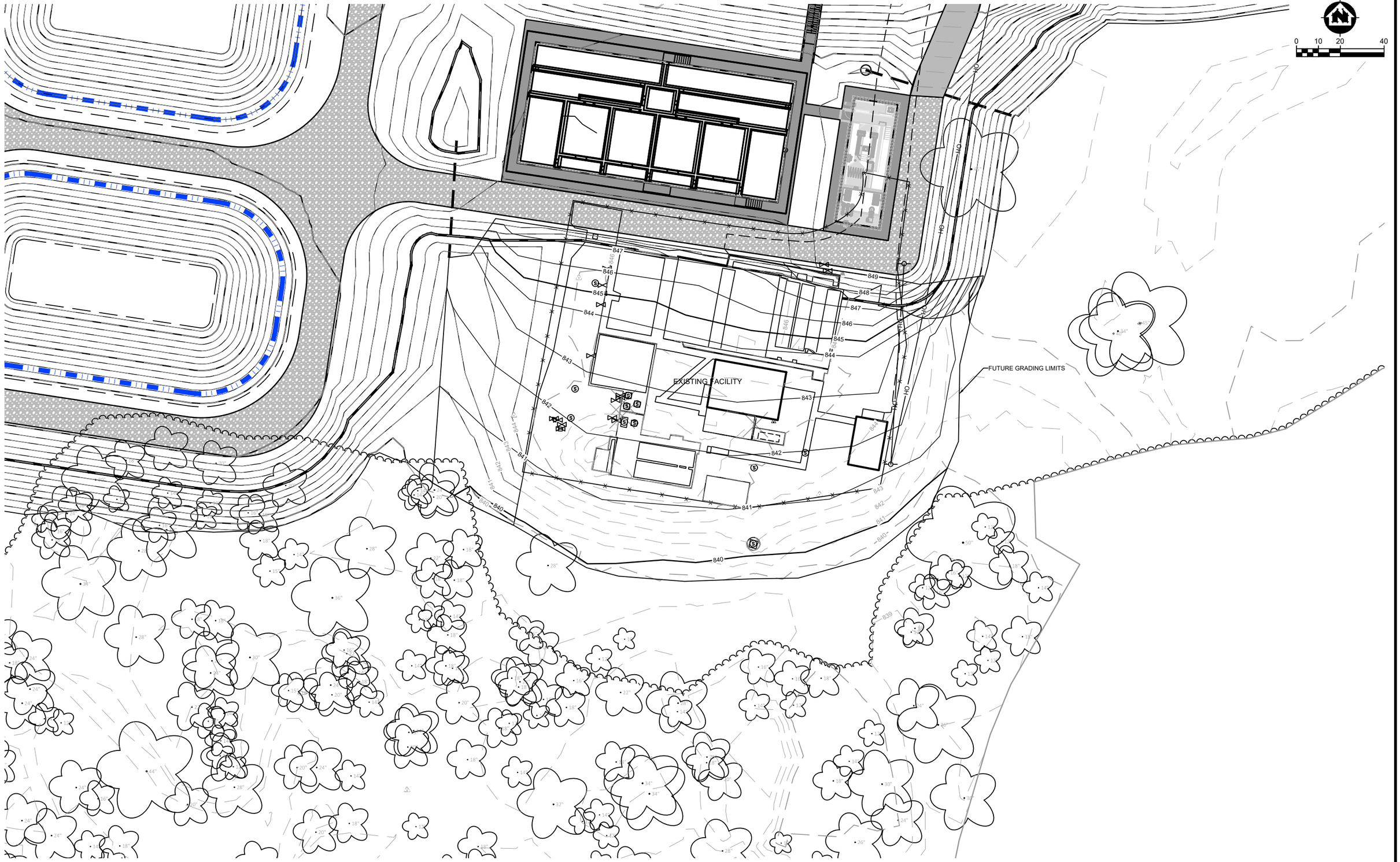

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FUTURE GRADING PLAN

PROJECT NO. 14573015

SHEET 05C9

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INFLUENT MEASUREMENT
STRUCTURE
ELEV ADJACENT=858.80

HEADWORKS
ELEV ADJACENT=859.00

FLOW SPLIT
STRUCTURE
ELEV ADJACENT=858.90 (N)
ELEV ADJACENT=855.90 (S)

STORM RETURN
PUMP STATION
ELEV @ CENTER=850.38

TOP WALL:858.80
TOP STAIR:858.80
BOT STAIR:849.30
TOP WALL:852.80
849.20
TOP WALL:851.20
848.82
TOP WALL:848.81

CONCRETE WALL AND STAIR.
SEE DETAILS ON SHEET 999C4

TOP WALL:858.80
TOP STAIR:858.80
BOT STAIR:849.30
TOP WALL:852.80
849.20
TOP WALL:851.20
848.87
TOP WALL:848.87

LOW POINT 844.71

LOW POINT 843.91

AEROMOD
MAX ELEV ADJACENT=849.00
MIN ELEV ADJACENT=847.80

U.V. BUILDING
ELEV ADJACENT=849.50

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PLOT DATE: 8/11/2020 1:10 PM, G:\14\14573\14573015\CADD\Construction Documents\05-SITE CIVIL\C.304 SIDEWALK & STAIR SPOT ELEVATION PLAN.dwg

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SIDEWALK & STAIR SPOT ELEVATION PLAN

PROJECT NO. 14573015

SHEET 05C10

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DEMOLITION NOTES:

1. THE SITE WILL BE MADE AVAILABLE TO CONTRACTORS ON THE DATE OF THE PREBID MEETING TO VIEW THE PLANT AND EVALUATE THE DEMOLITION THAT IS REQUIRED.
2. ALL STRUCTURE WALLS, SLABS, FOOTINGS, ETC. TO BE REMOVED A MINIMUM OF 2' BELOW EXISTING GRADE. CONSTRUCTION MATERIALS TO BE PROPERLY DISPOSED OF OFFSITE.
3. ALL EQUIPMENT, EXPOSED PIPING, AND ELECTRICAL COMPONENTS TO BE REMOVED FROM ALL STRUCTURES AT THE SITE. THESE ITEMS ARE TO BE PROPERLY DISPOSED OF OFFSITE BY THE CONTRACTOR EXCEPT _____.
4. ANY EQUIPMENT THAT WILL BE RETAINED BY THE OWNER SHALL BE TRANSFERRED TO NEW LOCATION BY CONTRACTOR AS DETERMINED BY OWNER.
5. ALL WASTEWATER THAT IS LEFT IN THE TANKS AFTER THE PLANT IS DECOMMISIONED SHALL BE PUMPED INTO THE SANITARY SEWER COLLECTION SYSTEM BY THE CONTRACTOR.
6. THE SLUDGE THAT IS LEFT IN THE TANKS AFTER BEING DECOMMISIONED SHALL BE TRANSFERRED FROM THE TANKS TO THE CITY SUPPLIED TRUCKS/EQUIPMENT BY THE CONTRACTOR. THE CITY WIL BE RESPONSIBLE FOR TRANSPORTING THE SLUDGE OFFSITE.
7. ALL BURIED PIPING TO BE ABANDONED IN PLACE. THE EFFLUENT SEWER SHALL BE PLUGGED WITH NON-SHRINK GROUT ON BOTH ENDS.
8. A HOLE SHALL BE CORED THROUGH THE BOTTOM OF ALL TANKS AND STRUCTURES TO PROVIDE DRAINAGE AFTER ALL WASTEWATER AND SLUDGE HAS BEEN REMOVED FROM THEM. ALL TANKS SHALL THEN BE FILLED TO EXISTING GRADE WITH GRANULAR FILL.

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EXISTING WWTF DEMOLITION PLAN

PROJECT NO. 14573015

SHEET 05R1

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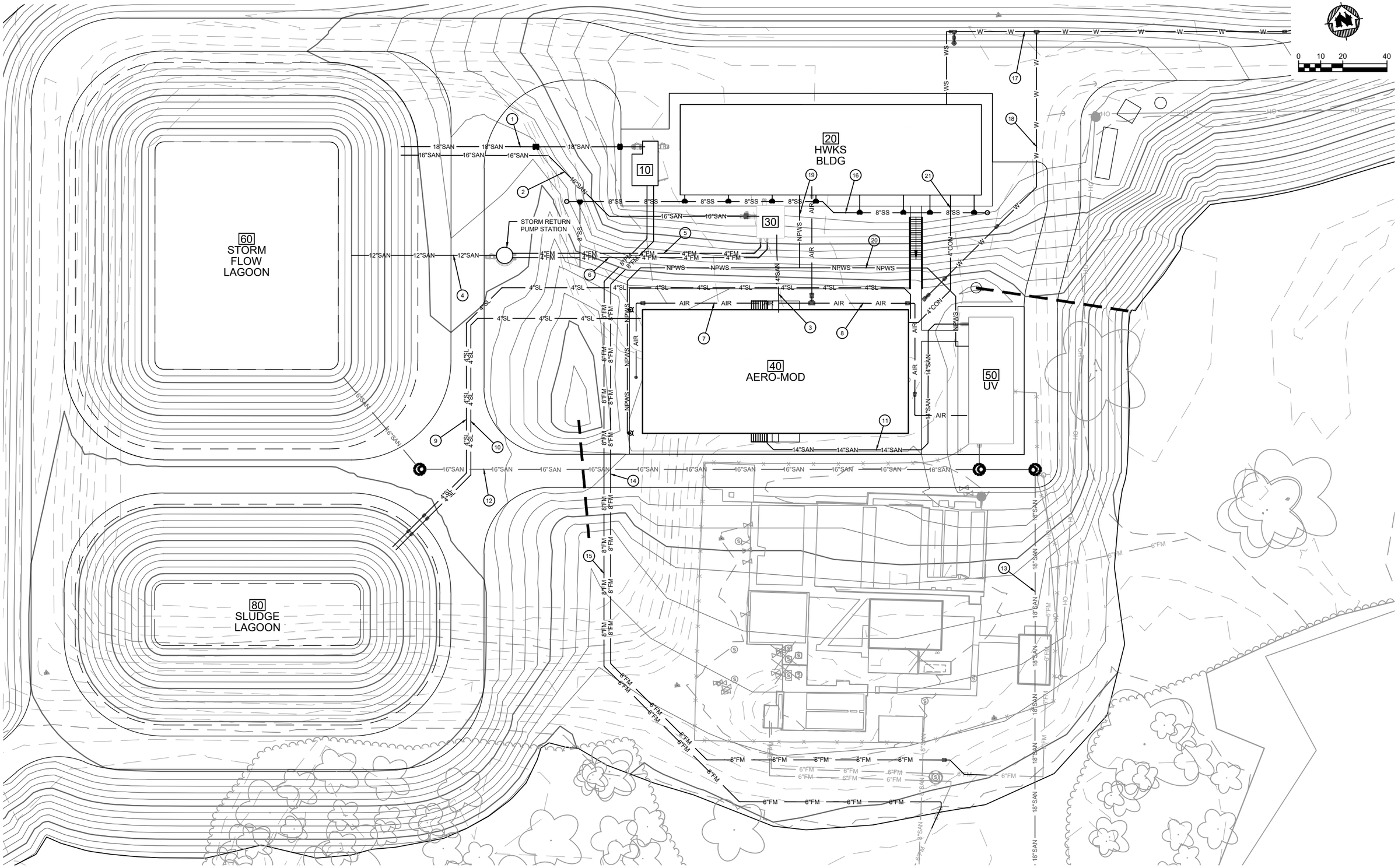

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PROPOSED PIPING PLAN

PROJECT NO. 14573015
SHEET 05PM01

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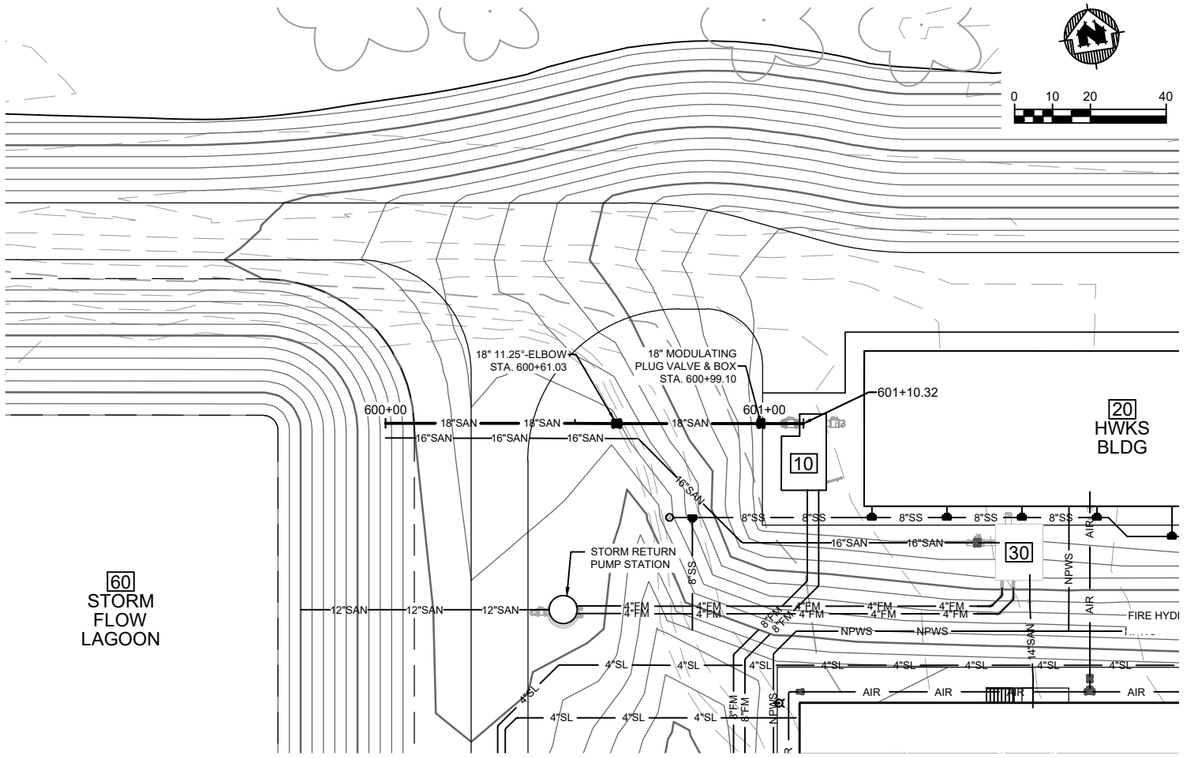

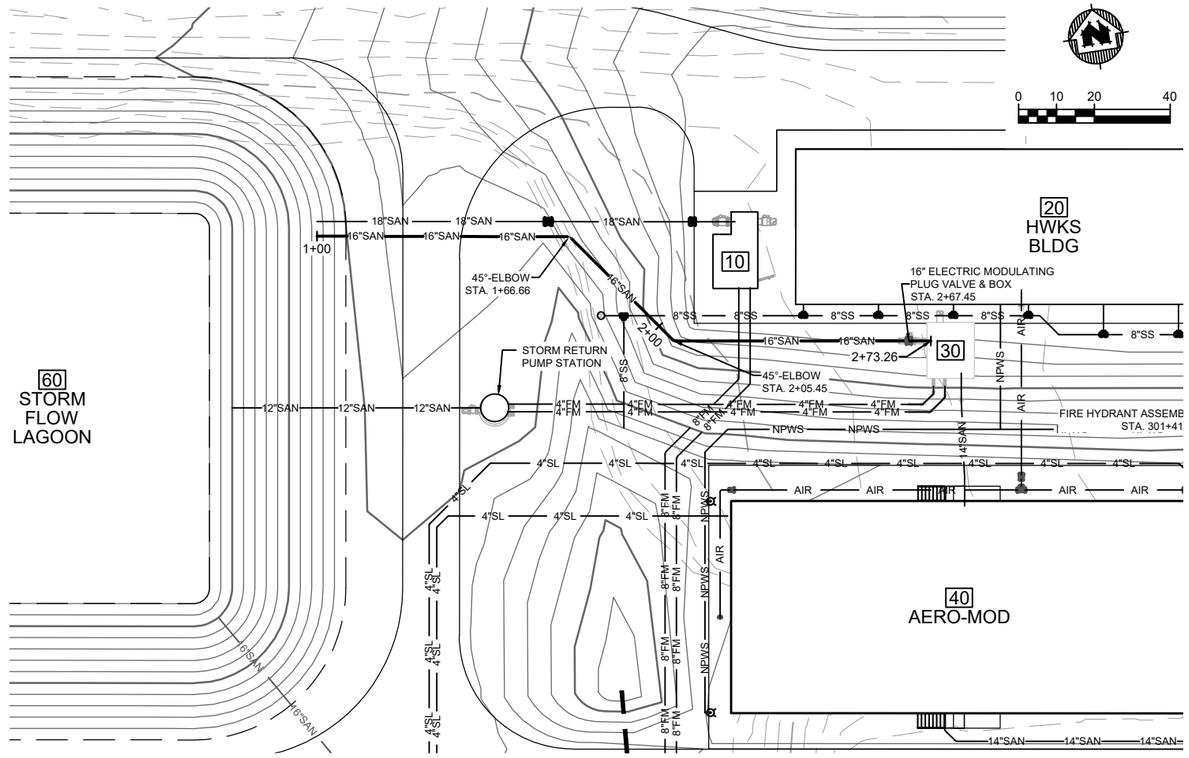

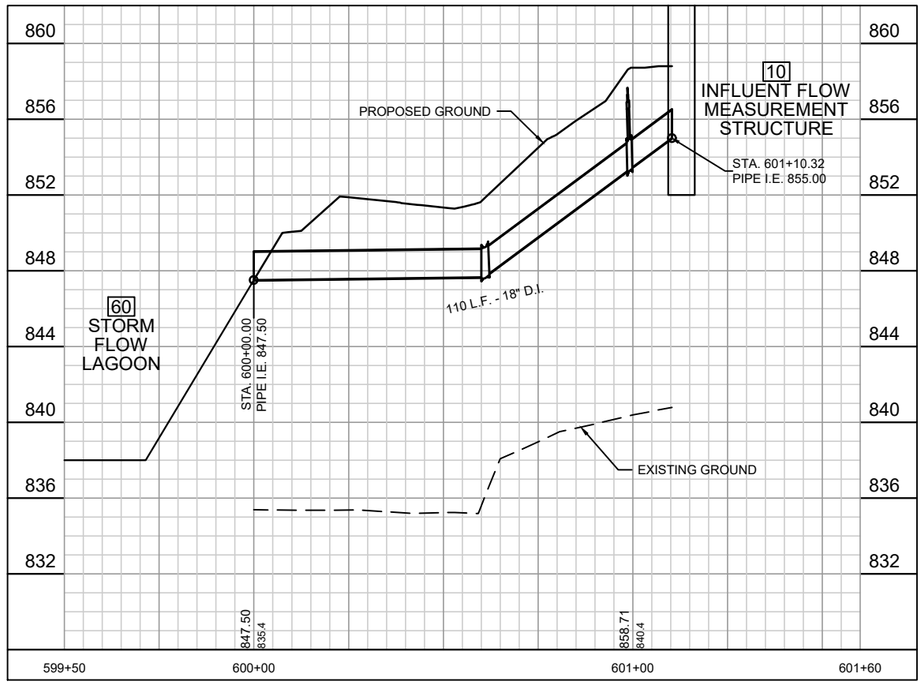

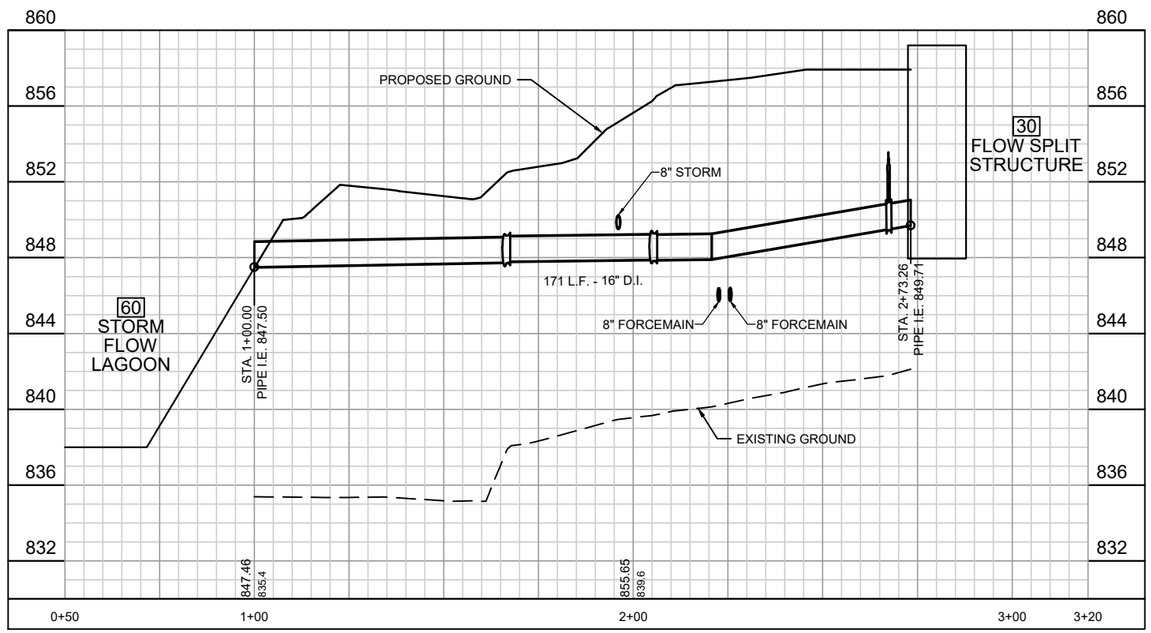

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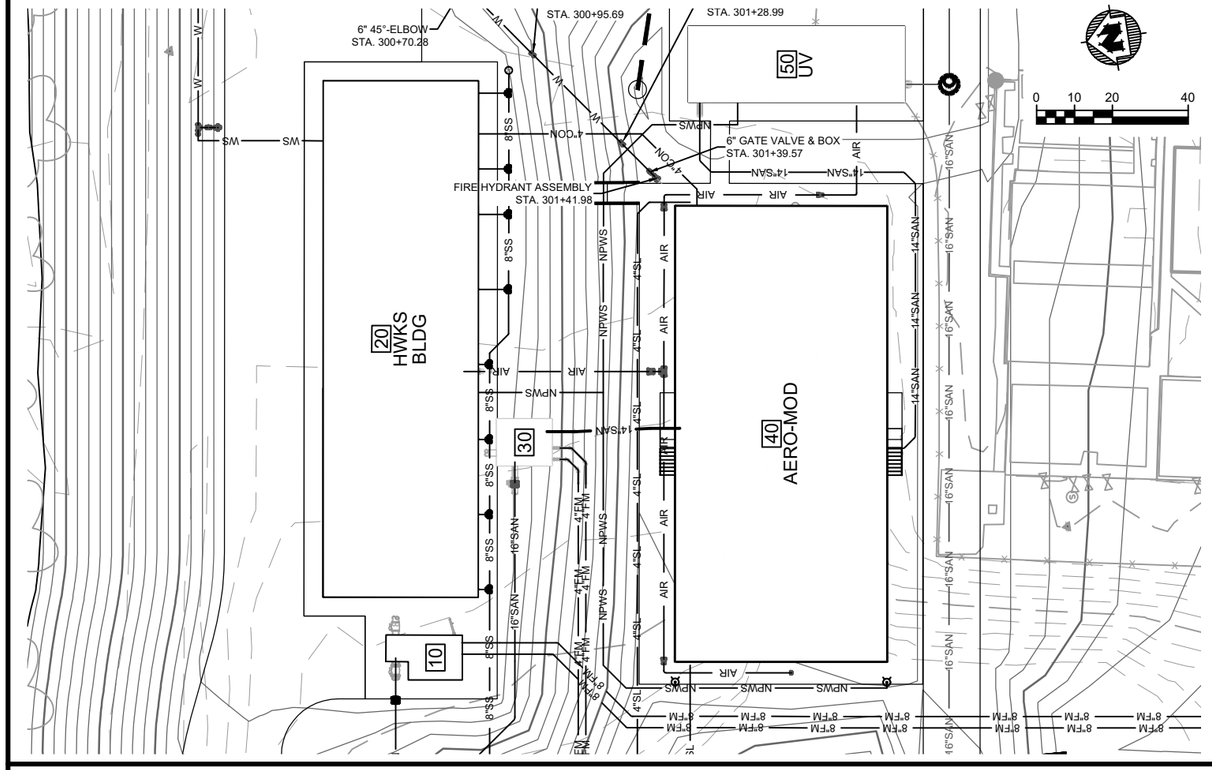

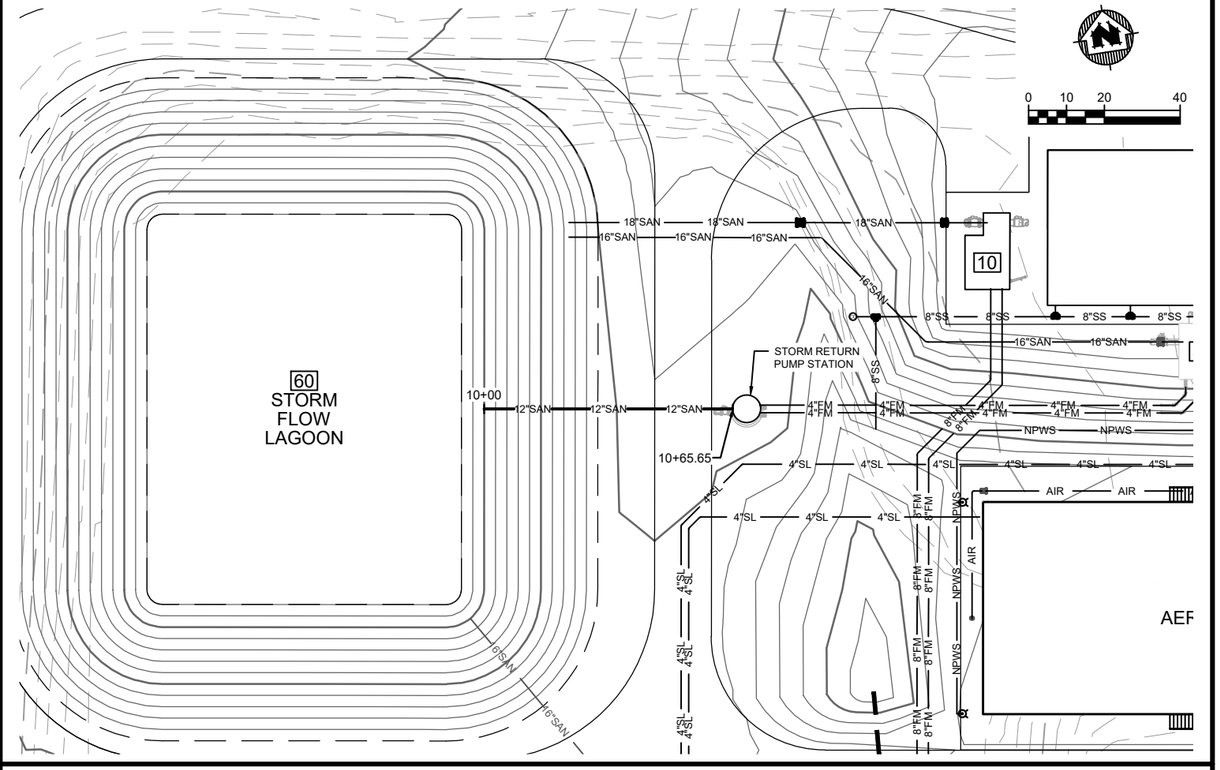

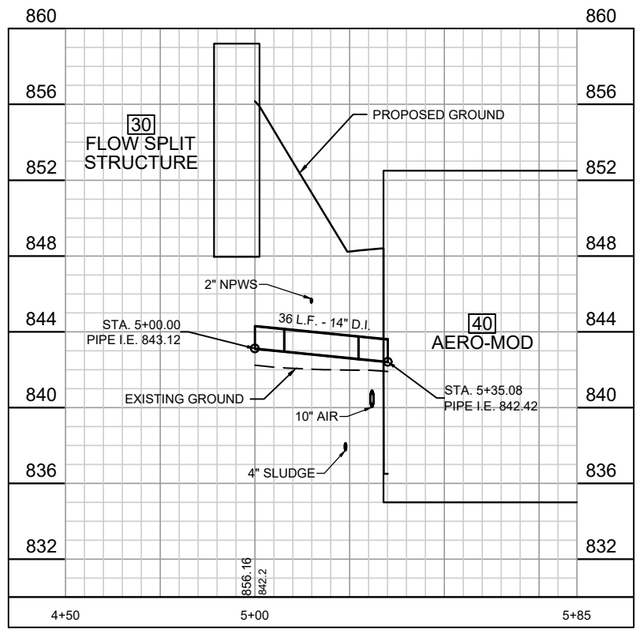

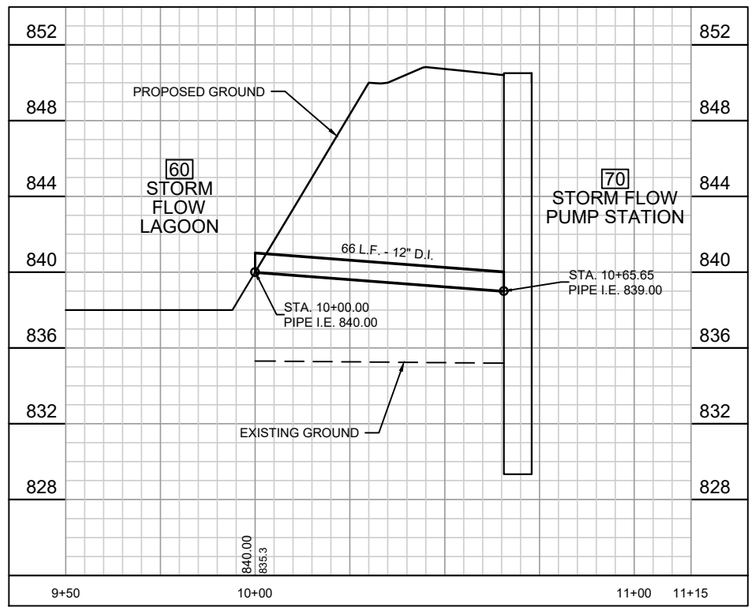

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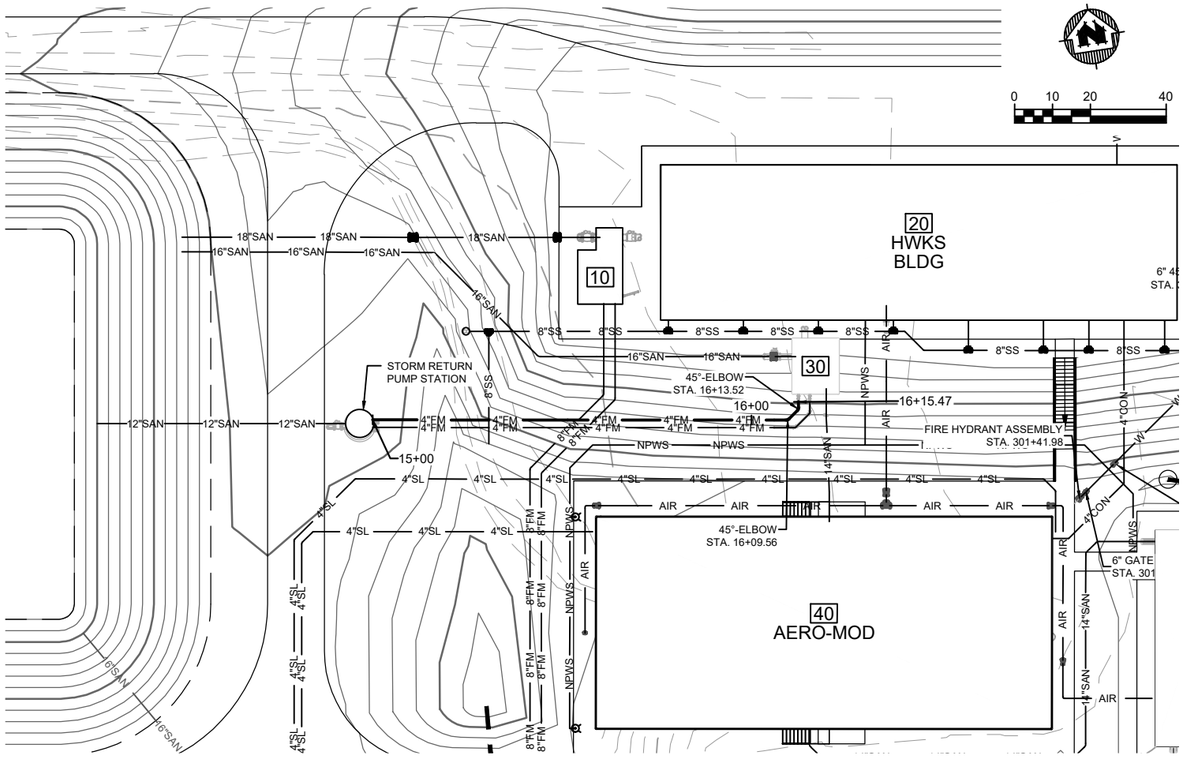

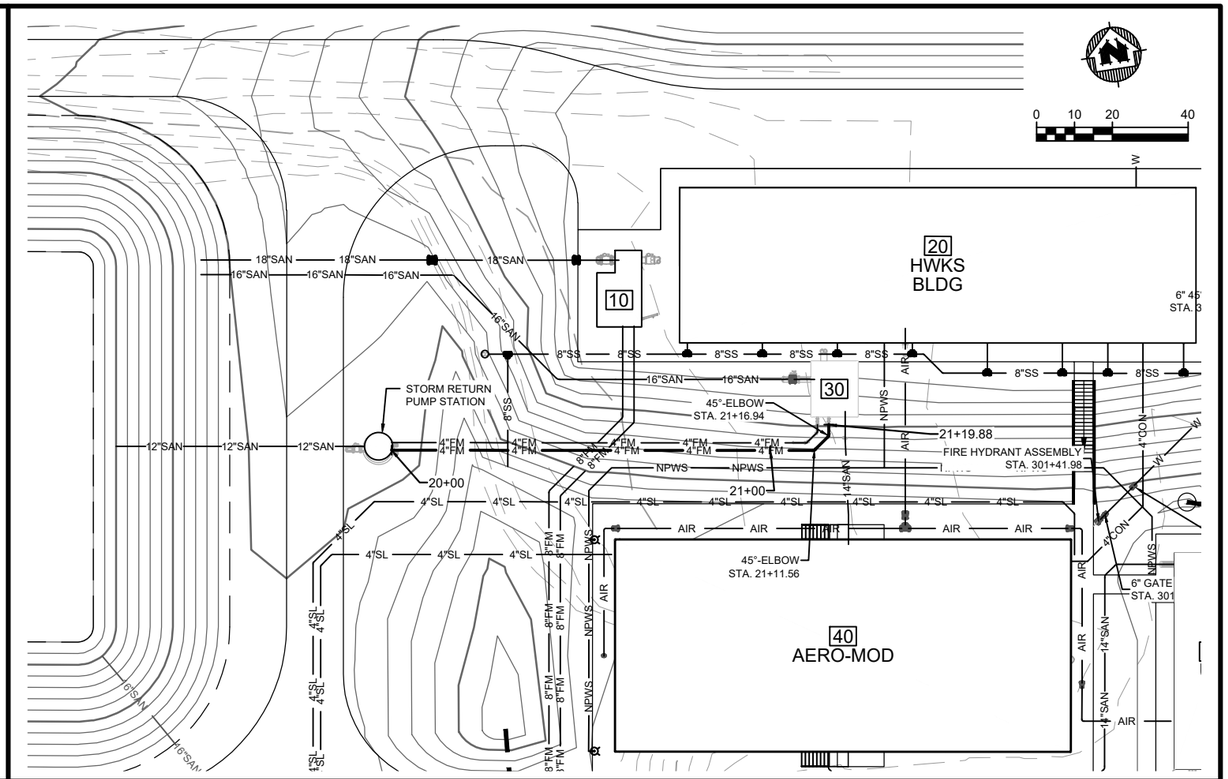

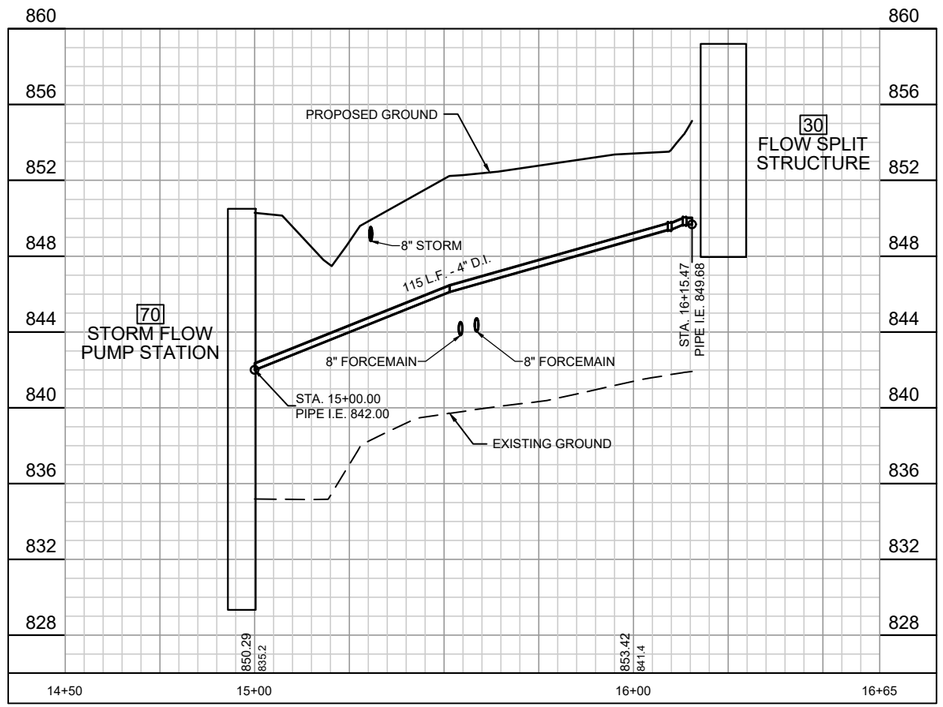

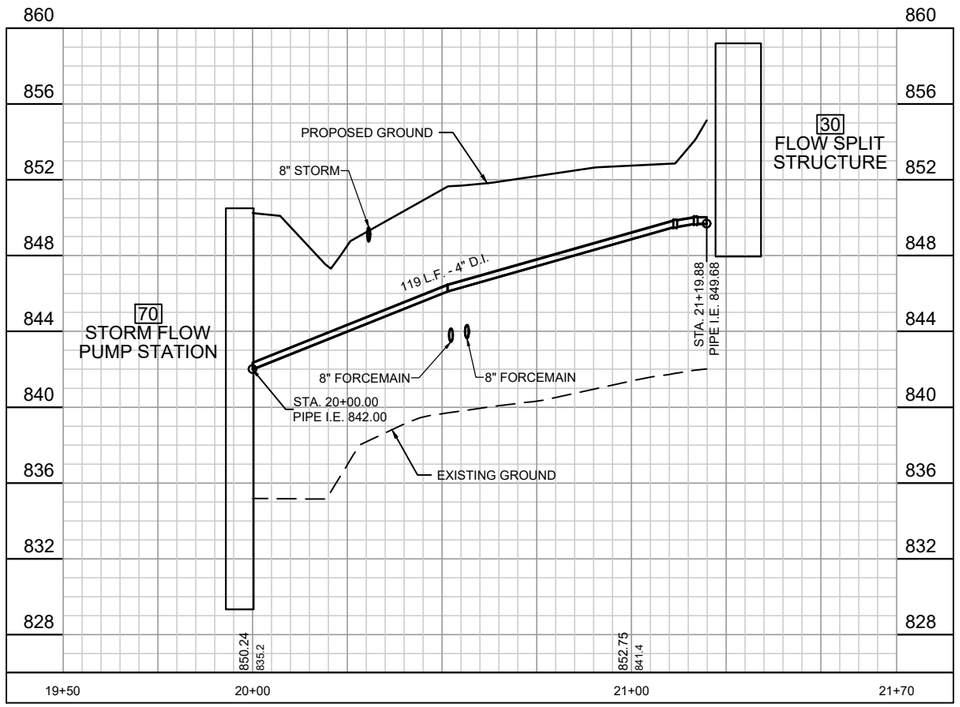

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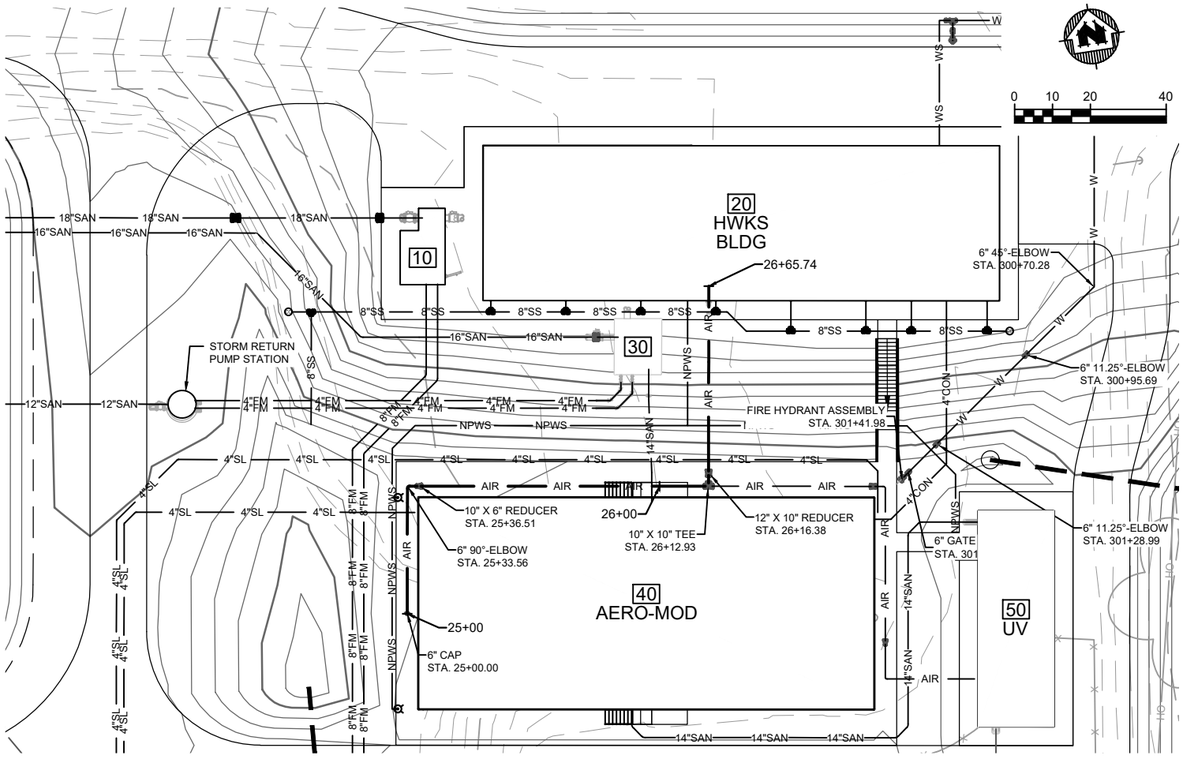

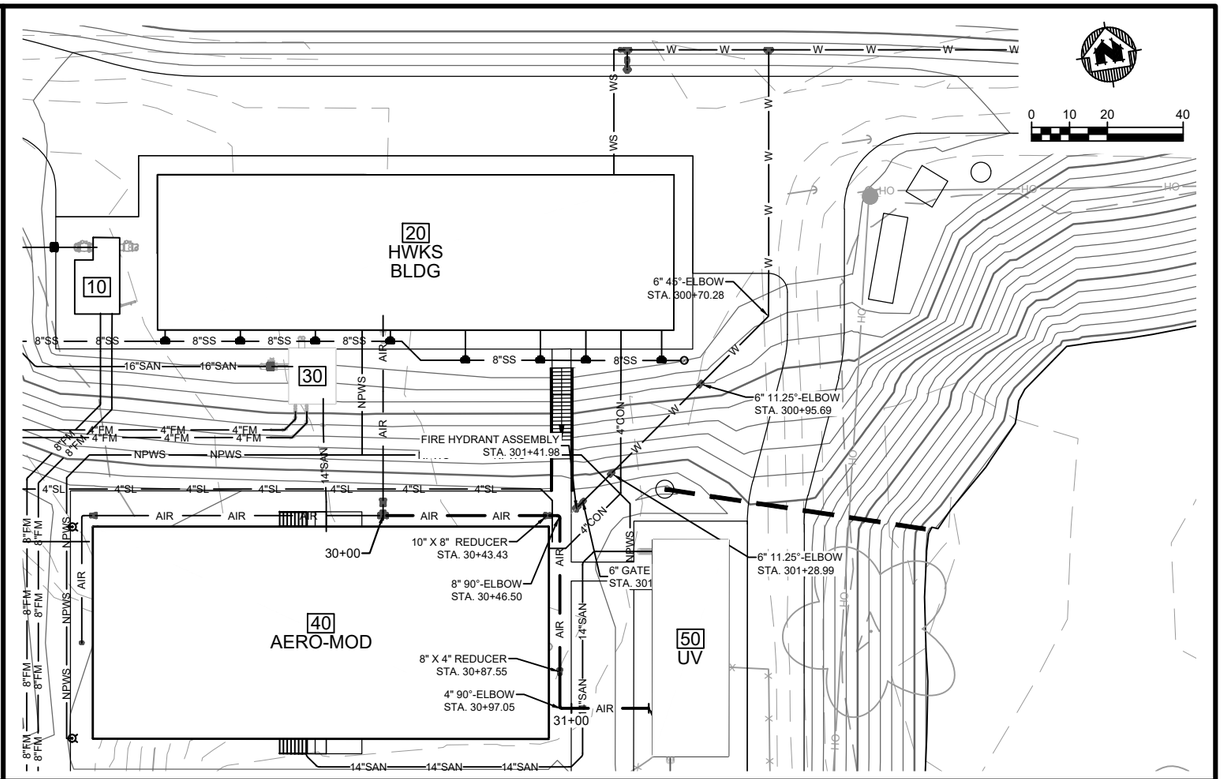

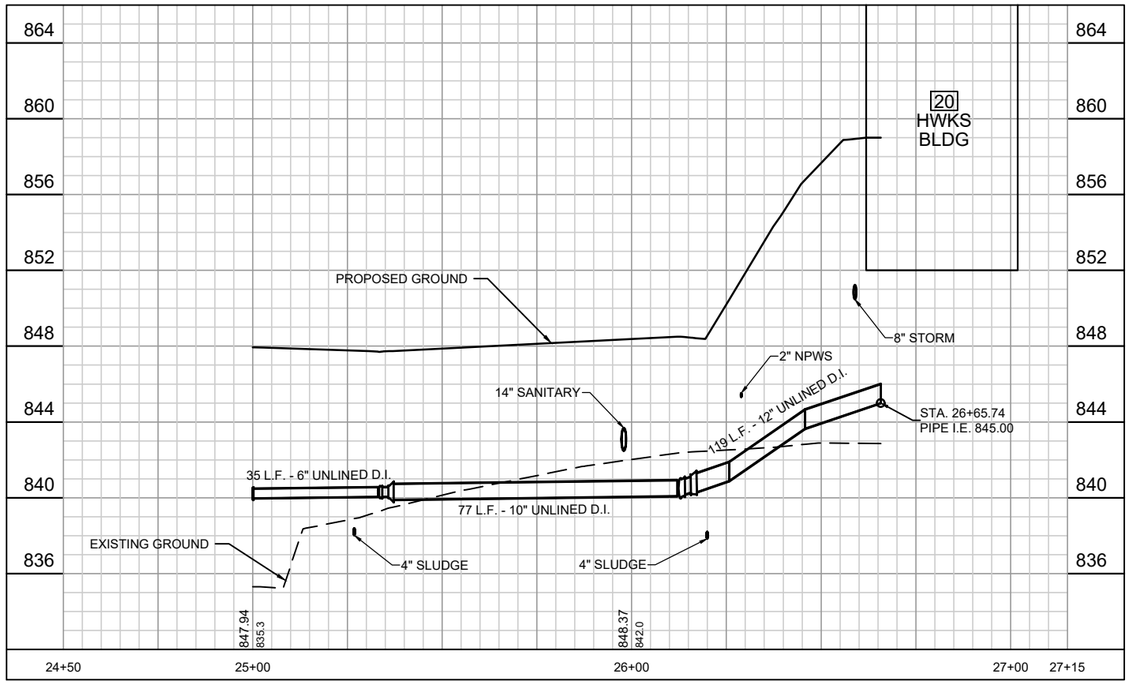

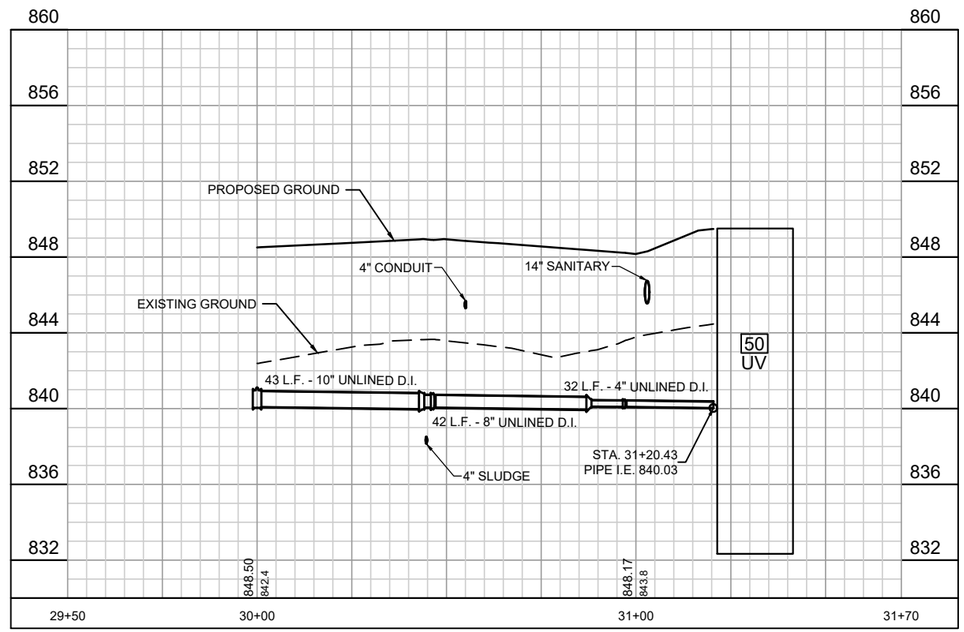

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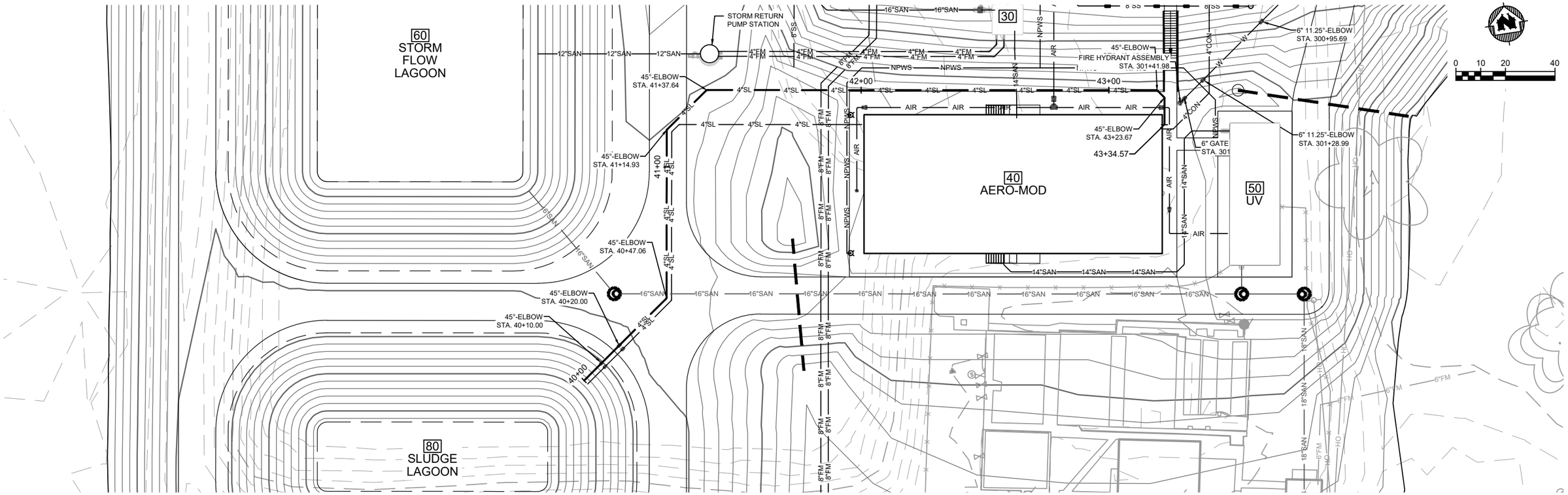

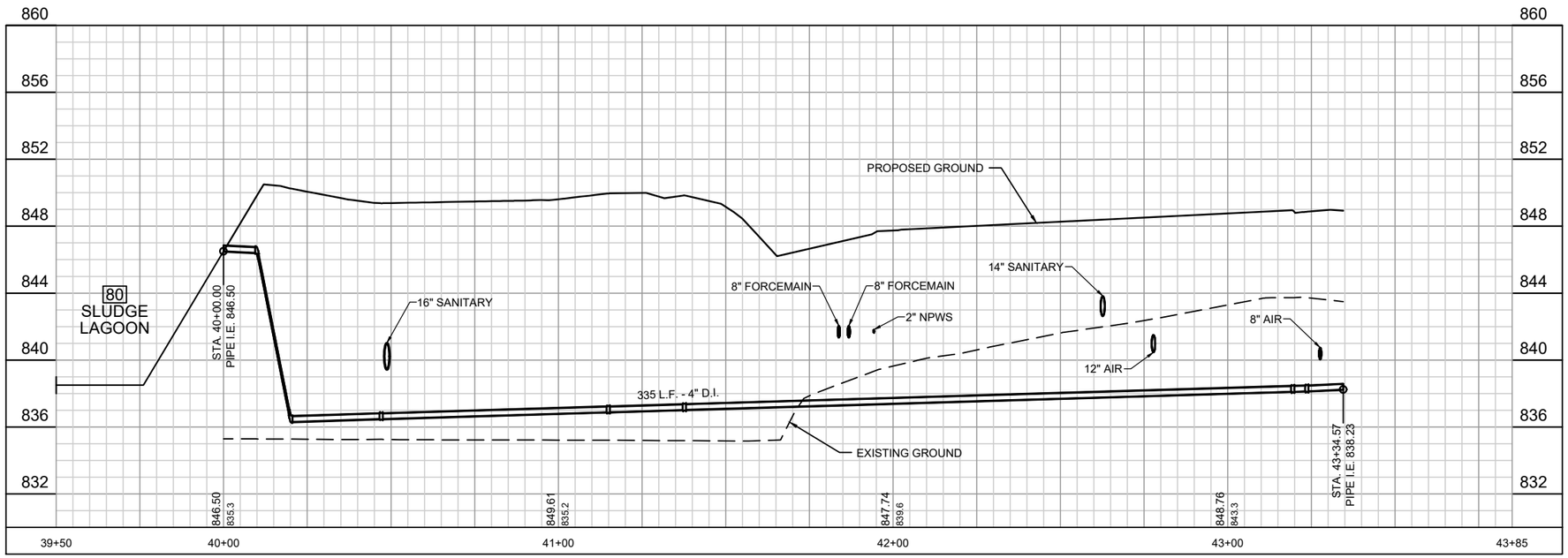

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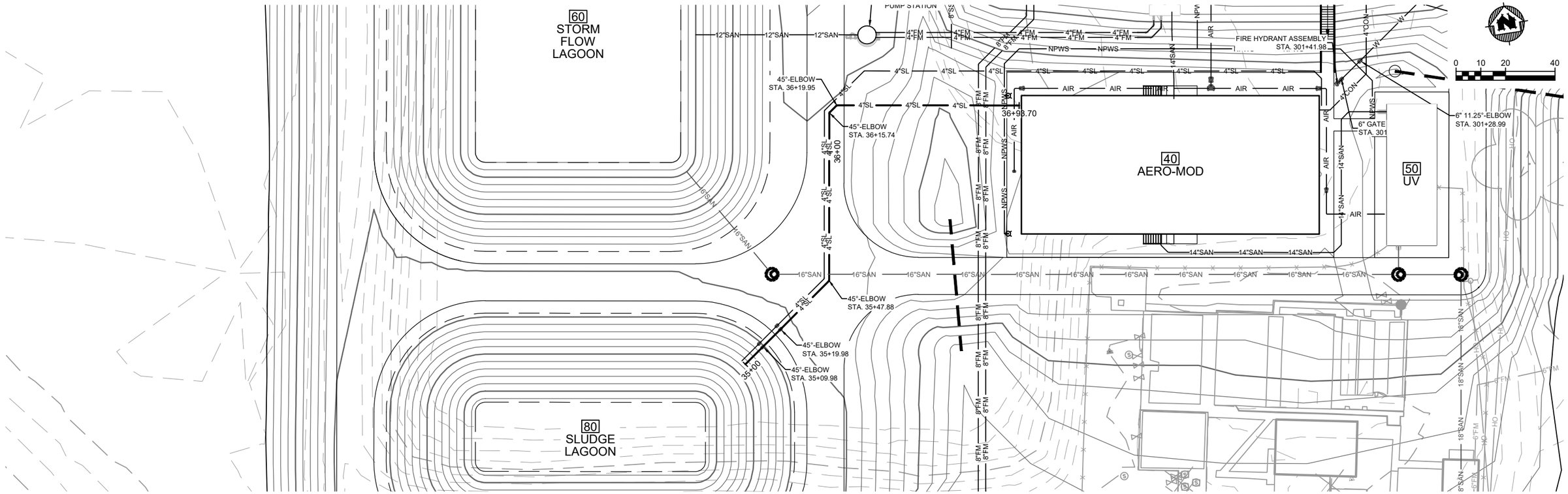

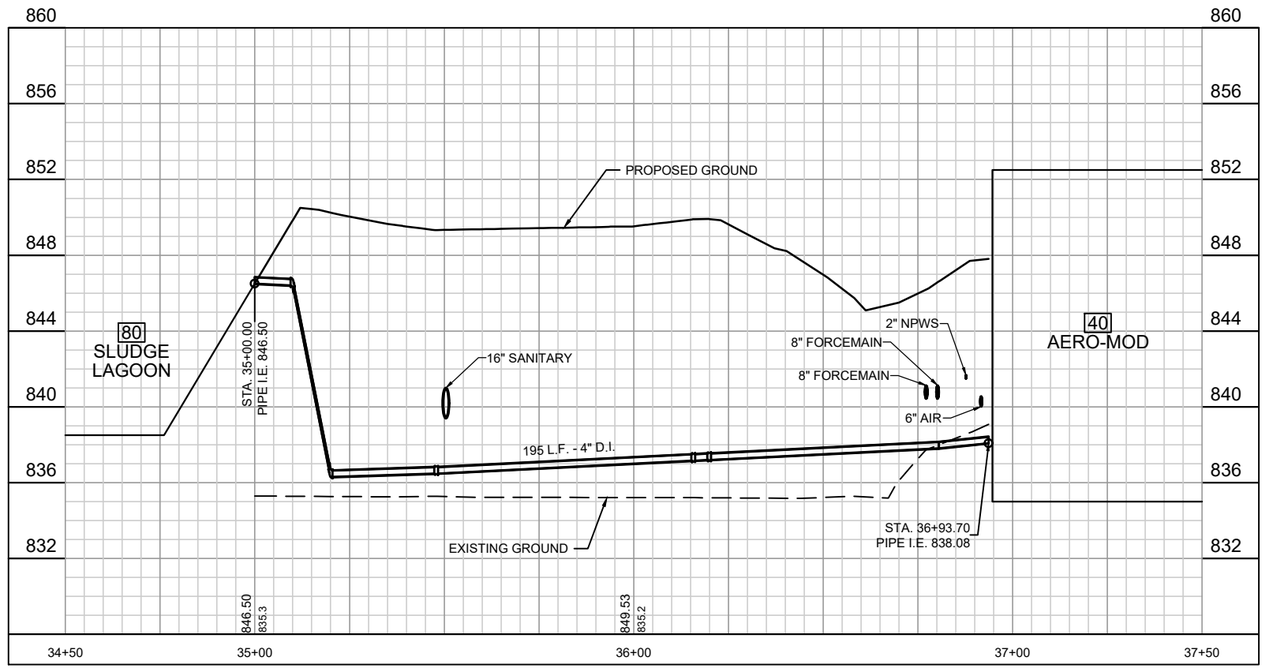

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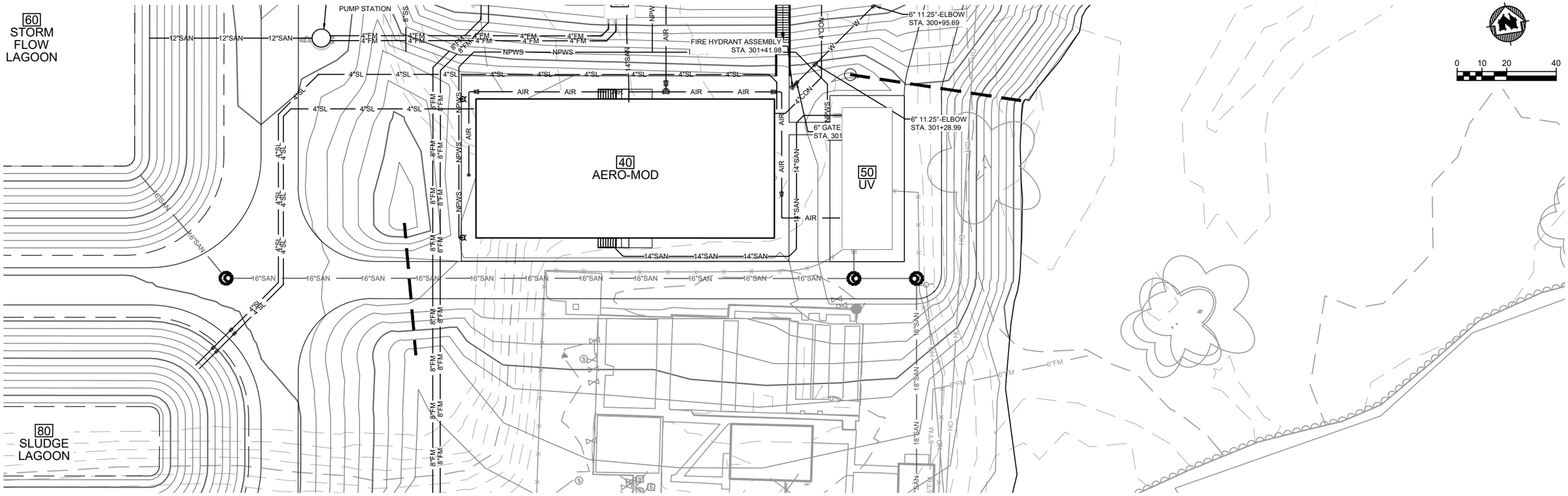

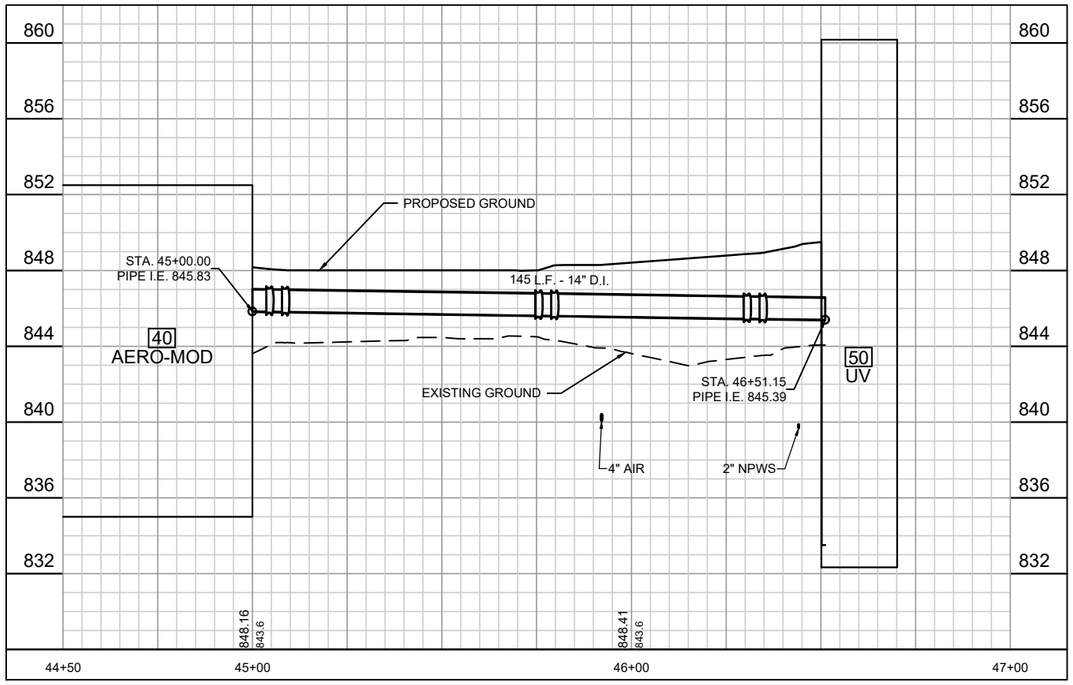

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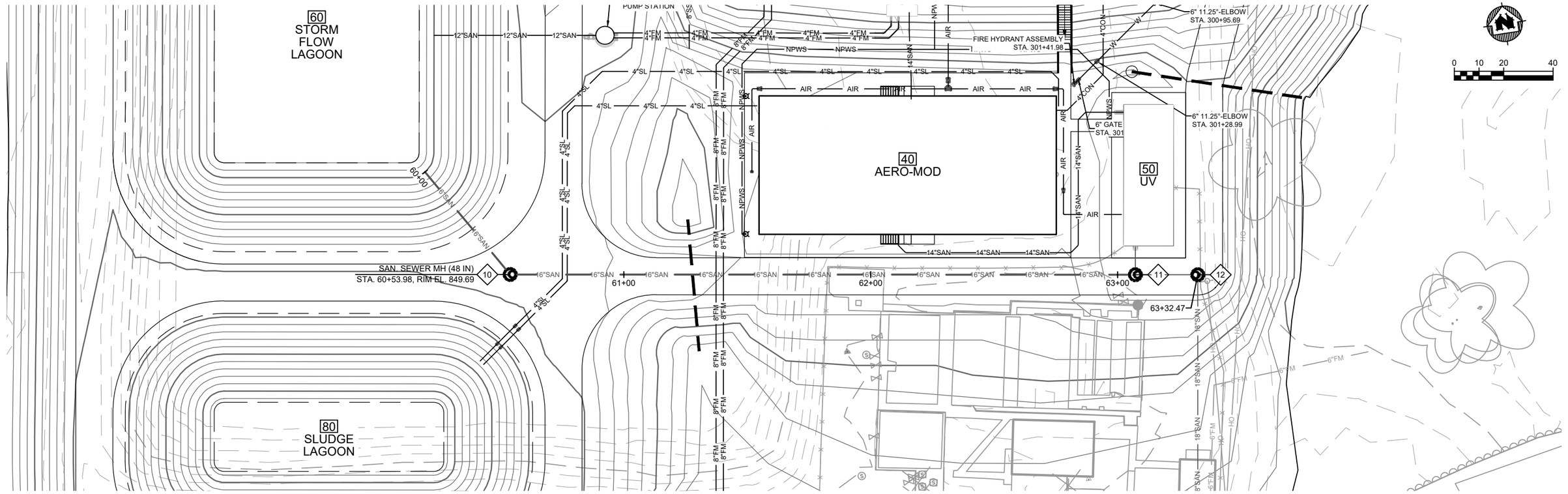

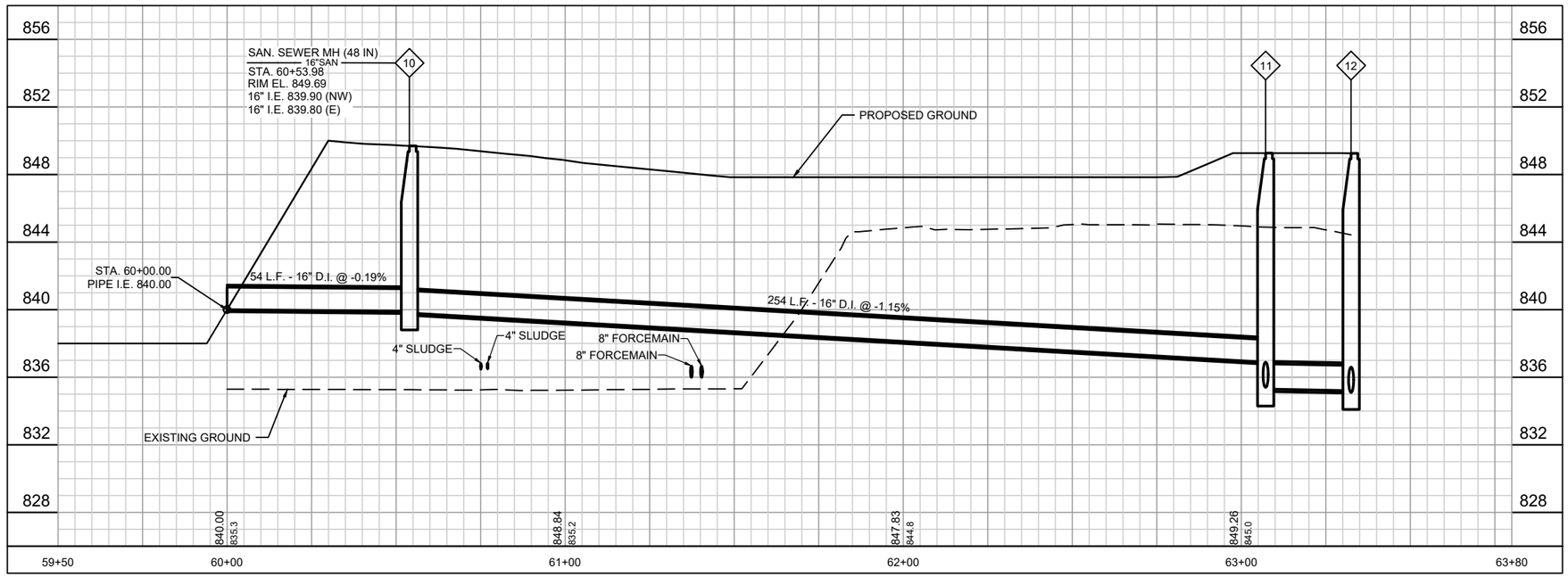

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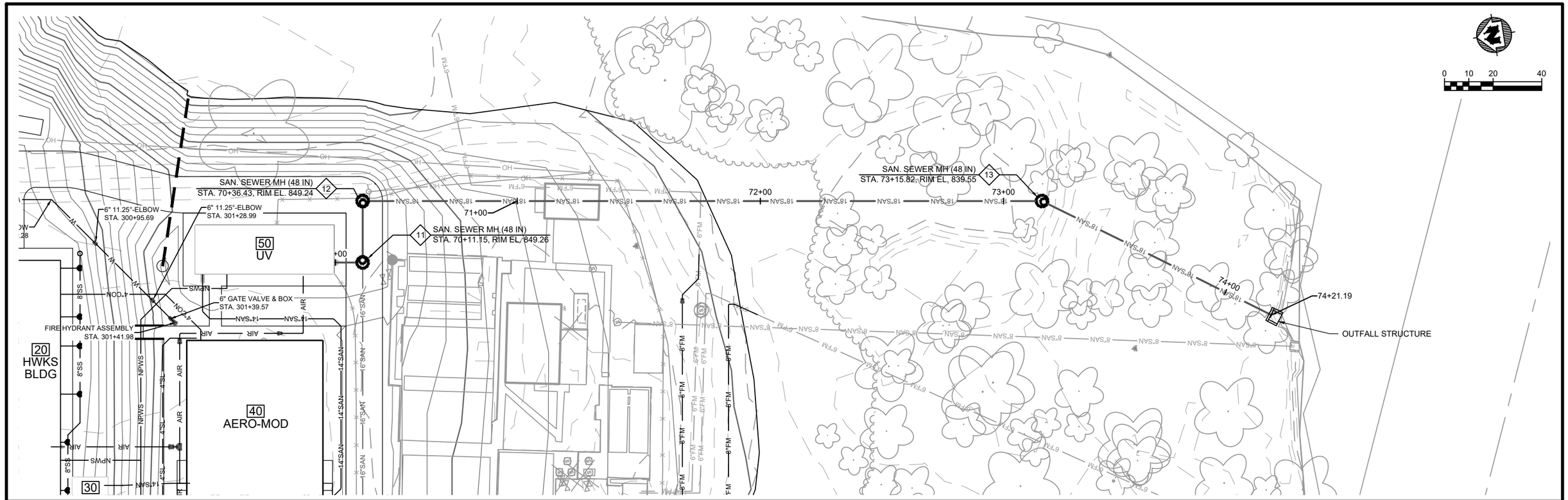

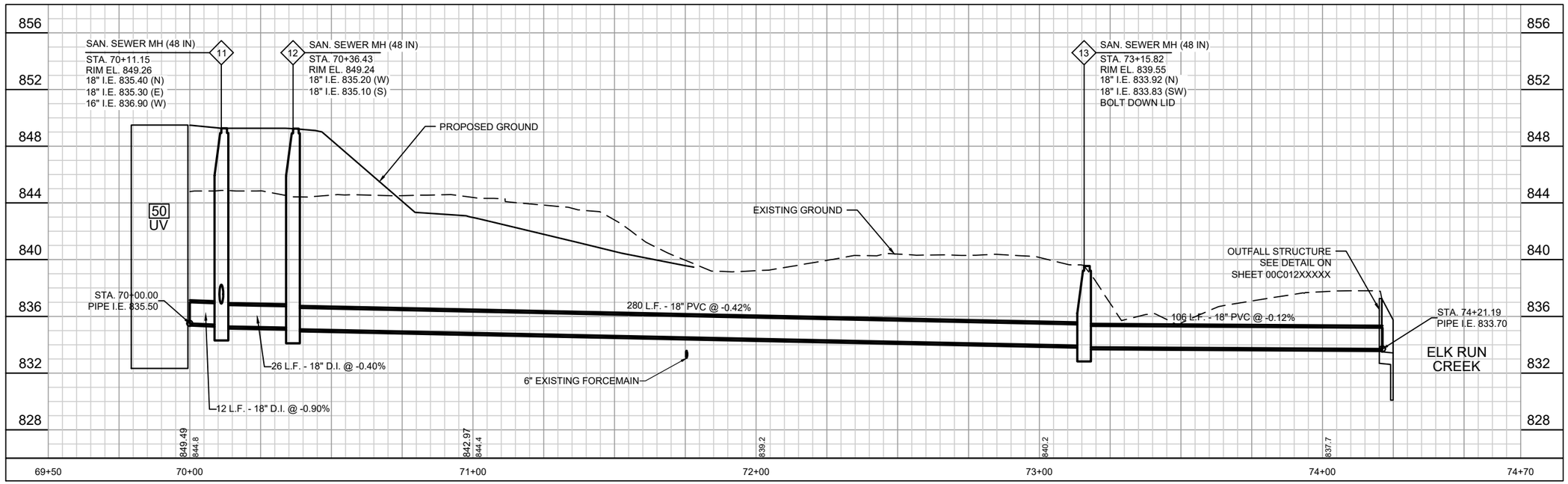

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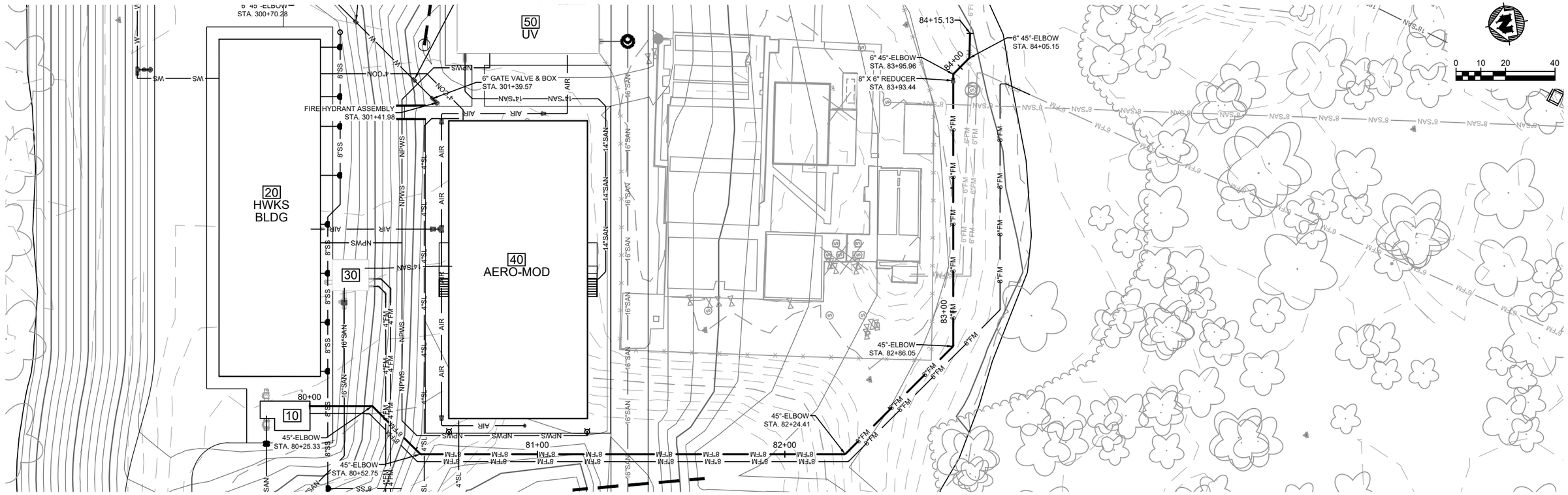

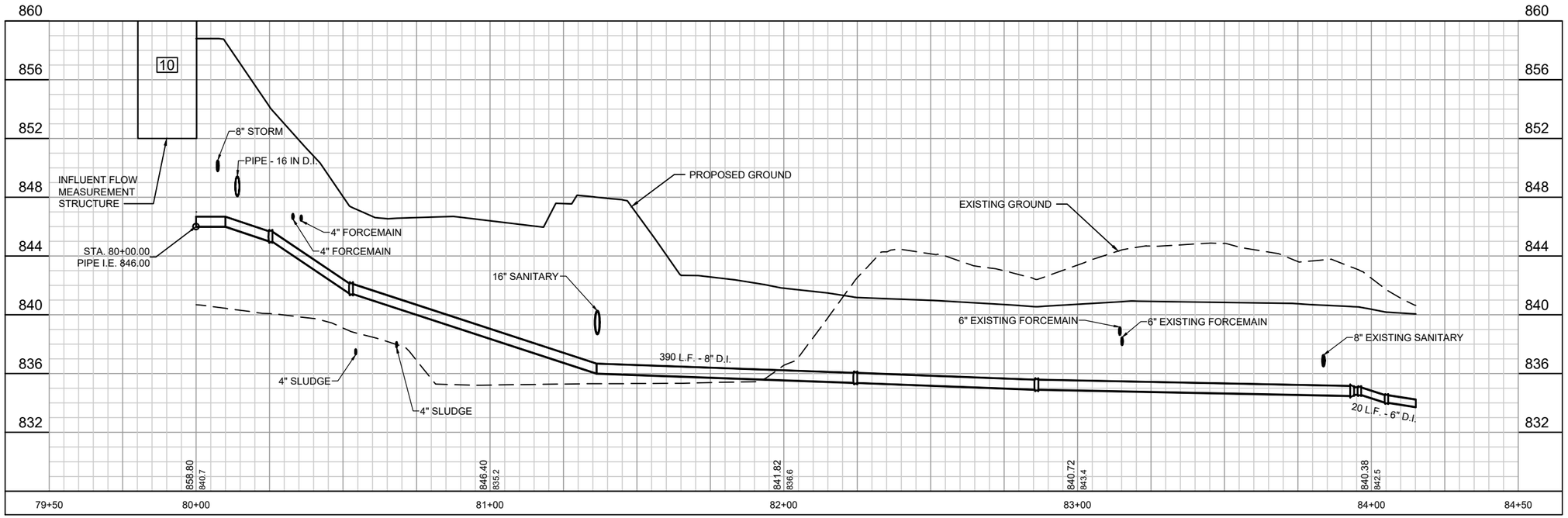

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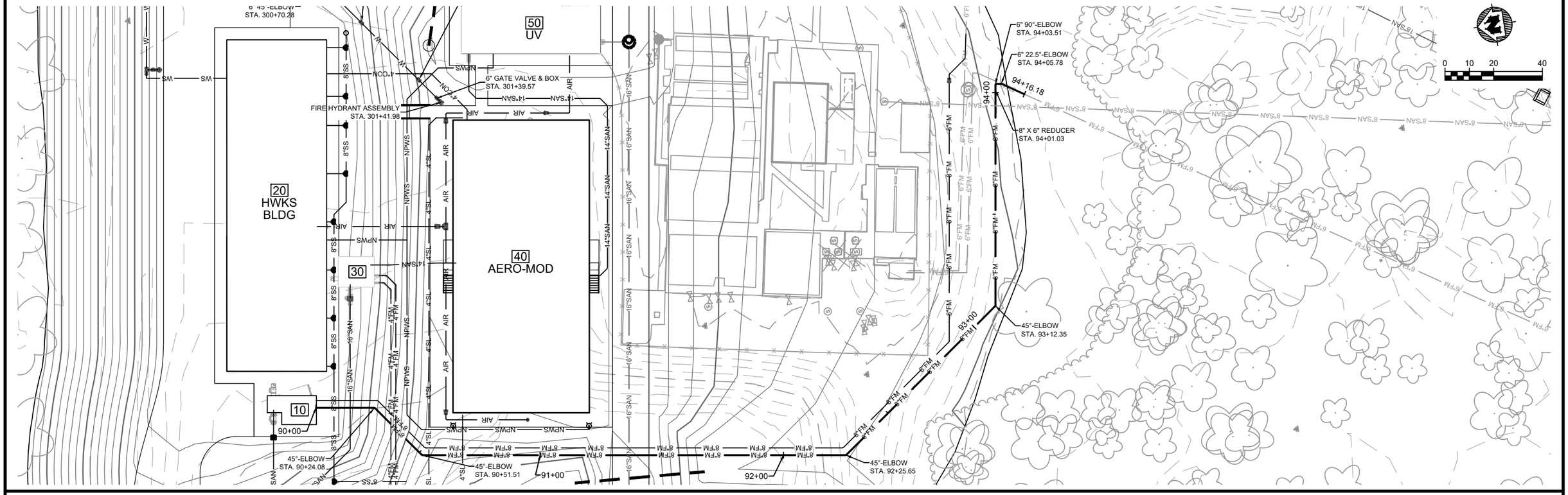

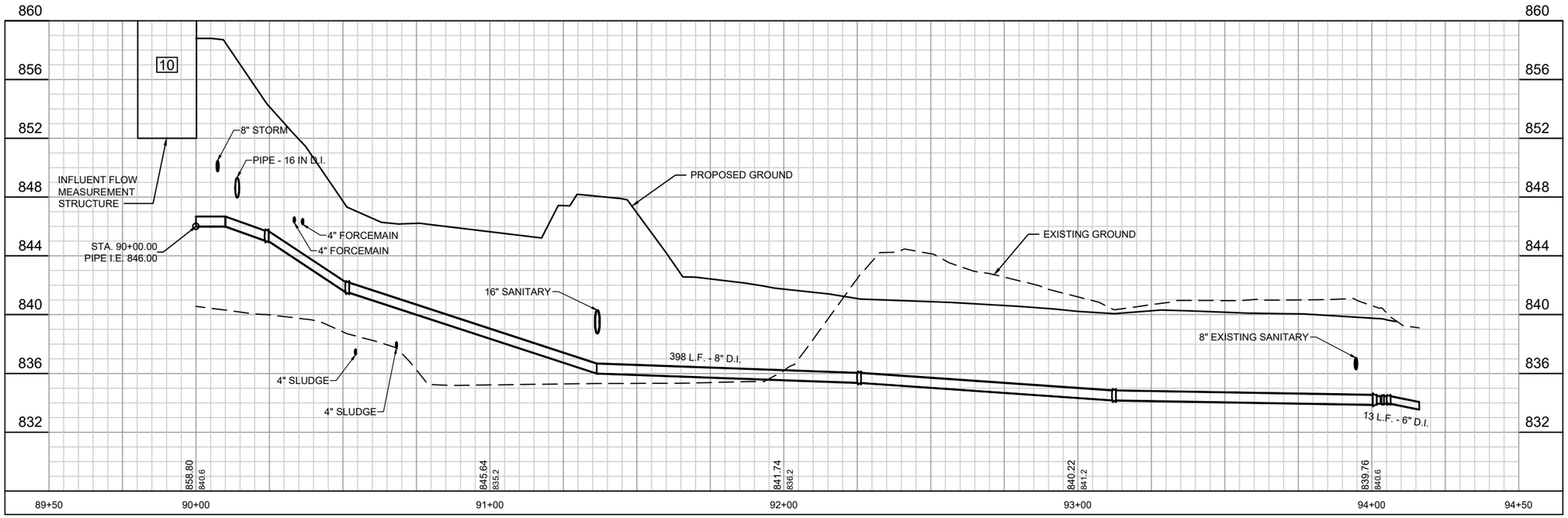

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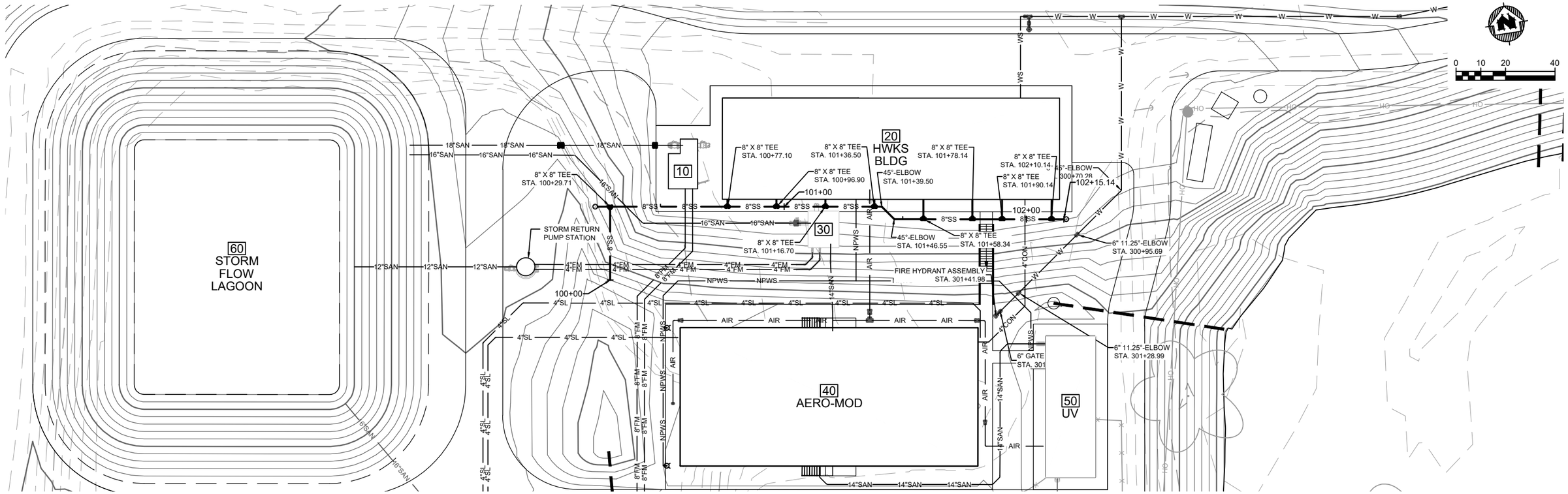

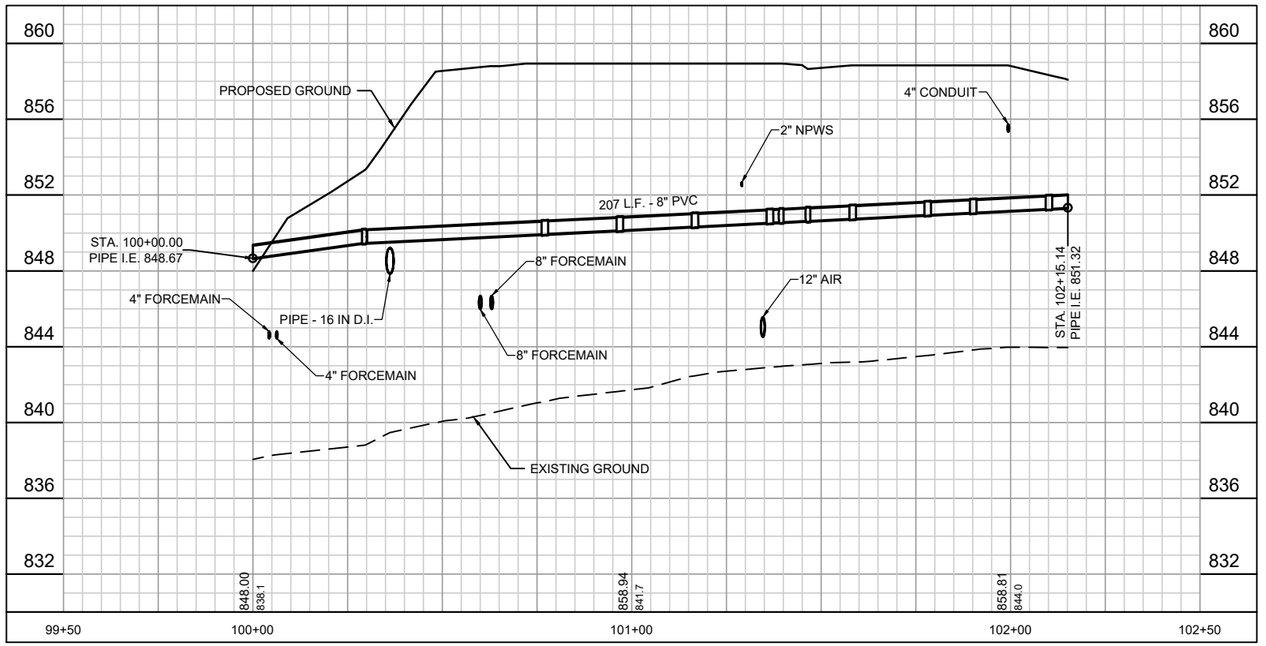

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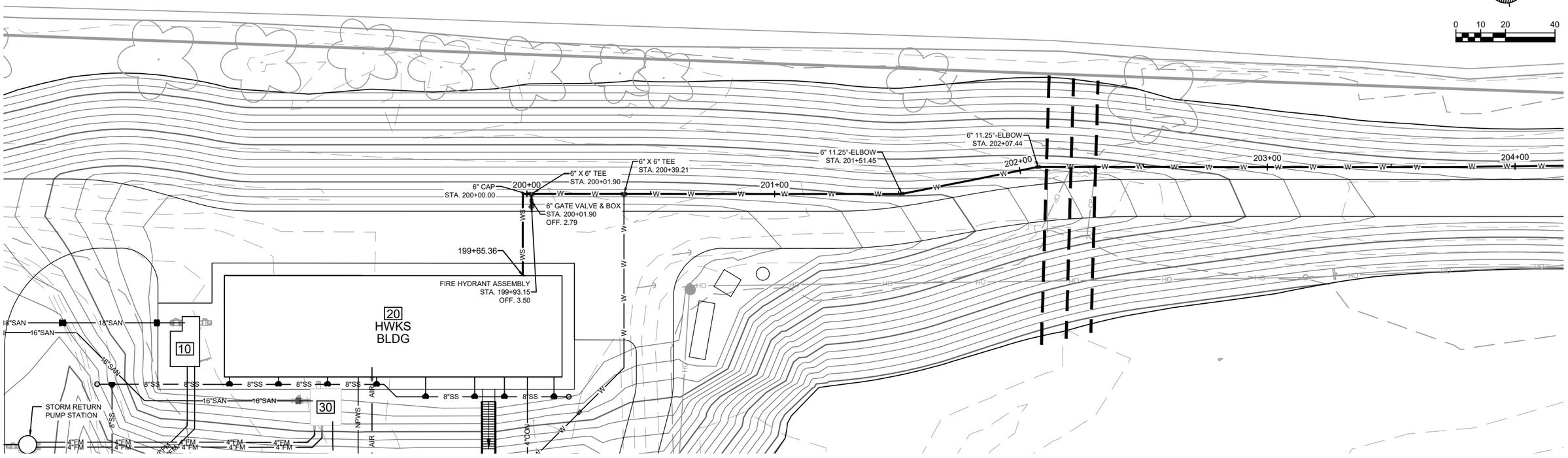

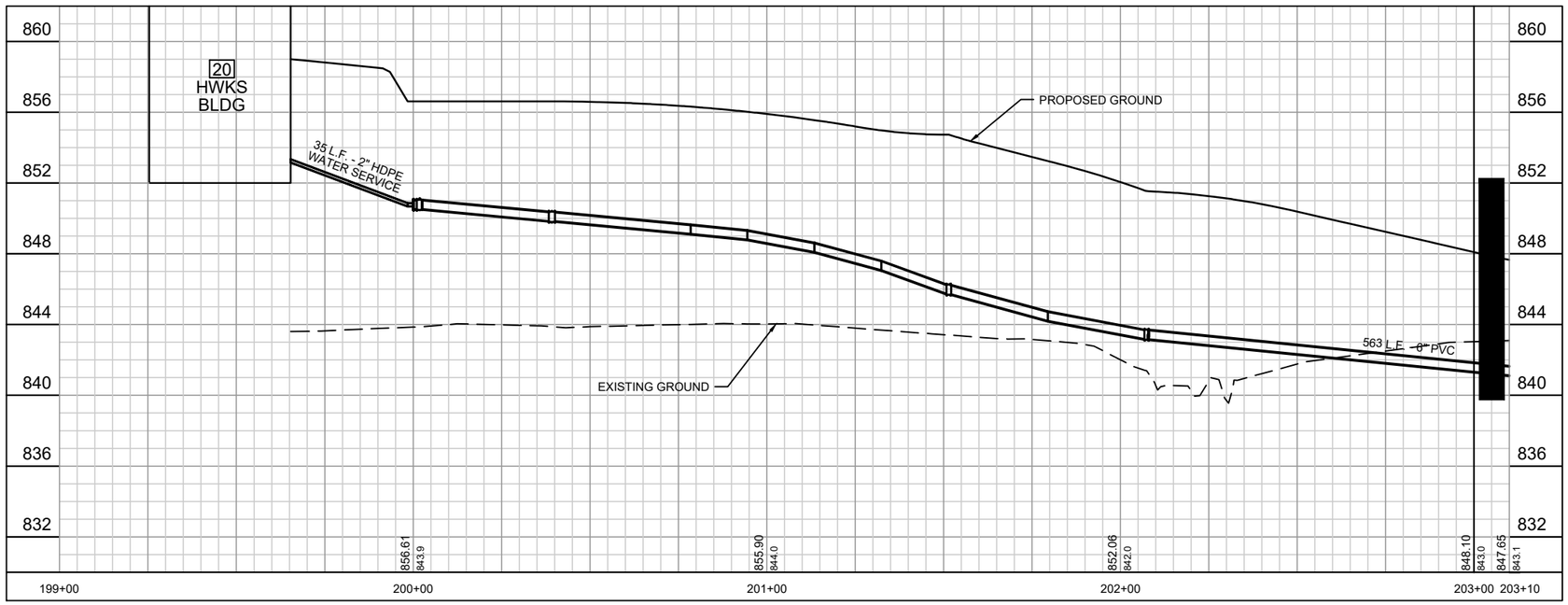

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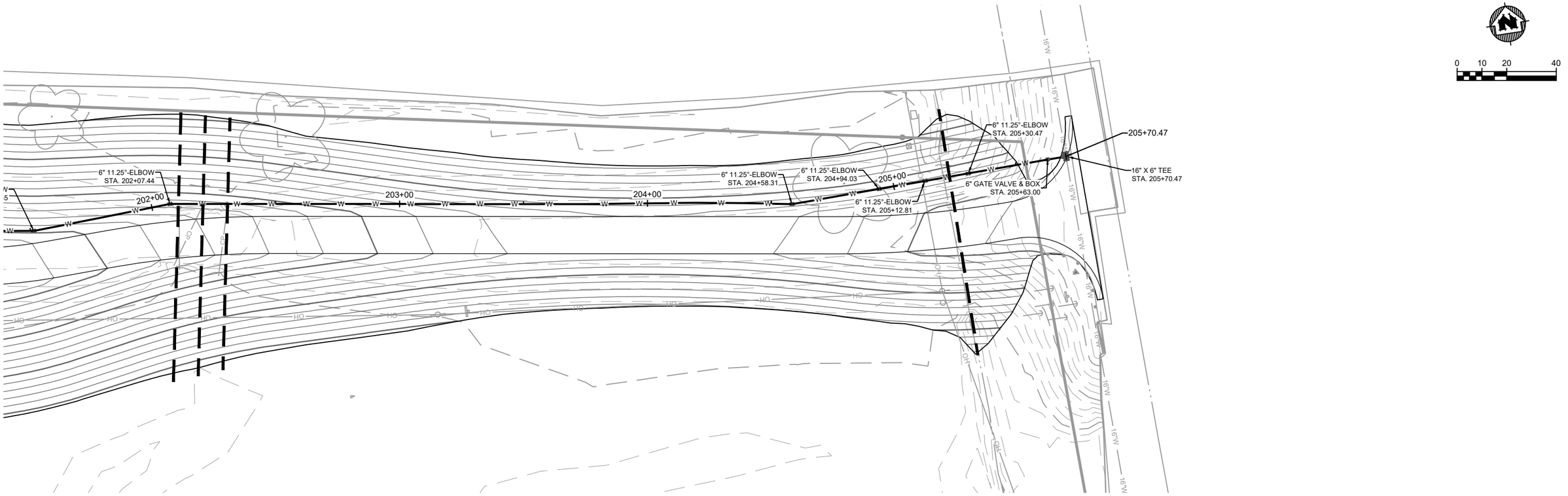
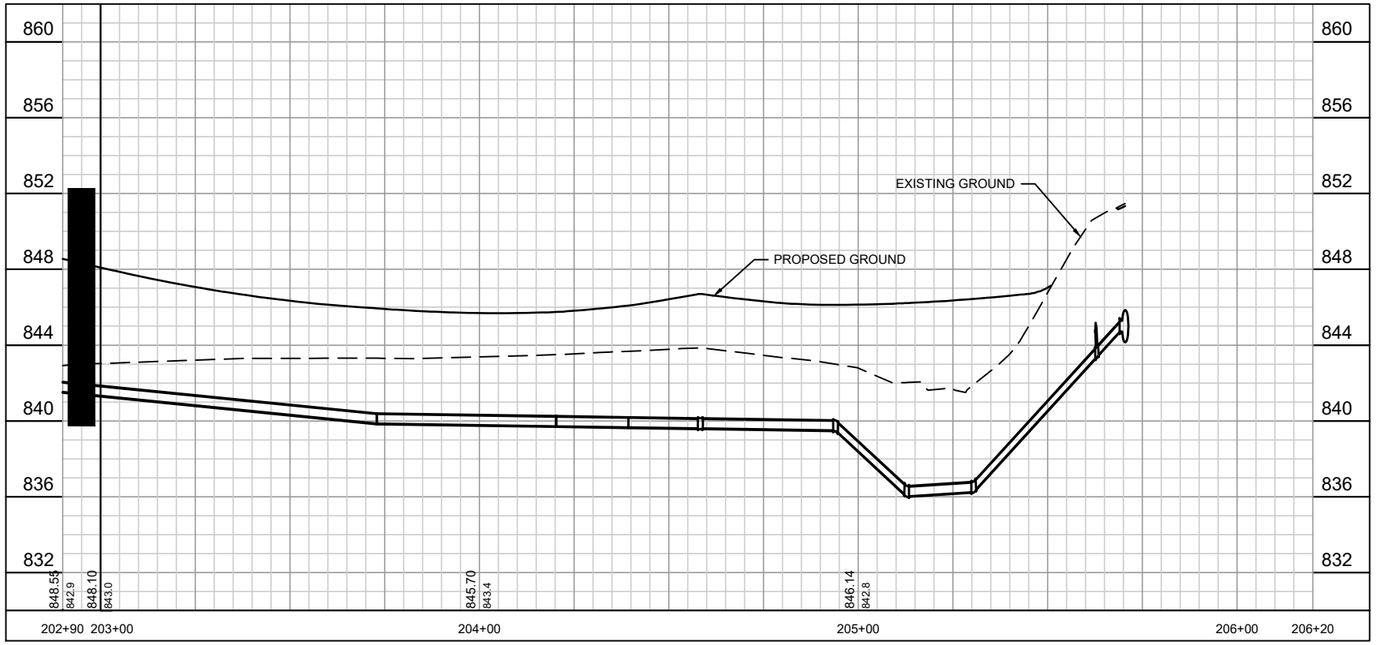
CITY OF ELK RUN HEIGHTS / CITY OF RAYMOND
BLACK HAWK COUNTY, IOWA

PLAN & PROFILE

PROJECT NO. 14573015
SHEET 05PM14

Return to Agenda





		NO.	DATE	REVISION	BY
PROJECT DATE: 2020	DRAWN BY: DJM	.	.	.	.
	DESIGNED BY: DJM	.	.	.	.
	CHECKED BY: JEM	.	.	.	.

PLOT DATE: Tuesday, August 11, 2020 10:54:03 AM, C:\G\14\14573\14573015\CADD\Construction Documents\00-GENERAL\14573015 - YARD PIPING PLAN AND PROFILE.dwg

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PLAN & PROFILE

PROJECT NO. 14573015
SHEET 05PM15

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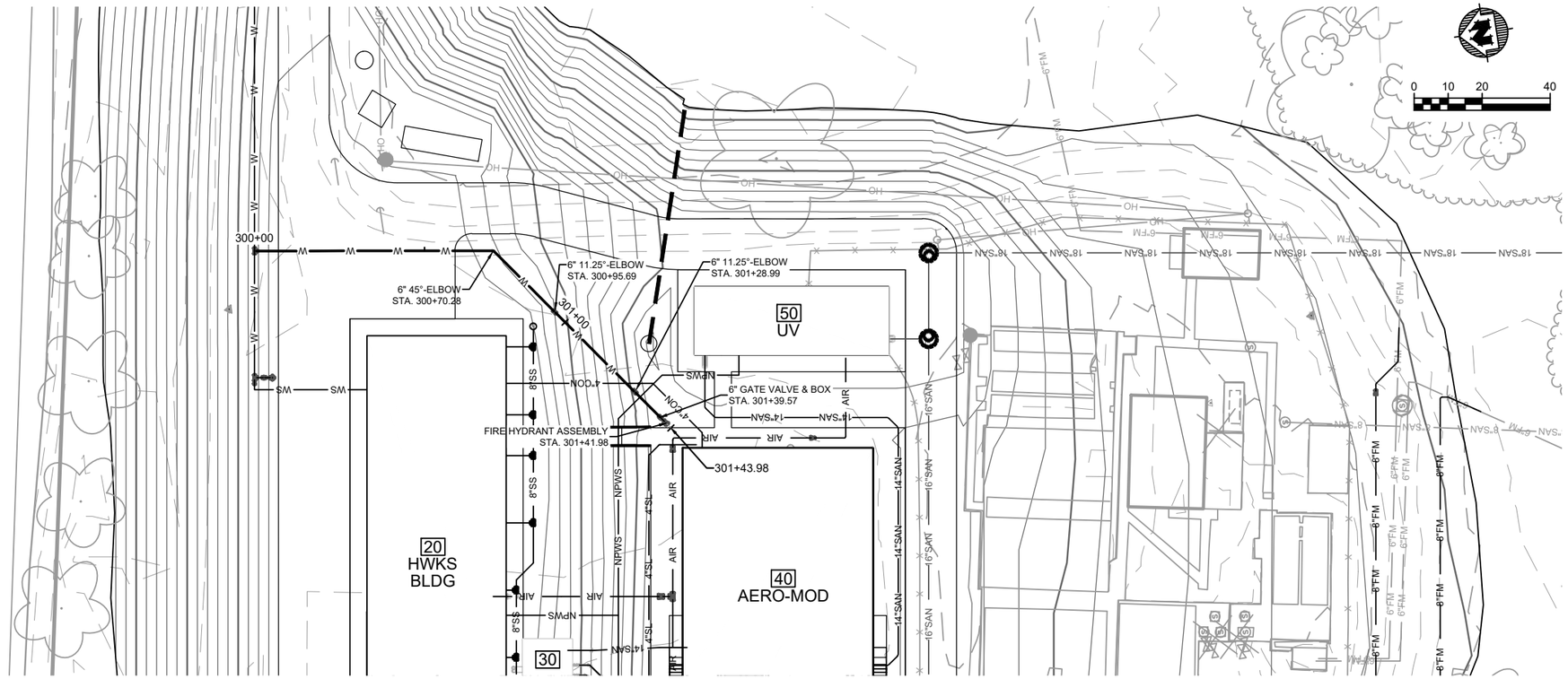

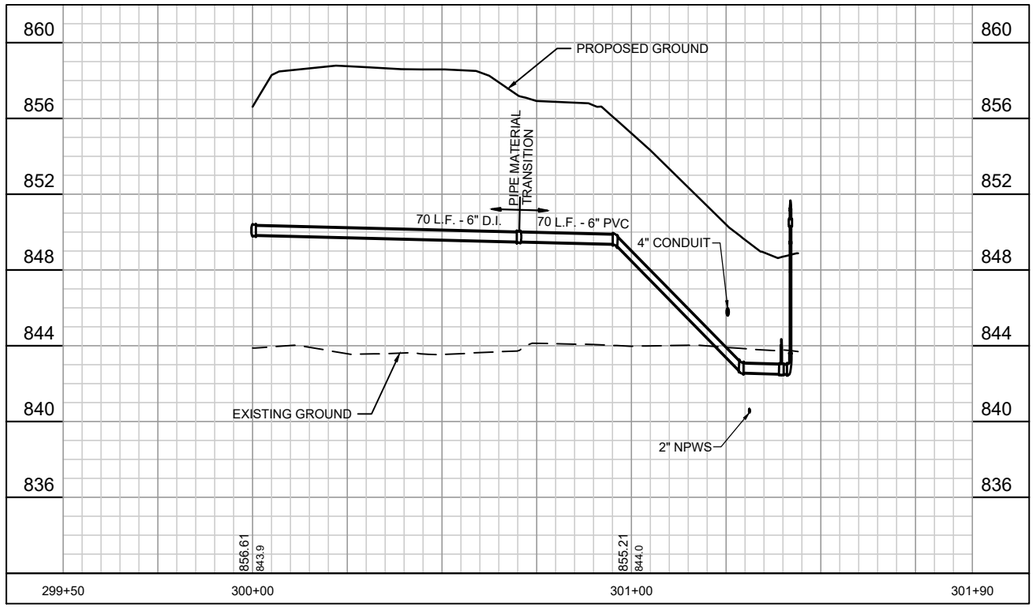

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PROJECT DATE: 2020	DRAWN BY: DJM	.	.	.	.
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PLAN & PROFILE

PROJECT NO. 14573015
SHEET 05PM16

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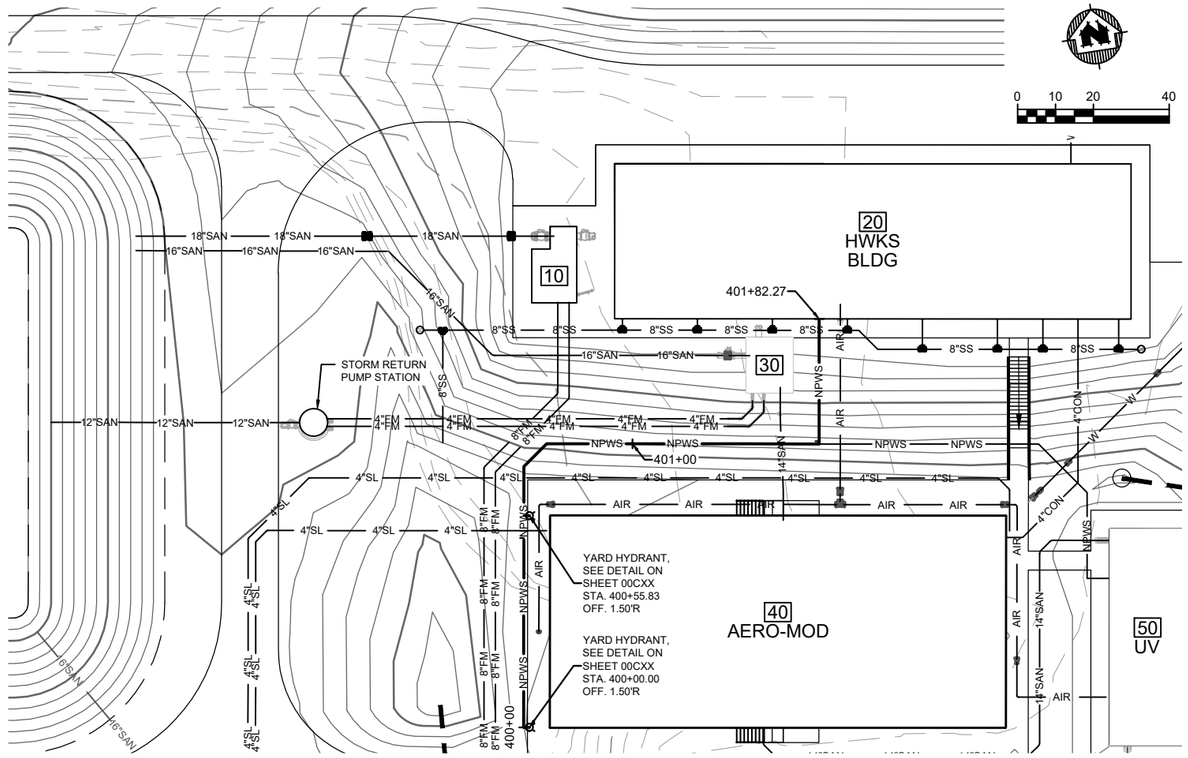

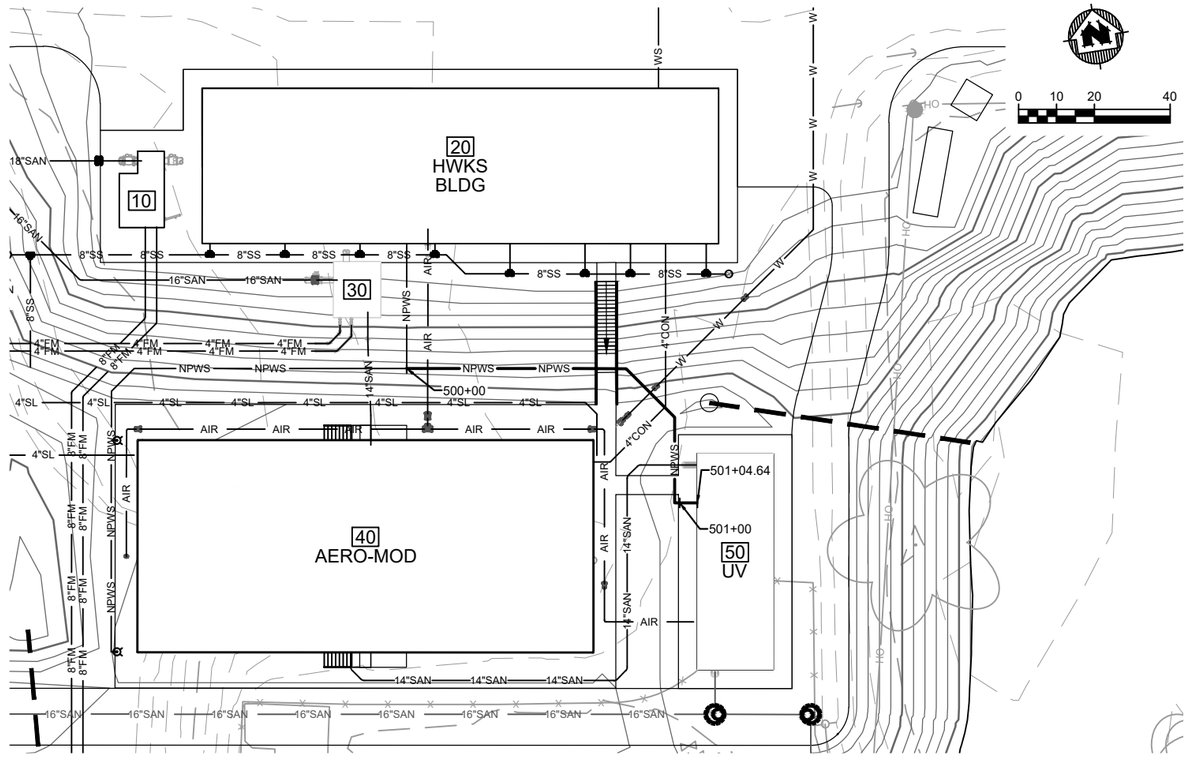

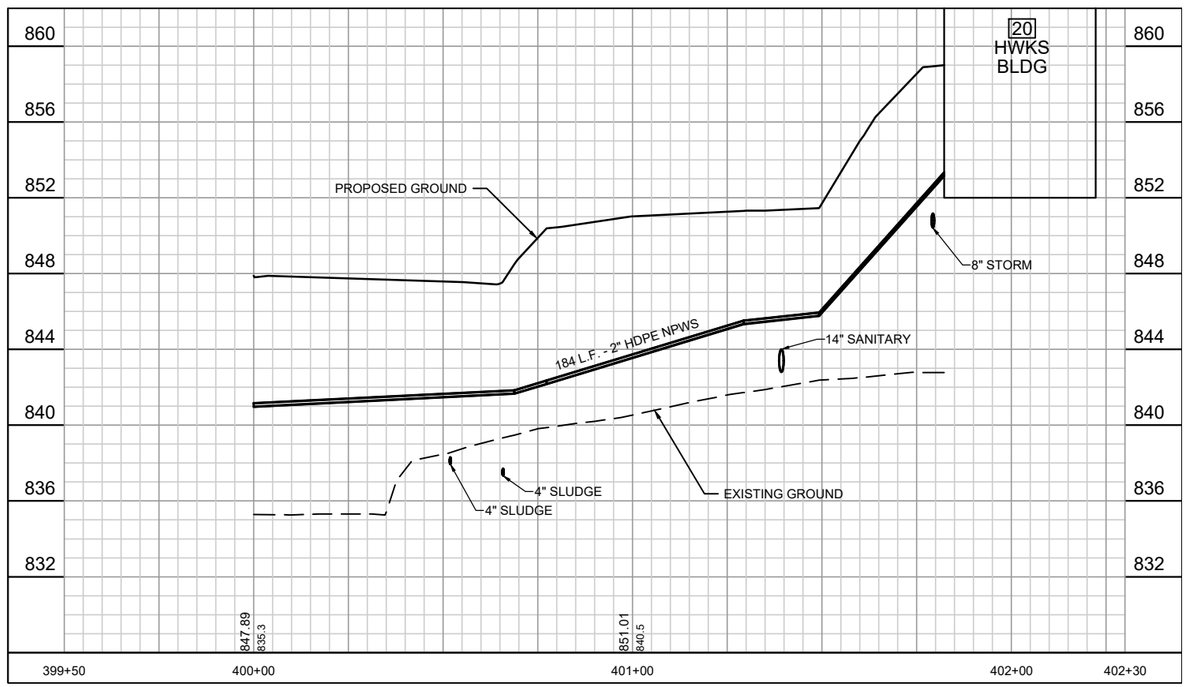

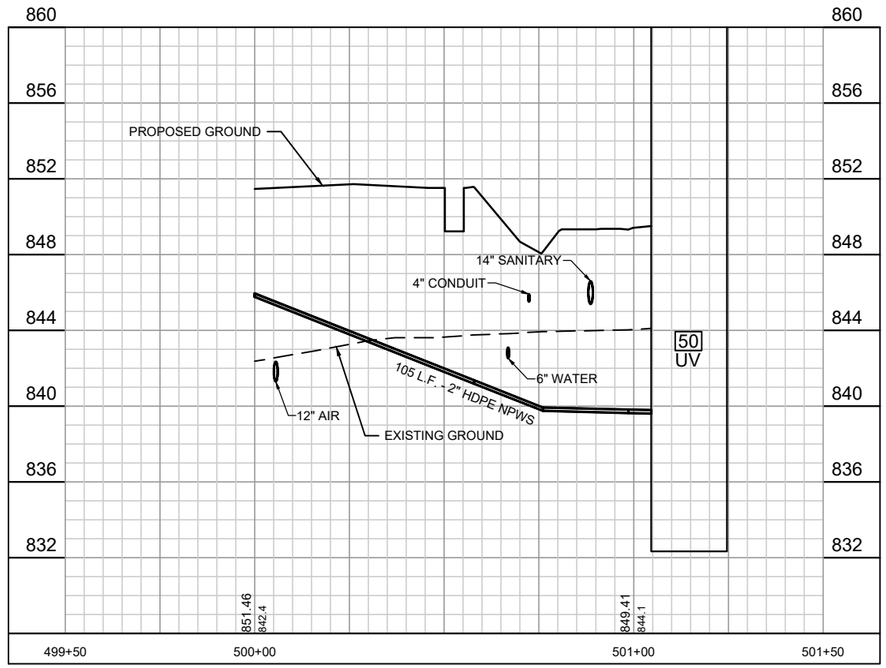

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PROJECT DATE: 2020	DRAWN BY: DJM	.	.	.	.
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PLAN & PROFILE

PROJECT NO. 14573015
SHEET 05PM17

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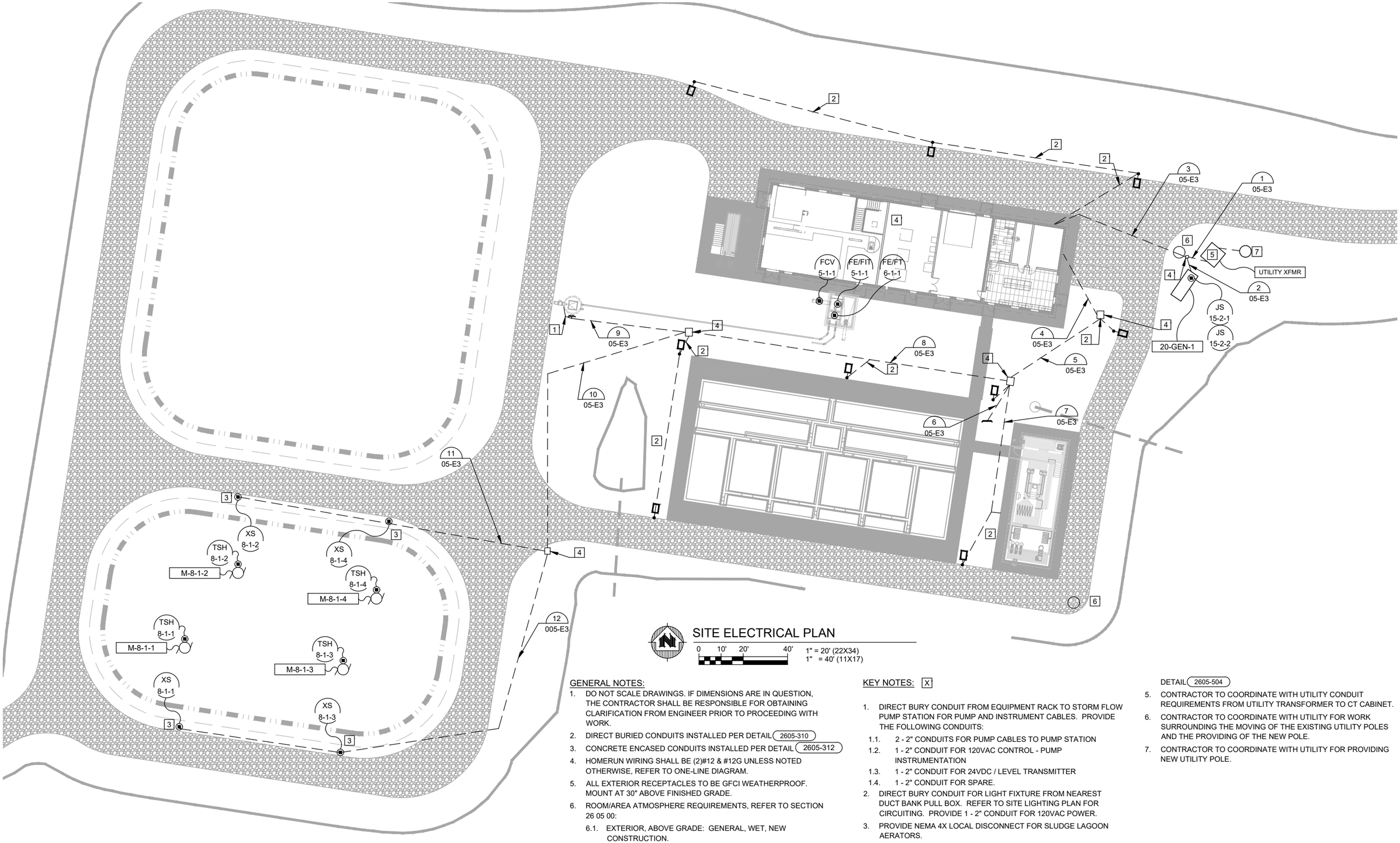

SITE ELECTRICAL PLAN

0 10' 20' 40'

1" = 20' (22X34)
1" = 40' (11X17)

GENERAL NOTES:

1. DO NOT SCALE DRAWINGS. IF DIMENSIONS ARE IN QUESTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATION FROM ENGINEER PRIOR TO PROCEEDING WITH WORK.
2. DIRECT BURIED CONDUITS INSTALLED PER DETAIL 2605-310
3. CONCRETE ENCASED CONDUITS INSTALLED PER DETAIL 2605-312
4. HOMERUN WIRING SHALL BE (2)#12 & #12G UNLESS NOTED OTHERWISE, REFER TO ONE-LINE DIAGRAM.
5. ALL EXTERIOR RECEPTACLES TO BE GFCI WEATHERPROOF. MOUNT AT 30" ABOVE FINISHED GRADE.
6. ROOM/AREA ATMOSPHERE REQUIREMENTS, REFER TO SECTION 26 05 00:
   - 6.1. EXTERIOR, ABOVE GRADE: GENERAL, WET, NEW CONSTRUCTION.
   - 6.2. EXTERIOR, BELOW GRADE: UNDERGROUND, WET, NEW CONSTRUCTION.

KEY NOTES: [X]

1. DIRECT BURY CONDUIT FROM EQUIPMENT RACK TO STORM FLOW PUMP STATION FOR PUMP AND INSTRUMENT CABLES. PROVIDE THE FOLLOWING CONDUITS:
   - 1.1. 2 - 2" CONDUITS FOR PUMP CABLES TO PUMP STATION
   - 1.2. 1 - 2" CONDUIT FOR 120VAC CONTROL - PUMP INSTRUMENTATION
   - 1.3. 1 - 2" CONDUIT FOR 24VDC / LEVEL TRANSMITTER
   - 1.4. 1 - 2" CONDUIT FOR SPARE.
2. DIRECT BURY CONDUIT FOR LIGHT FIXTURE FROM NEAREST DUCT BANK PULL BOX. REFER TO SITE LIGHTING PLAN FOR CIRCUITING. PROVIDE 1 - 2" CONDUIT FOR 120VAC POWER.
3. PROVIDE NEMA 4X LOCAL DISCONNECT FOR SLUDGE LAGOON AERATORS.
4. PROVIDE ELECTRICAL PULL BOXES AS SPECIFIED. QUAZITE BOXES ARE ACCEPTABLE. INSTALL BOXES IN ACCORDANCE WITH DETAIL 2605-504
5. CONTRACTOR TO COORDINATE WITH UTILITY CONDUIT REQUIREMENTS FROM UTILITY TRANSFORMER TO CT CABINET.
6. CONTRACTOR TO COORDINATE WITH UTILITY FOR WORK SURROUNDING THE MOVING OF THE EXISTING UTILITY POLES AND THE PROVIDING OF THE NEW POLE.
7. CONTRACTOR TO COORDINATE WITH UTILITY FOR PROVIDING NEW UTILITY POLE.

PROJECT DATE: 2019-09-20	SCALE: AS SHOWN	NO.	DATE	REVISION	BY
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F.B. :	CHECKED BY: RJJ				
PLOT DATE: 7/1/2020					

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SITE ELECTRICAL PLAN

FILE NO. 14573015
SHEET 05E1

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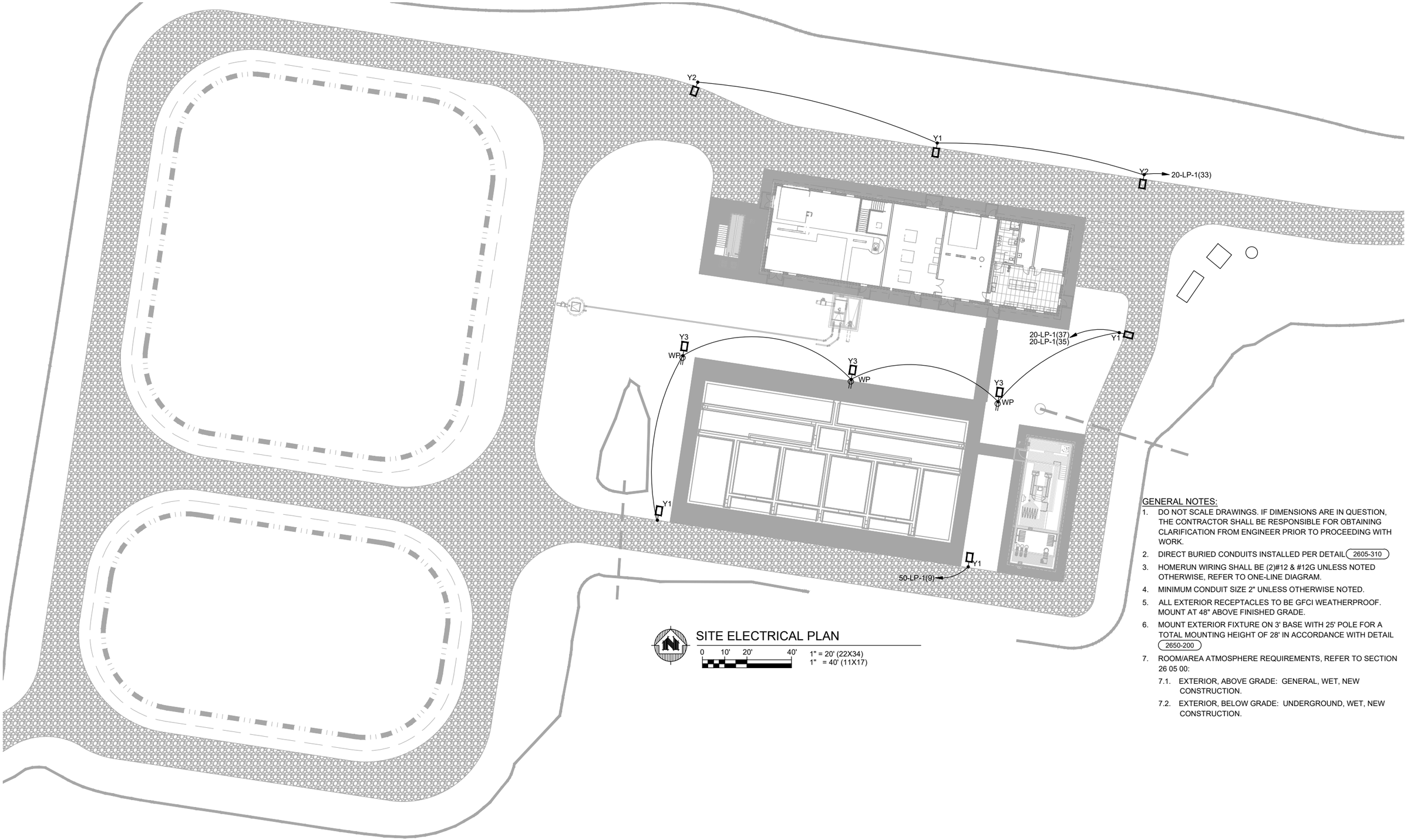

SITE ELECTRICAL PLAN

0 10' 20' 40'

1" = 20' (22X34)
1" = 40' (11X17)

GENERAL NOTES:

1. DO NOT SCALE DRAWINGS. IF DIMENSIONS ARE IN QUESTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATION FROM ENGINEER PRIOR TO PROCEEDING WITH WORK.
2. DIRECT BURIED CONDUITS INSTALLED PER DETAIL (2605-310)
3. HOMERUN WIRING SHALL BE (2)#12 & #12G UNLESS NOTED OTHERWISE, REFER TO ONE-LINE DIAGRAM.
4. MINIMUM CONDUIT SIZE 2" UNLESS OTHERWISE NOTED.
5. ALL EXTERIOR RECEPTACLES TO BE GFCI WEATHERPROOF. MOUNT AT 48" ABOVE FINISHED GRADE.
6. MOUNT EXTERIOR FIXTURE ON 3' BASE WITH 25' POLE FOR A TOTAL MOUNTING HEIGHT OF 28' IN ACCORDANCE WITH DETAIL (2650-200)
7. ROOM/AREA ATMOSPHERE REQUIREMENTS, REFER TO SECTION 26 05 00:
   - 7.1. EXTERIOR, ABOVE GRADE: GENERAL, WET, NEW CONSTRUCTION.
   - 7.2. EXTERIOR, BELOW GRADE: UNDERGROUND, WET, NEW CONSTRUCTION.

PROJECT DATE: 2019-09-20	SCALE: AS SHOWN	NO.	DATE	REVISION	BY
	DRAWN BY: LET				
F.B. :	CHECKED BY: RJJ				
PLOT DATE: 7/1/2020					

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SITE LIGHTING PLAN

FILE NO. 14573015
SHEET 05E2

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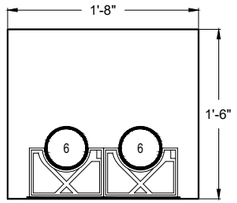
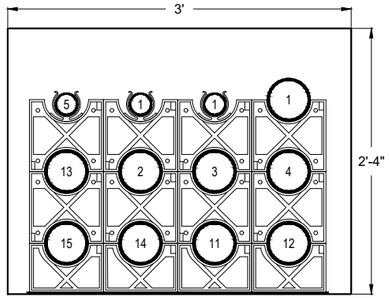
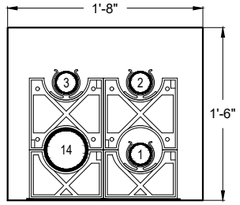


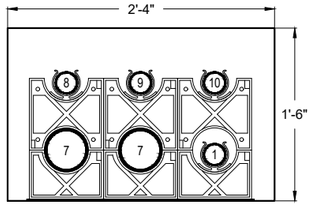
1 ELECTRICAL DUCTBANK
05-E1



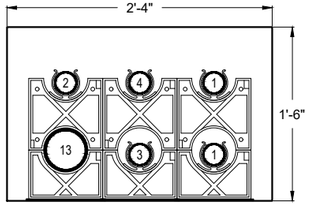
5 ELECTRICAL DUCTBANK
05-E1



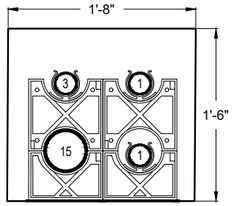
9 ELECTRICAL DUCTBANK
05-E1



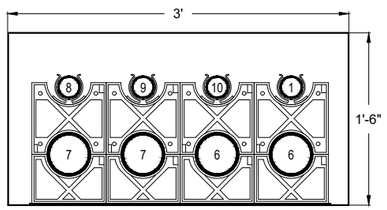
2 ELECTRICAL DUCTBANK
05-E1



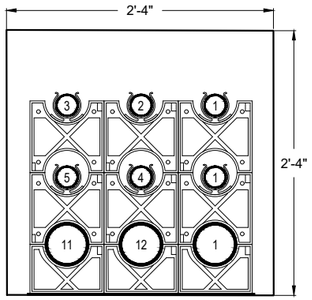
6 ELECTRICAL DUCTBANK
05-E1



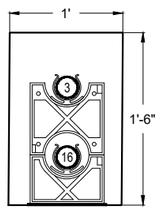
10 ELECTRICAL DUCTBANK
05-E1



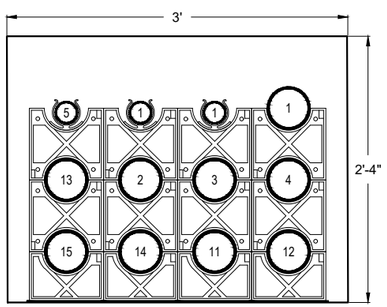
3 ELECTRICAL DUCTBANK
05-E1



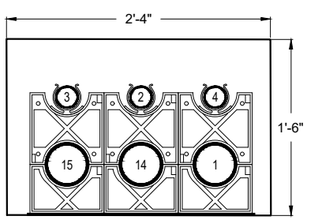
7 ELECTRICAL DUCTBANK
05-E1



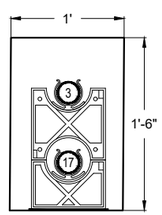
11 ELECTRICAL DUCTBANK
05-E1



4 ELECTRICAL DUCTBANK
05-E1



8 ELECTRICAL DUCTBANK
05-E1



12 ELECTRICAL DUCTBANK
05-E1

GENERAL NOTES:

1. INSTALL 24V ANALOG CONTROL CIRCUITS IN ISOLATED METALLIC RACEWAY WITHIN MANHOLES AND DUCTBANKS.
2. INSTALL LOW VOLTAGE COMMUNICATION CIRCUITS IN ISOLATED NON-METALLIC RACEWAY WITHIN DUCTBANKS.
3. INSTALL ALL REMAINING CIRCUITS LESS THAN 250V IN SEPARATE NON-METALLIC RACEWAY SYSTEM WITHIN DUCTBANKS.
4. INSTALL ALL REMAINING CIRCUITS GREATER THAN 250V IN SEPARATE NON-METALLIC RACEWAY SYSTEM WITHIN DUCTBANKS. (2605-312)
5. REFER TO ELECTRICAL MANHOLE DETAILS FOR ADDITIONAL RACEWAY REQUIREMENTS WITHIN MANHOLES.
   5.1. 6. ELECTRICAL DUCT BANKS SHALL BE CONSTRUCTED AND INSTALLED PER (2605-312)
6. DERATE CONDUCTORS PER NEC WHEN, MORE THAN THREE CURRENT CARRYING CONDUCTORS ARE INSTALLED IN A SINGLE RACEWAY.

RACEWAY IDENTIFIERS:

1. SPARE
2. 24VDC ANALOG SIGNAL/ LOW VOLTAGE COMMUNICATION CIRCUITS.
3. 120VAC DISCRETE CONTROL CIRCUITS.
4. 120VAC BRANCH CIRCUITS.
5. FIBER OPTIC CABLING. REFER TO NETWORK ARCHITECTURE.
6. 480V FEEDER CIRCUIT: FEED FROM UTILITY TRANSFORMER TO METER/CT CABINET. REFER TO OVERALL ONE-LINE DIAGRAM.
7. 480V FEEDER CIRCUIT: FEED FROM 20-G-1 TO 20-ATS-1, REFER TO OVERALL ONE-LINE DIAGRAM.
8. 120VAC DISCRETE CONTROL CIRCUITS: SIGNALS BETWEEN 20-G-1 AND 20-ATS-1. REFER TO OVERALL ONE-LINE DIAGRAM
9. COMMUNICATION CIRCUITS FROM 20-G-1 TO STR-20 FOR REMOTE ANNUNCIATOR.
10. 208V 3-Ø FEEDER FROM 20-LP-1 TO 20-G-1 LOAD CENTER
11. 480V FEEDER CIRCUIT: FEED FROM 20-PDP-1 TO 50-PDP-1
12. 480V FEEDER CIRCUIT: FEED FROM 20-MCC-1 TO P-12-1-1, P-12-1-2, P-12-1-3, AND FV-12-2-1
13. 480V FEEDER CIRCUIT: FEED FROM 20-MCC-1 TO P-9-7-1 AND P-9-7-2
14. 480V FEEDER CIRCUIT: FEED FROM 20-MCC-1 TO P-7-1-1 AND P-7-1-1.
15. 480V FEEDER CIRCUIT: FEED FROM 20-MCC-1 TO M-8-1-1, M-8-1-2, M-8-1-3, AND M-8-1-4. CONDUCTOR UP-SIZED FOR VOLTAGE DROP AND DE-RATING FOR MULTIPLE CONDUCTORS
16. 480V FEEDER CIRCUIT: FEED FROM 20-MCC-1 TO M-8-1-2 AND M-8-1-4. CONDUCTOR UP-SIZED FOR VOLTAGE DROP AND DE-RATING FOR MULTIPLE CONDUCTORS
17. 480V FEEDER CIRCUIT: FEED FROM 20-MCC-1 TO M-8-1-1 AND M-8-1-3. CONDUCTOR UP-SIZED FOR VOLTAGE DROP AND DE-RATING FOR MULTIPLE CONDUCTORS

LEGEND:
X = IS THE RACE WAY IDENTIFIER

(X) 2" CONDUIT

(X) 4" CONDUIT

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SITE DUCT BANK DETAILS

FILE NO. 14573015
SHEET 05E3

Return to Agenda

20-LCP-001
HEADWORKS SCADA CONTROL PANEL (PARTIAL)

TODAY'S TOTAL FQI 1-1-1-1
YESTERDAY'S TOTAL FQI 1-1-1-2 (2)
DAILY TOTALS FQR 1-1-1-1
FLOW PACE FC 1-2-1-1 (2) AO (2)
FLOW TOTAL FQI 1-1-1-3 (2) DI (2)
FIR 1-1-1-1 (2) AI (2)
LSH 2-1-1-1 DI
LIC 2-1-1-1
LIT 2-1-1-1 (2) AI (2)
ZL 2-1-1-1 DI
JL 2-1-1-1 JAM RELAY
JL 2-1-1-2 (2) MOTOR O.L.
YL 2-1-1-1 (2) CNTRL AVAIL
YL 2-1-1-2 (2) REQ'D
YL 2-2-1-1 (2) RUN F/R
JL 2-1-1-1 ABNORMAL CURRENT
JIR 2-1-1-1 AVG CURRENT
JIR 2-1-1-2 (2) KW
YA 2-1-1-1 (2) CTR FAIL
KQ 2-1-1-1 (2) CTRF DELAY
HS 2-1-1-1 (2) OO
YQR 2-1-1-1 DAILY STARTS
KQR 2-1-1-1 DAILY R.T.
KQI 2-1-1-1 (2) R.T.
XL 15-1-1-1 COMM STATUS
XA 15-1-1-1 COMM FAIL
JA 15-1-1-1 POWER FAIL
DI
JS 15-1-1-1 POWER FAIL
JA 15-1-1-2 UPS FAIL
DI
JS 15-1-1-2 UPS FAULT
KIC 15-1-1-1 PLC ACTV
DO
KQ 15-1-1-1 SCAN DELAY
YA 15-1-1-1 PLC FAIL
YA 2-2-1-1 ESTOP DI
YL 2-2-1-2 WASH PRESS RUN F DI
YL 2-2-1-3 WASH PRESS RUN R DI
YC 2-2-1-1 INITIATE DI
ZC 2-2-1-1 OPEN DO
ZC 2-2-1-2 OPEN DO
ZC 2-2-1-3 OPEN DO
ZC 2-2-1-4 OPEN DO

FLOW PACE (2)
INFL FLOW TOTAL (2)
INF FLOW (2)
LEVEL ALARM
CHANNEL LEVEL (2)
HOME
DO (2) MOL (2) THL 2-1-1 MOT. (2)
DI (2) CNTRL AVAIL. (2)
DO (2) REQ'D (2) HS 2-1-1 HOA (2)
HOA (2)
JC 2-1-1 (2) MOTOR O.L.
MS 20-MCC-1 (2)
DI (2) RUN (2) YL 2-1-1 RUN (2)
DI JAM RELAY NL 2-1-1
ESTOP
FORWARD
REVERSE
INITIATE
OPEN
OPEN
OPEN
OPEN

XS-2-1-1 **
MECHANICAL SCREEN LOCAL CONTROL STATION
SCREEN HOA HS 2-1-1-1
INITIATE HS 2-1-2-3
SYSTEM ESTOP HS 2-1-1-2
WASH HOA HS 2-1-2-1
WASH FOR HS 2-1-2-2

** TSH 2-1-1 i.s.
M MECHANICAL SCREEN M-2-1-1 **
** ZS 2-1-1 i.s.
LIT 2-1-1
LSH 2-1-1 i.s.
LE 2-1-1-1 x.p.
LE 2-1-1-2 x.p.
INF
2-1 P&ID NO.2 TO GRIT SYSTEM

FI 1-1-1
FE/FT 1-1-1 x.p.
FI 1-1-2
FE/FT 1-1-2 x.p.
PF
ELK RUN INFLUENT SAMPLER M-1-2-1 **
RAYMOND INFLUENT SAMPLER M-1-2-2 **
ELK RUN INFLUENT SAMPLER HEAT TRACE HTR-1-2-1 **
RAYMOND INFLUENT SAMPLER HEAT TRACE HTR-1-2-2 **
INFL
FROM ELK RUN COLLECTION SYSTEM
FROM RAYMOND COLLECTION SYSTEM

** TSH 2-2-1 i.s.
WASH PRESS M-2-2-1 **
FV 2-2-1-1 x.p.
FV 2-2-1-2 x.p.
FV 2-2-1-3 x.p.
FV 2-2-1-4 x.p.
WASH WATER

PROJECT DATE: 2019-09-20	SCALE: AS SHOWN	NO.	DATE	REVISION	BY
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F.B. :	CHECKED BY: RJJ				
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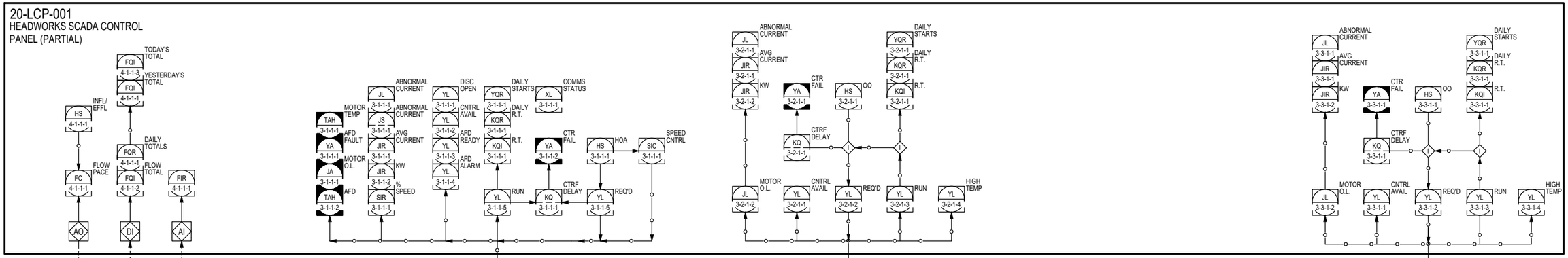
BLACK HAWK COUNTY, IOWA

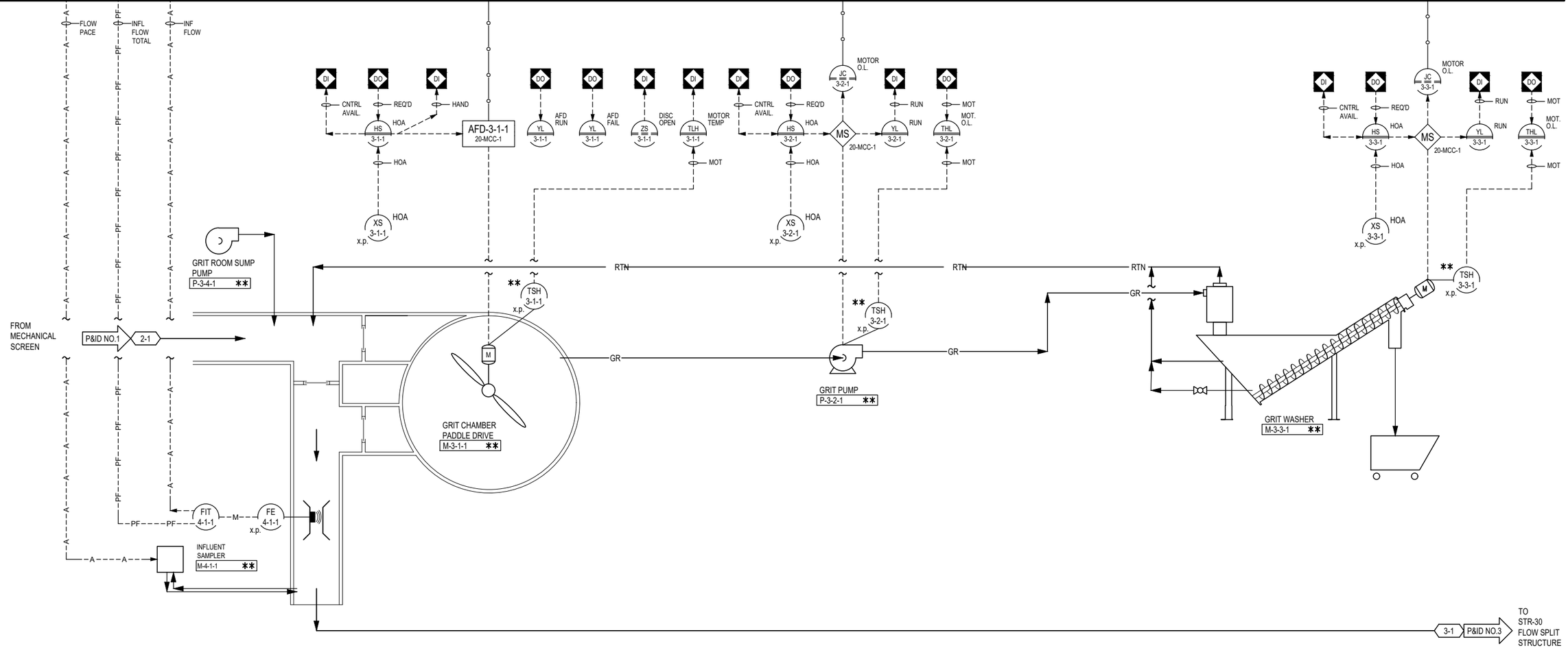
P&ID NO.1 INFLUENT MONITORING AND SCREENING

FILE NO. 14573015
SHEET 06E1

Return to Agenda

20-LCP-001
HEADWORKS SCADA CONTROL
PANEL (PARTIAL)





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P&ID NO.2 GRIT REMOVAL AND WASHING

FILE NO. 14573015
SHEET 06E2

Return to Agenda

20-LCP-001
HEADWORKS SCADA CONTROL
PANEL (PARTIAL)

PUMPS CONTROL & ALTERNATION STRATEGY

FLOW SPLITTER STRUCTURE
STR-30

STORM LAGOON
STR-60

STORM FLOW PUMP STATION
STR-70

SLUDGE LAGOON & SUPERNATANT
RETURN STRUCTURE
STR-80

FROM
STR-20
GRIT SYSTEM
P&ID NO.2 3-1

5-1 P&ID NO.4

DS 9-A P&ID NO.4

DS 9-B P&ID NO.4

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P&ID NO.3 FLOW SPLIT AND STORM WATER PUMPING

FILE NO. 14573015
SHEET 06E3

Return to Agenda

20-LCP-001
HEADWORKS SCADA CONTROL PANEL (PARTIAL)

LCP-40-1 **
AEROMOD CONTROL PANEL (PARTIAL)

JBOX-40-1
DISTRIBUTION PANEL

DIGESTER TANK A

DIGESTER TANK B

AERATION TANK A1

AERATION TANK A2

AERATION TANK A3

AERATION TANK B1

AERATION TANK B2

AERATION TANK B3

CLARIFER TANK A1

CLARIFER TANK A2

CLARIFER TANK B1

CLARIFER TANK B2

SELECTOR TANK A/B

FROM BLOWERS
P&ID NO.5 10-A
P&ID NO.5 10-B
P&ID NO.3 5-1
FROM STR-30

TO POST AERATION
11-1 P&ID NO.6

TO UV SYSTEM
9-1 P&ID NO.6

13-1 P&ID NO.7

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P&ID NO.4 AERO-MOD PLANT

FILE NO. 14573015
SHEET 06E4

Return to Agenda

20-LCP-001
HEADWORKS SCADA CONTROL
PANEL (PARTIAL)

DAILY STARTS YQR 15-2-1-1
DAILY R.T. KQR 15-2-1-1
R.T. KQI 15-2-1-1
GENERATOR ALARMS JA 15-2-1-1 (2)
DI (3)
GENSET RUN FAIL EXERCISE (3)
GENSET RUN JS 15-2-1
GENSET FAIL JS 15-2-2
GENSET EXERCISE JS 15-2-3

ATS IN NORMAL JA 15-2-5-1
ATS IN STAND-BY JA 15-2-4-1
DI (2)
UTILITY FAIL
ATS EMERGENCY JS 15-2-4
ATS NORMAL JS 15-2-5

HIGH DEMAND SETPOINT YA 15-2-1-1
INST LOAD DEMND JIR 15-2-1-1
AI
INST. DEMAND

GENSET LOAD CNTRL JIC 15-2-1-1
FACILITY POWER JIR 15-2-1-2
JIT 15-2-1-1
ETHERNET COMMLINK

KWH JQI 15-2-1-1
DI
KWH

HS HOA 10-2-1-1 (3)
YA CTR FAIL 10-2-1-1 (3)
DAILY STARTS YQR 10-2-1-1
DAILY R.T. KQR 10-2-1-1
R.T. KQI 10-2-1-1 (3)
CTRF DELAY KQ 10-2-1-1 (3)
MOTOR O.L. JA 10-2-1-1 (3)
REQ'D YL 10-2-1-2 (3)
CNTRL AVAIL YL 10-2-1-1 (3)
RUN YL 10-2-1-3 (3)

ABNORMAL CURRENT JL 10-1-1-1
AVG CURRENT JIR 10-1-1-1
KW JIR 10-1-1-2
% SPEED SIR 10-1-1-1
AFD COMP. TAH 10-1-1-1 (3)
AFD/MTR OVERLOAD JL 10-1-1-2
AFD FAULT YL 10-1-1-1
AFD ALARM YL 10-1-1-2
AFD READY YL 10-1-1-3 (3)
SPEED CNTRL SIC 10-1-1-1 (3)
AFD FAIL YA 10-1-1-1 (3)

DAILY STARTS YQR 10-1-1-1
DAILY R.T. KQR 10-1-1-1
R.T. KQI 10-1-1-1 (3)
RUN YL 10-1-1-3 (4)

HS HOA 10-1-1-1 (3)
REQ'D YL 10-1-1-5 (3)

COMMS STATUS XL 10-1-1-1 (3)
CTR FAIL YA 10-1-1-2 (3)
CTRF DELAY KQ 10-1-1-1 (3)
CNTRL AVAIL YL 10-1-1-6 (3)

HIGH DISCH TEMP YA 10-1-1-3 (3)
MOTOR OVER TEMP YA 10-1-1-4 (3)

DI (3) CNTRL AVAIL. (3)
DO (3) REQ'D (3)
JC 10-2-1 MOTOR O.L. (3)
DI (3) MOL (3)
DI (3) RUN (3)
HS HOA 10-2-1 (3)
MS 20-MCC-1 (3)
YL RUN 10-2-1 (3)
HAND/ AUTO (3)
MOTOR POWER (3)

DO (3)
YL AFD FAIL 10-1-1 (3)
AFD-10-1-1 20-MCC-1 (3)
MOTOR POWER (3)

DO (3) REQ'D (3)
HS HOA 10-1-1 (3)
KQ AFD DELAY 10-1-1 (3)
HAND/ AUTO (3)
DI (3) CNTRL AVAIL. (3)
DI (3) ZS DISC OPEN 10-1-1 (3)
DO (3) YL AFD RUN 10-1-1 (3)
DI (3) XX TSH RELAY 10-1-1 (3)
DI (3) HIGH DISCHARGE TEMP (3)

XS HOA 10-2-1
M AERATION BLOWER NO.1 M-10-1-1 **
AERATION BLOWER NO.1 COOLING FAN M-10-2-1 **
** TSH MOT 10-1-1-1
** TSH DISCH TEMP 10-1-1-2
XS HOA 10-1-1
BLOWER ACOUSTIC ENCLOSURE

XS HOA 10-2-2
M AERATION BLOWER NO.2 M-10-1-2 **
AERATION BLOWER NO.2 COOLING FAN M-10-2-2 **
** TSH MOT 10-1-2-1
** TSH DISCH TEMP 10-1-2-2
XS HOA 10-1-2
BLOWER ACOUSTIC ENCLOSURE

XS HOA 10-2-3
M AERATION BLOWER NO.3 M-10-1-3 **
AERATION BLOWER NO.3 COOLING FAN M-10-2-3 **
** TSH MOT 10-1-3-1
** TSH DISCH TEMP 10-1-3-2
XS HOA 10-1-3
BLOWER ACOUSTIC ENCLOSURE

AIR
AIR
AIR
AIR 10-A P&ID NO.4
AIR 10-B P&ID NO.4

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P&ID NO.5 BLOWERS

FILE NO. 14573015
SHEET 06E5

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20-LCP-001
HEADWORKS SCADA CONTROL PANEL (PARTIAL)

TODAY'S TOTAL FQI 11-2-1-1
YESTERDAY'S TOTAL FQI 11-2-1-1
INFL/ EFFL HS 11-3-1-1
DAILY TOTALS FQR 11-2-1-1
FLOW PACE FC 11-3-1-1
FLOW TOTAL FQI 11-2-1-1
FIR 11-2-1-1
UV INTENSITY REI 11-1-1-1 (2)
BANK NO.1 ON YL 11-1-1-1
BANK NO.2 ON YL 11-1-1-2
MINOR ALARM YA 11-1-1-1 (2)
MAJOR ALARM YA 11-1-1-2 (2)
AO
DI
AI

FLOW PACE
EFF FLOW TOTAL
EFF FLOW

SCC-11-1-1 **
UV SYSTEM CONTROL PANEL
KEYPAD DISPLAY HIK 11-1-1
PLC ACTV KIC 11-1-1-1
POWER FAIL JA 11-1-1-1
UPS FAIL JA 11-1-1-2
DO
DI
DI
PLC FAIL YA 11-1-1
POWER FAIL JS 11-1-1
UPS FAULT JS 11-1-2

SERIAL COMM
GROUND LINK (TYPICAL)

HCC-11-1-1 **
UV SYSTEM HYDRAULIC SYSTEM CENTER
GROUND LINK
SERIAL COMM
HYD LINES

UV BANK NO.2 PDC PDC-11-1-2 **
UV BANK NO.1 PDC PDC-11-1-1 **
UV INTENSITY
LEVEL SWITCH
POWER

FIT 11-2-1
FE 11-2-1
PF

EFFLUENT SAMPLER M-11-3-1 **

UV INTEN RE 11-1-1
UV LAMP BANK NO.1 M-11-1-1 **
UV INTEN RE 11-1-2
PLC FAIL LSL 11-1-1
UV LAMP BANK NO.2 M-11-1-2 **

FROM AERO-MOD PLANT
P&ID NO.4 9-1
FROM AIR HEADER
P&ID NO.4 11-1
AIR

LSH 12-3-1-1
LSH 12-3-1-1
LAL 12-3-1-1
LAH 12-3-1-1
LIR 12-3-1-1
AI
LEVEL

LAL 12-3-1-1
LAHH 12-3-1-1
DI (5)
FLOAT LEVELS (5)

BACKUP ACTIVE YA 12-3-1-1
DI
BACKUP OOA HS 12-3-1-1
BACK-UP CONTROL YA 12-3-1-1
TIME DELAY KCT 12-3-1-1
BACKUP CTR LC 12-3-1-1

ABNORMAL CURRENT JL 12-1-1-1
AVG CURRENT JIR 12-1-1-1
KW JIR 12-1-1-2 (3)
MOTOR O.L. JL 12-1-1-2 (3)
CTR FAIL YA 12-1-1-1 (3)
CTRF DELAY KQ 12-1-1-1 (3)
CNTRL AVAIL YL 12-1-1-1 (3)
OO HS 12-1-1-1 (3)
REQ'D YL 12-1-1-2 (3)
DAILY STARTS YQR 12-1-1-1
DAILY R.T. KQR 12-1-1-1
R.T. KQI 12-1-1-1 (3)
RUN YL 12-1-1-3 (3)
HIGH TEMP YL 12-1-1-4 (3)

DI (3)
SEAL FAIL MLH 12-1-1 (3)
SEAL FAIL MSH 12-1-1 (3)
DI (3)
RESET HS 12-1-1 (3)
DI (3)
MOTOR TEMP TLH 12-1-1 (3)
DI (3)
CNTRL AVAIL. HAND/ AUTO (3)
DO (3)
REQ'D HOA HS 12-1-1 (3)
JC 12-1-1 (3)
MOTOR O.L.
MS 20-MCC-1 (4)
MOTOR POWER (4)
DI (3)
RUN YL 12-1-1 (3)

JOA XS 12-1-1
DISC OPEN ZS 12-1-1
JOA XS 12-1-2
DISC OPEN ZS 12-1-2
JOA XS 12-1-3
DISC OPEN ZS 12-1-3

SLPICE /J-BOX'S
SLPICE /J-BOX'S

FV 12-2-1
E

LT 12-3-1
ALARM LAG-LAG ON LSHH 12-3-1
LAG ON LSH 12-3-1
LEAD ON LSC 12-3-1
PUMPS OFF LSL 12-3-1
LOW ALARM LSLL 12-3-1

** TSH 12-1-1
** MSH 12-1-1
EFFLUENT PUMP NO.1 P-12-1-1 **
** TSH 12-1-2
** MSH 12-1-2
EFFLUENT PUMP NO.2 P-12-1-2 **
** TSH 12-1-3
** MSH 12-1-3
EFFLUENT PUMP NO.3 P-12-1-3 **

EFFL
TO RIVER

PUMP ACTIVE YL 12-2-1-1
RESTORE NORMAL HS 12-2-1-2
VALVE CONTROL STRATEGY
HOA YL 12-2-1-1
VALVE FAIL YA 12-2-1-1
POS ZI 12-2-1-1
OPEN CLOSED ZS 12-2-1-1 (3)
OCA HS 12-2-1-1 (2)
TORQUE NAH 12-2-1-1

POSITION
OPENED/ CLOSED/ HOA
OPEN/ CLOSE
TORQUE

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P&ID NO.6 UV DISINFECTION AND EFFLUENT PUMPING

FILE NO. 14573015
SHEET 06E6

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20-LCP-001
HEADWORKS SCADA CONTROL PANEL (PARTIAL)

ENABLE / DISABLE
YA 15-3-1-1 (16)
DO (16)
16 CHNL DIALER
XA 15-3-1

HS 16-3-1-1 (4) HOA
YL 16-3-1-4 (4) REQ'D
YA 16-3-1-1 (4) CTR FAIL
KQ 16-3-1-1 (4) INT'VL/ DUR'N
YL 16-3-1-3 (4) RUN
KQ 16-3-1-1 (4) CTRF DELAY
F- REQ'D
DI (4)
DO (4)
TAL 16-3-1-1 SHUT DOWN
INHIBIT FAN/CLOSE DAMPERS
YL 16-3-1-1 (4) COOLING REQ'D
YL 16-3-1-2 (4) IN AUTO
LR
DI (2)
DI (4)
DI (4)
JS 16-3-1-1 (4)
DI (3)
YA 16-3-3 FLOOD
DI

AAL 14-1-1-1 Q2 DEF
AAH 14-1-1-1 (4)
YA 14-1-1-1 SYS TRBL
AIT 14-1-1-1 (5) GAS CONC
DI
AI (5)

COOLING REQ'D
IN AUTO
LOCAL REQ'D
MOTOR RUN
MOTOR POWER
POWER OPEN
LOW TEMP
FLOOD
CONC (4)

120VAC
XS 16-3-1 HOA
x.p. YL 16-3-1 RUN
M
PROCESS ROOM EXHAUST FAN NO.2 F-2 **
PROCESS ROOM INTAKE LOUVER L-2 L-2 **

TSH 16-3-2 GARAGE
XS 16-3-2 HOA
YL 16-3-2 RUN
120VAC
M
TSL 16-3-2 GARAGE
GARAGE EXHAUST FAN NO.5 F-5 **
GARAGE EXHAUST FAN DAMPER MOTOR DF-5 **
M
GARAGE INTAKE LOUVER L-4 **

AIT 14-1-1 GAS
14-1 P&ID NO.8
AE 14-1-1 x.p. COMB
XL 14-1-1 WEST DOOR
AE 14-1-2 x.p. H2S
XL 14-1-2 SOUTH WALL
AE 14-1-3 x.p. O2
XL 14-1-3 x.p. INTER BEACON
AE 14-1-4 x.p. GARAGE CO
XA 14-1-1 x.p. ALARM HORN
AE 14-1-5 GARAGE NOX
XL 14-1-4 GARAGE INT

XS 16-3-3 HOA
YL 16-3-3 RUN
120VAC
M
TSL 16-3-3 UTILITY RM
RESTROOM EXHAUST FAN NO.6 F-6 **
RESTROOM EXHAUST FAN DAMPER MOTOR DF-6 **
M
UTILITY ROOM INTAKE LOUVER L-5 **

** TSH 16-3-4 UV BLDG
XS 16-3-4 HOA
YL 16-3-4 RUN
120VAC
M
TSL 16-3-4 UV BLDG
UV BLDG EXHAUST FAN NO.7 F-7 **
UV BLDG INTAKE LOUVER L-6 **
LSH 16-3-4 UV BLDG

LCP-40-1 **
AEROMOD CONTROL PANEL (PARTIAL)

XL 15-1-2-1 COMM STATUS
XA 15-1-2-1 COMM FAIL
JA 15-1-2-1 POWER FAIL
DI
JS 15-1-2-1 POWER FAIL
JA 15-1-2-2 UPS FAIL
DI
JS 15-1-2-2 UPS FAULT
KIC 15-1-2-1 PLC ACTV
DO
KQ 15-1-2-1 SCAN DELAY
YA 15-1-2-1 PLC FAIL

YL 13-1-1-1 (2) READY
YL 13-1-1-2 (2) RUN
YA 13-1-1-1 (2) FAIL
DI (2)
READY (2)
RUN (2)
FAIL (2)

LCP-13-1-1 **
AIR COMPRESSOR ALTERNATION PANEL

REQ'D
AIR
REQ'D
AIR
AIR

MS-13-1-1** AIR COMPRESSOR NO.1 MOTOR STARTER
MS-13-1-2 ** AIR COMPRESSOR NO.2 MOTOR STARTER
AIR COMPRESSOR NO.1 M-13-1-1 **
AIR COMPRESSOR NO.2 M-13-1-2 **
AIR DRYER
TO AEROMOD CONTROL PANEL
13-1 P&ID NO.4

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P&ID NO.7 MISC SYSTEMS AND AIR COMPRESSORS

FILE NO. 14573015
SHEET 06E7

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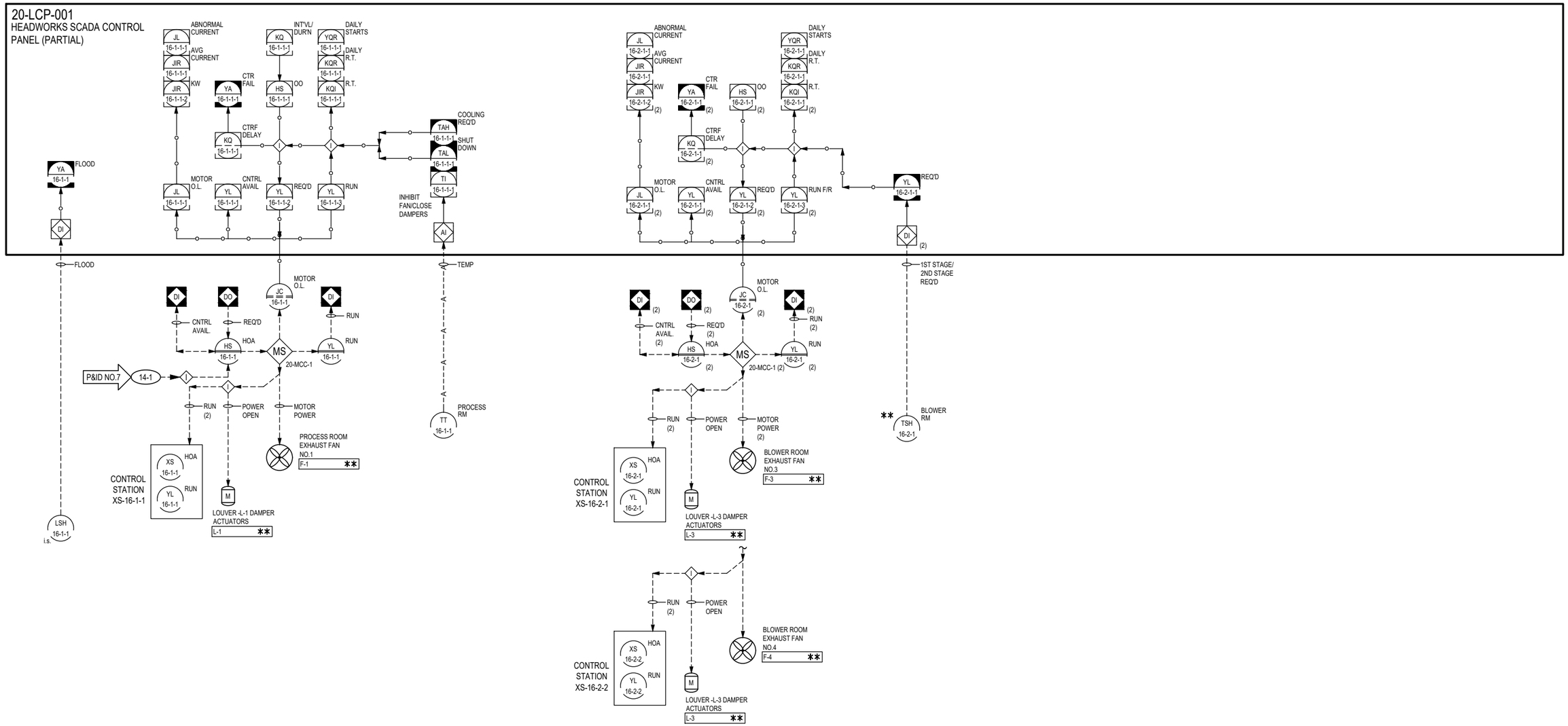
20-LCP-001
HEADWORKS SCADA CONTROL PANEL (PARTIAL)



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P&ID NO.8 HVAC SYSTEMS

FILE NO. 14573015
SHEET 06E8

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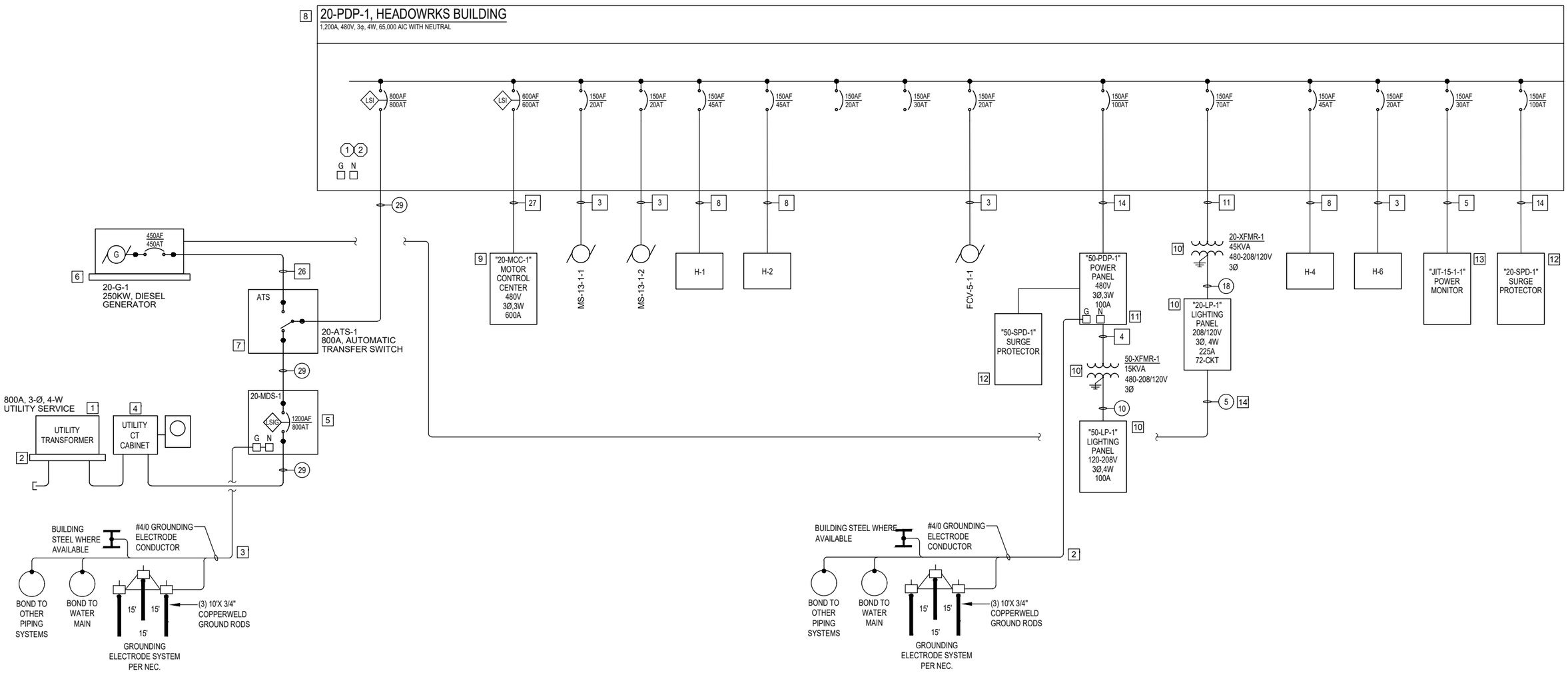

GENERAL NOTES:

1. DO NOT SCALE DRAWINGS. IF DIMENSIONS ARE IN QUESTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATION FROM ENGINEER PRIOR TO PROCEEDING WITH WORK.
2. THE PRIMARY OVERCURRENT PROTECTIVE DEVICES AND ASSOCIATED FEEDER CONDUCTORS FOR DRY TYPE TRANSFORMERS SHOWN ON THIS DRAWING ARE SIZED FOR 125% OF THE TRANSFORMER NAMEPLATE PRIMARY CURRENT. IF THE CONTRACTOR ELECTS TO SUPPLY TRANSFORMERS THAT REQUIRE HIGHER RATED PRIMARY OVERCURRENT PROTECTIVE DEVICES TO ACCOUNT FOR HIGHER INRUSH CHARACTERISTICS, THEN THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING OVERCURRENT PROTECTIVE DEVICES AND FEEDERS THAT COMPLY WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS. REFER TO SPECIFICATIONS.
3. DIRECT BURIED CONDUITS INSTALLED PER DETAIL (2605-310)
4. HOMERUN WIRING SHALL BE (2)#12 & #12G UNLESS NOTED OTHERWISE, REFER TO ONE-LINE DIAGRAM.
5. REFER TO FEEDER SCHEDULE FOR CONDUIT AND CONDUCTOR SIZES. ALL UNDERGROUND COUNDUIT IS EITHER 2" OR 4" SCHEDULE 40 PVC - REFER TO DUCT BANK DETAILS FOR MORE INFORMATION.
6. CONTRACTOR TO VERIFY CONDUCTOR SIZES FOR VOLTAGE DROP AND DE-RATING FOR MULTIPLE CONDUCTORS IN A CONDUIT.
7. CONTRACTOR SHALL COORDINATE THE MOVING OF THE EXISTING SERVICE POLES TO ACCOMODATE THE GRADING AND CONSTRUCTION OF THE NEW PLANT. REFER TO CIVIL AND ELECTRICAL SITE PLANS FOR FURTHER DETAIL.

KET NOTES: [X]

1. PROVIDE NEW 800A, 3-Ø, 4-WIRE SERVICE. COORDINATE WITH UTILITY REQUIRED CONDUIT SIZE FOR PRIMARY AND SECONDARY CONDUCTORS
2. CONTRACTOR TO PROVIDE UTILITY TRANSFORMER PAD. COORDINATE WITH UTILITY FOR REQUIREMENTS FOR PAD.
3. PROVIDING NEW GROUNDING AS SHOWN AND PER NEC.
4. PROVIDE UTILITY APROVED CT CABINET
5. PROVIDE NEW ENCLOSED BREAKER 20-MDS-1 FOR SERVICE DISCONNECT. PROVIDE SETTINGS FOR BREAKER TO PROVIDE PROPER COORDINATION WITH DOWNSTREAM BREAKERS.
6. PROVIDE GENERATOR 20-G-1 AS SCHEDULED, INSTALLED IN ACCORDANCE WITH DETAIL (2632-400)
7. PROVIDE 800A PROGRAMMED TRANSITION AUTOMATIC TRANSFER SWITCH 20-ATS-1.
8. PROVIDE NEW POWER DISTRIBUTION PANEL 20-PDP-1 AS SHOWN ON DRAWINGS
9. PROVIDE NEW 600A RATED 20-MCC-1 AS SHOWN ON DRAWING 006-E10 - 20-MCC-1 ONE LINE AND ELEVATION
10. PROVIDE NEW LIGHTING PANEL AND TRANSFORMER AS SCHEDULED.
11. PROVIDE NEW POWER DISTRIBUTION PANEL 50-PDP-1 AS SHOWN ON DRAWINGS.
12. PROVIDE EXTERNALLY MOUNTED SURGE PROTECTION DEVICE AS SPECIFIED. SURGE PROTECTION DEVICE SHALL BE MOUNTED WITHIN 3' OF PANEL
13. PROVIDE POWER MONITOR AS SPECIFIED.
14. PROVIDE 30A, 3-Ø, 4-WIRE CIRCUIT TO GENERATOR LOAD CENTER.

PROJECT DATE: 2019-09-20	SCALE: AS SHOWN	NO.	DATE	REVISION	BY
	DRAWN BY: LET				
F.B. :	CHECKED BY: RJJ				
PLOT DATE: 7/1/2020					

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ELK RUN HEIGHTS / RAYMOND WWTF
CITY OF ELK RUN HEIGHTS / CITY OF RAYMOND
BLACK HAWK COUNTY, IOWA

OVERALL ONE LINE

FILE NO. 14573015
SHEET 06E9

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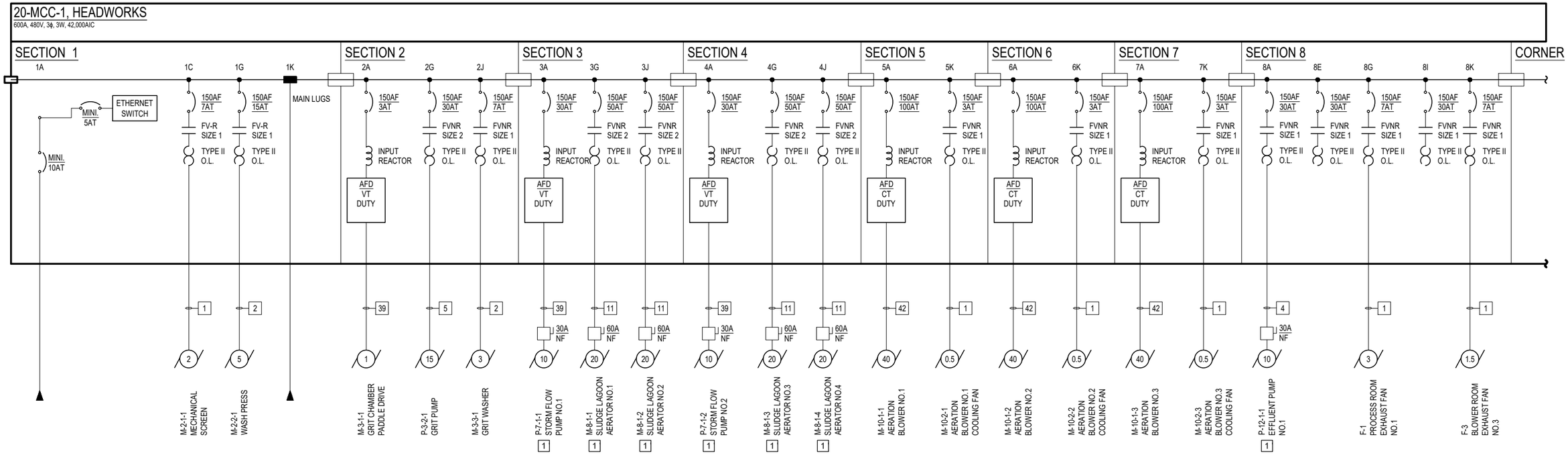

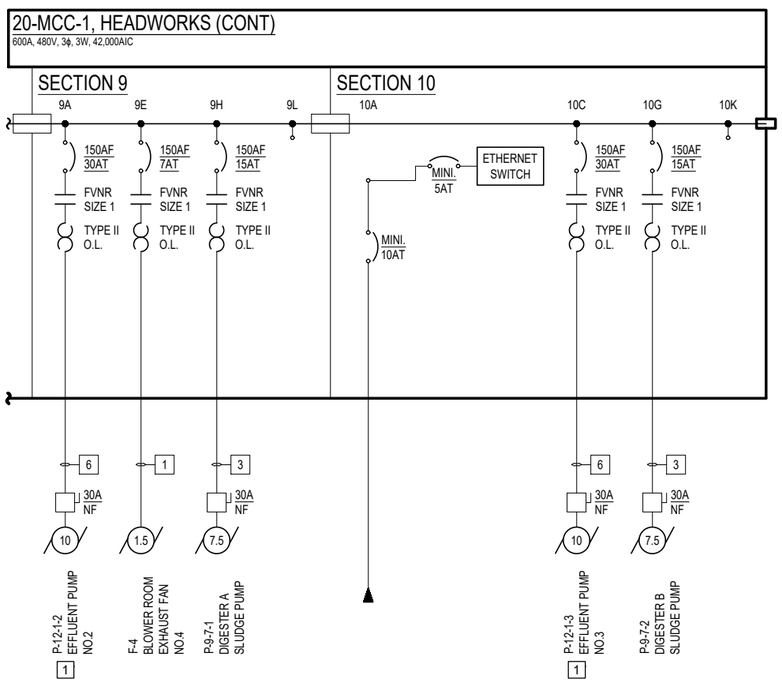

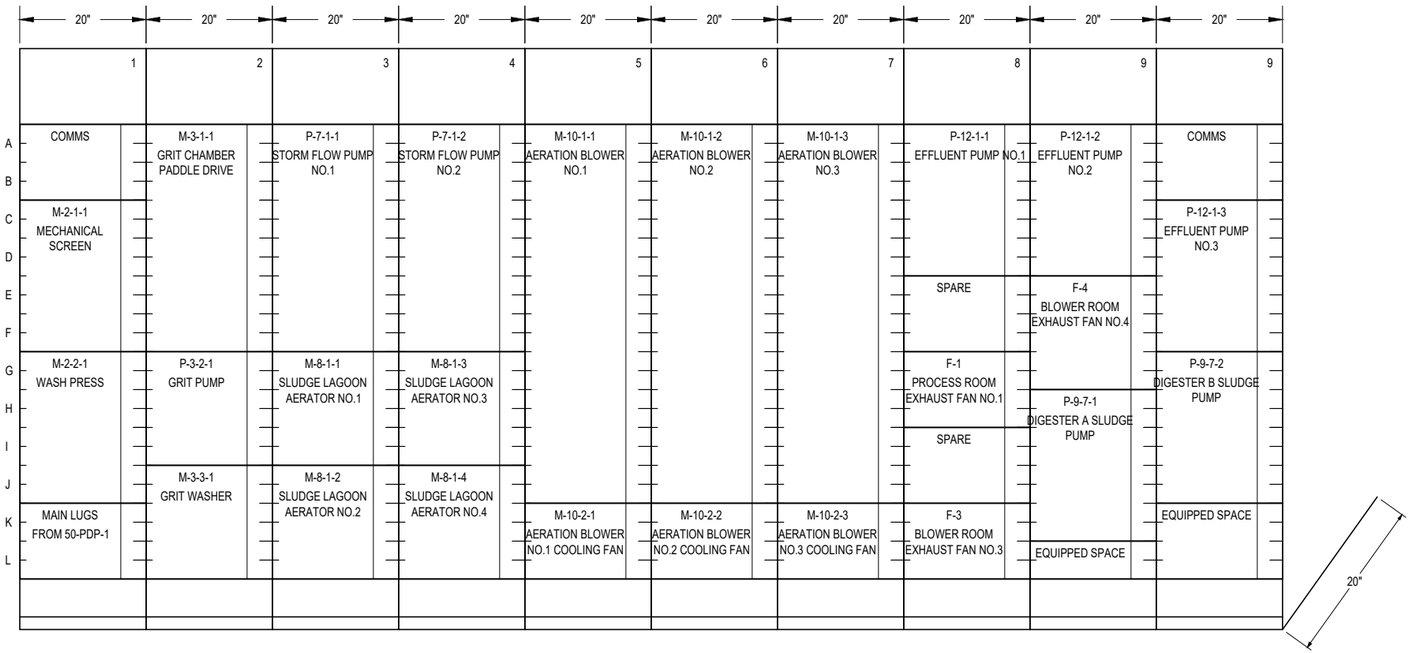

20-MCC-1, HEADWORKS BUILDING
MOTOR CONTROL CENTER FRONT ELEVATION
NTS

KET NOTES: [X]

1. UPSIZE CONDUCTORS FOR VOLTAGE DROP AND UPSIZE CONDUCTORS FOR DE-RATING PER NEC FOR MORE THAN 3 CURRENT CARRYING CONDUCTORS IN A CONDUIT - SEE DUCT BANK DETAILS FOR MORE INFORMATION.

PROJECT DATE: 2019-09-20	SCALE: AS SHOWN	NO.	DATE	REVISION	BY
	DRAWN BY: LET				
F.B. :	CHECKED BY: RJJ				
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20-MCC-1 ONE LINE AND ELEVATION

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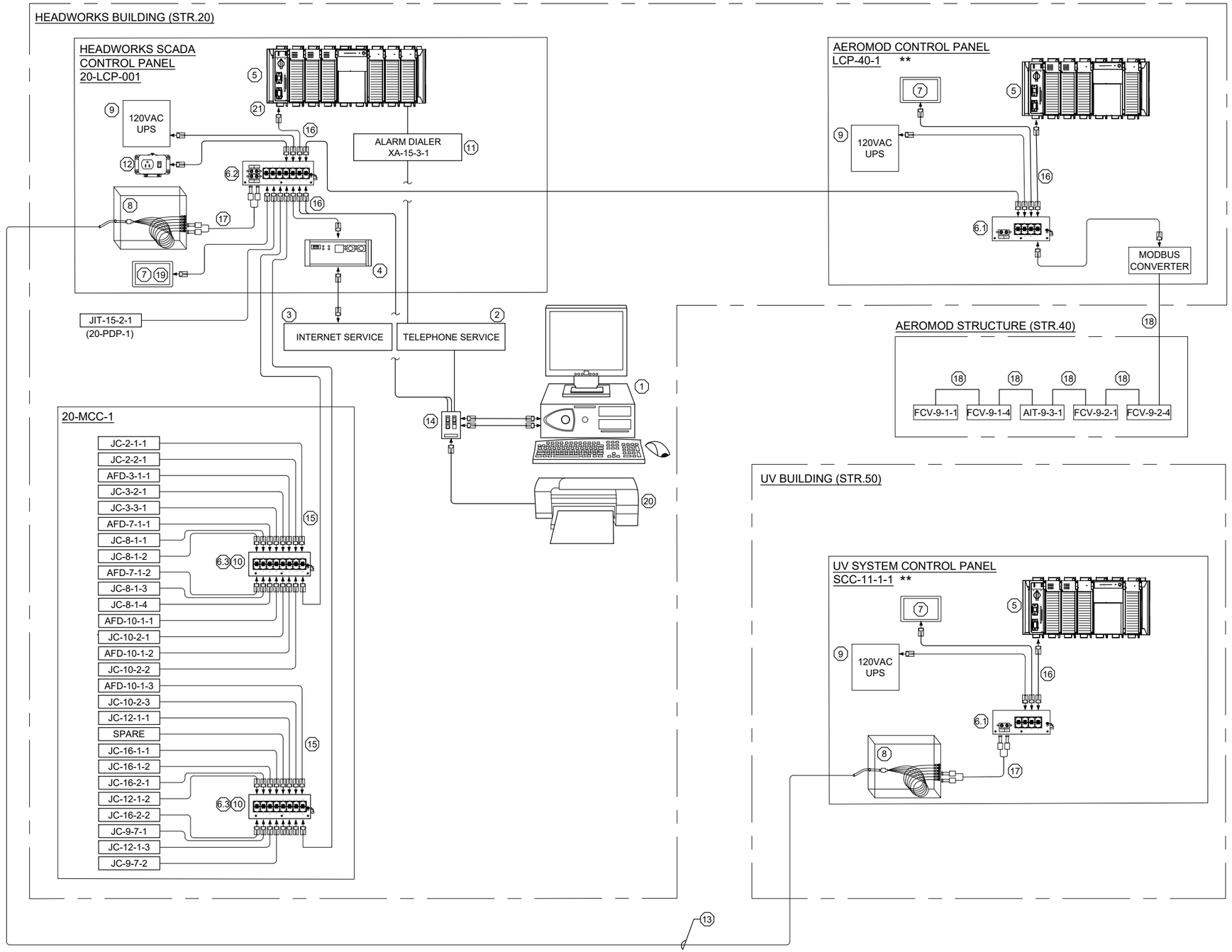

GENERAL NOTES:

1. REFER TO CONTROL PANEL I-O SCHEDULES FOR DETAILED MODULE REQUIREMENTS OF NEW PLC SYSTEMS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR DOCUMENTING AND LABELING ALL COMMUNICATIONS SYSTEM CABLING
3. CONTRACTOR SHALL CONFIGURE ALL ETHERNET SWITCHING EQUIPMENT TO PROVIDE ACCEPTABLE NETWORK PERFORMANCE, INCLUDING THE MANAGING OF ALL SWITCHES AND DEVELOPMENT OF VLAN'S WHERE REQUIRED
4. PROVIDE ALL REQUIRED UTP AND STP PATCH CABLES AS SPECIFIED.
5. PROVIDE ALL REQUIRED SERIAL, USB, VIDEO, AND OTHER INTERFACE CABLE AS REQUIRED FOR THE APPLICATION.

PLAN NOTES: (X)

1. NEW SCADA COMPUTER AND DUAL MONITOR AS SPECIFIED.
2. NEW TELEPHONE SERVICE PROVIDE NEW LINES AS SHOWN
3. NEW INTERNET SERVICE
4. NEW NETWORK FIREWALL
5. TYPE I - PROGRAMMABLE LOGIC CONTROLLER
6. MANAGED ETHERNET SWITCH
   - 6.1. 709TX - 8 - 10/100 COPPER PORTS - 1 - 10/100 FIBER PORTS MANAGED SWITCH
   - 6.2. 716FX2 - 14 - 10/100 COPPER PORTS, 2 - 10/100 FIBER PORTS - MANAGED SWITCH
   - 6.3. 116TX - 16 - 10/100 COPPER PORTS - UNMANAGED SWITCH
7. PANELVIEW PLUS 7 - 10"
8. FIBER OPTIC PATCH PANEL - TERMINATE ALL STRANDS OF FIBER ENTERING PANEL. PROVIDE PANEL TO ACCOMMODATE FIBER AS SHOWN.
9. 120VAC UPS - DOUBLE CONVERSION TYPE
10. 120 VAC POWER WIRING W/ 600V INSULATION FROM CONTROL PANEL UPS TO SWITCH. PROVIDE DEDICATED 120VAC CIRCUITS POWERED FROM CONTROL PANEL WITH UPS BACK-UP POWER FOR MCC SWITCHES. PROVIDE 2-CIRCUITS AND USE EACH CIRCUIT TO POWER BOTH SWITCHES.
11. 16 CHANNEL HARDWIRED ALARM DIALER
12. FRONT OF PANEL PROGRAMMING PORT
13. 6 STRAND MULTIMODE FIBER OPTIC CABLE
14. 4-PORT WALL DATA JACK.
15. MCC STP CONTROL CABLE. ALL ETHERNET CABLES RUN IN MCC SHALL BE 600V RATED UP TO SCADA PANEL.
16. UTP CONTROL CABLE AND PATCH CABLES.
17. FIBER OPTIC PATCH CABLES.
18. MODBUS WIRING - BELDON 3106A
19. CONFIGURE THE HEADWORKS PANEL PANELVIEW WITH ALL SCADA SCREENS SUCH THAT THE PANELVIEW ACTS AS SCADA BACK-UP.
20. SCADA PRINTER

PROJECT DATE: 2019-09-20	SCALE: AS SHOWN	NO.	DATE	REVISION		BY
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SCADA NETWORK DIAGRAM

FILE NO. 14573015
SHEET 06E11

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PANEL	AMPS	800	MAIN CB AMPS:	800				AIC	42,000						
I.D.	PHASE	3	TYPE:	DISTRIBUTION PANEL											
20PDP1	WIRE	4						MOUNT:							
	VOLTAGE	480/277						SURFACE							

		KVA			BREAKER		CKT	CKT	BREAKER		KVA				
TYPE	CIRCUIT DESIGNATION	Aϕ	Bϕ	Cϕ	AMP	POLE	#	#	AMP	POLE	Aϕ	Bϕ	Cϕ	CIRCUIT DESIGNATION	TYPE
X	20-MCC-1	120.00			600	3	1	2	20	3	0.83			FCV-5-1-1	M
X			120.00				3	4				0.83			M
X				120.00			5	6					0.83		M
M	MS-13-1-1	0.94			20	3	7	8	100	3	7.40			50-PDP-1	Panel
M			0.94				9	10				7.44			Panel
M				0.94			11	12					7.97		Panel
M	MS-13-1-2	0.94			20	3	13	14	70	3	18.49			20LP1	Panel
M			0.94				15	16				20.42			Panel
M				0.94			17	18					16.11		Panel
E	H-1	10.00			45	3	19	20	45	3	10.00			H-4	E
E			10.00				21	22				10.00			E
E				10.00			23	24					10.00		E
E	H-2	10.00			45	3	25	26	20	3	2.50			H-6	E
E			10.00				27	28				2.50			E
E				10.00			29	30					2.50		E
	SPARE	0.00			20	3	31	32	30	3	0.17			POWER MONITOR	X
			0.00				33	34				0.17			X
				0.00			35	36					0.17		X
	SPARE	0.00			30	3	37	38	100	3	0.00			SURGE PROTECTOR	X
			0.00				39	40				0.00			X
				0.00			41	42					0.00		X

TOTAL LINE-NEUTRAL KVA		141.88	141.88	141.88		TOTAL W/		39.38	41.36	37.57	
TOTAL CONNECTED KVA	543.96			THIS	SUB		TOTAL ESTIMATED KVA DEMAND:			592.74	
TOTAL CONNECT AMPS	654.29			PANEL	PANELS		TOTAL ESTIMATED AMP DEMAND:			712.96	
TOTALS BY TYPE:	R (RECEPTACLES)			0.00	22.46	ESTIMATED	16.23	NOTES			
	L (LIGHTING)			0.00	13.10	DEMAND	13.10	* GFI CIRCUIT			
	M (MOTORS)			8.14	30.19	BY TYPE	30.19				
	X			360.50	395.52		395.52				
	A (AC)			0.00	12.90		12.90				
	E (ELEC. HEAT)			97.50	124.80		124.80	NEC 220-56 TABLE 6 AND OVER @			
	K (KITCHEN EQUIPMENT)			0.00	0.00		0.00	0.65 DEMAND.			

PANEL	AMPS	225	MAIN CB AMPS:	175				AIC	22,000						
I.D.	PHASE	3	TYPE:	250VAC LIGHTING AND APPLIANCE PANEL											
20LP1	WIRE	4						MOUNT:							
	VOLTAGE	120/208						SURFACE							

		KVA			BREAKER		CKT	CKT	BREAKER		KVA				
TYPE	CIRCUIT DESIGNATION	Aϕ	Bϕ	Cϕ	AMP	POLE	#	#	AMP	POLE	Aϕ	Bϕ	Cϕ	CIRCUIT DESIGNATION	TYPE
R	M-1-2-1 / HTR-1-2-1	0.80			20	1	1	2	20	1	1.90			20-LCP-001	X
R	M-1-2-2 / HTR-1-2-2		0.80		20	1	3	4	20	1		0.30		LIT-2-1-1	X
M	FV-3-3-1-1			0.50	20	1	5	6	20	1			0.30	FIT-4-1-1	X
M	FV-3-3-1-2	0.50			20	1	7	8	20	1	0.30			AIT-9-3-1	X
R	P-3-4-1				20	1	9	10	20	1		0.30		XC-9-5-1	X
M	M-4-1-1			0.60	20	1	11	12	20	1			0.30	XC-9-6-1	X
M	FCV-9-1-1, -2	0.90			20	1	13	14	20	1	0.60			AIT-14-1-1	X
M	FCV-9-2-1, -2		0.90		20	1	15	16	20	1		0.00		SPARE	
R	LCP-13-1-1			0.90	20	1	17	18	20	1			0.00	SPARE	
L	PROCESS RM (S)	1.12			20	1	19	20	20	1	0.00			SPARE	
L	PROCESS RM (N)		1.00		20	1	21	22	20	1		0.00		SPARE	
L	BLOWER RM LIGHTS			0.36	20	1	23	24	20	1			0.00	SPARE	
L	GARAGE LIGHTS	0.36			20	1	25	26	20	1	0.00			SPARE	
L	LAB LIGHTS		0.36		20	1	27	28	20	1		0.00		SPARE	
L	RR, UTILITY, ELE RM			0.90	20	1	29	30	*20	1			0.72	SCADA COMP OUTLETS	R
L	GRIT RM	0.36			20	1	31	32	*20	1	0.54			LAB WALL OUTLETS	R
L	SITE LIGHTS - NORTH		1.00		20	1	33	34	*20	1		1.08		LAB ISLAND	R
R	SITE LIGHT REC			0.54	20	1	35	36	*20	1			0.54	LAB COUNTER-W	R
L	SITE LIGHT -S & SW	0.70			20	1	37	38	*20	1	0.36			LAB COUNTER - E	R
E	H-3		1.40		20	2	39	40	*20	1		0.54		ELEC RM	R
E				1.40			41	42	*20	1			0.36	UTILITY RM	R
E	H-5	1.10			20	1	43	44	*20	1	0.54			REST RM	R
E	H-7		1.50		20	1	45	46	*20	1		0.36		GARAGE EAST WALL	R
M	L-1 / L-2			0.20	20	1	47	48	*20	1			0.72	GARAGE WEST WALL	R
M	L-3	0.10			20	1	49	50	*20	1	0.90			BLOWER NE	R
	SPARE				20	1	51	52	*20	1		0.54		BLOWER SE	R
	SPARE				20	1	53	54	*20	1			0.36	PRCSS RM OUTDOOR - S	R
M	F-2	1.13			20	1	55	56	*20	1	0.18			PRCSS RM OUTDOOR - W	R
M	F-5/ DF-5		0.51		20	1	57	58	*20	1		1.08		LAB REFRIGERATOR	M
M	F-6/ DF-6			0.43	20	1	59	60	*20	1			0.00	SPARE	
	SPARE	0.00			20	1	61	62	*20	1	0.00			SPARE	
M	O.H.DOOR - GRIT		1.13		20	1	63	64	*20	1		0.00		SPARE	
M	O.H.DOOR - GARAGE			1.13	20	1	65	66	*20	1			0.00	SPARE	
	SPARE	0.00			20	1	67	68	30	2	2.50			AC-1	A
	SPARE		0.00		20	1	69	70				2.50			A
	SPARE			0.00	20	1	71	72	30	2			0.73	PTAC-1	A
	SPARE	0.00			20	1	73	74			0.73				A
	SPARE		0.00		20	1	75	76	30	2		2.25		WH-1	E
	SPARE			0.00	20	1	77	78					2.25		E
	SPARE	0.00			20	1	79	80	30	3	2.87			GEN LOAD CENTER	X
	SPARE		0.00		20	1	81	82				2.87			X
	SPARE			0.00	20	1	83	84					2.87		X

TOTAL LINE-NEUTRAL KVA		7.07	8.60	6.96		TOTAL W/		11.42	11.82	9.15	
TOTAL CONNECTED KVA	55.01			THIS	SUB		TOTAL ESTIMATED KVA DEMAND:			54.62	
TOTAL CONNECT AMPS	152.69			PANEL	PANELS		TOTAL ESTIMATED AMP DEMAND:			151.61	
TOTALS BY TYPE:	R (RECEPTACLES)			10.78	10.78	ESTIMATED	10.39	NOTES			
	L (LIGHTING)			6.16	6.16	DEMAND	6.16	* GFI CIRCUIT			
	M (MOTORS)			9.11	9.11	BY TYPE	9.11				
	X			12.61	12.61		12.61				
	A (AC)			6.45	6.45		6.45				
	E (ELEC. HEAT)			9.90	9.90		9.90	NEC 220-56 TABLE 6 AND OVER @			
	K (KITCHEN EQUIPMENT)			0.00	0.00		0.00	0.65 DEMAND.			

PANEL	AMPS	100	MAIN CB AMPS:	100				AIC	10,000						
I.D.	PHASE	3	TYPE:	480VAC LIGHTING AND APPLIANCE PANEL											
50PDP1	WIRE	4						MOUNT:							
	VOLTAGE	480/277						SURFACE							

		KVA			BREAKER		CKT	CKT	BREAKER		KVA				
TYPE	CIRCUIT DESIGNATION	Aϕ	Bϕ	Cϕ	AMP	POLE	#	#	AMP	POLE	Aϕ	Bϕ	Cϕ	CIRCUIT DESIGNATION	TYPE
Panel	50LP1	1.00			25	3	1	2	20	3	0.83			HCC-11-1-1	X
Panel			1.04				3	4				0.83			X
Panel				1.57			5	6					0.83		X
M	FV-12-2-1	1.00			20	3	7	8	20	3	1.03			PDC-11-1-1	X
M			1.00				9	10				1.03			X
M				1.00			11	12					1.03		X
E	H-8	2.50			20	3	13	14	20	3	1.03			PDC-11-1-2	X
E			2.50				15	16				1.03			X
E				2.50			17	18					1.03		X
							19	20	30	3	0.00			SURGE PROTECTOR	X
							21	22				0.00			X
							23	24					0.00		X

TOTAL LINE-NEUTRAL KVA		4.50	4.54	5.07		TOTAL W/		2.90	2.90	2.90	
TOTAL CONNECTED KVA	22.81			THIS	SUB		TOTAL ESTIMATED KVA DEMAND:			22.81	
TOTAL CONNECT AMPS	27.44			PANEL	PANELS		TOTAL ESTIMATED AMP DEMAND:			27.44	
TOTALS BY TYPE:	R (RECEPTACLES)			0.00	0.90	ESTIMATED	0.90	NOTES			
	L (LIGHTING)			0.00	0.78	DEMAND	0.78	* GFI CIRCUIT			
	M (MOTORS)			3.00	3.83	BY TYPE	3.83				
	X			8.70	9.80		9.80				
	A (AC)			0.00	0.00		0.00				
	E (ELEC. HEAT)			7.50	7.50		7.50	NEC 220-56 TABLE 6 AND OVER @			
	K (KITCHEN EQUIPMENT)			0.00	0.00		0.00	0.65 DEMAND.			

PANEL	AMPS	100	MAIN CB AMPS:	60				AIC	14,000						
I.D.	PHASE	3	TYPE:	250VAC LIGHTING AND APPLIANCE PANEL											
50LP1	WIRE	4						MOUNT:							
	VOLTAGE	120/208						SURFACE							

		KVA			BREAKER		CKT	CKT	BREAKER		KVA				
TYPE	CIRCUIT DESIGNATION	Aϕ	Bϕ	Cϕ	AMP	POLE	#	#	AMP	POLE	Aϕ	Bϕ	Cϕ	CIRCUIT DESIGNATION	TYPE
X	M-11-1-1	0.60			20	1	1	2	20	1	0.30			SCC-11-1-1	X
L	INTERIOR LIGHTS		0.28		20	1	3	4	20	1		0.20		FIT-11-2-1	X
L	EXTERIOR LIGHTS			0.20	20	1	5	6	20	1			0.00	SPARE	
L	MAINT LIGHTS	0.10			20	1	7	8	20	1	0.00			SPARE	
L	SITE LIGHT -SE		0.20		20	1	9	10	20	1		0.00		SPARE	
M	F-7, L-7			0.83	20	1	11	12	20	1			0.00	SPARE	
	SPARE	0.00			20	1	13	14	20	1	0.00			SPARE	
	SPARE		0.00		20	1	15	16	20	1		0.00		SPARE	
	SPARE			0.00	20	1	17	18	20	1			0.00	SPARE	
	SPARE	0.00			20	1	19	20	20	1	0.00			SPARE	
R	WEST WALL-REC		0.36		*20	1	21	22	20	1		0.00		SPARE	
R	EAST WALL - REC			0.54	*20	1	23	24	20	1			0.00	SPARE	

TOTAL LINE-NEUTRAL KVA		0.70	0.84	1.57		TOTAL W/		0.30	0.20	0.00	
TOTAL CONNECTED KVA	3.61			THIS	SUB		TOTAL ESTIMATED KVA DEMAND:			3.61	
TOTAL CONNECT AMPS	10.02			PANEL	PANELS		TOTAL ESTIMATED AMP DEMAND:			10.02	
TOTALS BY TYPE:	R (RECEPTACLES)			0.90	0.90	ESTIMATED	0.90	NOTES			
	L (LIGHTING)			0.78	0.78	DEMAND	0.78	* GFI CIRCUIT			
	M (MOTORS)			0.83	0.83	BY TYPE	0.83				
	X			1.10	1.10		1.10				
	A (AC)			0.00	0.00		0.00				
	E (ELEC. HEAT)			0.00	0.00		0.00	NEC 220-56 TABLE 6 AND OVER @			
	K (KITCHEN EQUIPMENT)			0.00	0.00		0.00	0.65 DEMAND.			

GENERAL NOTES:

1. DO NOT SCALE DRAWINGS. IF DIMENSIONS ARE IN QUESTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATION FROM ENGINEER PRIOR TO PROCEEDING WITH WORK.
2. THE PRIMARY OVERCURRENT PROTECTIVE DEVICES AND ASSOCIATED FEEDER CONDUCTORS FOR DRY TYPE TRANSFORMERS SHOWN ON THIS DRAWING ARE SIZED FOR 125% OF THE TRANSFORMER NAMEPLATE PRIMARY CURRENT. IF THE CONTRACTOR ELECTS TO SUPPLY TRANSFORMERS THAT REQUIRE HIGHER RATED PRIMARY OVERCURRENT PROTECTIVE DEVICES TO ACCOUNT FOR HIGHER INRUSH CHARACTERISTICS, THEN THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING OVERCURRENT PROTECTIVE DEVICES AND FEEDERS THAT COMPLY WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS. REFER TO SPECIFICATIONS.
3. HOMERUN WIRING SHALL BE (2)#12 & #12G UNLESS NOTED OTHERWISE, REFER TO ONE-LINE DIAGRAM.
4. MINIMUM CONDUIT SIZE 3/4" UNLESS OTHERWISE NOTED.

PROJECT DATE:	2019-09-20	SCALE:	AS SHOWN	NO.	DATE	REVISION	BY
		DRAWN BY:	LET				
F.B. :		CHECKED BY:	RJJ				
PLOT DATE:	7/1/2020						

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PANEL SCHEDULES

FILE NO. 14573015
SHEET 06E12

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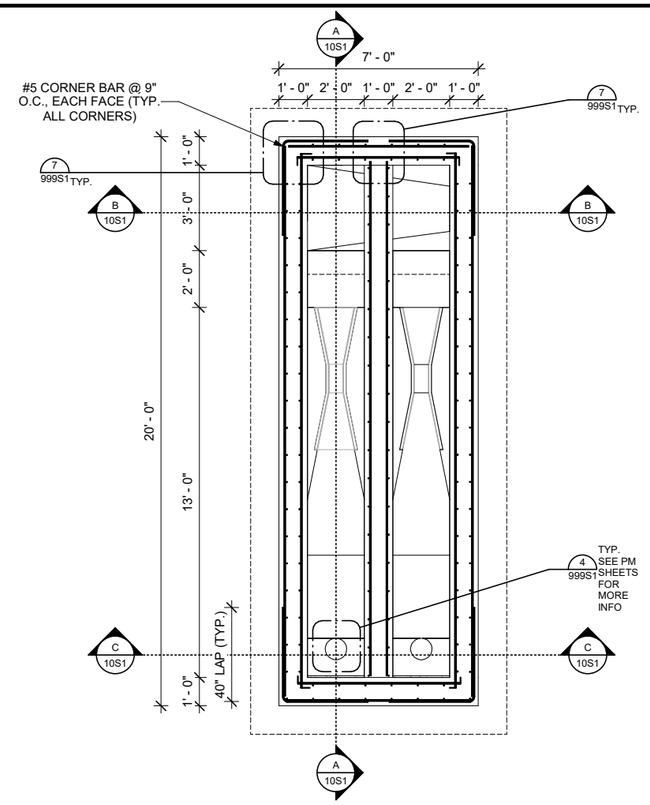
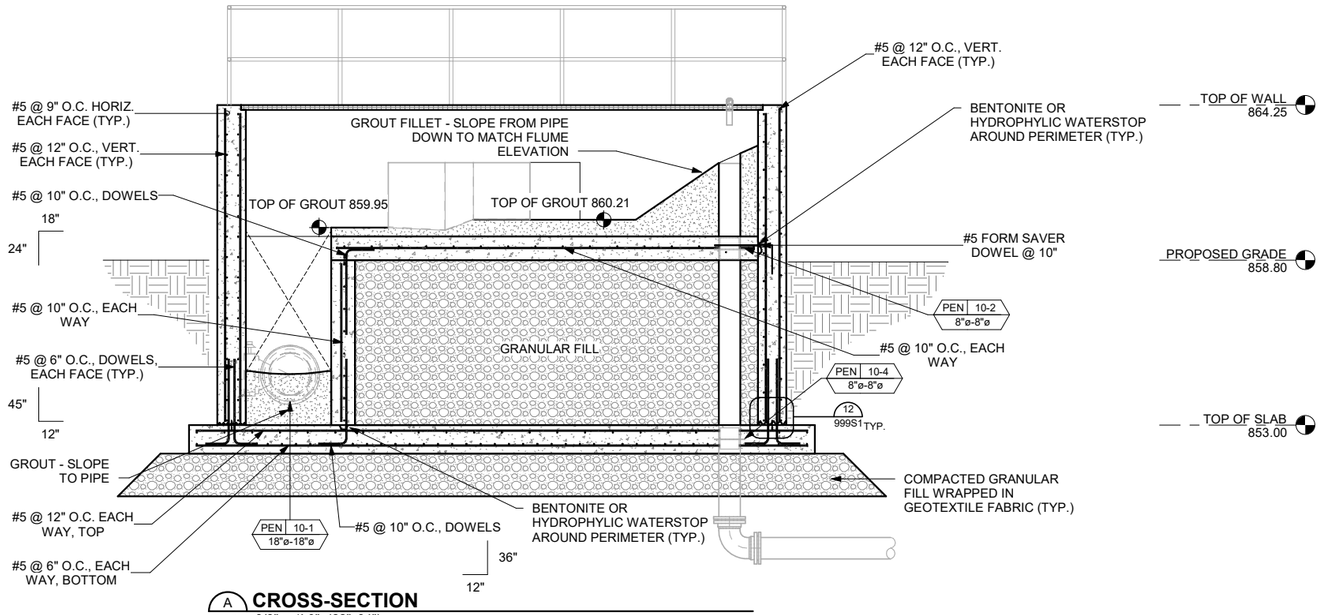


PLAN VIEW

3/8" = 1'-0" (22"x34")

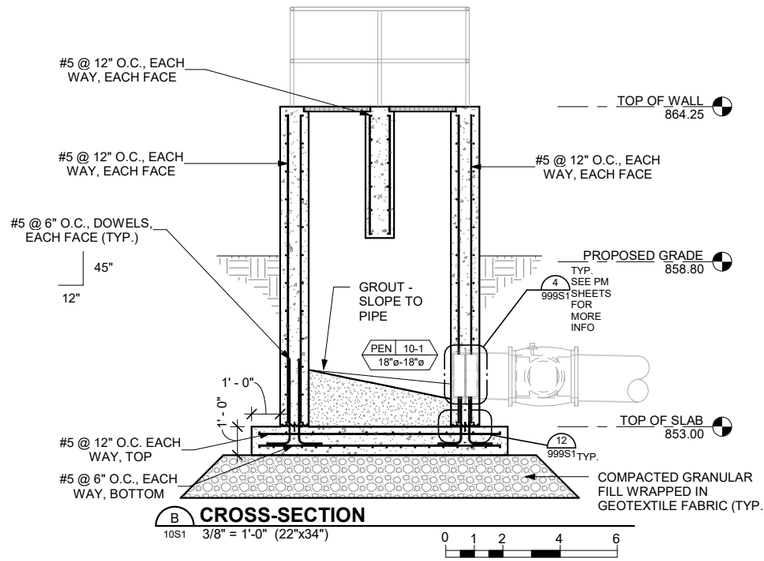
0 1 2 4 6



A CROSS-SECTION

10S1 3/8" = 1'-0" (22"x34")

0 1 2 4 6



B CROSS-SECTION

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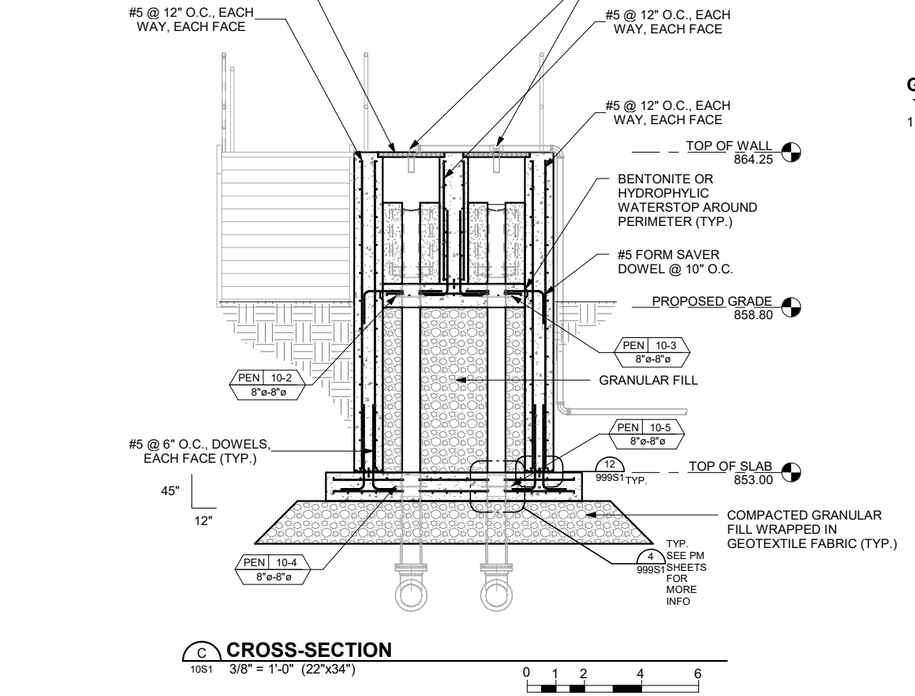

C CROSS-SECTION

10S1 3/8" = 1'-0" (22"x34")

0 1 2 4 6

GENERAL STRUCTURAL NOTES

1. SEE STRUCTURAL GENERAL NOTES - SHEET 20S1

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INFLUENT FLOW MEASUREMENT STRUCTURE STRUCTURAL

PROJECT NO. 14573015
SHEET 10S1

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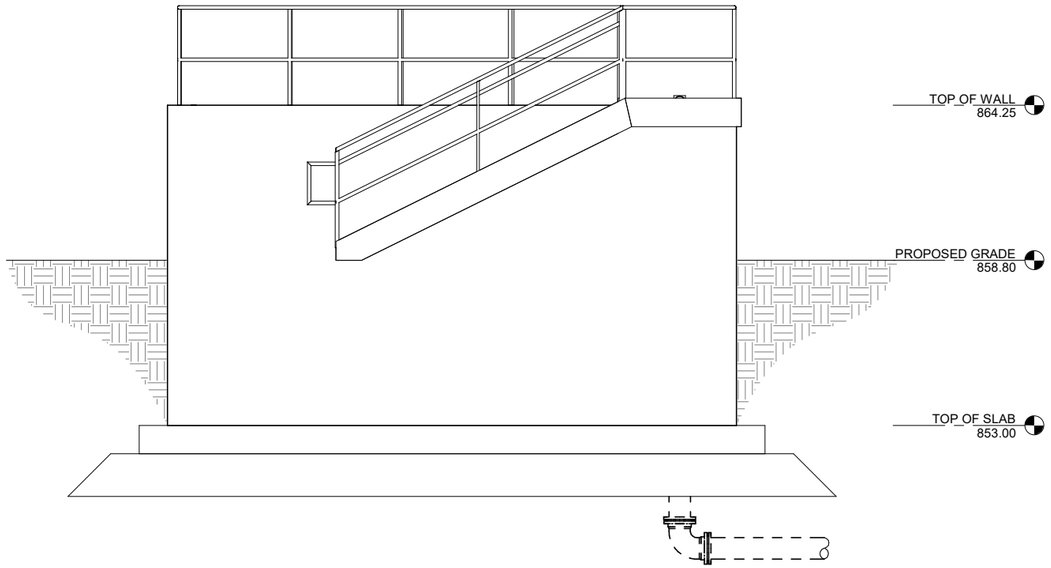
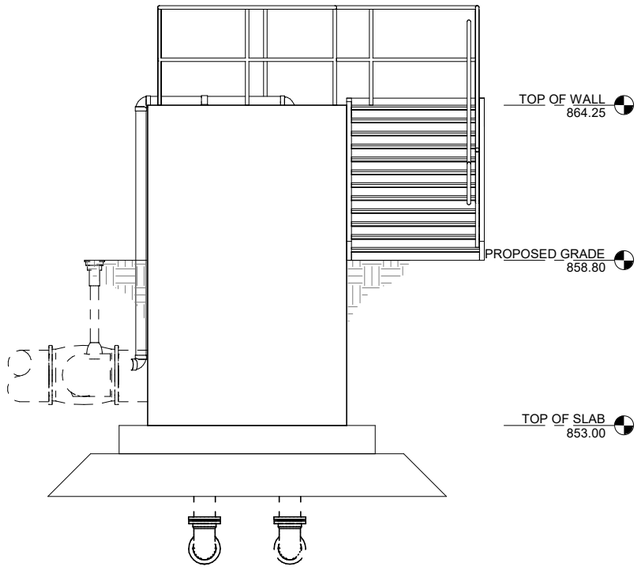


WEST ELEVATION

3/8" = 1'-0" (22"x34")

0 1 2 4 6



NORTH ELEVATION

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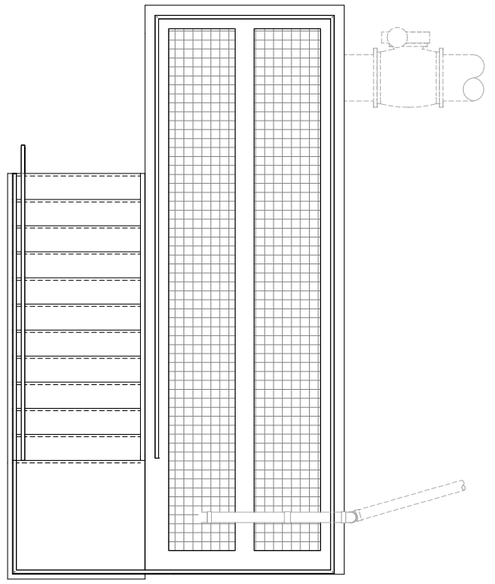
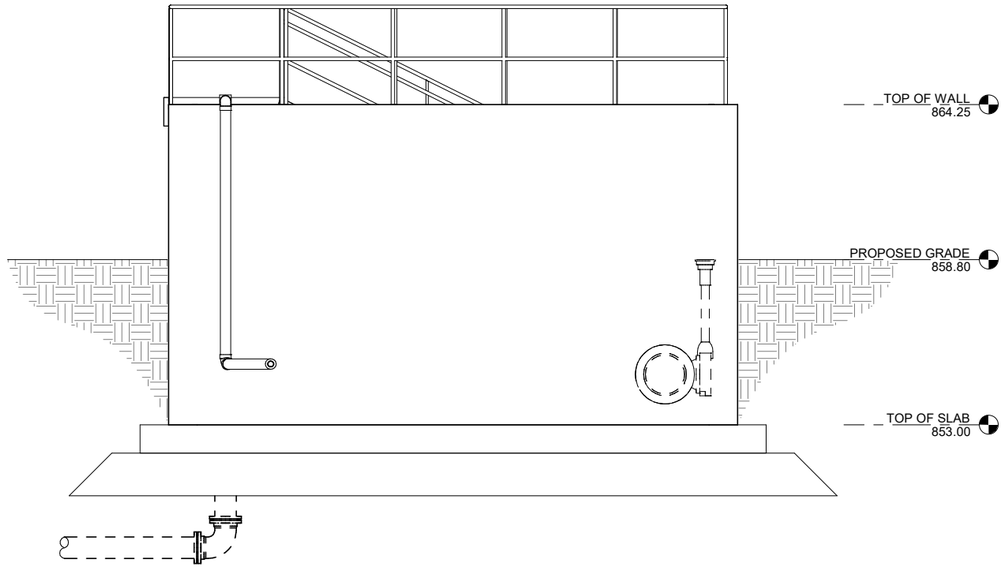
0 1 2 4 6





EAST ELEVATION

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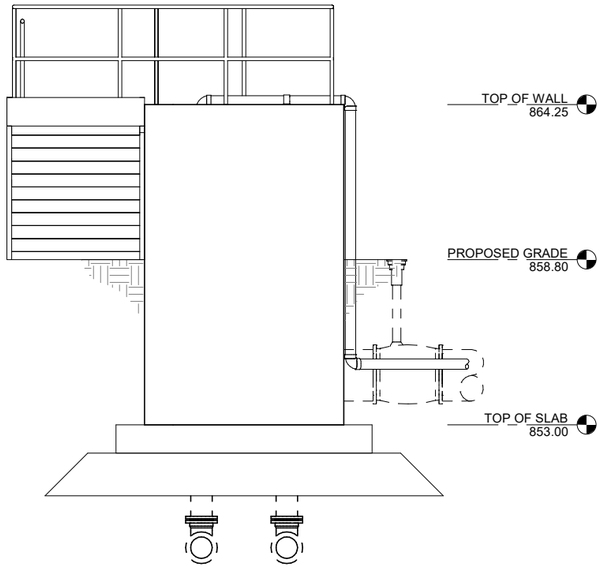
0 1 2 4 6



SOUTH ELEVATION

3/8" = 1'-0" (22"x34")

0 1 2 4 6

PLAN VIEW

3/8" = 1'-0" (22"x34")

0 1 2 4 6

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PROJECT NO. 14573015
SHEET 10A1

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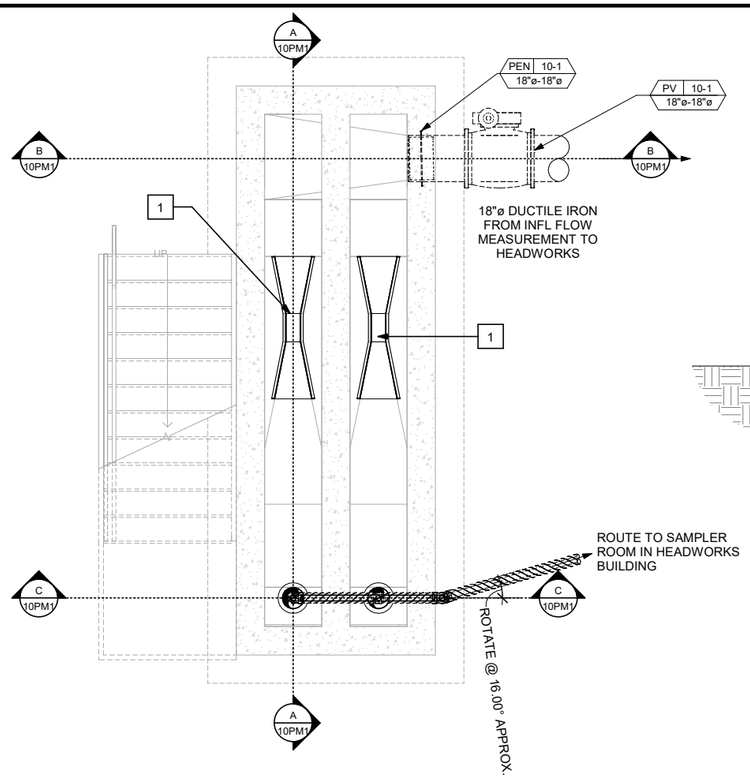
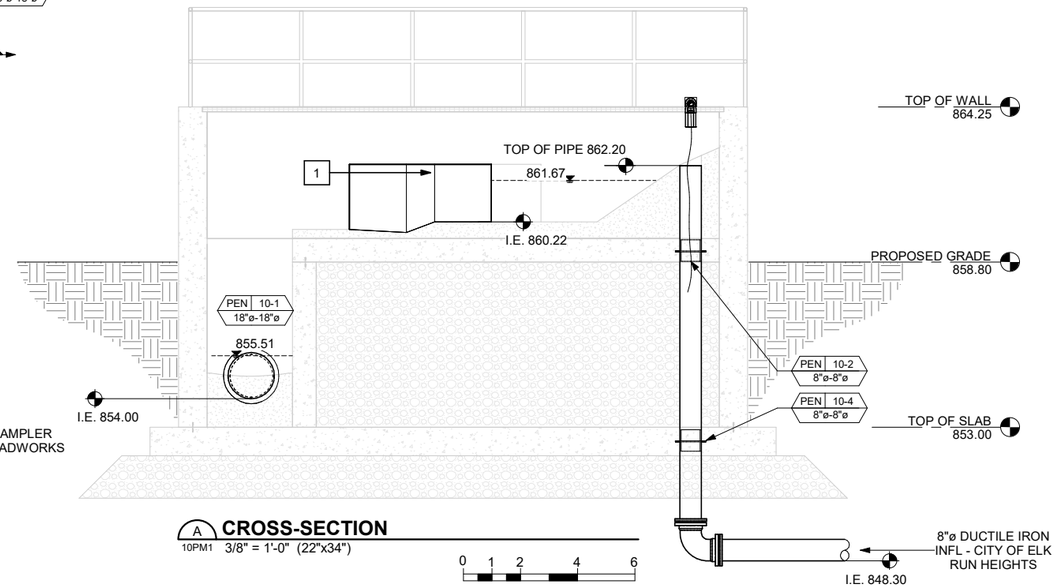


PLAN VIEW
3/8" = 1'-0" (22"x34")

0 1 2 4 6



A CROSS-SECTION
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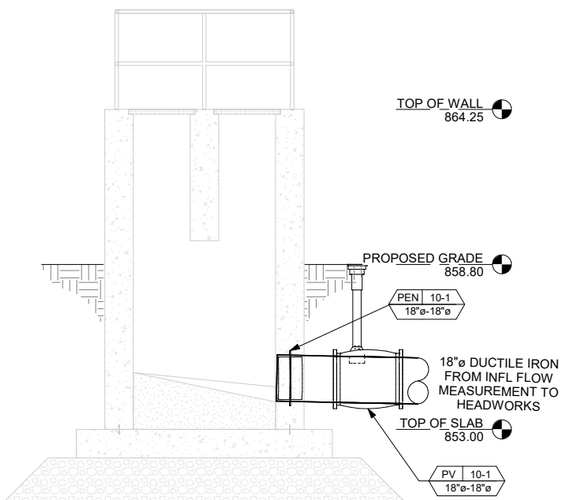
0 1 2 4 6



B CROSS-SECTION
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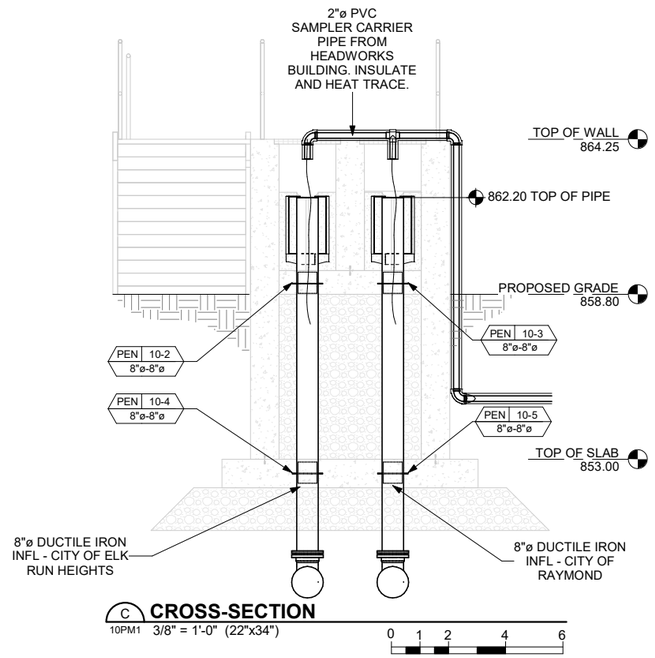
0 1 2 4 6



C CROSS-SECTION
10PM1 3/8" = 1'-0" (22"x34")

0 1 2 4 6

☐ KEYNOTES

1 6" PARSHALL FLUME

PIPE PENETRATION

TAG ID	PENETRATION TYPE	PIPE MATERIAL	DESCRIPTION	PIPE SIZE
10-1	A	DUCTILE IRON	FROM INFL FLOW MEASUREMENT TO HEADWORKS	18"ø-18"ø
10-2	A	DUCTILE IRON	INFL - CITY OF ELK RUN HEIGHTS	8"ø-8"ø
10-3	A	DUCTILE IRON	INFL - CITY OF RAYMOND	8"ø-8"ø
10-4	A	DUCTILE IRON	INFL - CITY OF ELK RUN HEIGHTS	8"ø-8"ø
10-5	A	DUCTILE IRON	INFL - CITY OF RAYMOND	8"ø-8"ø

			No	DATE	REVISIONS	BY
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		DESIGNED BY: JBR				
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INFLUENT FLOW MEASUREMENT STRUCTURE
PROCESS MECHANICAL

PROJECT NO. 14573015
SHEET 10PM1

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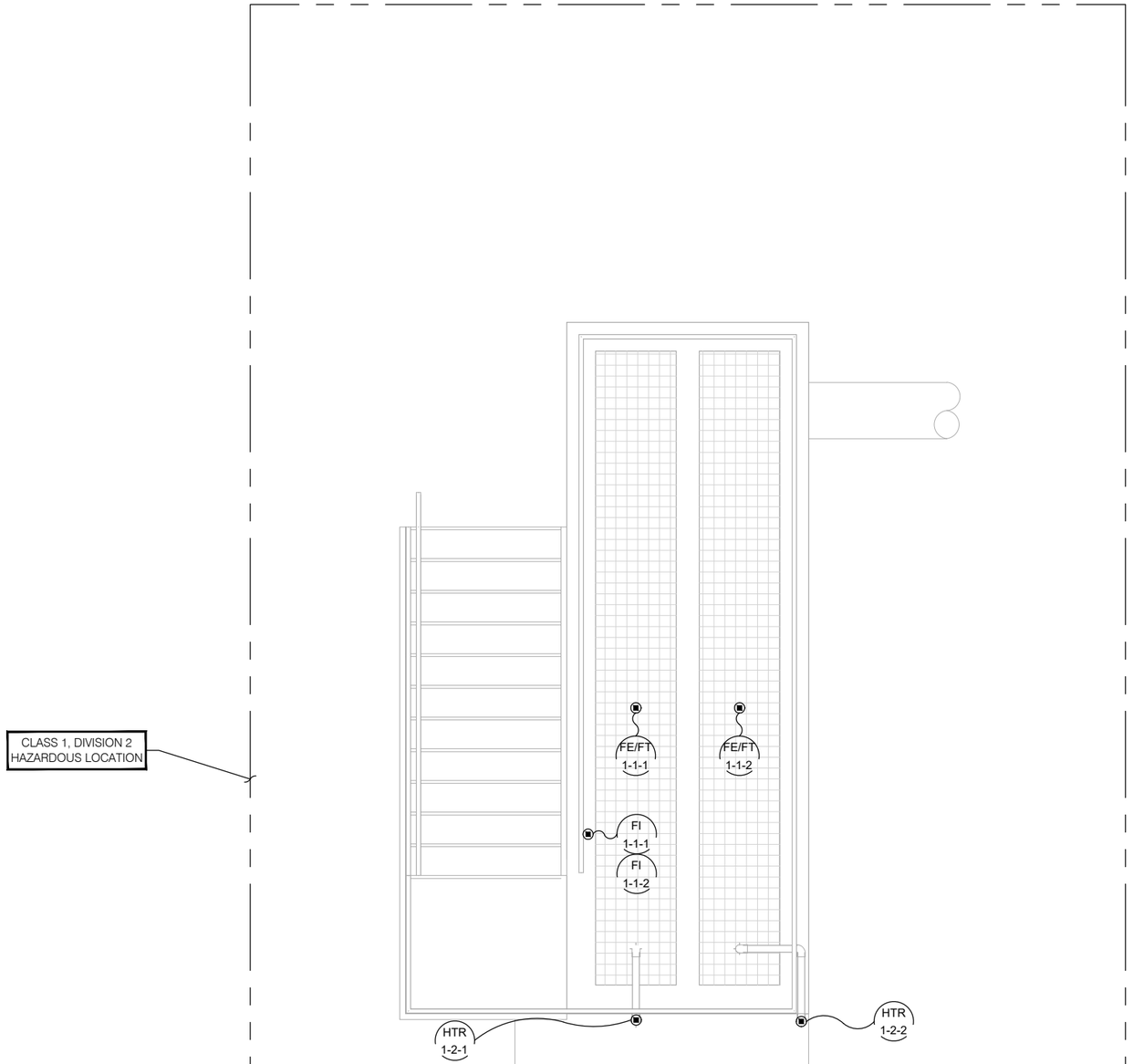

INFLUENT FLOW MEASUREMENTS STRUCTURE ELECTRICAL PLAN

0 1' 2' 4'

1/2" = 1'-0" (22X34)
1/4" = 1'-0" (11X17)

GENERAL NOTES:

1. DO NOT SCALE DRAWINGS. IF DIMENSIONS ARE IN QUESTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATION FROM ENGINEER PRIOR TO PROCEEDING WITH WORK.
2. DIRECT BURIED CONDUITS INSTALLED PER DETAIL (2605-310)
3. CONDUIT WALL AND FLOOR PENETRATIONS PER DETAIL (2605-305)
4. HOMERUN WIRING SHALL BE (2)#12 & #12G UNLESS NOTED OTHERWISE, REFER TO ONE-LINE DIAGRAM.
5. MINIMUM CONDUIT SIZE 3/4" UNLESS OTHERWISE NOTED.
6. ALL EXTERIOR RECEPTACLES TO BE GFCI WEATHERPROOF. MOUNT AT 30" ABOVE FINISHED GRADE.
7. ROOM/AREA ATMOSPHERE REQUIREMENTS, REFER TO SECTION 26 05 00:
   - 7.1. EXTERIOR, ABOVE GRADE: GENERAL, WET, NEW CONSTRUCTION.
   - 7.2. EXTERIOR, BELOW GRADE: UNDERGROUND, WET, NEW CONSTRUCTION.
   - 7.3. STR-10: HAZARDOUS. NFPA 820 VERSION 2020 TABLE 5.2.2 ROW 1 DEFINES STR-10 AS HAZARDOUS AREA WITH THE FOLLOWING ENVELOPE: THE AREA WITHIN A 10 FT ENVELOPE AROUND EQUIPMENT AND OPEN CHANNEL. ENGINEER ADDS: ENVELOPE EXTENDS 18" UP FROM WETTED WALL, 18" OUT FROM WALL AND 18" ABOVE GRADE OUT TO 10' AS SHOWN ON DRAWINGS.

KEY NOTES: [X]

1. PROVIDE WEATHER PROOF WHILE IN USE DUPLEX RECEPTACLE FOR EACH SAMPLER / HEAT TRACE SYSTEM. PEDESTAL MOUNT RECEPTACLES PER DETAIL (2690-911) .

PROJECT DATE: 2019-09-20	SCALE: AS SHOWN	NO.	DATE	REVISION	BY
	DRAWN BY: LET				
F.B. :	CHECKED BY: RJJ				
PLOT DATE: 7/1/2020					

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INFLUENT FLOW MEASUREMENT STRUCTURE ELECTRICAL PLAN

FILE NO. 14573015
SHEET 10E1

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DESIGN STRESSES

CAST-IN-PLACE CONCRETE	
FOOTINGS	f'c = 4,000 psi
FOUNDATION WALLS	f'c = 4,000 psi
SLAB ON GRADE	f'c = 4,000 psi
BASEMENT SLAB	f'c = 5,000 psi
BASEMENT WALLS	f'c = 5,000 psi
INFLUENT CHANNEL WALLS AND SLAB	f'c = 5,000 psi
OTHER	f'c = 3,500 psi
STEEL	
REINFORCING	fy = 60 ksi
BOLTS	
ANCHOR	F1554, GRADE 36
EXPANSION	WEDGE TYPE
SOIL BEARING PRESSURE CAPACITY	
SOILS REPORT	q = 3,000 psf

(GEOTECHNICAL REPORT PREPARED AND TESTED BY CHOSEN VALLEY TESTING, INC., DATED MAY 22, 2020)

CONCRETE FOUNDATION WALL SCHEDULE

MARK	SIZE (T)	HORIZ. REINF.	REMARKS
W1	12"	SEE DETAIL 9 / 999S1	
W2	8"	SEE WALL SECTIONS	

CONCRETE STRIP FOOTING SCHEDULE

MARK	SIZE W	SIZE H	BTM REINFORCEMENT	REF. DETAIL	REMARKS
SF1	30"	12"	(3) #5	9/999S1	1, 2
SF2	48"	12"	(4) #5	9/999S1	1,2
SF3	16"	8"	(2) #5	2/999S2	1

REMARKS
1. PREPARE BEARING SOILS PER GEOTECH REPORT RECOMMENDATIONS.
2. TRANSVERSE REINFORCEMENT: #5 @ 24" O.C.

STEEL REINFORCING

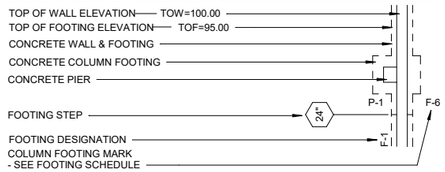
MIN CLEAR COVER, UNO	
FOUNDATION WALLS	
#5 BARS & SMALLER	1 1/2"
#6 BARS & LARGER	2"
NON-STRUCTURAL SLABS ON GRADE	
BOTTOM & SIDES	1 1/2"
TOP	3/4"
FOOTINGS AND STRUCTURAL SLABS ON GRADE	
BOTTOM & SIDES	3"
TOP	2"

NOTES
1. LAP BARS 36" AT SPLICES.

CONCRETE & REINFORCING NOTES

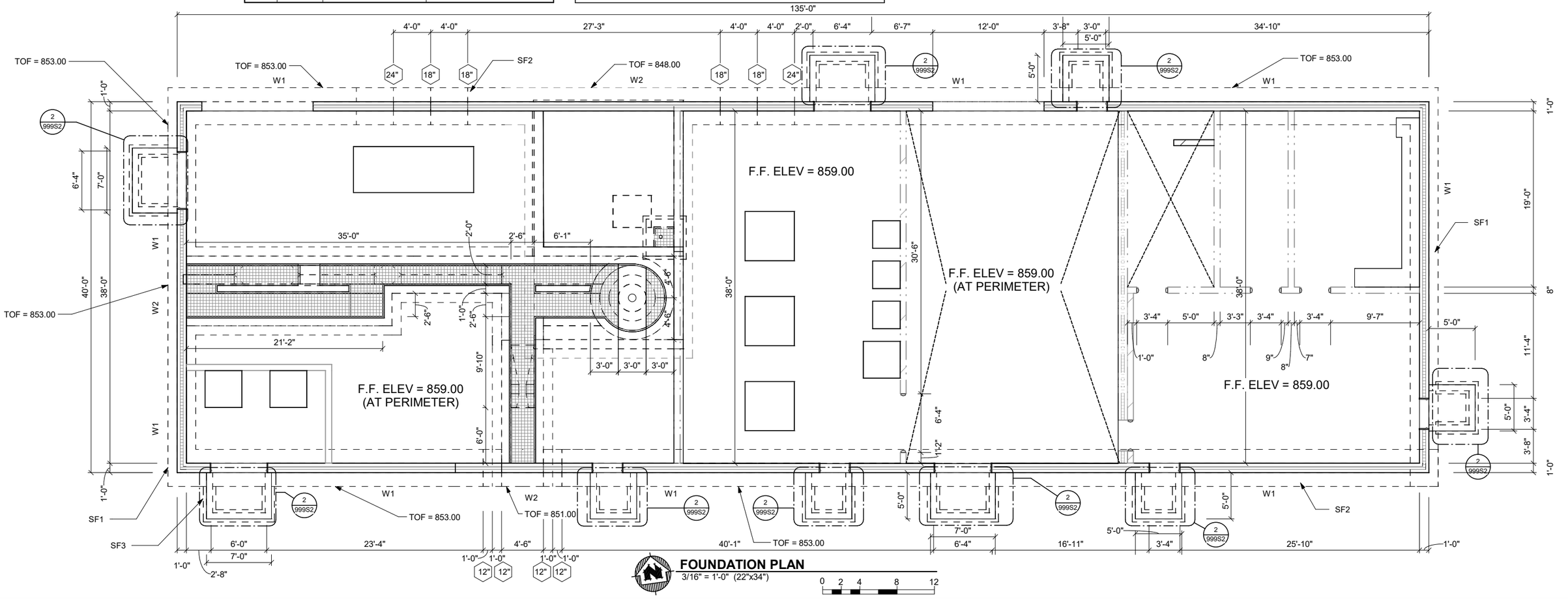
1. ALL LAPS SHALL BE CLASS-"B" PER ACI 318/350. UNLESS NOTED OTERHWISE ON THE DESIGN DRAWINGS AND THE DETAILER TAKES SPECIAL CARE TO PROVIDE STAGGERED LAPS. USE TOP BAR LAP LENGTHS FOR ALL HORIZONTAL WALL BARS AND FOR BARS IN SLABS WITH MORE THAN 12" OF CONCRETE BELOW.
2. LAP LENGTH SHALL BE SPECIFICALLY NOTED ON PLACING DRAWINGS WHERE MORE THAN ONE BAR MAKES UP A CONTINUOUS STRING.
3. BAR PLACMENT TOLERANCES SHALL BE AS SPECIIED IN THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI) MANUAL OF STANDARD PRACTICE, CURRENT EDITION.
4. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER'S APPROVAL PRIOR TO CONCRETE PLACEMENT INDICATING CONSTRUCITON JOIN LOCATIONS AND CONCRETE PLACEMENT SEQUENCING.
5. ALL REINFORCING BAR DIMENSIONS ARE FROM OUT-TO-OUT O BAR. ALL BEND ANGLES ARE AT 45° AND 90° UNLESS NOTED OTHERWISE.
6. ALL CONCRETE SHALL BE PROPORTIONED, PLACED, AND FINISHED IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
7. SEE DETAILS (999S SHEETS) FOR ADDITIONAL REINFORCING REQUIRED AT WALL AND SLAB OPERNINGS, TYP.

FOUNDATION LEGEND



GENERAL STRUCTURAL NOTES

1. EXCAVATION AND SUBGRADE PREPARATION SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS.
2. SEE ARCHITECTURAL, MECHANICAL AND ELECTRICAL PLANS FOR SIZE & LOCATION OF FLOOR/WALL OPENINGS AND PIPE PENETRATIONS NOT SHOWN. PROVIDE PIPE SLEEVES CAST INTO CONCRETE. CONTRACTOR TO COORDINATE STRUCTURAL, ARCHITECTURAL, PLUMBING, PROCESS MECHANICAL, AND ELECTRICAL, ETC. PLANS FOR DETAILS, DIMENSIONS, ELEVATIONS, OPENINGS, ETC. NOTIFY ENGINEER OR ARCHITECT BEFORE COMMENCING CONSTRUCTION.
3. ALL PIPE PENETRATIONS, ELECTRICAL CONDUIT PENETRATIONS (NOT SHOWN - SEE ELECTRICAL), AND PLUMBING PENETRATIONS THROUGH FLOOR SHALL HAVE A STRIP OF BENTONITE OR HYDRAULIC WATER STOP INSTALLED AROUND CIRCUMFERENCE OF PIPE/CONDUIT ETC. AT CENTER OF SLAB LEVEL TO CREATE A WATERTIGHT SEAL. SEE PIPE PENETRATION DETAILS ON 999M SHEETS FOR MORE INFORMATION REGARDING SPECIFIC PENETRATION TYPES.
4. QUALITY CONTROL SERVICE SHALL INSPECT AND PERFORM TESTS TO VERIFY THE ACTUAL ALLOWABLE SOIL BEARING PRESSURE AT FOUNDATION BEARING LOCATIONS. QUALITY CONTROL SERVICE SHALL NOTIFY STRUCTURAL ENGINEER OF LOCATIONS WHERE THE ACTUAL ALLOWABLE BEARING PRESSURE IS LESS THAN THE SPECIFIED VALUE OR WHERE FOUNDATION ELEVATIONS MUST BE MODIFIED TO BEAR ON APPROPRIATE MATERIAL. CONSTRUCTION OF THE FOUNDATION SYSTEM SHALL NOT PROCEED AT SUCH LOCATIONS UNTIL AN APPROPRIATE REMEDIAL ACTION HAS BEEN REVIEWED AND ACCEPTED BY STRUCTURAL ENGINEER.
5. WHERE FOUNDATION WILL BE CONCEALED OR BURIED, ALL WALL FORM TIES SHALL BE KNOCKED OFF FLUSH W/FACE OF WALL AND A LAYER OF BITUMINOUS DAMPPROOFING APPLIED.
6. BACKFILL AND COMPACT W/ ENGINEERED FILL ON BOTH SIDES OF FOUNDATION AT THE SAME TIME.
7. IN NO CASE SHALL STRUCTURAL ALTERATIONS ON WORK AFFECTING A STRUCTURAL MEMBER BE MADE, UNLESS APPROVED BY THE ENGINEER.
8. FOOTINGS SHALL BE CENTERED ABOVE THE WALL, UNLESS NOTED OTHERWISE.
9. SIMILAR PORTIONS OF THE BUILDING SHALL HAVE SIMILAR DETAILS, UNLESS NOTED OTHERWISE.



FOUNDATION PLAN

3/16" = 1'-0" (22"x34")

0 2 4 8 12

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HEADWORKS BUILDING
FOUNDATION PLAN

PROJECT NO. 14573015
SHEET 20S1

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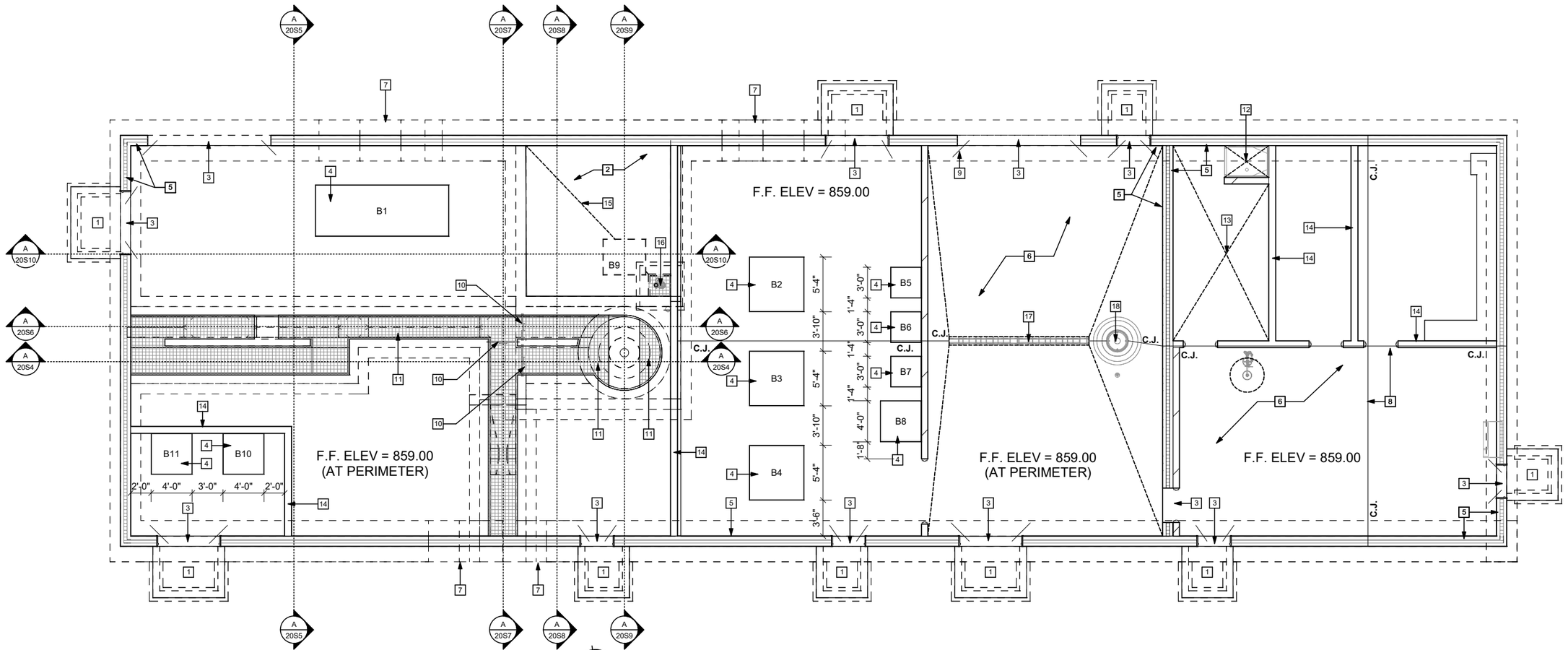
☐ KEYNOTES

1	CONCRETE STOOP WITH FOUNDAITON WALLS, SEE DETAIL
2	12" THICK SLAB WITH #5 BARS @ 12" O.C., EACH WAY, TOP & BOTTOM. SEE STRUCTURAL CROSS SECTIONS.
3	HOLD WALL DOWN 8" AT DOOR OPENING.
4	EQUIPMENT PAD, SEE SCHEDULE AND DETAILS
5	1/2" EXPANSION MATERIAL W/ REMOVABLE CAP & SELF-LEVELING SEALANT, TYP. @ SLAB-ON-GRADE PERIMETERS, SEE DETAIL
6	6" SLAB-ON-GRADE W/ 6x6 W1.4xW1.4 WWF OVER MIN. 12" COMPACTD GRANULAR FILL & 6 MIL. POLY VAPOR BARRIER, SEE DETAIL
7	STEPPED FOOTING (TYP.) SEE DETAIL
8	CONCRETE SLAB-ON-GRADE CONTROL JOINT (C.J.) (TYP.) SEE DETAIL
9	(1) #5 BAR x 24" AT EACH DOOR OPENING CORNER (TYP). PLACE IN THE CENTER OF THE CONCRETE SLAB-ON-GRADE
10	ALUMINUM STOP GATE (TYP.) SEE PROCESS MECHANICAL.
11	NON-SLIP ALUMINUM GRATING OVER ENTIRE CHANNEL AREA. SEE DETAIL AND PROCESS MECHANICAL PLAN. FIELD VERIFY LOCATIONS.
12	SLOPED FLOOR AREA FOR SHOWER - COORDINATE WITH PLUMBING.
13	SLOPE SLAB IN ENTIRE ROOM TO DRAIN (0.10' BELOW F.F. ELEV.)
14	INDICATES WALL ON TOP OF SLAB, SEE DETAIL
15	SLOPE SLAB TO DRAIN TO SUMP PIT.
16	SUMP PIT. SEE DETAIL
17	TRENCH DRIAN LOCATION. TOP OF GRATE TO BE 0.17' BELOW F.F. ELEV.) SEE DETAIL
18	CATCH BASIN LOCATION. TOP OF GRATE FLUSH W/ TOP OF SLAB. INSTALL LEVEL - SEE PLUMBING.

DESIGN LOADINGS

BUILDING CATEGORY	III
WIND LOAD	
BASIC WIND SPEED	120 mph
RISK CATEGORY	III
WIND EXPOSURE	C
PER ASCE SIMPLIFIED DESIGN PROCEDURE	
MAIN WIND FORCE RESISTING SYSTEM	
WALLS (LATERAL) ZONE A	29 psf
ZONE C	19 psf
ROOF (LATERAL) ZONE B/D	-10 psf
ROOF (UPLIFT) ZONE E (MAX)	-35 psf
ZONE G (MAX)	-24 psf
ROOF LOADS	
DEAD LOAD, TOTAL	31 psf
BALLAST (MIN.)	19.5 psf
LIVE LOAD (MIN.)	20 psf
LIVE LOADS	
ROOF LIVE LOAD (MINIMUM)	20 psf
FLOOR LIVE LOAD	250 psf

SEISMIC DESIGN DATA	
SEISMIC IMPORTANCE FACTOR, Ie	1.25
MAPPED SPECTRAL RESPONSE ACCELERATIONS	
Ss	0.0624
S1	0.0441
SPECTURAL RESPONSE COEFFICIENTS	
Sds	0.067
Sd1	0.071
SEISMIC DESIGN CATAGORY	B
SEISMIC SITE CLASS	D
SEISMIC RESPONSE COEFICIENT, Cs	0.0277
RESPONSE MODIFICATION FACTOR	3.0
ANALYSIS PROCEDURE USED	EQUIVALENT LATERAL FORCE
SNOW LOAD	
GROUND SNOW LOAD, Pg	30 psf
FLAT-ROOF SNOW LOAD, Pf	25.41 psf
SNOW EXPOSURE FACTOR, Ce	1.00
SNOW LOAD FACTOR, I	1.10
THERMAL FACTOR, Ct	1.10
DESIGN SNOW LOAD, Ps	25.41 psf
ROOF SLOPE (FLAT ROOF)	
DRIFTS ON LOWER ROOF (TO BE COMBINED WITH Pf)	
DRIFTS AT EAVE	59.6 psf
DRIFTS AT RIDGE	0 psf
LENGTH OF DRIFT	13.3 psf



FOUNDATION PLAN

3/16" = 1'-0" (22"x34")

0 2 4 8 12

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	DESIGNED BY: MLB				
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HEADWORKS BUILDING
FOUNDATION PLAN

PROJECT NO. 14573015
SHEET 20S2

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LINTEL SCHEDULE

MARK	SYMBOL	DESCRIPTION
L-1		8" WIDE x 8" TALL CMU BOND BEAM w/ (2) #5 BARS CONT
L-2		12" WIDE x 8" TALL CMU BOND BEAM w/ (2) #5 BARS CONT

NOTES

1. PROVIDE 8" MIN BEARING ON BACKUP WALL WHERE OPENING REINFORCING NOT PROVIDED, GROUT SOLID LINTEL BEARING AREA FROM FOUNDATION WALL TO UNDERSIDE OF LINTEL.
2. CENTER LINTELS WHERE SHOWN IN BEARING WALL.
3. PROVIDE LINTELS FOR ALL OPENINGS MORE THAN 8" WIDE, FOR MISC OPENINGS IN EXTERIOR WALL, LESS THAN 42" WIDE USE L-2. FOR MISC OPENINGS IN INTERIOR WALL, LESS THAN 42" WIDE USE L-1.
4. ALL STEEL LINTELS SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.

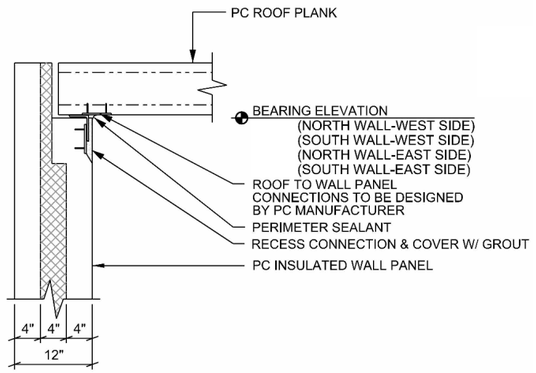
PRECAST HOLLOWCORE PLANK SCHEDULE

MARK	DEPTH	TOPPING		FIRE RATING	LOADING
		THICKNESS	REINF.		
A	10"	NONE	NONE	2-HR	SEE20S2

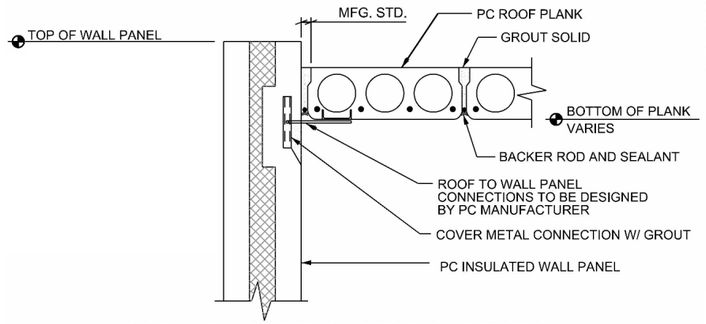
NOTES:
1. PRECAST PLANK MANUFACTURER TO CHECK PLANKS ADJACENT TO OPENINGS, MECHANICAL OR OTHERS AS SHOWN ON PLANS, FOR ADDITIONAL LOAD CAUSED BY SLAB OPENINGS. REFERENCE PROJECT DRAWINGS FOR MORE INFORMATION.
2. PLANK CAMBER SHALL BE 1 INCH OR LESS
3. PLANK DEPTH ASSUMED - SHALL BE VERIFIED BY HOLLOW CORE PLANK MFR. IF THICKER PLANK IS REQUIRED, ADJUST WALL PANELS SO THAT CEILING HEIGHT DOES NOT CHANGE.
4. PLANK WIDTH FOR ILLUSTRATION ONLY. PLANK MFR SHALL BE RESPONSIBLE FOR SEECTING WIDTH AND LAYOUT.
5. OPENINGS REQUIRED IN PLANK, BUT NOT SHOWN, MUST BE COORDINATED WITH PRECAST SUPPLIER.
6. PRECAST PLANK MANUFACTURER TO DESIGN PLANKS FOR ADDITIONAL EQUIPMENT LOADS. SEE MECHANICAL FOR LOCATION.

☐ KEYNOTES

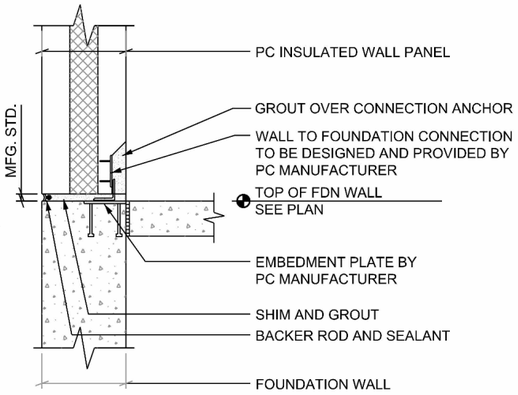
1 DOOR/WINDOW OPENING LOCATION - SEE ARCH. PC MFG TO DESIGN AND PROVIDE OPENING HEADER AND OPENING FRAME.
2 NON-LOAD BEARING MASORY WALL BELOW
3 HVAC EQUIPMENT OPENING LOCATION - SEE HVAC. PC MFG TO DESIGN AND PROVIDE OPENING HEADER AND OPENING FRAME.
4 ROOF TO WALL PANEL CONNECTIONS TO BE DESIGN BY PC MANUFACTURER.



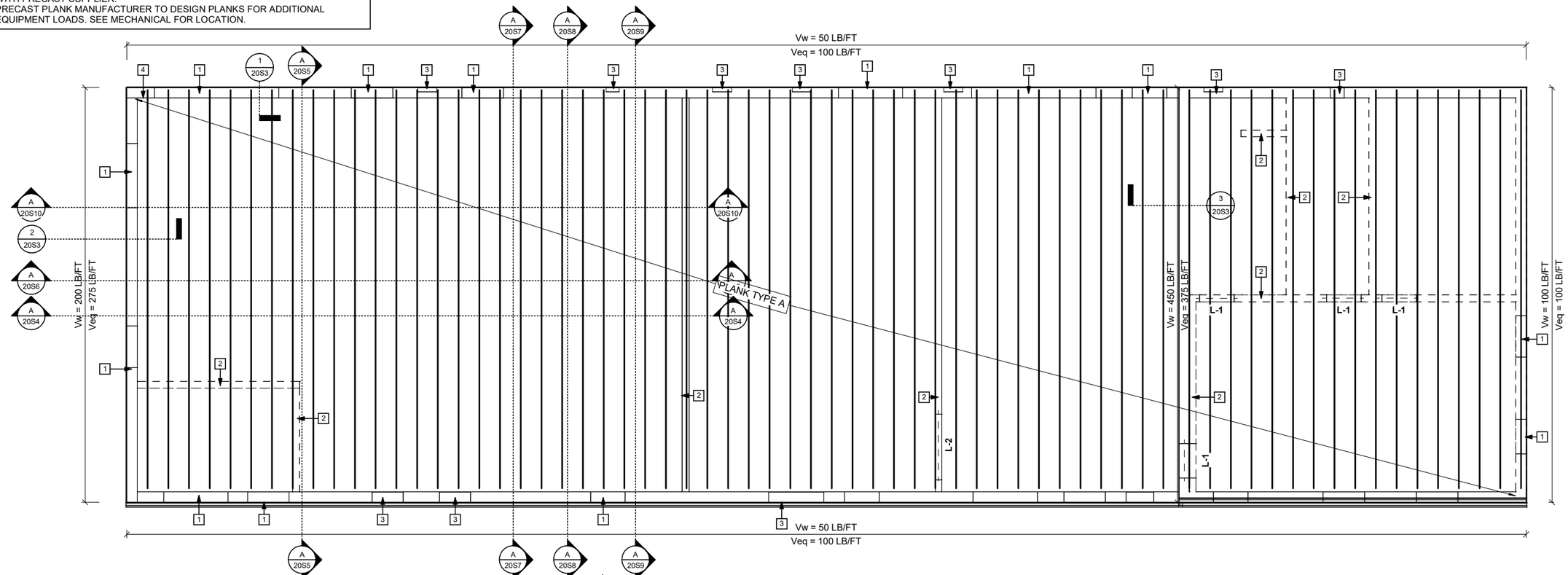
1 PC PLANK BEARING TOP CONNECTION DETAIL AT EXTERIOR WALL PANEL
20S3 N.T.S.



2 PC PLANK NON-BEARING TOP CONNECTION DETAIL AT EXTERIOR WALL PANEL
20S3 N.T.S.



3 PC PLANK BOTTOM CONNECTION DETAIL
20S3 N.T.S.



ROOF FRAMING PLAN
3/16" = 1'-0" (22"x34")

0 2 4 8 12

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ROOF FRAMING PLAN & DETAILS

PROJECT NO. 14573015
SHEET 20S3

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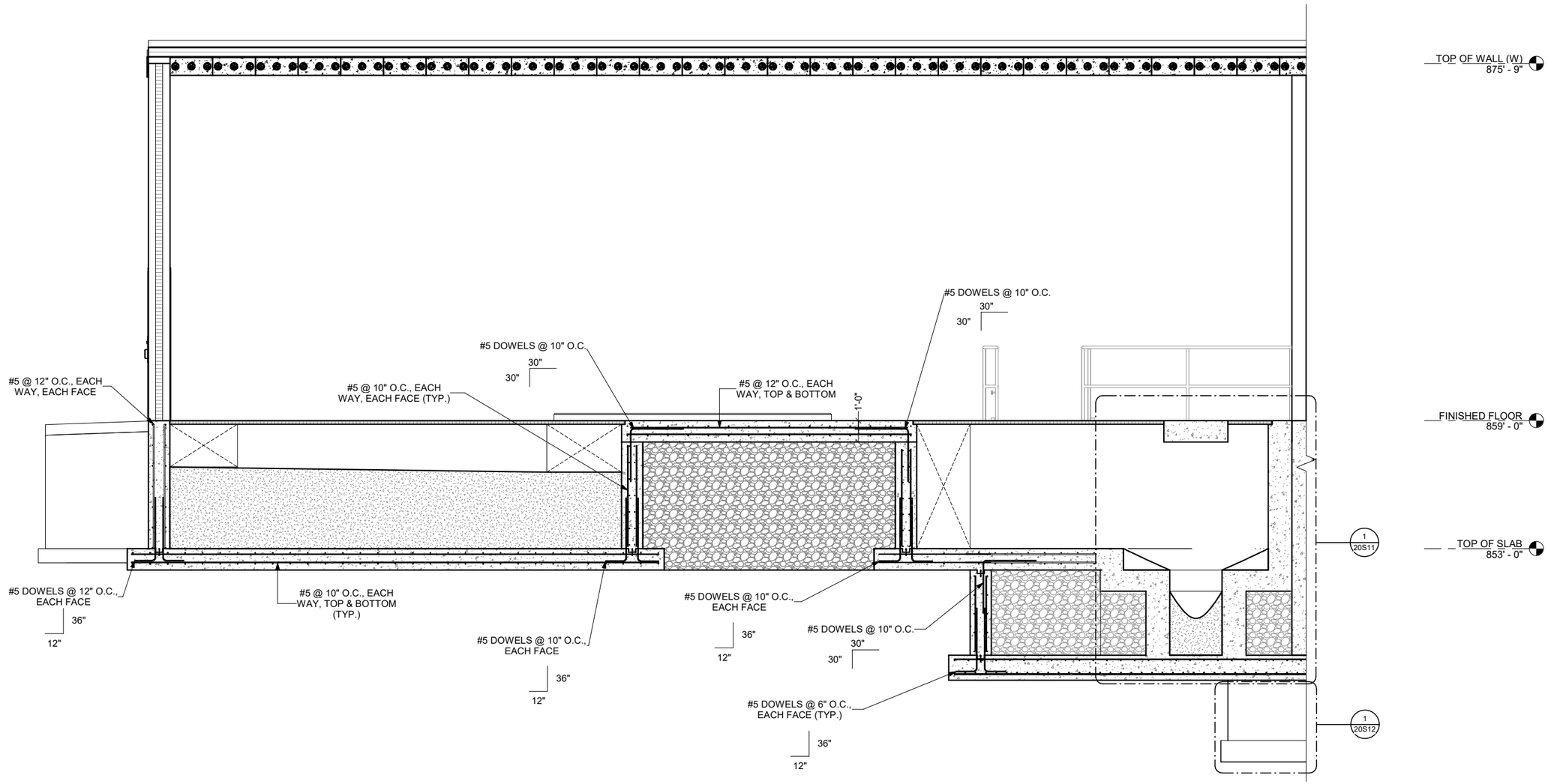

A 20S4 **CROSS-SECTION**

3/8" = 1'-0" (22"x34")

0 1 2 4 6

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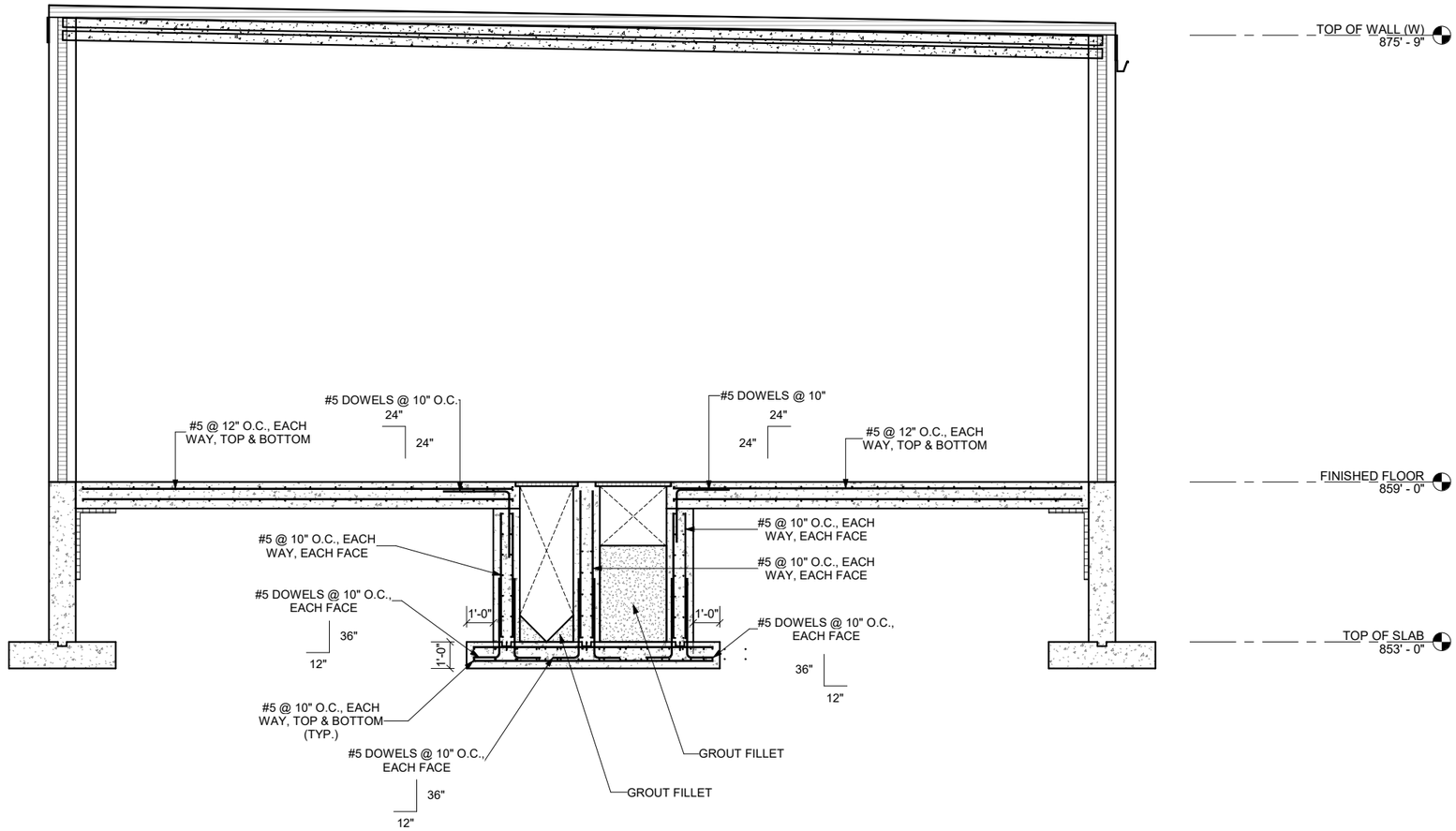

A 20S5 **CROSS-SECTION**

3/8" = 1'-0" (22"x34")

0 1 2 4 6

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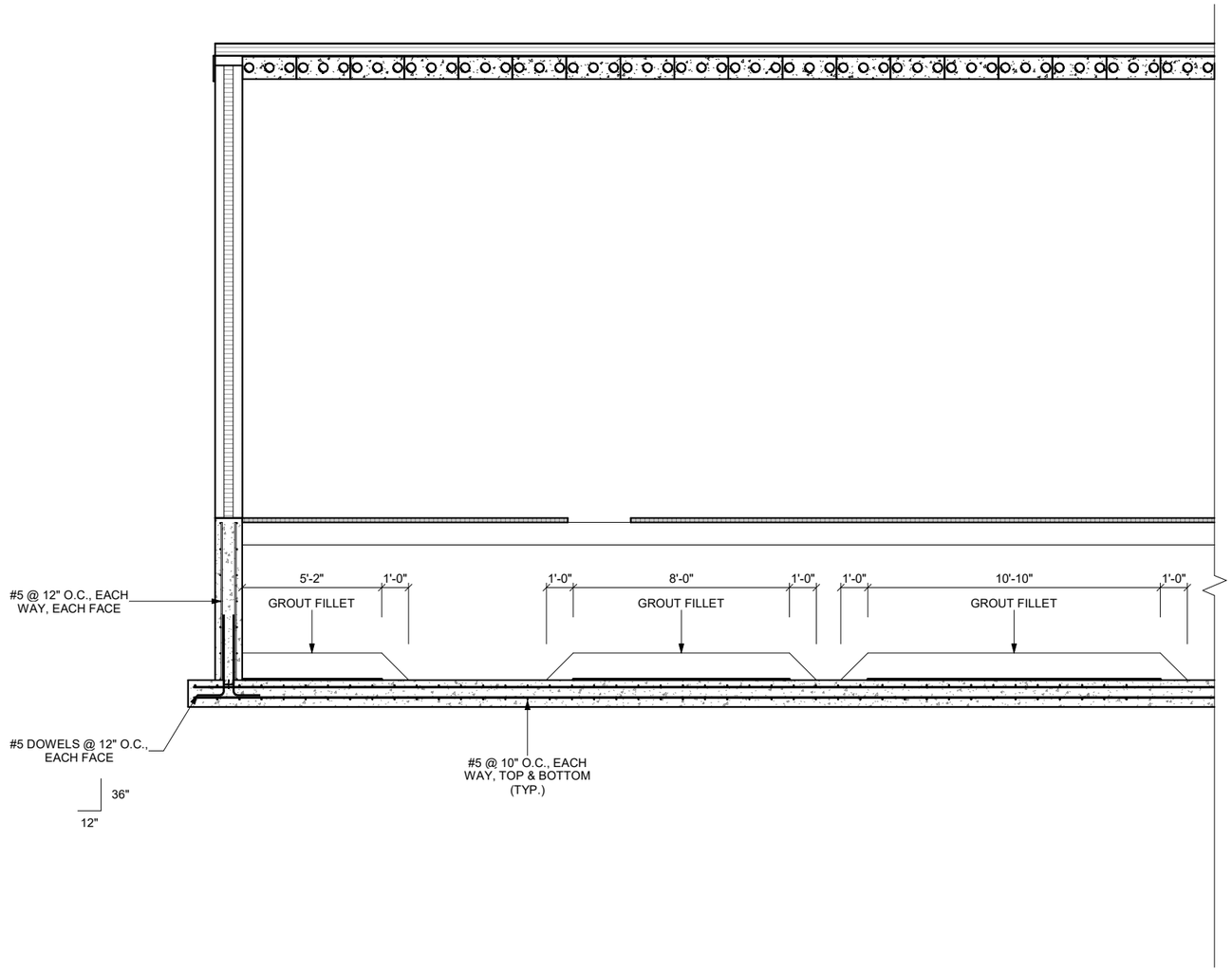

TOP OF WALL (W)
875' - 9"

TOP OF WALL (E)
871' - 0"

FINISHED FLOOR
859' - 0"

TOP OF SLAB
853' - 0"

TOP OF SLAB (BASEMENT)
848' - 0"

A CROSS-SECTION

20S6 3/8" = 1'-0" (22"x34")

0 1 2 4 6

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		DESIGNED BY:	MLB
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No	DATE	REVISIONS	BY

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SHEET 20S6

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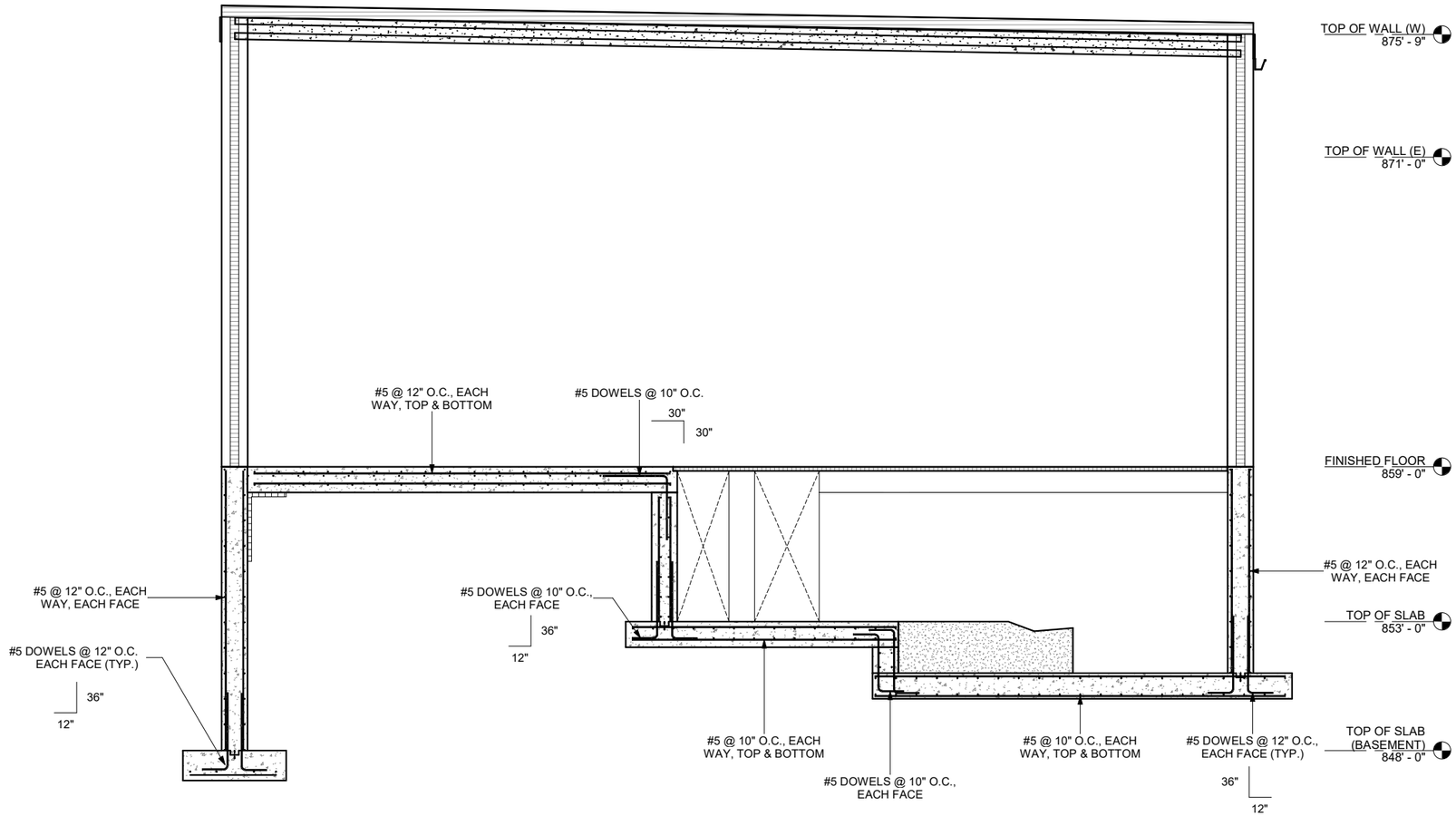

A 20S7 **CROSS-SECTION**
3/8" = 1'-0" (22"x34")
0 1 2 4 6

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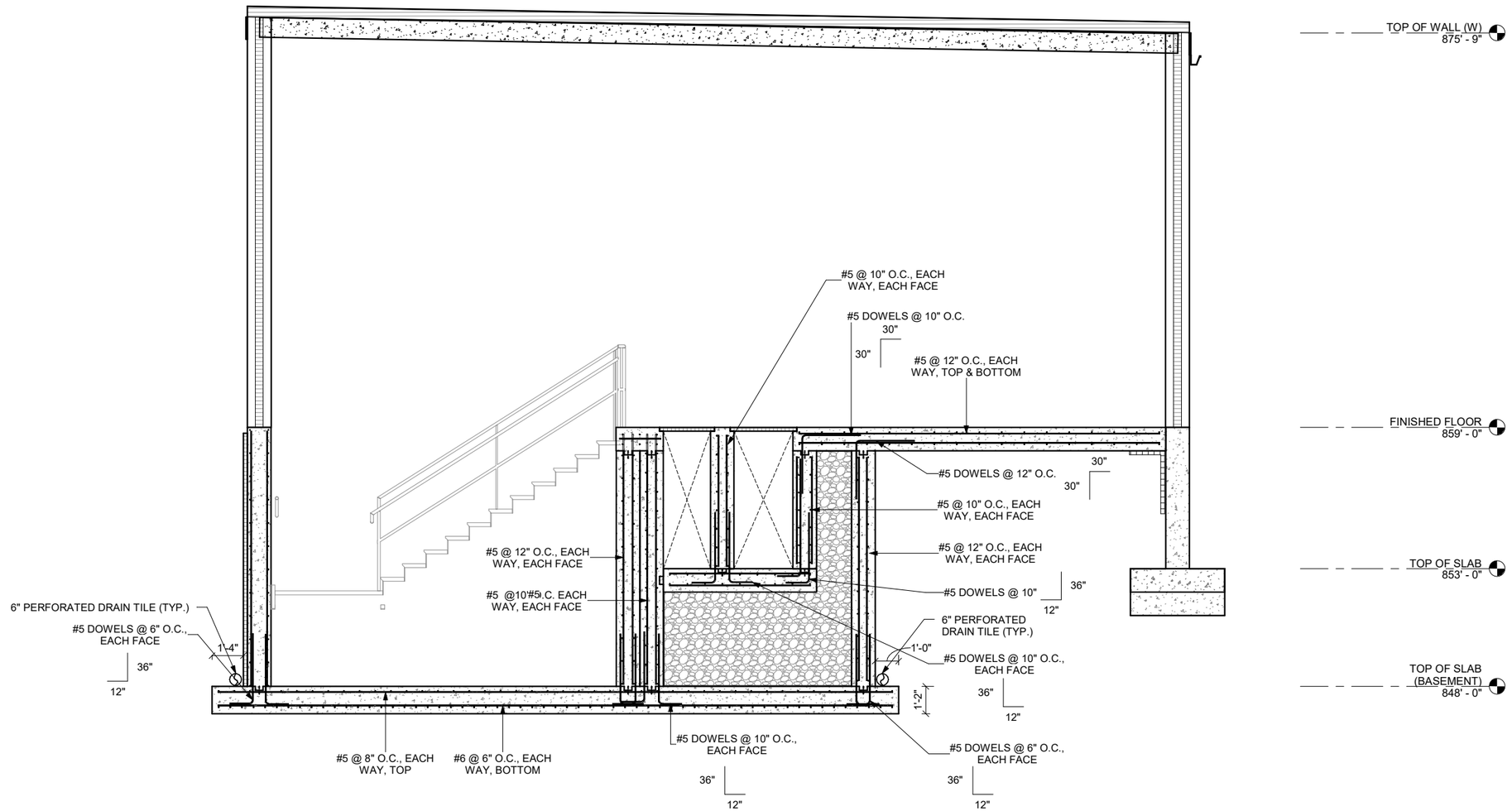

A CROSS-SECTION

20S8 3/8" = 1'-0" (22"x34")

0 1 2 4 6

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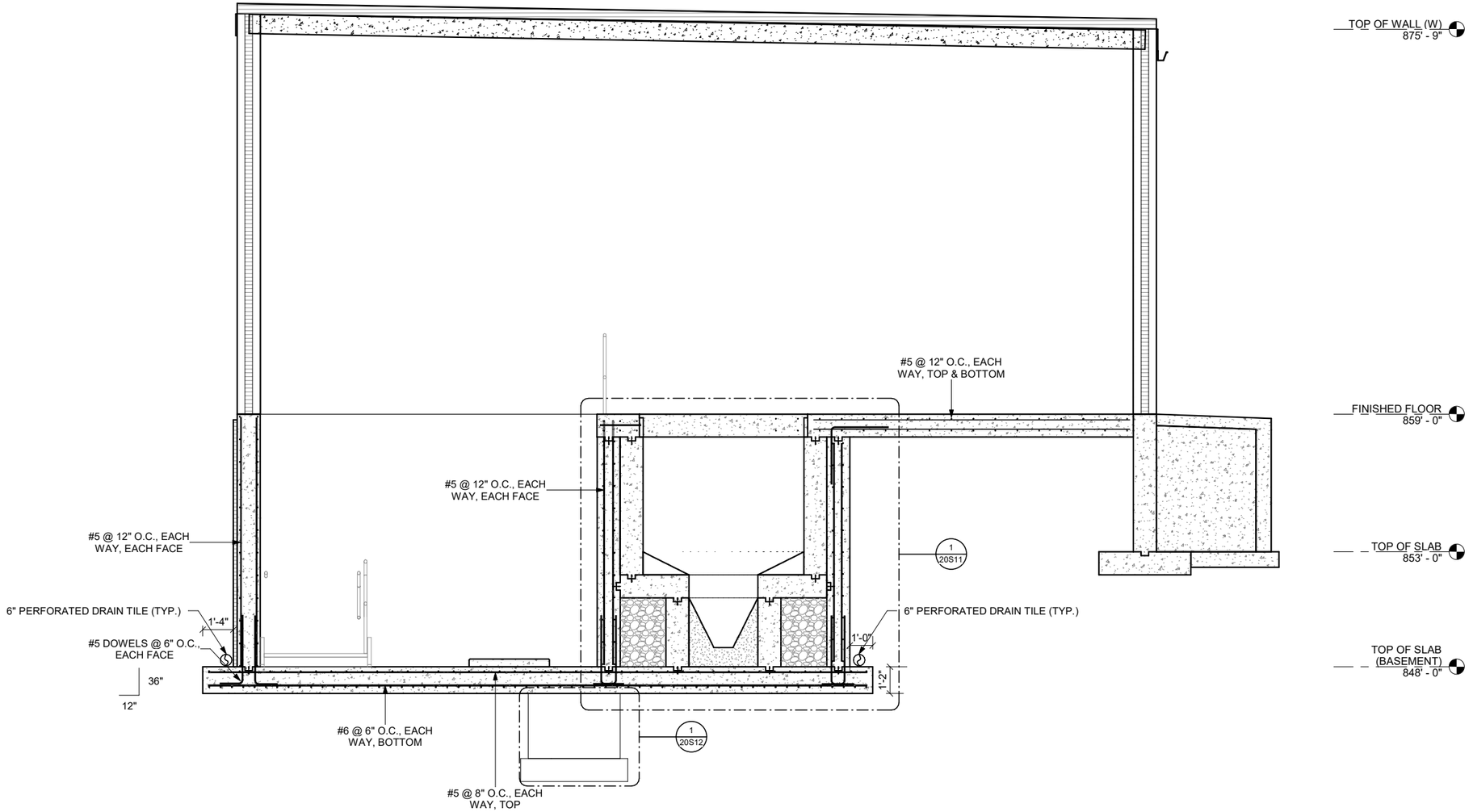

A 20S9 **CROSS-SECTION**
3/8" = 1'-0" (22"x34")
0 1 2 4 6

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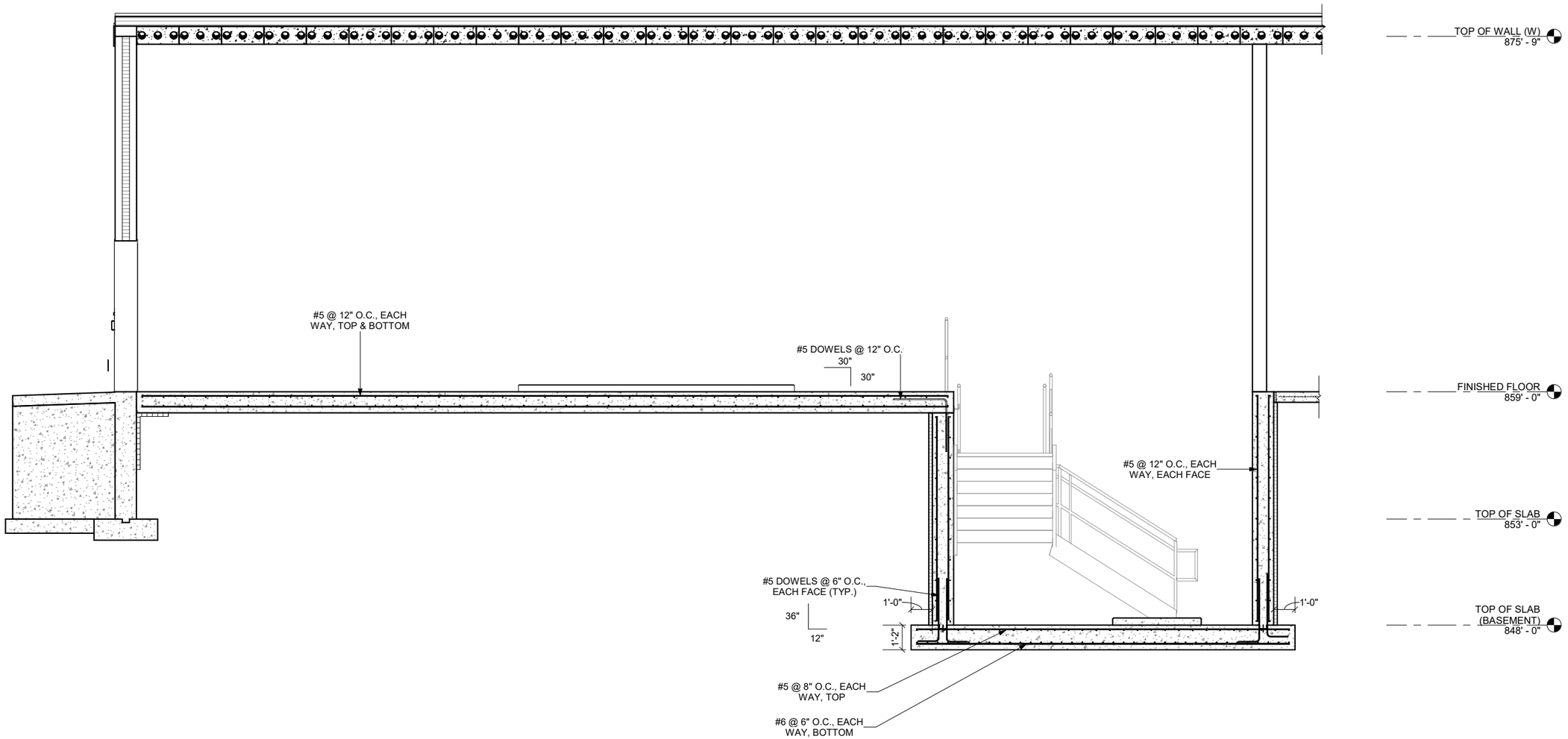

A 20S10 **CROSS-SECTION**

3/8" = 1'-0" (22"x34")

0 1 2 4 6

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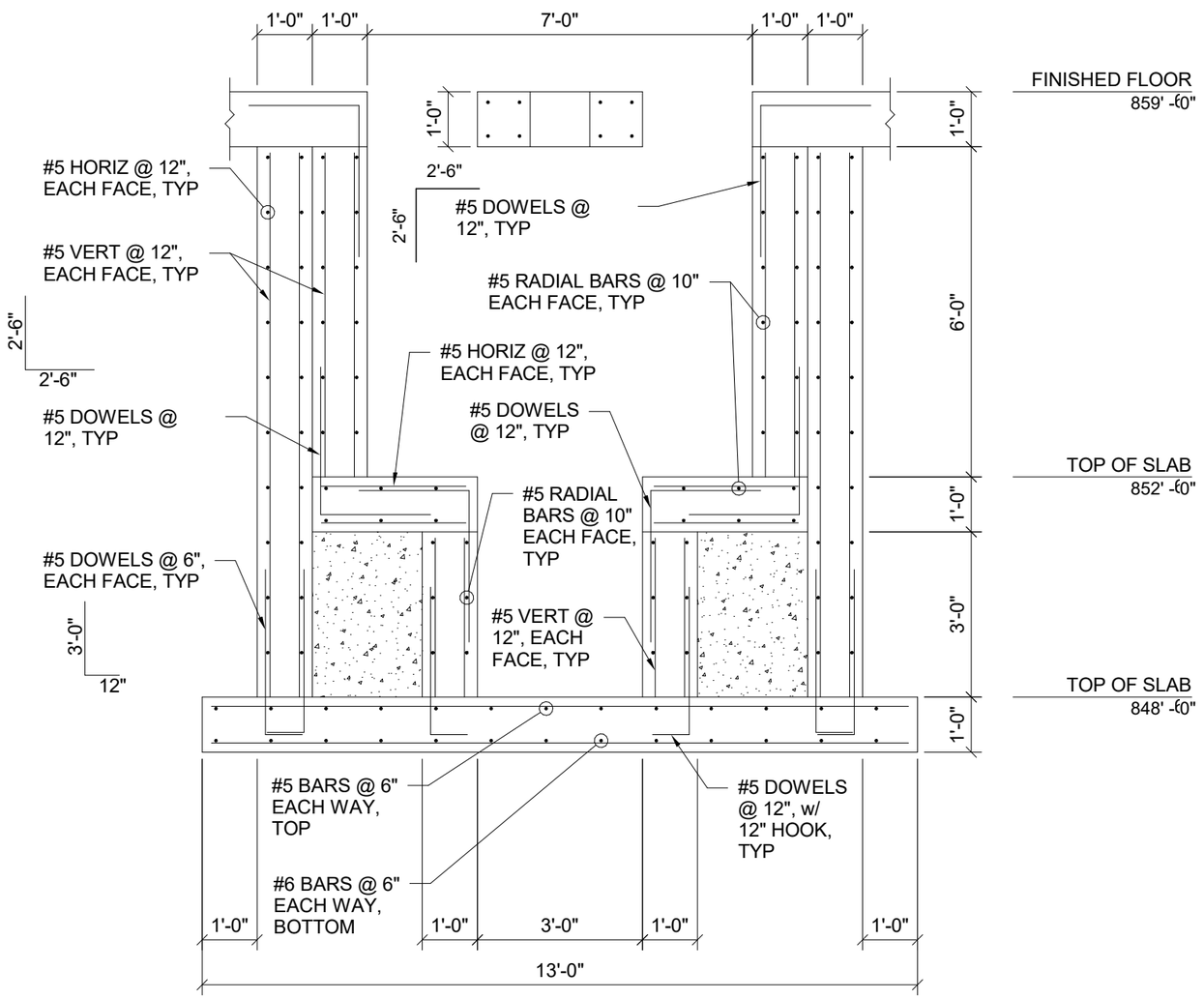
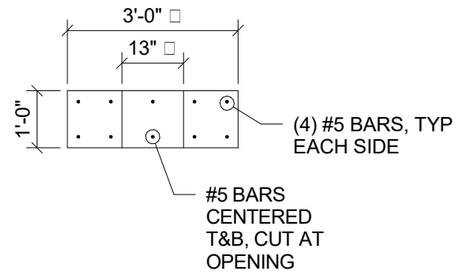
NOTE:
ALL LAPS WITHIN GRIT CHAMBER ARE 24" MINIMUM





NOTE:
INCLUDE ADDITIONAL REINFORCEMENT AT SLAB OPENING, REFER TO DETAIL

1 GRIT CHAMBER STRUCTURAL DETAILS

20S11 3/4" = 1'-0" (22"x34")

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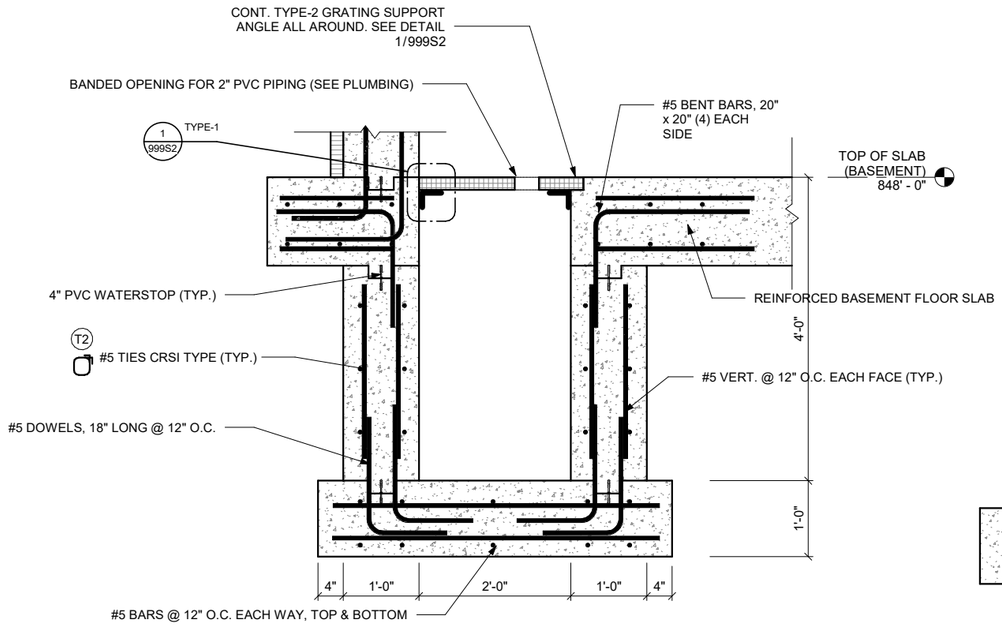
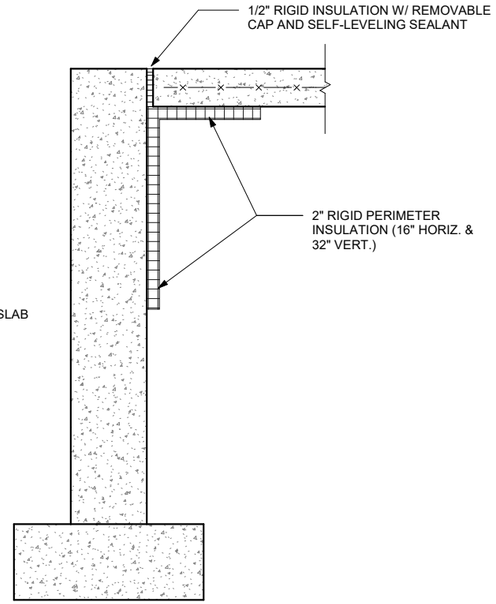
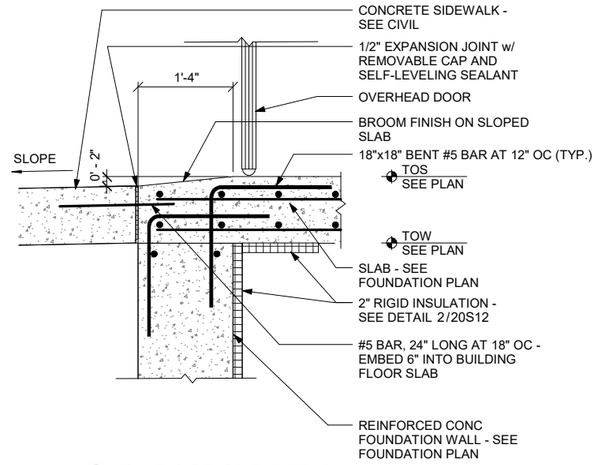


1 20S12 **SUMP PIT DETAIL**
N.T.S.



2 20S12 **EXTERIOR FOUNDATION WALL INSULATION DETAIL**
N.T.S.



3 20S12 **OH DOOR SILL DETAIL**
N.T.S.

CONCRETE EQUIPMENT PADS

MARK	DESCRIPTION	CONCRETE BASE, L	CONCRETE BASE, W	CONCRETE BASE, D	CONCRETE BASE, H	CONCRETE BASE, A BARS	CONCRETE BASE, B BARS	CONCRETE BASE, C BARS	REF. DETAIL NO.	QTY ROWS
B1	GRIT CLASSIFIER	13' - 0"	5' - 0"	0' - 4"	0' - 4"	#5	#5	#4	3 / 999S4	1
B2	BLOWER	5' - 4"	5' - 4"	0' - 4"	0' - 4"	#5	#5	#4	3 / 999S4	1
B3	BLOWER	5' - 4"	5' - 4"	0' - 4"	0' - 4"	#5	#5	#4	3 / 999S4	1
B4	BLOWER	5' - 4"	5' - 4"	0' - 4"	0' - 4"	#5	#5	#4	3 / 999S4	1
B5	AIR COMPRESSOR	3' - 0"	3' - 0"	0' - 4"	0' - 4"	#5	#5	#4	3 / 999S4	1
B6	AIR COMPRESSOR	3' - 0"	3' - 0"	0' - 4"	0' - 4"	#5	#5	#4	3 / 999S4	1
B7	DESSICANT DRYER	3' - 0"	3' - 0"	0' - 4"	0' - 4"	#5	#5	#4	3 / 999S4	1
B8	COMPOSITE SAMPLER	4' - 0"	4' - 0"	0' - 4"	0' - 4"	#5	#5	#4	3 / 999S4	1
B9	GRIT PUMP	4' - 2"	3' - 6"	0' - 4"	0' - 4"	#5	#5	#4	3 / 999S4	1
B10	COMPOSITE SAMPLER	4' - 0"	4' - 0"	0' - 4"	0' - 4"	#5	#5	#4	3 / 999S4	1
B11	COMPOSITE SAMPLER	4' - 0"	4' - 0"	0' - 4"	0' - 4"	#5	#5	#4	3 / 999S4	1

NOTE:
1. VERIFY CONCRETE BASE DIMENSIONS, ELEVATIONS, AND LOCATION(S) BASED ON APPROVED EQUIPMENT SHOP DRAWINGS PRIOR TO BASE CONSTRUCTION. ANCHOR BOLTS SHALL BE CAST-IN-PLACE "J" TYPE AS RECOMMENDED BY EQUIPMENT SUPPLIER, OR EPOXY CAPSULE ANCHORS AS APPROVED BY THE ENGINEER.

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SHEET 20S12

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CODE SUMMARY (2015 IBC)

OCCUPANCY	F-2
BUILDING TYPE	VB
STORIES	1
AREA	#### SF
VOLUME	#### CF
OCCUPANT LOAD	## (CODE)
REQUIRED EXITS	#
EXIT DISTANCE	## FT
SPRINKLERS	NONE

MECHANICAL SPACE ONLY
-- BUILDING IS NOT OCCUPIED

(11) WINDOW DESIGNATION, SEE SCHEDULE

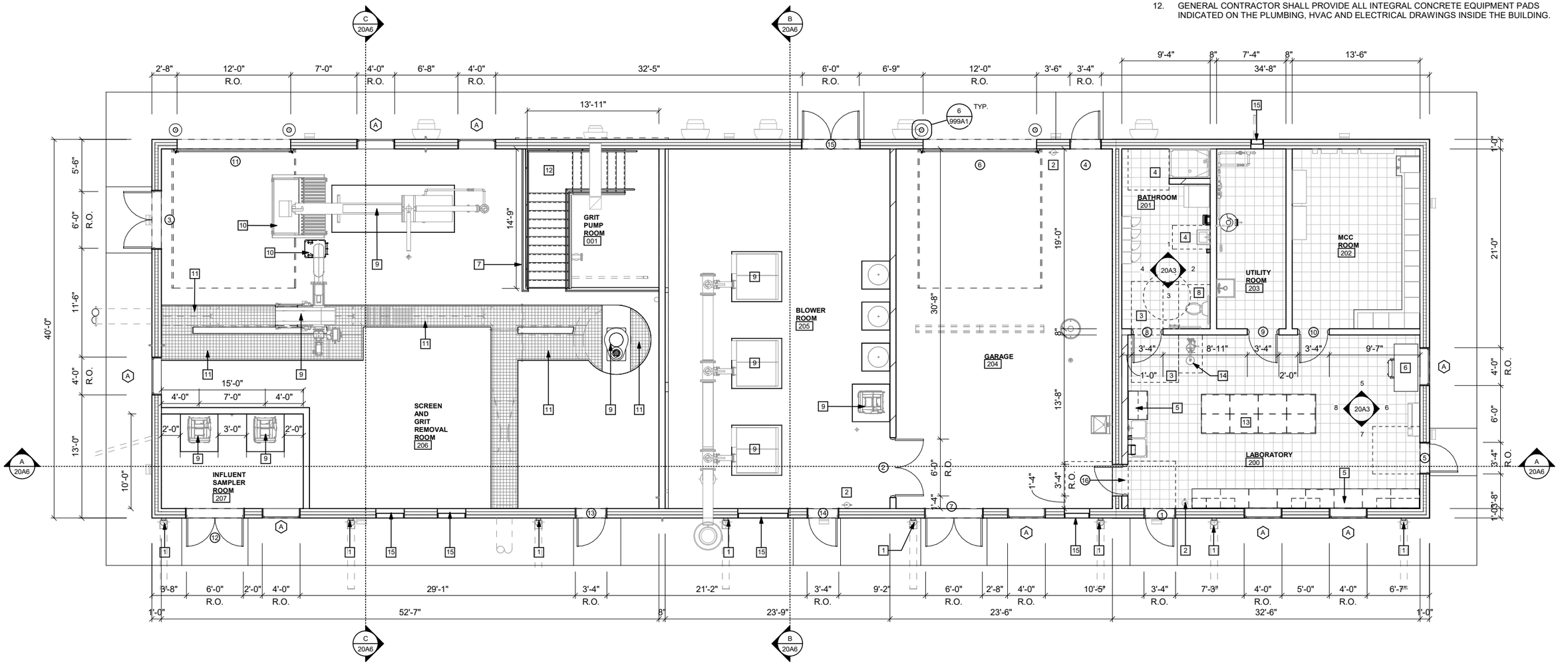
(10) DOOR DESIGNATION, SEE SCHEDULE

☐ KEYNOTES

1 DOWNSPOUT CONNECTED INTO STORM DRAIN
2 FIRE EXTINGUISHER W/ BRACKET.
3 DOOR ACCESSIBILITY CLEAR FLOOR SPACE - GRAPHIC DRAWING USE ONLY
4 FIXTURE ACCESSIBILITY CLEAR FLOOR SPACE - GRAPHIC DRAWING USE ONLY
5 COUNTER W/ CABINETS BELOW AND WALL HUNG CABINETS - SEE INTERIOR ELEVATIONS
6 DESK LOCATION BY OWNER (NIC)
7 GUARD RAIL - SEE DETAIL
8 SEE BATHROOM INTERIOR ELEVATIONS
9 PROCESS EQUIPMENT AND PIPING
10 DUMPSTER (N.I.C.)
11 ALUMINUM GRATING - SEE DETAIL
12 ALUMINUM STAIRS AND HANDRAIL - SEE DETAIL
13 COUNTER W/ CABINETS BELOW - SEE INTERIOR ELEVATIONS
14 EMERGENCY EYEWASH/SHOWER
15 LOUVER LOCATION. SEE HVAC AND DETAIL

GENERAL PLAN NOTES:

1. ALL DIMENSIONING IS TO FACE OF STUD, FRAMING OR CONCRETE.
2. DO NOT SCALE DRAWINGS. IF DIMENSIONS ARE IN QUESTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATION FROM THE ARCHITECT BEFORE CONTINUING WITH CONSTRUCTION.
3. THE CONTRACT DOCUMENTS CONSIST OF THE SPECIFICATION MANUAL AND DRAWINGS WHICH ARE INTENDED TO BE COMPLEMENTARY AND TO BE USED IN CONJUNCTION WITH ONE ANOTHER.
4. IF DISCREPANCIES OCCUR BETWEEN THE SPECIFICATION MANUAL AND THE DRAWINGS, NOTIFY THE ARCHITECT FOR A RESOLUTION.
5. ALL EXTERIOR WALL AND ROOF OPENINGS BY ALLTRADES SHALL BE FLASHED AND CAULKED BY THE METAL BUILDING ERECTOR.
6. OPENINGS FOR PLUMBING, VENTILATING, AND ELECTRICAL WORK IN WALLS, FLOORS, CEILING, AND ROOF SHALL BE PROVIDED BY THE GC LOCATION AND SIZE SHALL BE THE RESPONSIBILITY OF THE RESPECTIVE CONTRACTORS.
7. SLOPE FLOOR SLABS TO FLOOR DRAINS. SEE FOUNDATION PLAN AND COORDINATE WITH PLUMBING DRAWINGS. (MAX FLOOR SLOPE 1/4" PER FT).
8. ALL ROOF CURBS REQUIRED SHALL BE PROVIDED AND INSTALLED BY THE METAL BUILDING MANUFACTURER/SUPPLIER.
9. BUILDING MANUFACTURER/SUPPLIER TO PROVIDE STRUCTURAL MEMBERS FOR SUPPORTING ROOF HUNG HVAC EQUIPMENT AND LIGHTING.
10. CONTRACTOR TO COORDINATE STRUCTURAL, ARCHITECTURAL, HVAC, AND PLUMBING PLANS FOR DETAILS, DIMENSIONS, ELEVATIONS, OPENINGS, INSERTS, ETC. NOTIFY ARCHITECT OF ANY VARIANCE BEFORE COMMENCING CONSTRUCTION.
11. IN NO CASE SHALL STRUCTURAL ALTERATIONS OR WORK AFFECTING A STRUCTURAL MEMBER BE MADE, UNLESS APPROVED BY THE ENGINEER.
12. GENERAL CONTRACTOR SHALL PROVIDE ALL INTEGRAL CONCRETE EQUIPMENT PADS INDICATED ON THE PLUMBING, HVAC AND ELECTRICAL DRAWINGS INSIDE THE BUILDING.



ARCHITECTURAL PLAN

3/16" = 1'-0" (22"x34")

0 2 4 8 12

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ARCHITECTURAL PLAN

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SHEET 20A1

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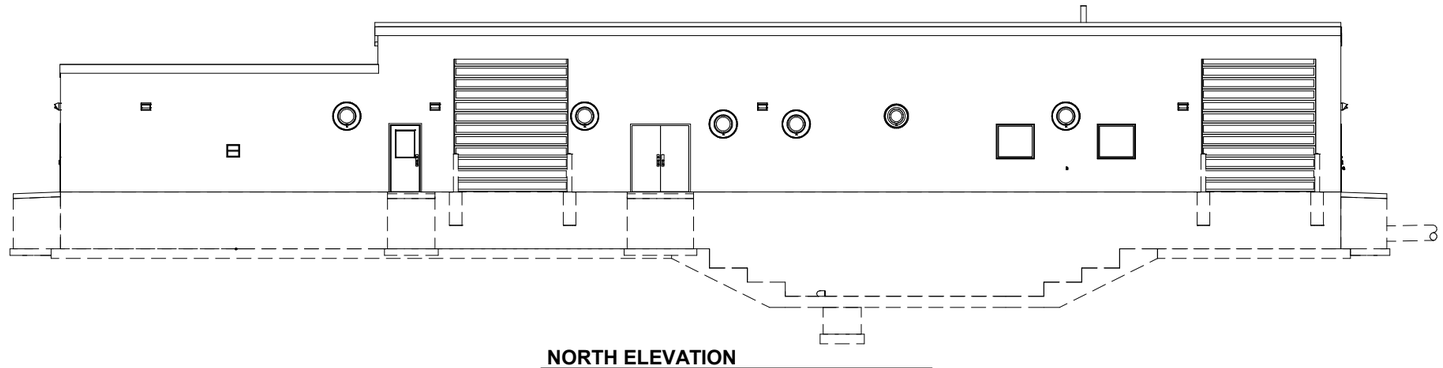
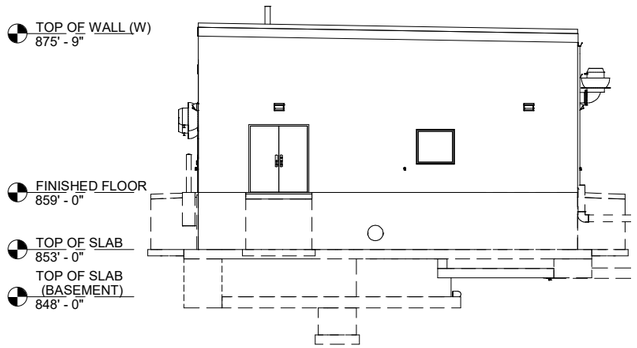
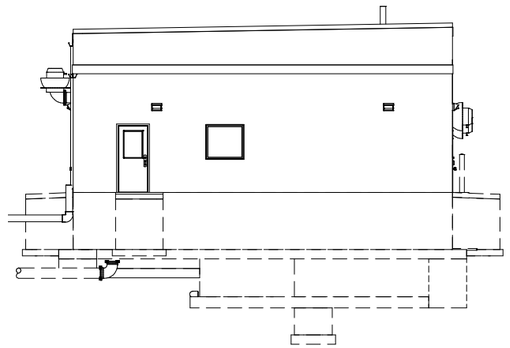


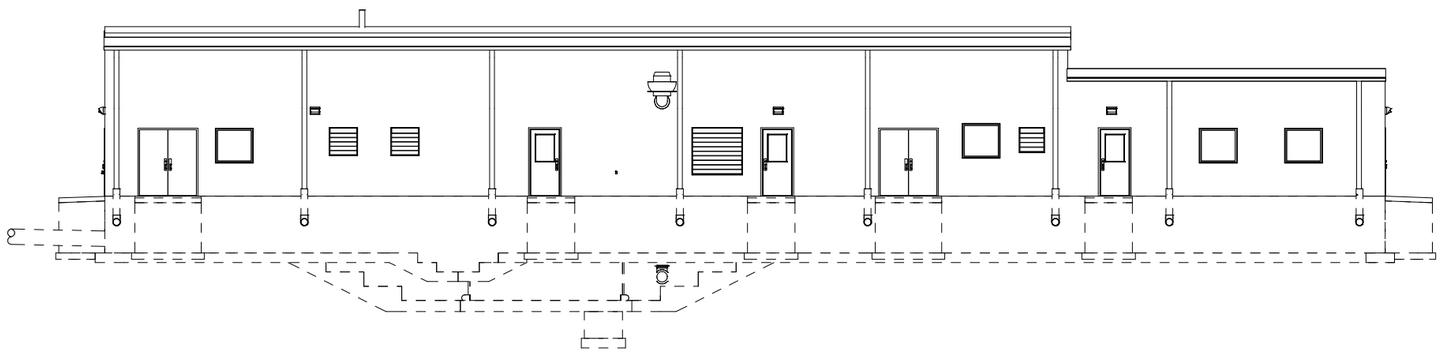
NORTH ELEVATION
1/8" = 1'-0"
0 4 8 16



WEST ELEVATION
1/8" = 1'-0"
0 4 8 16



EAST ELEVATION
1/8" = 1'-0"
0 4 8 16



SOUTH ELEVATION
1/8" = 1'-0"
0 4 8 16

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HEADWORKS BUILDING
ELEVATION VIEWS

PROJECT NO. 14573015
SHEET 20A2

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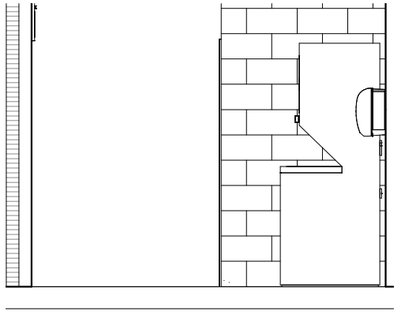
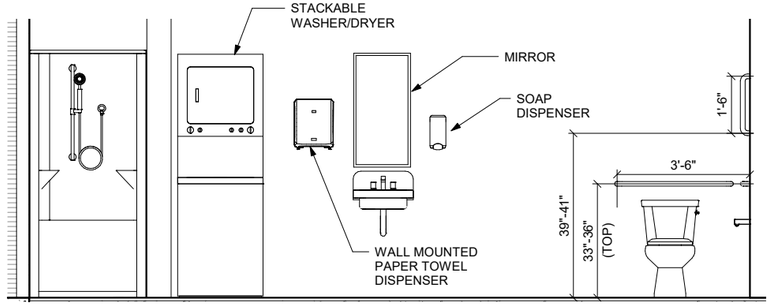


1 BATHROOM INTERIOR ELEVATION - NORTH WALL
20A3 1/2" = 1'-0" (22"x34")

0 1 2 4



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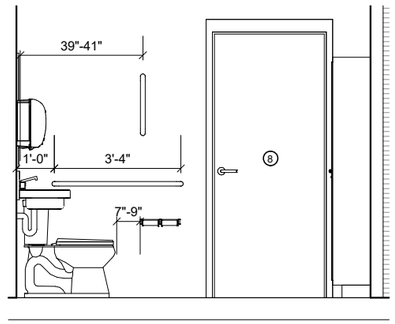
0 1 2 4



3 BATHROOM INTERIOR ELEVATION - SOUTH WALL
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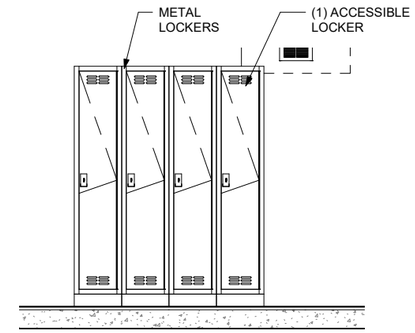
0 1 2 4



4 BATHROOM INTERIOR ELEVATION - WEST WALL
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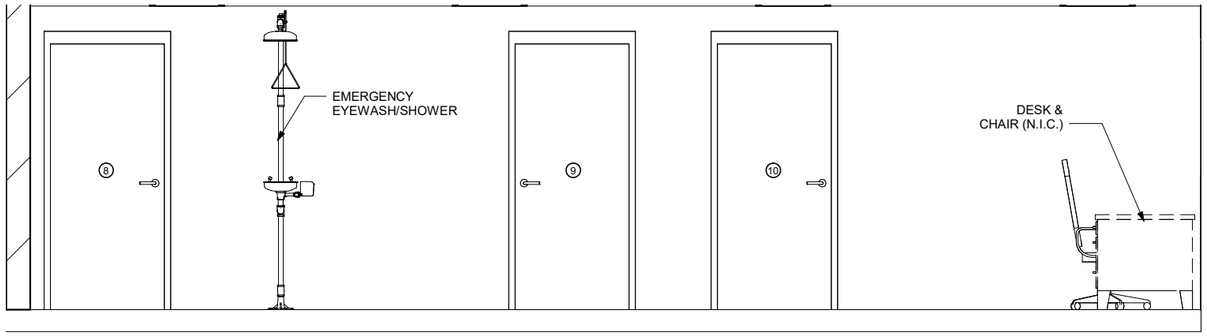
0 1 2 4



5 LABORATORY INTERIOR ELEVATION - NORTH WALL
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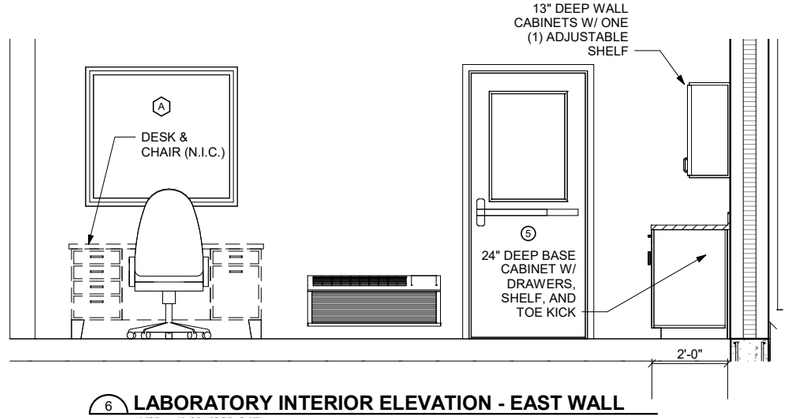
0 1 2 4



6 LABORATORY INTERIOR ELEVATION - EAST WALL
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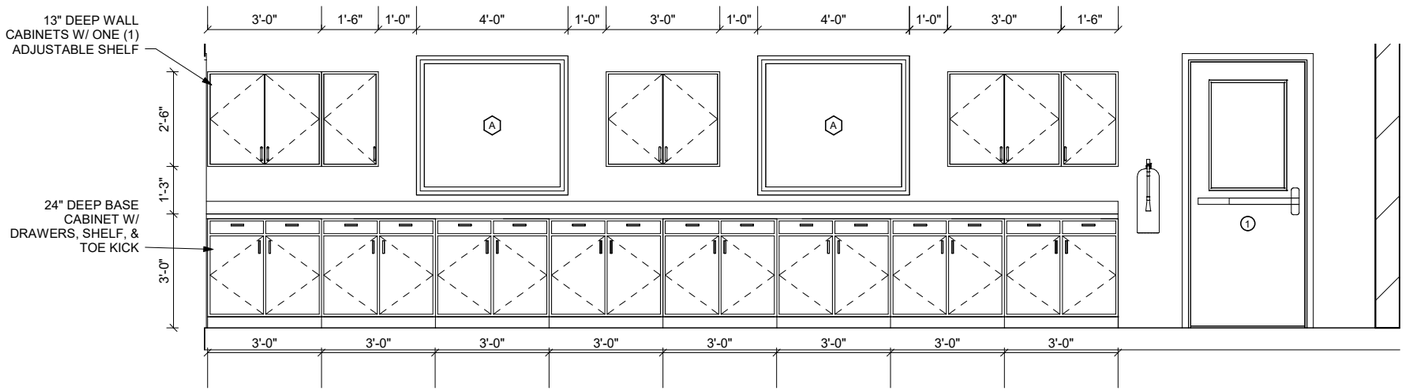
0 1 2 4



7 LABORATORY INTERIOR ELEVATION - SOUTH WALL
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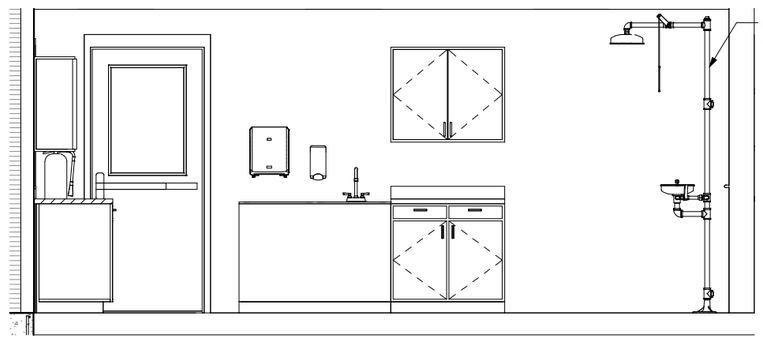
0 1 2 4



8 LABORATORY INTERIOR ELEVATION - WEST WALL
20A3 1/2" = 1'-0" (22"x34")

0 1 2 4

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INTERIOR ROOM ELEVATIONS

PROJECT NO. 14573015
SHEET 20A3

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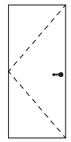
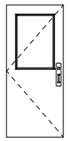
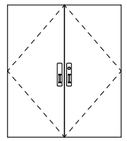


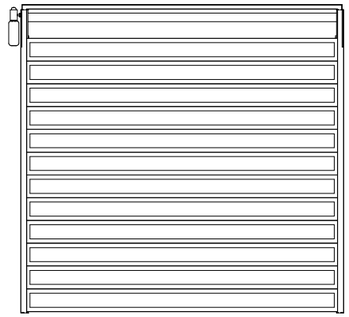
A
FLUSH
(PAINTED)



B
FLUSH
(PAINTED)
W/ HALF
GLASS

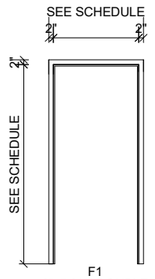


C
FLUSH - PAIR
(PAINTED)

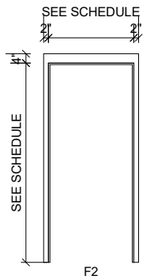


D
PREFINISHED INSULATED
SECTIONAL OVERHEAD
DOOR

DOOR TYPES



F1
2"x5 3/4" DOUBLE
RABBET FRAME
(PAINTED)



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RABBET FRAME
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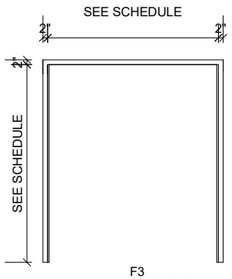

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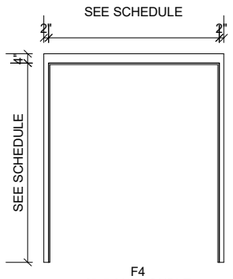
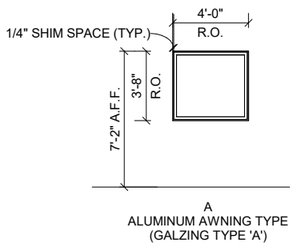
RABBET FRAME
(PAINTED)



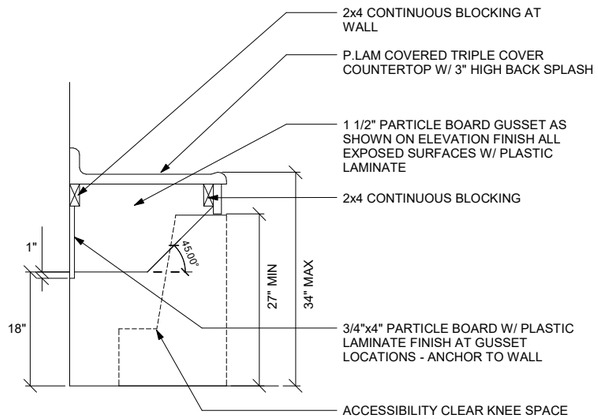
F4
2"x5 3/4" DOUBLE
RABBET FRAME
(PAINTED)

FRAME TYPES



A
ALUMINUM AWNING TYPE
(GALZING TYPE 'A')

WINDOW TYPES



1 20A4 **COUNTER DETAIL**
N.T.S.

SCHEDULE - DOOR

OPENING NO	DOOR					FRAME					HW SET	GLASS TYPE	FIRE RATING	REMARKS
			NOMINAL SIZE					DETAILS						
	MAT'L	TYPE	WIDTH	HEIGHT	THICKNESS	MAT'L	TYPE	HEAD	JAMB	SILL				
1	H.M.	B	3' - 0"	7' - 0"	1 3/4"	H.M.	F-1	3 / 999A1	3 / 999A1		(none)	B		
2	H.M.	C	6' - 0"	7' - 0"	1 3/4"	H.M.	F-4	4 / 999A1	4 / 999A1		(none)	(none)		
3	H.M.	C	6' - 0"	7' - 0"	1 3/4"	H.M.	F-3	3 / 999A1	3 / 999A1		(none)	(none)		
4	H.M.	B	3' - 0"	7' - 0"	1 3/4"	H.M.	F-1	3 / 999A1	3 / 999A1		(none)	B		
5	H.M.	B	3' - 0"	7' - 0"	1 3/4"	H.M.	F-1	3 / 999A1	3 / 999A1		1	B		
6	STL	D	12' - 0"	14' - 0"							(none)	(none)		
7	H.M.	C	6' - 0"	7' - 0"	1 3/4"	H.M.	F-3	3 / 999A1	3 / 999A1		(none)	(none)		
8	H.M.	A	3' - 0"	7' - 0"	1 3/4"	H.M.	F-2	4 / 999A1	4 / 999A1		(none)	(none)		
9	H.M.	A	3' - 0"	7' - 0"	1 3/4"	H.M.	F-2	4 / 999A1	4 / 999A1		(none)	(none)		
10	H.M.	A	3' - 0"	7' - 0"	1 3/4"	H.M.	F-2	4 / 999A1	4 / 999A1		(none)	(none)		
11	STL	D	12' - 0"	14' - 0"							(none)	(none)		
12	H.M.	C	6' - 0"	7' - 0"	1 3/4"	H.M.	F-3	3 / 999A1	3 / 999A1		(none)	(none)		
13	H.M.	B	3' - 0"	7' - 0"	1 3/4"	H.M.	F-1	3 / 999A1	3 / 999A1		(none)	B		
14	H.M.	B	3' - 0"	7' - 0"	1 3/4"	H.M.	F-1	3 / 999A1	3 / 999A1		(none)	B		
15	H.M.	C	6' - 0"	7' - 0"	1 3/4"	H.M.	F-3	3 / 999A1	3 / 999A1		(none)	(none)		
16	H.M.	B	3' - 0"	7' - 0"	1 3/4"	H.M.	F-2	4 / 999A1	4 / 999A1		(none)	B		

DOOR REMARKS

1. SET THRESHOLD ON GASKET (SEE HARDWARE SET).
2. INSTALL WARNING SIGN TO EXTERIOR SURFACE OF DOOR AFTER PAINTING IS COMPLETE.
3. DOOR SIZE LISTED IS MASONRY OPENING SIZE. DOOR SHALL BE 2" WIDER AND 1" TALLER THAN OPENING SIZE.
4. 2" TRACK AND DOOR HARDWARE AND OPERATOR BY DOOR MANUFACTURER.

SCHEDULE - ROOM FINISH

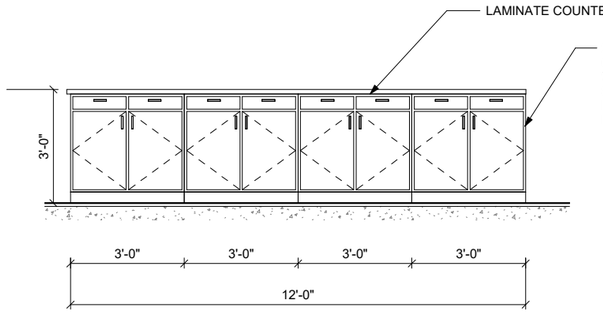
ROOM NO	ROOM NAME	FLOOR	BASE	WALLS				CEILING		REMARKS
				NORTH	SOUTH	EAST	WEST	MAT'L	HEIGHT	
001	GRIT PUMP ROOM	F1	B1	W2/W3	W3	W1/W3	W3	C1	28' - 6"	1
200	LABORATORY	F2	B2	W1	W2	W2	W1	C2	8' - 0"	1
201	BATHROOM	F2	B2	W2	W1	W1	W2	C2	8' - 0"	1
202	MCC ROOM	F2	B2	W2	W1	W2	W1	C2	8' - 0"	1
203	UTILITY ROOM	F2	B2	W2	W1	W1	W1	C1	10' - 0"	1
204	GARAGE	F1	B1	W2	W2	W2	W1	C1	16' - 0"	1
205	BLOWER ROOM	F1	B1	W2	W2	W1	W1	C1	16' - 0"	1
206	SCREEN AND GRIT REMOVAL ROOM	F1	B1	W2	W2	W1	W2	C1	10' - 0"	
207	INFLUENT SAMPLER ROOM	F1	B1	W2	W2	W1	W2	C1	16' - 0"	1

FLOOR:
1. CONCRETE - SEALER
2. VINYL TILE

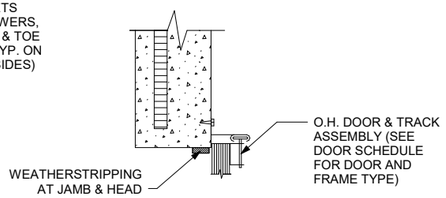
WALLS:
1. CMU - PAINTED
2. PRECAST CONCRETE - PAINTED
3. CAST-IN-PLACE CONCRETE - PAINTED

BASE:
1. NONE
2. VINYL

CEILING:
1. PRECAST CONCRETE - PAINTED
2. SUSPENDED ACOUSTIC TILE AND GRID



2 20A4 **CENTER ISLAND ELEVATION**
1/2" = 1'-0"
0 1 2 4



3 20A4 **OVERHEAD DOOR JAMB DETAIL**
N.T.S.

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SCHEDULES & DETAILS

PROJECT NO. 14573015
SHEET 20A4

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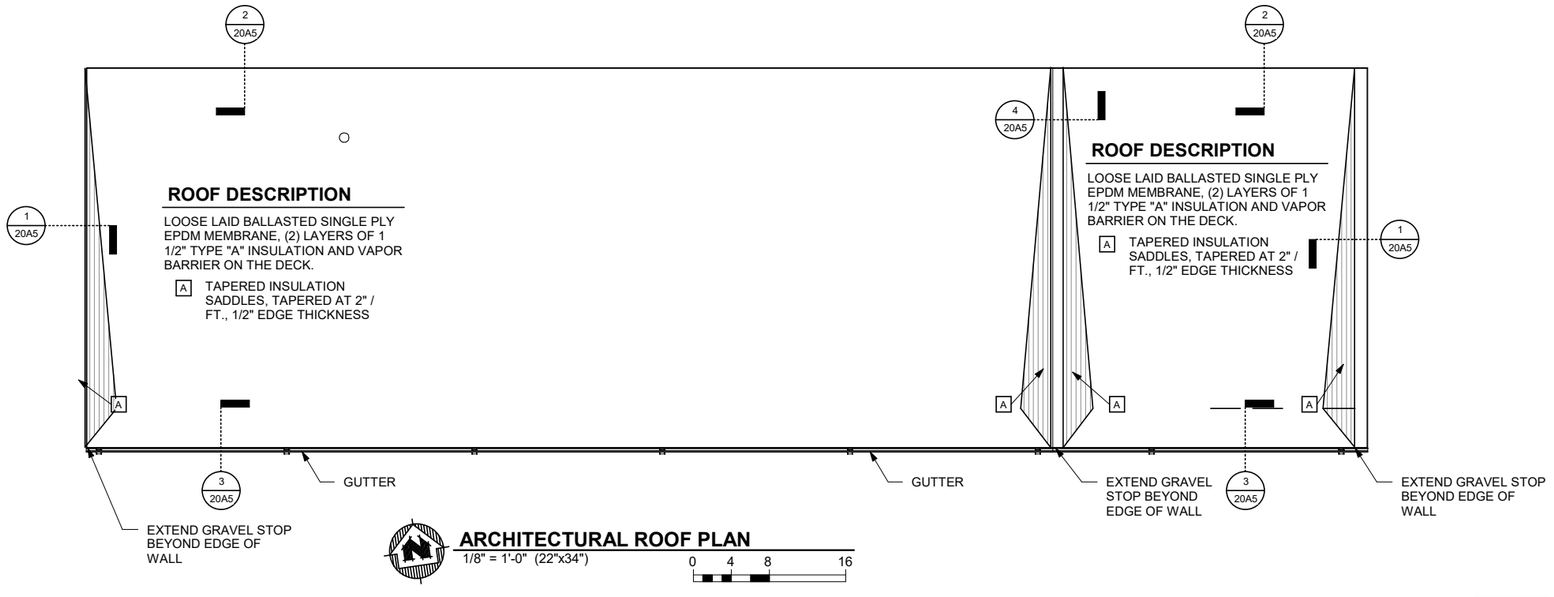
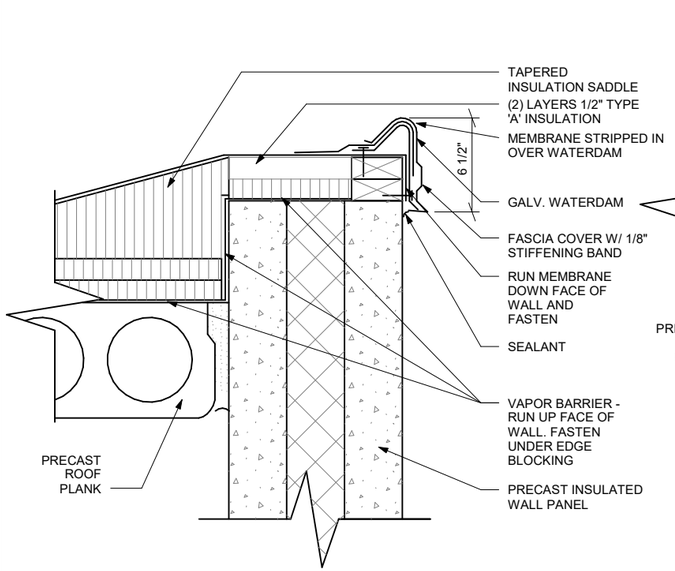


ARCHITECTURAL ROOF PLAN

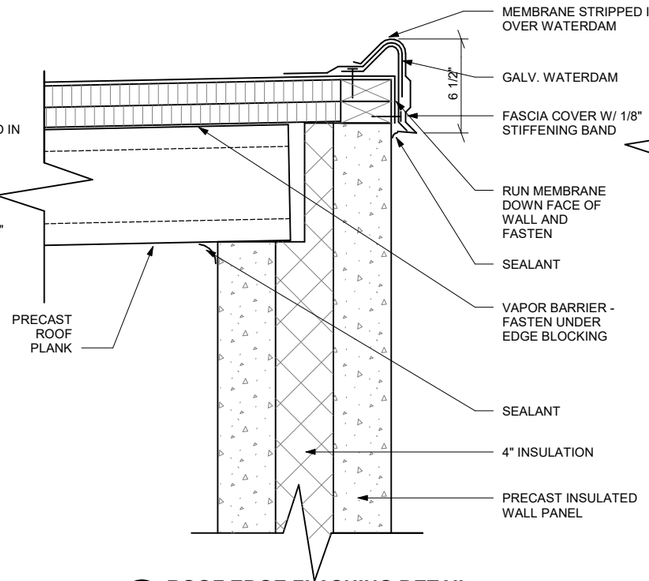
1/8" = 1'-0" (22"x34")

0 4 8 16



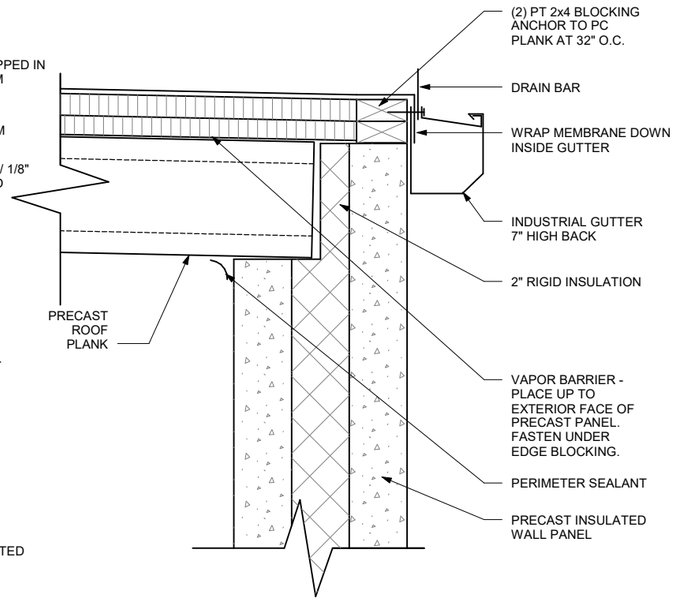
1 ROOF EDGE FLASHING DETAIL

20A5 N.T.S.



2 ROOF EDGE FLASHING DETAIL

20A5 N.T.S.



3 ROOF EDGE FLASHING DETAIL

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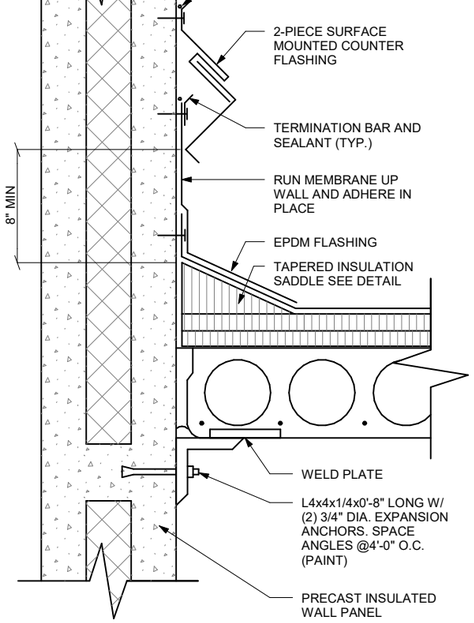

4 ROOF/WALL FLASHING DETAIL

20A5 N.T.S.

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ROOF PLAN & DETAILS

PROJECT NO. 14573015
SHEET 20A5

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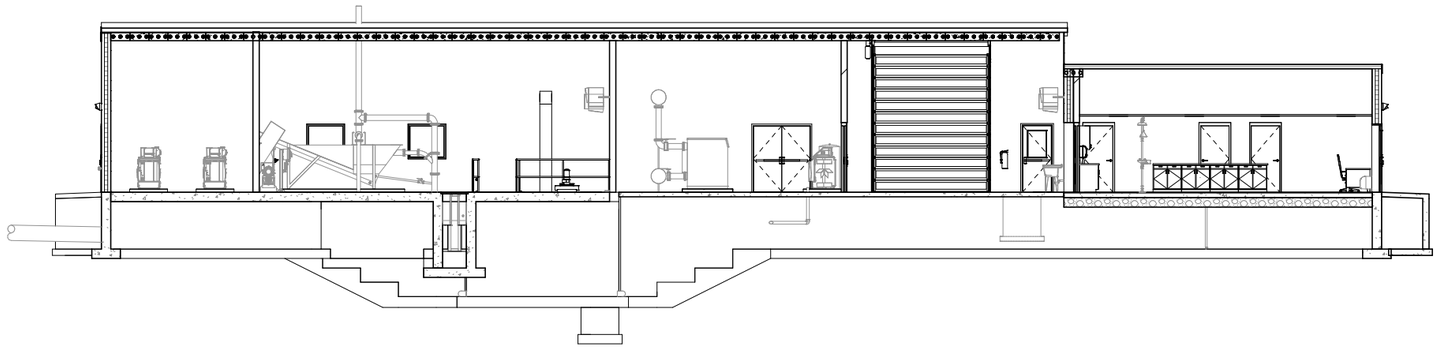
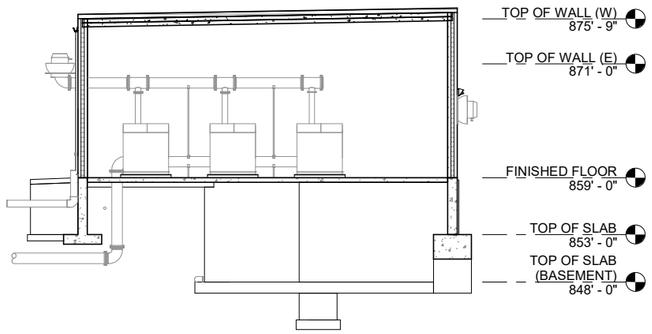


A 20A6 **CROSS-SECTION**

1/8" = 1'-0" (22"x34")

0 4 8 16



B 20A6 **CROSS-SECTION**

1/8" = 1'-0" (22"x34")

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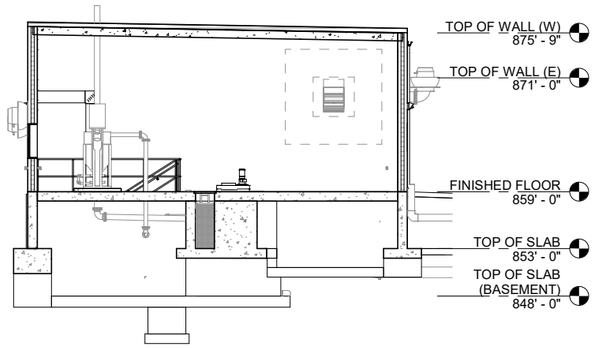

C 20A6 **CROSS-SECTION**

1/8" = 1'-0" (22"x34")

0 4 8 16

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HEADWORKS BUILDING
BUILDING CROSS-SECTIONS

PROJECT NO. 14573015
SHEET 20A6

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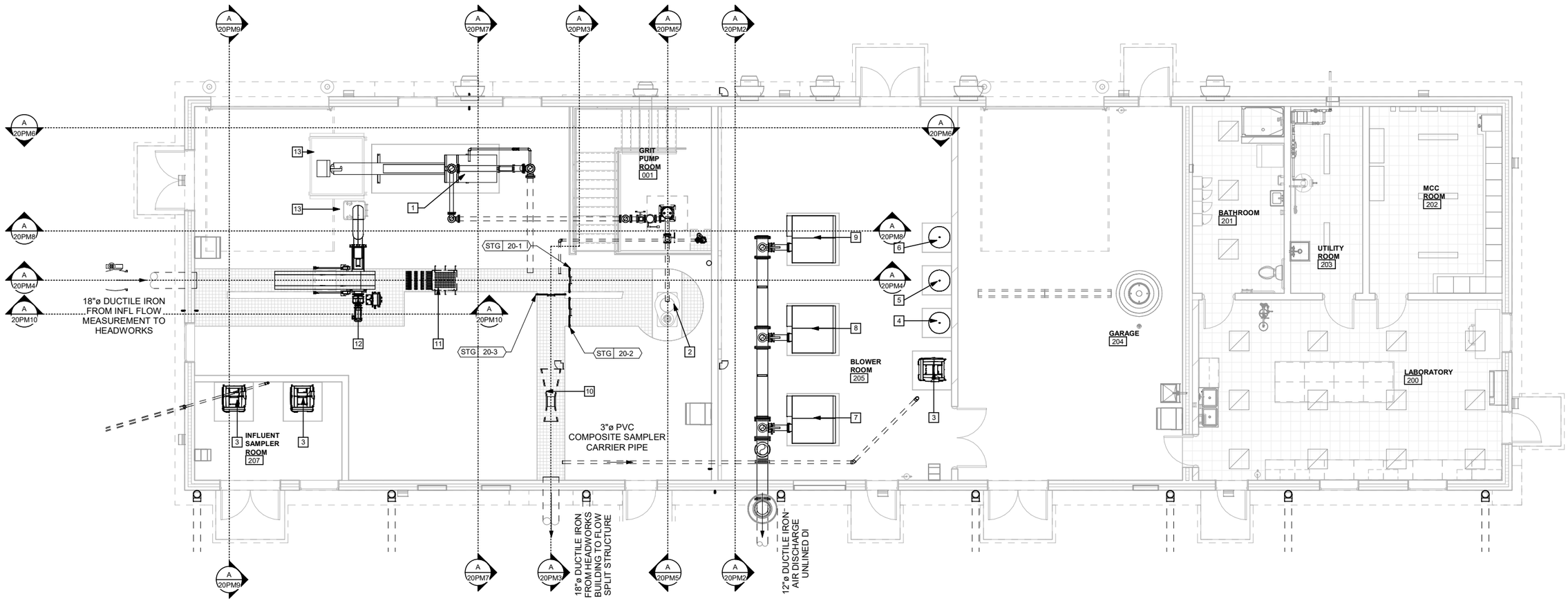
☐ KEYNOTES

1 GRIT CLASSIFIER
2 GRIT CHAMBER
3 COMPOSITE SAMPLER
4 DESSICANT DRYER
5 AIR COMPRESSOR #2
6 AIR COMPRESSOR #1
7 BLOWER #1
8 BLOWER #2
9 BLOWER #3
10 9" PARSHALL FLUME
11 MANUAL BAR SCREEN - SEE DETAIL
12 STAIR SCREEN
13 DUMPSTER (N.I.C.)



PROCESS MECHANICAL PLAN

3/16" = 1'-0" (22"x34")

0 2 4 8 12

PROJECT DATE: 2020-08-13	DRAWN BY: JBR	No	DATE	REVISIONS	BY
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	CHECKED BY: JEM				

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BLACK HAWK COUNTY, IOWA

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PROCESS MECHANICAL PLAN

PROJECT NO. 14573015
SHEET 20PM1

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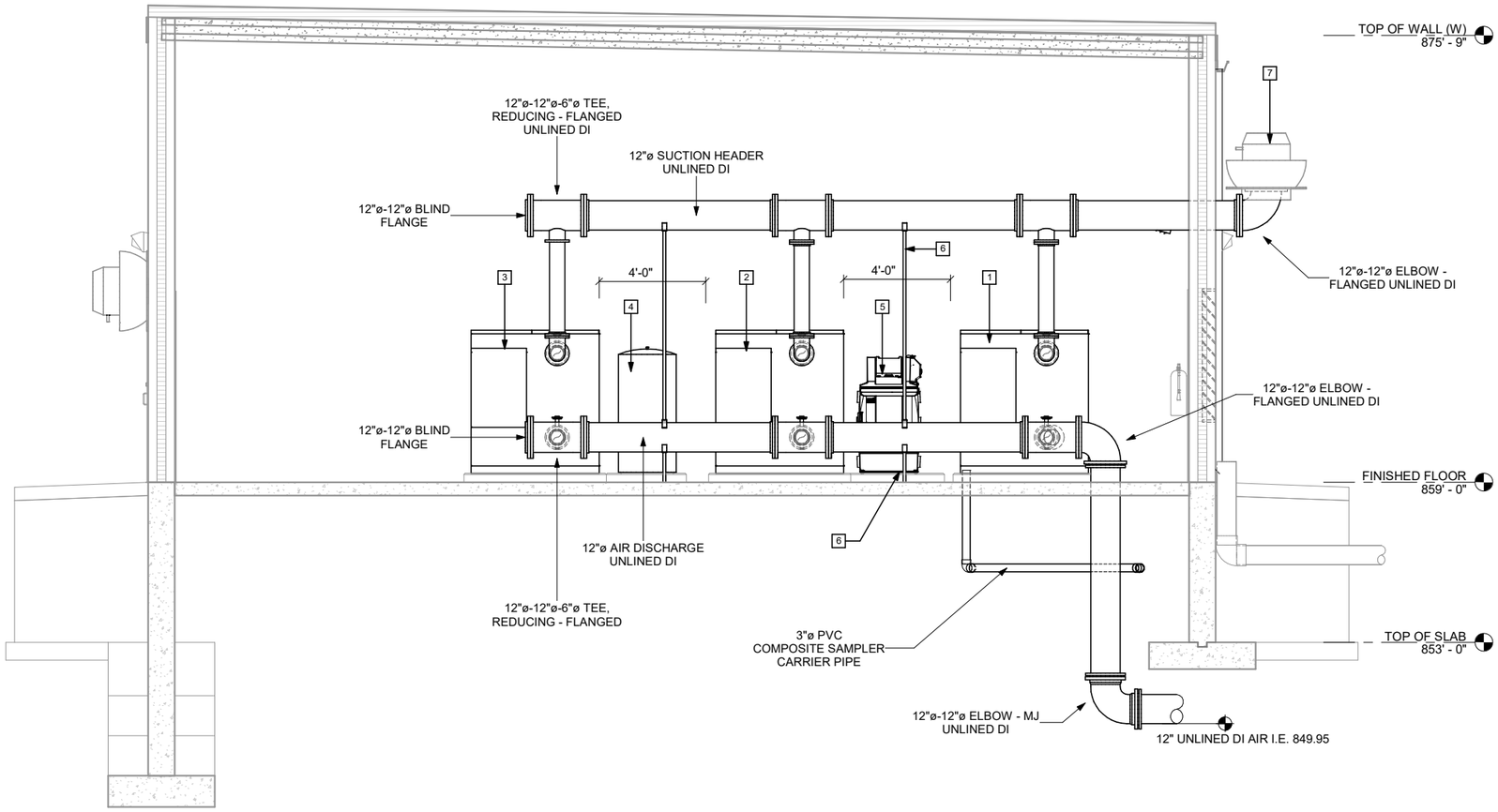
☐ KEYNOTES

1 BLOWER #1
2 BLOWER #2
3 BLOWER #3
4 AIR COMPRESSOR #2
5 COMPOSITE SAMPLER
6 PIPE SUPPORT AS REQ'D
7 INLET SCREEN



A 20PM2 **CROSS-SECTION**
3/8" = 1'-0" (22"x34")
0 1 2 4 6

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PROCESS MECHANICAL CROSS-SECTION

PROJECT NO. 14573015
SHEET 20PM2

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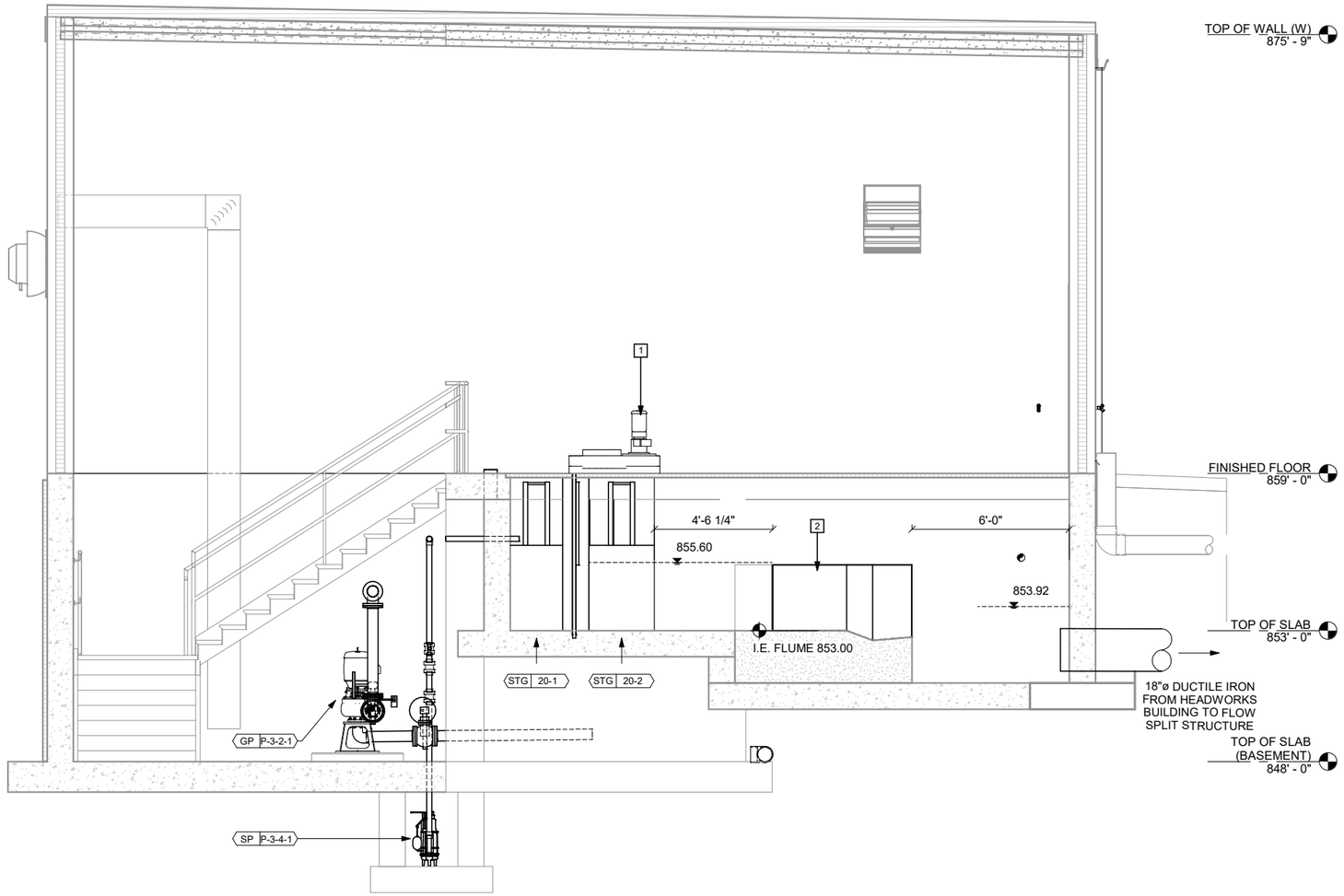
☐ KEYNOTES

1 GRIT CHAMBER
2 9" PARSHALL FLUME



A 20PM3 **CROSS-SECTION**
3/8" = 1'-0" (22"x34")
0 1 2 4 6

			No	DATE	REVISIONS	BY
PROJECT DATE: 2020-08-13	DRAWN BY: JBR					
	DESIGNED BY: JBR					
	CHECKED BY: JEM					

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PROJECT NO. 14573015
SHEET 20PM3

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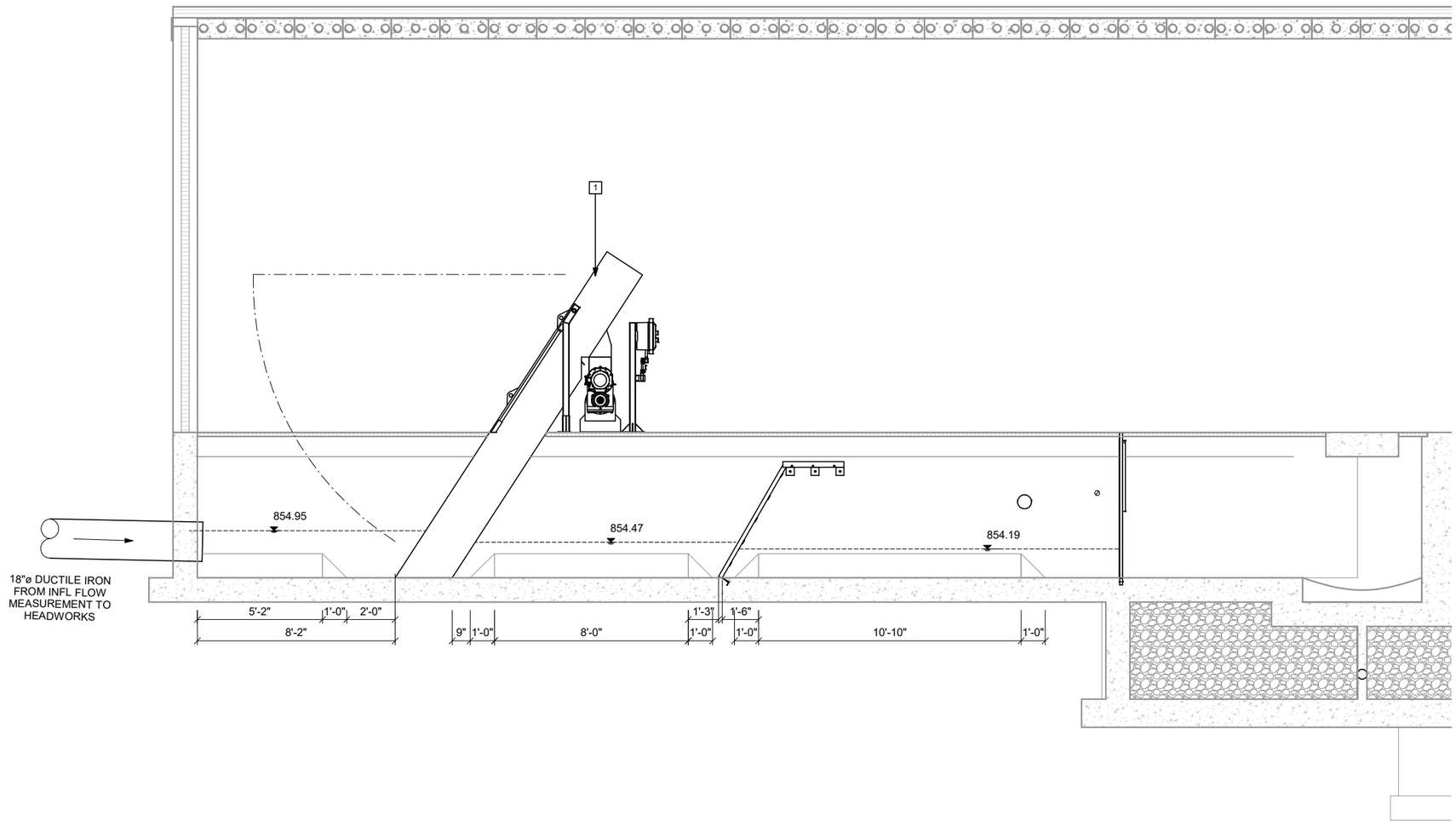
KEYNOTES

1 STAIR SCREEN



A 20PM4 **CROSS-SECTION**
3/8" = 1'-0" (22"x34")
0 1 2 4 6

PROJECT DATE: 2020-08-13	DRAWN BY: JBR	No	DATE	REVISIONS	BY
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PROJECT NO. 14573015
SHEET 20PM4

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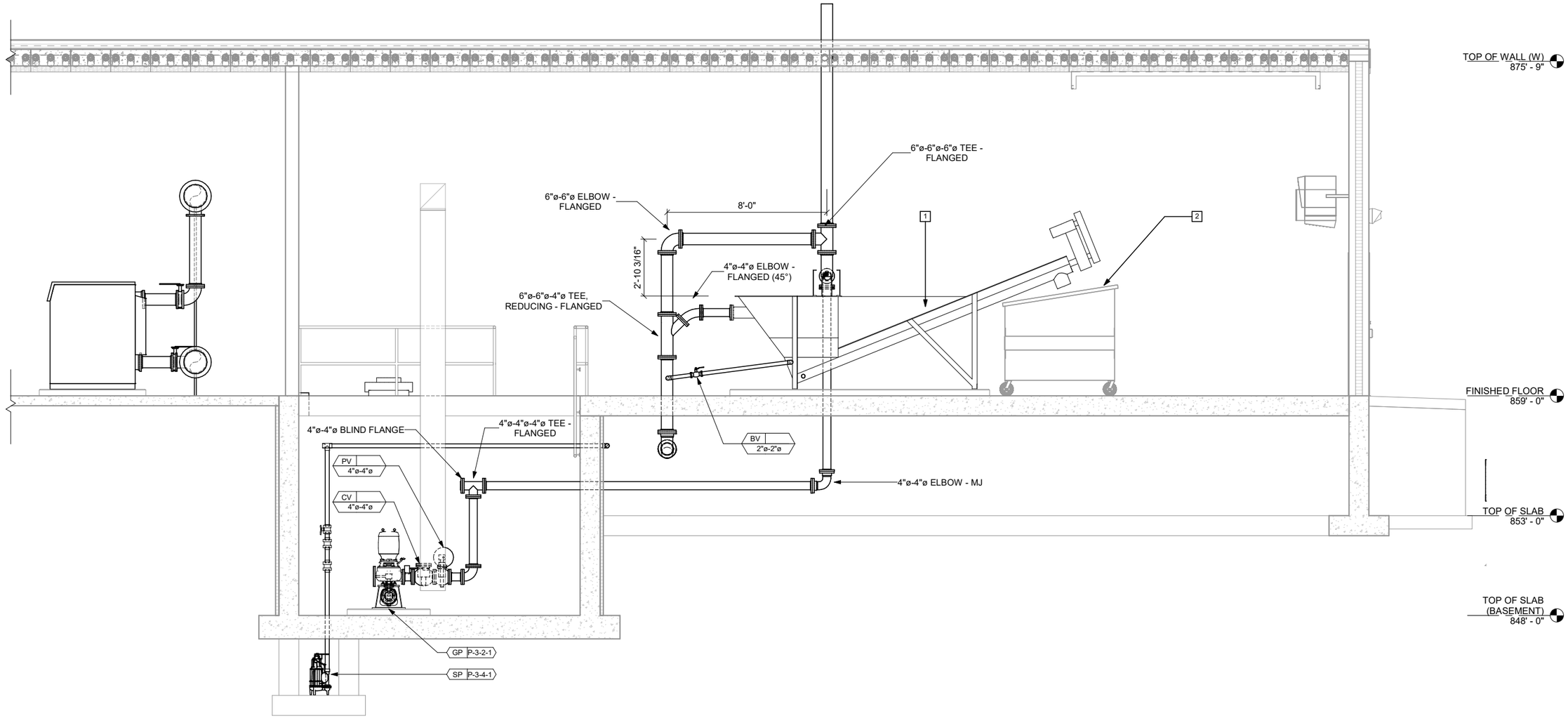
☐ KEYNOTES

1 GRIT CLASSIFIER
2 DUMPSTER (N.I.C.)



A 20PM6 **CROSS-SECTION**
3/8" = 1'-0" (22"x34")

0 1 2 4 6

PROJECT DATE: 2020-08-13	DRAWN BY: JBR	No	DATE	REVISIONS	BY
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SHEET 20PM6

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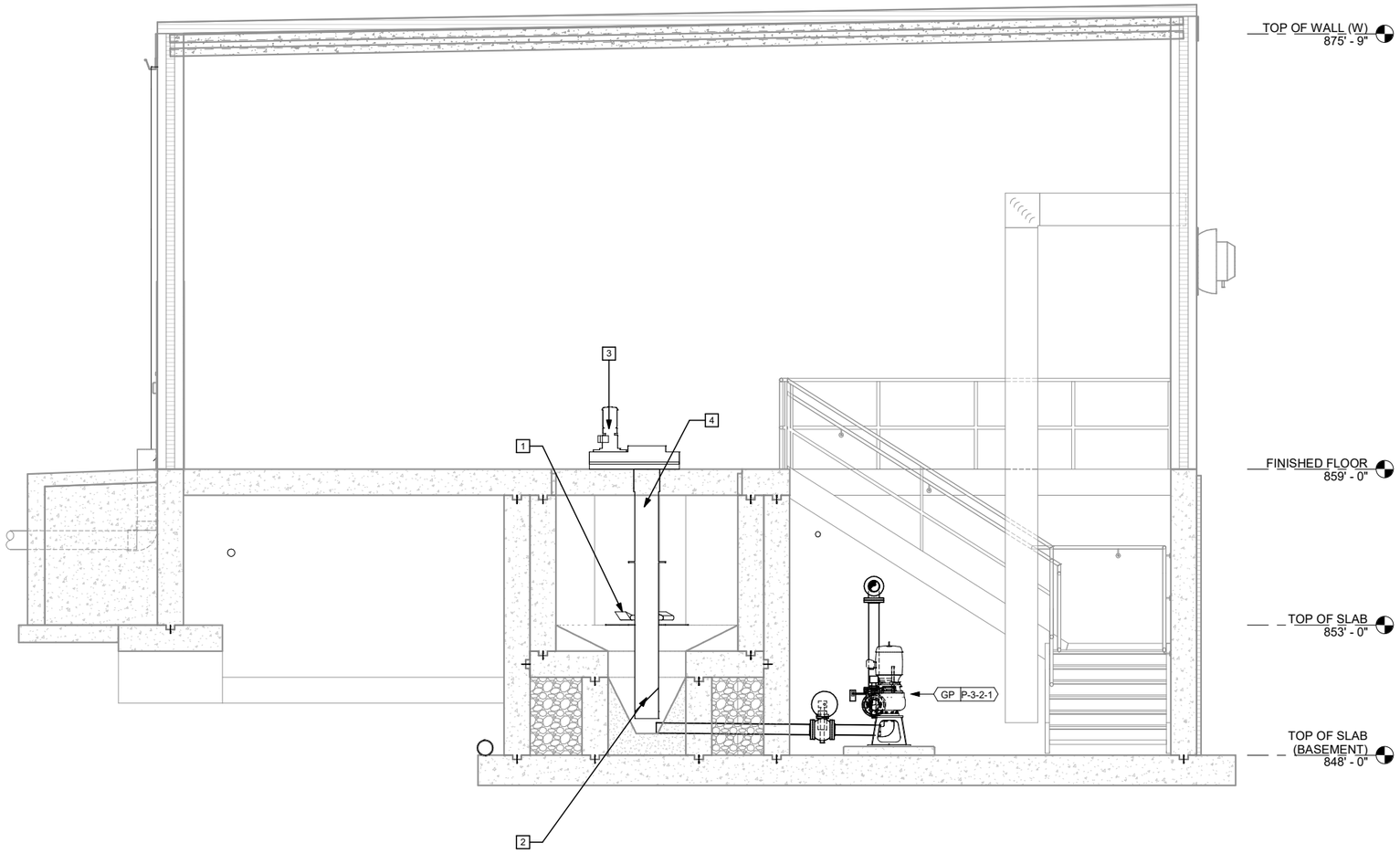
☐ KEYNOTES

1 GRIT PADDLES
2 GRIT FLUIDIZER
3 GRIT CHAMBER DRIVE
4 GRIT TUBE



A **CROSS-SECTION**
20PM5 3/8" = 1'-0" (22"x34")

0 1 2 4 6

PROJECT DATE: 2020-08-13	DRAWN BY: JBR	No	DATE	REVISIONS	BY
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PROJECT NO. 14573015
SHEET 20PM5

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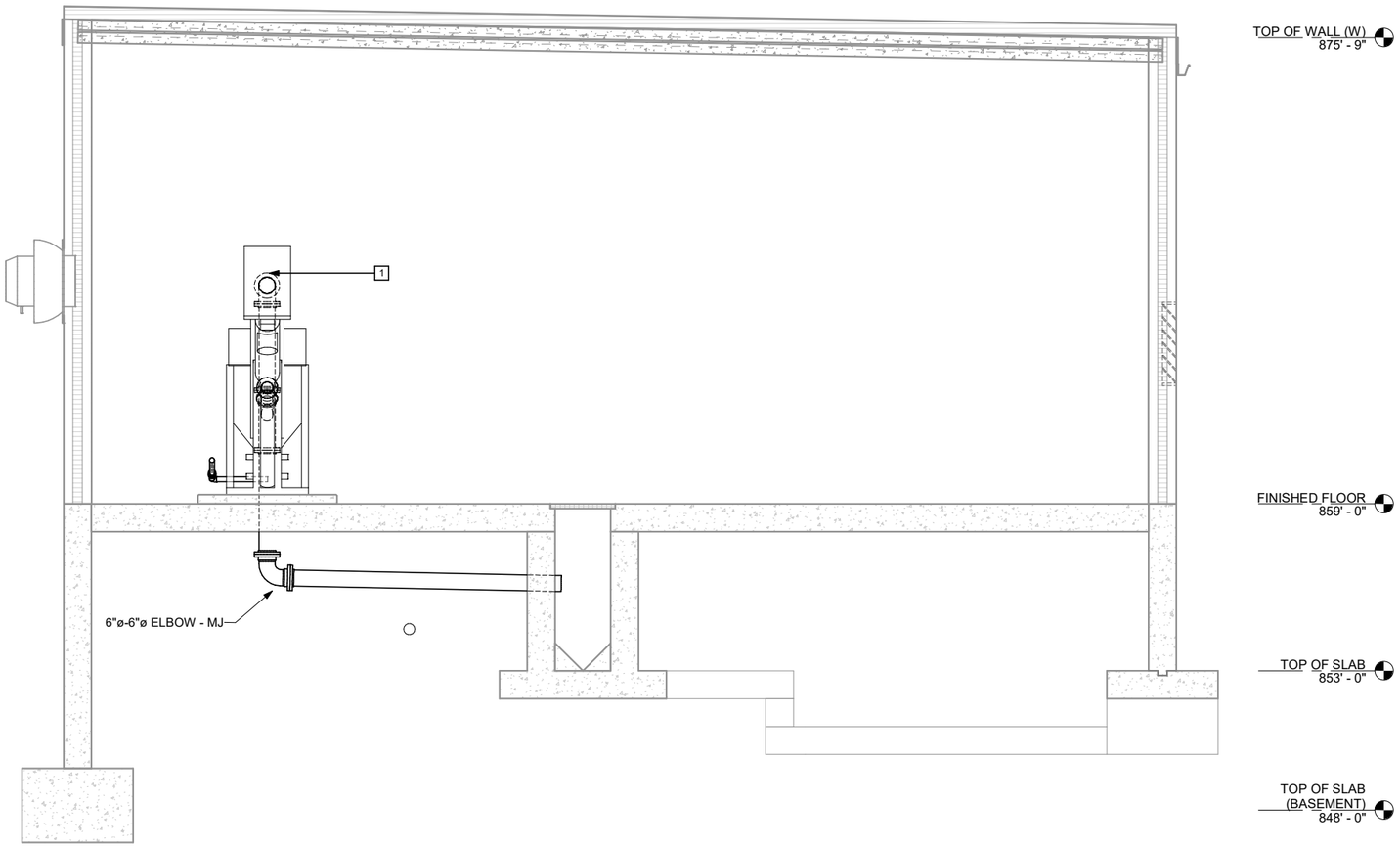
☐ KEYNOTES

1 GRIT CLASSIFIER



A 20PM7 **CROSS-SECTION**
3/8" = 1'-0" (22"x34")

0 1 2 4 6

PROJECT DATE: 2020-08-13	DRAWN BY: JBR	No	DATE	REVISIONS	BY
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PROJECT NO. 14573015
SHEET 20PM7

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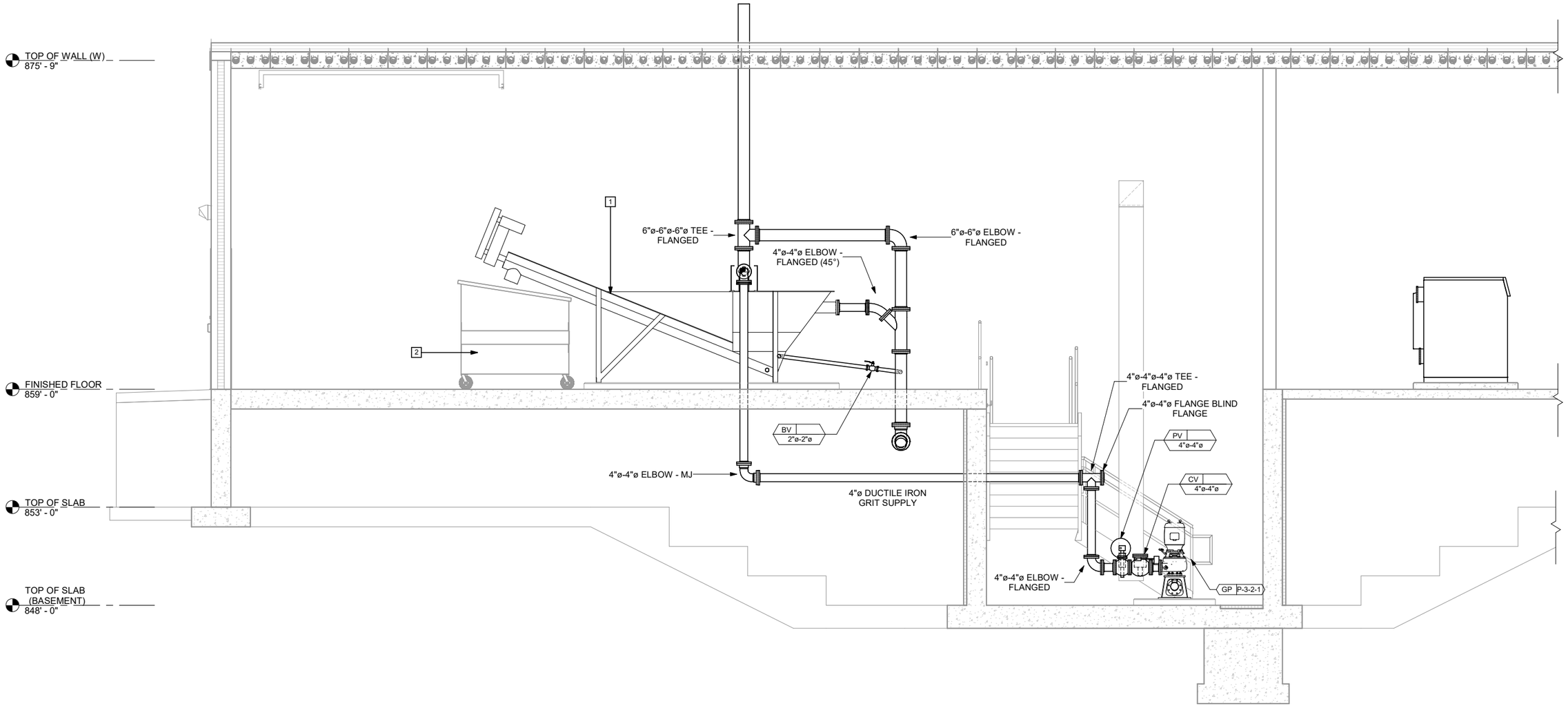
☐ KEYNOTES

1 GRIT CLASSIFIER
2 DUMPSTER (N.I.C.)



A 20PM8 **CROSS-SECTION**
3/8" = 1'-0" (22"x34")

0 1 2 4 6

PROJECT DATE: 2020-08-13		No	DATE	REVISIONS	BY
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PROJECT NO. 14573015
SHEET 20PM8

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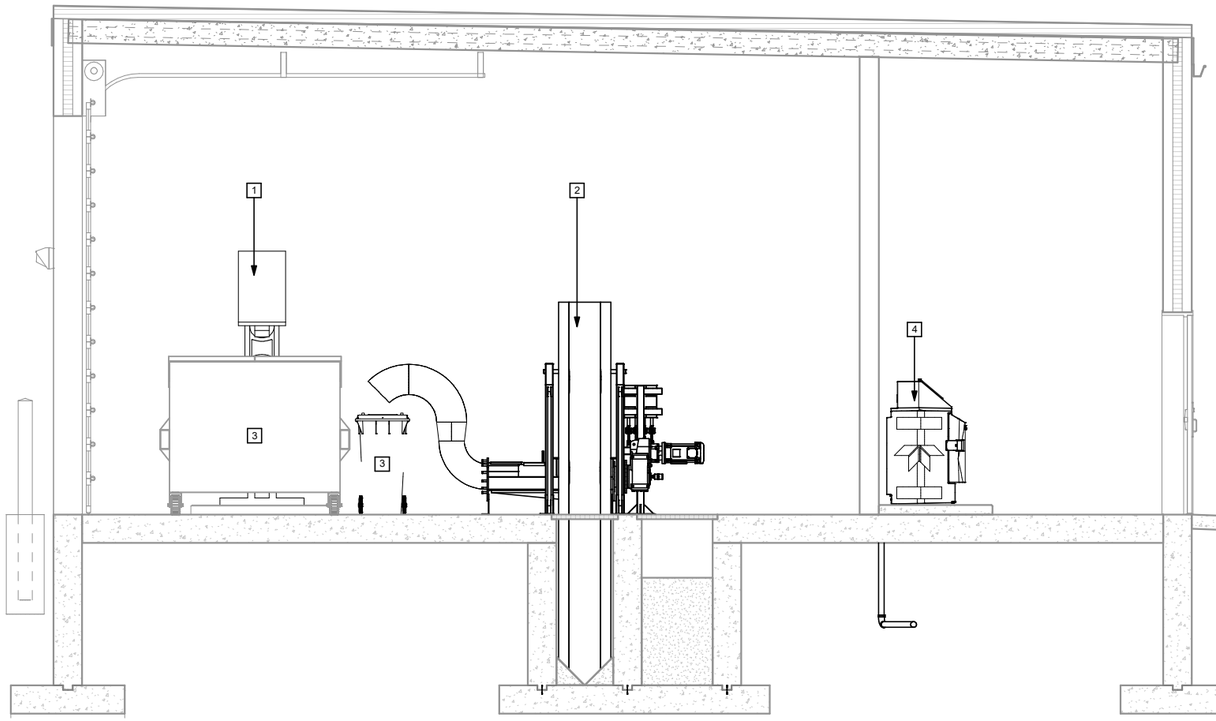
☐ KEYNOTES

1 GRIT CLASSIFIER
2 STAIR SCREEN
3 DUMPSTER (N.I.C.)
4 COMPOSITE SAMPLER



TOP OF WALL (W)
875' - 9"

FINISHED FLOOR
859' - 0"

TOP OF SLAB
853' - 0"

A 20PM9 **CROSS-SECTION**
3/8" = 1'-0" (22"x34")

0 1 2 4 6

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PROJECT NO. 14573015
SHEET 20PM9

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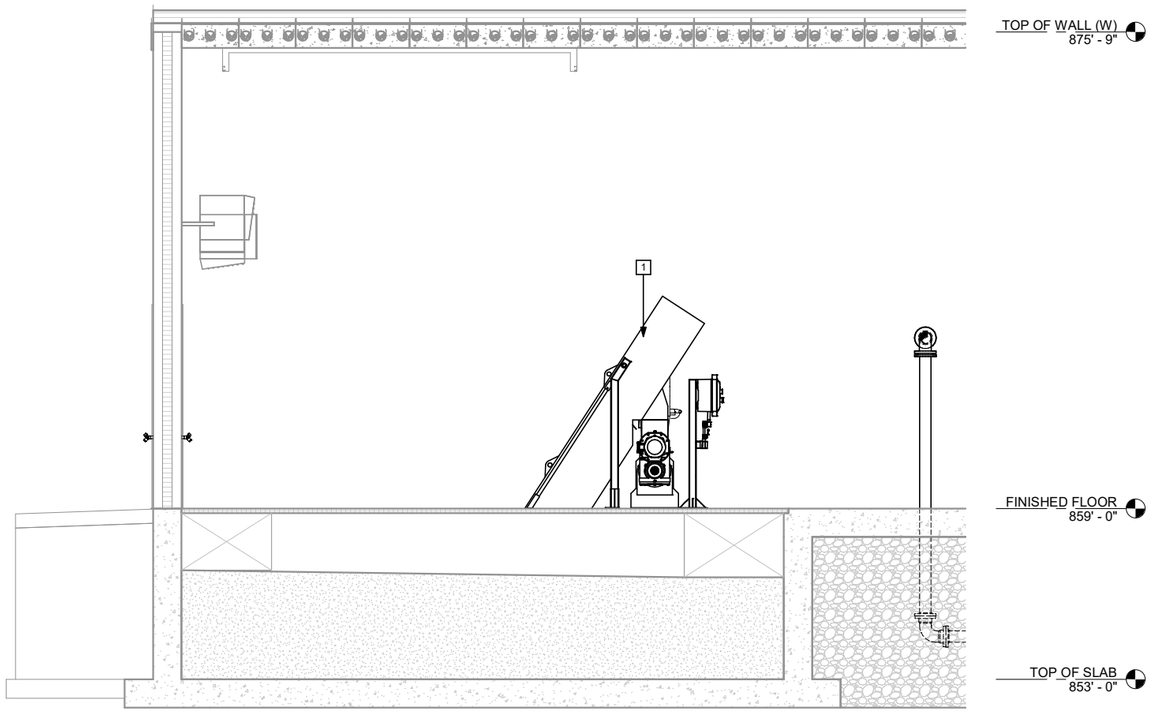
☐ KEYNOTES

1 STAIR SCREEN



A **CROSS-SECTION**
20PM10 3/8" = 1'-0" (22"x34")

0 1 2 4 6

PROJECT DATE: 2020-08-13	DRAWN BY: JBR	No	DATE	REVISIONS	BY
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PROCESS MECHANICAL CROSS-SECTION

PROJECT NO. 14573015
SHEET 20PM10

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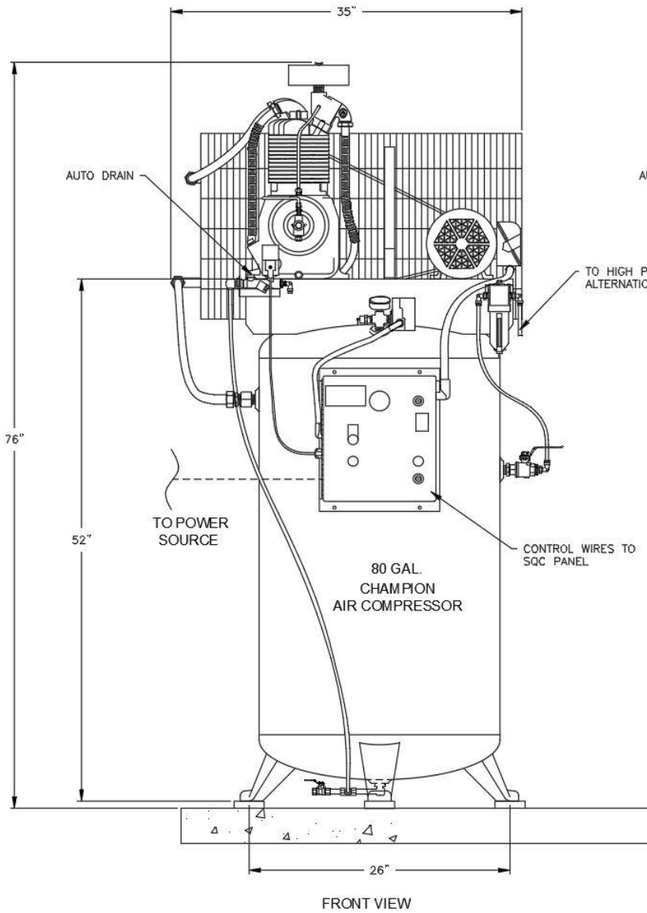
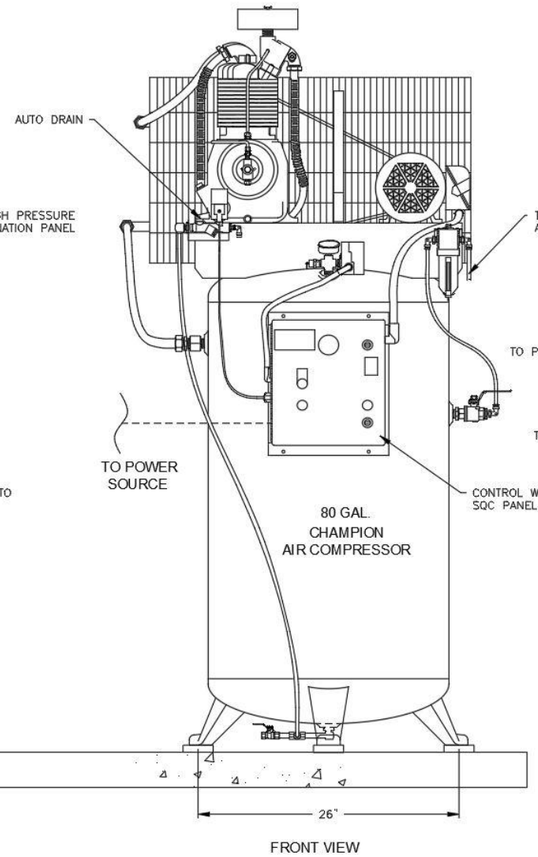
NOTE:

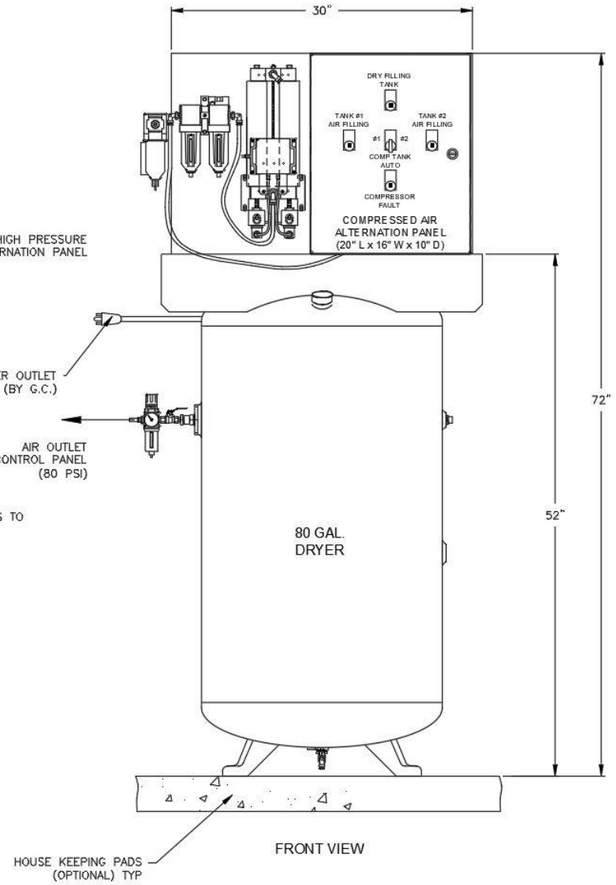
1. MOTOR CONTROLLER AND MOTOR OVERLOAD PROTECTION ARE FACTORY INSTALLED FOR EACH AIR COMPRESSOR.
2. MOTOR BRANCH-CIRCUIT, SHORT-CIRCUIT AND GROUND-FAULT PROTECTION ARE TO BE SUPPLIED BY GENERAL CONTRACTOR.



FRONT VIEW



FRONT VIEW



FRONT VIEW

PROJECT DATE: 2020-08-13	DRAWN BY: JBR	No	DATE	REVISIONS	BY
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PNEUMATIC OVERVIEW SCHEMATIC

PROJECT NO. 14573015
SHEET 20PM11

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GENERAL HVAC NOTES

A. GENERAL NOTES ON ARCHITECTURAL PLANS APPLY TO HVAC DRAWINGS.

B. FURNISH TURNING VANES IN ALL DUCT ELBOWS.

C. INSTALL MANUAL BALANCING DAMPER AT ALL INLETS AND OUTLETS FOR DUCTED FORCED AIR SYSTEM IN OFFICE AREA, WHETHER SHOWN OR NOT.

D. ALL DUCTWORK IN CORROSION RESISTANCE AREAS SHALL BE ALUMINUM, UNO.

E. DO NOT RUN DUCTWORK OR CONDUIT (EXPOSED) ABOVE ELECTRICAL PANELS.

F. SEE PLUMBING FOR GAS PIPING. SEE ELECTRICAL FOR POWER.

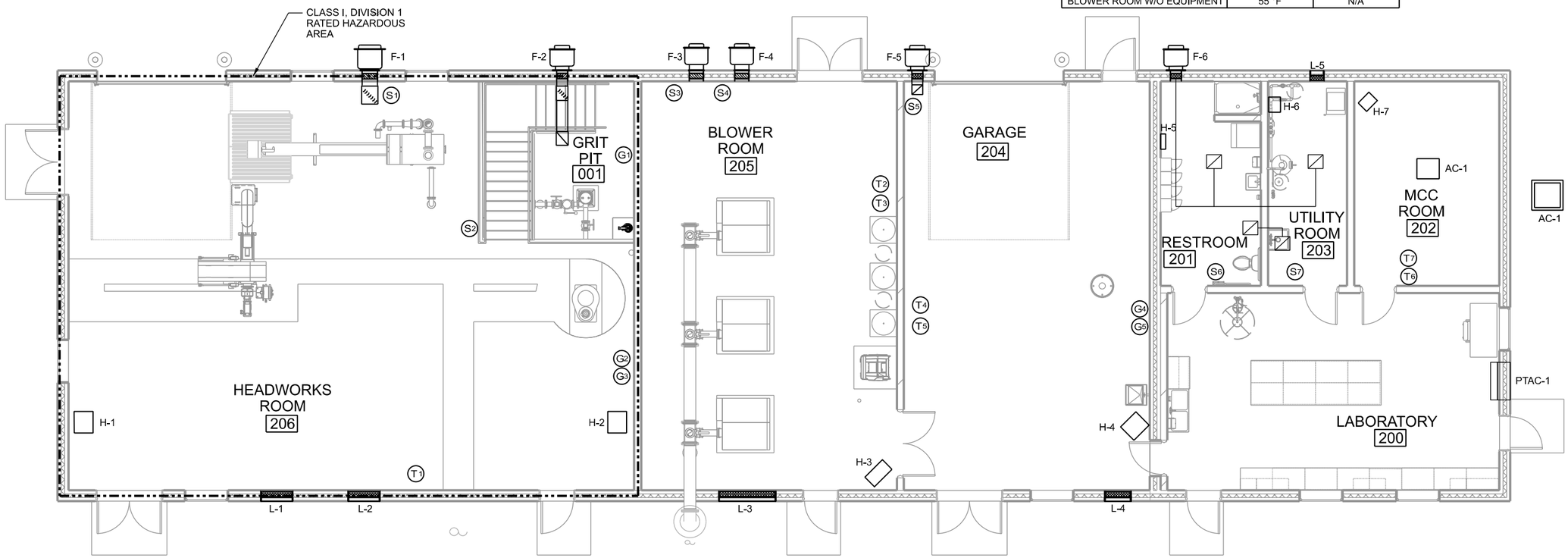
BOX NOTES

1. ELECTRICAL EQUIPMENT - SEE ELECTRICAL
2. PROCESS EQUIPMENT AND PIPING - SEE PROCESS MECHANICAL
3. ACCESS DOOR LOCATION (BEFORE DAMPER)
4. COMBUSTION AIR AND FLUE VENT. INSULATE PIPES FROM UNIT TO EXTERIOR WALL. PROVIDE HOODS.
5. CO (G1) AND NO2 (G2) GAS DETECTORS PROVIDED BY DIV. 26.
6. H2S (G3), COMB (G4) , & O2 (G5) GAS DETECTORS PROVIDED BY DIV. 26.

LEGEND

- DAMPER, ACTUATED
- DAMPER, BALANCE (MANUAL)
- DAMPER, BACKDRAFT
- RETURN, EXHAUST DUCT (UPWARD FLOW)
- RETURN, EXHAUST DUCT (DOWNWARD FLOW)
- SUPPLY DUCT (UPWARD FLOW)
- SUPPLY DUCT (DOWNWARD FLOW)
- DUCT, RETURN/EXHAUST - SINGLE LINE
- DUCT, SUPPLY - SINGLE LINE
- 20/20 — DUCT SIZE - WIDTH/HEIGHT OR WIDTH/DEPTH
- 20/20(1500) — DUCT SIZE AND AIR FLOW (CFM)
- S1 — SWITCH/SENSOR - ID NUMBER
- T1 — THERMOSTAT - ID NUMBER
- G1 — GAS SENSOR - ID NUMBER

DESIGN CRITERIA		
DESIGN TEMP	WINTER	SUMMER
DRY BULB	-10 °F	91 °F
WET BULB	-11 °F	74 °F
ROOM DESIGN TEMPS		
LABORATORY AREA	68 °F	76 °F
PROCESS AREAS W/O EXHAUST	68 °F	N/A
PROCESS AREAS W/ EXHAUST	50 °F	100 °F
GARAGE W/O EXHAUST	68 °F	N/A
GARAGE W/ EXHAUST	55 °F	100 °F
BLOWER ROOM W/O EQUIPMENT	55 °F	N/A



HVAC PLAN

0 2 4 8 12

PROJECT NO.: 14573015	SCALE: AS SHOWN	NO.	DATE	REVISION	BY
PROJECT DATE: 2020	DRAWN BY: CWW				
CHECKED BY: JM					
PLOT DATE:					

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HVAC PLAN

FILE NO. 14573015
SHEET 20H1

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FAN SCHEDULE

TAG		F-1	F-2	F-3	F-4	F-5	F-6
SERVICE		EXHAUST	EXHAUST	EXHAUST	EXHAUST	EXHAUST	EXHAUST
LOCATION		206-WALL	206-WALL	205-WALL	205-WALL	204-WALL	203-WALL
MANUFACTURER		GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK
MODEL		CW-200-B	CW-161-VG	CW-141-A	CW-141-A	CW-095-VG	CW-080-VG
VOLUME (CFM)		5,300	1,800	2,900	2,900	660	250
EXTERNAL S.P. (IN. WG)		0.60	0.5	0.30	0.30	0.50	0.60
OPENING SIZE (WALL/ROOF)		20.5"x20.5"	18.5"x18.5"	16"x16"	16"x16"	12.5"x12.5"	12.5"x12.5"
FAN SIZE (DIA.xD)		30"x37	30"x25"	29"Øx30"	29"Øx30"	17"x22"	15"x22"
ELECTRICAL		480/60/3	120/60/1	480/60/3	480/60/3	120/60/1	120/60/1
FAN RPM		1,140	1,725	1,725	1,725	1,604	1,708
FAN MOTOR	SIZE (HP)	3	1/2	1 1/2	1 1/2	1/6	1/10
	OPER. POWER (HP)	1.7	0.36	0.85	0.85	0.13	0.07
	FLA	4.8	9.8	3 FLA	3 FLA	1.38	2.6
	RPM	1,140	1,725	1,725	1,725	1,604	1,708
	DRIVE	DIRECT-XP	DIRECT-XP	DIRECT-TE	DIRECT-TE	DIRECT-ODP	DIRECT-ODP
MOUNTING HEIGHT, CTR.		8'-0" A.F.F.	8'-0" A.F.F.	7'-2" A.F.F.	7'-2" A.F.F.	8'-0" A.F.F.	8'-0" A.F.F.
SHIPPING WEIGHT (LBS)		141	64	84	84	33	34
SEE REMARKS		1.2.4.5.10.11.13.14.15.18.	1.2.4.5.10.11.13.14.15.18.	1.3.10.13.14.	1.3.10.13.14.	1.2.4.10.13.14.15.	1.2.4.10.14.15.
DAMPER	TAG	DF-1	DF-2	DF-3	DF-4	DF-5	DF-6
	TYPE	BACKDRAFT	BACKDRAFT	BACKDRAFT	BACKDRAFT	ACTUATED	ACTUATED
	MANUFACTURER	TAMCO	TAMCO	TAMCO	TAMCO	TAMCO	TAMCO
	MODEL SERIES	7600-CW-MR	7600-CW-MR	7600-CWA	7600-CWA	9000 BF	9000 BF
	SIZE	20"x20"	18"x18"			12"x12"	12"x12"
	SEE REMARKS	11.13.17.	11.13.17.				

SPLIT AC SCHEDULE

TAG		AC-1
LOCATION		200-WALL
MANUFACTURER		FRIEDRICH
HEAT	REQ'D CAP (BTU/H)	2,400
	RATED CAP AT 47°F (BTU/H)	12,000
	REQ'D CAP. AT 15°F (BTU/H)	6,800
COOLING	REQ'D TOT CAP (BTU/H)	12,000
	REQ'D SEN CAP (BTU/H)	12,000
	RATED CAP, MAX (BTU/H)	12,000
	RATED SENSIBLE HEAT RATIO	0.77
HSPF		10
SEER		19
EER		12.5
ENERGY STAR RATED		YES
MOISTURE REMOVAL		3
ELECTRICAL		208/60/1
COOLING AMPS		4.3
HEATING AMPS		4.1
MAX TD (FUSE/BRK) (AMPS)		30
SYSTEM MODEL NUMBER		FPHC123
INDOOR UNIT	LOCATION	202-CEILING
	MODEL	FPHFC12A3A
	AIR FLOW RANGE (CFM)	235-353
	SIZE (WIDExDEEPxHIGH)	22.5"x22.5"x8.5"
	DRAIN PIPE SIZE	5/8"
	MCA (AMPS)	-
	WEIGHT (LBS)	46
	MOUNTING HEIGHT (BOT)	8'-0"
OUTDOOR UNIT	LOCATION	EXTERIOR PAD
	MODEL	FPHFR12A3A
	AIR FLOW (CFM)	-
	COND ENT AIR TEMP	95°F
	COIL ENT WET BULB	75°F
	REFRIGERANT TYPE	R410A
	MCA (AMPS)	23
	MOCP (AMPS)	-
	SIZE (WIDExDEEPxHIGH)	37"x16.5"x25"
	NET WEIGHT (LBS)	108
	MOUNTING HEIGHT	42" x 13.8" x 16"
HEATING OPER RANGE		-4 - 75° F
COOLING OPER RANGE		5 - 118°F
SEE REMARKS		1.25.

PTAC SCHEDULE

TAG		PTAC-1
LOCATION		202-CEILING
MANUFACTURER		FRIEDRICH
MODEL		PDH15K
COND. ENT. AIR TEMP.		91° F
COIL ENT. WET BULB		74° F
REQ'D CAP.	COOLING (BTU/H)	11,000
	HEATING (BTU/H)	13,000
INDOOR CFM		390/380/350
OUTDOOR CFM (MIN.)		30
COOLING CAP (BTU/H)		14,200
SENSIBLE HEAT RATIO		0.65
HEAT	TYPE	ELECTRIC
	BTU/H	13,000
EER, MIN.		9.7
COP		3.0
AMPS	COOLING	6.8
	HEATING	5.8
WATTS	COOLING	1,460
	HEATING	1,270
COMPRESSOR LRA/RLA		36.0/6.5
ELECTRICAL		208/60/1
MIN. CIRCUIT FUSE		30A
WEIGHT (LB.)		121
SIZE (LxDxH)		42" x 13.8" x 16"
OPERATING RANGE		0-115° F
MOUNT HEIGHT, BOT.		24" A.F.F.
SEE REMARKS		1.12.20.

SCHEDULE REMARKS

1. SEE SPECIFICATIONS FOR SEQUENCE OF OPERATION.
2. ALUMINUM BIRD SCREEN.
3. ALUMINUM INSECT SCREEN.
4. EXTERIOR KYNAR 500 FINISH.
5. KYNAR 500 FINISH ON ALL PARTS EXPOSED TO AIR STREAM.
6. MOUNTING BRACKET BY UNIT MANUFACTURER.
7. PROVIDE REMOTE DIGITAL THERMOSTAT BY UNIT MANUFACTURER.
8. GRIP NOTCH BELT (PLUS SPARE).
9. SURFACE MOUNTING FRAME BY UNIT MANUFACTURER.
10. SPEED CONTROL FOR BALANCING PURPOSES.
11. CLASS 1, GROUP C & D, DIVISION 1 RATED.
12. PROVIDE REMOTE DIGITAL THERMOSTAT BY UNIT MANUFACTURER.
13. CORROSION RESISTANT FASTENERS AND CONSTRUCTION.
14. PROVIDE MANUFACTURER SUPPLIED DISCONNECT.
15. PROVIDE MANUFACTURER INTERNAL WIRING PIGTAIL.
16. PROVIDE EXTENDED LUBE LINES.
17. HI-PRO POLYSTER (OR EQUAL) COATING.
18. PERFORMANCE BAFFLE.
19. EXTENDED SILL, CONSTRUCTION AND FINISH TO MATCH LOUVER.
20. WALL SLEEVE AND EXTERIOR GRILLE BY UNIT MANUFACTURER.
21. TO BE FIELD PAINTED WITH DOOR.
22. INSTALL BALANCING DAMPER IN DUCT.
23. INSTALL ON SIDE OF DUCT, BOTTOM AT 8" AFF.
24. INSTALL ON SIDE OF DUCT, BOTTOM AT 12" AFF.
25. PROVIDE MANUFACTURER'S 4" FEET FOR EXTERIOR UNIT.

HEATER SCHEDULE

TAG		H-1	H-2	H-3	H-4	H-5	H-6	H-7
LOCATION		206-WALL	206-WALL	205-WALL	204-WALL	201-WALL	203-WALL	202-WALL
TYPE		UNIT	UNIT	UNIT	UNIT	UNIT	UNIT	UNIT
MANUFACTURER		Q'MARK	Q'MARK	Q'MARK	Q'MARK	Q'MARK	Q'MARK	Q'MARK
MODEL, HEATER		GUX	GUX	MWUH	IUH	CWH1101	IUH	EEF
REQ'D CAP (BTU/H)		97,000	97,000	10,000	100,000	2,000	25,000	3,000
UNIT CAP. (BTU/H)	INPUT	-	-	-	-	-	-	-
	OUTPUT	102,360	102,360	10,659	102,200	3,413	25,600	5,120
CFM	TOTAL	2,330	2,330	270	1,800	-	270	-
	OUTSIDE	1,180	1,180	-	-	-	250	-
TEMPERATURE RISE		39°F	39°F	36°F	53°F	-	85°F	-
FUEL TYPE		ELECTRIC	ELECTRIC	ELECTRIC	ELECTRIC	ELECTRIC	ELECTRIC	ELECTRIC
SIZE WIDExDEEPxHIGH	DUCT	-	-	-	-	-	-	-
	HEATER	32"x22"x32"	32"x22"x32"	14"x12"x12"	26"x24"x24"	10.5"x4"x12.5"	14"x12.4"x12.5"	18"x4"x15"
ELECTRICAL	VOLT/HZ/PHASE	480/60/3	480/60/3	208/60/1	480/60/3	120/60/1	480/60/3	120/60/1
	HEATER, KW	30	30	2.8	30	1.0	7.5	1.5
	FLA @ 120V	37.1	37.1	15	36.9	8.4	9.0	12.5
	MAX CIRCUIT AMPACITY	-	-	-	-	-	-	-
	FAN MOTOR SIZE (HP)	-	-	-	-	-	-	-
	FAN MOTOR KW	-	-	-	1/3	-	0.006	-
	FAN MOTOR AMPS	-	-	-	-	-	-	-
	FAN MOTOR RPM	-	-	-	1,550	-	1,400	-
MOUNTING HEIGHT, BOT.		10'-0" A.F.F.	10'-0" A.F.F.	12'-0" A.F.F.	12'-0" A.F.F.	2'-0" A.F.F.	6'-0" A.F.F.	8'-0" A.F.F.
WEIGHT (LBS)		216	216	24	142	-	31	23
SEE REMARKS		1.6.11.13.	1.6.11.13.	1.6.14.	1.6.14.	1.9.	1.6.14.	1.9.

LOUVER SCHEDULE

TAG		L-1	L-2	L-3	L-4	L-5
SERVICE		INTAKE	INTAKE	INTAKE	INTAKE	INTAKE
LOCATION		203-WALL	203-WALL	206-WALL	205-WALL	204-WALL
MANUFACTURER		GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK
MODEL		ESJ-401	ESJ-401	ESJ-401	ESJ-401	ESJ-401
MATERIAL		ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM
VOLUME (CFM)		1,658	1,658	5,800	1,100	225
SIZE (WIDExHIGH)		36"x36"	36"x36"	64"x50"	32"x32"	16"x16"
DATA	FREE AREA, SF	4.38	4.38	11.50	3.38	0.64
	VELOCITY, FPM	379	379	503	325	353
	S.P. (" W.G.)	0.026	0.026	0.045	0.019	0.022
MOUNTING HEIGHT, TOP		7'-2" A.F.F.	7'-2" A.F.F.	7'-2" A.F.F.	7'-2" A.F.F.	5'-0" A.F.F.
SEE REMARKS		3.4.5.11.13.19.	3.4.5.11.13.19.	2.3.	3.4.13.19.	3.4.19.
DAMPER	TAG	DL-5	DL-5	DL-1	DL-3	DL-4
	TYPE	ACTUATED	ACTUATED	ACTUATED	ACTUATED	ACTUATED
	MANUFACTURER	TAMCO	TAMCO	TAMCO	TAMCO	TAMCO
	MODEL SERIES	9000 BF-MR	9000 BF	9000 BF	9000 BF	9000 BF
	SIZE	36"x36"	36"x36"	(2)32"x50"	32"x32"	16"x16"
	S.P. (" W.G.)	-	-	-	-	-
	SEE REMARKS	11.13.17.	11.13.17.			

DIFFUSERS/GRILLES

TAG	G-1	G-2	G-3	G-4	G-5	G-6
SERVICE	TRANSFER	EXHAUST	EXHAUST	EXHAUST	EXHAUST	EXHAUST
LOCATION	104-DOOR	103-DUCT	104-DUCT	001-DUCT	001-DUCT	106-DUCT
VOLUME (CFM)	75	150	75	2,840	475	1,100
MANUFACTURER	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE
MODEL	STG-BF	80	80	80	80	80
MATERIAL	STEEL	ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM
SIZE (WIDE x HIGH)	18"x6"	-	-	-	-	-
DUCT SIZE (WIDE x HIGH)	-	8"x8"	6"x6"	24"x24"	12"x12"	12"x30"
SP (WC)	0.026"	0.022	0.022	0.038"	0.040"	0.038"
THROW (FT)	-	-	-	-	-	-
MOUNTING HEIGHT, TOP				SEE NOTE 23.	18" A.F.F.	SEE NOTE 24.
SEE REMARKS	21.	22.	22.	11.13.	11.13.	

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HVAC SCHEDULES

FILE NO. 14573015
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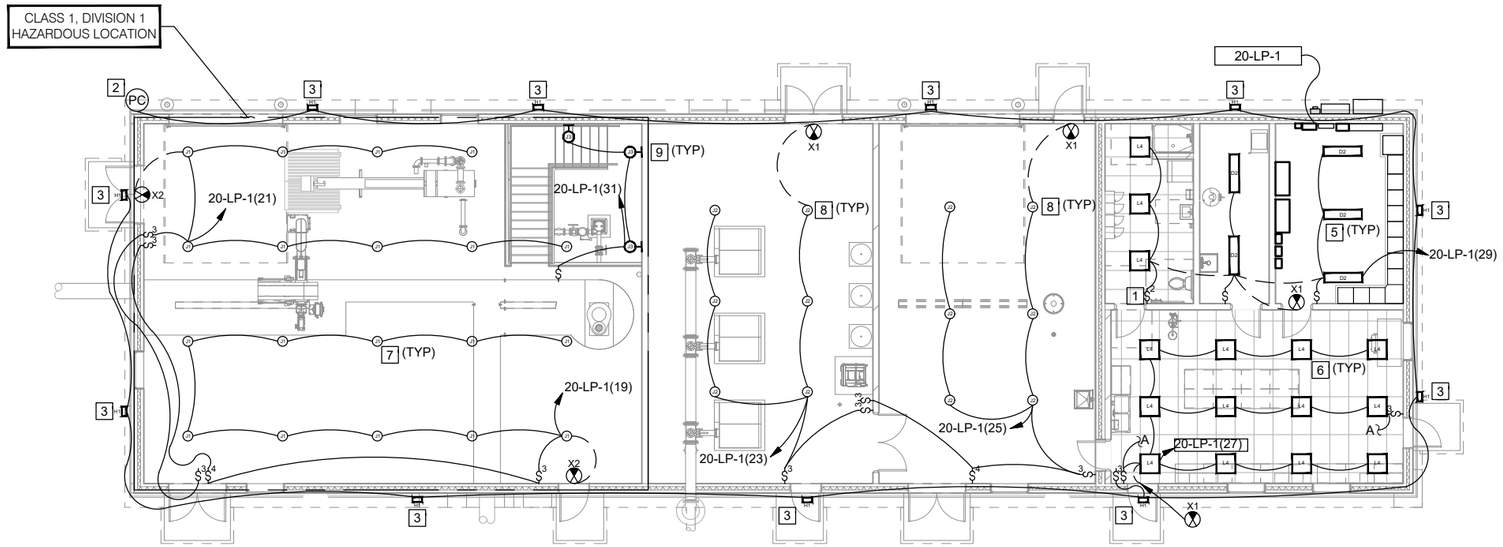

HEADWORKS BUILDING LIGHTING PLAN

0 4' 8' 16'

1/8" = 1'-0" (22X34)
1/16" = 1'-0" (11X17)

GENERAL NOTES:

1. DO NOT SCALE DRAWINGS. IF DIMENSIONS ARE IN QUESTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATION FROM ENGINEER PRIOR TO PROCEEDING WITH WORK.
2. HOMERUN WIRING SHALL BE (2)#12 & #12G UNLESS NOTED OTHERWISE, REFER TO ONE-LINE DIAGRAM.
3. MINIMUM CONDUIT SIZE 3/4" UNLESS OTHERWISE NOTED.
4. MOUNT LIGHT SWITCHES 42" AFF.
5. MOUNT EXTERIOR "H1" FIXTURE AT 9'-0" ABOVE GRADE.
6. ROOM/AREA ATMOSPHERE REQUIREMENTS, REFER TO SECTION 26 05 00:
   - 6.1. EXTERIOR, ABOVE GRADE: GENERAL, WET, NEW CONSTRUCTION.
   - 6.2. EXTERIOR, BELOW GRADE: UNDERGROUND, WET, NEW CONSTRUCTION.
   - 6.3. PROCESS ROOM: HAZARDOUS, NEW CONSTRUCTION.
   - 6.4. BLOWER ROOM: GENERAL DRY, NEW CONSTRUCTION.
   - 6.5. GARAGE: GENERAL DRY, NEW CONSTRUCTION.
   - 6.6. RESTROOM: GENERAL DRY, CONCEALED CONDUIT, NEW CONSTRUCTION
   - 6.7. UTILITY ROOM: GENERAL, DRY, NEW CONSTRUCTION
   - 6.8 LAB: GENERAL, DRY, CONCEALED CONDUIT, NEW CONSTRUCTION
   - 6.9 ELECTRICAL ROOM: GENERAL DRY, NEW CONSTRUCTION

KEY NOTES: [X]

1. PROVIDE INTERLOCK TO ROOM FAN SO THAT THE FAN IS ENERGIZED WHEN LIGHTS ARE ON.
2. PROVIDE PHOTOCELL TO CONTROL EXTERIOR FIXTURES WHERE NOTED, TORK #2001 OR EQUAL.
3. EXTERIOR FIXTURE SHALL BE CONTROLLED BY SWITCH AND PHOTOCELL. WIRE SWITCH AND PHOTOCELL IN SERIES SUCH THAT PHOTOCELL OPERATES FIXTURES WHEN SWITCH IS ON.
4. MOUNT EXTERNAL FIXTURE "H1" 9'0" ABOVE FINISHED GRADE
5. MOUNT FIXTURE "D2" TIGHT TO CEILING
6. MOUNT FIXTURE "L4" IN GRID OF CEILING
7. MOUNT FIXTURE "J1" 6" OFF OF CEILING
8. MOUNT FIXTURE "J2" 6" OFF OF CEILING
9. MOUNT FIXTURE "J3" 8' AFF.

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HEADWORKS BUILDING LIGHTING PLAN

FILE NO. 14573015
SHEET 20E1

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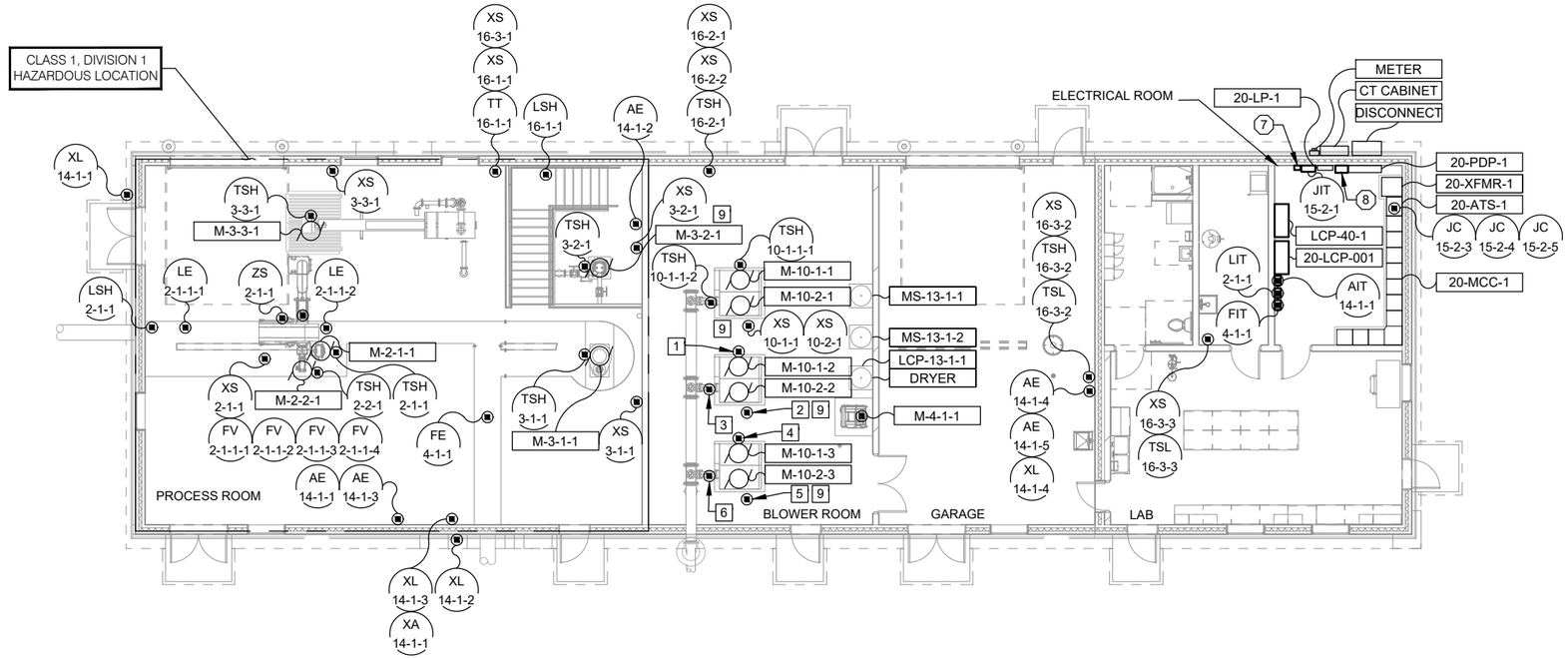

HEADWORKS BUILDING PROCESS ELECTRICAL PLAN

0 4' 8' 16'

1/8" = 1'-0" (22X34)
1/16" = 1'-0" (11X17)

GENERAL NOTES:

1. DO NOT SCALE DRAWINGS. IF DIMENSIONS ARE IN QUESTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATION FROM ENGINEER PRIOR TO PROCEEDING WITH WORK.
2. THE PRIMARY OVERCURRENT PROTECTIVE DEVICES AND ASSOCIATED FEEDER CONDUCTORS FOR DRY TYPE TRANSFORMERS SHOWN ON THIS DRAWING ARE SIZED FOR 125% OF THE TRANSFORMER NAMEPLATE PRIMARY CURRENT. IF THE CONTRACTOR ELECTS TO SUPPLY TRANSFORMERS THAT REQUIRE HIGHER RATED PRIMARY OVERCURRENT PROTECTIVE DEVICES TO ACCOUNT FOR HIGHER INRUSH CHARACTERISTICS, THEN THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING OVERCURRENT PROTECTIVE DEVICES AND FEEDERS THAT COMPLY WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS. REFER TO SPECIFICATIONS.
3. CONDUIT WALL AND FLOOR PENETRATIONS PER DETAIL (2605-305)
4. HOMERUN WIRING SHALL BE (2)#12 & #12G UNLESS NOTED OTHERWISE, REFER TO ONE-LINE DIAGRAM.
5. REFER TO FEEDER SCHEDULES, ONE LINE DIAGRAMS, PROCESS AND INSTRUMENTATION WIRING SCHEDULES FOR WIRING REQUIREMENTS
6. MINIMUM CONDUIT SIZE 3/4" UNLESS OTHERWISE NOTED.
7. ROOM/AREA ATMOSPHERE REQUIREMENTS, REFER TO SECTION 26 05 00:
   - 7.1. EXTERIOR, ABOVE GRADE: GENERAL, WET, NEW CONSTRUCTION.
   - 7.2. EXTERIOR, BELOW GRADE: UNDERGROUND, WET, NEW CONSTRUCTION.
   - 7.3. PROCESS ROOM: HAZARDOUS, NEW CONSTRUCTION.
   - 7.4. BLOWER ROOM: GENERAL DRY, NEW CONSTRUCTION.
   - 7.5. GARAGE: GENERAL DRY, NEW CONSTRUCTION.
   - 7.6. RESTROOM: GENERAL DRY, CONCEALED CONDUIT, NEW CONSTRUCTION
   - 7.7. UTILITY ROOM: GENERAL, DRY, NEW CONSTRUCTION
   - 6.8 LAB: GENERAL DRY, CONCEALED CONDUIT, NEW CONSTRUCTION
   - 7.8. ELECTRICAL ROOM: GENERAL DRY, NEW CONSTRUCTION

KEY NOTES: [X]

1. LOCATION FOR DEVICE (TSH 10-1-2-1).
2. LOCATION FOR DEVICES (XS 10-1-2) (XS 10-2-2).
3. LOCATION FOR DEVICE (TSH 10-1-2-2).
4. LOCATION FOR DEVICE (TSH 10-1-3-1).
5. LOCATION FOR DEVICES (XS 10-1-3) (XS 10-2-3).
6. LOCATION FOR DEVICE (TSH 10-1-3-2).
7. LOCATION FOR GENERATOR REMOTE ANNUNCIATOR .
8. LOCATION FOR THE SPD FOR INCOMMING POWER. CONTRACTOR SHALL PROVIDE HPI CABLE BETWEEN SPD AND POWER PANEL. CABLE SHALL BE LIMITED TO 5' OF LENGTH.
9. PROVIDE MOTOR CONNECTION PER DETAIL (2605-001)

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HEADWORKS BUILDING PROCESS ELECTRICAL PLAN

FILE NO. 14573015
SHEET 20E3

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GENERAL SANITARY WASTE AND VENT NOTES

A. GENERAL NOTES ON ARCHITECTURAL PLANS APPLY TO PLUMBING DRAWINGS.

B. CONTRACTOR TO COORDINATE INSTALLATION OF ALL PIPING, FIXTURES & EQUIPMENT WITH OTHER CONTRACTORS TO AVOID CONFLICTS. DO NOT INSTALL ANY PIPING ABOVE ELECTRICAL PANELS. INSTALL ALL WORK TO PROVIDE MAXIMUM CLEARANCES.

C. ALL PIPING INSIDE BUILDING SHALL BE MOUNTED WITHIN WALLS OR BENEATH SLAB WHENEVER POSSIBLE. IN AREAS THAT PREVENT PIPING FROM BEING INSTALLED WITHIN THE WALL OR BENEATH SLAB, PIPING SHALL BE SURFACE MOUNTED TIGHT TO WALLS; ALLOWING FOR SLOPE.

D. DO NOT RUN PIPING ABOVE ELECTRICAL PANELS.

E. SEE STRUCTURAL FOR TOP OF FLOOR DRAIN ELEVATIONS.

F. VENT PIPING SHALL BE CAST IRON OR PVC.

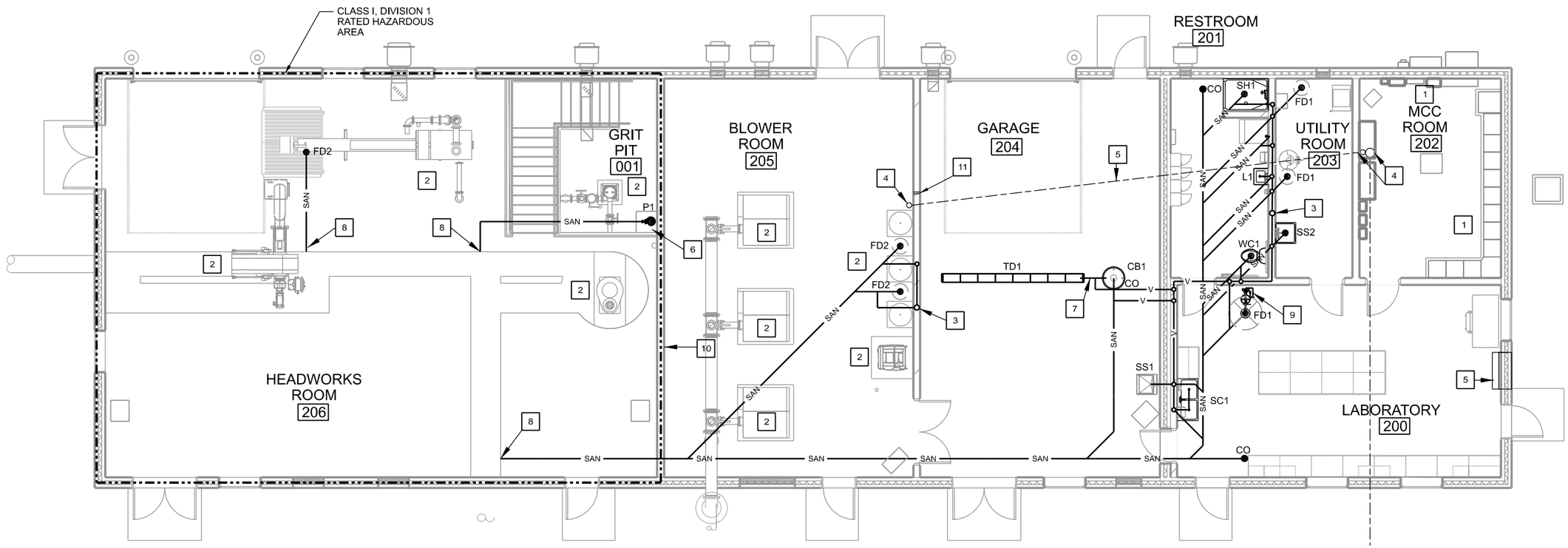
G. ALL DRAINAGE PIPING TO BE CAST IRON OR PVC. SLOPE ALL DRAINS MINIMUM 1/8"/1'.

BOX NOTES

1. ELECTRICAL EQUIPMENT - SEE ELECTRICAL
2. PROCESS EQUIPMENT AND PIPING - SEE PROCESS MECHANICAL
3. RUN VENT LINE UP INSIDE WALL AND THROUGH ROOF - SEE ARCHITECTURAL FOR FLASHING
4. USE LONG RADIUS ELBOWS FOR ALL PNEUMATIC AIR CONDUIT (TYP.)
5. SCHEDULE 80 PVC CONDUIT FOR PNEUMATIC AIR LINE/LINES
6. SUMP PIT LOCATION FOR PROCESS EQUIPMENT - SEE STRUCTURAL
7. TRAP PIPE AT DISCHARGE
8. DISCHARGE DRAIN INTO PROCESS CHANNEL
9. CONNECT PIPE TO FIXTURE DISCHARGE, RUN AROUND UNIT AND DIRECT TOWARDS FLOOR DRAIN (AWAY FROM WALL)
10. 2-HR RATED MASONRY WALL
11. INSTALL 2" SCH 80 PVC SLEEVE IN WALL FOR PNEUMATIC LINE TO GARAGE 3' ABOVE FINISHED FLOOR

LEGEND

- CONDUIT FOR PNEUMATIC TUBING
- SAN — SANITARY DRAIN
- V — SANITARY VENT
- CLEAN OUT (CO)
- VENT, ROOF TERMINAL (VTR)
- 2" PIPE SIZE



SANITARY & VENT PLUMBING PLAN

0 2 4 8 12

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SANITARY & VENT PLUMBING PLAN

FILE NO. 14573015
SHEET 20P1

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GENERAL WATER PLUMBING NOTES

A. GENERAL NOTES ON ARCHITECTURAL PLANS APPLY TO PLUMBING DRAWINGS.

B. CONTRACTOR TO COORDINATE INSTALLATION OF ALL PIPING, FIXTURES & EQUIPMENT WITH OTHER CONTRACTORS TO AVOID CONFLICTS. DO NOT INSTALL ANY PIPING ABOVE ELECTRICAL PANELS. INSTALL ALL WORK TO PROVIDE MAXIMUM CLEARANCES.

C. ALL PIPING INSIDE BUILDING SHALL BE MOUNTED WITHIN WALLS WHENEVER POSSIBLE. IN AREAS THAT PREVENT PIPING FROM BEING INSTALLED WITHIN THE WALL OR BENEATH SLAB, PIPING SHALL BE SURFACE MOUNTED TIGHT TO WALLS AND CEILING; ALLOWING FOR SLOPE.

D. DO NOT RUN PIPING ABOVE ELECTRICAL PANELS.

E. EXPOSED WATER PIPING WITHIN HEADWORKS & SLUDGE PRESS ROOMS TO BE STAINLESS STEEL. ALL REMAINING PIPING SHALL BE COPPER.

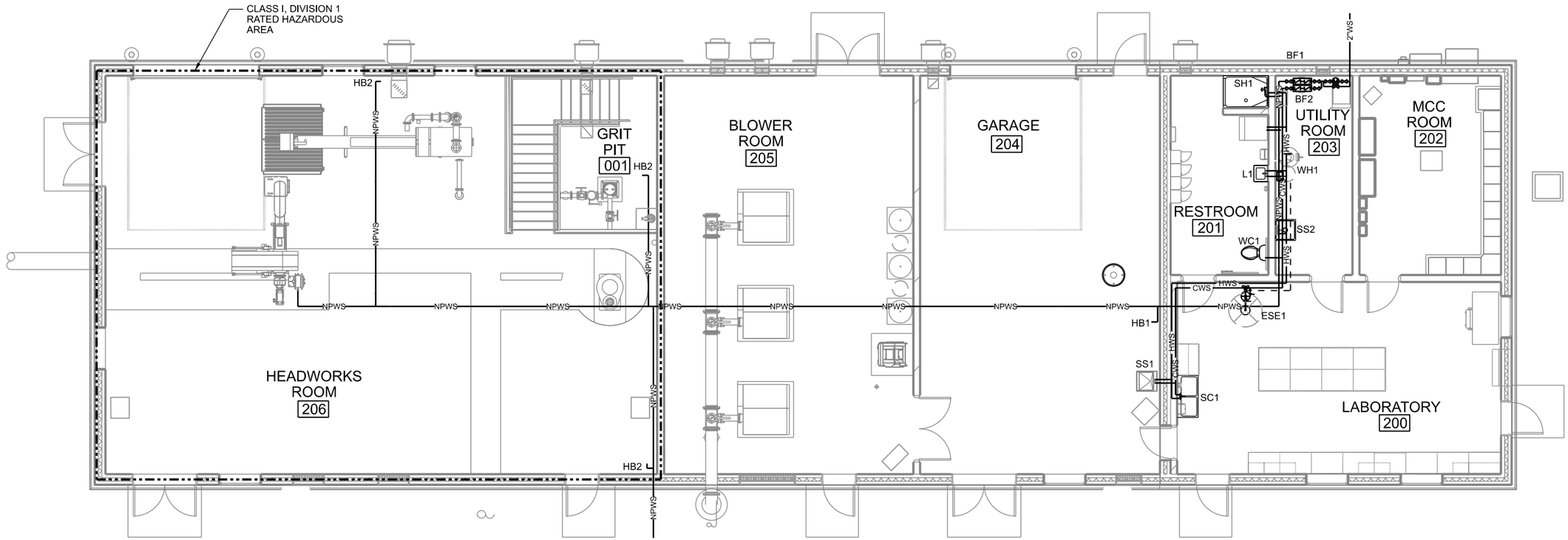
F. ALL POTABLE HOT WATER PIPING SHALL BE ¾", EXCEPT AT FIXTURE CONNECTIONS.

BOX NOTES

1. ELECTRICAL EQUIPMENT - SEE ELECTRICAL
2. PROCESS EQUIPMENT AND PIPING - SEE PROCESS MECHANICAL
3. BUILDING WATER SERVICE LOCATION. CONNECT TO SITE UTILITIES. SEE DRAWING 00PM1 FOR CONTINUATION
4. TO YARD PIPING. SEE DRAWING 00PM1 FOR CONTINUATION
5. RUN LINE UP THROUGH SLAB
6. INSTALL HOSE BIBB ON LOWER LEVEL OF GRIT PUMP ROOM
7. MOUNT SIGN ON WALL ABOVE FIXTURE "NON-POTABLE-DO NOT DRINK"
8. CONNECTION FOR SLUDGE BELT PRESS - VERIFY FLOW AND SIZE WITH MANUFACTURER (50 GPM @ 50 PSI)
9. CONNECTION FOR POLYMER INJECTION UNIT - VERIFY FLOW AND SIZE WITH MANUFACTURER (10 GPM @ 30 PSI)
10. CONNECTION FOR VERTICAL SCREEN - VERIFY FLOW AND SIZE AND LOCATION W/ MANUFACTURER (20 GPM AT 70 PSI)
11. INSTALL SIGN AT YARD HYDRANTS THAT READS "NON-POTABLE WATER" DO NOT DRINK"
12. CONNECTION FOR GRIT CHAMBER HOPPER (JONES AND ATWOOD-OVIVO OPTION ONLY) VERIFY FLOW AND SIZE WITH MFR. (40 GPM @ 60 PSI)
13. 2-HOUR RATED MASONRY WALL
14. PROVIDE ACCESS PANEL AT SHOWER VALVE

LEGEND

- CWS — POTABLE (COLD WATER)
- HWS — POTABLE (HOT WATER)
- POTABLE (TEMPERED)
- NPWS — NON-POTABLE (COLD WATER)
- ISOLATION VALVE
- CHECK VALVE
- SURGE SUPPRESOR
- 1/2" — PIPE SIZE (COLD WATER)



WATER PLUMBING PLAN

0 2 4 8 12

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WATER PLUMBING PLAN

FILE NO. 14573015
SHEET 20P2

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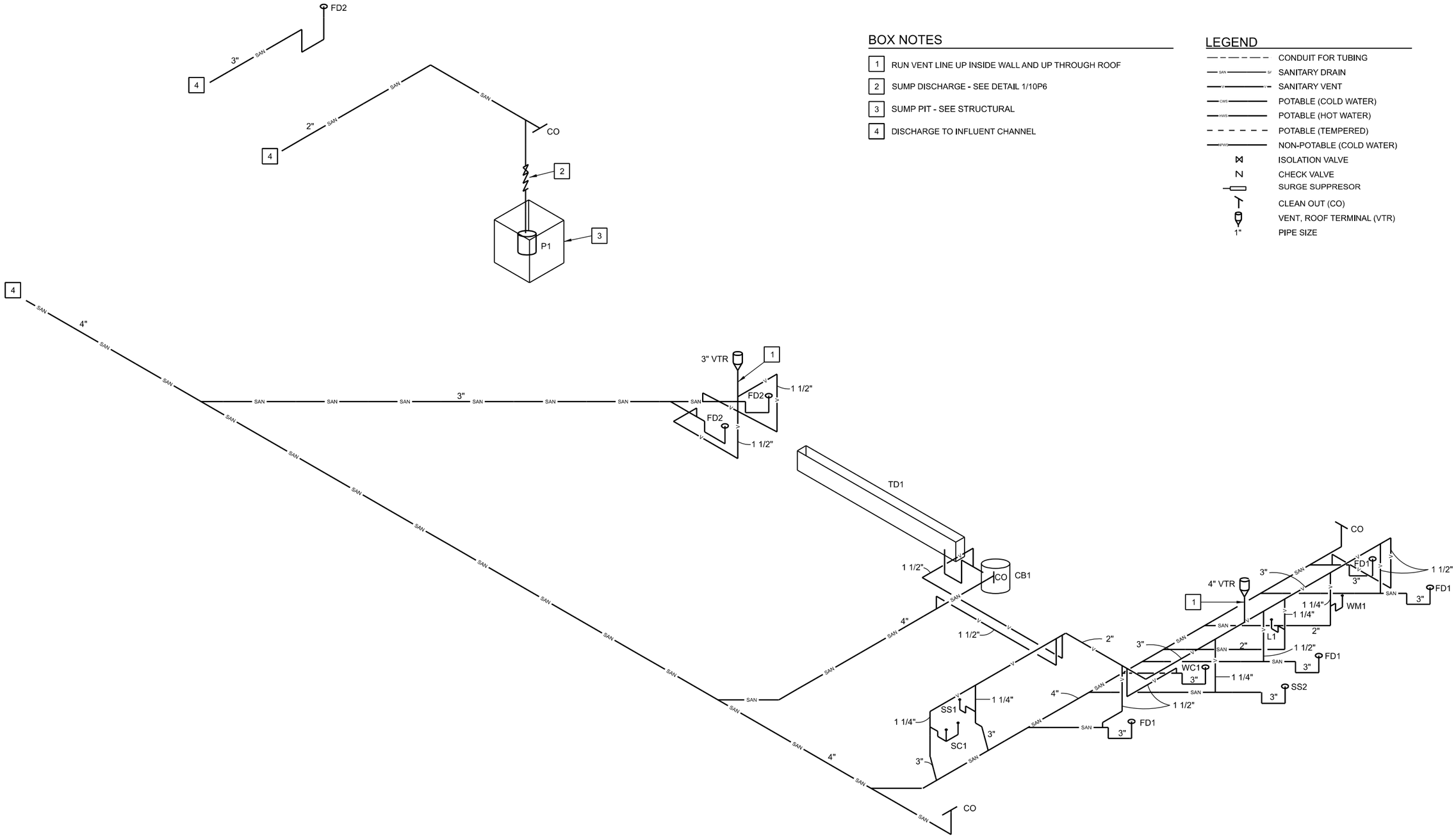

BOX NOTES

1. RUN VENT LINE UP INSIDE WALL AND UP THROUGH ROOF
2. SUMP DISCHARGE - SEE DETAIL 1/10P6
3. SUMP PIT - SEE STRUCTURAL
4. DISCHARGE TO INFLUENT CHANNEL

LEGEND

- CONDUIT FOR TUBING
- SAN — SAN — SANITARY DRAIN
- V — V — SANITARY VENT
- CWS — POTABLE (COLD WATER)
- HWS — POTABLE (HOT WATER)
- POTABLE (TEMPERED)
- NPWS — NON-POTABLE (COLD WATER)
- ISOLATION VALVE
- CHECK VALVE
- SURGE SUPPRESOR
- CLEAN OUT (CO)
- VENT, ROOF TERMINAL (VTR)
- 1" PIPE SIZE

SANITARY & VENT ISOMETRIC

N.T.S.

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SANITARY & VENT ISOMETRIC

FILE NO. 14573015
SHEET 20P3

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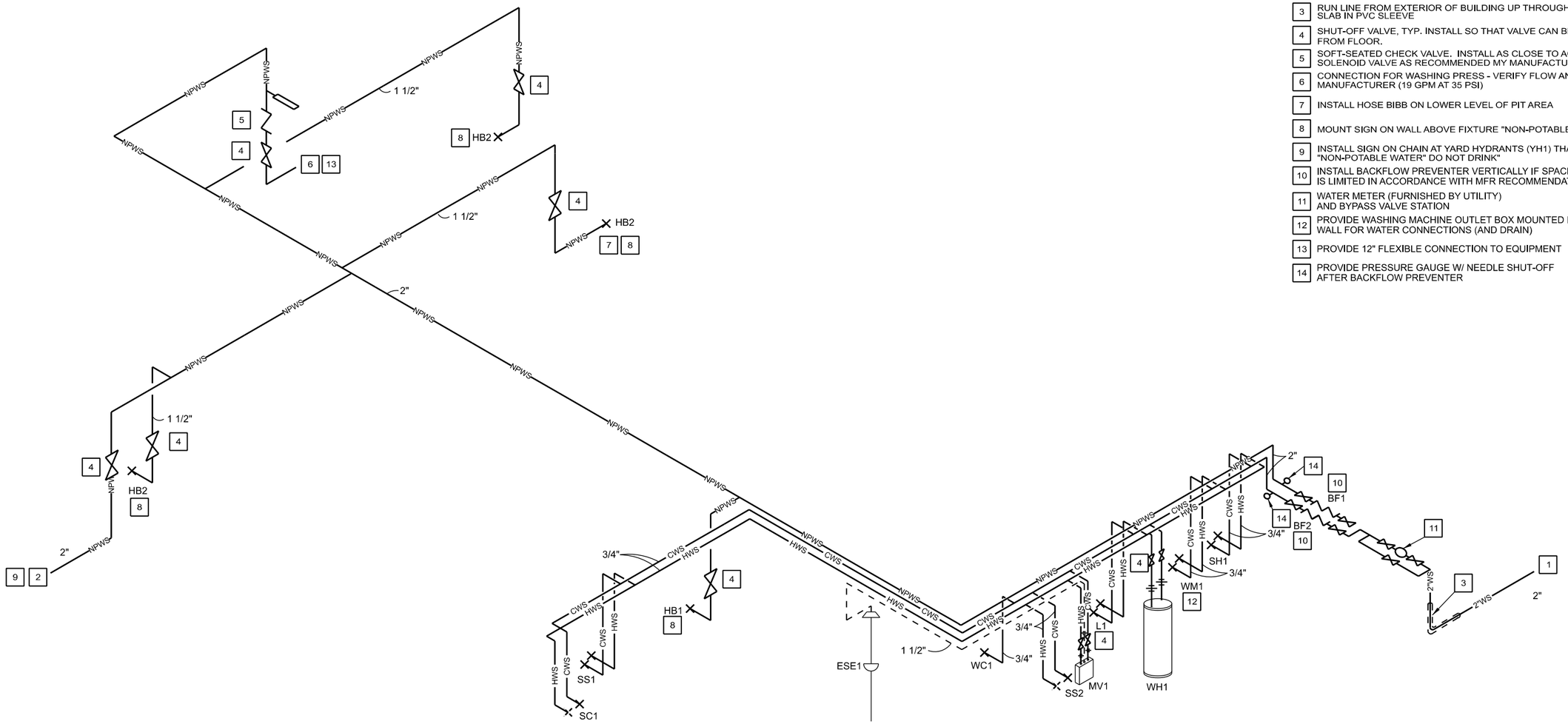
BOX NOTES

1. BUILDING WATER SERVICE LOCATION. CONNECT TO SITE UTILITIES. SEE DRAWING 00PM1 FOR CONTINUATION
2. TO YARD PIPING. SEE DRAWING 00PM1 FOR CONTINUATION
3. RUN LINE FROM EXTERIOR OF BUILDING UP THROUGH SLAB IN PVC SLEEVE
4. SHUT-OFF VALVE, TYP. INSTALL SO THAT VALVE CAN BE ACTUATED FROM FLOOR.
5. SOFT-SEATED CHECK VALVE. INSTALL AS CLOSE TO ACTUATED OR SOLENOID VALVE AS RECOMMENDED MY MANUFACTURER.
6. CONNECTION FOR WASHING PRESS - VERIFY FLOW AND SIZE w/ MANUFACTURER (19 GPM AT 35 PSI)
7. INSTALL HOSE BIBB ON LOWER LEVEL OF PIT AREA
8. MOUNT SIGN ON WALL ABOVE FIXTURE "NON-POTABLE-DO NOT DRINK"
9. INSTALL SIGN ON CHAIN AT YARD HYDRANTS (YH1) THAT READS "NON-POTABLE WATER" DO NOT DRINK"
10. INSTALL BACKFLOW PREVENTER VERTICALLY IF SPACE IS LIMITED IN ACCORDANCE WITH MFR RECOMMENDATIONS
11. WATER METER (FURNISHED BY UTILITY) AND BYPASS VALVE STATION
12. PROVIDE WASHING MACHINE OUTLET BOX MOUNTED IN MASONRY WALL FOR WATER CONNECTIONS (AND DRAIN)
13. PROVIDE 12" FLEXIBLE CONNECTION TO EQUIPMENT
14. PROVIDE PRESSURE GAUGE W/ NEEDLE SHUT-OFF AFTER BACKFLOW PREVENTER



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WATER ISOMETRIC

FILE NO. 14573015
SHEET 20P4

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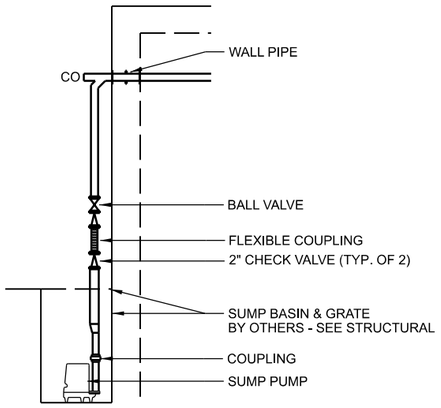
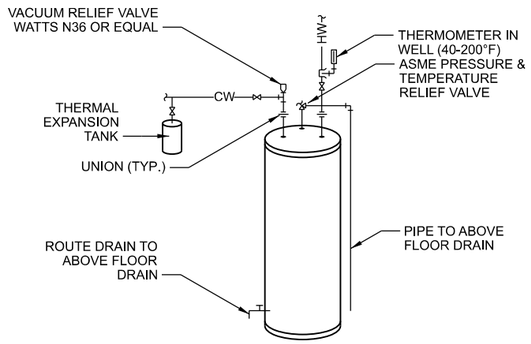
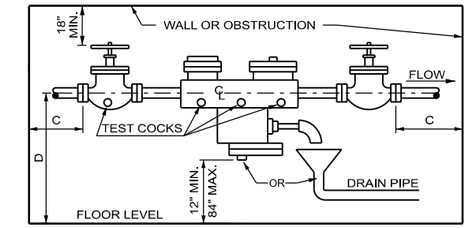


1 20P5 SUMP PUMP DETAIL
N.T.S.



2 20P5 ELECTRIC WATER HEATER DETAIL
N.T.S.



MINIMUM CLEARANCE				
SIZE	A	B	C	D
BELOW 4"	4"	24"	12"	24"
4" AND UP	4"	24"	12"	36"

DRAIN PIPE	
UNIT	DRAIN SIZE
¼" - 1"	1 ½"
1 ¼" - 1½"	2"
2" - 2½"	3"
3"	3"
4" AND UP	4"

NOTE:
PLACE BOTTOM OF VALVE 12" OR MORE ABOVE FLOOD LEVEL. GATE VALVE AND TEST COCKS ARE REQUIRED.

3 20P5 PRINCIPAL BACKFLOW PREVENTER DETAIL
N.T.S.

PLUMBING FIXTURE AND EQUIPMENT SCHEDULE

	FIXTURE	SANITARY		WATER							
				WSFU							
ID	NAME	DFU	TRAP SIZE	HOT	COLD	TOTAL	SIZE	REMARKS	MANUFACTURER	MODEL	DESCRIPTION
BP1	BACKFLOW PREVENTER						2"	5.9.15.	WATTS	SERIES 909-S	REDUCED PRESSURE BACKFLOW PREVENTER (ASSE 1013) (NEEDS TO COMPLY w/ AWWA C506)
BP2	BACKFLOW PREVENTER						1½"	5.9.14.	WATTS	SERIES 909-S	REDUCED PRESSURE BACKFLOW PREVENTER (ASSE 1013) (NEEDS TO COMPLY w/ AWWA C506)
CB1	CATCH BASIN	6.0	6"					16.	NEENAH	2556	HEAVY DUTY CAST IRON FRAME AND GRATE
ESE1	EMER. SHOWER/EYEWASH						1¼"	1.	BRADLEY	S19-310BF	10" DIAMETER DELUGE W/ S.S. EYEWASH BOWL
FD1	FLOOR DRAIN	3.0	3"					12.	J.R. SMITH	2005/2010	DRAIN W/ ROUND NICKEL BRONZE STAINER
FD2	FLOOR DRAIN	3.0	3"					12.	J.R. SMITH	2110-A	MEDIUM DUTY w/ CAST IRON TOP
HB1	HOSE BIBB, INTERIOR				4.0	4.0	¾"	3.	WATTS	8C	1" SS BALL VALVE W/ 45° THREADED ELBOW ON OUTLET W/ CHROME PLATE HOSE CONNECTION VACUUM BREAKER
HB2	HOSE BIBB, INTERIOR				4.0	4.0	¾"	3.	WOODFORD	MODEL 21	SILLCOCK w/ ¾" CONNECTION, METAL WHEEL HANDLE AND VACUUM BREAKER (WATTS 8C)
L1	LAVATORY	1.0	1¼"	0.5	0.5	1.0	½"	-	KOHLER	K-2032	WALL MOUNT LAVATORY
										K-15198-F	SINGLE LEVER FAUCET w/ GRID OUTLET (CHROME)
MV1	MIXING VALVE						1¼"	1.10.	BRADLEY	S19-2200	MIXING VALVE FOR EMERGENCY SHOWER/EYEWASH
P1	EXPLOSION PROOF SUMP PUMP	3.1	2" OUTLET					4.	ZOELLER	MX282	SUBMERSIBLE EXPLOSION PROOF SUMP PUMP, 40 GPM @ 18' TDH, 1/2 HP (115/60/1), AUTOMATIC MODEL
SC1	SINK, COUNTER	2.0	1½"	1.5	1.5	2.0	½"	11.13.14.	ELKAY	LRAD 332265	DOUBLE COUNTER SINK, 6½" DEEP
										LK2423	GOOSENECK SPOUT w/ (2) WING HANDLES (CHROME)
SH1	SHOWER	3.0	2"	2.0	2.0	3.0	¾"	-	KOHLER	K-12100	SHOWER STALL w/ FOLDING SEAT & S.S. GRAB BARS
										K-9132	DRAIN
										K-T8228-4A /K-304-KS	PRESSURE BALANCING VALVE w/ LEVER HANDLE
										K-9674	HANDSHOWER & SLIDE BAR (CHROME)
SS1	SERVICE SINK	3.0	3"	1.5	1.5	3.0	½"	-	EL MUSTEE	15F	PLASTIC LAUNDRY TUB W/ ADJUSTABLE LEGS
								14.	CHICAGO	526-CP	DECK MOUNT FAUCET W/ LEVER HANDLE AND THREADED OUTLET (E2JKRCF)
									CHICAGO	E27JKCP	THREADED HOSE BIBB BACKFLOW PREVENTER
SS2	MOP SINK	3.0	3"	1.5	1.5	3.0	½"	-	EL MUSTEE	63M	FLOOR MOUNTED MOP BASIN
									CHICAGO	540-LD897S/ WFABCP	WALL MOUNT FAUCET W/ PAIL HOOK, LEVEL HANDLES, THREADED OUTLET
									CHICAGO	E27JKCP	THREADED OUTLET VACUUM BREAKER
WC1	WATER CLOSET	6.0	3"		3.0	3.0	-	-	KOHLER	K-3427-RA	FLOOR MOUNTED TANK WATER CLOSET
										K-4670-SC	ELONGATED OPEN SEAT w/ SELF-SUSTAINING CHECK
WH1	WATER HEATER						-	1.6.7.8.	A.O. SMITH	PXHT 40	40 GALLON CAPACITY, 4500 WATTS, 208V, 1-PHASE, 21 GPH @ 90° F RISE, 56 GALLON 1ST HOUR.
YH1	YARD HYDRANT				4.0	4.0	¾"	2.	WOODFORD	Y1	FREEZELESS YARD HYDRANT, 6' BURY DEPTH

REMARKS:
1. VERIFY CONNECTION SIZE w/ UNIT MANUFACTURER.
2. SEE SITE PLAN FOR LOCATIONS.
3. PROVIDE PERMANENT FIXED SIGNAGE ABOVE FIXTURE "NON-POTABLE WATER - DO NOT DRINK".
4. SEE DETAIL 1/20P4.
5. SEE DETAIL 3/20P4.
6. SEE DETAIL 2/20P4.
7. SET OUTLET AT 120° F
8. PROVIDE THERMAL EXPANSION TANK BY MFR.
9. PROVIDE AIR GAP AND PIPE ON DISCHARGE TO ABOVE FLOOR DRAIN.
10. SET OUTLET AT 65° F
11. ADA COMPLIANT
12. SEE FOUNDATION PLAN FOR INSTALLATION ELEVATION. WHERE NOT SHOWN, SLOPE FLOOR TO DRAIN AT1/4" PER 1' MAXIMUM.
13. COORDINATE FAUCET OPENINGS WITH SINK.
14. FOR POTABLE WATER SYSTEM.
15. FOR NON-POTABLE (PROCESS) WATER SYSTEM.

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PLUMBING SCHEDULE & DETAILS

FILE NO. 14573015
SHEET 20P5

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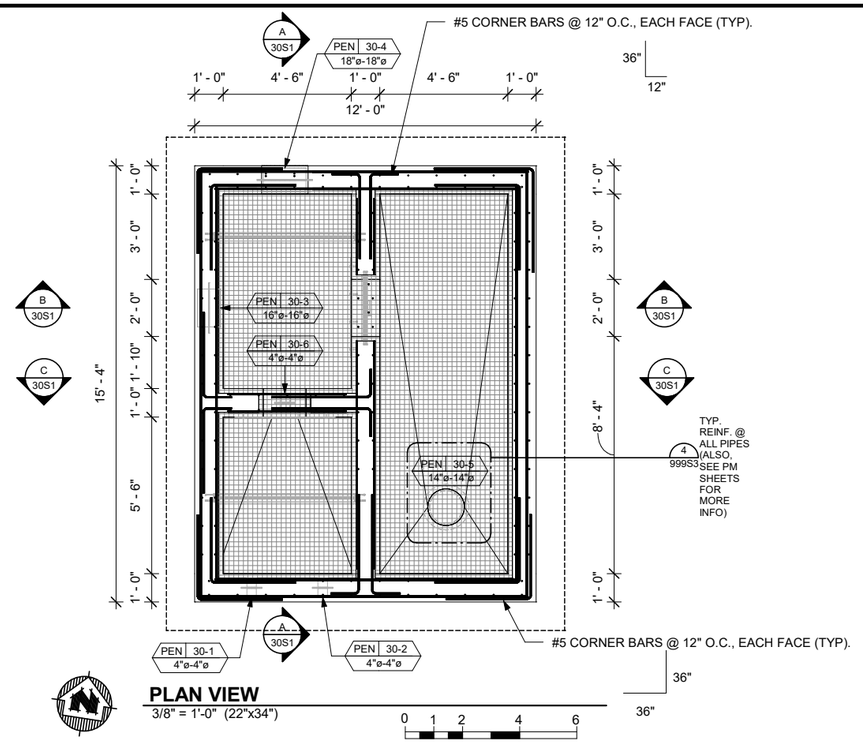
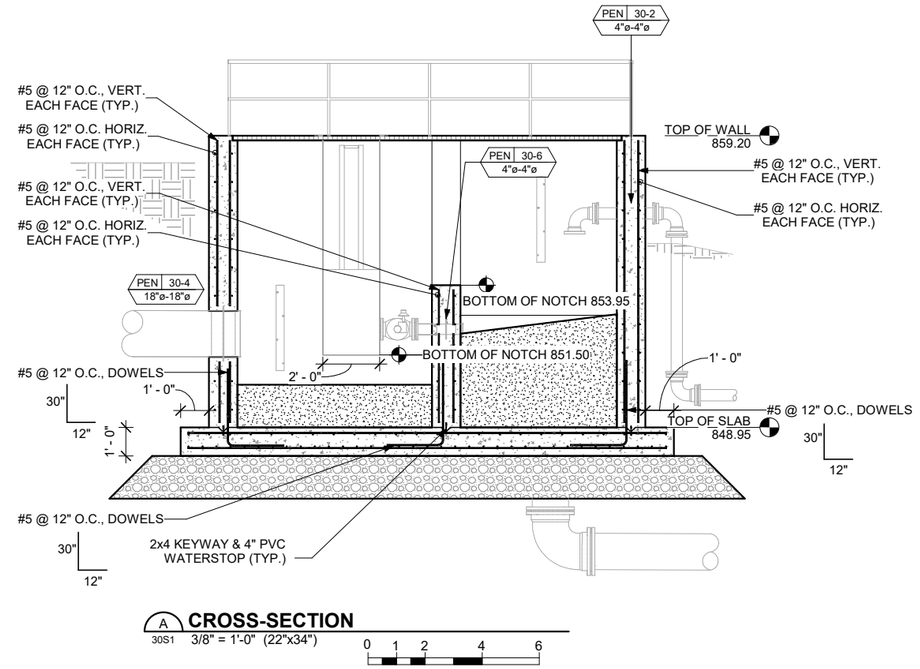


PLAN VIEW

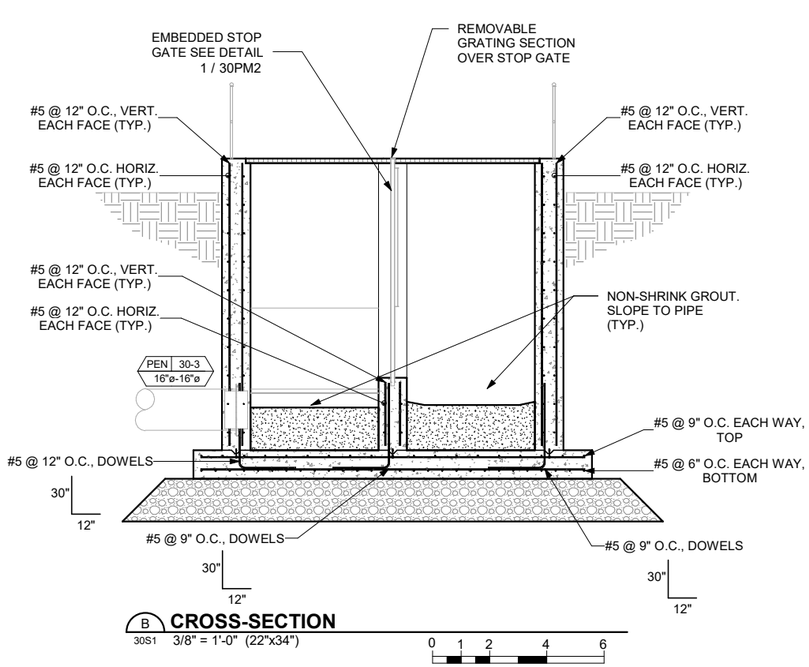
3/8" = 1'-0" (22"x34")



A CROSS-SECTION

30S1 3/8" = 1'-0" (22"x34")

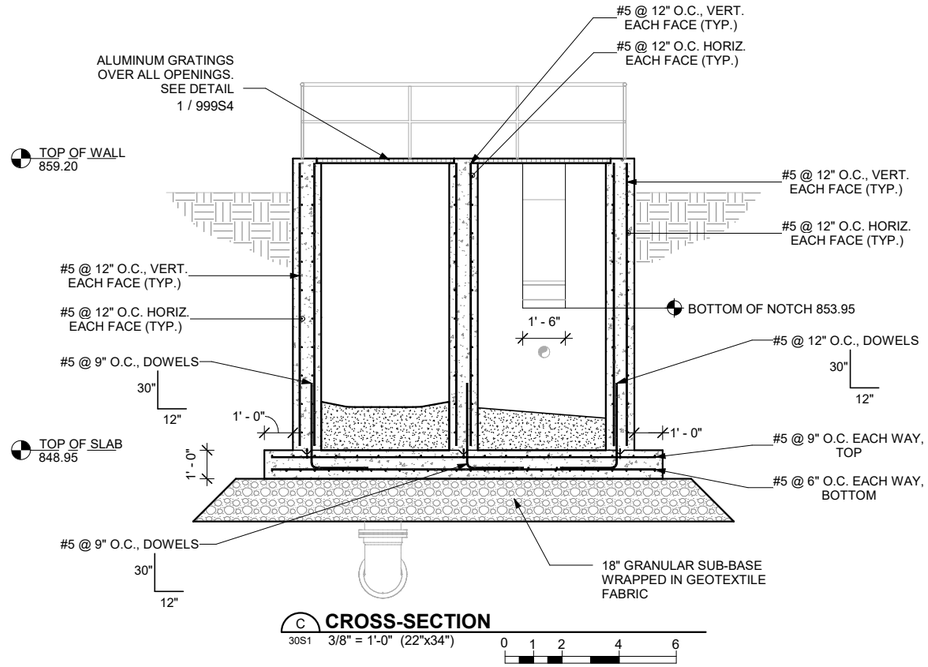
0 1 2 4 6



B CROSS-SECTION

30S1 3/8" = 1'-0" (22"x34")

0 1 2 4 6



C CROSS-SECTION

30S1 3/8" = 1'-0" (22"x34")

0 1 2 4 6

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FLOW SPLIT STRUCTURE
STRUCTURAL

PROJECT NO. 14573015
SHEET 30S1

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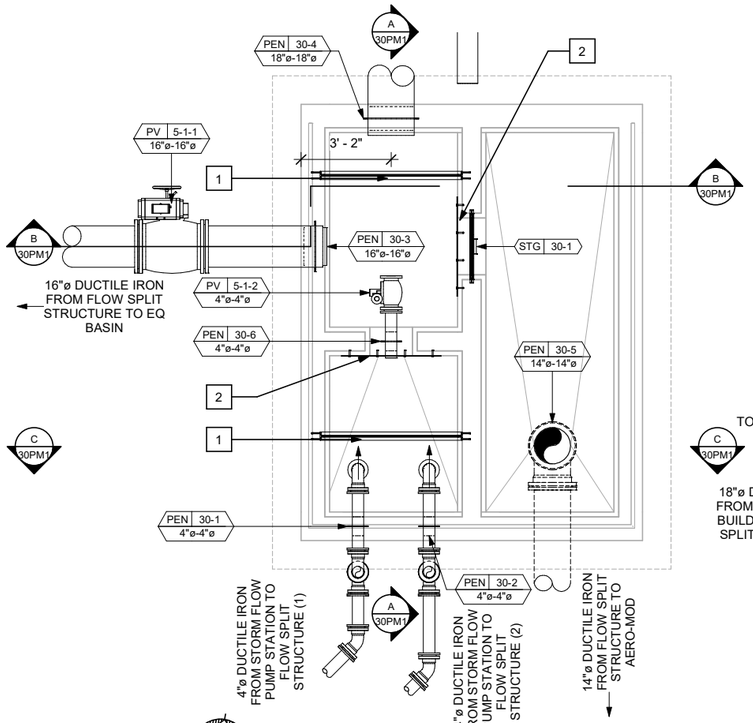
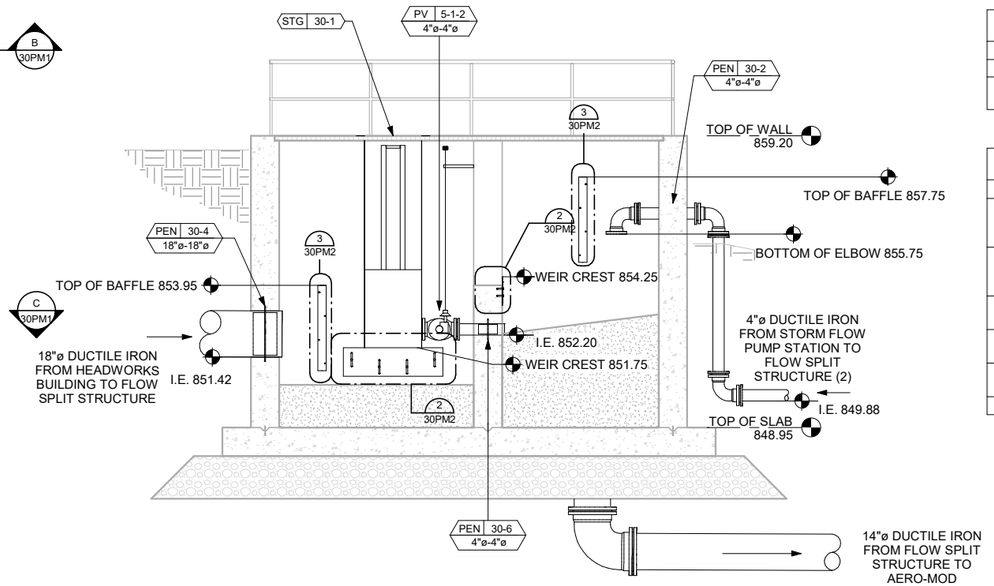


PLAN VIEW

3/8" = 1'-0" (22"x34")

0 1 2 4 6



A CROSS-SECTION

30PM1 3/8" = 1'-0" (22"x34")

0 1 2 4 6

☐ KEY NOTES

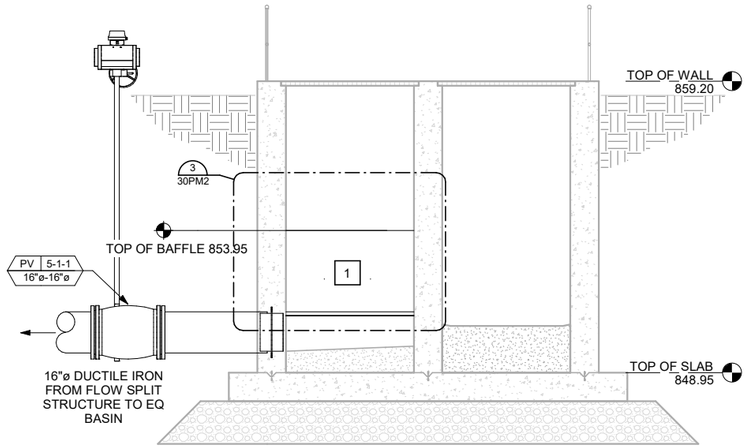
1 BAFFLE - SEE 3 / 30 PM2
2 WEIR PLATE - SEE 2 / 30PM2

APPURTENANCES SCHEDULE

TAG ID	TYPE	DESCRIPTION	SIZE	COMMENTS
5-1-1	PV	PLUG VALVE	16"ø-16"ø	MODULATING PLUG VALVE
5-1-2	PV	PLUG VALVE	4"ø-4"ø	PROVIDE EXTENDED NUT OPERATOR AND STEM GUIDE

PIPE PENETRATION (PEN)

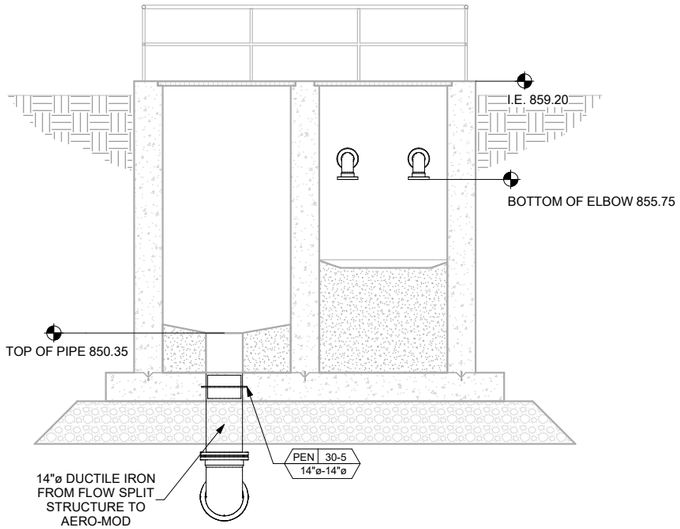
TAG ID	PENETRATION TYPE	PIPE MATERIAL	DESCRIPTION	PIPE SIZE
30-1	A	DUCTILE IRON	FROM STORM FLOW PUMP STATION TO FLOW SPLIT STRUCTURE (1)	4"ø-4"ø
30-2	A	DUCTILE IRON	FROM STORM FLOW PUMP STATION TO FLOW SPLIT STRUCTURE (2)	4"ø-4"ø
30-3	A	DUCTILE IRON	FROM FLOW SPLIT STRUCTURE TO EQ BASIN	16"ø-16"ø
30-4	A	DUCTILE IRON	FROM HEADWORKS BUILDING TO FLOW SPLIT STRUCTURE	18"ø-18"ø
30-5	A	DUCTILE IRON	FROM FLOW SPLIT STRUCTURE TO AERO-MOD	14"ø-14"ø
30-6	A	DUCTILE IRON	DRAIN	4"ø-4"ø



B CROSS-SECTION

30PM1 3/8" = 1'-0" (22"x34")

0 1 2 4 6



C CROSS-SECTION

30PM1 3/8" = 1'-0" (22"x34")

0 1 2 4 6

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FLOW SPLIT STRUCTURE
PROCESS MECHANICAL

PROJECT NO. 14573015
SHEET 30PM1

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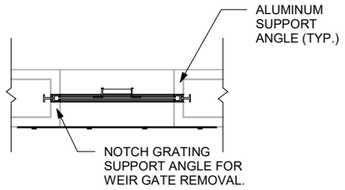
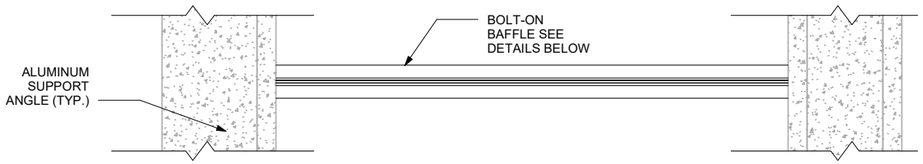
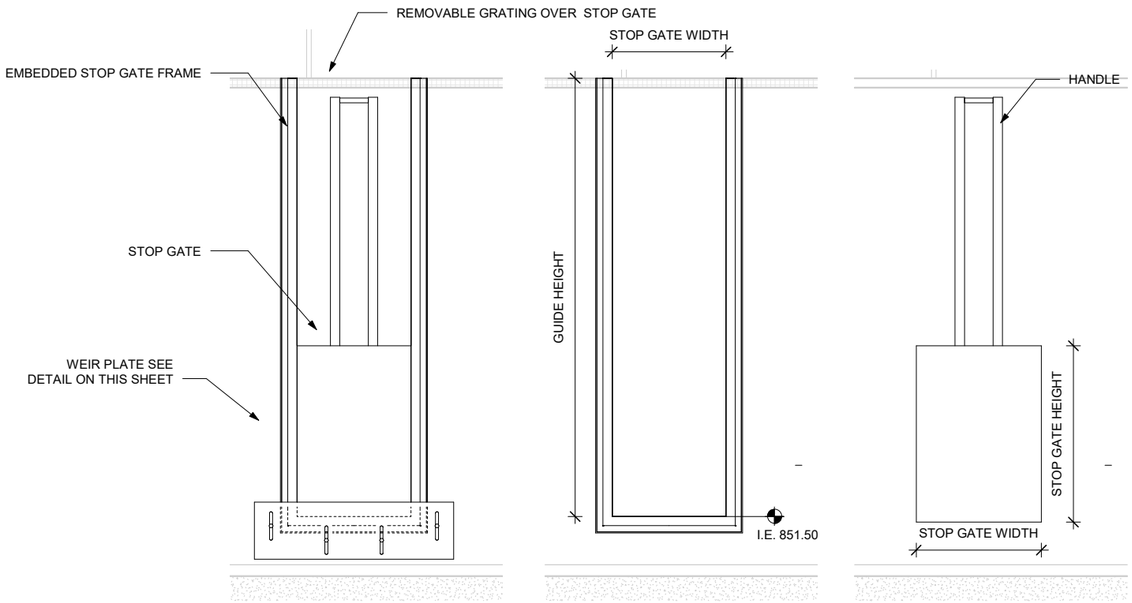


STOP GATE INSTALLATION DETAIL TOP VIEW

NOTES:
1. ALL AREAS OF FRAME IN CONTACT WITH CONCRETE/GROUT SHALL BE COATED WITH HEAVY COAT OF BITUMASTIC PAINT.
2. FRAMES AND STOP GATES TO BE CONSTRUCTED OF 6063-T6 AND 6061-T6 ALUMINUM ALLOY RESPECTIVELY.
3. FRAMES TO BE EMBEDDED IN CONCRETE. CONTRACTOR TO NOTCH CONCRETE TO INSTALL FRAME AND SEAL WITH NON-SHRINK GROUT IF NECESSARY.
4. FRAME TO HAVE UHMW SEAL ON BOTH SIDES OF GATE AND INVERT TO CONTAIN REPLACEABLE NEOPRENE FLUSH BOTTOM SEAL.
5. GATE FRAME TO EXTEND TO BOTTOM OF GRATING ANGLE SUPPORT.

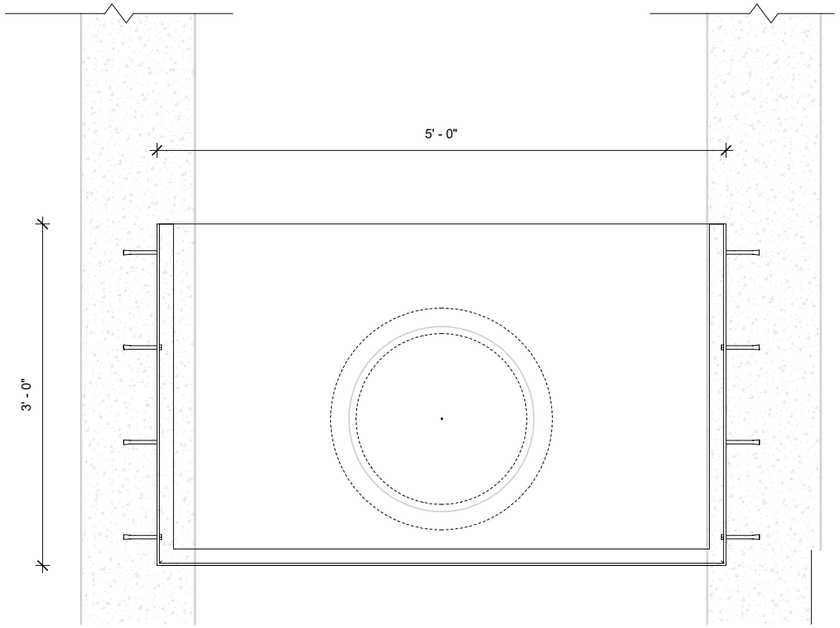


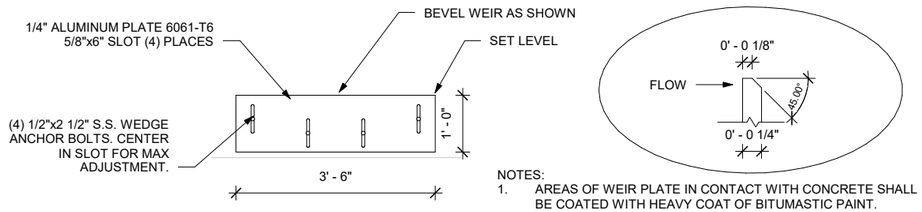
BAFFLE INSTALLATION DETAIL TOP VIEW



STOP GATE SCHEDULE							
TAG ID	INVERT ELEV, FT	GUIDE HEIGHT	STOP GATE HEIGHT	STOP GATE WIDTH	OPENING DIRECTION	MOUNTING TYPE (INVERT)	MOUNTING TYPE (SIDES+TOP)
30-1	851.50	7.70	3' - 0"	2' - 0"	UP	EMBEDDED	EMBEDDED

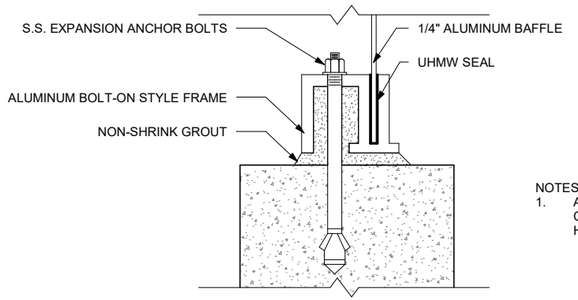
1 STOP GATE INSTALLATION DETAIL
30PM2 N.T.S.





NOTES:
1. AREAS OF WEIR PLATE IN CONTACT WITH CONCRETE SHALL BE COATED WITH HEAVY COAT OF BITUMASTIC PAINT.

2 TYPE A WEIR GATE
30PM2 N.T.S.



NOTES:
1. ALL AREAS OF FRAME IN CONTACT WITH CONCRETE/GROUT SHALL BE COATED WITH HEAVY COAT OF BITUMASTIC PAINT.

BAFFLE CONNECTION DETAIL

3 BAFFLE INSTALLATION DETAIL
30PM2 N.T.S.

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FLOW SPLIT STRUCTURE
PROCESS MECHANICAL DETAILS

PROJECT NO. 14573015
SHEET 30PM2

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DESIGN STRESSES

CAST-IN-PLACE CONCRETE	
LIQUID RETAINING	f'c = 5,000 psi
OTHER	f'c = 3,500 psi
STEEL	
REINFORCING	fy = 60 ksi
BOLTS	
ANCHOR	F1554, GRADE 36
EXPANSION	WEDGE TYPE
SOIL BEARING PRESSURE CAPACITY	
SOILS REPORT (GEOTECHNICAL REPORT PREPARED AND TESTED BY CHOSEN VALLEY TESTING, INC., DATED DECEMBER 3, 2019)	q = 3,000 psf

STEEL REINFORCING

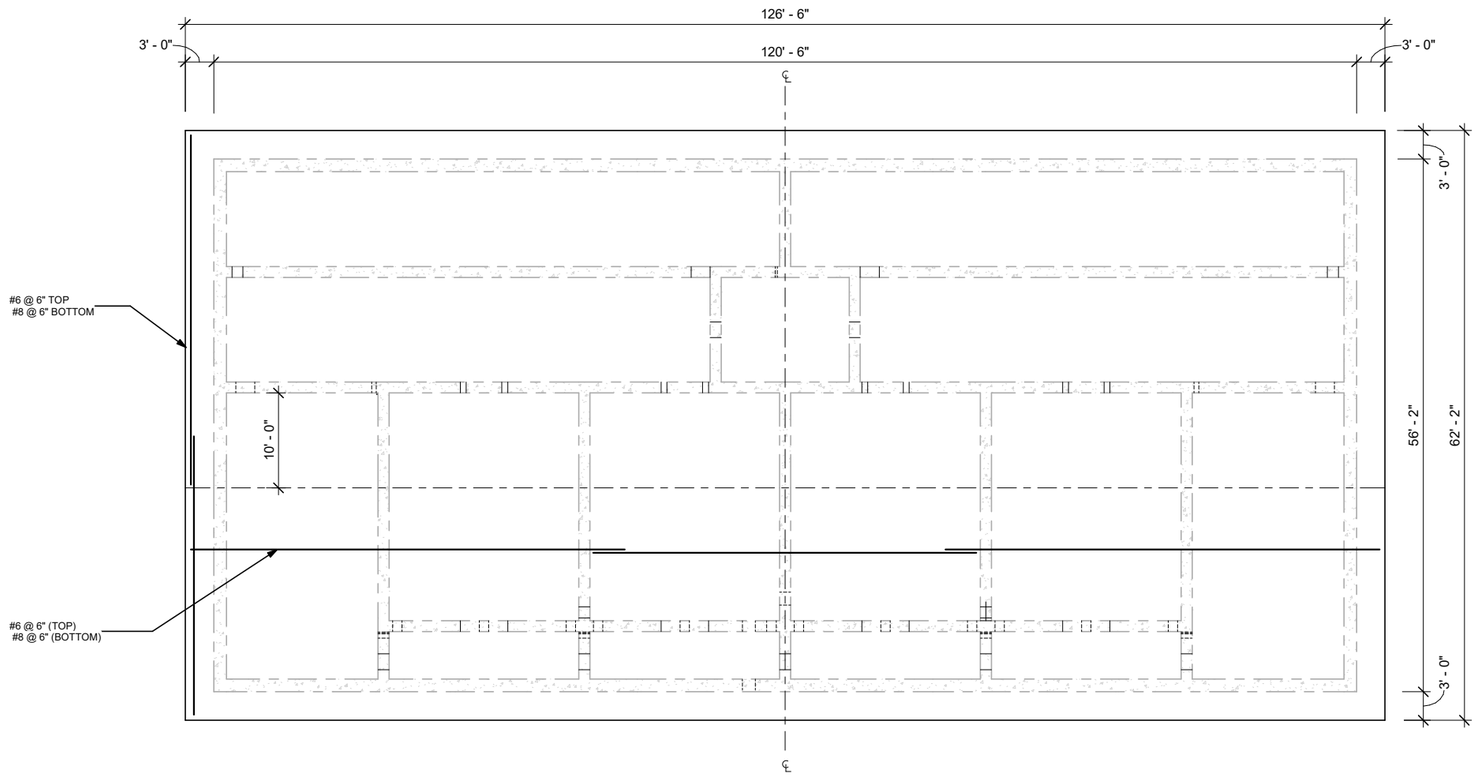
MIN CLEAR COVER, UNO	
FOUNDATION WALLS	
#5 BARS & SMALLER	1 1/2"
#6 BARS & LARGER	2"
NON-STRUCTURAL SLABS ON GRADE	
BOTTOM & SIDES	1 1/2"
TOP	3/4"
FOOTINGS AND STRUCTURAL SLABS ON GRADE	
BOTTOM & SIDES	3"
TOP	2"
NOTES	
1. ALL LAPS SHALL BE CLASS B PER ACI 350/318, UNO	

GENERAL STRUCTURAL NOTES

1. EXCAVATION AND SUBGRADE PREPARATION SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS.
2. SEE MECHANICAL AND ELECTRICAL PLANS FOR SIZE & LOCATION OF FLOOR/WALL OPENINGS AND PIPE PENETRATIONS NOT SHOWN. PROVIDE PIPE SLEEVES CAST INTO CONCRETE.
3. ALL PIPE PENETRATIONS, ELECTRICAL CONDUIT PENETRATIONS (NOT SHOWN - SEE ELECTRICAL), AND PLUMBING PENETRATIONS THROUGH FLOOR SHALL HAVE A STRIP OF BENTONITE OR HYDRAULIC WATER STOP INSTALLED AROUND CIRCUMFERENCE OF PIPE/CONDUIT ETC. AT CENTER OF SLAB LEVEL TO CREATE A WATERTIGHT SEAL. SEE PIPE PENETRATION DETAILS ON 999M SHEETS FOR MORE INFORMATION REGARDING SPECIFIC PENETRATION TYPES.
4. QUALITY CONTROL SERVICE SHALL INSPECT AND PERFORM TESTS TO VERIFY THE ACTUAL ALLOWABLE SOIL BEARING PRESSURE AT FOUNDATION BEARING LOCATIONS. QUALITY CONTROL SERVICE SHALL NOTIFY STRUCTURAL ENGINEER OF LOCATIONS WHERE THE ACTUAL ALLOWABLE BEARING PRESSURE IS LESS THAN THE SPECIFIED VALUE OR WHERE FOUNDATION ELEVATIONS MUST BE MODIFIED TO BEAR ON APPROPRIATE MATERIAL. CONSTRUCTION OF THE FOUNDATION SYSTEM SHALL NOT PROCEED AT SUCH LOCATIONS UNTIL AN APPROPRIATE REMEDIAL ACTION HAS BEEN REVIEWED AND ACCEPTED BY STRUCTURAL ENGINEER.

CONCRETE & REINFORCING NOTES

1. ALL LAPS SHALL BE CLASS-"B" PER ACI 318/350 UNLESS NOTED OTHERWISE ON THE DESIGN DRAWINGS AND THE DETAILER TAKES SPECIAL CARE TO PROVIDE STAGGERED LAPS. USE TOP BAR LAP LENGTHS FOR ALL HORIZONTAL WALL BARS AND FOR BARS IN SLABS WITH MORE THAN 12" OF CONCRETE BELOW.
2. LAP LENGTH SHALL BE SPECIFICALLY NOTED ON PLACING DRAWINGS WHERE MORE THAN ONE BAR MAKES UP A CONTINUOUS STRING.
3. BAR PLACEMENT TOLERANCES SHALL BE AS SPECIFIED IN THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI) MANUAL OF STANDARD PRACTICE, CURRENT EDITION.
4. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER'S APPROVAL PRIOR TO CONCRETE PLACEMENT INDICATING CONSTRUCTION JOINT LOCATIONS AND CONCRETE PLACEMENT SEQUENCING.
5. ALL REINFORCING BAR DIMENSIONS ARE FROM OUT-TO-OUT OF BAR. ALL BEND ANGLES ARE AT 45° AND 90° UNLESS NOTED OTHERWISE.
6. ALL CONCRETE SHALL BE PROPORTIONED, PLACED, AND FINISHED IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
7. SEE DETAILS (999S SHEETS) FOR ADDITIONAL REINFORCING REQUIRED AT WALL AND SLAB OPENINGS, TYP.
8. ALL EXTERIOR WALLS TO CONTAIN WATERSTOP AT THE BOTTOM OF THE WALL AND AT ALL VERTICAL CONSTRUCTION JOINTS.



FOUNDATION PLAN
1/8" = 1'-0" (22"x34")
0 4 8 16

No	DATE	REVISIONS	BY

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AERO-MOD
FOUNDATION PLAN

PROJECT NO. 14573015
SHEET 40S1

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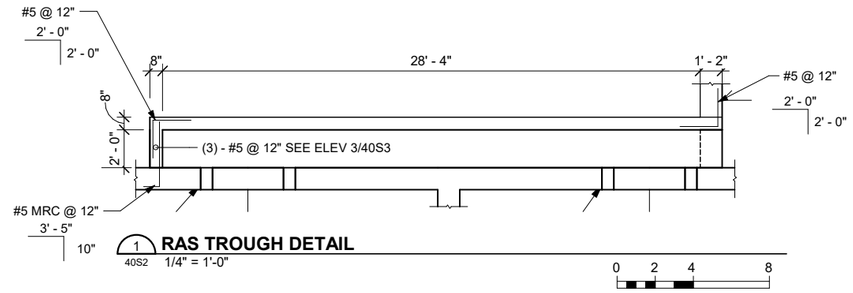
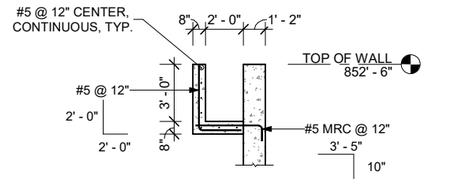


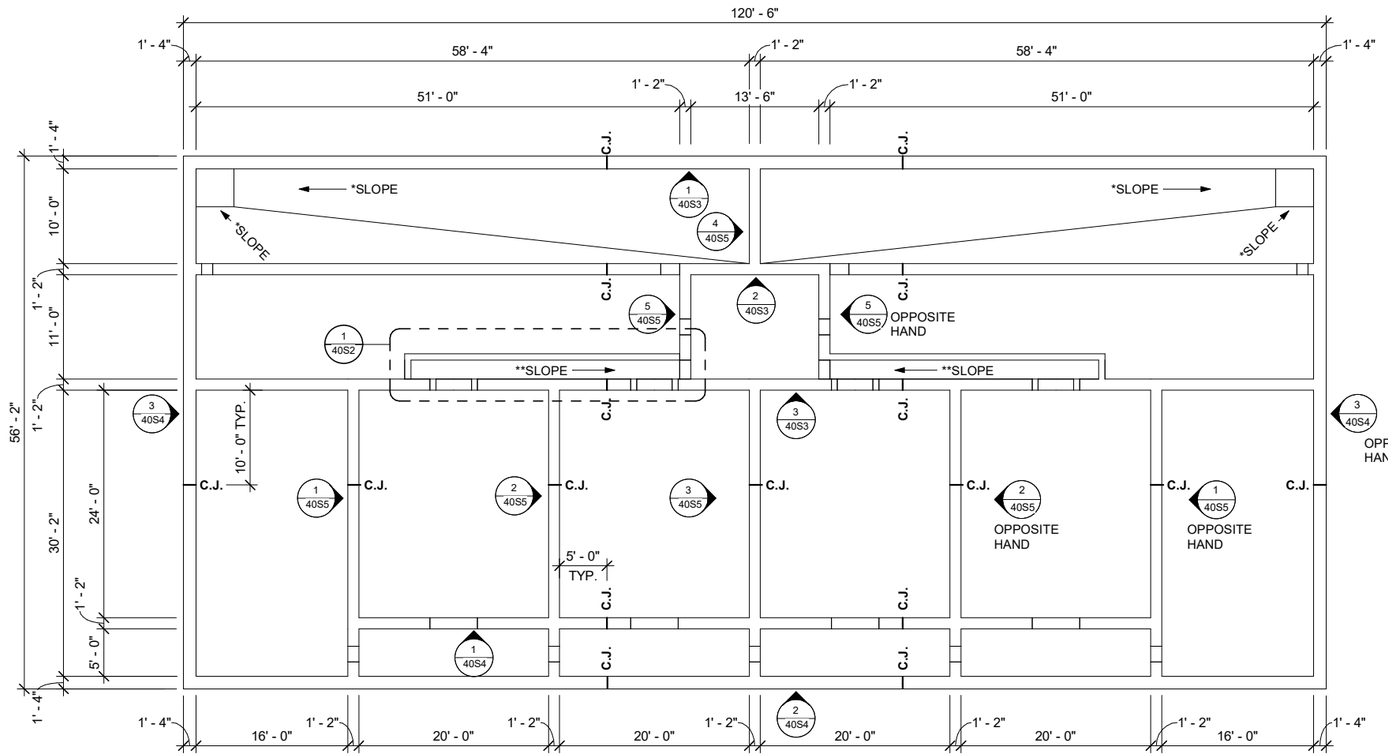
1 40S2 **RAS TROUGH DETAIL**
1/4" = 1'-0"



2 40S2 **RAS TROUGH DETAIL SECTION**
1/4" = 1'-0"

*SLOPE EACH DIGESTER FLOOR TO SUMP. CONCRETE FILLET TO BE 3" AT SUMP AND 6" AT ADJACENT WALL.

**SLOPE RAS TROUGH TO SELECTOR TANK. GROUT TO BE 5" AT HIGH END AND 1" AT LOW END.

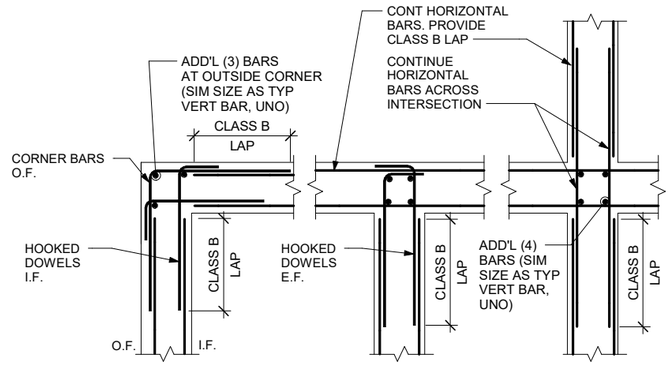


REINFORCEMENT PLAN
1/8" = 1'-0" (22"x34")
0 4 8 16

NOTES

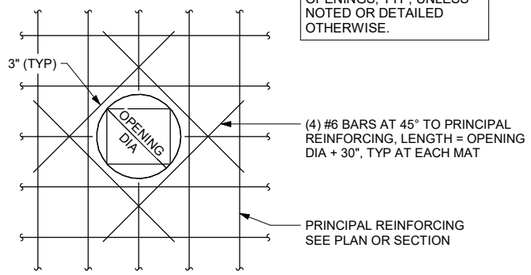
1. VERIFY ALL BOXOUTS, NOTCHES, AND PIPE PENETRATION LOCATIONS WITH EQUIPMENT SUPPLIER PRIOR TO POURING CONCRETE.
2. FOR CLARITY, NOT ALL REINFORCING IS SHOWN.
3. SEE NOTCH AND PIPE INSERT PLAN SHEET FOR WALL PENETRATIONS AND OPENINGS.
4. VERTICAL CONSTRUCTION JOINTS ARE AT SAME LOCATIONS ON THE NORTH SIDE AS DIMENSIONED ON THE SOUTH SIDE.

NOTE:
1. VALID WHERE CORNER BARS NOT SPECIFICALLY DETAILED ELSEWHERE



TYPICAL CORNER/INTERSECTION REINFORCING DETAIL
3 40S2 N.T.S.

NOTE:
ADDITIONAL REINFORCING SIMILAR AT RECTANGULAR OPENINGS, TYP, UNLESS NOTED OR DETAILED OTHERWISE.



REINFORCING AT CONCRETE WALLS AND SLAB OPENINGS DETAIL
4 40S2 N.T.S.

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AERO-MOD
WALL REINFORCEMENT PLAN

PROJECT NO. 14573015
SHEET 40S2

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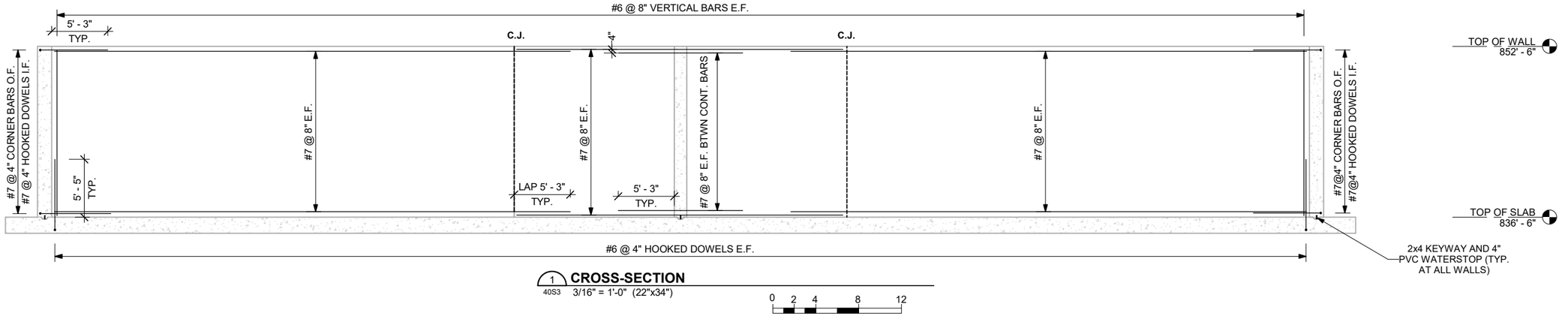
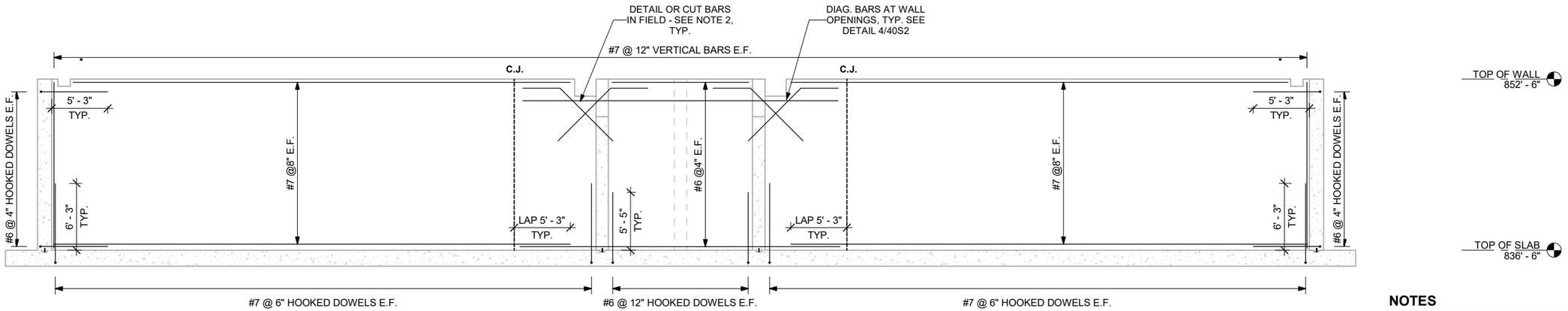


1 40S3 **CROSS-SECTION**

3/16" = 1'-0" (22"x34")

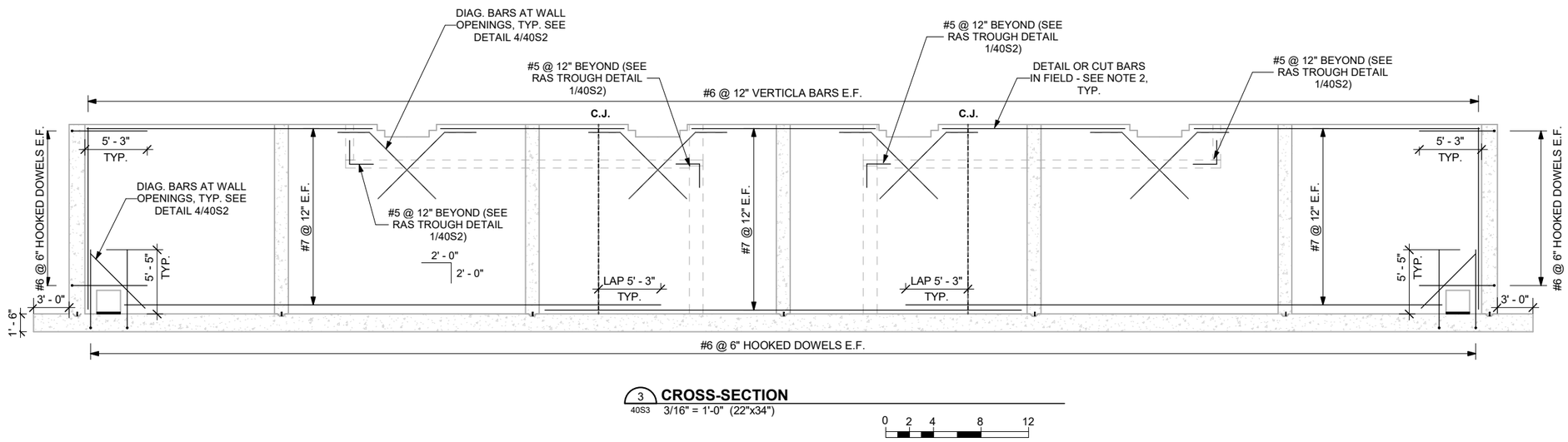
0 2 4 8 12



2 40S3 **CROSS-SECTION**

3/16" = 1'-0" (22"x34")

0 2 4 8 12



3 40S3 **CROSS-SECTION**

3/16" = 1'-0" (22"x34")

0 2 4 8 12

NOTES

1. 12" OF GRANULAR FILL SHALL BE PLACED UNDER SLAB AND SHALL BE WRAPPED IN GEOTEXTILE FABRIC. REFER TO SPECIFICATIONS.
2. SPECIFICALLY DETAIL OR FIELD CUT REINFORCING BARS TO ACCOMODATE BOXOUTS, NOTCHES, AND PIPING PENETRATIONS. PROVIDE DIAGONAL BARS.
3. ALL REINFORCEMENT LAPS ARE CLASS B PER ACI 350 UNLESS NOTED OTHERWISE.

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STRUCTURAL WALL REINFORCEMENT

PROJECT NO. 14573015
SHEET 40S3

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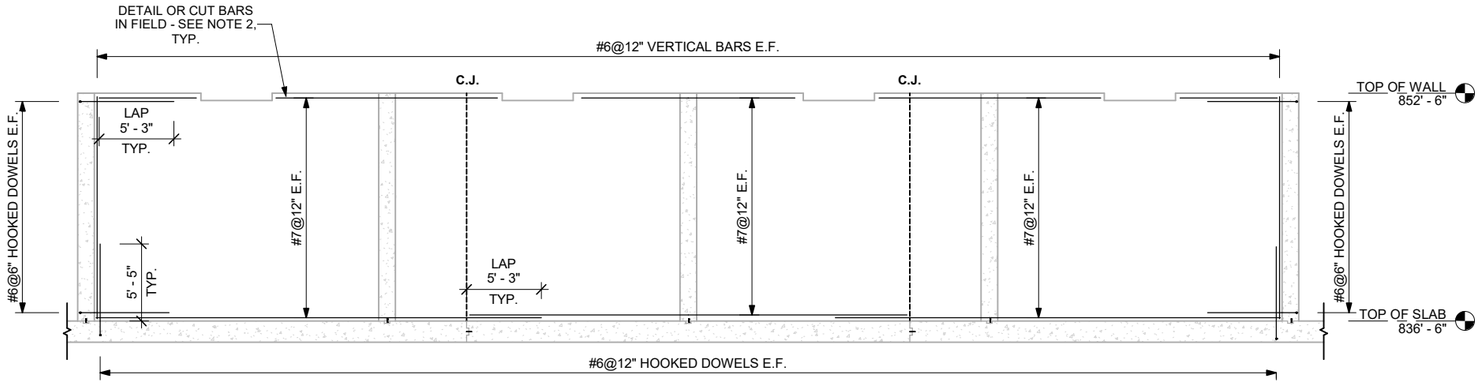
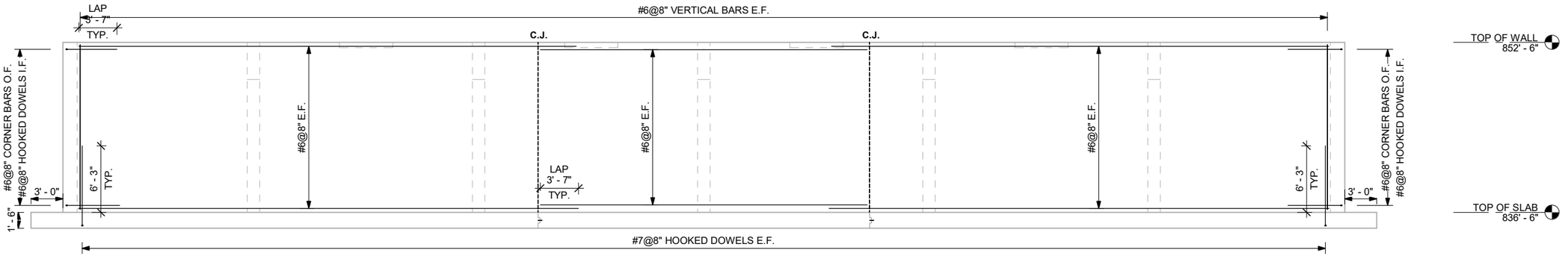


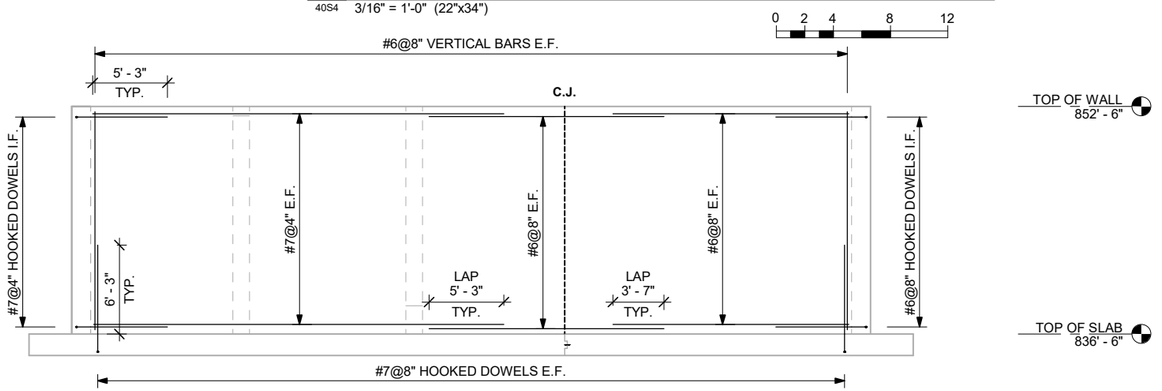
1 40S4 **CROSS-SECTION**
3/16" = 1'-0" (22"x34")

0 2 4 8 12



2 40S4 **CROSS-SECTION**
3/16" = 1'-0" (22"x34")

0 2 4 8 12



3 40S4 **CROSS-SECTION**
3/16" = 1'-0" (22"x34")

0 2 4 8 12

NOTES

1. 12" OF GRANULAR FILL SHALL BE PLACED UNDER SLAB AND SHALL BE WRAPPED IN GEOTEXTILE FABRIC. REFER TO SPECIFICATIONS.
2. SPECIFICALLY DETAIL OR FIELD CUT REINFORCING BARS TO ACCOMODATE BOXOUTS, NOTCHES, AND PIPING PENETRATIONS. PROVIDE DIAGONAL BARS.
3. ALL REINFORCEMENT LAPS ARE CLASS B PER ACI 350 UNLESS NOTED OTHERWISE.

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SHEET 40S4

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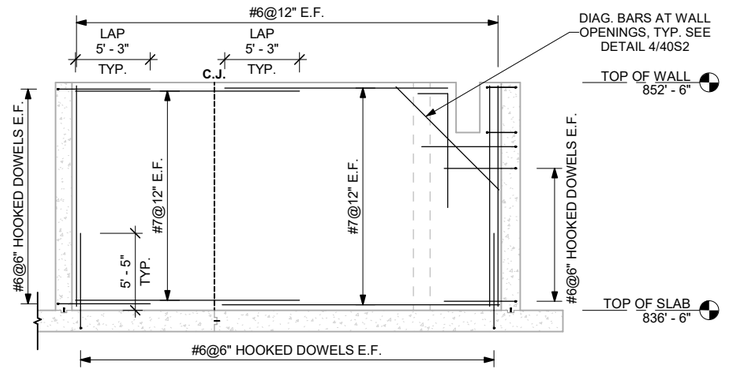
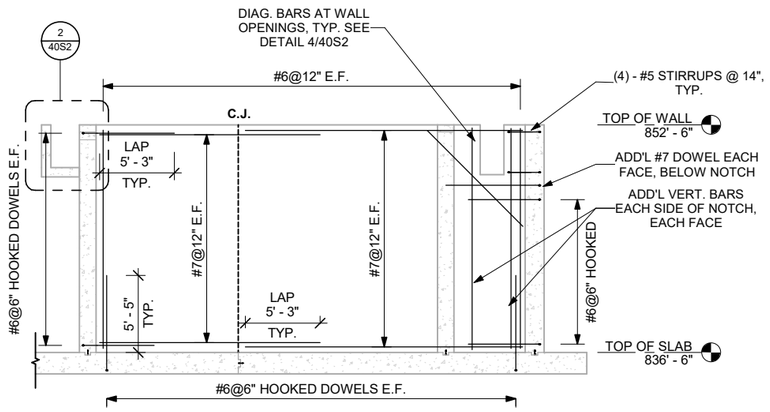


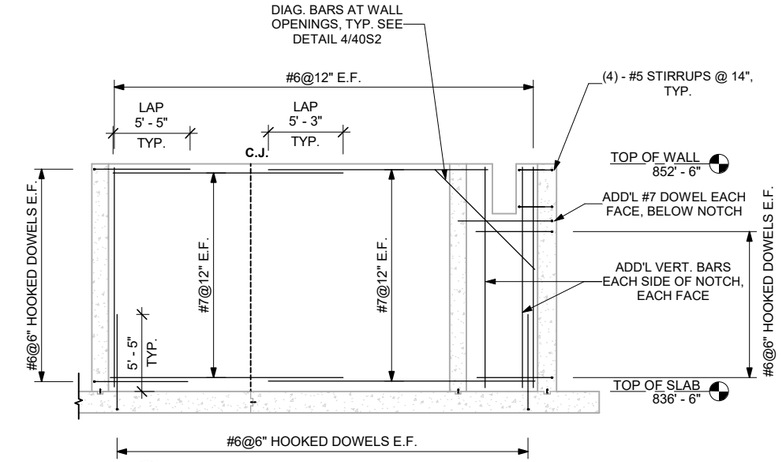
1 40S5 **CROSS-SECTION**
3/16" = 1'-0" (22"x34")
0 2 4 8 12

NOTES

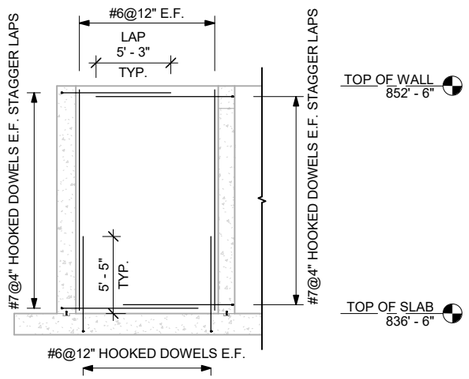
1. 12" OF GRANULAR FILL SHALL BE PLACED UNDER SLAB AND SHALL BE WRAPPED IN GEOTEXTILE FABRIC. REFER TO SPECIFICATIONS.
2. SPECIFICALLY DETAIL OR FIELD CUT REINFORCING BARS TO ACCOMODATE BOXOUTS, NOTCHES, AND PIPING PENETRATIONS. PROVIDE DIAGONAL BARS.
3. ALL REINFORCEMENT LAPS ARE CLASS B PER ACI 350 UNLESS NOTED OTHERWISE.



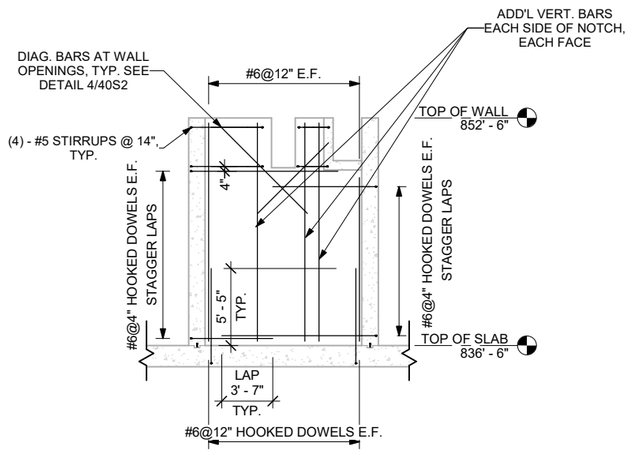
2 40S5 **CROSS-SECTION**
3/16" = 1'-0" (22"x34")
0 2 4 8 12



3 40S5 **CROSS-SECTION**
3/16" = 1'-0" (22"x34")
0 2 4 8 12



4 40S5 **CROSS-SECTION**
3/16" = 1'-0" (22"x34")
0 2 4 8 12



5 40S5 **CROSS-SECTION**
3/16" = 1'-0" (22"x34")
0 2 4 8 12

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SHEET 40S5

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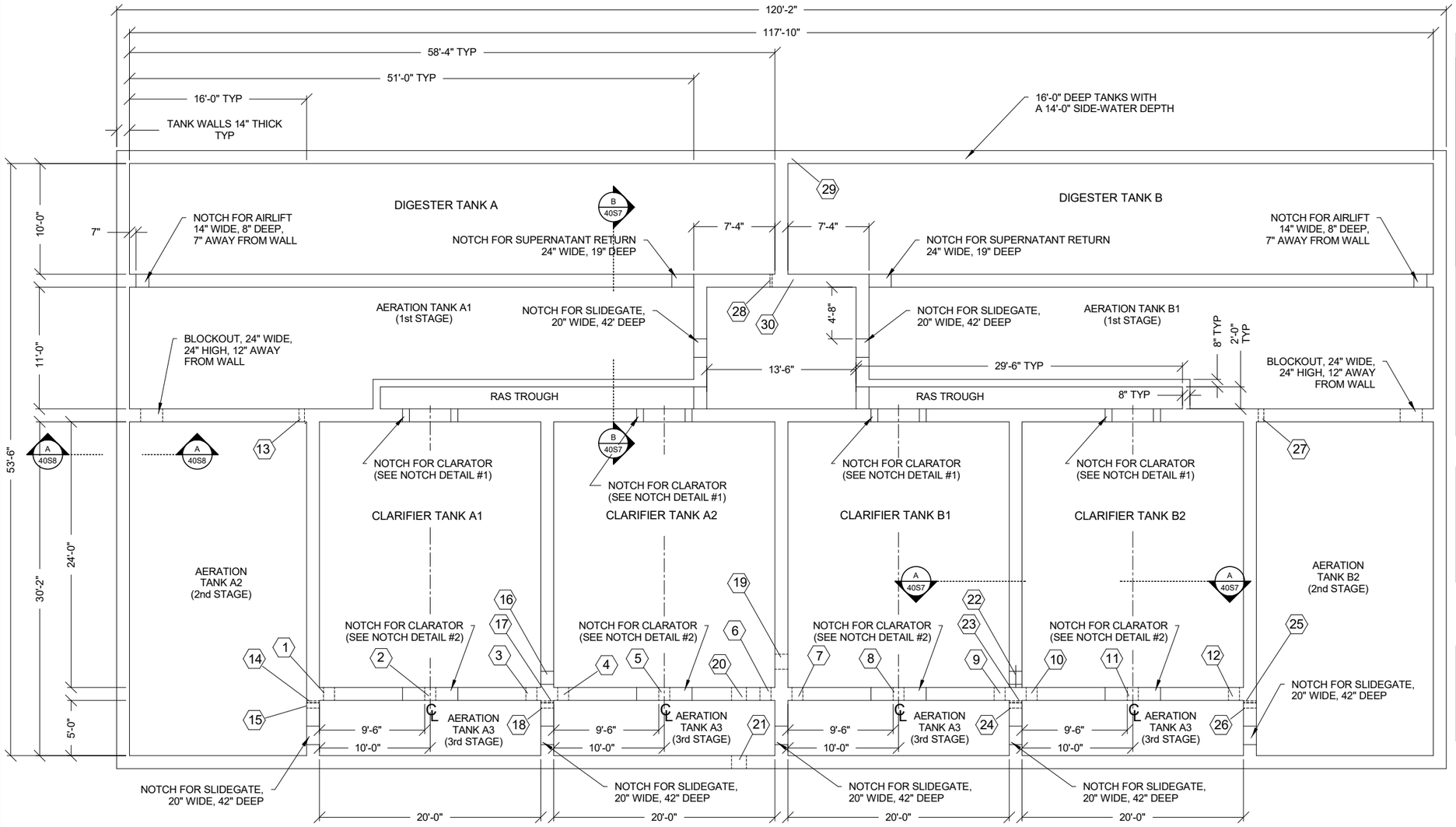

NOTCH AND PIPE INSERT PLAN

3/16" = 1'-0" (22"x34")

0 2 4 8 12

LINK SEAL INSERT LOCATION CHART

REF NO	INSERT DIAMETER	A	B	DESCRIPTION
1	12" for 8" pipe	67"	4"	DISTRIBUTOR LINE
2	12" for 8" pipe	67"	9'-6"	DISTRIBUTOR LINE
3	12" for 8" pipe	67"	4"	DISTRIBUTOR LINE
4	12" for 8" pipe	67"	4"	DISTRIBUTOR LINE
5	12" for 8" pipe	67"	9'-6"	DISTRIBUTOR LINE
6	12" for 8" pipe	67"	4"	DISTRIBUTOR LINE
7	12" for 8" pipe	67"	4"	DISTRIBUTOR LINE
8	12" for 8" pipe	67"	9'-6"	DISTRIBUTOR LINE
9	12" for 8" pipe	67"	4"	DISTRIBUTOR LINE
10	12" for 8" pipe	67"	4"	DISTRIBUTOR LINE
11	12" for 8" pipe	67"	9'-6"	DISTRIBUTOR LINE
12	12" for 8" pipe	67"	4"	DISTRIBUTOR LINE
13	6" for 4" pipe	109"	2"	AIR LINE
15	6" for 4" pipe	109"	2"	AIR LINE
16	14" for 10" pipe	102"	3 ½"	EFFLUENT LINE
18	6" for 4" pipe	109"	2"	AIR LINE
19	16" for 14" pipe	101"	20"	EFFLUENT LINE
20	16" for 14" pipe	50"	31"	EFFLUENT LINE
22	14" for 10" pipe	102"	3 ½"	EFFLUENT LINE
24	6" for 4" pipe	109"	2"	AIR LINE
26	6" for 4" pipe	109"	2"	AIR LINE
27	6" for 4" pipe	109"	2"	AIR LINE
28	4" for 2" pipe	107"	2"	AIR LINE

PVC INSERT LOCATION CHART

REF NO	DIA.	A	B	C* FROM T.O.W.	DESCRIPTION
14	2"	NA*	1"	12"	CONDUIT LINE
17	2"	NA*	1"	12"	CONDUIT LINE
23	2"	NA*	1"	12"	CONDUIT LINE
25	2"	NA*	1"	12"	CONDUIT LINE

* CONDUIT LINE PVC INSERTS WILL BE THE ONLY WALL PENETRATIONS CALLED OUT FROM TOP OF TANK WALL

OUTSIDE WALL INSERT LOCATION CHART SUPPLIED BY G.C.

REF NO	INSERT DIAMETER	A	B	DESCRIPTION
21	* 16" for 14" pipe	51"	31"	EFFLUENT LINE
29	TO BE SIZED & LOCATED	BY G.C.	BY G.C.	INFLUENT LINE
30	TO BE SIZED & LOCATED	BY G.C.	BY G.C.	INFLUENT LINE

* IF A LINK-SEAL IS USED

PIPE PENETRATION NOTES:

1. LINK-SEAL INSERTS SHALL FOLLOW PIPE PENETRATION TYPE D, SEE DETAIL ON SHEET 999-M1

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AERO-MOD
NOTCH AND PIPE INSERT PLAN

PROJECT NO. 14573015
SHEET 40S6

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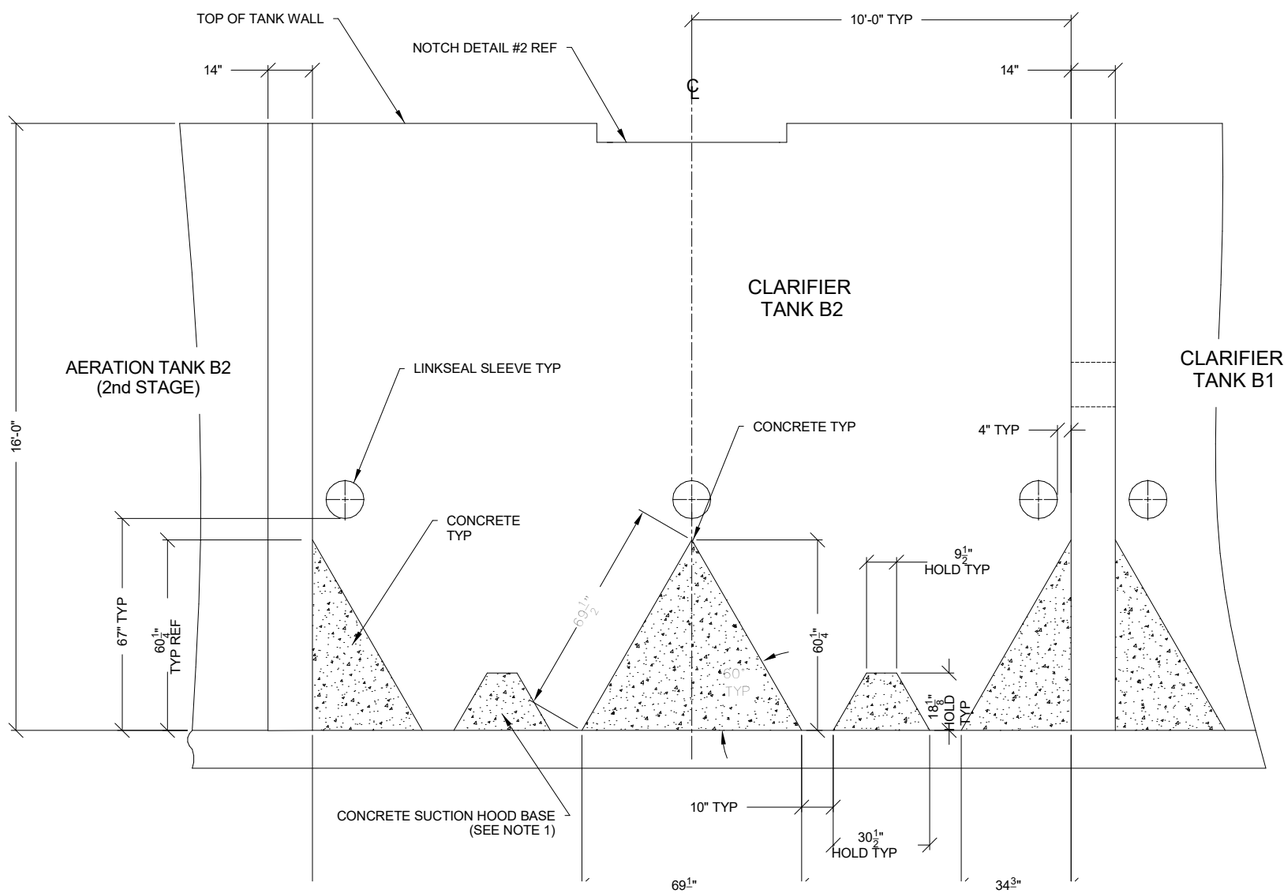
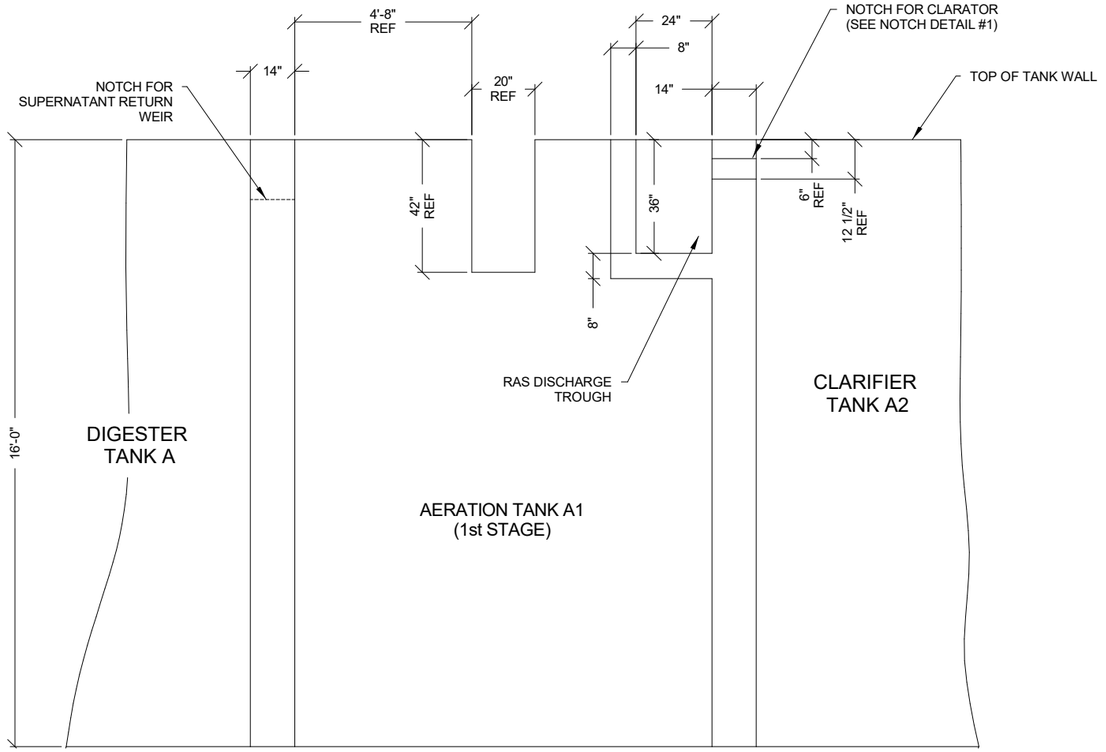


A **CLARIFIER SECTIONAL VIEW**
40S7 1/2" = 1'-0" (22"x34")
0 1 2 4



B **CLARIFIER SECTIONAL VIEW**
40S7 1/2" = 1'-0" (22"x34")
0 1 2 4

		No	DATE	REVISIONS	BY
PROJECT DATE: 2020-08-13	DRAWN BY: JBR				
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AERO-MOD
CLARIFIER SECTIONS

PROJECT NO. 14573015
SHEET 40S7

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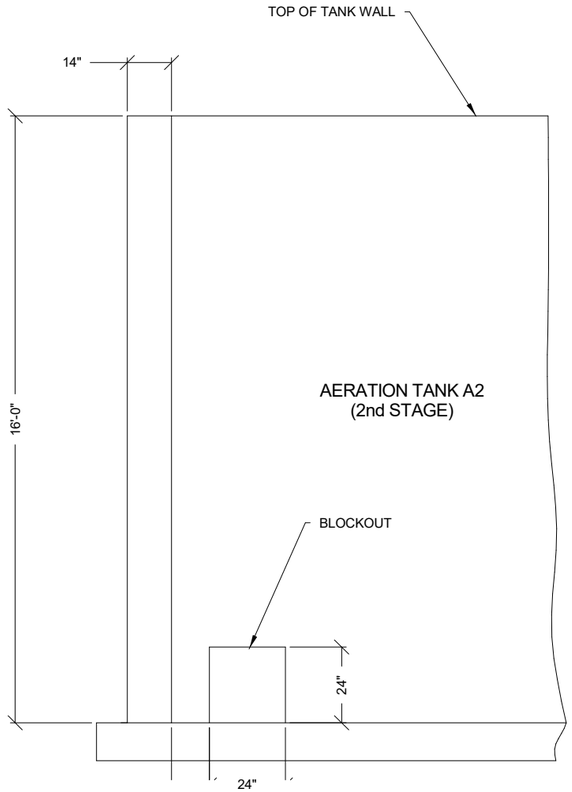
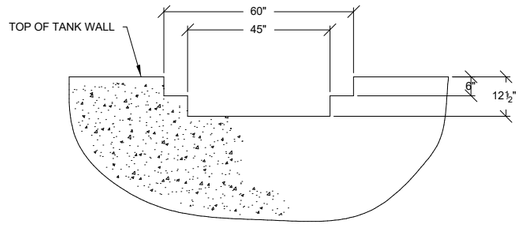
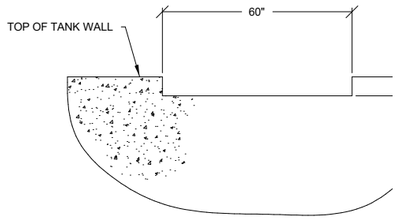


A **CLARIFIER SECTIONAL VIEW**
40S8 1/2" = 1'-0" (22"x34")

0 1 2 4



NOTCH DETAIL #1



NOTCH DETAIL #2

2 **CONCRETE NOTCH DETAILS**
40S8 N.T.S.

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CLARIFIER SECTIONS & DETAILS

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SHEET 40S8

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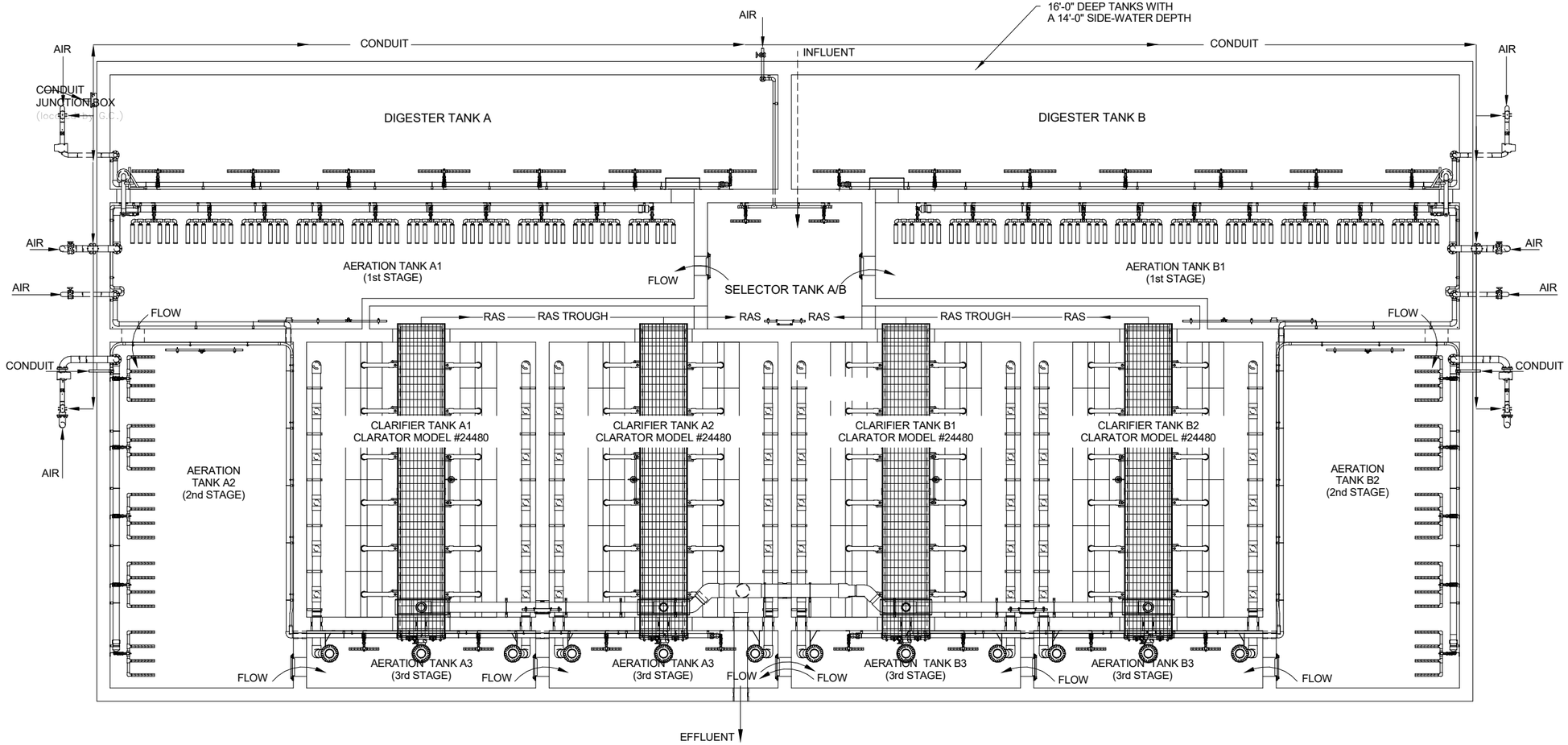

PROCESS PLAN LAYOUT

3/16" = 1'-0" (22"x34")

0 2 4 8 12

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	CHECKED BY: JEM					

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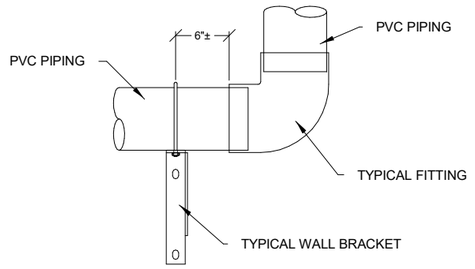
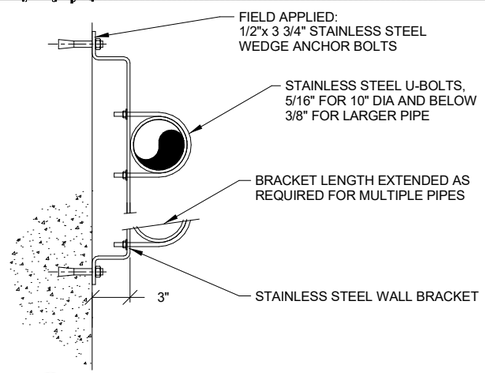
AERO-MOD
PROCESS PLAN LAYOUT

PROJECT NO. 14573015
SHEET 40PM1

Return to Agenda



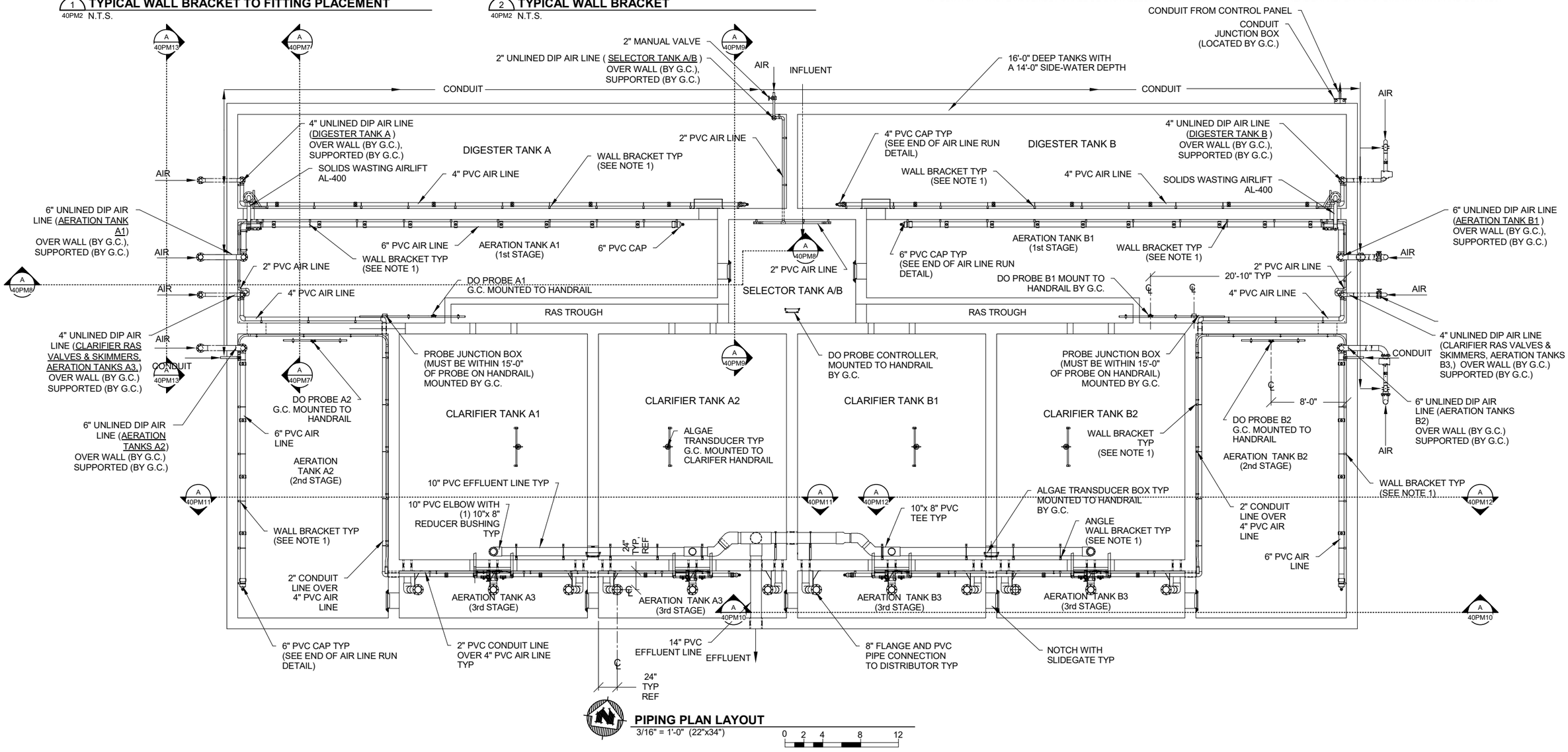
1 TYPICAL WALL BRACKET TO FITTING PLACEMENT
40PM2 N.T.S.



2 TYPICAL WALL BRACKET
40PM2 N.T.S.

GENERAL PROCESS MECHANICAL NOTES

1. AERO-MOD SCOPE OF SUPPLY WILL INCLUDE THE STAINLESS STEEL SUPPORTS (WALL BRACKETS) FOR THE PVC PIPE INSIDE OF THE TREATMENT TANKS, AS WELL AS THE FLEX HOSES THAT ATTACH PIPING TO AERO-MOD SUPPLIED EQUIPMENT. THE WALL AND ANGLE BRACKETS USED FOR SUPPORTING PVC PIPING ARE TYPICALLYSPACED 5'-0" APART. AERO-MOD WILL ALSO SUPPLY THE PNEUMATIC TUBING AND FITTINGS ASSOCIATED WITH THE OPERATION OF THE AERO-MOD EQUIPMENT. AERO-MOD WILL NOT SUPPLY PIPE SUPPORTS FOR NON-PVC PIPE, AS THESE WILL NEED TO BE SUPPLIED BY THE GENERAL CONTRACTOR.
2. INFLUENT, EFFLUENT, SLUDGE CONVEYANCE, AND AIR PIPING MATERIALS AND CONDUIT (EXCLUDING FABRICATED CLARIFIER DISTRIBUTORS, AIRLIFT PUMPS, AND AERATION DROP PIPES) INSIDE AND OUTSIDE OF THE TREATMENT TANKS SHALL BE SUPPLIED SEPARATELY BY THE GENERAL CONTRACTOR. THE GENERAL CONTRACTOR SHALL ALSO SUPPLY ALL REQUIRED PIPING EXPANSION JOINTS.
3. GENERAL LAYOUT OF PIPING IS SHOWN ON THISSHEET. NOT ALL PIPING IS SHOWN OR VISIBLE ONTHIS SHEET. SEE SECTION DETAILS FOR MORE INFORMATION. THE GENERAL CONTRACTOR SUPPLIED CONDUIT FOR ELECTRICAL AND COMMUNICATION CABLES/WIRING MAY NOT BE SHOWN.
4. THE GENERAL CONTRACTOR SHALL BECOME FAMILIAR WITH THE DETAILED EQUIPMENT AND INSTALLATION REQUIREMENTS ASSOCIATED WITH THE AERO-MOD SUPPLIED EQUIPMENT WHEN BIDDING THE PROJECT. REQUESTS FOR ADDITIONAL COSTS OR CHANGE ORDERS WILL NOT BE CONSIDERED THAT RESULT FROM THE GENERAL CONTRACTOR NOT BEING ADEQUATELY FAMILIAR WITH THE SCOPE OF SUPPLY AND INSTALLATION REQUIREMENTS OF THE AERO-MOD SUPPLIED EQUIPMENT AND MATERIALS.
5. ALL INTERIOR TANK WALL PENETRATIONS (SLEEVED OR SOCKETED) SHALL BE SUPPLIED BY AERO-MOD. ALL EXTERIOR TANK WALL PENETRATIONS SHALL BE SUPPLIED BY THE GENERAL CONTRACTOR.
6. ALL DUCTILE IRON AIR PIPING AND FITTINGS SHALL BE UNLINED.
7. CONTRACTOR TO PROVIDE EXPANSION JOINTS AS NECESSARY ON PNEUMATIC CONDUIT. EXPANSION JOINTS SHALL BE MANUFACTURED BY CARLON OR EQUAL.
8. BLOWOFF VALVE ASSEMBLY SHALL BE INSTALLED ON EACH INDIVIDUAL AERATION HEADER. REFER TO SPECIFICATIONS AND DETAILS.



PIPING PLAN LAYOUT
3/16" = 1'-0" (22"x34")

0 2 4 8 12

PROJECT DATE: 2020-08-13	DRAWN BY: JBR	No	DATE	REVISIONS	BY
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AERO-MOD
PIPING PLAN LAYOUT

PROJECT NO. 14573015
SHEET 40PM2

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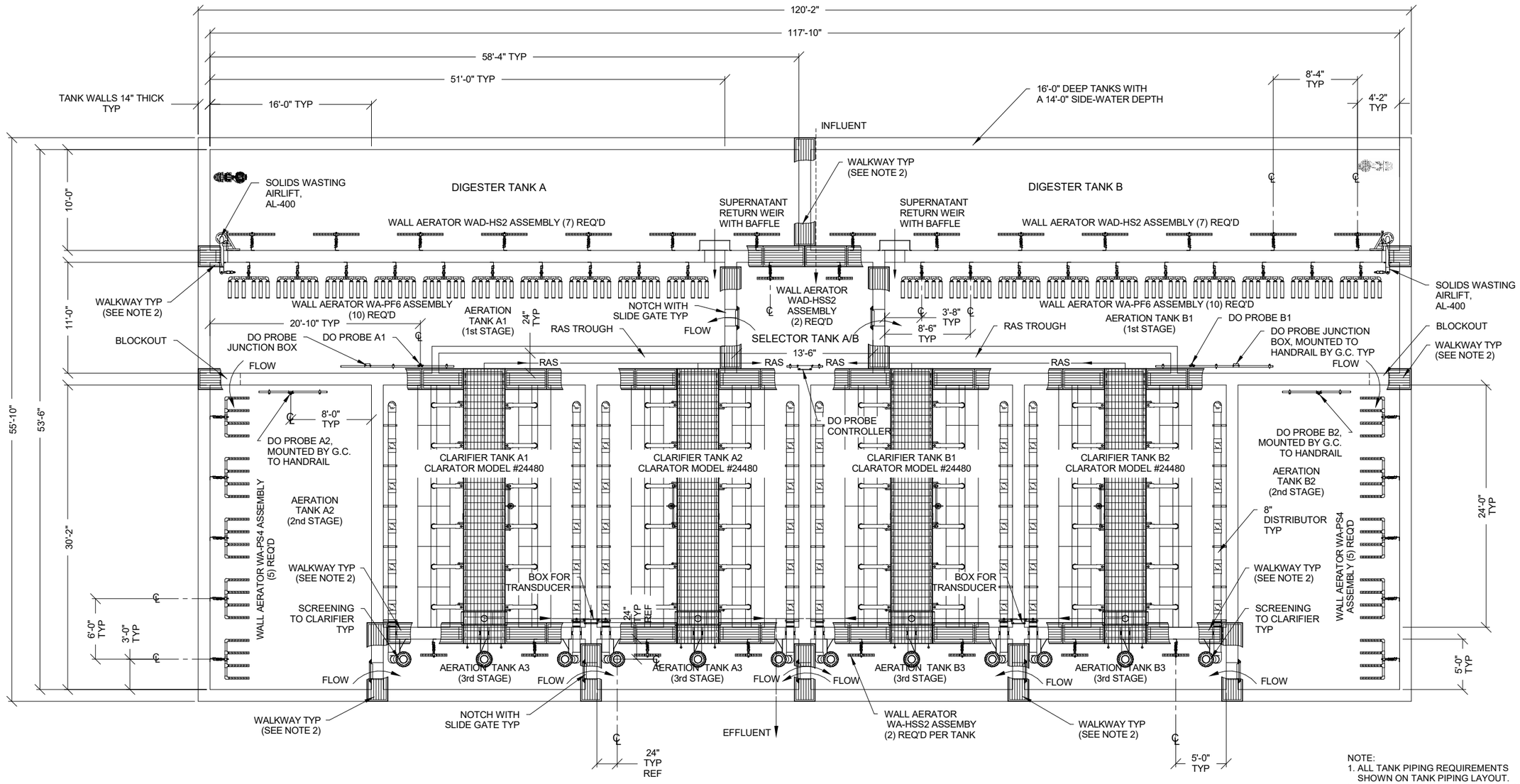

NOTE:
1. ALL TANK PIPING REQUIREMENTS SHOWN ON TANK PIPING LAYOUT.
2. ALL WALKWAY REQUIREMENTS SHOWN ON WALKWAY AND HANDRAIL LAYOUT

EQUIPMENT PLAN LAYOUT

3/16" = 1'-0" (22"x34")

0 2 4 8 12

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AERO-MOD
EQUIPMENT PLAN LAYOUT

PROJECT NO. 14573015
SHEET 40PM3

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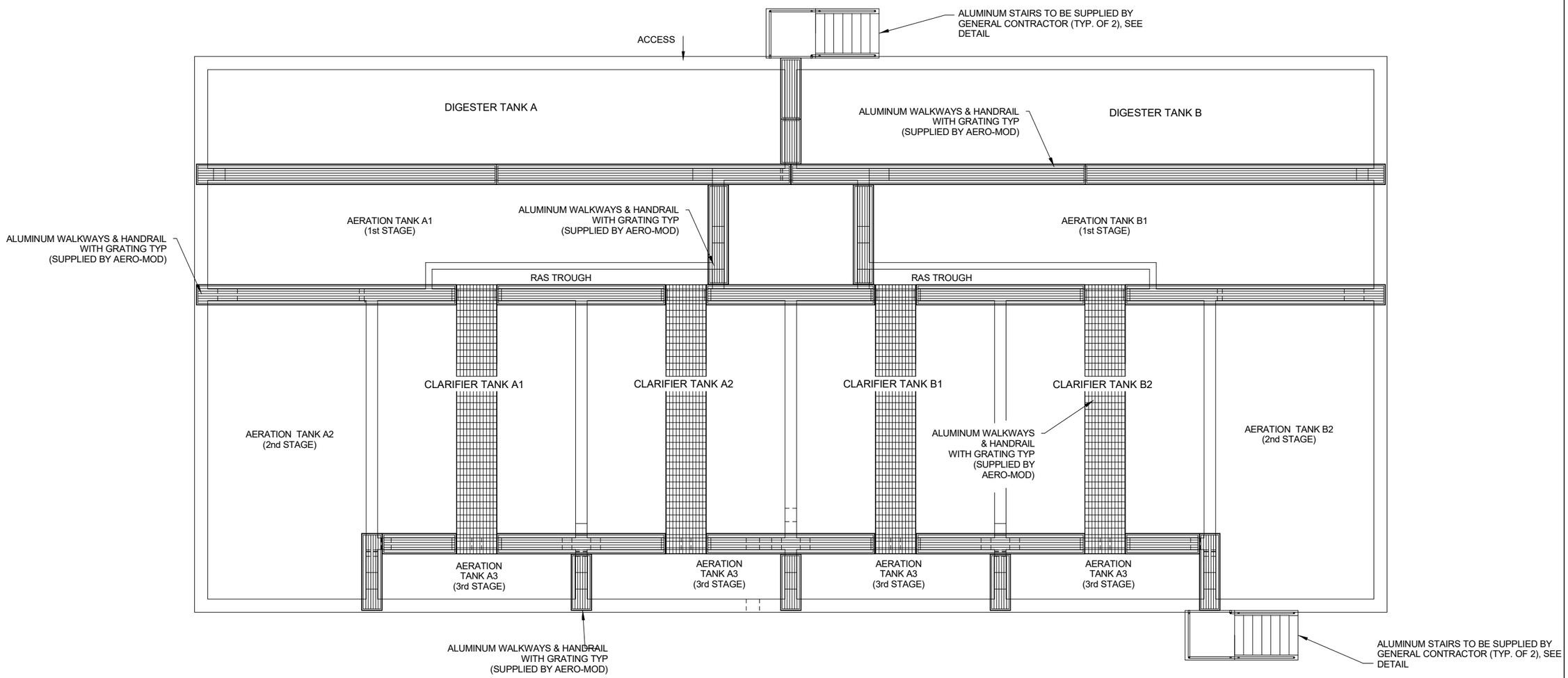

WALKWAY PLAN LAYOUT

3/16" = 1'-0" (22"x34")

0 2 4 8 12

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AERO-MOD
WALKWAY PLAN LAYOUT

PROJECT NO. 14573015
SHEET 40PM4

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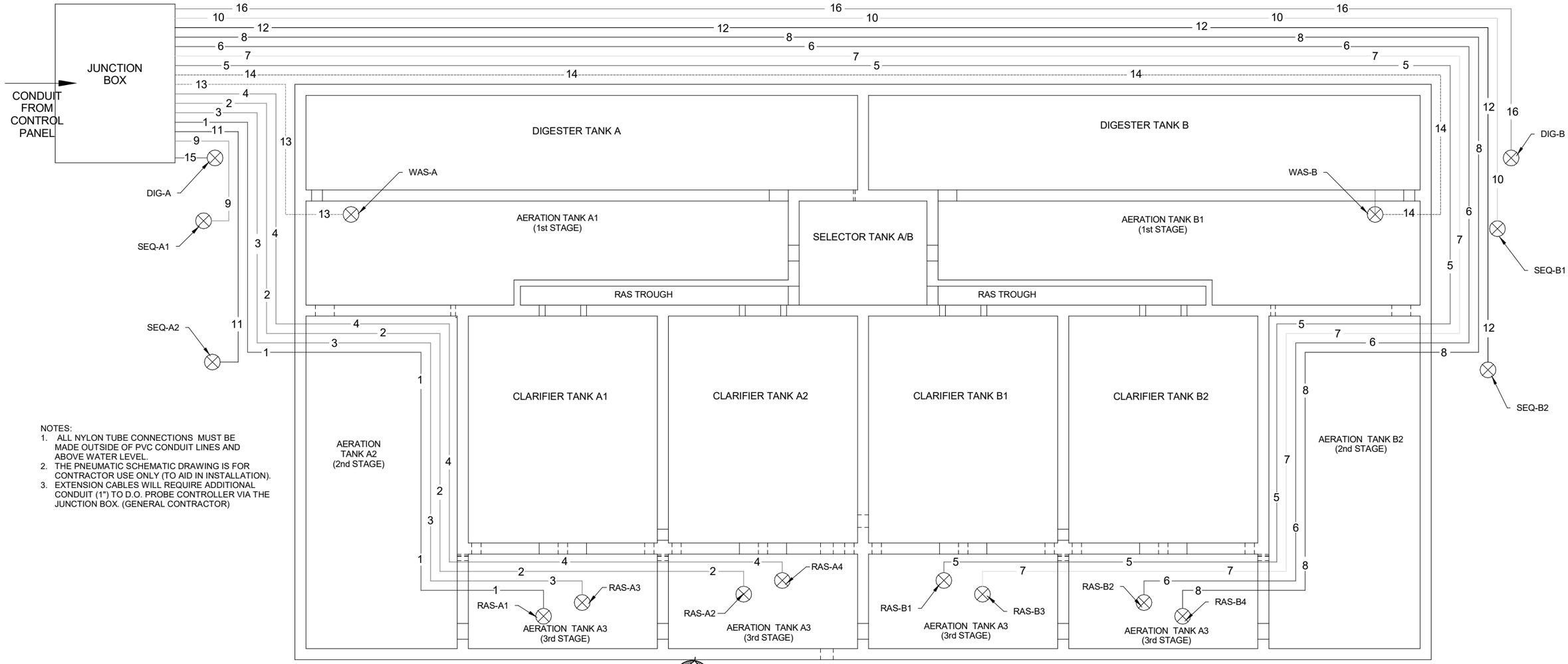


NOTES:
1. ALL NYLON TUBE CONNECTIONS MUST BE MADE OUTSIDE OF PVC CONDUIT LINES AND ABOVE WATER LEVEL.
2. THE PNEUMATIC SCHEMATIC DRAWING IS FOR CONTRACTOR USE ONLY (TO AID IN INSTALLATION).
3. EXTENSION CABLES WILL REQUIRE ADDITIONAL CONDUIT (1") TO D.O. PROBE CONTROLLER VIA THE JUNCTION BOX. (GENERAL CONTRACTOR)

PNEUMATIC LAYOUT PLAN VIEW
3/16" = 1'-0" (22"x34")

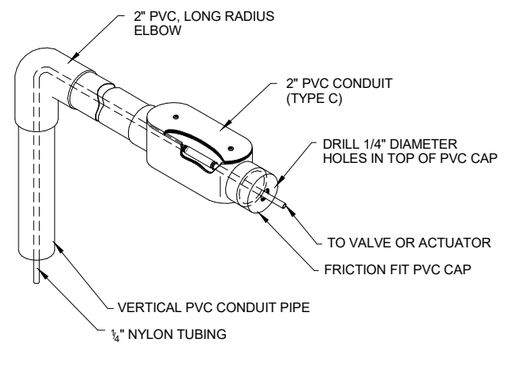
0 2 4 8 12

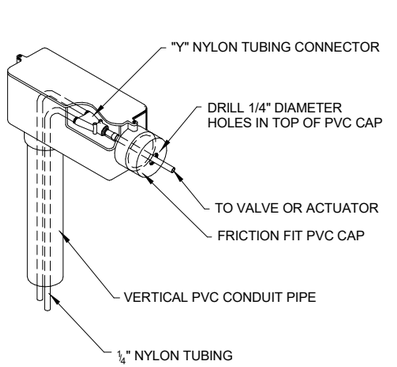
PNEUMATIC VALVE TUBING CONNECTION GUIDE				
PNEUMATIC LINE NO.	NYLON TUBE COLOR	NO. OF TUBES	DESCRIPTION AND VALVE NO.	NORMAL VALVE POSITION
1	RED (04126)	TWO	CYCLE VALVE RAS-A1	CLOSED
2	BLUE (04166)	TWO	CYCLE VALVE RAS-A2	CLOSED
3	TAN (041E6)	TWO	CYCLE VALVE RAS-A3	CLOSED
4	GREEN (04156)	TWO	CYCLE VALVE RAS-A4	CLOSED
5	PINK (041G6)	TWO	CYCLE VALVE RAS-B1	CLOSED
6	BROWN (041C6)	TWO	CYCLE VALVE RAS-B2	CLOSED
7	YELLOW (04146)	TWO	CYCLE VALVE RAS-B3	CLOSED
8	DK PURPLE (041H6)	TWO	CYCLE VALVE RAS-B4	CLOSED
9	ORANGE (04136)	TWO	SEQUOX VALVE SEQ-A1	OPEN
10	NATURAL (04176)	TWO	SEQUOX VALVE SEQ-B1	OPEN
11	PURPLE (041D6)	TWO	SEQUOX VALVE SEQ-A2	OPEN
12	BLACK (04106)	TWO	SEQUOX VALVE SEQ-B2	OPEN
13	VIOLET (04186)	ONE	WASTING VALVE WAS-A	CLOSED
14	GREY (04196)	ONE	WASTING VALVE WAS B	CLOSED
15	BROWN (041C6)	TWO	DIGESTER VALVE DIG-A	OPEN
16	GREEN (04156)	TWO	DIGESTER VALVE DIG-B	OPEN

SYMBOL KEY

PNEUMATIC VALVE

VALVE ABBREVIATION GUIDE
XXX - X(X)# - #
INDICATES VALVE NUMBER IF MORE THAN ONE VALVE IS REQ'D
INDICATES CYCLE/STAGE
INDICATES TRAIN(S)/LOCATION
INDICATES TYPE/FUNCTION
RAS = RETURN ACTIVATED SLUDGE (RAS) VALVE
SEQ = SEQUOX VALVE
WAS = AIR LIFT VALVE
DIG = DIGESTER VALVE





TYPICAL ABOVE WATER NYLON TUBE "Y" CONNECTIONS
1 / 40PM5 N.T.S.

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AERO-MOD PNEUMATIC LAYOUT

PROJECT NO. 14573015
SHEET 40PM5

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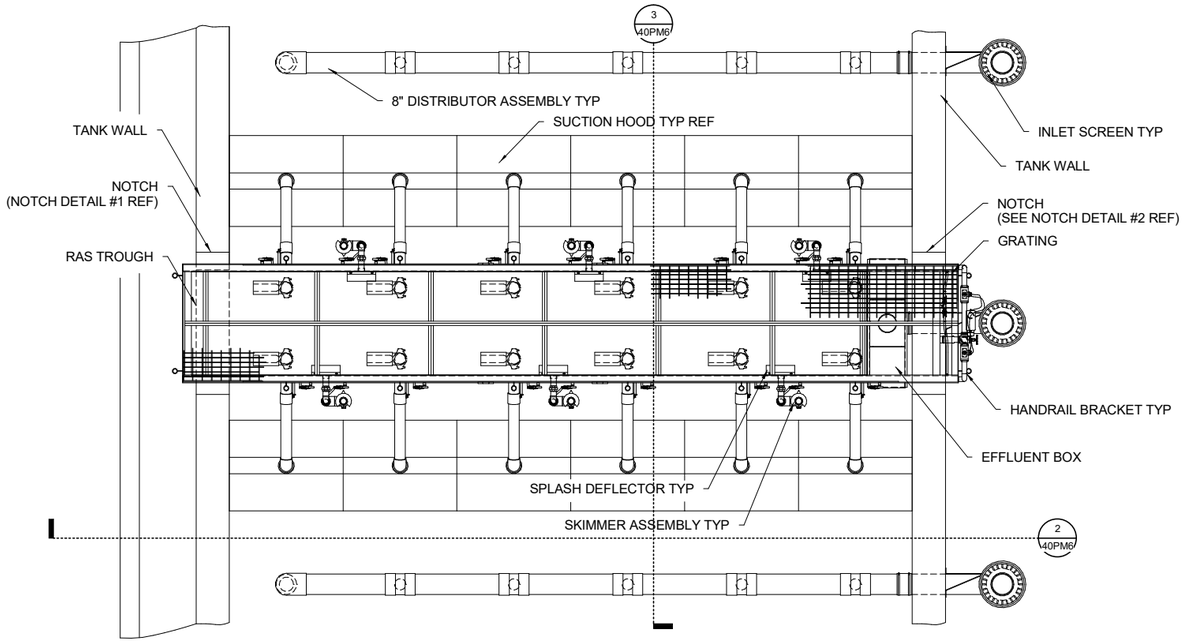
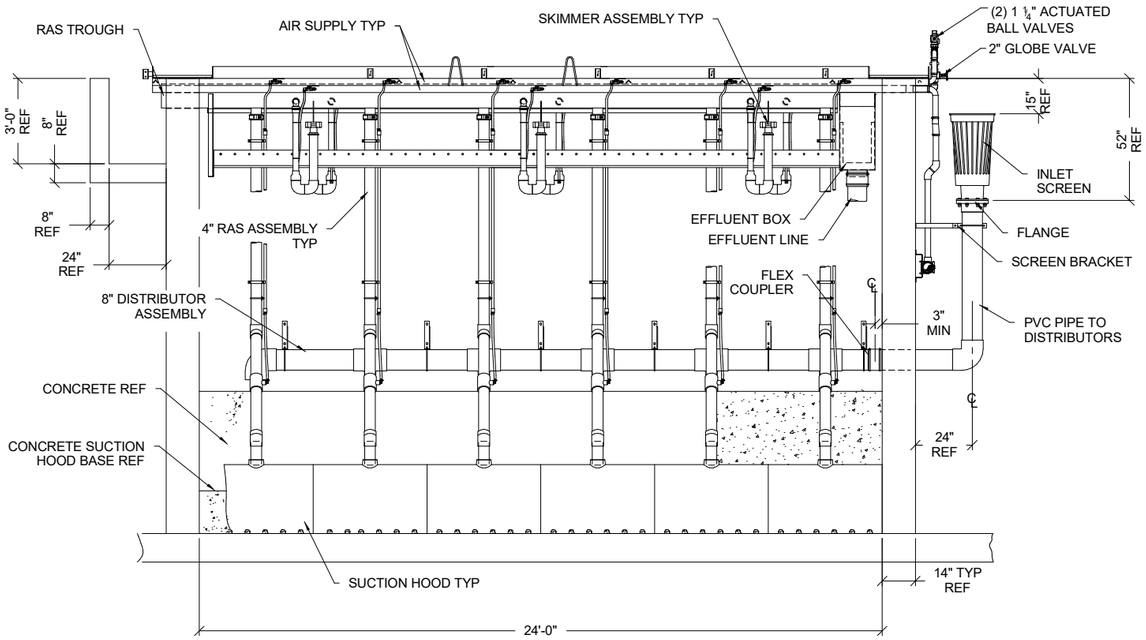


1 40PM6 **CLARATOR DETAIL - TOP VIEW**

3/8" = 1'-0"

0 1 2 4 6

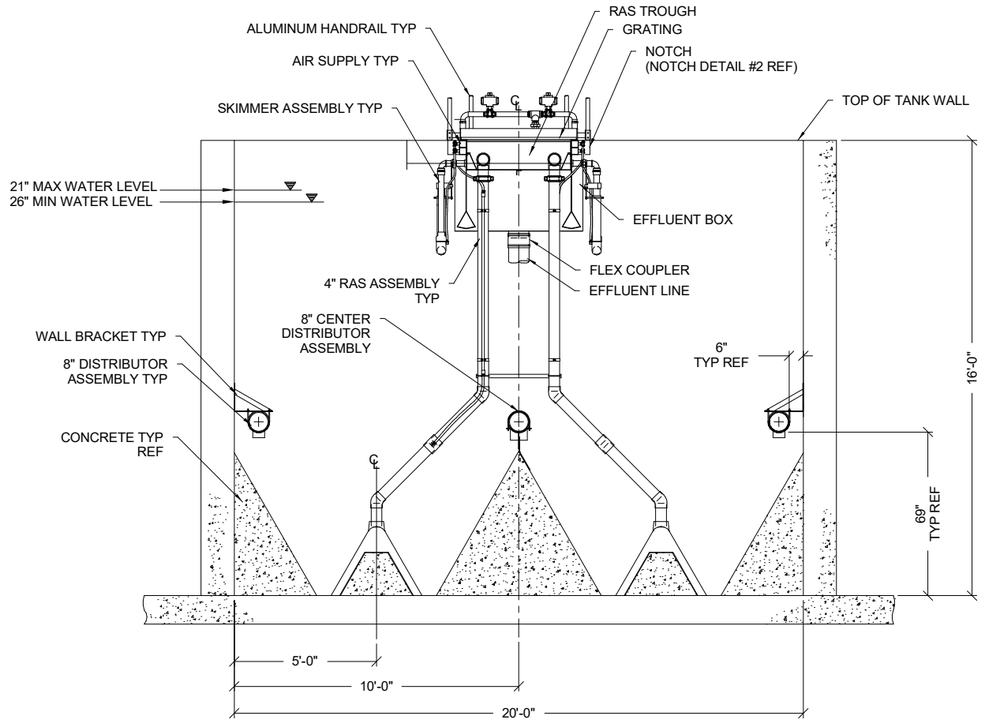
NOTE:
1. WATER LEVEL FROM DOWNSTREAM TREATMENT CAN NOT BACK UP ABOVE 40" BELOW TOP OF WALL.



2 40PM6 **CLARATOR DETAIL - SECTION VIEW**

3/8" = 1'-0"

0 1 2 4 6



3 40PM6 **CLARATOR DETAIL - SECTION VIEW**

3/8" = 1'-0"

0 1 2 4 6

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AERO-MOD
CLARATOR PLAN & SECTIONAL VIEWS

PROJECT NO. 14573015
SHEET 40PM6

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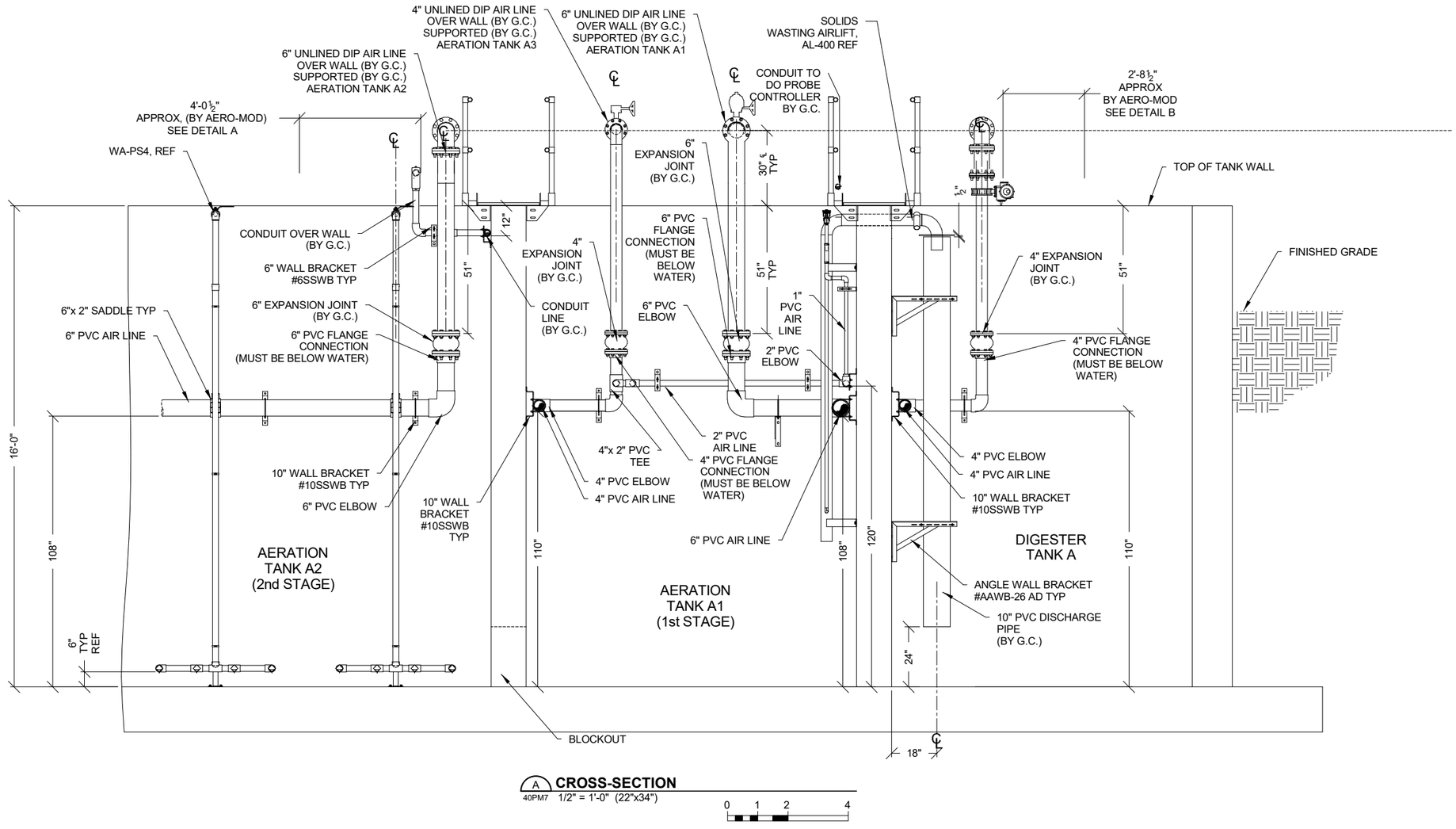

A CROSS-SECTION
40PM7 1/2" = 1'-0" (22"x34")

0 1 2 4

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AERO-MOD
CROSS-SECTION

PROJECT NO. 14573015
SHEET 40PM7

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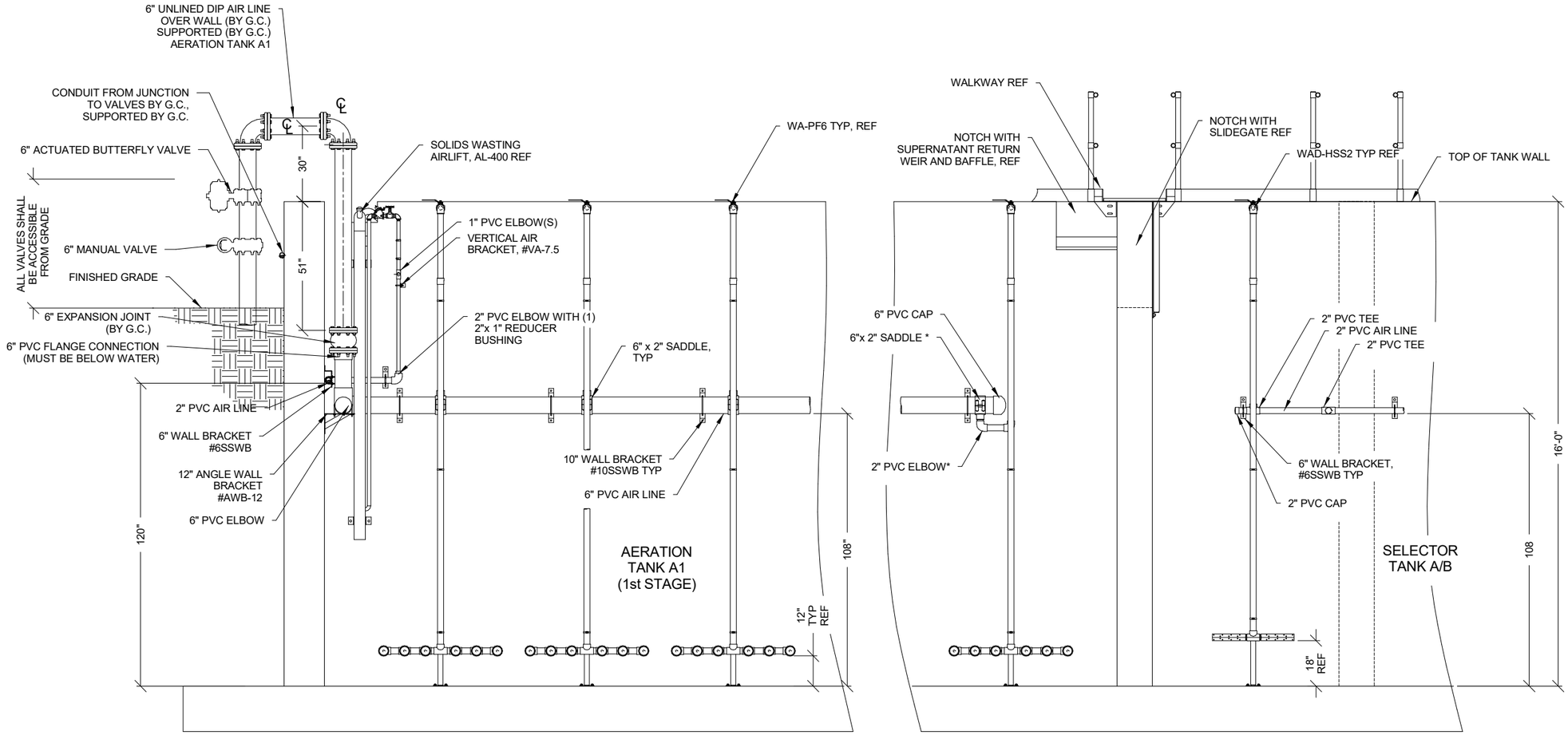

* SEE TYPICAL END OF AIR LINE DETAIL

A 40PM8 **CROSS-SECTION**

1/2" = 1'-0" (22"x34")

0 1 2 4

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CROSS-SECTION

PROJECT NO. 14573015
SHEET 40PM8

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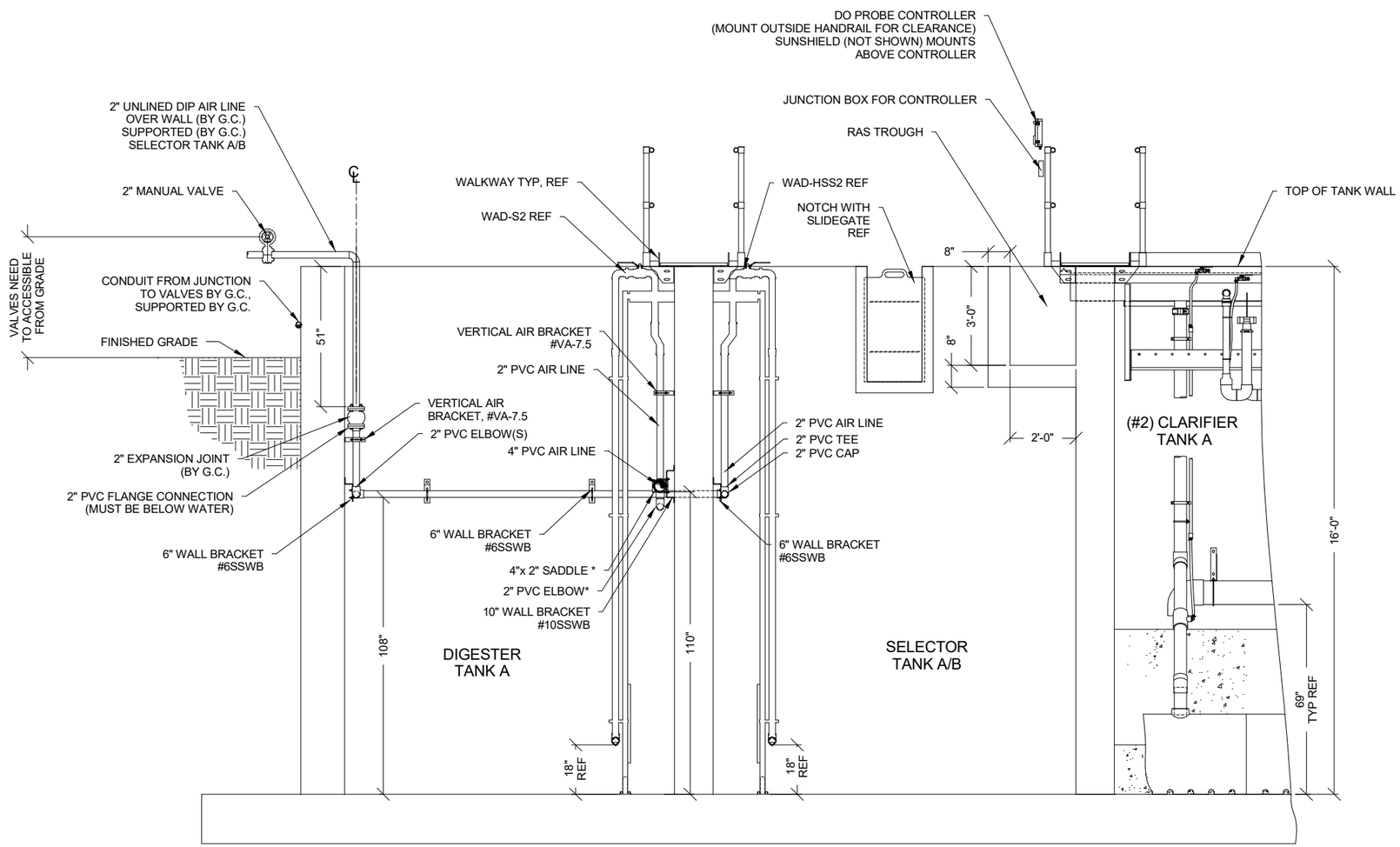

* SEE TYPICAL END OF AIR LINE DETAIL

A 40PM9 **CROSS-SECTION**

1/2" = 1'-0" (22"x34")

0 1 2 4

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CROSS-SECTION

PROJECT NO. 14573015
SHEET 40PM9

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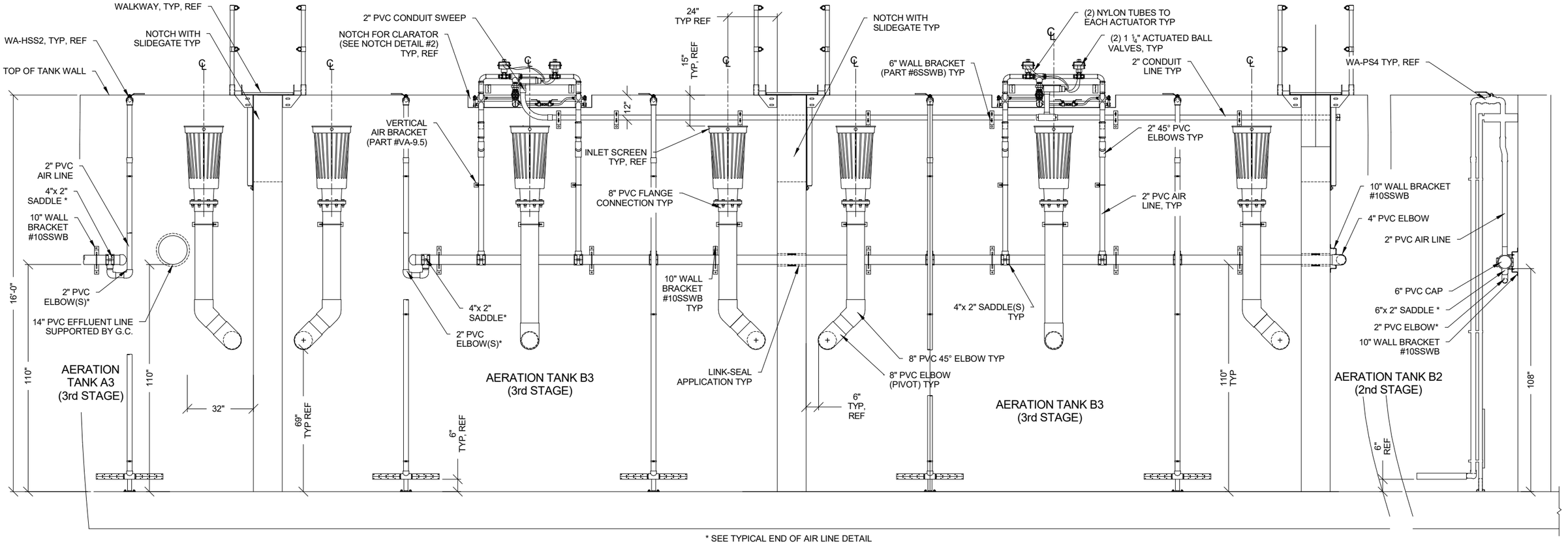

* SEE TYPICAL END OF AIR LINE DETAIL

A CROSS-SECTION

40PM10 1/2" = 1'-0" (22"x34")

0 1 2 4

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AERO-MOD
CROSS-SECTION

PROJECT NO. 14573015
SHEET 40PM10

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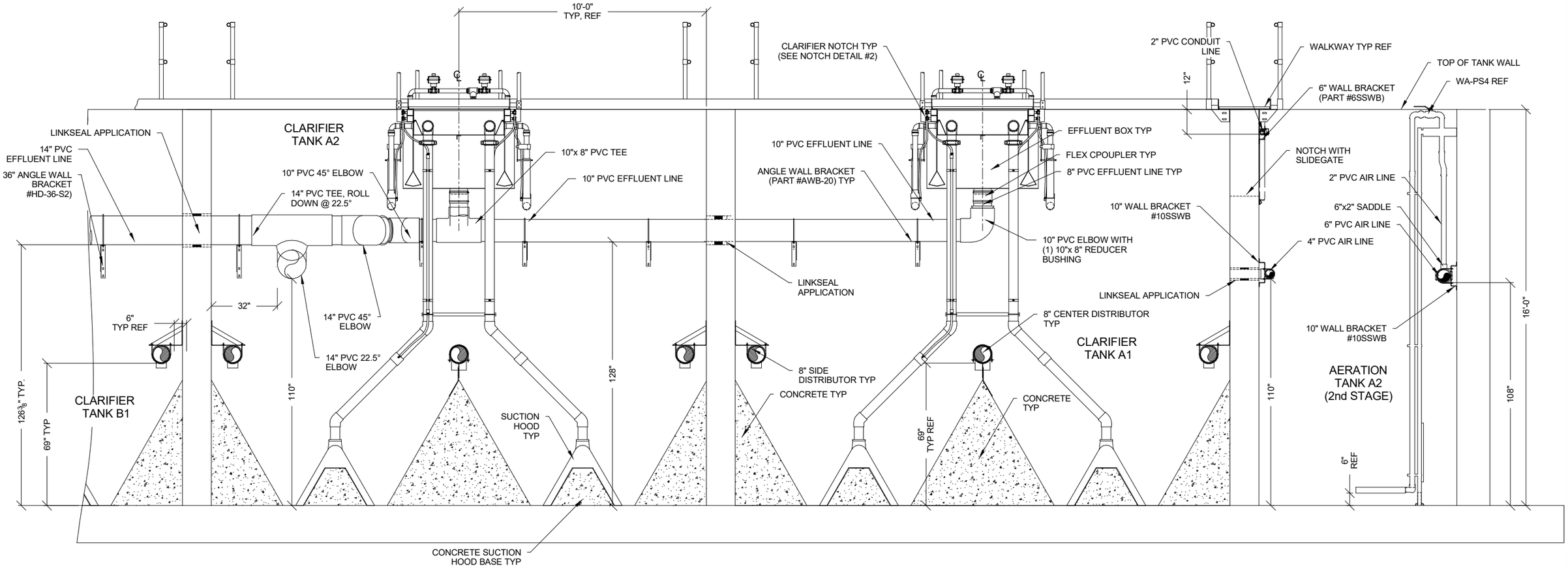

A **CROSS-SECTION**
40PM11 1/2" = 1'-0" (22"x34")

0 1 2 4

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CROSS-SECTION

PROJECT NO. 14573015
SHEET 40PM11

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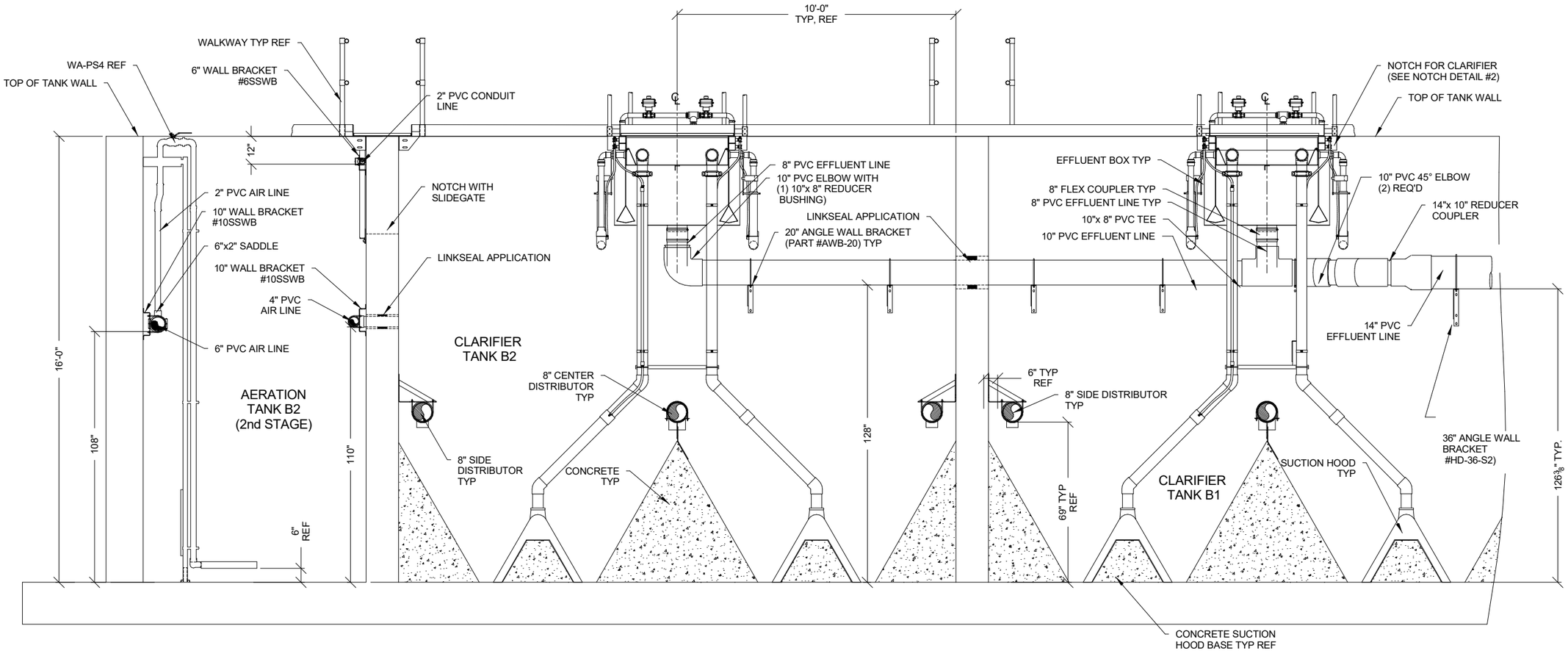

A **CROSS-SECTION**
40PM12 1/2" = 1'-0" (22"x34")

0 1 2 4

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AERO-MOD
CROSS-SECTION

PROJECT NO. 14573015
SHEET 40PM12

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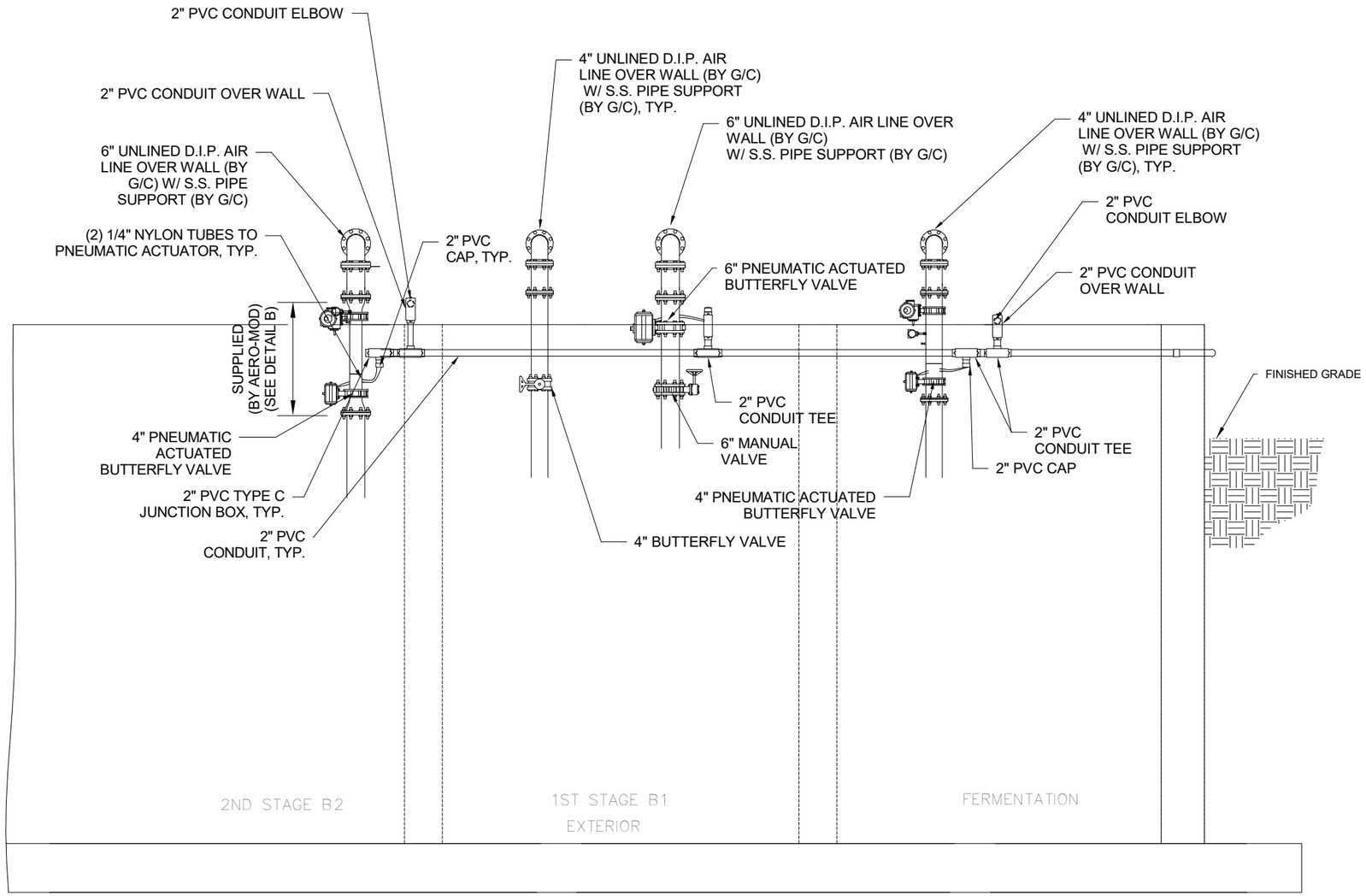

A CROSS-SECTION

40PM13 1/2" = 1'-0" (22"x34")

0 1 2 4

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AERO-MOD
CROSS-SECTION

PROJECT NO. 14573015
SHEET 40PM13

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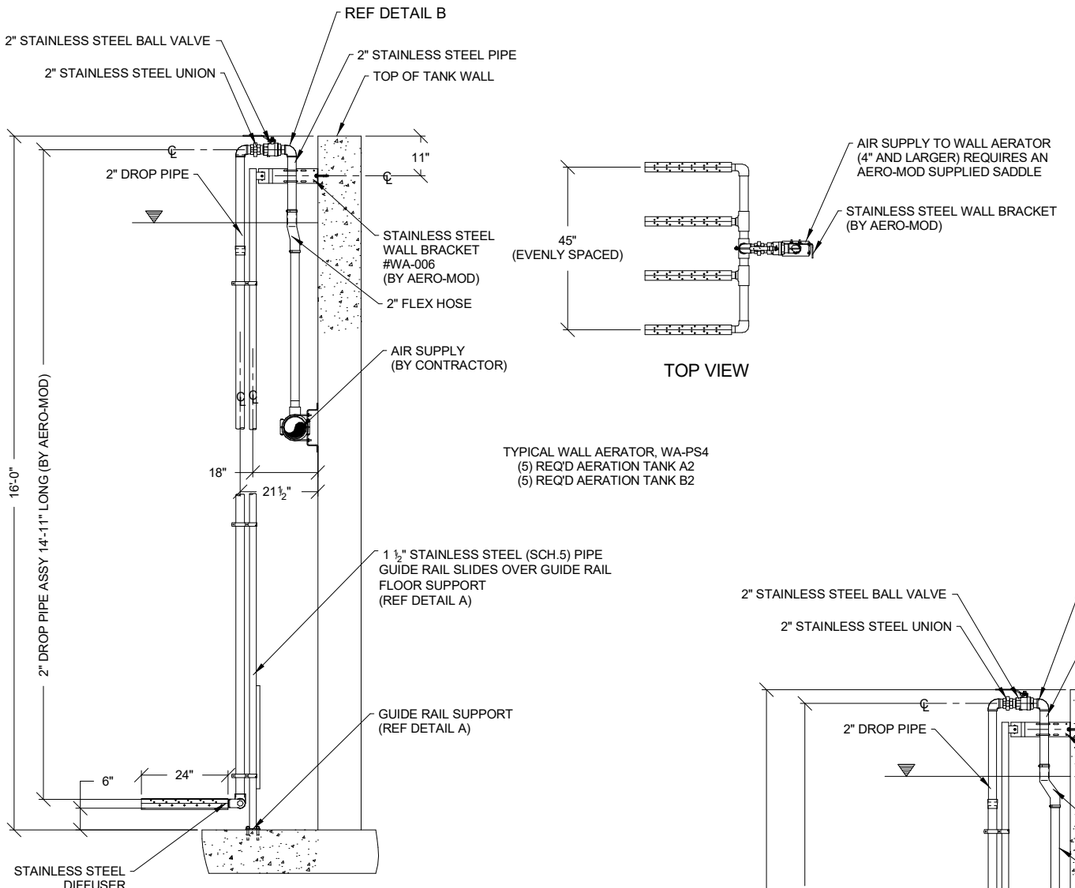
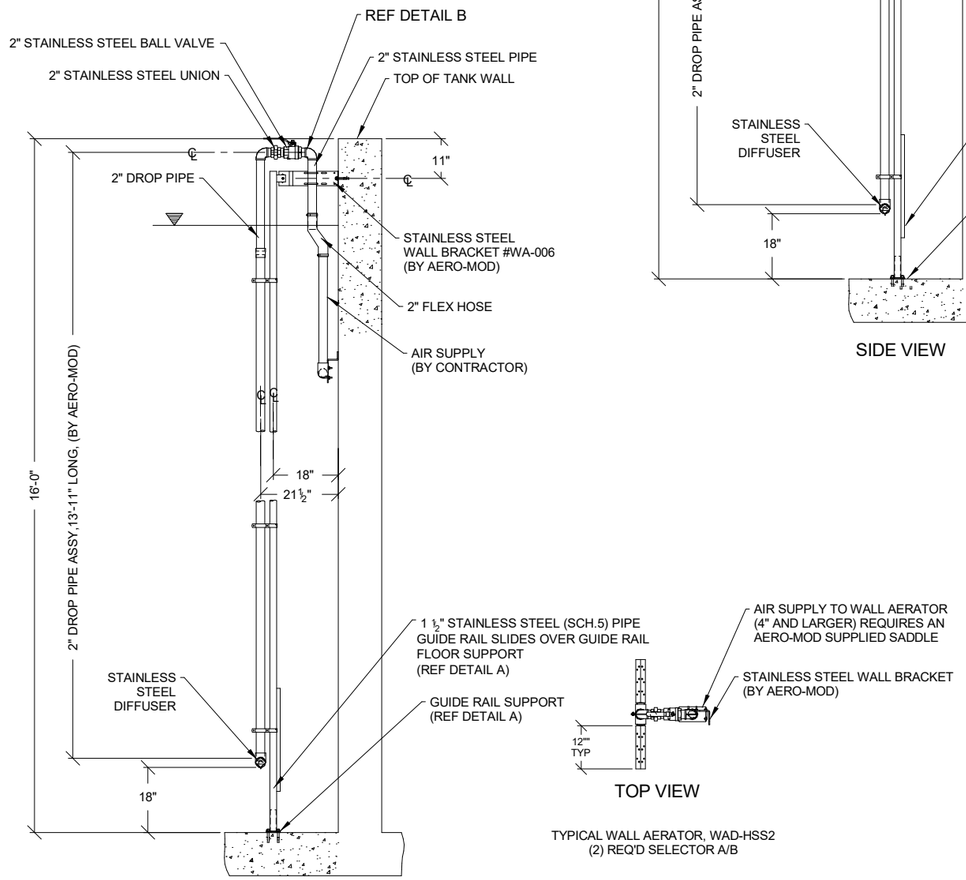


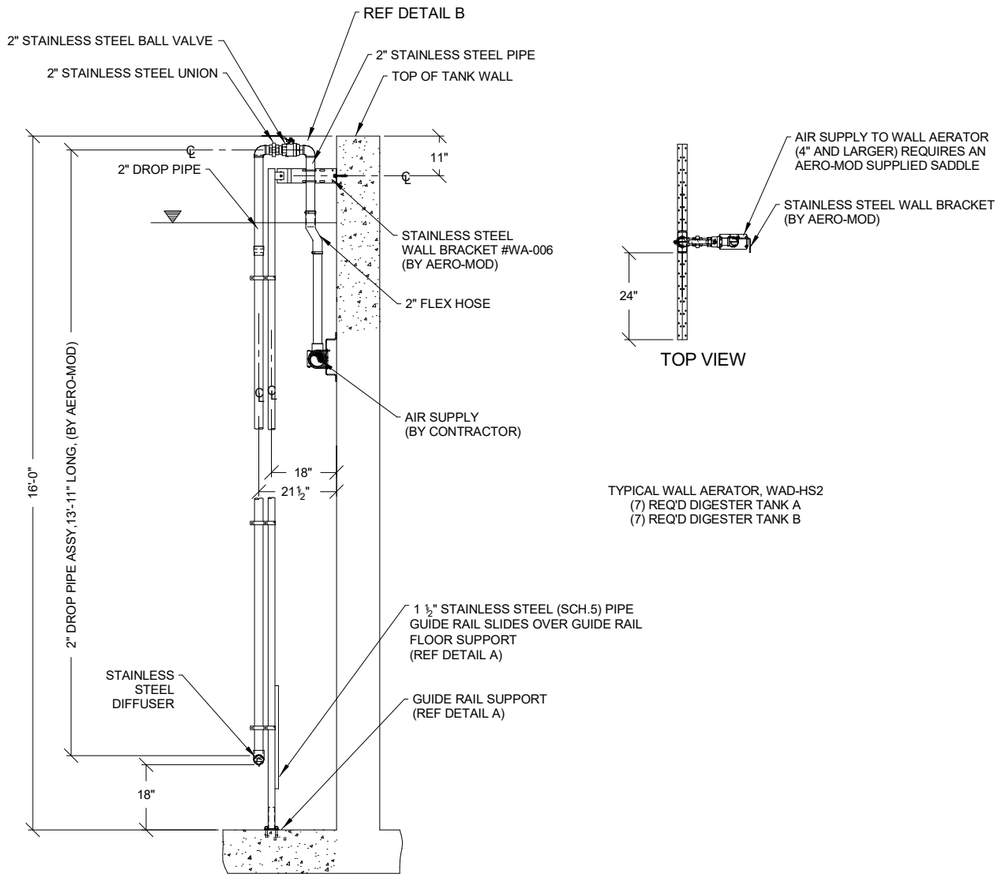
TYPICAL WALL AERATOR, WA-PS4
(5) REQ'D AERATION TANK A2
(5) REQ'D AERATION TANK B2

1 TYPICAL WALL AERATOR, WA-PS4
40PM14 N.T.S.



TYPICAL WALL AERATOR, WAD-HSS2
(2) REQ'D SELECTOR A/B

3 TYPICAL WALL AERATOR, WAD-HSS2
40PM14 N.T.S.



TYPICAL WALL AERATOR, WAD-HS2
(7) REQ'D DIGESTER TANK A
(7) REQ'D DIGESTER TANK B

2 TYPICAL WALL AERATOR, WAD-HS2
40PM14 N.T.S.

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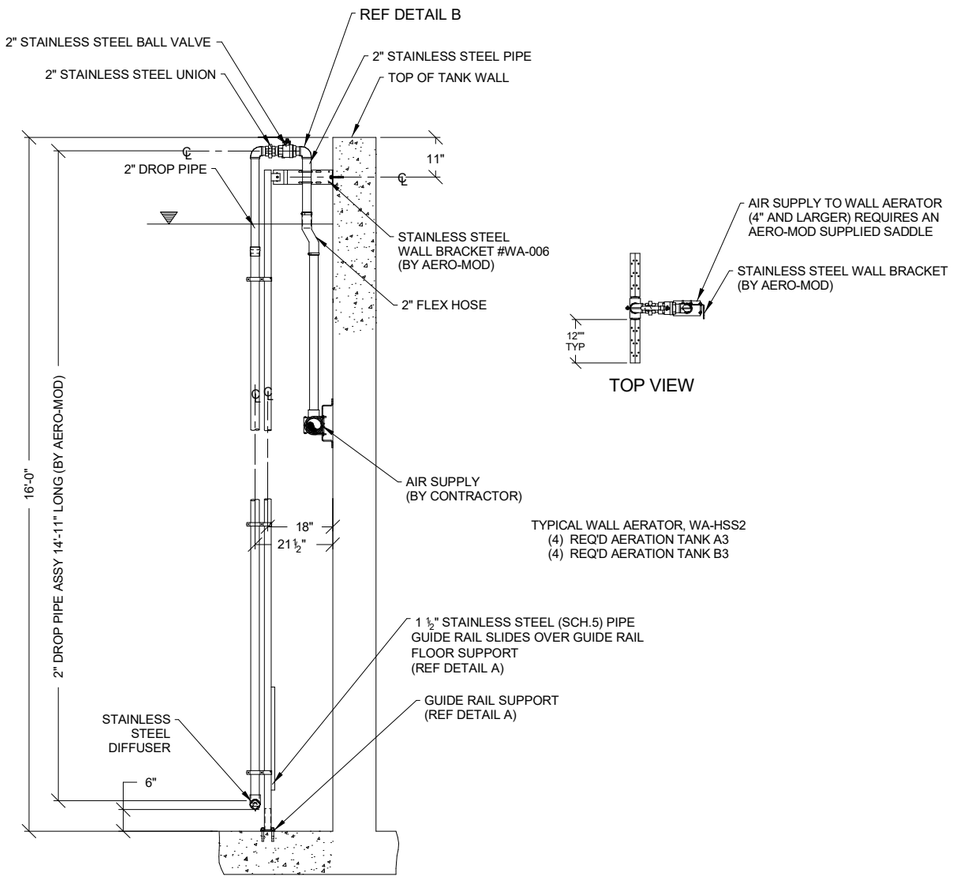
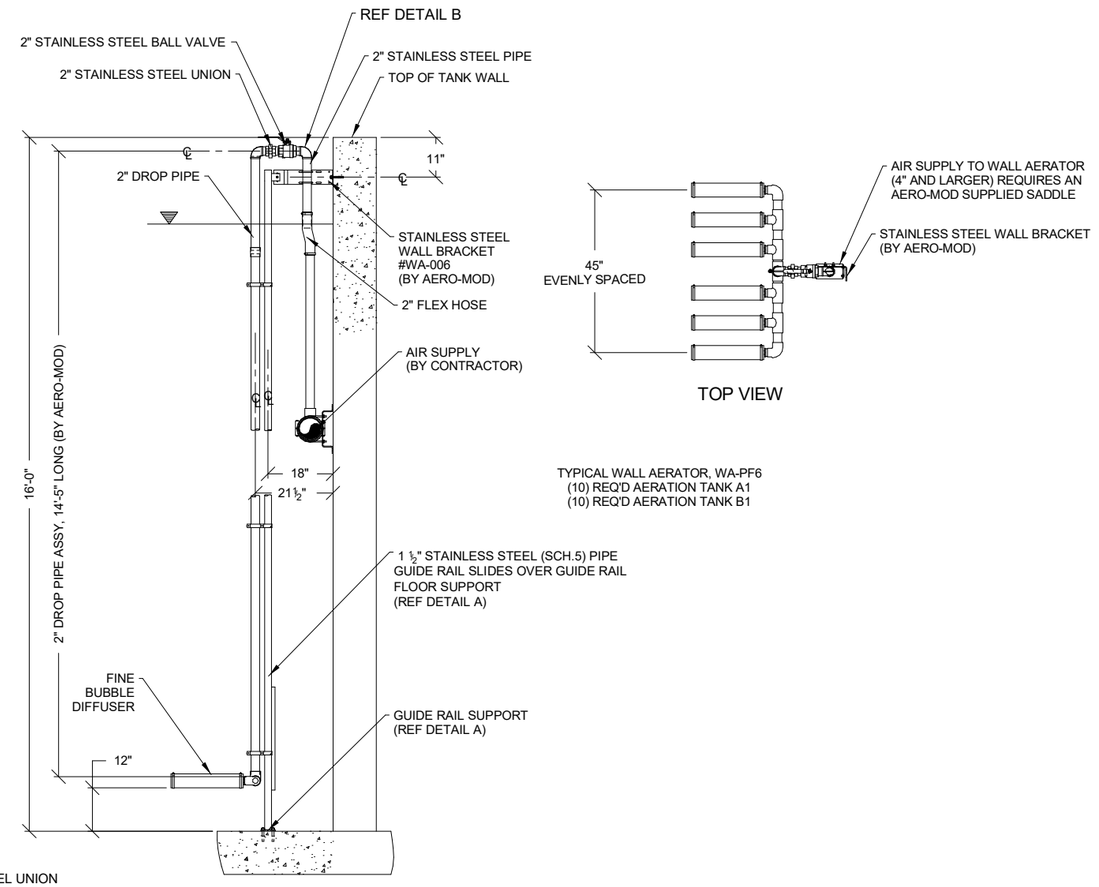
AERO-MOD
WALL AERATOR DETAILS

PROJECT NO. 14573015
SHEET 40PM14

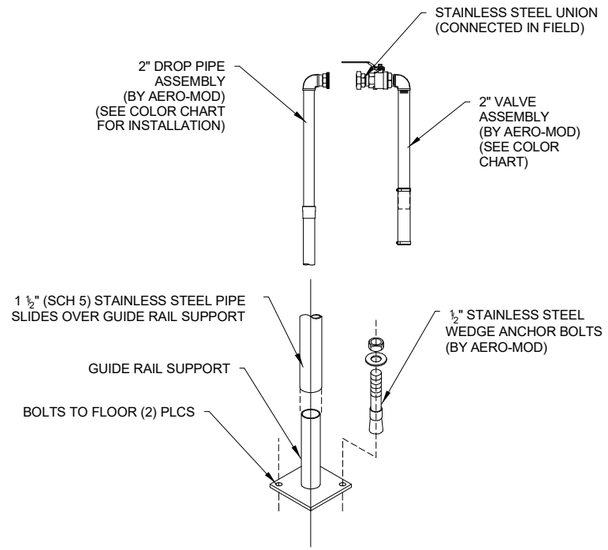
Return to Agenda



1 **TYPICAL WALL AERATOR, WA-HSS2**
40PM15 N.T.S.



2 **TYPICAL WALL AERATOR, WA-PF6**
40PM15 N.T.S.



3 **TYPICAL DIFFUSER CONNECTION DETAILS**
40PM15 N.T.S.

			No	DATE	REVISIONS	BY
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WALL AERATOR DETAILS

PROJECT NO. 14573015
SHEET 40PM15

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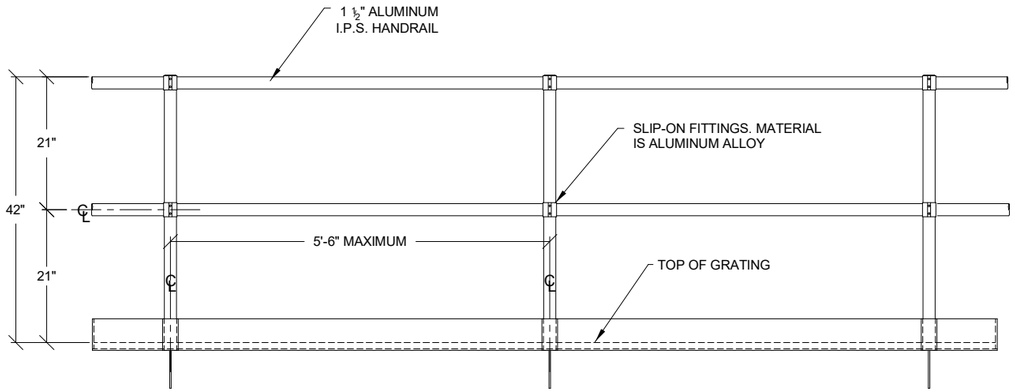
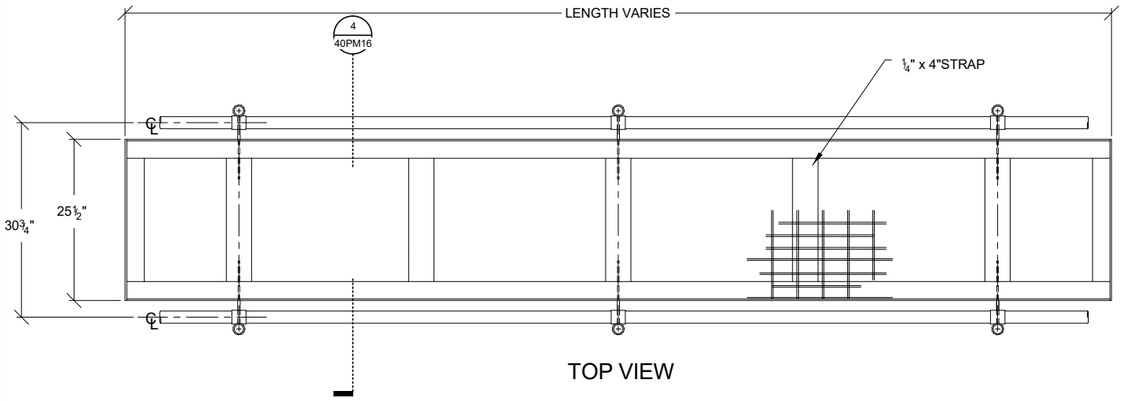
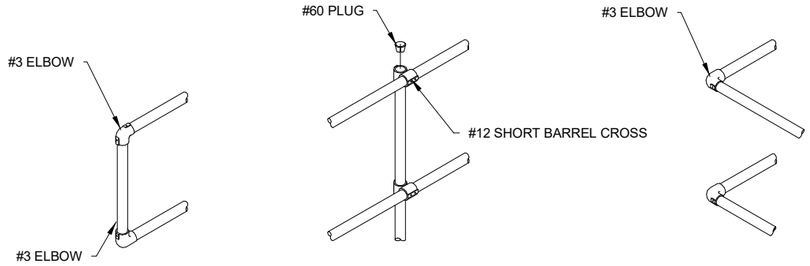


1 **HANDRAIL DETAIL**
40PM16 N.T.S.

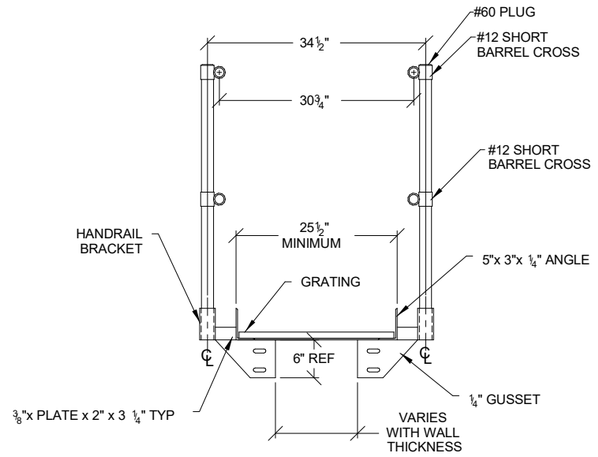


TOP VIEW

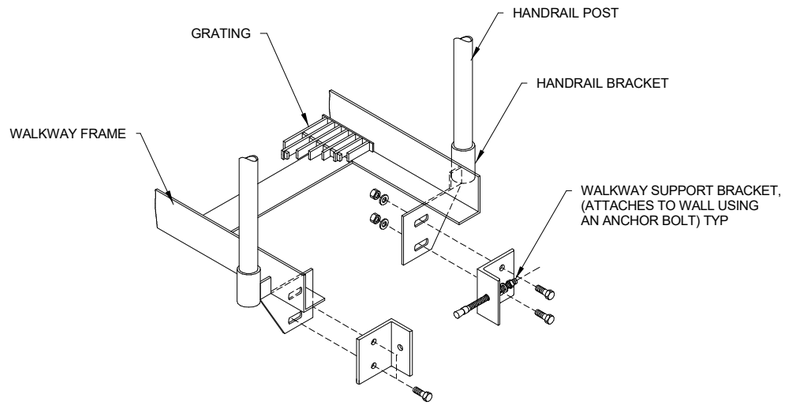
2 **HANDRAIL DETAIL PLAN VIEW**
40PM16 N.T.S.



3 **HANDRAIL FITTING DETAIL**
40PM16 N.T.S.



A **HANDRAIL DETAIL**
40PM16 N.T.S.



4 **HANDRAIL WALKWAY DETAIL**
40PM16 N.T.S.

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AERO-MOD
HANDRAIL, WALKWAY, AND GRATING DETAILS

PROJECT NO. 14573015
SHEET 40PM16

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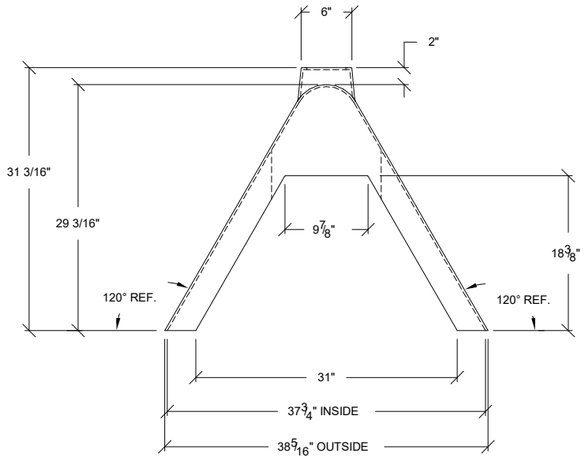
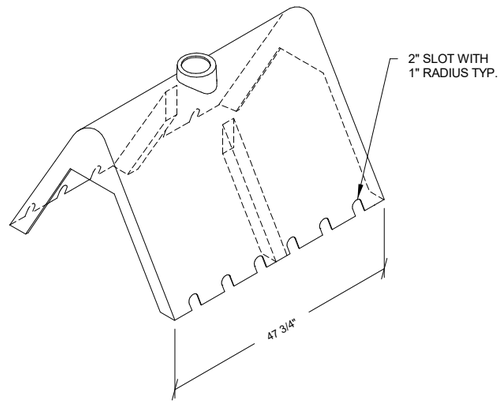
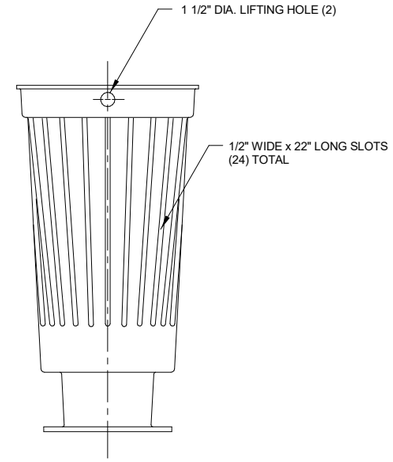


END VIEW

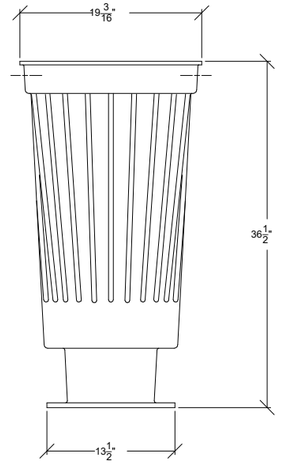
1 CLARIFIER SUCTION HOOD DETAILS
40PM17 N.T.S.



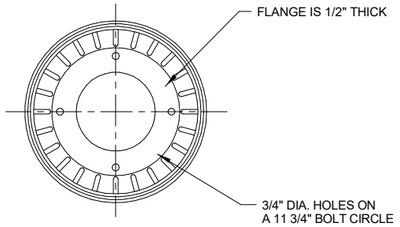
2 CLARIFIER SUCTION HOOD DETAILS
40PM17 N.T.S.



FRONT VIEW



SIDE VIEW



BOTTOM VIEW

3 CLARIFIER INLET SCREEN DETAILS
40PM17 N.T.S.

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AERO-MOD DETAILS

PROJECT NO. 14573015
SHEET 40PM17

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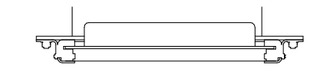
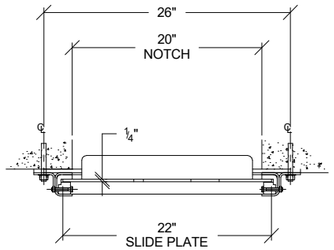
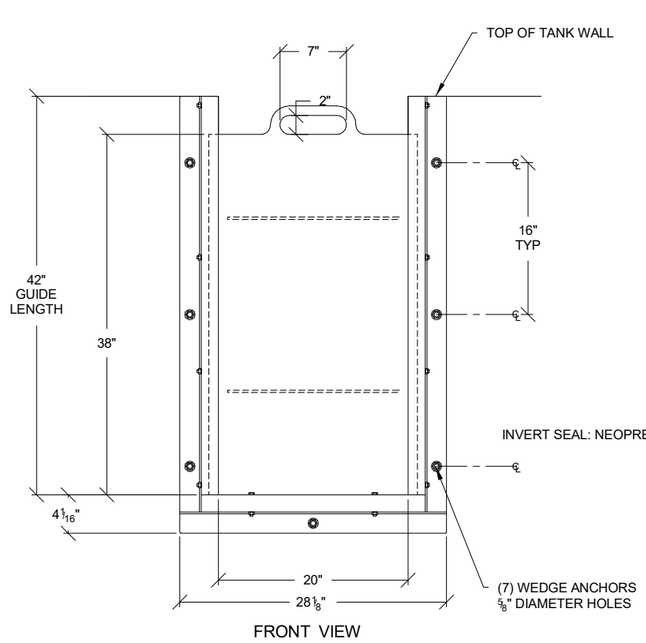
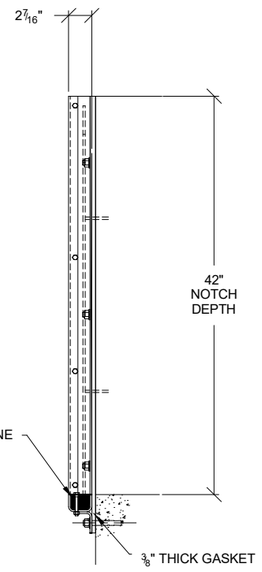




TOP VIEW



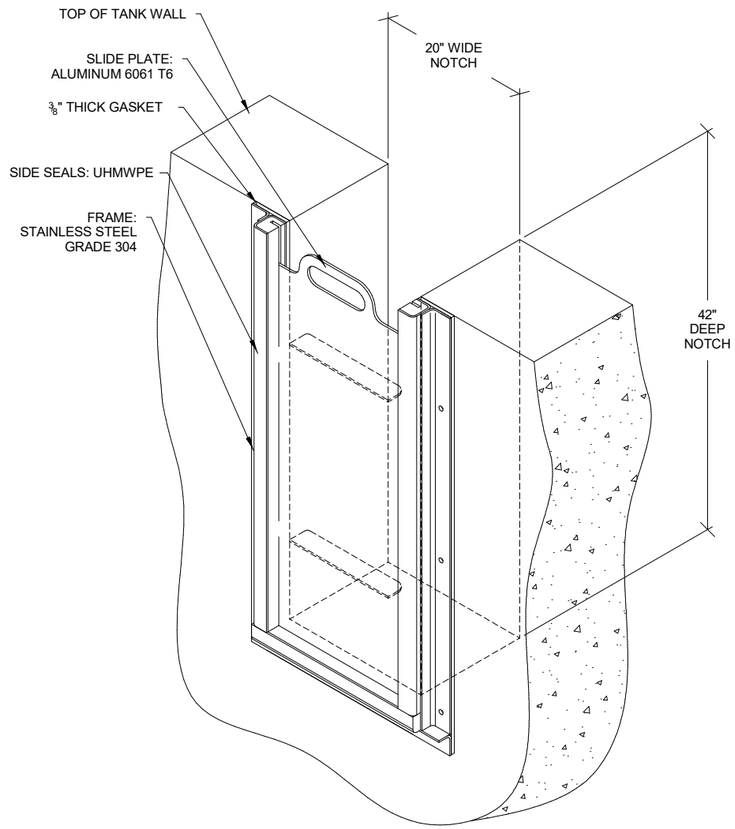
FRONT VIEW



SIDE VIEW

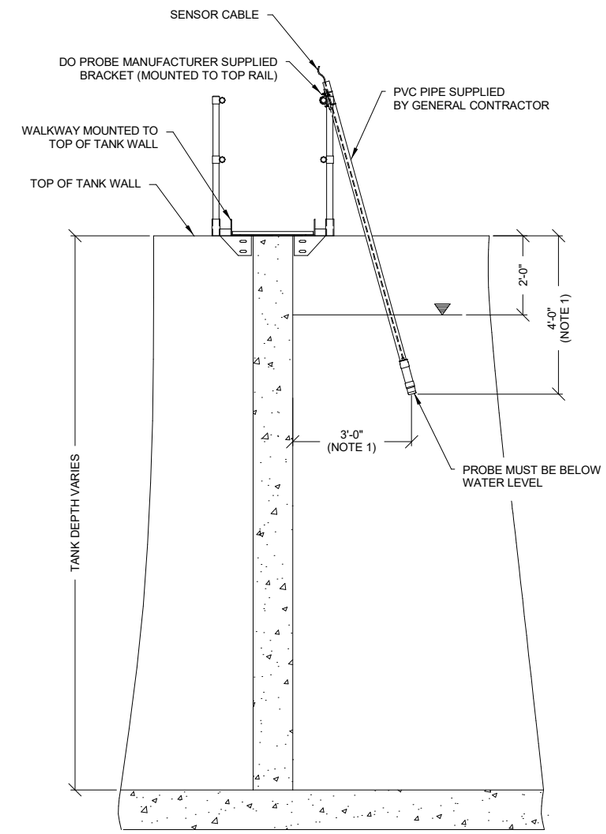
1 STOP GATE INSTALLATION DETAILS

40PM18 N.T.S.



2 STOP GATE INSTALLATION DETAILS

40PM18 N.T.S.



3 DO PROBE MOUNTING DETAIL

40PM18 N.T.S.

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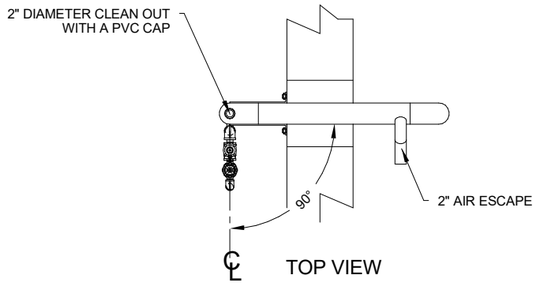
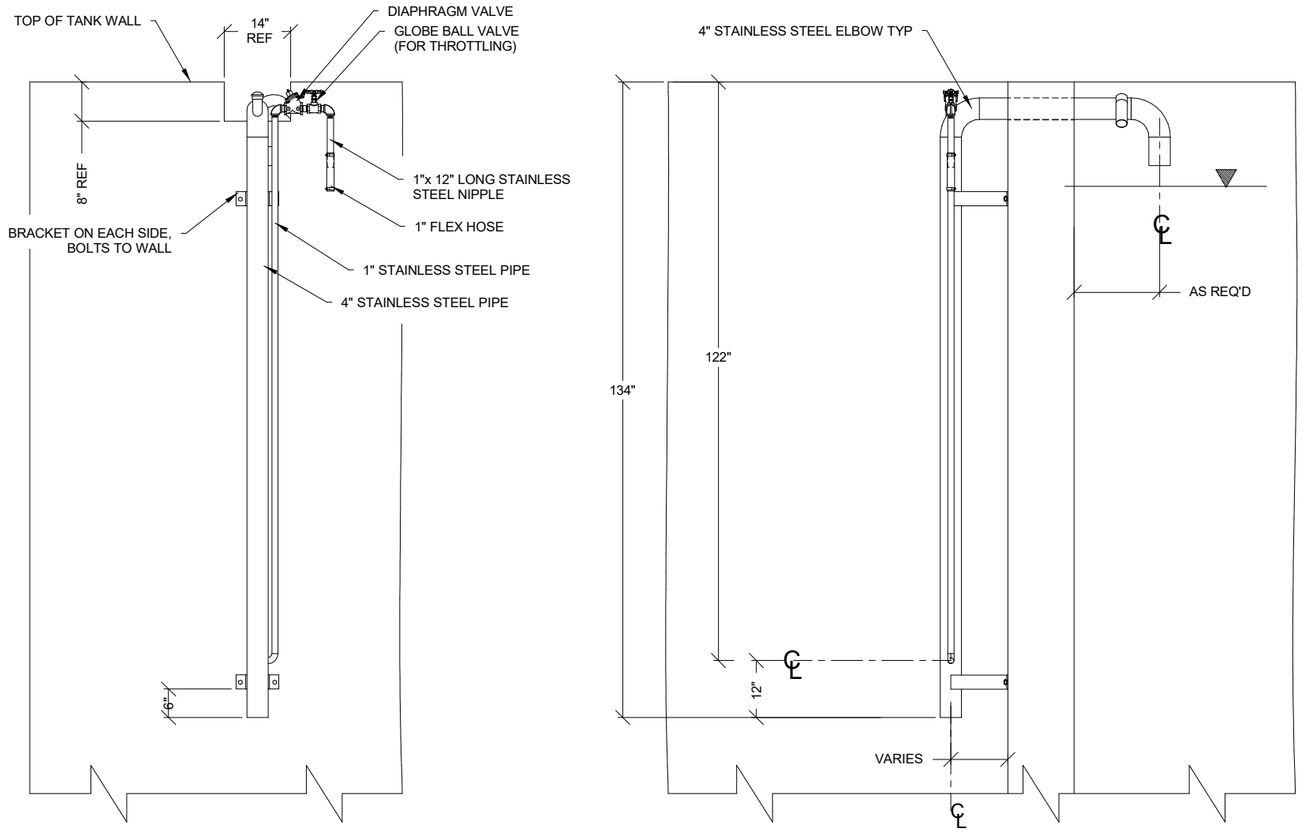
AERO-MOD DETAILS

PROJECT NO. 14573015
SHEET 40PM18

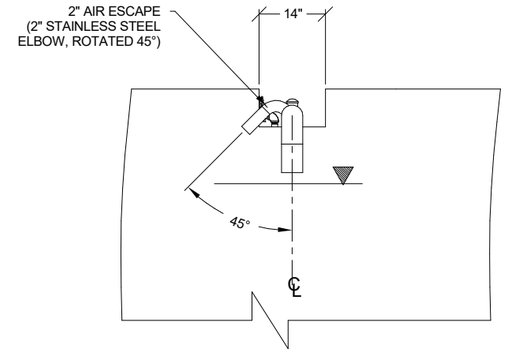
Return to Agenda



TOP VIEW



1 **AIR LIFT WITHOUT SPLASH GUARD DETAILS**
40PM19 N.T.S.



FRONT VIEW

PROJECT DATE: 2020-08-13	DRAWN BY: JBR	No	DATE	REVISIONS	BY
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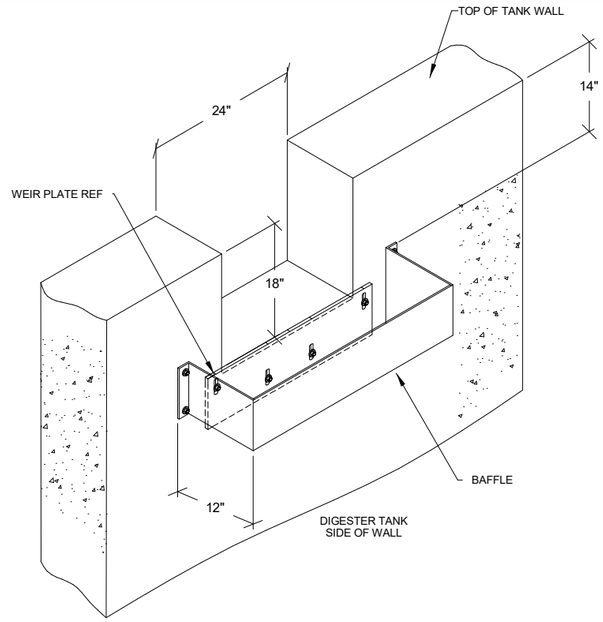
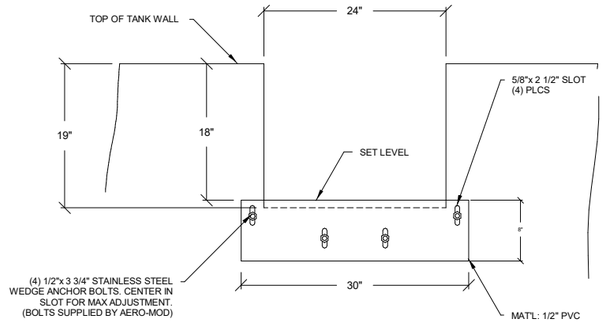
PROJECT NO. 14573015
SHEET 40PM19

Return to Agenda

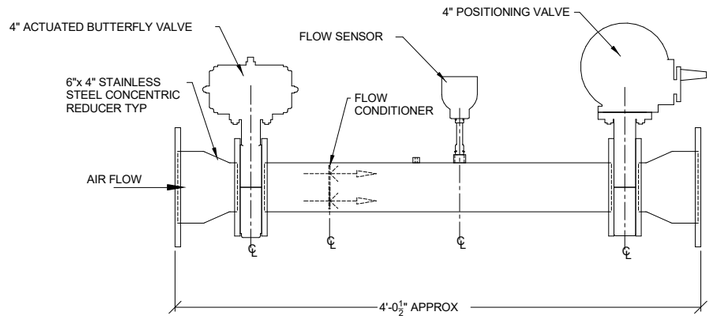


1 DIGESTER SUPERNATANT RETURN WEIR DETAILS
40PM20 N.T.S.



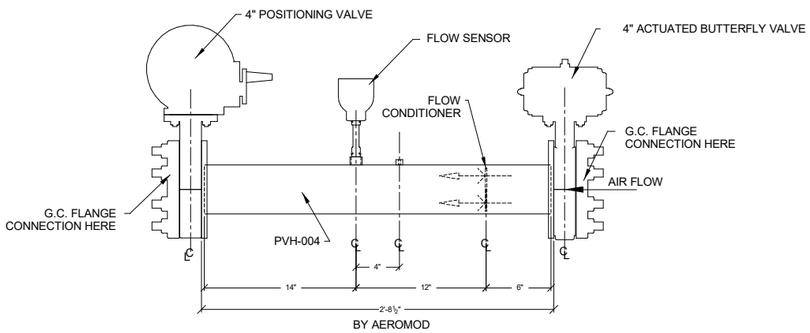
DIGESTER SUPERNATANT RETURN WEIR
(INSTALL ON DIGESTER SIDE OF WALL)

2 DIGESTER SUPERNATANT RETURN WEIR DETAILS
40PM20 N.T.S.



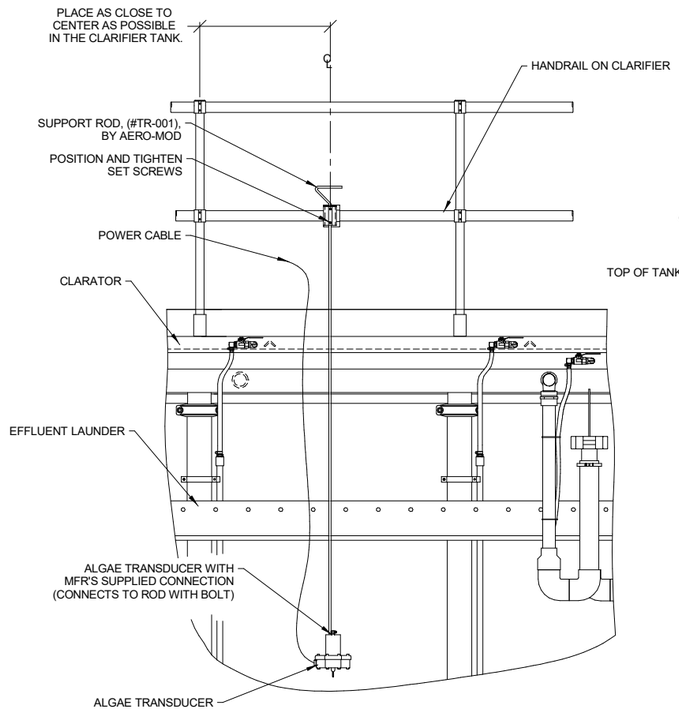
BY AEROMOD

5 FLOW CONDITIONER - DETAIL A (FRONT VIEW)
40PM20 N.T.S.



BY AEROMOD

6 FLOW CONDITIONER - DETAIL B (FRONT VIEW)
40PM20 N.T.S.



FRONT VIEW

3 ALGAE TRANSDUCER DETAIL
40PM20 N.T.S.

END VIEW

4 ALGAE TRANSDUCER DETAIL
40PM20 N.T.S.

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SHEET 40PM20

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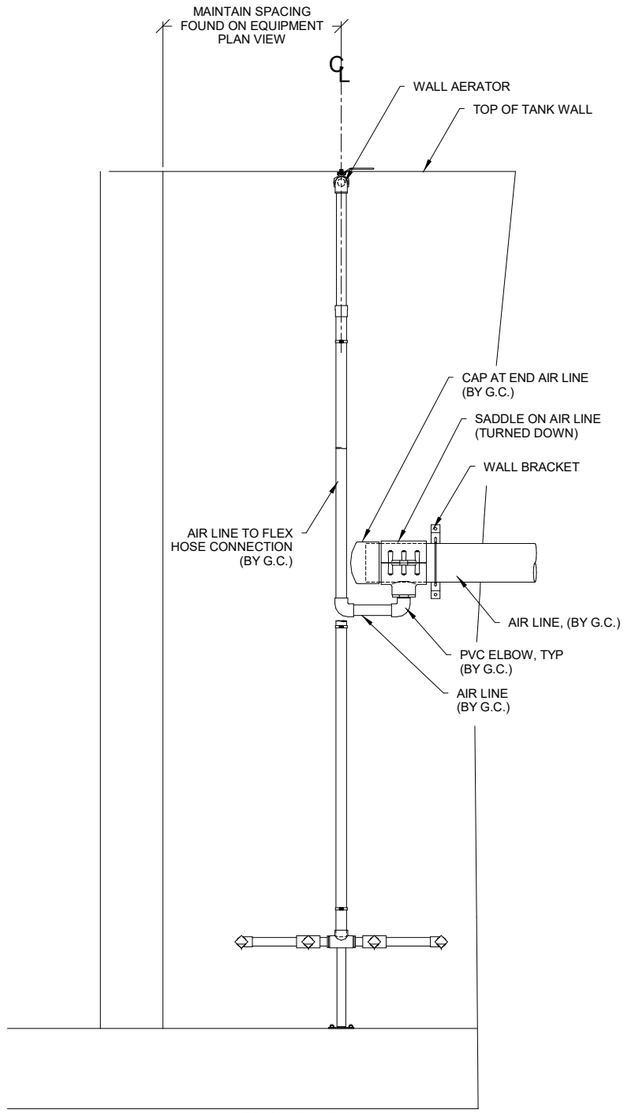
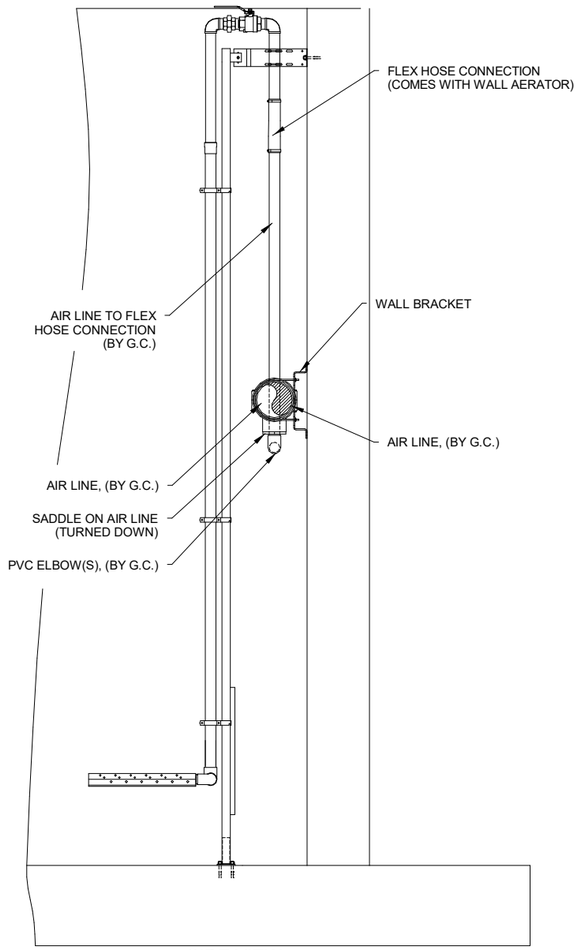


FRONT VIEW



SIDE VIEW

1 TYPICAL END OF AIR LINE RUN AND WALL AERATOR CONNECTION
40PM21 N.T.S.

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AERO-MOD DETAILS

PROJECT NO. 14573015
SHEET 40PM21

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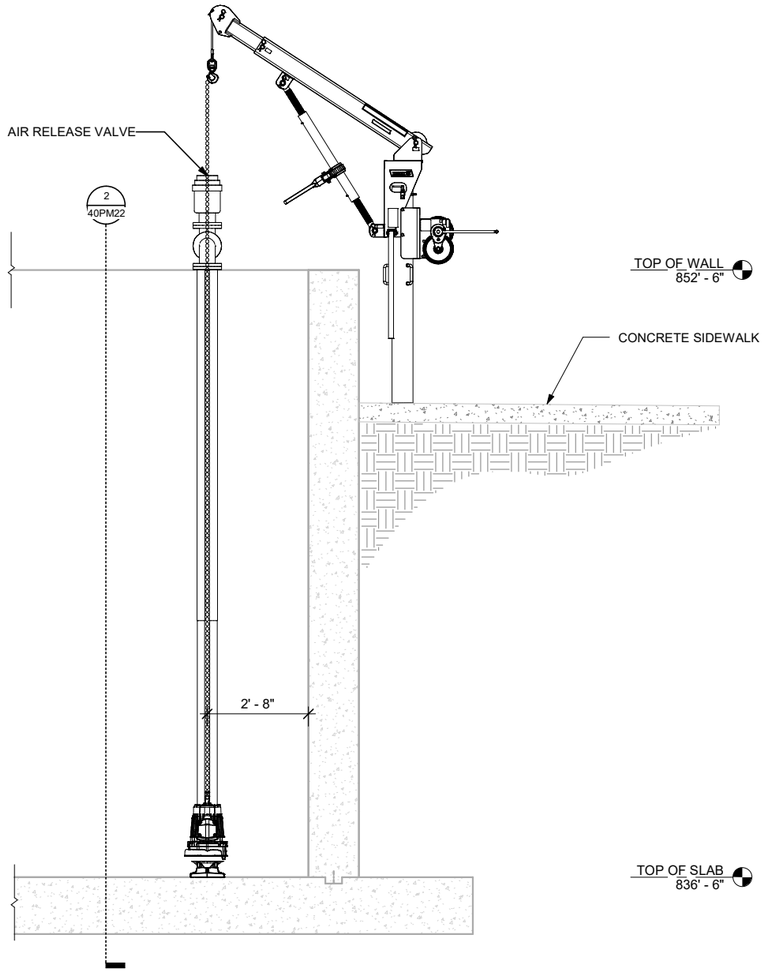
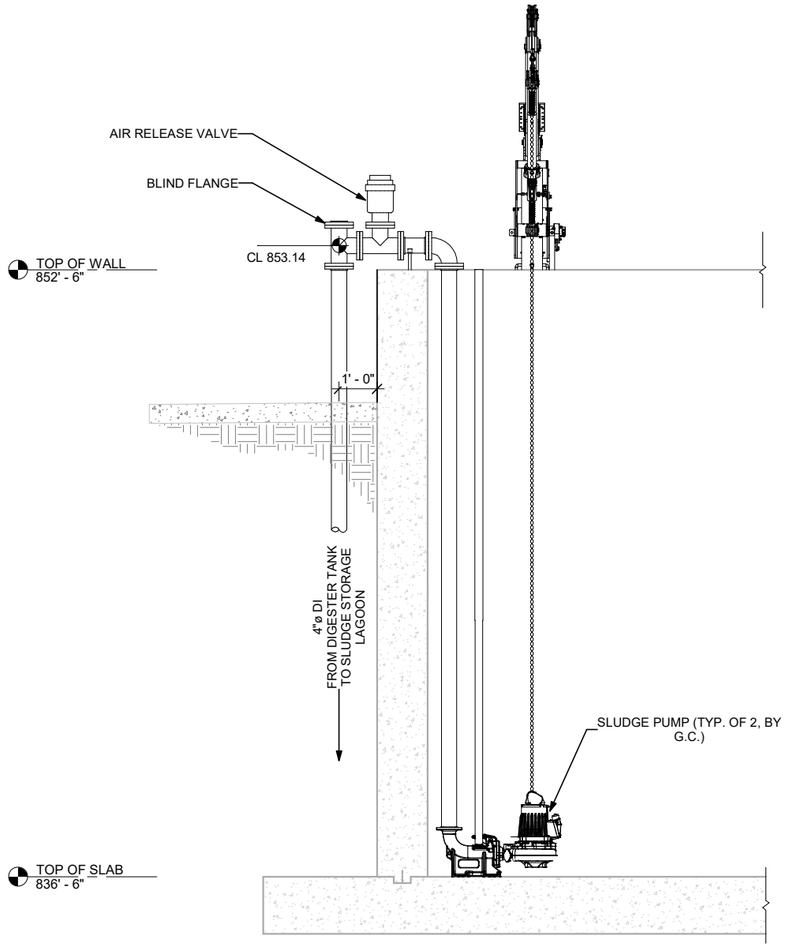


1 SLUDGE PUMP CROSS-SECTION DETAIL
40PM22 1/2" = 1'-0"
0 1 2 4



2 SLUDGE PUMP CROSS-SECTION DETAIL
40PM22 1/2" = 1'-0"
0 1 2 4

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SHEET 40PM22

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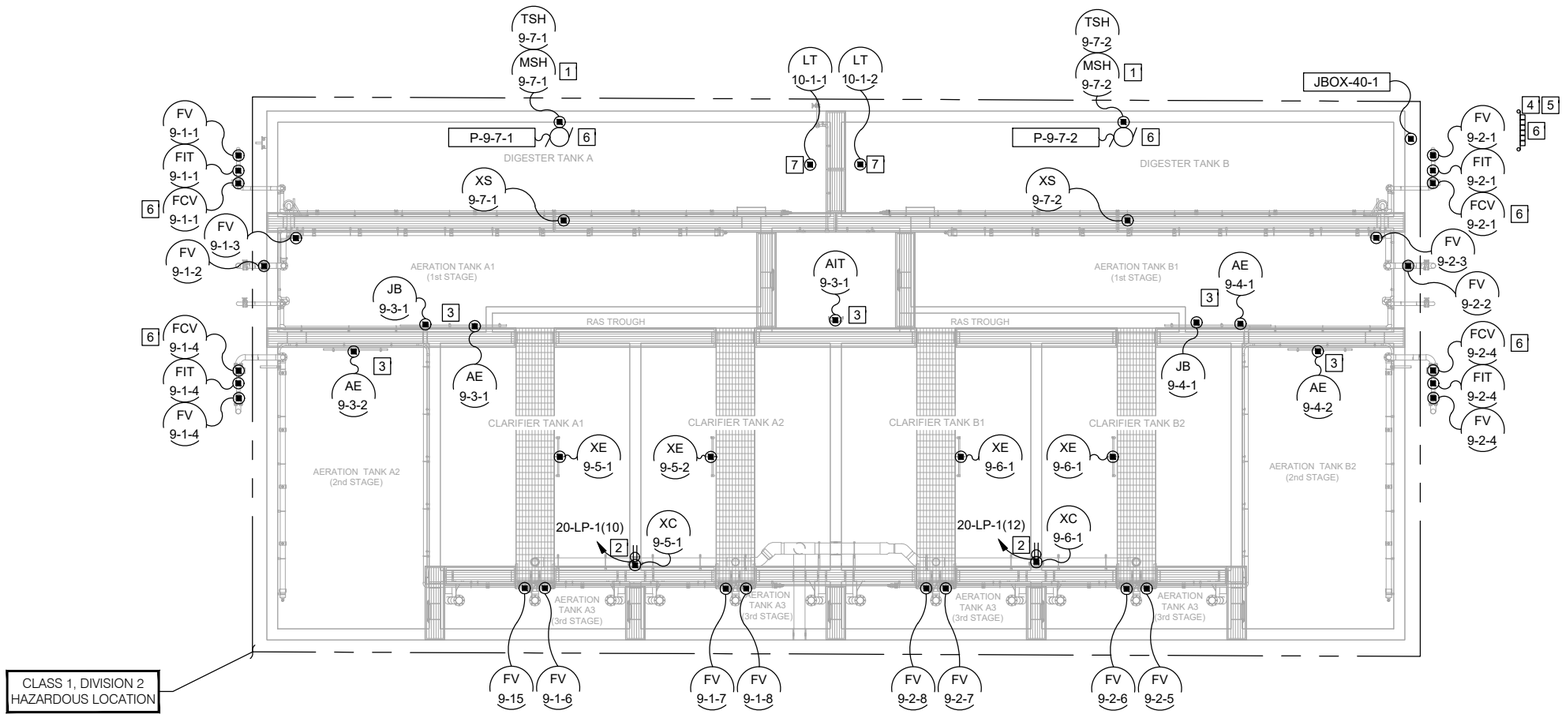

AERO-MOD ELECTRICAL PLAN

0 4' 8' 16'

1/8" = 1'-0" (22X34)
1/16" = 1'-0" (11X17)

GENERAL NOTES:

1. DO NOT SCALE DRAWINGS. IF DIMENSIONS ARE IN QUESTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATION FROM ENGINEER PRIOR TO PROCEEDING WITH WORK.
2. CONDUIT WALL AND FLOOR PENETRATIONS PER DETAIL 2605-305
3. HOMERUN WIRING SHALL BE (2)#12 & #12G UNLESS NOTED OTHERWISE, REFER TO ONE-LINE DIAGRAM.
4. MINIMUM CONDUIT SIZE 3/4" UNLESS OTHERWISE NOTED.
5. ALL EXTERIOR RECEPTACLES TO BE GFCI WEATHERPROOF. MOUNT AT 30" ABOVE FINISHED GRADE.
6. ROOM/AREA ATMOSPHERE REQUIREMENTS, REFER TO SECTION 26 05 00:
   - 6.1. EXTERIOR, ABOVE GRADE: GENERAL, WET, NEW CONSTRUCTION.
   - 6.2. EXTERIOR, BELOW GRADE: UNDERGROUND, WET, NEW CONSTRUCTION.
   - 6.3. AEROMOD PLANT: HAZARDOUS, NEW CONSTRUCTION

     NFPA 820 VERSION 2020 TABLE 5.2.2 ROW 9.C, AND TABLE 6.2.2 ROW 10 AND 16. ENVELOPE 18" ABOVE LIQUID SURFACE AND 10 HORIZONTALLY FROM WETTED WALLS

KEY NOTES: [X]

1. PROVIDE PUMP CABLE J-BOX IN ACCORDANCE WITH DETAIL
2. COORDINATE LOCATION OF RECEPTACLE FOR TRANSDUCERS IN FIELD
3. COORDINATE WIRING REQUIREMENTS FOR SENSORS BASED UPON TECHNOLOGY PROVIDED. DESIGN IS BASED UPON HACH PROBES USING MODBUS COMMUNICATION.
4. PROVIDE EQUIPMENT RACK CONSTRUCTED IN ACCORDANCE WITH DETAIL 2605-400
5. COORDINATE LOCATION OF RACK WITH OWNER AND FIELD CONDITIONS
6. PROVIDE NEMA 4X LOCAL DISCONNECT FOR EQUIPMENT, MOUNTED ON EQUIPMENT RACK.
7. PROVIDE HAND RAIL MOUNTED J-BOX FOR LEVEL TRANSMITTERS TO TERMINATE MANUFACTURERS CABLE AND TO MOUNT ANEROID BELLOWS.

PROJECT DATE: 2019-09-20	SCALE: AS SHOWN	NO.	DATE	REVISION	BY
	DRAWN BY: LET				
F.B. :	CHECKED BY: RJJ				
PLOT DATE: 7/1/2020					

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BLACK HAWK COUNTY, IOWA

AERO-MOD ELECTRICAL PLAN

FILE NO. 14573015
SHEET 40E1

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CONCRETE & REINFORCING NOTES

1. ALL LAPS SHALL BE CLASS-"B" PER ACI 318/350. UNLESS NOTED OTERHWISE ON THE DESIGN DRAWINGS AND THE DETAILER TAKES SPECIAL CARE TO PROVIDE STAGGERED LAPS. USE TOP BAR LAP LENGTHS FOR ALL HORIZONTAL WALL BARS AND FOR BARS IN SLABS WITH MORE THAN 12" OF CONCRETE BELOW.
2. LAP LENGTH SHALL BE SPECIFICALLY NOTED ON PLACING DRAWINGS WHERE MORE THAN ONE BAR MAKES UP A CONTINUOUS STRING.
3. BAR PLACMENT TOLERANCES SHALL BE AS SPECIIED IN HE CONCRETE REINFORCING STEEL INSTITUTE (CRSI) MANUAL OF STANDARD PRACTICE, CURRENT EDITION.
4. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER'S APPROVAL PRIOR TO CONCRETE PLACEMENT INDICATING CONSTRUCITON JOIN LOCATIONS AND CONCRETE PLACEMENT SEQUENCING.
5. ALL REINFORCING BAR DIMENSIONS ARE FROM OUT-TO-OUT O BAR. ALL BEND ANGLES ARE AT 45° AND 90° UNLESS NOTED OTHERWISE.
6. ALL CONCRETE SHALL BE PROPORTIONED, PLACED, AND FINISHED IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
7. STEEL REINFORCING PROTECION (CLEAR COVER) UNLESS DETAILED OTHERWISE:

FOOTINGS & STRUCT. SLABS ON GRADE - BOT. & SIDES	3"
FOOTINGS & STRUCT. SLABS ON GRADE - TOP	2"
WALLS AT LIQUID RETAINING STRUCTURES	2"
BUILDING FOUNDATIONS WALLS - #5 & SMALLER	1"
BUILDING FOUNDATION WALLS - #6 & LARGERS	2"
NON-STRUCTURAL SLABS ON GRADE	CENTERED
COLUMNS, PIERS, BEAMS	AS DETAILED

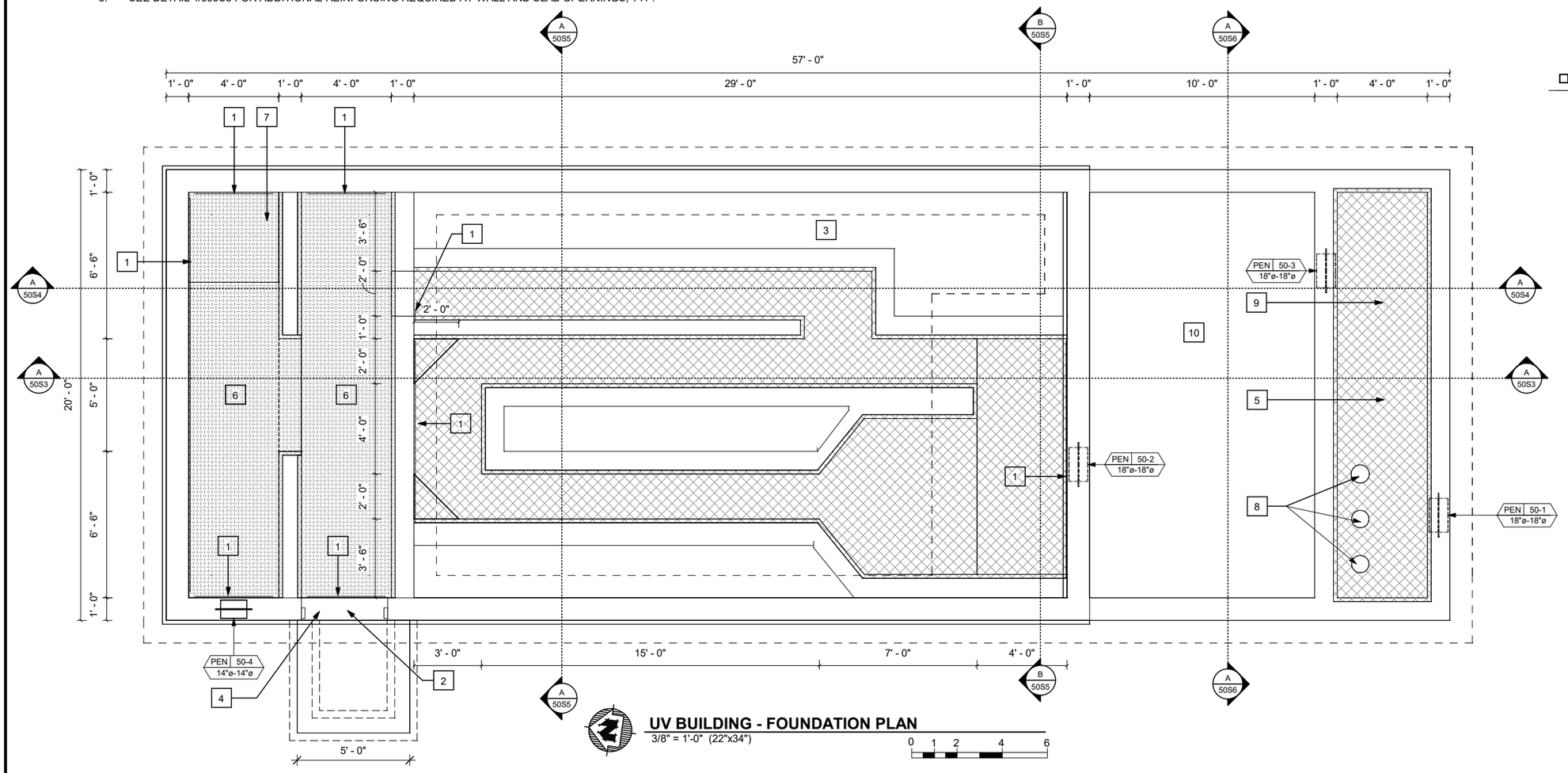
8. SEE DETAIL 4/999S3 FOR ADDITIONAL REINFORCING REQUIRED AT WALL AND SLAB OPERNINGS, TYP.

GENERAL STRUCTURAL NOTES

1. EXCAVATION AND SUBGRADE PREPARATION SHALL BE IN ACCORDANCE WITH THE SPECIFICAITONS AND WITH THE RECOMMENDATIONS CONTAINED IN THE GEOTECHNICAL REPORT (SEE PROJECT MANUAL FOR GEOTECHNICAL REPORT).
2. SEE ARCHITECUTAL, MECHANICAL, AND ELECTRICAL PLANS FOR SIZE & LOCATION OF FLOOR/WALL OPENINGS AND PIPE PENETRATIONS NO SHOWN. PROVIDE PIPE SLEEVES CAST INTO CONCRETE.
3. ALL PIPE PENETRATIONS, ELECTRICAL CONDUIT PENETRATIONS (NOT SHOWN - SEE ELECTRICAL), AND PLUMBING PENETRATIONS THROUGH FLOOR SHALL HAVE A STRIP OF BENTONITE OR HYDRAULIC WATER STOP INSTALLED AROUND CIRCUMFERENCE OF PIPE/CONDUIT ETC. AT CENTER OF SLAB LEVEL TO CREATE A WATERTIGHT SEAL.

DESIGN STRESSES

CAST-IN-PLACE CONCRETE	
FOOTINGS	f'c = 5000 psi
WALLS	f'c = 5000 psi
SLAB ON GRADE	f'c = 5000 psi
OTHER	f'c = 3500 psi
CONCRETE MASONRY UNITS	
WALLS	f'm = 2,300 psi (min.)
STEEL	
REINFORCING	fy = 60 ksi
BOLTS	
ANCHOR	F1554, GRADE 36
EXPANSION	WEDGE TYPE
SOIL BEARING PRESSURE CAPACITY	
SOILS REPORT (GEOTECHNICAL REPORT PREPARED BY CHOSEN VALEY TESTING, INC. DATED MAY 22, 2020)	q = 3,000 psf



UV BUILDING - FOUNDATION PLAN

3/8" = 1'-0" (22"x34")

0 1 2 4 6

☐ KEYNOTES

1. TYPE 2 GRATING SUPPORT. SEE DETAIL #/##S##
2. HOLD WALL DOWN 8" AT DOOR OPENING.
3. 8" THICK SLAB-ON-GRADE W/ #___ BARS @ ___" O.C. OVER VAPOR BARRIER AND COMPACTED GRANULAR FILL.
4. (1) #5 BAR x 24" AT EACH DOOR OPENING CORNER (TYP). PLACE IN THE CENTER OF THE CONCRETE SLAB-ON-GRADE
5. ALUMINUM GRATING WITH TYPE 1 SUPPORT OVER CHANNELS AND OPENINGS (TYP.), DESIGN TO SUPPORT LIVE LOAD OF 100 PSF. PROVIDE ADD'L SUPPORT AS REQUIRED. SEE DETAIL #/##S##.
6. ALUMINUM DIAMOND PLATE AND GRATING WITH TYPE 1 SUPPORTS OVER CHANNELS AND OPENINGS (TYP.), DESIGN TO SUPPORT LIVE LOAD OF 100 PSF. PROVIDE ADDITIONAL SUPPORTS AS REQUIRED. SEE DETAIL #/##S##.
7. PROVIDE BANDED 3" OPENING FOR SAMPLER TUBING AND STRAINER. SEE PROCESS MECHANICAL.
8. PROVIDE BANDED OPENING FOR PIPE PENETRATIONS AND DAVIT CRANE BASE AS SHOWN. SEE PROCESS MECHANICAL.
9. PROVIDE BANDED OPENING FOR ELECTRIC VALVE AS SHOWN. SEE PROCESS MECHANICAL. GRATING SHALL BE SPLIT SO GRATING IS REMOVABLE WITH VALVE COLUMN IN PLACE.
10. 12" THICK SLAB WITH #___ BARS @___" O.C., E.W., TOP AND BOTTOM - SEE SECTIONS

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		CHECKED BY: JEM				

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UV BUILDING FOUNDATION PLAN

PROJECT NO. 14573015
SHEET 50S1

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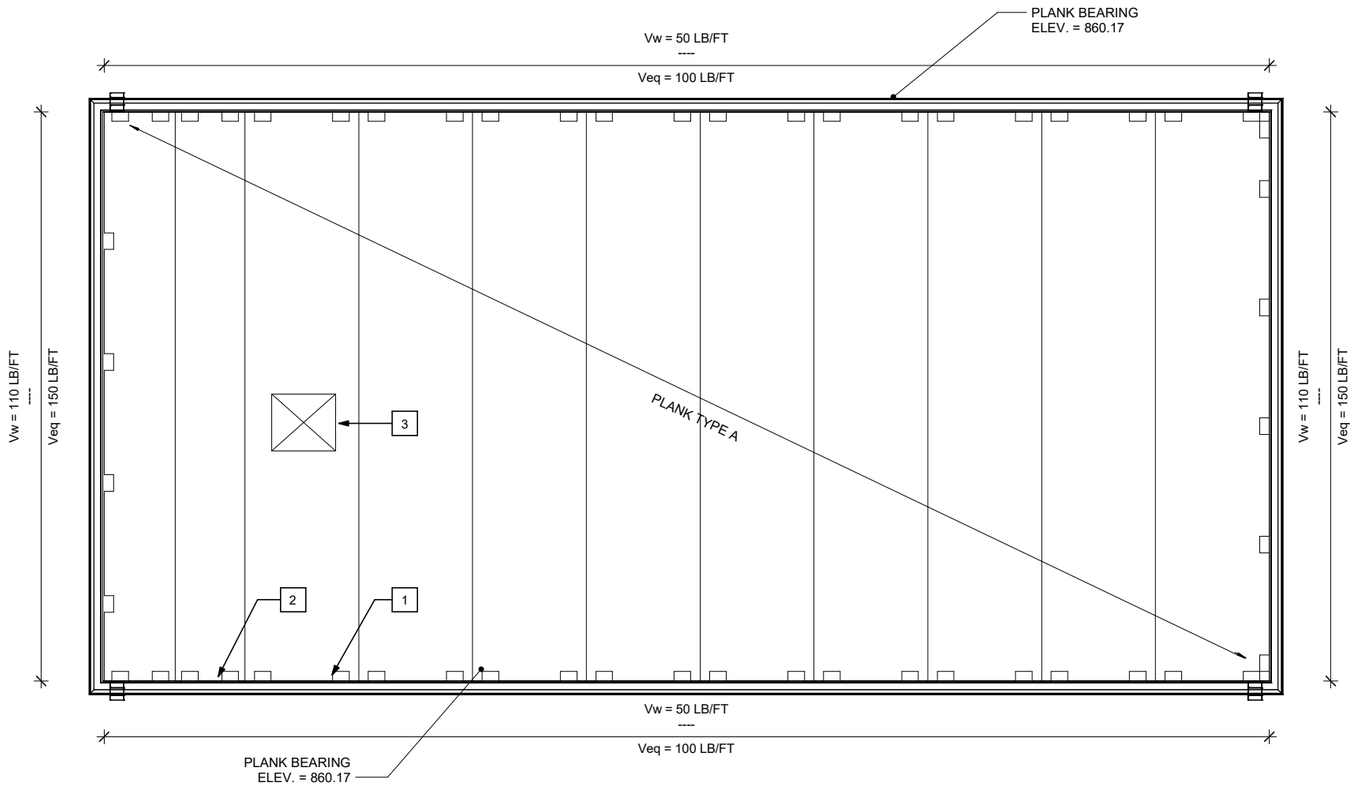

PLAN VIEW

3/8" = 1'-0" (22"x34")

0 1 2 4 6

☐ KEYNOTES

1. DOOR OPENING LOCATION - SEE ARCHITECTURAL. PC MFR TO DESIGN AND PROVIDE OPENING HEADER AND OPENING FRAME.
2. HVAC EQUIPMENT OPENING LOCAITON - SEE HVAC AND ARCHITECTURAL. PC MFR TO DESIGN AND PROVIDE OPENING HEADER AND OPENING FRAME.
3. APPROXIMATE LOCATION OF ATTIC ACCESS COORDINATE LOCATION WITH PC MFR AND PRE-ENGINEERED TRUSS MFR. PROVIDE STAINLESS STEEL HEADER AS REQ'D TO ADJACENT ROOF PLANKS. REFER TO DETAIL ###S##.

DESIGN LOADINGS

BUILDING CATEGORY		III
WIND LOAD		
BASIC WIND SPEED		120 mph
RISK CATEGORY		III
WIND EXPOSURE		C
PER ASCE, SIMPLIFIED DESIGN PROCEDURE		
MAIN WIND FORCE RESISTING SYSTEM		
WALLS (LATERAL)	ZONE A	28 PSF
	ZONE C	18 PSF
ROOF (LATERAL)	ZONE B/D	-10PSF
ROOF (UPLIFT)	ZONE E(MAX)	-33 PSF
ROOF OVERHANG (UPLIFT)	ZONE G(MAX)	-23 PSF
	NO OVERHANG	
ROOF LOADS		
DEAD LOAD, TOTAL		30 psf
BALLAST (MIN.)		18.5 psf
LIVE LOAD (MIN.)		20 psf
LIVE LOADS		
ROOF LIVE LOAD (MINIMUM)		20 psf
FLOOR LIVE LOAD (MINIMUM)		250 psf
SEISMIC DESIGN DATA		
SEISMIC IMPORTANCE FACTOR, Ie		1.25
MAPPED SPECTRAL RESPONSE ACCELERATIONS		
Ss		0.0624
S1		0.0441
SEISMIC SITE CLASS		D
SPECTURAL RESPONSE COEFFICIENTS		
Sds		0.067
Sd1		0.071
SEISMIC DESIGN CATEGORY		B
BASIC SEISMIC-FORCE-RESISTING SYSTEM		
ORDINARY PRECAST SHEAR WALLS		
SEISMIC RESPONSE COEFFICIENT, Cs		0.0277
RESPONSE MODIFICATION FACTOR		3.00
ANALYSIS PROCEDURE USED		
EQUIVALENT LATERAL FORCE		
SNOW LOAD		
GROUND SNOW LOAD, Pg		30 psf
FLAT-ROOF SNOW LOAD, Pf		25.41 psf
DESIGN:		25.41 psf
SNOW EXPOSURE FACTOR, Ce		1.0
SNOW LOAD FACTOR, I		1.10
THERMAL FACTOR, Ct		1.10
DESIGN SNOW LOAD		26.5 psf
ROOF SLOPE (FLAT)		
SLOPED ROOF FACTOR, Cs		1.0
SLOPED ROOF SNOW LOAD, Ps		25.41 psf
UNBALANCED SNOW LOAD		NONE

PRECAST HOLLOWCORE PLANK SCHEDULE

MARK	DEPTH	TOPPING		FIRE RATING	LOADING
		THICKNESS	REINF.		
A	8"	NONE	NONE	2-HR	SEE50S2

NOTES:
1. PRECAST PLANK MANUFACTURER TO CHECK PLANKS ADJACENT TO OPENINGS, MECHANICAL OR OTHERS AS SHOWN ON PLANS, FOR ADDITIONAL LOAD CAUSED BY SLAB OPENINGS. REFERENCE PROJECT DRAWINGS FOR MORE INFORMATION.
2. PLANK CAMBER SHALL BE 1 INCH OR LESS
3. PLANK DEPTH ASSUMED SHALL - SHALL BE VERIFIED BY HOLLOW CORE PLANK MFR. IF THICKER PLANK IS REQUIRED, ADJUST WALL PANELS SO THAT CEILING HEIGHT DOES NOT CHANGE.

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UV BUILDING
CEILING FRAMING PLAN

PROJECT NO. 14573015
SHEET 50S2

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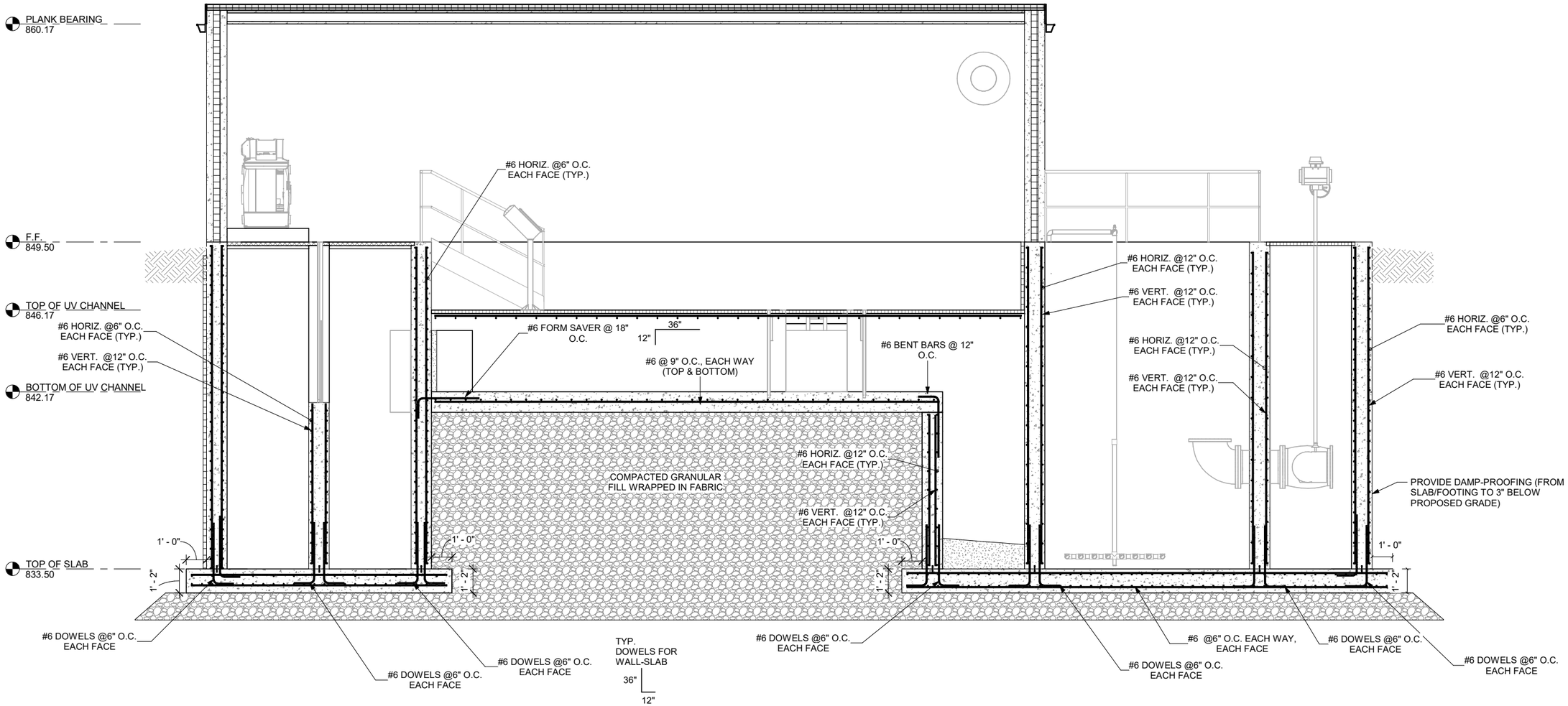

A CROSS SECTION

50S3 3/8" = 1'-0"

0 1 2 4 6

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SHEET 50S3

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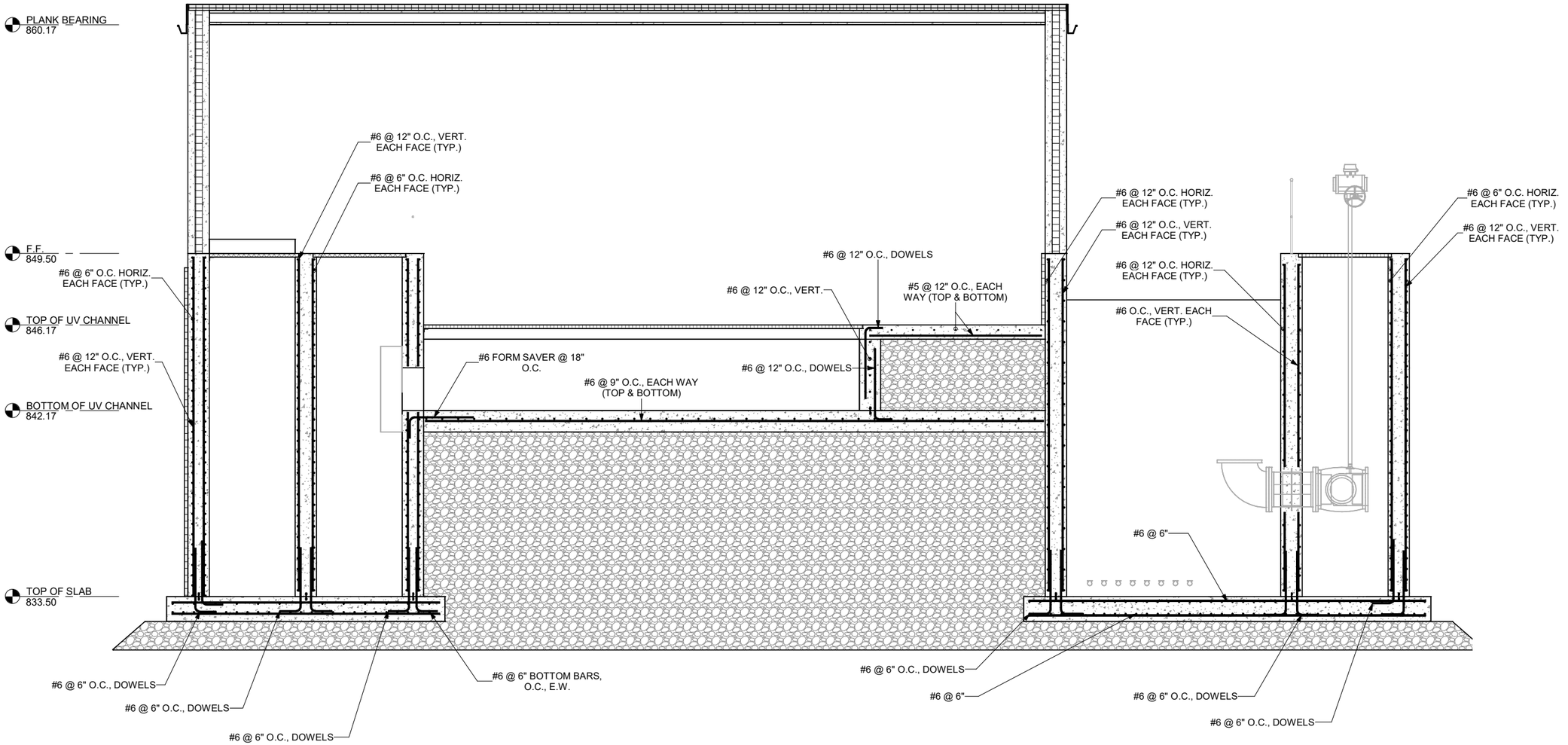

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STRUCTURAL CROSS-SECTION

PROJECT NO. 14573015
SHEET 50S4

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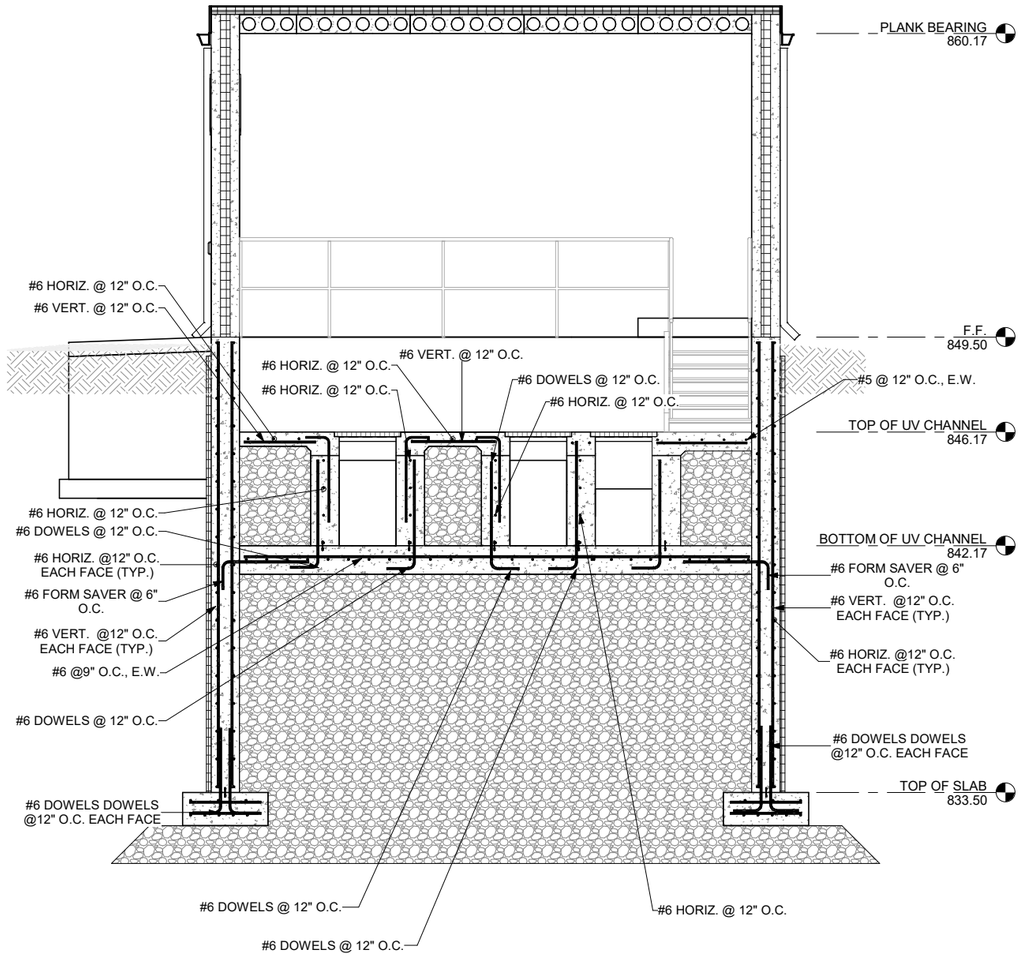
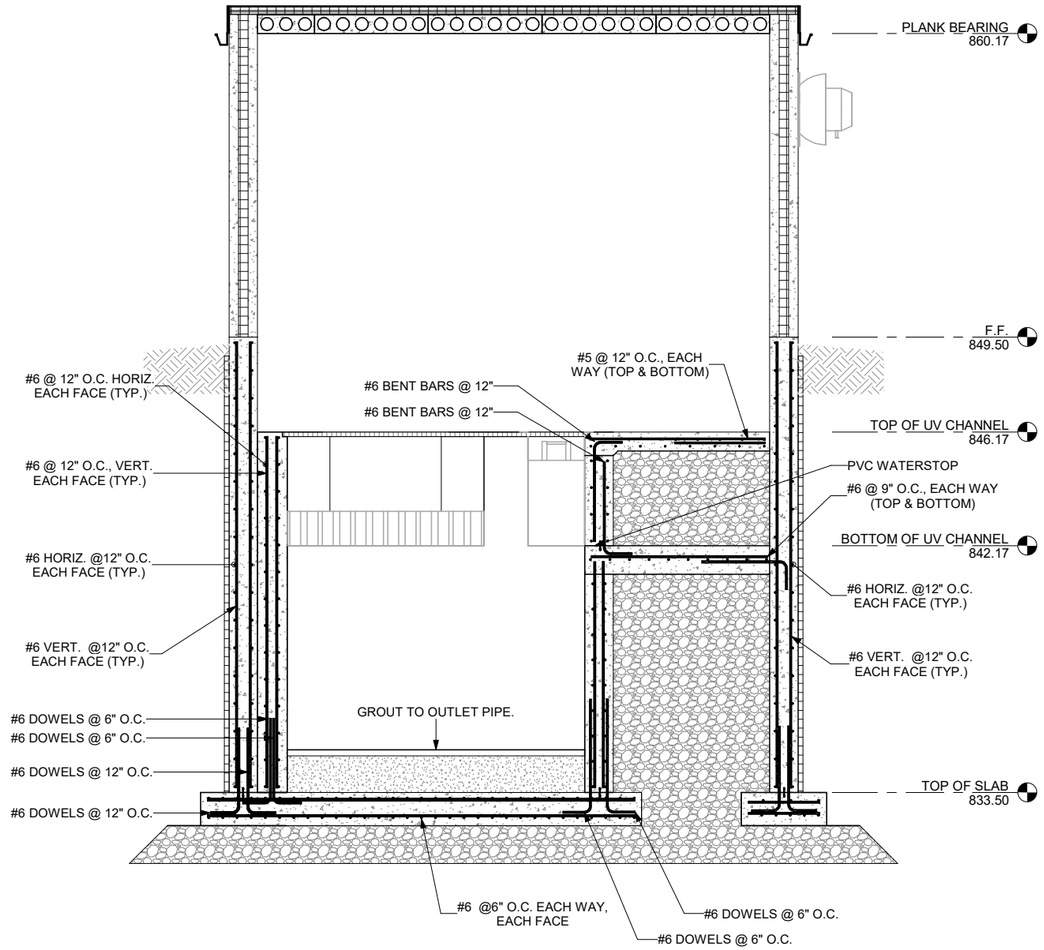


A 50S5 **CROSS SECTION**
3/8" = 1'-0"
0 1 2 4 6



B 50S5 **CROSS SECTION**
3/8" = 1'-0" (22"x34")
0 1 2 4 6

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STRUCTURAL CROSS-SECTION

PROJECT NO. 14573015
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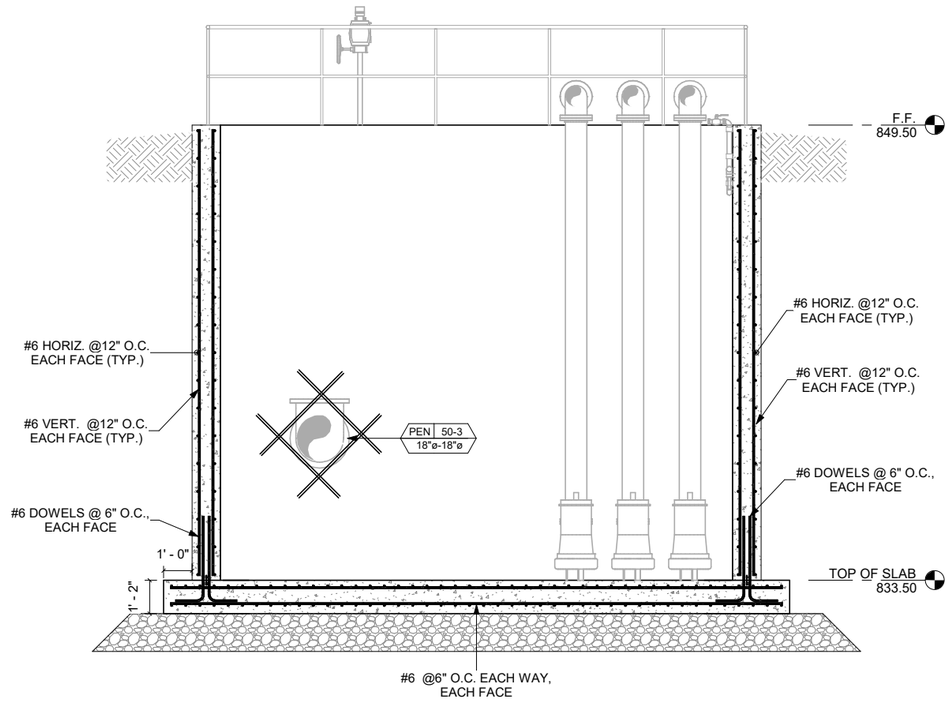

A CROSS SECTION

50S6 3/8" = 1'-0"

0 1 2 4 6

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UV BUILDING
STRUCTURAL CROSS-SECTION

PROJECT NO. 14573015
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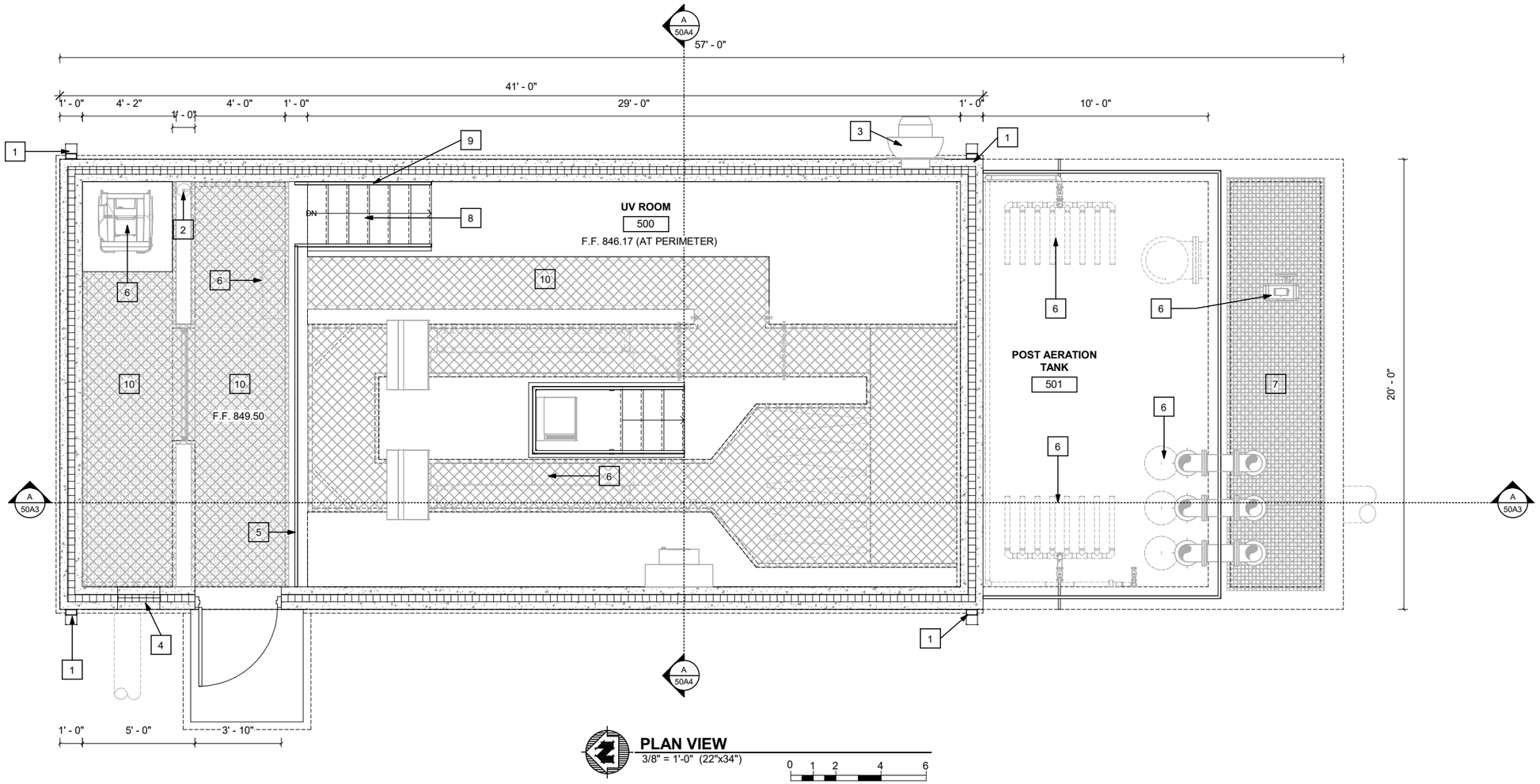
CODE SUMMARY (#### IBC)

OCCUPANCY	F-2
BUILDING TYPE	VB
STORIES	1 W/ BASEMENT
AREA	### SF
VOLUME	### CF
OCCUPANT LOAD	16 (CODE)
REQUIRED EXITS	1
EXIT DISTANCE	FT
SPRINKLERS	NONE

MECHANICAL SPACE ONLY
-- BUILDING IS NOT OCCUPIED

KEYNOTES

1 DOWNSPOUT LOCATION. CONNECT TO STORM SEWER WITH ADAPTER.
2 FIRE EXTINGUISHER W/ BRACKET.
3 FAN LOCATION - SEE HVAC AND DETAIL #/###A#
4 LOUVER LOCATION - SEE HVAC AND DETAIL #/###A#.
5 ALUMINUM GUARD RAIL W/ TOE PLATE. SEE DETAIL #/###A#.
6 PROCESS EQUIPMENT - SEE PROCESS MECHANICAL.
7 ALUMINUM GRATING - SEE STRUCTURAL.
8 ALUMINUM STAIS AND HANDRAIL - SEE DETAIL #/###A#.
9 WALL MOUNTED ALUMINUM HANDRAIL - SEE DETAIL #/###A#.
10 ALUMINUM DIAMOND PLATE GRATING - SEE STRUCTURAL.



PLAN VIEW

3/8" = 1'-0" (22"x34")

0 1 2 4 6

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UV BUILDING
ARCHITECTURAL FLOOR PLAN

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SHEET 50A1

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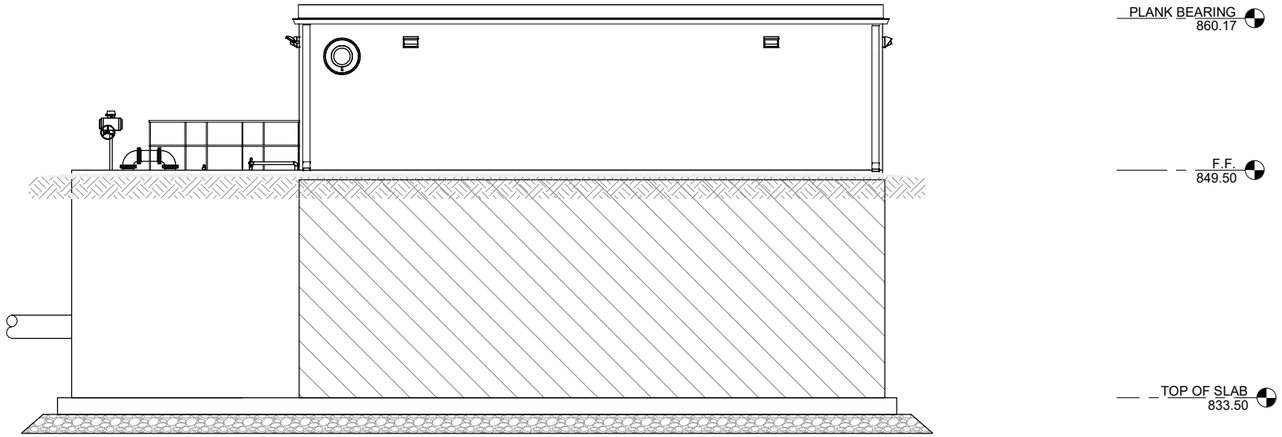
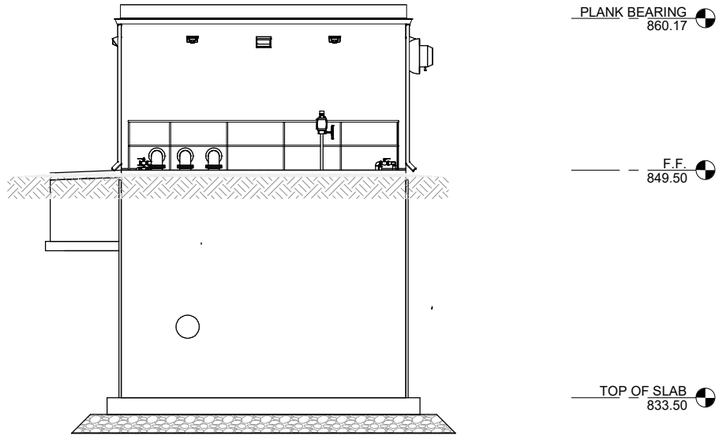


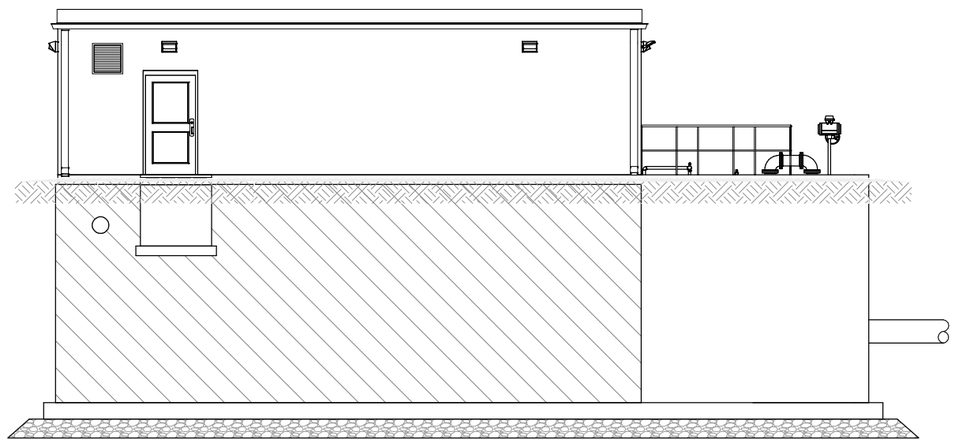
NORTH EXTERIOR ELEVATION

3/16" = 1'-0" (22"x34") 0 2 4 8 12



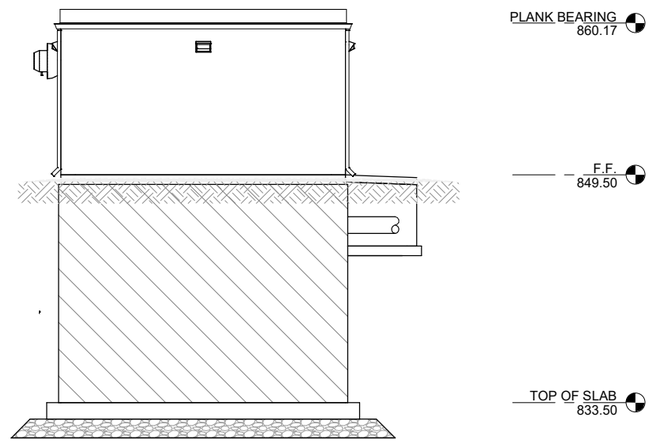
EAST EXTERIOR ELEVATION

3/16" = 1'-0" (22"x34") 0 2 4 8 12



SOUTH EXTERIOR ELEVATION

3/16" = 1'-0" (22"x34") 0 2 4 8 12



WEST EXTERIOR ELEVATION

3/16" = 1'-0" (22"x34") 0 2 4 8 12

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UV BUILDING
EXTERIOR ELEVATIONS

PROJECT NO. 14573015

SHEET 50A2

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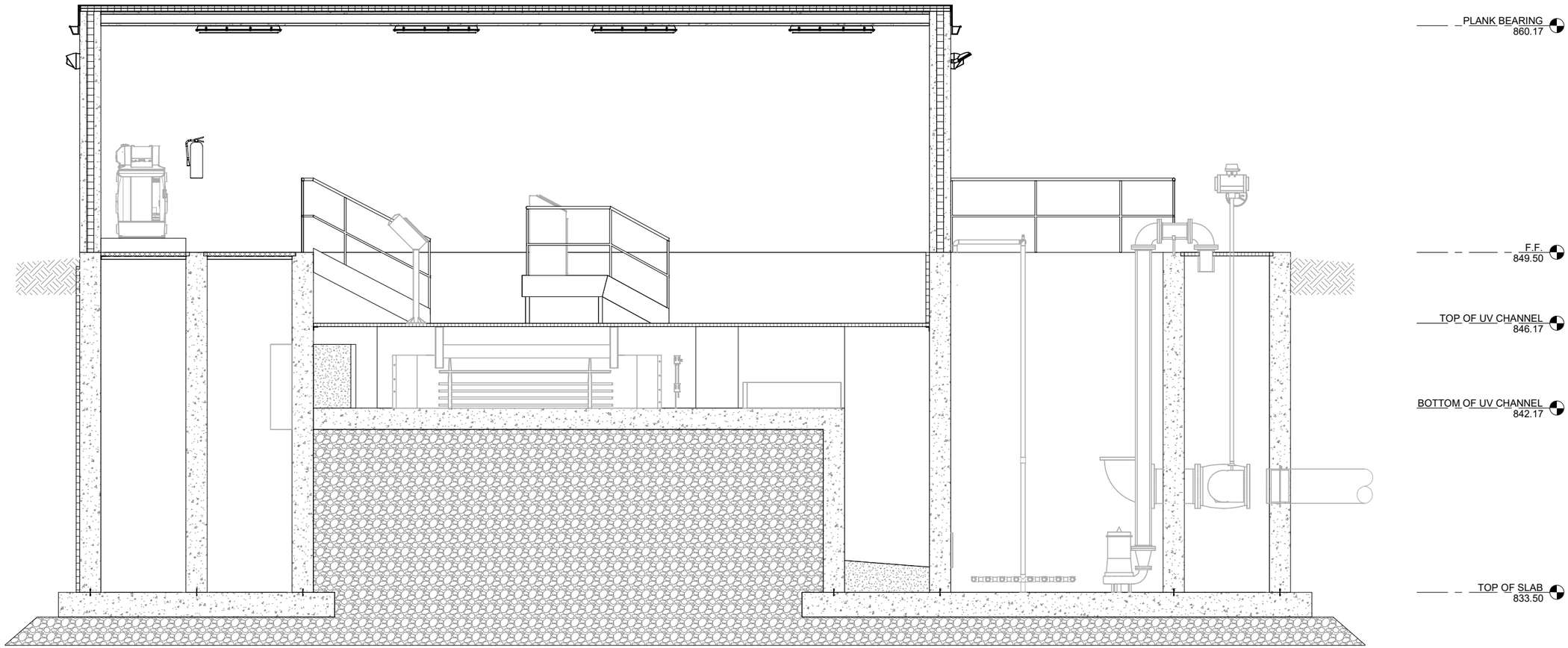
□ KEYNOTES



A 50A3 **CROSS-SECTION**

3/8" = 1'-0" (22"x34")

0 1 2 4 6

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ARCHITECTURAL CROSS-SECTION

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SHEET 50A3

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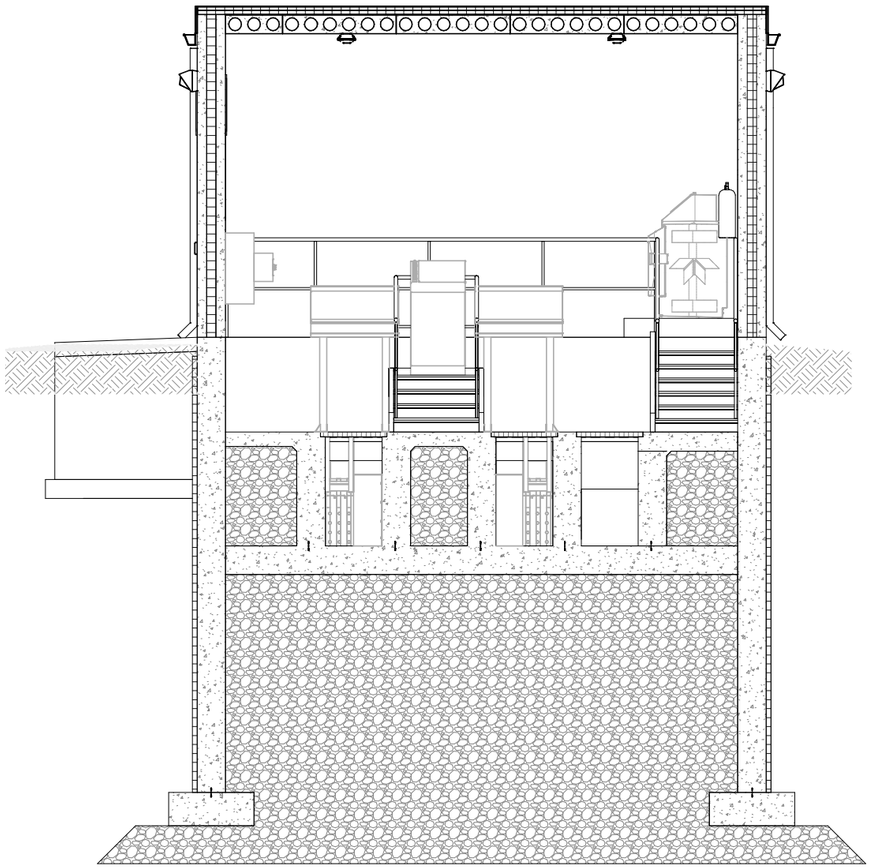

A 50A4 **CROSS-SECTION**

3/8" = 1'-0"

0 1 2 4 6

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UV BUILDING
ARCHITECTURAL CROSS-SECTION, DETAILS, & SCHEDULES

PROJECT NO. 14573015
SHEET 50A4

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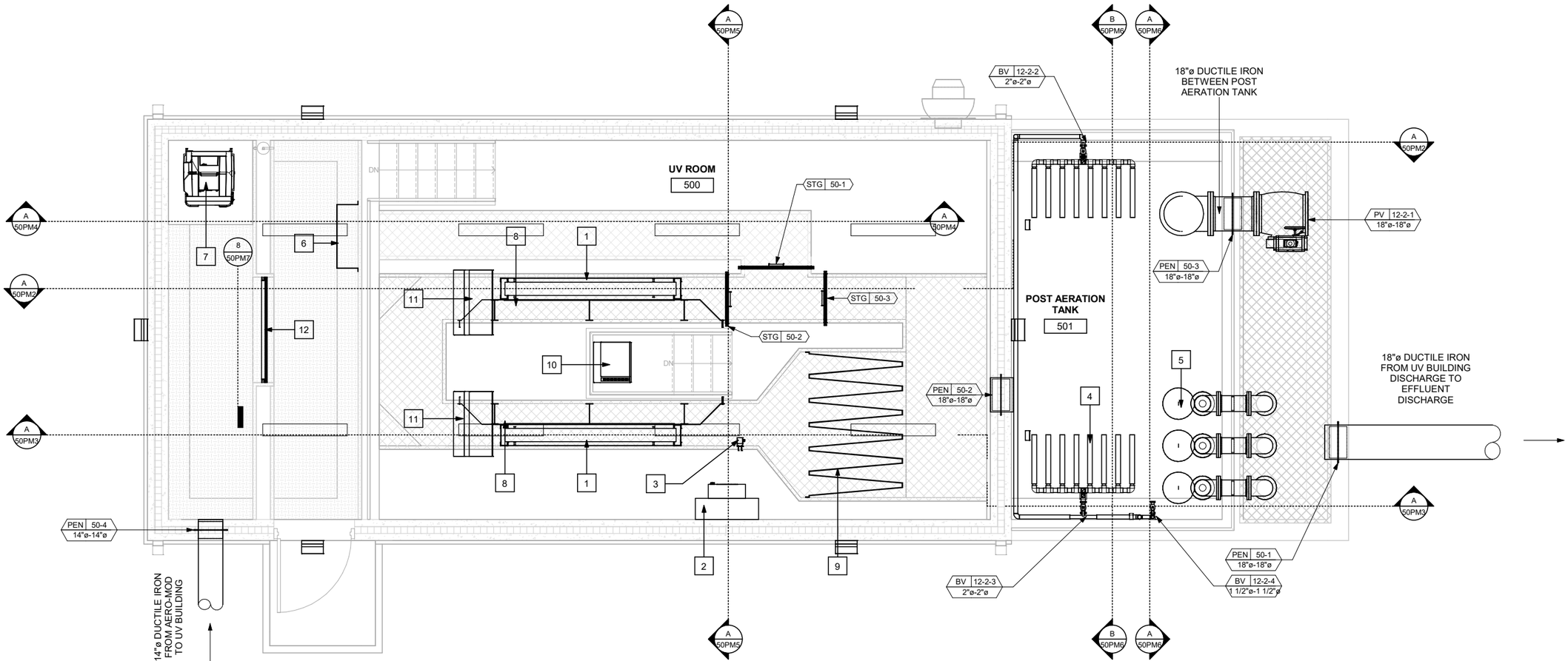
PIPE PENETRATION				
TAG ID	PENETRATION TYPE	PIPE MATERIAL	DESCRIPTION	PIPE SIZE
50-1	A	DUCTILE IRON	FROM UV BUILDING DISCHARGE TO EFFLUENT DISCHARGE	18"ø-18"ø
50-2	A	DUCTILE IRON	FROM UV TO POST AERATION TANK	18"ø-18"ø
50-3	A	DUCTILE IRON	BETWEEN POST AERATION TANK	18"ø-18"ø
50-4	A	PVC	FROM AERO-MOD TO UV BUILDING	14"ø-14"ø

☐ KEYNOTES

1 UV DISINFECTION SYSTEM BANK
2 SYSTEM CONTROL CENTER (SCC)
3 LOW LEVEL SENSOR
4 FINE BUBBLE AERATOR ASSEMBLY (TYP. OF 2)
5 SUBMERSIBLE PUMP (TYP. OF 3)
6 STAINLESS STEEL BAFFLE - SEE DETAIL
7 COMPOSITE SAMPLER
8 CUSTOM MODULE REDUCTION BAFFLE - SUPPLIED BY G.C. (TYP AT EACH BANK - SEE DETAIL)
9 LEVEL CONTROL WEIR - SUPPLIED BY UV MFR
10 HYDRAULIC SYSTEMS CENTER (HSC)
11 POWER DISTRIBUTION CENTER (PDC)
12 90° WEIR - SEE DETAIL



PLAN VIEW

3/8" = 1'-0" (22"x34")

0 1 2 4 6

			No	DATE	REVISIONS	BY
PROJECT DATE: 2019-09-20	DRAWN BY:	JBR				
	DESIGNED BY:	JBR				
	CHECKED BY:	JEM				

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UV BUILDING
PROCESS MECHANICAL PLAN VIEW

PROJECT NO. 14573015
SHEET 50PM1

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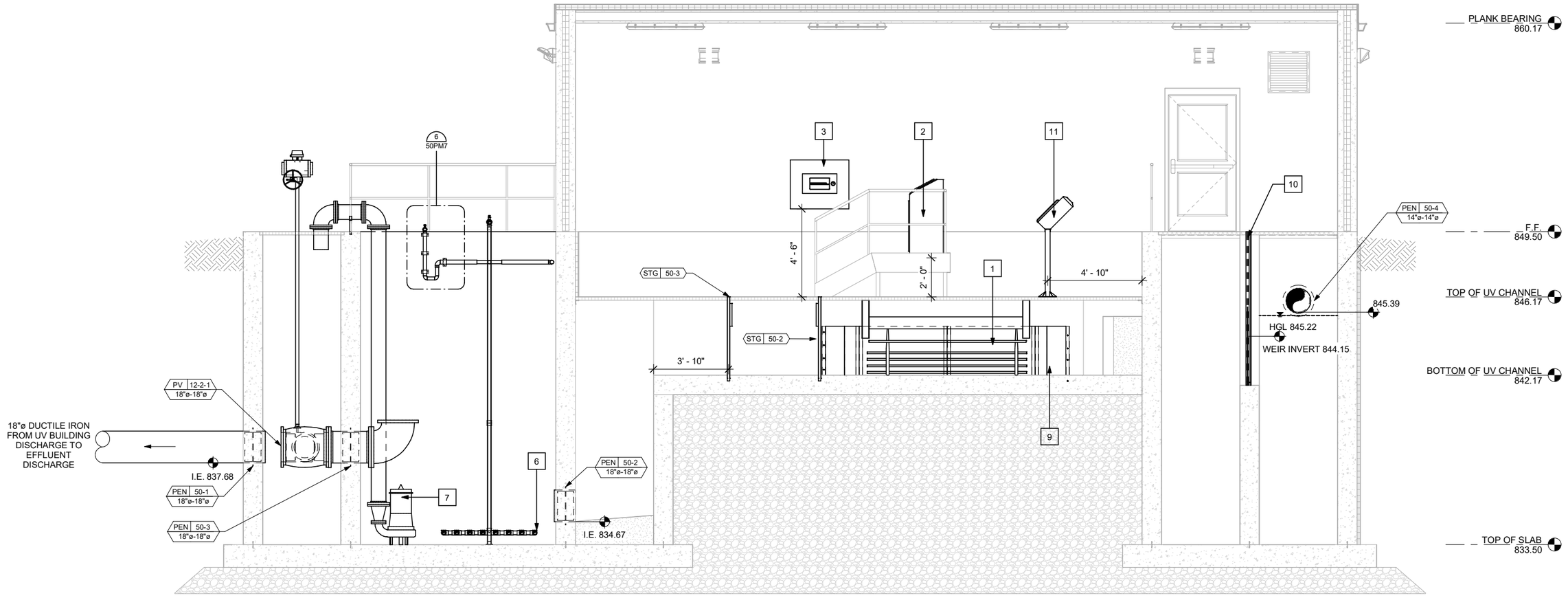
☐ KEYNOTES

1	UV DISINFECTION SYSTEM BANK
2	HYDRAULIC SYSTEMS CENTER (HSC)
3	SYSTEM CONTROL CENTER (SCC)
4	COMPOSITE SAMPLER
5	STAINLESS STEEL BAFFLE - SEE DETAIL
6	FINE BUBBLE AERATOR ASSEMBLY (TYP. OF 2)
7	SUBMERSIBLE PUMP (TYP. OF 3)
8	SLIDE GATE
9	CUSTOM MODULE REDUCTION BAFFLE - SUPPLIED BY G.C. (TYP AT EACH BANK - SEE DETAIL)
10	90° WEIR - SEE DETAIL
11	POWER DISTRIBUTION CENTER (PDC)



A CROSS SECTION
50PM2 3/8" = 1'-0" (22"x34")

0 1 2 4 6

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PROJECT NO. 14573015
SHEET 50PM2

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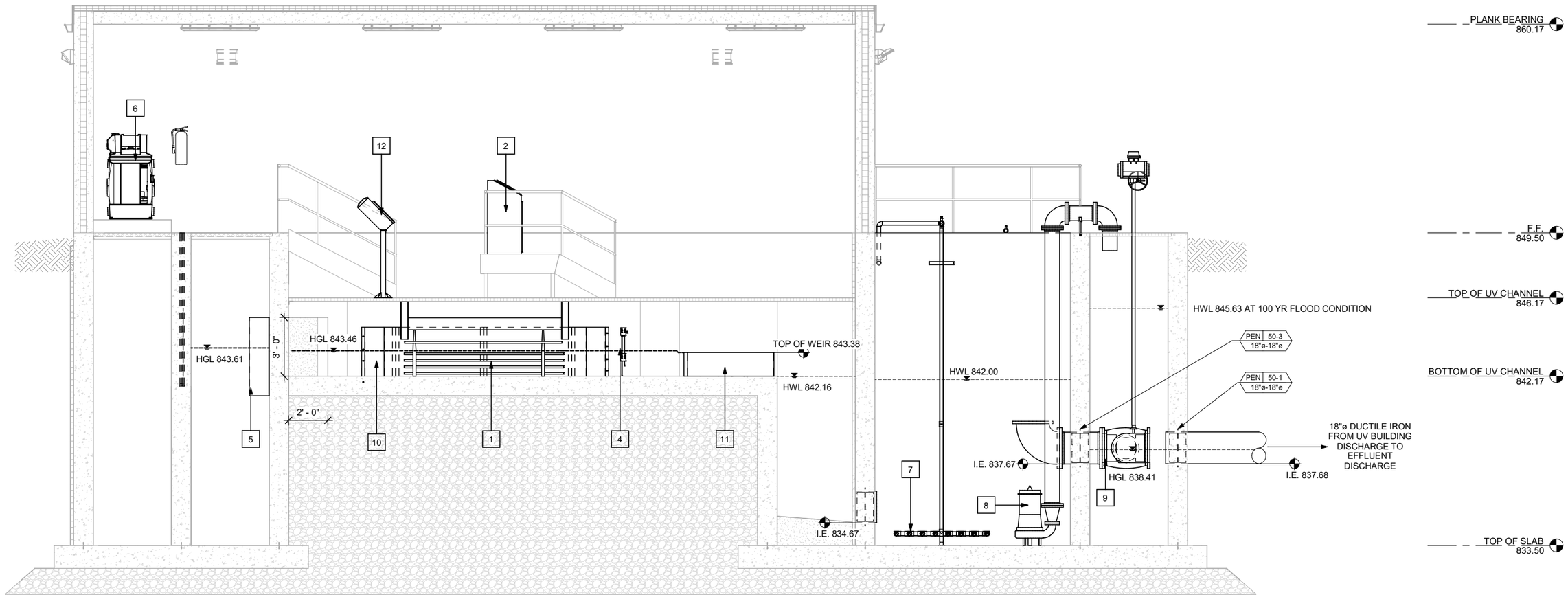
☐ KEYNOTES

1 UV DISINFECTION SYSTEM BANK
2 HYDRAULIC SYSTEMS CENTER (HSC)
3 SYSTEM CONTROL CENTER (SCC)
4 LOW LEVEL SENSOR
5 STAINLESS STEEL BAFFLE - SEE DETAIL
6 COMPOSITE SAMPLER
7 FINE BUBBLE AERATOR ASSEMBLY (TYP. OF 2)
8 SUBMERSIBLE PUMP (TYP. OF 3)
9 ELECTRIC PLUG VALVE (OPEN/CLOSE)
10 CUSTOM MODULE REDUCTION BAFFLE - SUPPLIED BY G.C. (TYP AT EACH BANK - SEE DETAIL)
11 LEVEL CONTROL WEIR - SUPPLIED BY UV MFR
12 POWER DISTRIBUTION CENTER (PDC)



A CROSS SECTION
50PM3 3/8" = 1'-0"

0 1 2 4 6

PROJECT DATE: 2019-09-20	DRAWN BY: JBR	No	DATE	REVISIONS	BY
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PROJECT NO. 14573015
SHEET 50PM3

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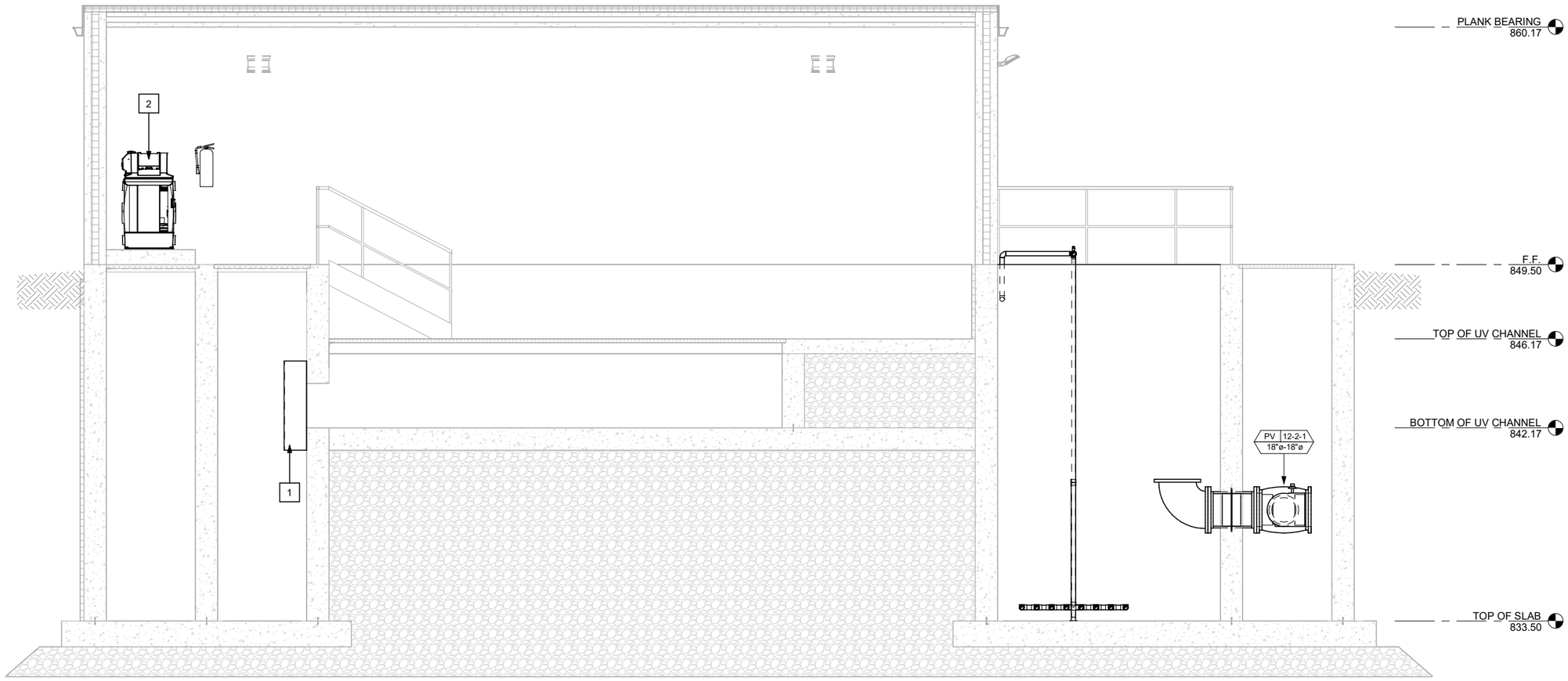
☐ KEYNOTES

1 STAINLESS STEEL BAFFLE - SEE DETAIL
2 COMPOSITE SAMPLER



A CROSS-SECTION
50PM4 3/8" = 1'-0" (22"x34")

0 1 2 4 6

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PROJECT NO. 14573015
SHEET 50PM4

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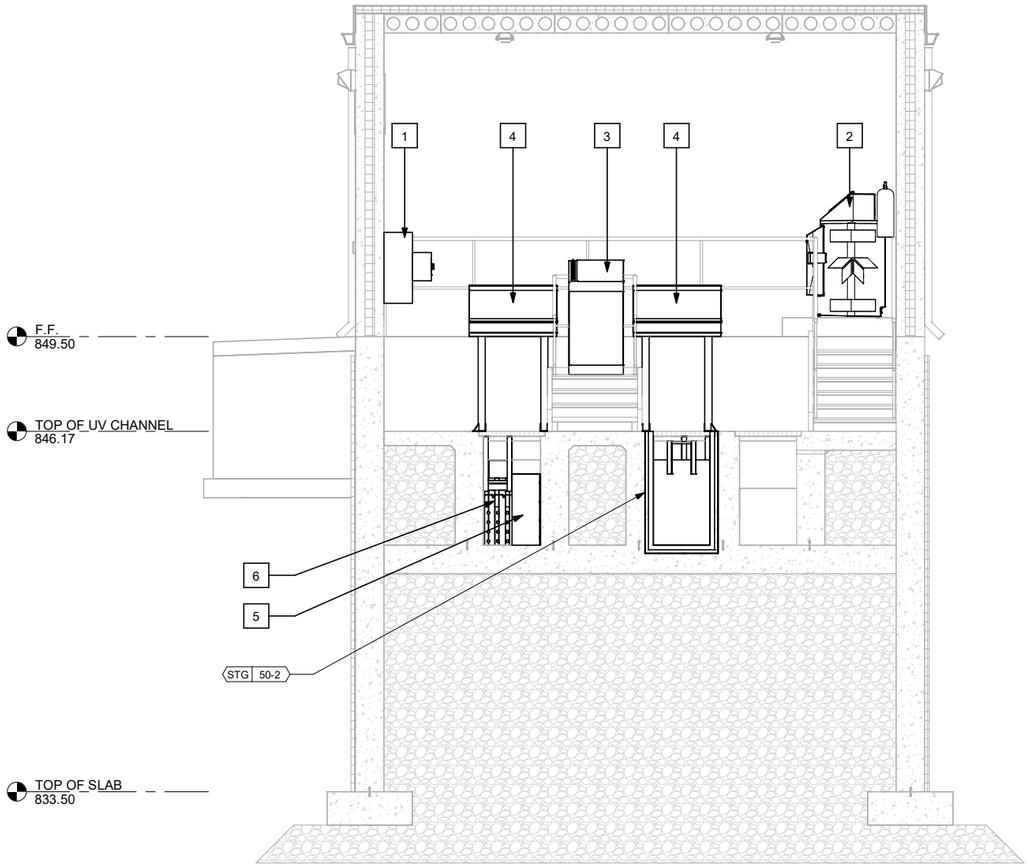
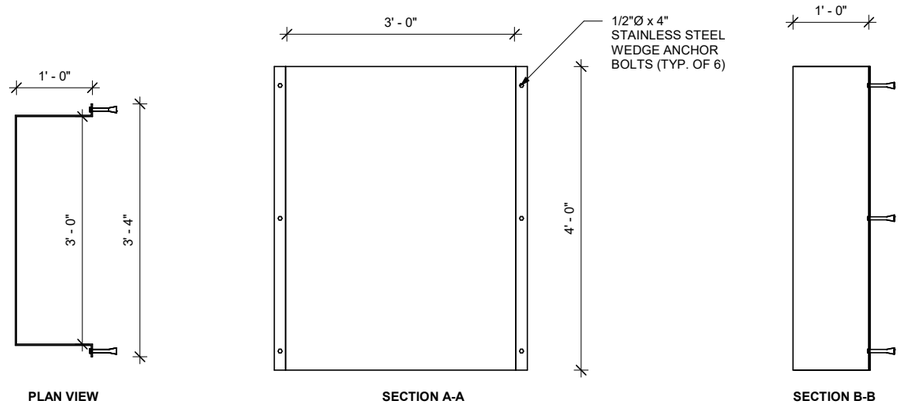
☐ KEYNOTES

1 SYSTEM CONTROL CENTER (SCC)
2 COMPOSITE SAMPLER
3 HYDRAULIC SYSTEMS CENTER (HSC)
4 POWER DISTRIBUTION CENTER (PDC)
5 CUSTOM MODULE REDUCTION BAFFLE - SUPPLIED BY G.C. (TYP AT EACH BANK - SEE DETAIL)
6 UV DISINFECTION SYSTEM BANK

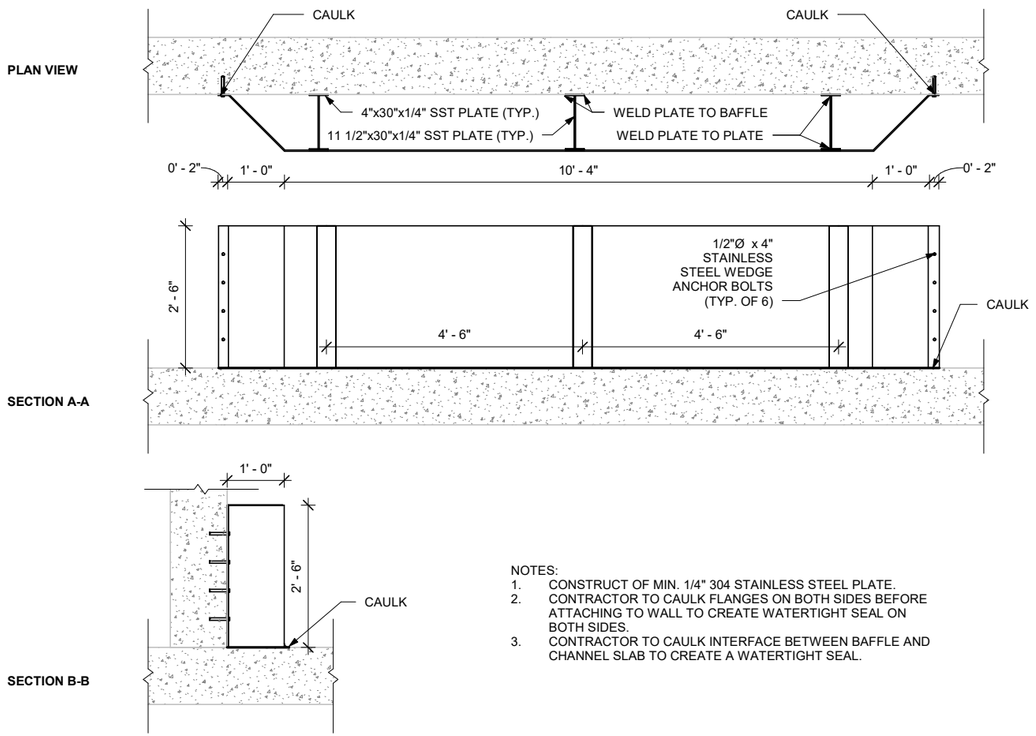


A **CROSS SECTION**
50PM5 3/8" = 1'-0" (22"x34")
0 1 2 4 6



NOTES:
1. CONSTRUCT OF MIN. 3/16" 304 STAINLESS STEEL PLATE.
2. CONTRACTOR TO CAULK FLANGES ON BOTH SIDES BEFORE ATTACHING TO WALL TO CREATE WATERTIGHT SEAL ON BOTH SIDES.

1 **UV INFLUENT BAFFLE**
N.T.S.



NOTES:
1. CONSTRUCT OF MIN. 1/4" 304 STAINLESS STEEL PLATE.
2. CONTRACTOR TO CAULK FLANGES ON BOTH SIDES BEFORE ATTACHING TO WALL TO CREATE WATERTIGHT SEAL ON BOTH SIDES.
3. CONTRACTOR TO CAULK INTERFACE BETWEEN BAFFLE AND CHANNEL SLAB TO CREATE A WATERTIGHT SEAL.

2 **UV BAFFLE DETAILS**
N.T.S.

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PROJECT NO. 14573015
SHEET 50PM5

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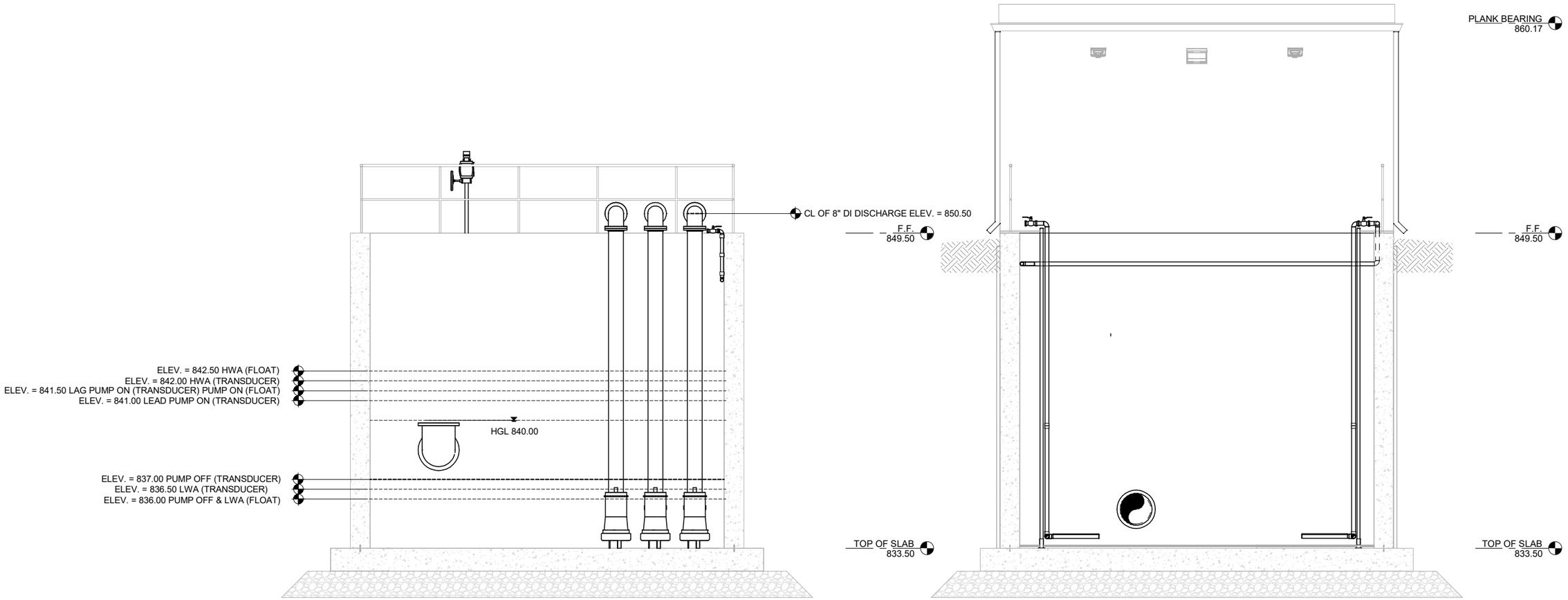

A **CROSS SECTION**
50PM6 3/8" = 1'-0"
0 1 2 4 6

B **CROSS SECTION**
50PM6 3/8" = 1'-0" (22"x34")
0 1 2 4 6

PROJECT DATE: 2019-09-20	DRAWN BY: JBR	No	DATE	REVISIONS	BY
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PROJECT NO. 14573015
SHEET 50PM6

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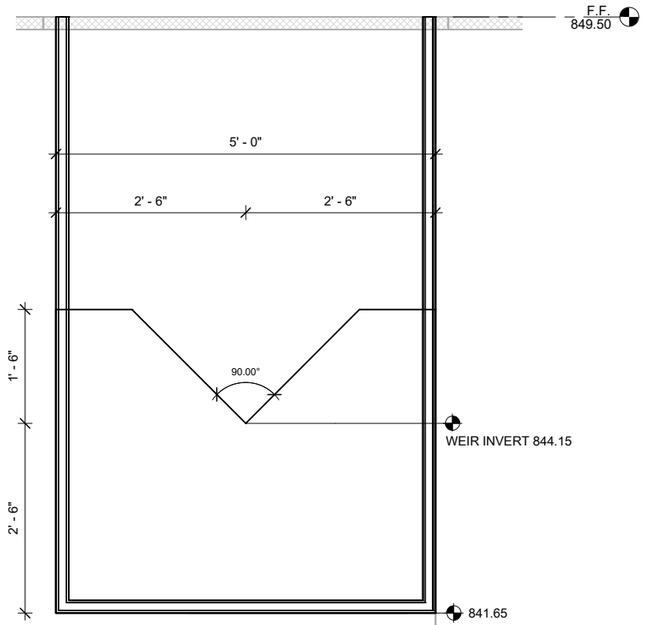
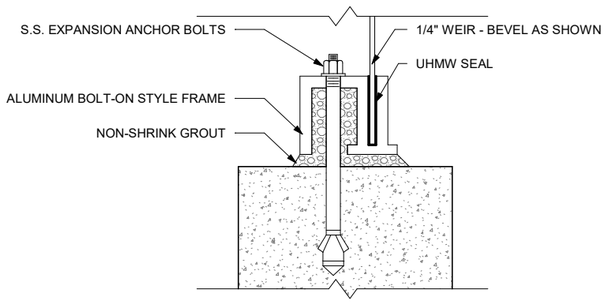
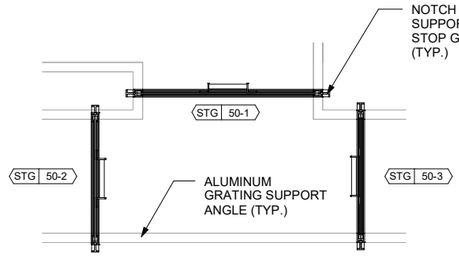


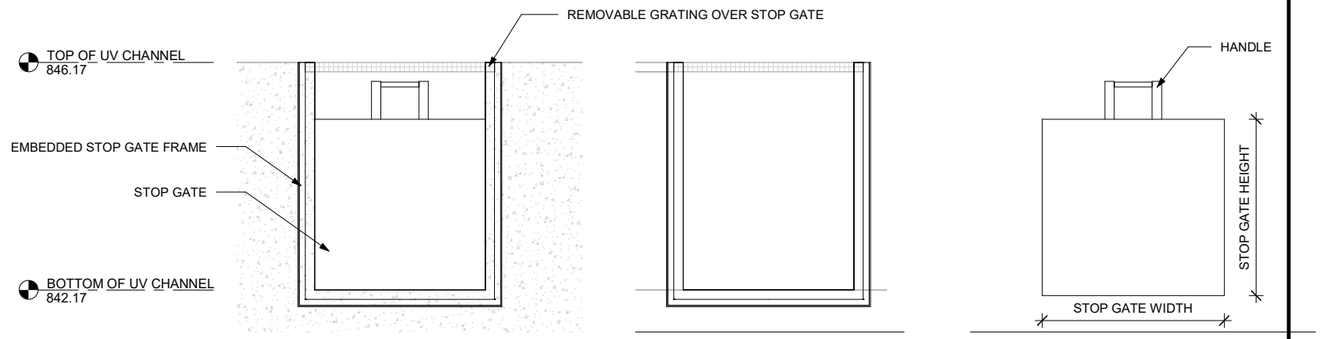
8 WEIR GATE DETAIL
50PM7 1" = 1'-0"



WEIR CONNECTION DETAIL (TOP VIEW)

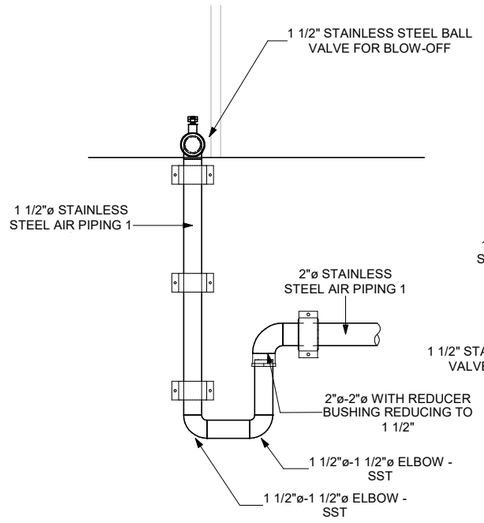


NOTES:
1. ALL AREAS OF FRAME IN CONTACT WITH CONCRETE/GROUT SHALL BE COATED WITH HEAVY COAT OF BITUMASTIC PAINT.
2. FRAMES AND STOP GATES TO BE CONSTRUCTED OF 6063-T6 AND 6061-T6 ALUMINUM ALLOY RESPECTIVELY.
3. FRAMES TO BE EMBEDDED IN CONCRETE. CONTRACTOR TO NOTCH CONCRETE TO INSTALL FRAME AND SEAL WITH NON-SHRINK GROUT IF NECESSARY.
4. FRAME TO HAVE UHMW SEAL ON BOTH SIDES OF GATE AND INVERT TO CONTAIN REPLACEABLE NEOPRENE FLUSH BOTTOM SEAL.
5. GATE FRAME TO EXTEND TO BOTTOM OF GRATING ANGLE SUPPORT.

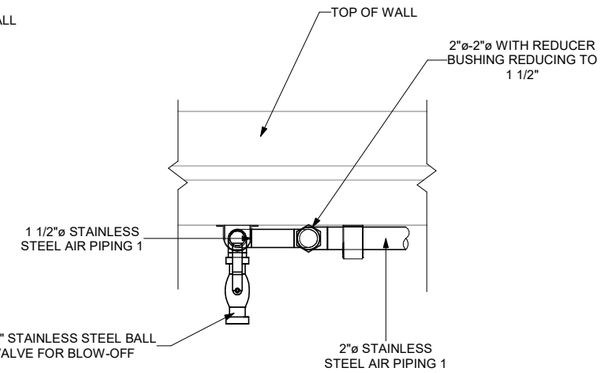


STOP GATE SCHEDULE

TAG ID	INVERT ELEV, FT	GUIDE HEIGHT	STOP GATE HEIGHT	STOP GATE WIDTH	OPENING DIRECTION	MOUNTING TYPE (INVERT)	MOUNTING TYPE (SIDES+TOP)
50-1	842.17	4' - 0"	3' - 0"	3' - 0"	UP	EMBEDDED	EMBEDDED
50-3	842.17	4' - 0"	3' - 0"	2' - 0"	UP	EMBEDDED	EMBEDDED
50-2	842.17	4' - 0"	3' - 0"	2' - 0"	UP	EMBEDDED	EMBEDDED



6 CONDENSATE BLOW-OFF DETAIL
50PM7 N.T.S.



7 CONDENSATE BLOW-OFF DETAIL - TOP VIEW
50PM7 N.T.S.

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UV BUILDING
PROCESS MECHANICAL DETAILS

PROJECT NO. 14573015
SHEET 50PM7

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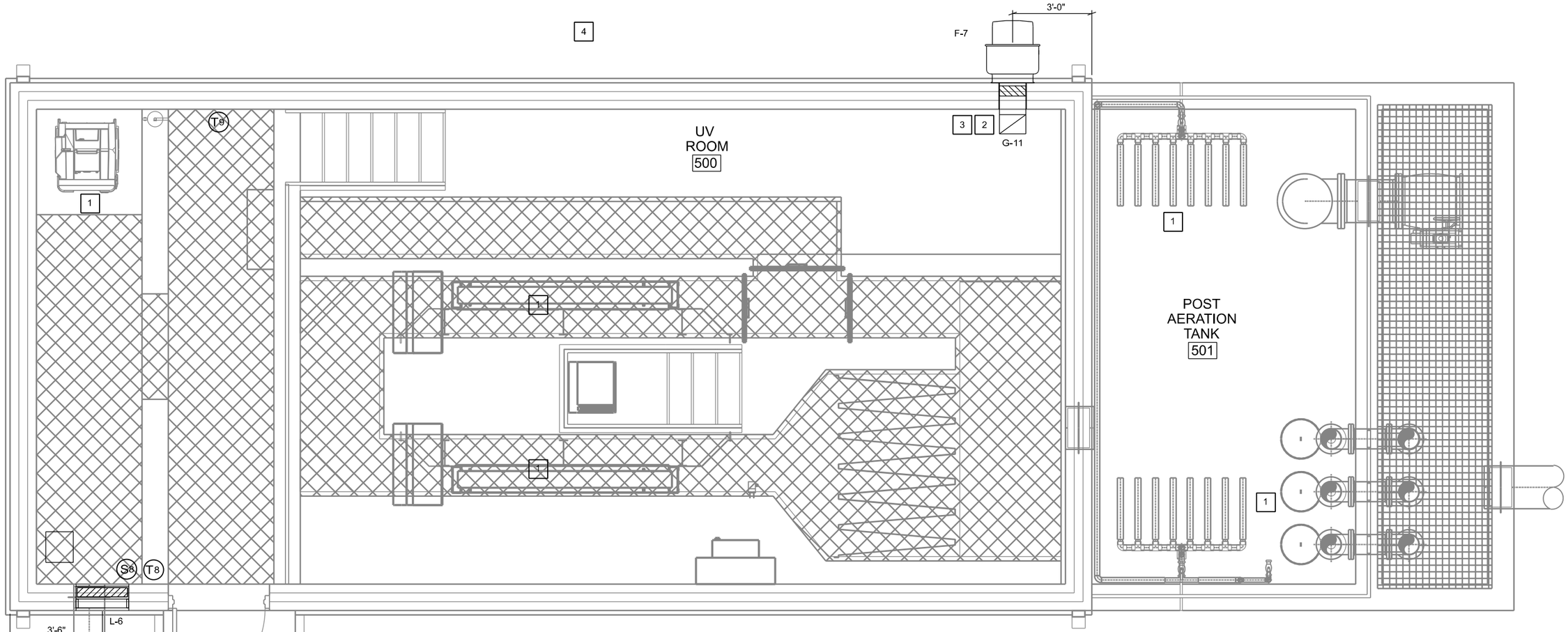

LEGEND

- DAMPER, ACTUATED
- DAMPER, BALANCE
- DAMPER, BACKDRAFT
- RETURN, EXHAUST DUCT (UPWARD FLOW)
- RETURN, EXHAUST DUCT (DOWNWARD FLOW)
- DUCT - SINGLE LINE
- 20/20 — DUCT SIZE - WIDTH/HEIGHT OR WIDTH/DEPTH
- 20/20(1500) — DUCT SIZE AND AIR FLOW (CFM)
- (S1) — SWITCH/SENSOR - ID NUMBER
- (T1) — THERMOSTAT - ID NUMBER

FAN SCHEDULE		
TAG		F-7
SERVICE		EXHAUST
LOCATION		500-WALL
MANUFACTURER		GREENHECK
MODEL		CW-101-VG
VOLUME (CFM)		1,000
EXTERNAL S.P. (IN. WG)		0.75
OPENING SIZE (WALL/ROOF)		12.5"x12.5"
FAN SIZE (DIA.xD)		24.9"x28.3"
ELECTRICAL		115/60/1
FAN RPM		1,624
FAN MOTOR	HP	1/4
	OPER. POWER (HP)	0.24
	AMPS	
	RPM	1,725
	DRIVE	DIRECT-TE
MOUNTING HEIGHT, CTR.		16'-8" A.F.F.
SHIPPING WEIGHT (LBS)		69
SEE REMARKS		1.3.5.6.8.9.12.13.
DAMPER	TAG	DF-7
	TYPE	GRAVITY
	MANUFACTURER	GREENHECK
	MODEL	WD-323-PB
	SIZE	12"x12"
	SEE REMARKS	7.8.

HEATER SCHEDULE		
TAG		H-8
LOCATION		500-WALL
TYPE		UNIT
MANUFACTURER		Q-MARK
MODEL, HEATER		IUH-748
REQ'D CAP (BTU/H)		16,000
UNIT CAP. (BTU/H)	INPUT	
	OUTPUT	25,600
CFM	TOTAL	270
	OUTSIDE	
TEMPERATURE RISE		85° F
FUEL TYPE		ELECTRIC
SIZE WIDExDEEPxHIGH	DUCT	
	HEATER	14"x12.4"x12.5"
ELECTRICAL	VOLT/HZ/PHASE	480/60/3
	HEATER, KW	7.5
	FLA @ 120V	
	MAX CIRCUIT AMPACITY	
FAN MOTOR	SIZE (HP)	
	KW	6 WATTS
	AMPS	9
	RPM	1,400
MOUNTING HEIGHT, BOT.		6'-0" A.F.F.
WEIGHT (LBS)		26
SEE REMARKS		4.5.

LOUVER SCHEDULE		
TAG		L-7
SERVICE		INTAKE
LOCATION		500-WALL
MANUFACTURER		GREENHECK
MODEL		ESJ-401
MATERIAL		ALUMINUM
VOLUME (CFM)		1,000
SIZE (WIDExHIGH)		24"x24"
DATA	FREE AREA, SF	1.72
	VELOCITY, FPM	691
	S.P. (" W.G.)	0.06
MOUNTING HEIGHT, TOP		7'-2" A.F.F.
SEE REMARKS		2.3.8.
DAMPER	TAG	DL-7
	TYPE	MOTORIZED
	MANUFACTURER	GREENHECK
	MODEL SERIES	KD-44
	SIZE	24"x24"
	S.P. (" W.G.)	
	SEE REMARKS	7.8.10.

GRILLE SCHEDULE	
TAG	G-11
SERVICE	EXHAUST
LOCATION	500-DUCT
VOLUME (CFM)	1,000
MANUFACTURER	PRICE
MODEL	80
MATERIAL	ALUMINUM
SIZE (WIDE x HIGH)	
DUCT SIZE (WIDE x HIGH)	14"x14"
SP (WC)	0.75"
THROW (FT)	
MOUNTING HEIGHT, TOP	18" A.F.F.
SEE REMARKS	8.

HVAC SCHEDULE REMARKS

1. ALUMINUM BIRD SCREEN.
2. ALUMINUM INSECT SCREEN.
3. KYNAR 500 FINISH.
4. MOUNTING BRACKET OR HARDWARE BY UNIT MFR.
5. SEE SPECIFICATIONS FOR SEQUENCE OF OPERATION.
6. PROVIDE MANUFACTURER SUPPLIED DISCONNECT.
7. HI-PRO POLYSTER COATING.
8. CORROSION RESISTANT FASTENERS AND CONSTRUCTION.
9. MANUFACTURER INTERNAL WIRING PIGTAIL.
10. FOR MILD WEATHER AND SUMMER USE ONLY.
11. PLC DIVISION 26 CONNECTION.

0 1 2 4

BOX NOTES

1. PROCESS EQUIPMENT AND PIPING - SEE PROCESS MECHANICAL
2. 14"x14" EXPANDED METAL INLET GRILLE (NO EXPOSED SHARP EDGES) -AT 18" AFF TRANSITION TO DUCT SIZE AFTER BALANCING DAMPER
3. ACCESS DOOR LOCATION FOR DAMPER
4. COMBUSTION AIR AND FLUE VENT. INSULATE PIPES FROM UNIT TO EXTERIOR WALL. PROVIDE HOODS.

PROJECT NO.: 14573015	SCALE: AS SHOWN	NO.	DATE	REVISION	BY
PROJECT DATE: 2020	DRAWN BY: CWW				
CHECKED BY: JM					
PLOT DATE:					

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HVAC PLAN

FILE NO. 14573015
SHEET 50H1

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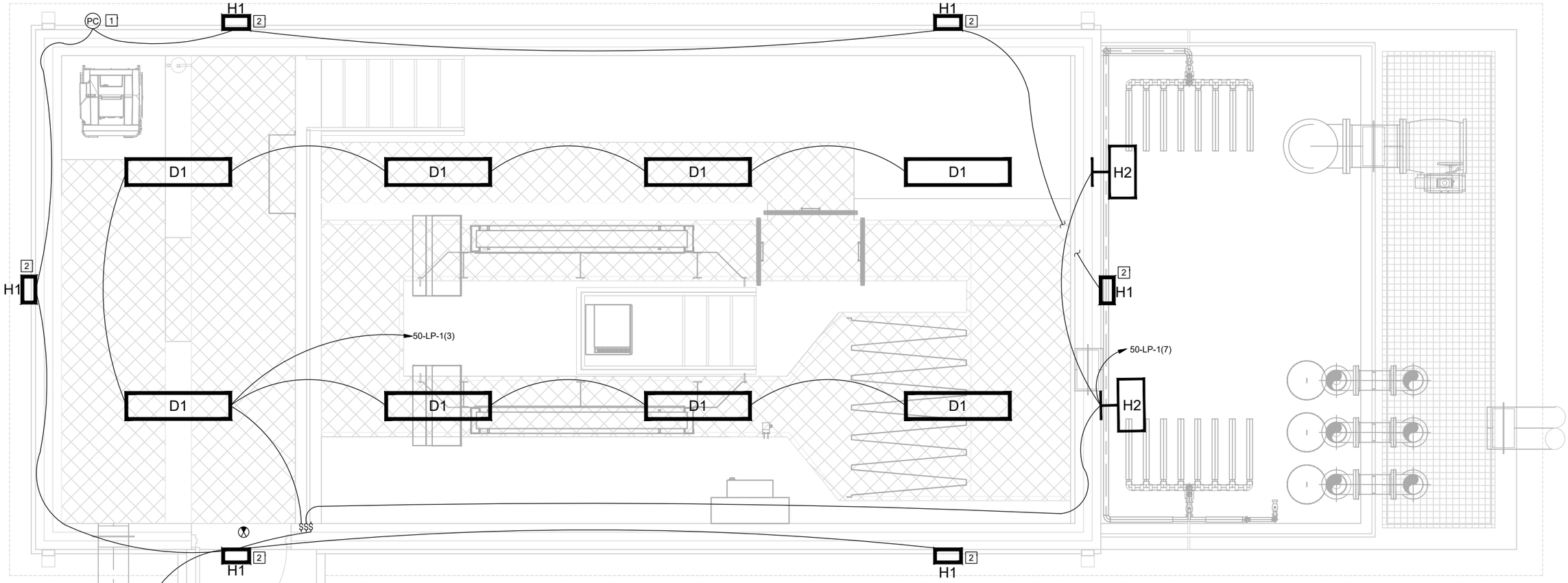

UV BUILDING LIGHTING PLAN

0 1' 2' 4'

1/2" = 1'-0" (22X34)
1/4" = 1'-0" (11X17)

GENERAL NOTES:

1. DO NOT SCALE DRAWINGS. IF DIMENSIONS ARE IN QUESTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATION FROM ENGINEER PRIOR TO PROCEEDING WITH WORK.
2. HOMERUN WIRING SHALL BE (2)#12 & #12G UNLESS NOTED OTHERWISE, REFER TO ONE-LINE DIAGRAM.
3. MINIMUM CONDUIT SIZE 3/4" UNLESS OTHERWISE NOTED.
4. CEILING MOUNT INTERIOR FIXTURES.
5. MOUNT EXTERIOR "H1" FIXTURE AT 9'-0" ABOVE GRADE.
6. MOUNT EXTERIOR "H2" FIXTURES AT SAME LEVEL AS "H1" FIXTURES.
7. ROOM/AREA ATMOSPHERE REQUIREMENTS, REFER TO SECTION 26 05 00:
   - 7.1. EXTERIOR, ABOVE GRADE: GENERAL, WET, NEW CONSTRUCTION.
   - 7.2. EXTERIOR, BELOW GRADE: UNDERGROUND, WET, NEW CONSTRUCTION.
   - 7.3. UV ROOM: GENERAL, DAMP, NEW CONSTRUCTION.

KEY NOTES: [X]

1. PROVIDE PHOTOCELL TO CONTROL EXTERIOR FIXTURES WHERE NOTED, TORK #2001 OR EQUAL.
2. EXTERIOR FIXTURE SHALL BE CONTROLLED BY SWITCH AND PHOTOCELL. WIRE SWITCH AND PHOTOCELL IN SERIES SUCH THAT PHOTOCELL OPERATES FIXTURES WHEN SWITCH IS ON.

PROJECT DATE: 2019-09-20	SCALE: AS SHOWN	NO.	DATE	REVISION	BY
	DRAWN BY: LET				
F.B. :	CHECKED BY: RJJ				
PLOT DATE: 7/1/2020					

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FILE NO. 14573015
SHEET 50E1

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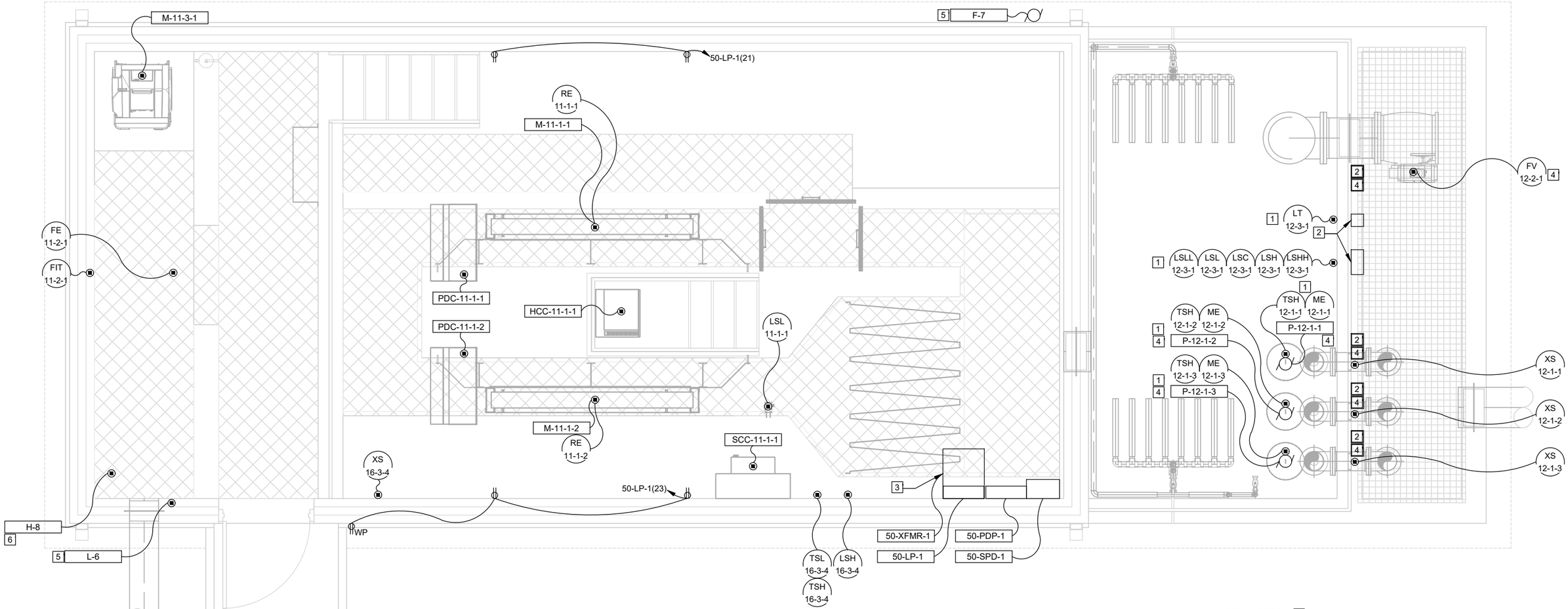

UV BUILDING ELECTRICAL PLAN

0 1' 2' 4'

1/2" = 1'-0" (22X34)
1/4" = 1'-0" (11X17)

GENERAL NOTES:

1. DO NOT SCALE DRAWINGS. IF DIMENSIONS ARE IN QUESTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATION FROM ENGINEER PRIOR TO PROCEEDING WITH WORK.
2. THE PRIMARY OVERCURRENT PROTECTIVE DEVICES AND ASSOCIATED FEEDER CONDUCTORS FOR DRY TYPE TRANSFORMERS SHOWN ON THIS DRAWING ARE SIZED FOR 125% OF THE TRANSFORMER NAMEPLATE PRIMARY CURRENT. IF THE CONTRACTOR ELECTS TO SUPPLY TRANSFORMERS THAT REQUIRE HIGHER RATED PRIMARY OVERCURRENT PROTECTIVE DEVICES TO ACCOUNT FOR HIGHER INRUSH CHARACTERISTICS, THEN THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING OVERCURRENT PROTECTIVE DEVICES AND FEEDERS THAT COMPLY WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS. REFER TO SPECIFICATIONS.
3. DIRECT BURIED CONDUITS INSTALLED PER DETAIL (2605-310).
4. CONDUIT WALL AND FLOOR PENETRATIONS PER DETAIL (2605-305)
5. HOMERUN WIRING SHALL BE (2)#12 & #12G UNLESS NOTED OTHERWISE, REFER TO ONE-LINE DIAGRAM.
6. REFER TO FEEDER SCHEDULES, ONE LINE DIAGRAMS, PROCESS AND INSTRUMENTATION WIRING SCHEDULES FOR WIRING REQUIREMENTS
7. MINIMUM CONDUIT SIZE 3/4" UNLESS OTHERWISE NOTED.
8. ROOM/AREA ATMOSPHERE REQUIREMENTS, REFER TO SECTION 26 05 00:
   - 8.1. EXTERIOR, ABOVE GRADE: GENERAL, WET, NEW CONSTRUCTION.
   - 8.2. EXTERIOR, BELOW GRADE: UNDERGROUND, WET, NEW CONSTRUCTION.
   - 8.3. UV BUILDING: GENERAL, DAMP, NEW CONSTRUCTION.

KEY NOTES: [X]

1. PROVIDE J-BOX / SPLICE BOXES FOR PUMP CABLES, VALVES, AND INSTRUMENTATION IN ACCORDANCE WITH DETAIL (2605-606)
2. WALL MOUNTED J-BOX BOX IN ACCORDANCE WITH DETAIL (2690- 900)
3. WALL MOUNTED TRANSFORMER IN ACCORDANCE WITH DETAIL (2624-100)
4. PROVIDE WALL MOUNTED NEMA 4X LOCAL DISCONNECT FOR EQUIPMENT.
5. INTERLOCK L-6 WITH EXHAUST FAN F-7 IN ACCORDANCE WITH FUNCTIONAL DESCRIPTIONS, HVAC SEQUENCE OF OPERATIONS, AND AS SHOWN.
6. PROVIDE 3-#12, AND #12 GROUND IN 3/4" CONDUIT FROM 50-PDP-1 TO H-8

PROJECT DATE: 2019-09-20	SCALE: AS SHOWN	NO.	DATE	REVISION	BY
	DRAWN BY: LET				
F.B. :	CHECKED BY: RJJ				
PLOT DATE: 7/1/2020					

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UV BUILDING ELECTRICAL PLAN

FILE NO. 14573015
SHEET 50E2

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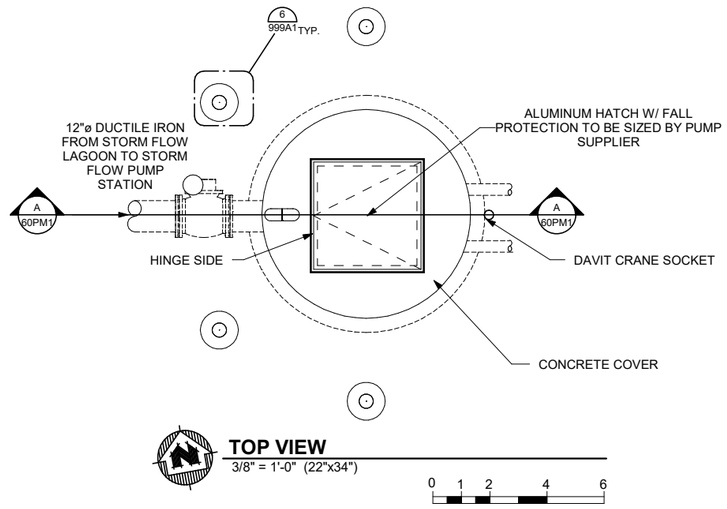
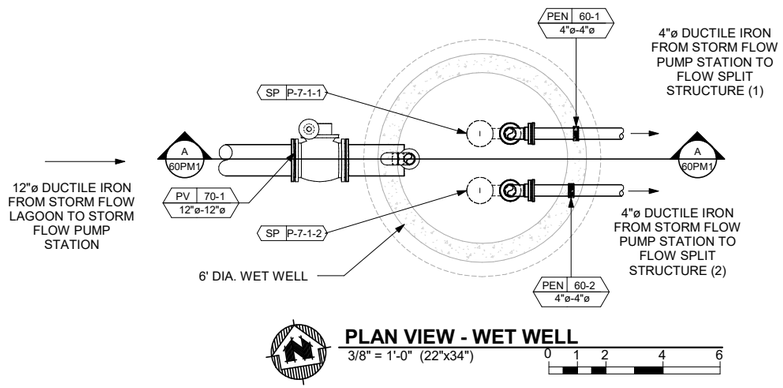
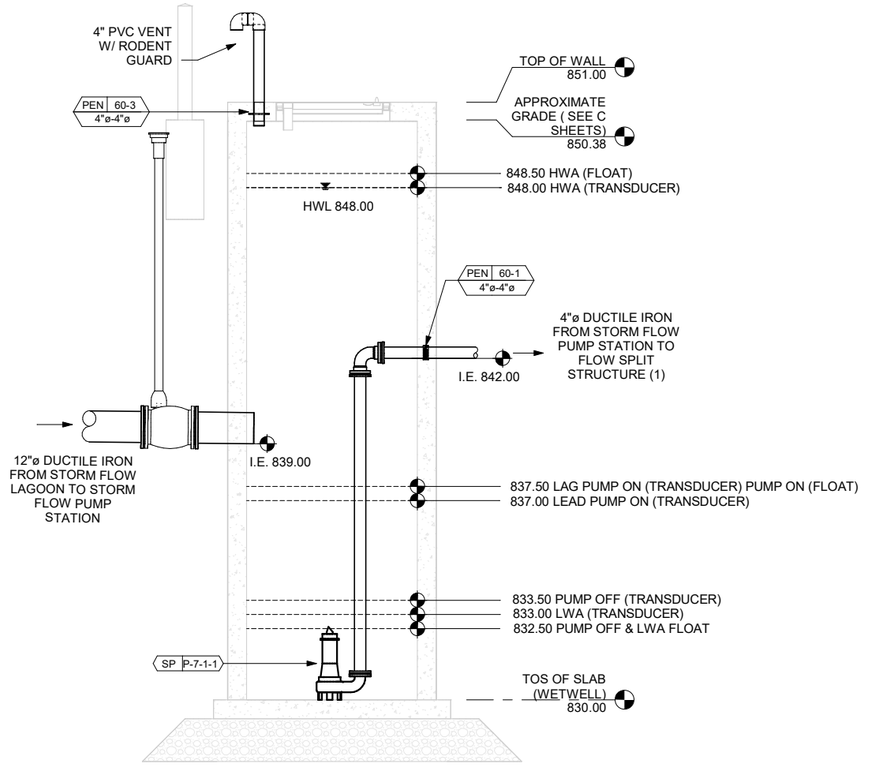


TOP VIEW
3/8" = 1'-0" (22"x34")
0 1 2 4 6



PLAN VIEW - WET WELL
3/8" = 1'-0" (22"x34")
0 1 2 4 6



A CROSS-SECTION
60PM1 3/8" = 1'-0" (22"x34")
0 1 2 4 6

PIPE PENETRATION

TAG ID	TYPE	PIPE MATERIAL	DESCRIPTION	PIPE SIZE
60-1	TYPE K	DUCTILE IRON	FROM STORM FLOW PUMP STATION TO FLOW SPLIT STRUCTURE (1)	4"ø-4"ø
60-2	TYPE K	DUCTILE IRON	FROM STORM FLOW PUMP STATION TO FLOW SPLIT STRUCTURE (2)	4"ø-4"ø
60-3	TYPE A	PVC	VENT PIPE	4"ø-4"ø

PUMP SCHEDULE

TAG ID	TYPE	COMMENTS
P-7-1-1	SUBMERSIBLE PUMP	
P-7-1-2	SUBMERSIBLE PUMP	

			No	DATE	REVISIONS	BY
PROJECT DATE:	2019-09-20	DRAWN BY: JBR				
		DESIGNED BY: JBR				
		CHECKED BY: JEM				

PLOT DATE: 8/11/2020 12:03:51 PM , BIM 360://Elk Run Heights WWTF Design/14573015 - STORM FLOW PUMP STATION.rvt

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BLACK HAWK COUNTY, IOWA

STORM FLOW RETURN PUMP STATION
PROCESS MECHANICAL

PROJECT NO. 14573015
SHEET 60PM1

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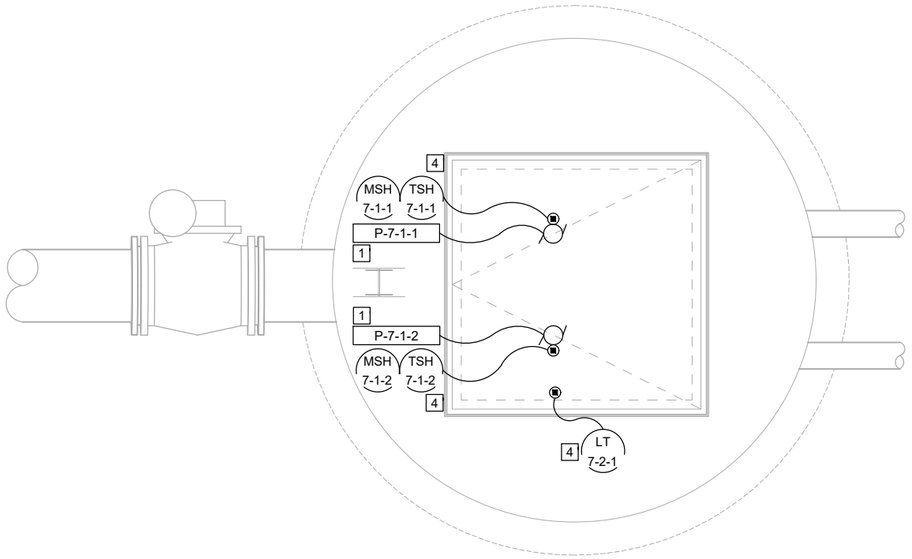
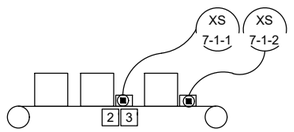
GENERAL NOTES:

1. DO NOT SCALE DRAWINGS. IF DIMENSIONS ARE IN QUESTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATION FROM ENGINEER PRIOR TO PROCEEDING WITH WORK.
2. DIRECT BURIED CONDUITS INSTALLED PER DETAIL (2605-310)
3. CONDUIT WALL AND FLOOR PENETRATIONS PER DETAIL (2605-305)
4. HOMERUN WIRING SHALL BE (2)#12 & #12G UNLESS NOTED OTHERWISE, REFER TO ONE-LINE DIAGRAM.
5. MINIMUM CONDUIT SIZE 3/4" UNLESS OTHERWISE NOTED.
6. ROOM/AREA ATMOSPHERE REQUIREMENTS, REFER TO SECTION 26 05 00:
   - 6.1. EXTERIOR, ABOVE GRADE: GENERAL, WET, NEW CONSTRUCTION.
   - 6.2. EXTERIOR, BELOW GRADE: UNDERGROUND, WET, NEW CONSTRUCTION.
   - 6.3. H-FLUME: GENERAL, WET, NEW CONSTRUCTION.
   - 6.4. STORM FLOW PUMP STATION: GENERAL, WET, NEW CONSTRUCTION.

BOX NOTES: [X]

1. PROVIDE NEMA 4X LOCAL DISCONNECT FOR EQUIPMENT.
2. PROVIDE EQUIPMENT RACK CONSTRUCTED IN ACCORDANCE WITH DETAIL (2605-400)
3. COORDINATE LOCATION OF EQUIPMENT RACK WITH OWNER AND FIELD CONDITIONS.
4. PROVIDE J-BOX FOR INSTRUMENTATION AND PUMP MONITORING EQUIPMENT IN ACCORDANCE WITH DETAIL (2605-606). MOUNT J-BOX'S ON EQUIPMENT RACK.





STORM FLOW PUMP STATION ELECTRICAL PLAN

0 1' 2' 4'

1/2" = 1'-0" (22X34)
1/4" = 1'-0" (11X17)

PROJECT DATE: 2019-09-20	SCALE: AS SHOWN	NO.	DATE	REVISION	BY
	DRAWN BY: LET				
F.B. :	CHECKED BY: RJJ				
PLOT DATE: 7/1/2020					

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STORM FLOW PUMP STATION ELECTRICAL PLAN

FILE NO. 14573015
SHEET 60E1

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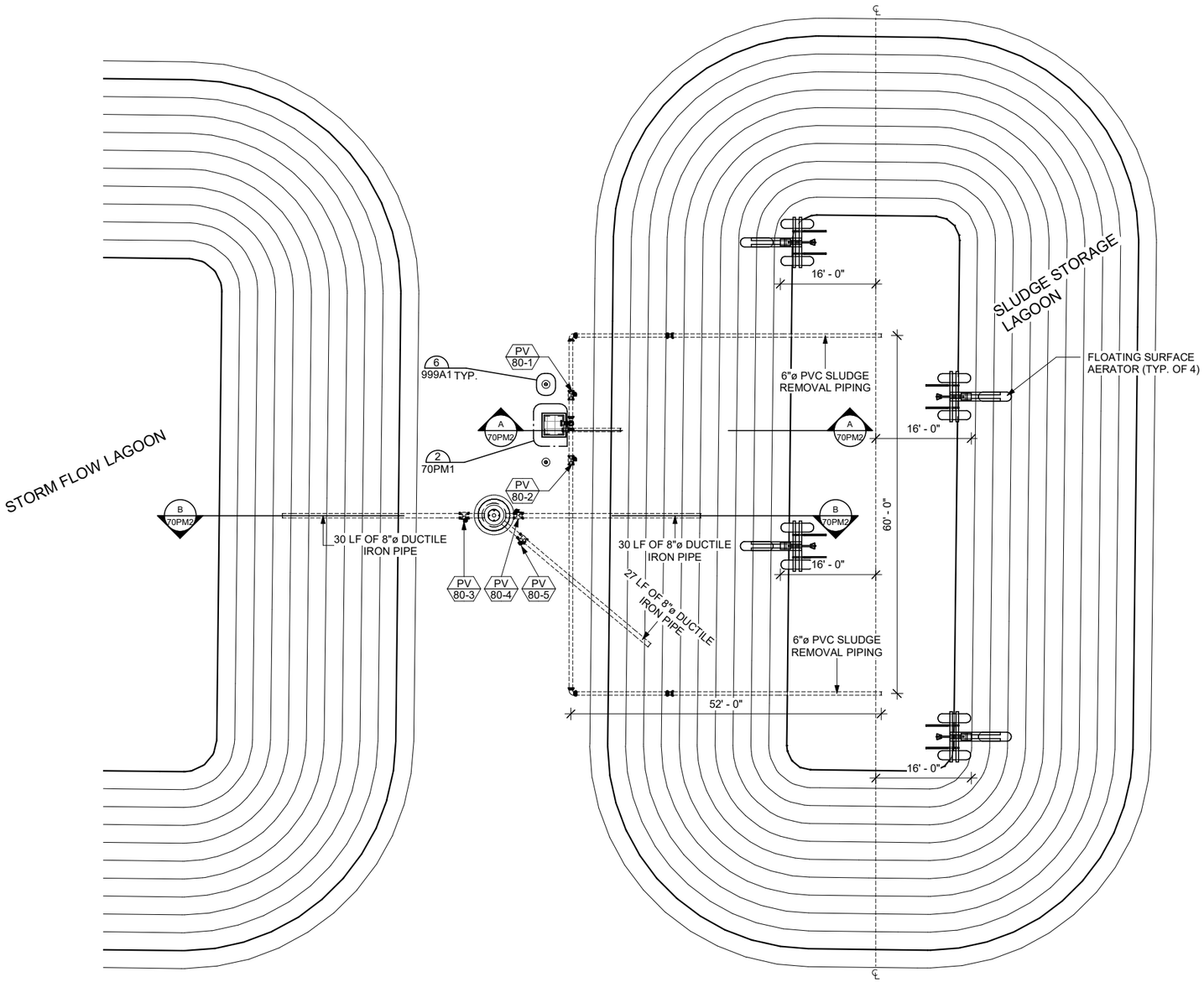
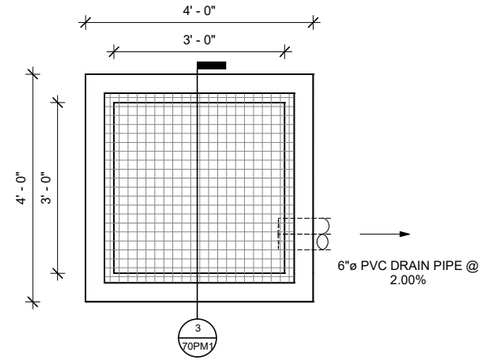
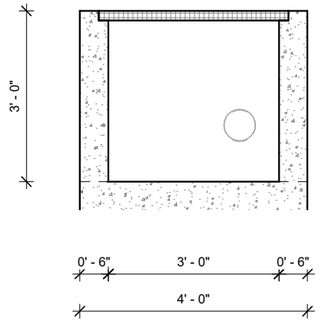


PLAN VIEW
3/32" = 1'-0" (22"x34")

0 2 4 8 12



2 AREA DRAIN INLET DETAIL - PLAN VIEW
2 70PM1 3/4" = 1'-0" (22"x34")



3 AREA DRAIN INLET DETAIL - CROSS-SECTION
3 70PM1 3/4" = 1'-0" (22"x34")

AREA DRAIN INLET DETAIL NOTES:

1. SEE PLANS FOR SIZE, NUMBER, AND LOCATION OF PIPES.
2. DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE SPECIFICATIONS.
3. DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.
4. ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO M 199.
5. PRECAST REINFORCED BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 8 INCHES IN DEPTH. THE MATERIALL SHALL MEET THE REQUIREMENTS FOR GRANULAR BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.
6. ALL BAR STEEL AND WELDED WIRE FACBRIC REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

PROJECT DATE: 2020-08-13		No	DATE	REVISIONS	BY
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	CHECKED BY: JEM				

PLOT DATE: 8/11/2020 11:46:48 AM , BIM 360://Elk Run Heights WWTF Design/14573015 - SLUDGE LAGOON& SUPERNATANT RETURN STRUCTURE.rvt

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PROCESS MECHANICAL

PROJECT NO. 14573015
SHEET 70PM1

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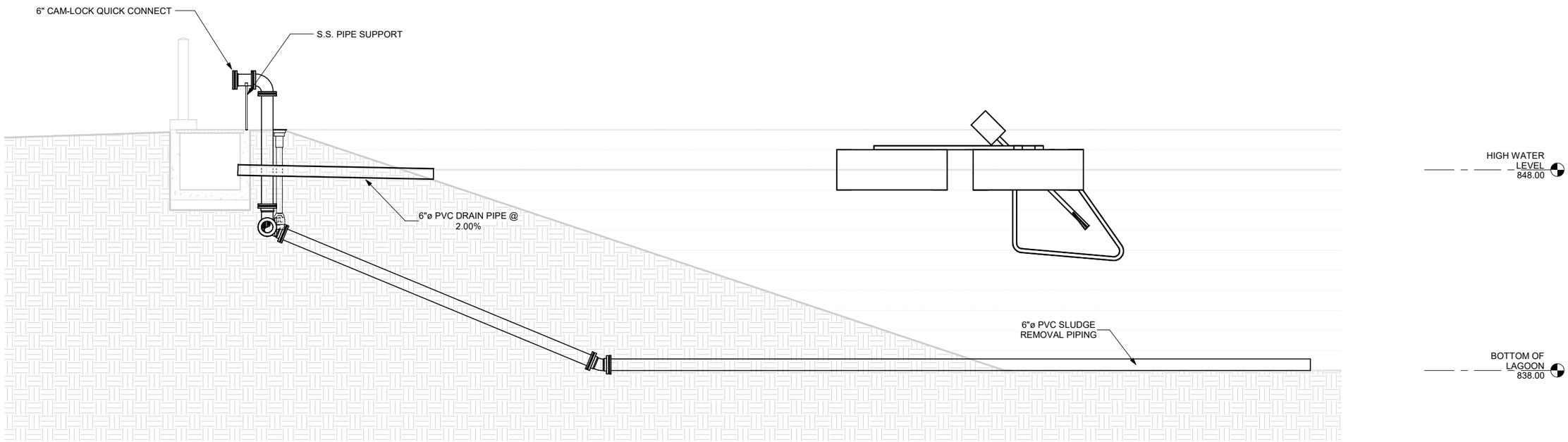
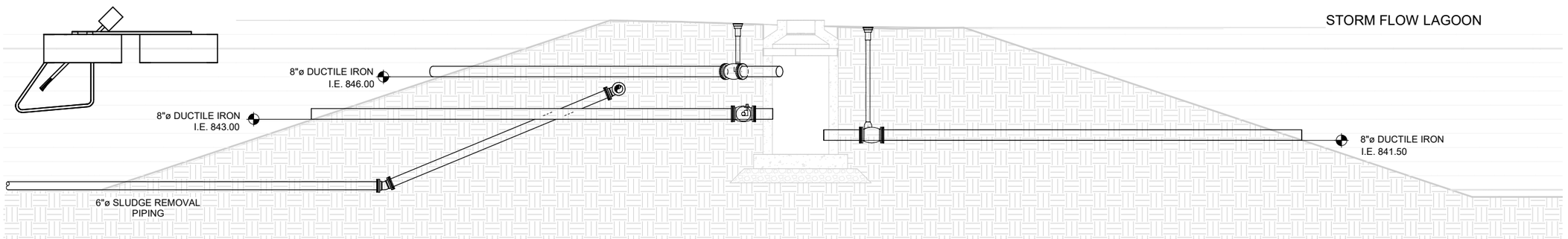


A **CROSS-SECTION**
70PM2 3/8" = 1'-0" (22"x34")

0 1 2 4 6



B **CROSS-SECTION**
70PM2 1/4" = 1'-0" (22"x34")

0 2 4 8

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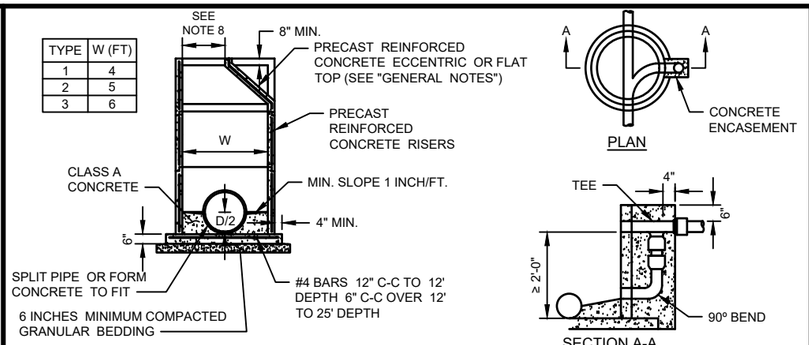
PROCESS MECHANICAL

PROJECT NO. 14573015
SHEET 70PM2

Return to Agenda

SANITARY SEWER NOTES

1. CONTRACTOR SHALL PROVIDE AND MAINTAIN ALL PROPER BARRICADES, LIGHTS, SIGNAGE AND WATCHMEN, OR OTHER TRAFFIC CONTROL MEASURES NECESSARY TO PROPERLY PROTECT PERSONS, ANIMALS AND PROPERTY DURING ALL SANITARY SEWER AND FORCE MAIN CONSTRUCTION.
2. ALL OPEN CUT TRENCHES SHALL BE PROTECTED IN ACCORDANCE WITH APPLICABLE RULES, LAWS AND REGULATIONS OF FEDERAL, STATE AND MUNICIPAL ORDINANCES, BUT SHALL NOT BE LESS THAN THE STANDARDS AND REGULATIONS ESTABLISHED BY THE DEPARTMENT OF LABOR, OSHA 29 CFR, PART 1926.
3. ALL OPEN TRENCHES SHALL BE BACK FILLED AT THE END OF EACH WORKING DAY, UNLESS THE TRENCH IS SUITABLY BARRICADED IN ACCORDANCE WITH THE STANDARDS AND REGULATIONS ESTABLISHED BY THE DEPARTMENT OF LABOR, OSHA 29 CFR, PART 1926.
4. INSTALL ALL BOUNDARY SILT FENCE AND EROSION BALES FOR EROSION CONTROL IN ACCORDANCE WITH THE CONSTRUCTION DRAWINGS, AND THE IOWA DEPARTMENT OF NATURAL RESOURCES, IOWA CONSTRUCTION SITE EROSION CONTROL MANUAL, CURRENT EDITION. INSTALL ALL BOUNDARY SILT FENCE PRIOR TO ANY CONSTRUCTION WORK.
5. SANITARY SEWER SHALL BE CONSTRUCTED WITH COVER INDICATED. INSTANCES WHERE COVER CANNOT BE PROVIDED DUE TO PHYSICAL CONSTRAINTS OR CONFLICTS SHALL BE EVALUATED AND MODIFIED BY THE ENGINEER.
6. CONTRACTOR SHALL PERFORM LOW PRESSURE AIR AND DEFLECTION TESTS FOR ACCEPTANCE IN THE PRESENCE OF THE ENGINEER, IN ACCORDANCE WITH THE GREAT LAKES-UPPER MISSISSIPPI RIVER BOARD OF STATE AND PROVISIONAL PUBLIC HEALTH AND ENVIRONMENTAL MANAGERS DESIGN STANDARDS, CURRENT EDITION. (TEN STATES STANDARDS)
7. ALL SANITARY SEWER AND LATERAL CONNECTIONS SHALL BE IN ACCORDANCE WITH THE TEN STATES STANDARDS.



TYPE	W (FT)
1	4
2	5
3	6

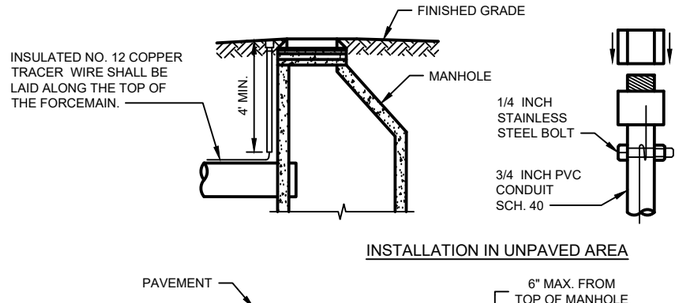
DROP ASSEMBLY DETAIL

GENERAL NOTES:

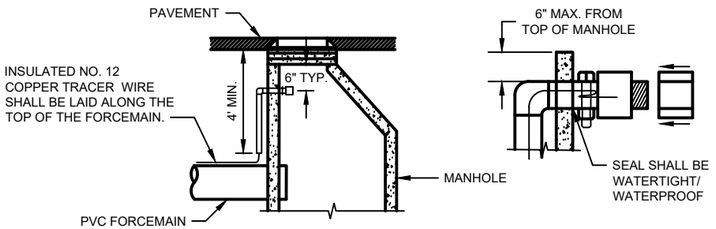
1. DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING AND THE APPLICABLE SPECIAL CONDITIONS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS.
2. DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.
3. PRECAST REINFORCED BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS FOR GRANULAR BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.
4. ECCENTRIC CONE TOPS SHALL BE USED ON ALL STRUCTURES 5 FEET OR GREATER IN DEPTH, AND FLAT TOPS SHALL BE USED ONLY ON STRUCTURES LESS THAN 5 FEET IN DEPTH, UNLESS DIRECTED BY THE ENGINEER.
5. PRECAST REINFORCED CONCRETE RISERS MAY BE PLACED WITH TONGUE UP OR DOWN.
6. ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M 199.
7. DROP CONNECTIONS SHALL BE USED WHEN THE PIPE INVERT IS MORE THAN 2 FEET ABOVE THE MANHOLE INVERT. PRECAST STRUCTURE MANWAY CLEAR OPENING SHALL MATCH CASTING - REFER TO STANDARD SPECIFICATION
8. DIVISION 33 AND THE APPLICABLE SPECIAL CONDITIONS.
   - OPENING SHALL BE 24" FOR R-1550 CASTINGS
   - OPENING SHALL BE 27" FOR R-1642 CASTINGS
9. DROP CONNECTION AND ASSEMBLY SHALL BE CONSTRUCTED WITH DUCTILE IRON PIPE.

PRECAST REINFORCED CONCRETE MANHOLE DETAIL

NO SCALE



INSTALLATION IN UNPAVED AREA



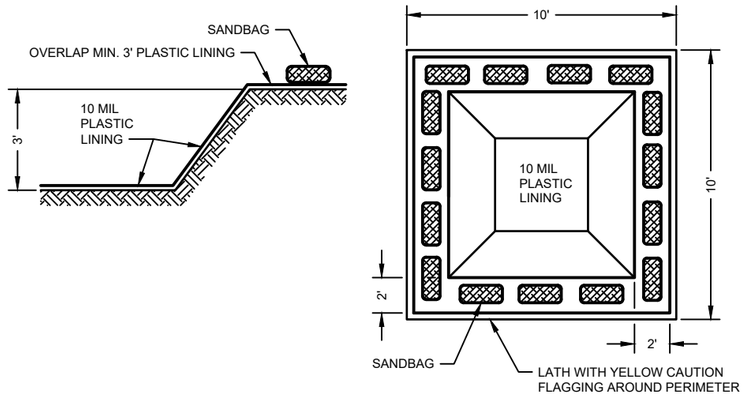
INSTALLATION IN PAVED AREA

GENERAL NOTES:

1. THE TRACER WIRE SHALL REMAIN CONTINUOUS TO THE GREATEST EXTENT POSSIBLE.
2. A THREADED, FEMALE PVC SCHEDULE 40 PLUG AND MALE COUPLING GLUED TO 3/4 INCH SCHEDULE 40 SHALL BE INSTALLED IN OR ADJACENT TO THE VALVE VAULT AND MANHOLE.
3. WIRE PIGTAIL SHALL BE WRAPPED AROUND BOLT AND READILY ACCESSIBLE, WITH SUFFICIENT LENGTH FOR EASY CONNECTION.

TRACER WIRE INSTALLATION FOR PVC FORCEMAIN

NO SCALE

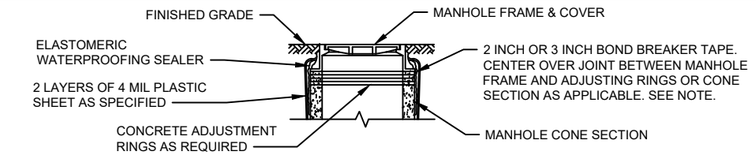


NOTES:

1. WASHOUT FACILITY SHALL NOT BE LOCATED WITHIN 50-FT UPSTREAM OF STORM DRAINS, OPEN DITCHES OR WATER BODIES.
2. WASHOUT FACILITIES MUST BE CLEANED OR NEW FACILITIES CONSTRUCTED ONCE THE FACILITY IS 75% FULL. HARDENED CONCRETE SHALL BE REMOVED AND DISPOSED OF. IF THE FACILITY IS TO BE REUSED, LINE THE STRUCTURE WITH NEW 10 MIL POLYETHYLENE SHEETING FREE OF HOLES OR TEARS.
3. A SIGN SHALL BE POSTED ADJACENT TO THE FACILITY TO INFORM CONCRETE EQUIPMENT OPERATORS OF THE FACILITY. THE JOB SITE SUPERINTENDENT SHALL ENSURE THAT CONCRETE EQUIPMENT OPERATORS USE THE WASHOUT FACILITY.
4. IF NECESSARY, A CRUSHED STONE PATH SHALL BE CONSTRUCTED TO PROVIDE EASE OF ACCESS FOR EQUIPMENT.
5. WHEN THE FACILITY IS NO LONGER REQUIRED, THE HARDENED CONCRETE SHALL BE REMOVED AND DISPOSED OF, THE MATERIALS USED TO CONSTRUCT THE FACILITY SHALL BE REMOVED, AND THE HOLE BACKFILLED AND THE SURROUNDING AREA REPAIRED.

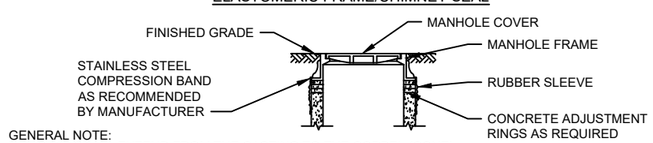
CONCRETE WASHOUT DETAIL

NO SCALE



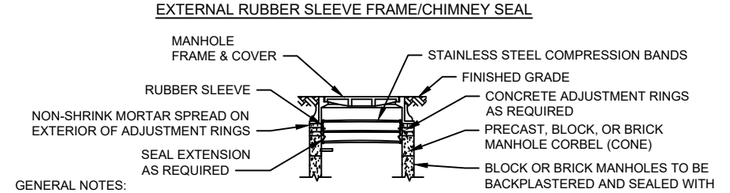
THE BOND BREAKER TAPE IS TO PREVENT THE SEALER FROM BONDING TO THE EDGE OF THE FLANGE OF THE MH FRAME AND THE UPPER 1-1/2 INCHES OF ADJUSTING RING OR CONE. IF THE EDGE OF FLANGE IS NOT FLUSH WITH ADJUSTING RING OR CONE, APPLY ADDITIONAL TAPE AS REQUIRED TO PREVENT SUCH BONDING.

ELASTOMERIC FRAME/CHIMNEY SEAL



GENERAL NOTE:
THE SEAL SHALL EXTEND FROM THE CASTING TO THE CORBEL (CONE). SEAL EXTENSIONS SHALL BE USED AS REQUIRED.

EXTERNAL RUBBER SLEEVE FRAME/CHIMNEY SEAL



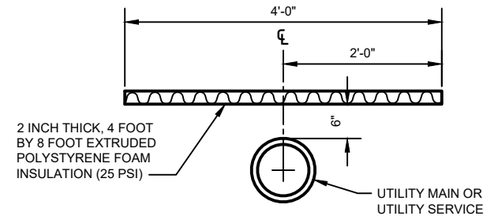
GENERAL NOTES:

1. THE SEAL SHALL EXTEND FROM THE CASTING TO THE CORBEL (CONE), SEAL EXTENSIONS SHALL BE USED AS REQUIRED.
2. AN INTERNAL ADAPTOR SEAL RING MAY BE USED IN LIEU OF THE RUBBER SLEEVE. THE INTERNAL ADAPTOR SEAL RING SHALL BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.

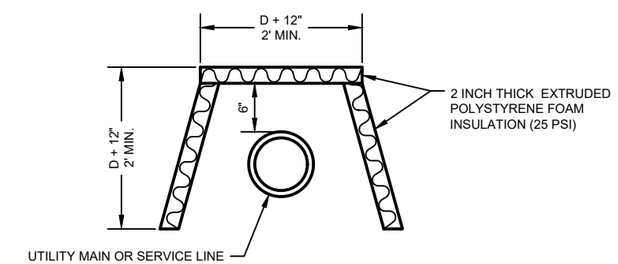
INTERNAL RUBBER SLEEVE FRAME/CHIMNEY SEAL

MANHOLE WATERPROOFING DETAIL

NO SCALE



STANDARD INSTALLATION



SIDE PROTECTION INSTALLATION

GENERAL NOTES:

1. THE SIDE PROTECTION INSTALLATION SHALL BE USED WHERE FROST WILL PENETRATE BELOW THE PIPE INVERT.

PIPE INSULATION DETAIL

NO SCALE

		NO.	DATE	REVISION	BY
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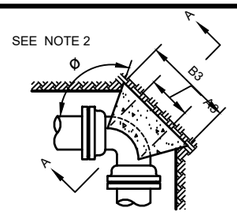
BLACK HAWK COUNTY, IOWA

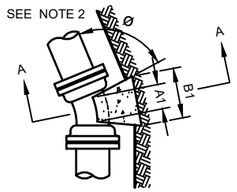
CIVIL DETAILS

PROJECT NO. 14573015
SHEET 999C1

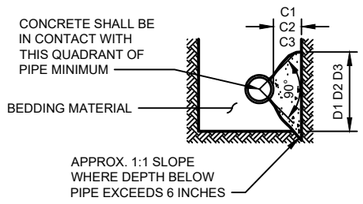
Return to Agenda



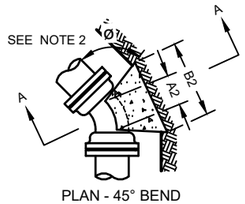
PLAN - 90° BEND



PLAN - 22 ½° BEND



SECTION A-A



PLAN - 45° BEND

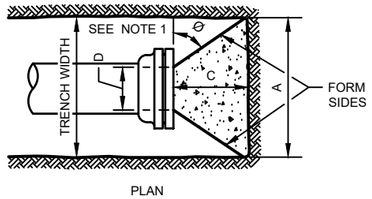
NOTES:

1. DIMENSIONS IN TABLE ARE BASED ON A WATER PRESSURE OF 150 P.S.I. AND AN EARTH RESISTANCE OF 2 TONS PER SQ. FT. INFORM THE ENGINEER IF PRESSURES EXCEED 150 PSI, OR ON-SITE SOIL DOES NOT MEET THIS CONDITION.
2. DIMENSION C1 C2 C3 SHOULD BE LARGE ENOUGH TO MAKE ANGLE Ø EQUAL TO OR LARGER THAN 45°.
3. DIMENSION A1 A2 A3 SHOULD BE AS LARGE AS POSSIBLE WITHOUT INTERFERING WITH THE MECHANICAL JOINT.
4. BUTTRESS TO BE POURED AGAINST FIRM UNDISTURBED SOIL, OR DISTURBED SOIL COMPACTED TO 95% OF MODIFIED PROCTOR DENSITY, ASTM D1557.
5. ALL BUTTRESSED FITTINGS SHALL BE WRAPPED IN POLYETHYLENE.
6. CONCRETE SHALL HAVE A MINIMUM 7-DAY COMPRESSIVE STRENGTH OF 2000 PSI.
7. IN ADDITION TO BUTTRESS, ALL JOINTS SURROUNDING BENDS SHALL BE RESTRAINED WITH WEDGE ACTION RESTRAINING GLANDS.

BUTTRESS DIMENSIONS						
PIPE SIZE	22 ½° BENDS		45° BENDS		90° BENDS	
	B1	D1	B2	D2	B3	D3
6"	1'-0"	1'-0"	1'-0"	1'-0"	1'-4"	1'-2"
8"	1'-0"	1'-0"	1'-4"	1'-2"	1'-10"	1'-6"
10"	1'-2"	1'-2"	1'-7"	1'-7"	2'-3"	1'-10"
12"	1'-4"	1'-4"	1'-10"	1'-10"	2'-8"	2'-3"
16"	1'-10"	1'-8"	2'-6"	2'-4"	3'-10"	2'-10"
20"	2'-4"	2'-0"	3'-3"	2'-10"	5'-0"	3'-4"
24"	2'-10"	2'-4"	4'-0"	3'-3"	6'-4"	3'-10"

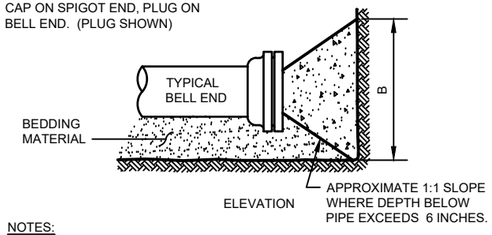
BUTTRESS FOR BENDS DETAIL

NO SCALE



PLAN

CAP ON SPIGOT END, PLUG ON BELL END. (PLUG SHOWN)



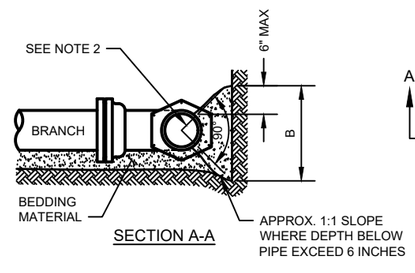
BUTTRESS DIMENSIONS				
DIA.	A	B	C	D
6"	1'-6"	1'-2"	SEE NOTE NO. 1	SEE NOTE NO. 2
8"	2'-0"	1'-4"		
12"	2'-5"	1'-10"		
16"	3'-4"	2'-4"		
20"	4'-3"	2'-10"		
24"	5'-2"	3'-4"		
30"	6'-9"	4'-0"		

NOTES:

1. DIMENSION 'C' SHOULD BE LARGE ENOUGH TO MAKE ANGLE Ø EQUAL TO OR LARGER THAN 45°.
2. DIMENSION 'D' EQUALS APPROX. I.D. OF PIPE LESS 2 INCHES. THE CONCRETE SHOULD NOT INTERFERE WITH THE MECHANICAL JOINTS.
3. WHERE BUTTRESSES ARE NOT POSSIBLE BECAUSE OF POOR SOIL CONDITIONS OR LACK OF ROOM, WEDGE ACTION RESTRAINING GLANDS SHALL BE PERMITTED.
4. BUTTRESS DIMENSIONS ARE BASED ON A SOIL RESISTANCE OF TWO TONS PER SQ. FT. AND A WATER PRESSURE OF 150 PSI. INFORM THE ENGINEER IF ON-SITE SOIL DOES NOT MEET THIS CONDITION OR PRESSURES EXCEED 150 PSI.
5. BUTTRESS TO BE POURED AGAINST FIRM UNDISTURBED SOIL, OR DISTURBED SOIL COMPACTED TO 95% OF MODIFIED PROCTOR DENSITY, ASTM D1557.
6. CONCRETE SHALL HAVE A MINIMUM 7-DAY COMPRESSIVE STRENGTH OF 2000 PSI.
7. ALL POURED BUTTRESSED FITTINGS SHALL BE WRAPPED IN POLYETHYLENE.
8. NO WOOD BUTTRESS ALLOWED.

BUTTRESS FOR PLUGS DETAIL

NO SCALE



NOTES:

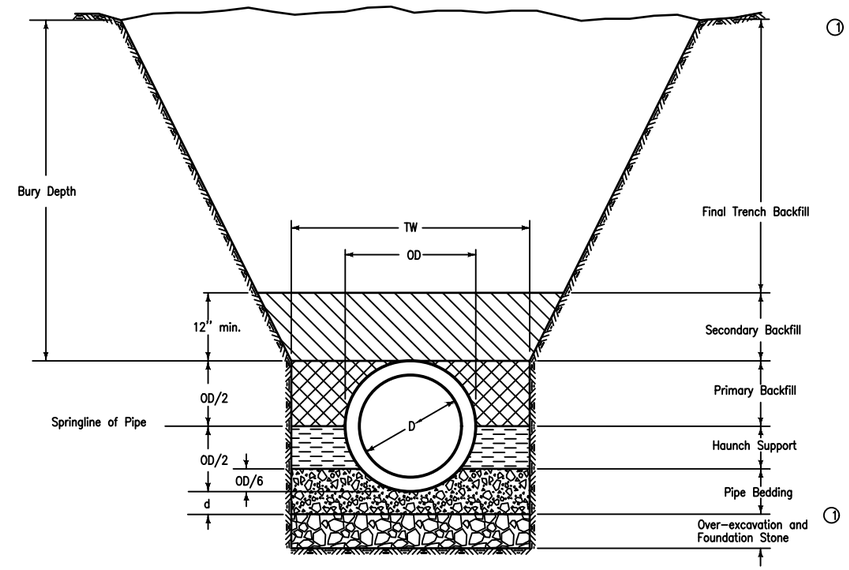
1. DIMENSION 'C' SHOULD BE LARGE ENOUGH TO MAKE ANGLE Ø GREATER THAN OR EQUAL TO 45°.
2. CONCRETE SHOULD BEAR ON THIS QUADRANT OF PIPE AT A MINIMUM.
3. DIMENSION 'D' SHOULD BE AS LARGE AS POSSIBLE BUT CONCRETE SHOULD NOT INTERFERE WITH MECHANICAL JOINTS.
4. BUTTRESS DIMENSIONS ARE BASED ON A SOIL RESISTANCE OF TWO TONS PER SQ. FT. AND A WATER PRESSURE OF 150 PSI. INFORM THE ENGINEER IF ON-SITE SOIL DOES NOT MEET THIS CONDITION OR PRESSURES EXCEED 150 PSI.
5. BUTTRESS TO BE PLACED AGAINST FIRM UNDISTURBED SOIL, OR DISTURBED SOIL COMPACTED TO 95%% OF MODIFIED PROCTOR DENSITY, ASTM D1557.
6. CONCRETE SHALL HAVE A MINIMUM 7-DAY COMPRESSIVE STRENGTH OF 2000 PSI.
7. ALL POURED BUTTRESSED FITTINGS SHALL BE WRAPPED IN POLYETHYLENE.
8. IN ADDITION TO BUTTRESSES, ALL JOINTS SURROUNDING TEES SHALL BE RESTRAINED WITH WEDGE ACTION RESTRAINING GLANDS.

BUTTRESS DIMENSIONS				
DIA.	A	B	C	D
6"	1'-3"	1'-0"	SEE NOTE NO. 1	SEE NOTE NO. 3
8"	1'-6"	1'-4"		
10"	1'-10"	1'-8"		
12"	2'-3"	2'-0"		
16"	3'-2"	2'-6"		
20"	4'-0"	3'-0"		
24"	5'-3"	3'-4"		

DIA. = BRANCH DIAMETER

BUTTRESS FOR TEES DETAIL

NO SCALE



Refer to the contract documents for specific material and placement requirements.

① Required only when specified in the contract documents or when directed by the Engineer.

Key

OD = Outside diameter of pipe

D = Inside diameter of pipe

TW = Trench width at top of pipe

d = Depth of bedding material below pipe

SUDAS | Iowa Department of Transportation

REVISION	
NEW	4-21-09

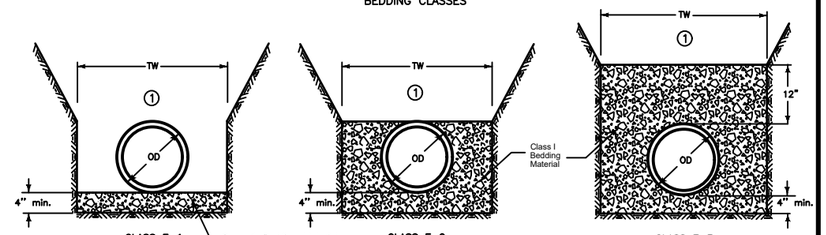
FIGURE 3010.101 | STANDARD ROAD PLAN | SW-101 | SHEET 2 of 2

REVISIONS: New. Replaces SUDAS Figure 3010.1.

SUDAS DIRECTOR | DESIGN METHODS ENGINEER

TRENCH BEDDING AND BACKFILL ZONES

BEDDING CLASSES



ALLOWABLE BURY DEPTH ②

PVC PIPE

Pipe Diameter (in)	ASTM D 3034			ASTM F 679	ASTM F 949	ASTM F 1803	ASTM D 2680
	Solid Wall			Solid Wall	Corrug. Exterior	Closed Profile	Composite (Truss Type)
	SDR 23.5	SDR 26	SDR 35	SDR 35			
8	30'	28'	24'	---	24'	---	32'
10	30'	28'	24'	---	24'	---	32'
12	30'	28'	24'	---	24'	---	32'
15	30'	28'	24'	---	24'	---	32'
18	---	---	---	24'	24'	---	---
21	---	---	---	24'	24'	24'	---
24	---	---	---	24'	24'	24'	---
27	---	---	---	24'	---	24'	---
30	---	---	---	24'	24'	24'	---
33	---	---	---	24'	---	---	---
36	---	---	---	24'	24'	24'	---
42	---	---	---	24'	---	24'	---
48	---	---	---	24'	---	24'	---
54	---	---	---	---	---	24'	---
60	---	---	---	---	---	24'	---

DUCTILE IRON, AWWA C151, CLASS 52

Pipe Diameter (in)	Class F-1 Bedding	Class F-2 Bedding	Class F-3 Bedding
4	40'	40'	40'
6	40'	40'	40'
8	40'	40'	40'
10	40'	40'	40'
12	37'	40'	40'
14	31'	40'	40'
16	28'	37'	40'
18	25'	34'	40'
20	23'	32'	40'
24	20'	29'	38'
30	18'	23'	31'
36	18'	22'	30'
42	17'	21'	29'
48	16'	19'	27'
54	16'	19'	27'

HDPE PIPE

Pipe Diameter (in)	AASHTO M 294
12	8'
15	9'
18	9'
24	9'
30	9'
36	9'
42	8'
48	8'
54	8'
60	8'

POLYPROPYLENE PIPE

Pipe Diameter (in)	ASTM F 2736	ASTM F 2764
12	24'	---
15	25'	---
18	22'	---
24	20'	---
30	22'	22'
36	---	21'
42*	---	22'
48*	---	23'
54*	---	21'
60*	---	21'

*Storm Sewer Only

① Place remainder of bedding and backfill materials as specified in the contract documents.

② Minimum depth of bury 12 inches or as specified by the manufacturer.

ALLOWABLE BEDDING CLASSES

PIPE MATERIAL	STORM SEWER	SANITARY SEWER
Ductile Iron	F-1, F-2, F-3	F-1, F-2, F-3
HDPE	F-2, F-3	Not allowed
Polypropylene	F-2, F-3	F-3
PVC	F-2, F-3	F-3

Key

OD = Outside diameter of pipe

TW = Trench width at top of pipe: Min. = OD+18 inches OR 1.25xOD+12 inches (whichever is greater)

SUDAS | Iowa Department of Transportation

REVISION	
2	10-18-16

FIGURE 3010.103 | STANDARD ROAD PLAN | SW-103 | SHEET 1 of 1

REVISIONS: Added polypropylene pipe for storm sewer applications.

SUDAS DIRECTOR | DESIGN METHODS ENGINEER

FLEXIBLE GRAVITY PIPE TRENCH BEDDING

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BLACK HAWK COUNTY, IOWA

CIVIL DETAILS

PROJECT NO. 14573015

SHEET 999C2

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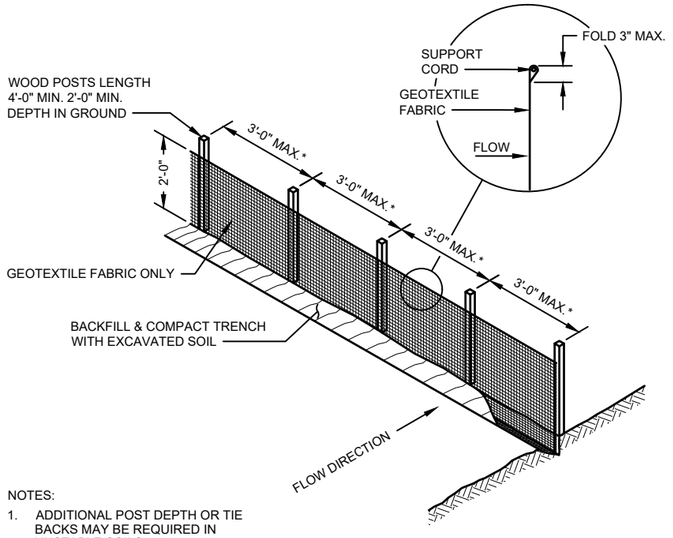
CONSTRUCTION SITE EROSION CONTROL REQUIREMENTS

1. IOWA CONSTRUCTION SITE EROSION CONTROL MANUAL IDENTIFIES REQUIREMENTS FOR CONSTRUCTION SITE AND POST-CONSTRUCTION EROSION CONTROL. IT IS THE INTENT OF THESE PLANS TO SATISFY THESE REQUIREMENTS. THE METHODS AND STRUCTURES USED TO CONTROL EROSION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL IMPLEMENT AN APPROPRIATE MEANS OF CONTROLLING EROSION DURING SITE OPERATION AND UNTIL THE VEGETATION IS RE-ESTABLISHED. ADJUSTMENTS TO THE CONTROL SYSTEM SHALL BE MADE AS REQUIRED.
2. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE IOWA DNR'S CONSERVATION PRACTICE STANDARDS. THESE STANDARDS ARE PERIODICALLY UPDATED AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN AND REFERENCE THE MOST RECENTLY RELEASED STANDARD.
3. THE INFORMATION IS ONLY ONE PART OF THE OVERALL EROSION CONTROL REQUIREMENTS. ADDITIONAL REQUIREMENTS MAY ALSO BE SHOWN ON THE PLAN SHEETS AND IN THE ACCOMPANYING SPECIFICATIONS.
4. ADDITIONAL EROSION CONTROL MEASURES, AS REQUESTED IN WRITING BY THE STATE OR LOCAL INSPECTORS, OR THE OWNER'S ENGINEER, SHALL BE INSTALLED WITHIN 24 HOURS.
5. THE AREA OF EROSIVE LAND EXPOSED TO THE ELEMENTS BY GRUBBING, EXCAVATION, TRENCHING, BORROW AND FILL OPERATIONS AT ANY ONE TIME SHALL BE MINIMIZED TO THE MAXIMUM EXTENT PRACTICABLE. FOR ANY DISTURBED AREA THAT REMAINS INACTIVE FOR GREATER THAN 7 WORKING DAYS, OR WHERE GRADING WORK EXTENDS BEYOND THE PERMANENT SEEDING DEADLINES, THE SITE MUST BE TREATED WITH TEMPORARY STABILIZATION MEASURES SUCH AS SOIL TREATMENT, TEMPORARY SEEDING AND/OR MULCHING. ALL DISTURBED AREAS SHALL BE TREATED WITH PERMANENT STABILIZATION MEASURES WITHIN 3 WORKING DAYS OF FINAL GRADING.
6. ALL EROSION CONTROL MEASURES AND STRUCTURES SERVING THE SITE MUST BE INSPECTED AT LEAST WEEKLY OR WITHIN 24 HOURS OF THE TIME 0.5 INCHES OF RAIN IS PRODUCED. ALL MAINTENANCE WILL FOLLOW AN INSPECTION WITHIN 24 HOURS. THIS APPROACH ACKNOWLEDGES THE DIFFICULTY OF WORKING IN WET CONDITIONS AS NECESSARY FOR PREVENTING THE IRRETRIEVABLE "FIRST FLUSH" OF SEDIMENT INTO ADJACENT WATERWAYS, DEGRADING WATER QUALITY AND FISH HABITAT.
7. ALL EROSION CONTROL DEVICES SHALL BE PROPERLY INSTALLED PRIOR TO ANY SOIL DISTURBANCE.
8. GRUBBING AND GRADING OPERATIONS SHALL BE PERFORMED IN PROPER SEQUENCE WITH OTHER WORK TO MINIMIZE EROSION.
9. ALL WASTE AND UNUSED BUILDING MATERIALS (INCLUDING GARBAGE, DEBRIS, CLEANING WASTES, WASTEWATER, TOXIC MATERIALS, OR HAZARDOUS MATERIALS) SHALL BE PROPERLY DISPOSED OF AND NOT ALLOWED TO BE CARRIED OFF-SITE BY RUNOFF OR WIND.
10. WIND EROSION SHALL BE KEPT TO A MINIMUM DURING CONSTRUCTION. WATERING, MULCH, OR A TACKING AGENT MAY NEED TO BE UTILIZED TO PROTECT NEARBY RESIDENCES AND WATER RESOURCES.
11. CHANNELIZED RUNOFF FROM ADJACENT AREAS PASSING THROUGH THE SITE SHALL BE DIVERTED AROUND DISTURBED AREAS, IF PRACTICAL.
12. THE CONTRACTOR SHALL TAKE ALL POSSIBLE PRECAUTIONS TO PREVENT SOILS FROM BEING TRACKED ONTO PUBLIC OR PRIVATE ROADWAYS. PAVED SURFACES ADJACENT TO CONSTRUCTION SITE VEHICLE ACCESS SHALL BE SWEPT AND / OR SCRAPED (NOT FLUSHED) PERIODICALLY TO REMOVE SOIL. DIRT AND / OR DUST.
13. EROSION CONTROLS SHALL BE INSTALLED ON THE DOWNSTREAM SIDE OF TEMPORARY STOCKPILES. ANY SOIL STOCKPILE THAT REMAINS FOR MORE THAN 30 DAYS SHALL BE COVERED OR TREATED WITH STABILIZATION PRACTICES SUCH AS TEMPORARY OR PERMANENT SEEDING AND MULCHING. ALL STOCK PILES SHALL BE PLACED AT LEAST 75 FEET FROM STREAMS OR WETLANDS.
14. EROSION CONTROL FOR UTILITY CONSTRUCTION (STORM SEWER, SANITARY SEWER, WATER MAIN, ETC.):
    a. PLACE EXCAVATED TRENCH MATERIAL ON THE HIGH SIDE OF THE TRENCH.
    b. BACKFILL, COMPACT, AND STABILIZE THE TRENCH IMMEDIATELY AFTER PIPE CONSTRUCTION.
    c. DISCHARGE OF TRENCH WATER OR DEWATERING EFFLUENT MUST BE PROPERLY TREATED TO REMOVE SEDIMENT IN ACCORDANCE WITH THE WDNR CONSERVATION PRACTICE STANDARD 1061 - DEWATERING OR A SUBSEQUENT WDNR DEWATERING STANDARD PRIOR TO DISCHARGE INTO A STORM SEWER, DITCH, DRAINAGEWAY, OR WETLAND OR LAKE.
15. ALL DRAINAGE CULVERTS, STORM DRAIN INLETS, MANHOLES, OR ANY OTHER EXISTING STRUCTURES WHICH COULD BE DAMAGED BY SEDIMENTATION SHALL BE PROTECTED ACCORDING TO THE VARIOUS METHODS PROVIDED IN THE PRINTED CONSERVATION PRACTICE STANDARDS.
16. ANY SOIL EROSION THAT OCCURS AFTER FINAL GRADING AND/OR STABILIZATION MUST BE REPAIRED AND THE STABILIZATION WORK REDONE.
17. THE FIRST SIX WEEKS AFTER INITIAL STABILIZATION (E.G. PLACEMENT OF SEED AND MULCH, EROSION MAT, SOD) A DISTURBED AREA SHALL INCLUDE WATERING PROVISIONS OF ALL NEWLY SEEDED AND MULCHED AREAS WHENEVER 7 DAYS ELAPSE WITHOUT A RAIN EVENT.
18. WHEN THE DISTURBED AREA HAS BEEN STABILIZED BY PERMANENT VEGETATION OR OTHER MEANS, TEMPORARY BMP'S SUCH AS SILT FENCES, STRAW BALES, AND SEDIMENT TRAPS SHALL BE REMOVED AND THESE AREAS STABILIZED.
19. ALL TEMPORARY BEST MANAGEMENT PRACTICES SHALL BE MAINTAINED UNTIL THE SITE IS STABILIZED.
20. ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED WITH SEED AND MULCH UNLESS OTHERWISE SPECIFIED. A MINIMUM OF 4 TO 6 INCHES OF TOPSOIL SHALL BE APPLIED TO ALL AREAS TO BE SEEDED OR SODDED.



NOTES:
1. ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS.
2. * 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.
3. ATTACH THE FABRIC TO THE POSTS WITH WIRE STAPLES OR WOODEN LATH AND NAILS.

SILT FENCE DETAIL
NO SCALE

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CIVIL DETAILS

PROJECT NO. 14573015
SHEET 999C3

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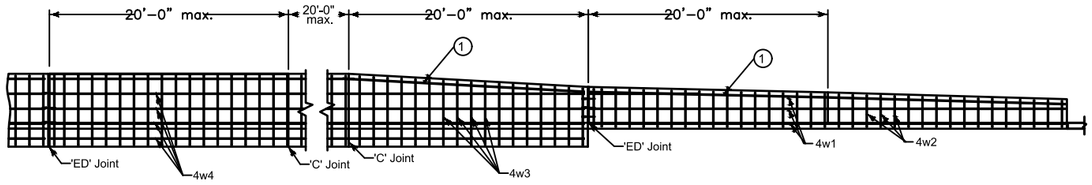
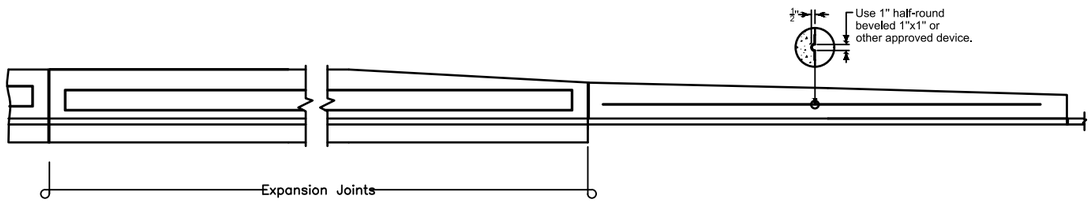


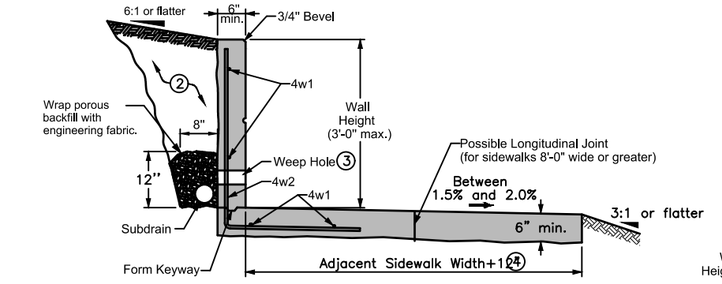
TYPE B WALL

TYPE A WALL

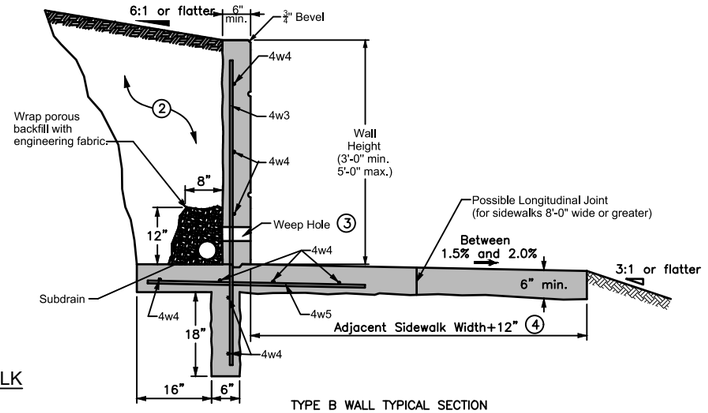
TYPICAL LONGITUDINAL SECTION OF RETAINING WALL



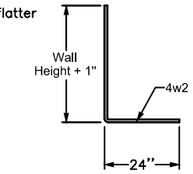
TYPICAL RUSTICATION DETAIL



TYPE A WALL TYPICAL SECTION



TYPE B WALL TYPICAL SECTION



BENT BARS

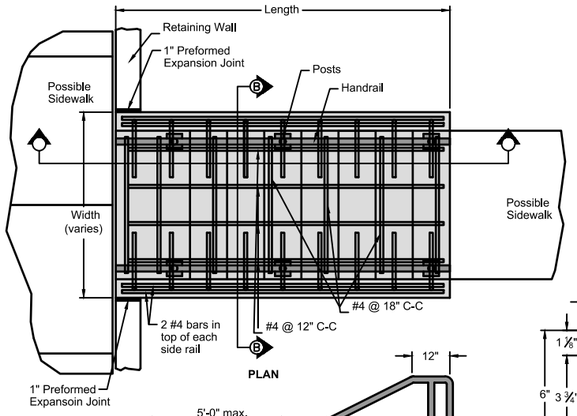
Provide a minimum concrete cover to near reinforcement of 1 1/2 inches. Provide 3 inches minimum cover at the ends of bars.

1. Top bar parallel to top of wall. Lap 6 inch minimum as necessary. Tie securely.
2. Excavate and place backfill material as necessary.
3. Provide 3 inch diameter weep holes at 8 foot intervals. Install rodent guards in weep holes. Align bottom of weep hole with top of subdrain.
4. Additional 12 inch width is adjacent to wall.

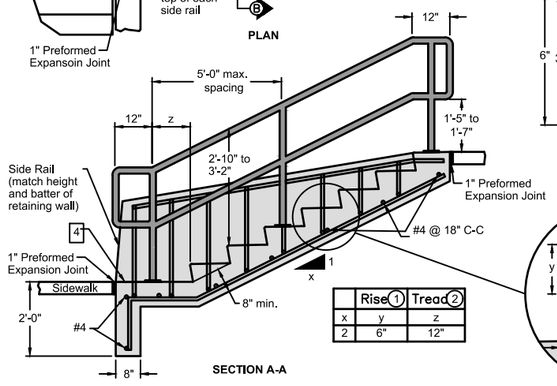
REINFORCING BAR LIST					
Wall Type	Mark	Size	Shape	Length	Spacing
Type A	4w1	4	——	Variable	15"
	4w2	4	L	Variable	14"
Type B	4w3	4	—	Wall Height + 18"	14"
	4w4	4	—	Variable	15"
	4w5	4	—	3'–10"	14"

COMBINED RETAINING WALL - SIDEWALK

NO SCALE

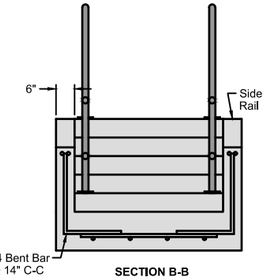


PLAN

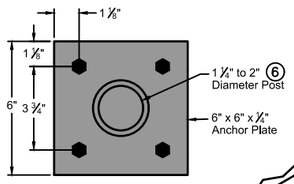


SECTION A-A

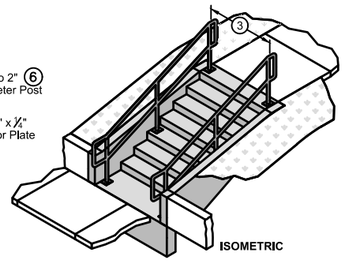
	Rise 1	Tread 2
x	y	z
2	6"	12"



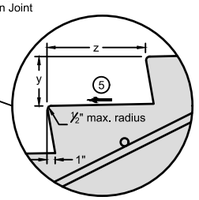
SECTION B-B

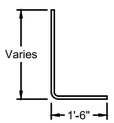


ANCHOR PLATE DETAIL



ISOMETRIC





BENT BAR

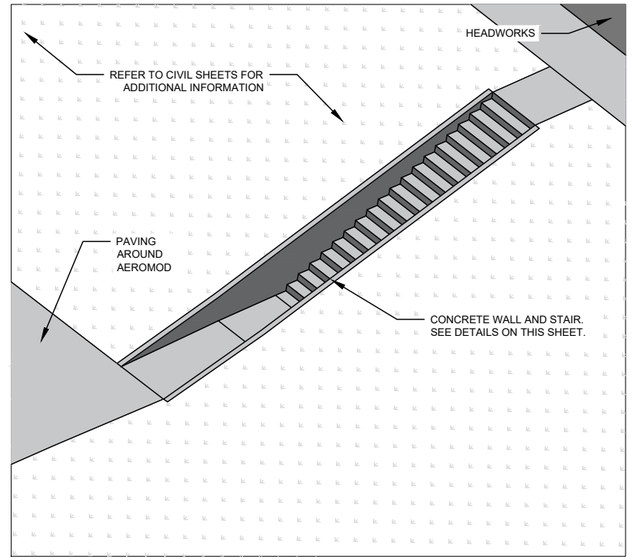
Provide a minimum of 2 inches of cover for all reinforcing.

Ensure all risers are an equal height and all treads are an equal depth within a flight of stairs.

1. Minimum riser height is 4 inches. Maximum riser height is 7 inches.
2. Minimum tread depth is 11 inches.
3. Match existing sidewalk width.
4. Construct cross slope of landing to match adjacent sidewalk.
5. Slope tread 1% minimum to 2% maximum in any direction.
6. Weld post to anchor plate with 1/4 inch weld. Grind weld to provide smooth surface, free of burrs.

COMBINED RETAINING WALL - STEPS WITH HANDRAIL

NO SCALE



SITE STAIR DESIGN BETWEEN HEADWORKS & AEROMOD - ISOMETRIC VIEW

NO SCALE

NO.	DATE	REVISION	BY
.	.	.	.

PROJECT DATE: .
DRAWN BY: Init
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CHECKED BY: Init

PLOT DATE: 8/11/2020 1:12 PM, G:\14\14573\14573015\CADD\Construction Documents\999-DETAILS\99 CIVIL DETAILS.dwg

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PROJECT NO. 14573015

SHEET 999C4

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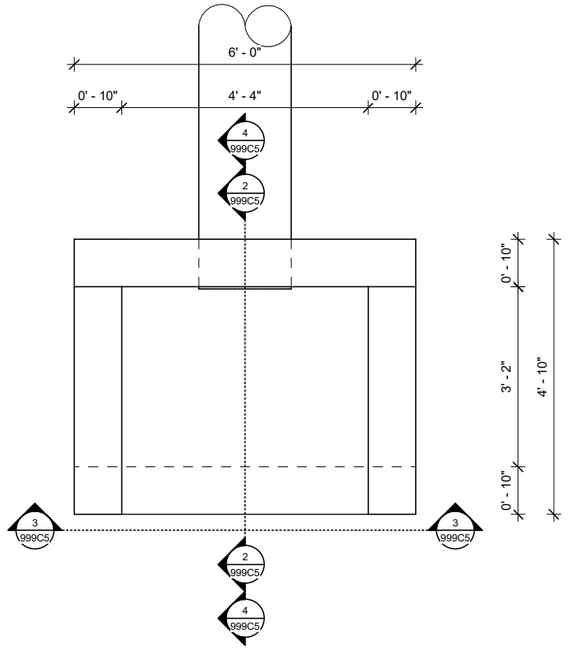
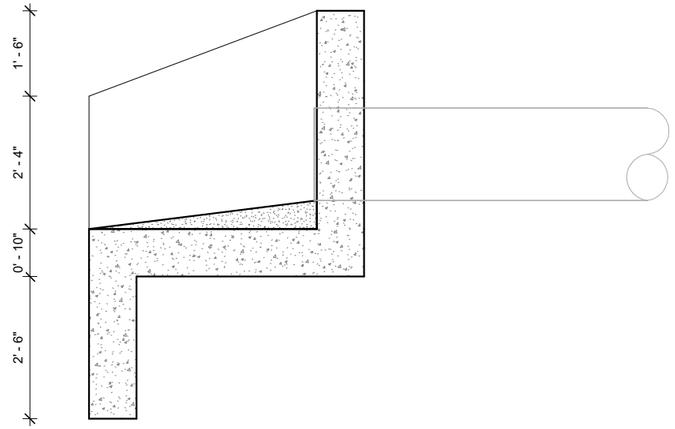


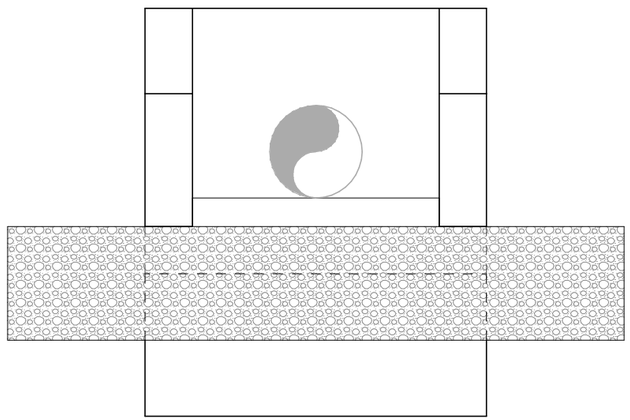
PLAN VIEW
3/4" = 1'-0" (22"x34")

0 6" 1' 2' 3'



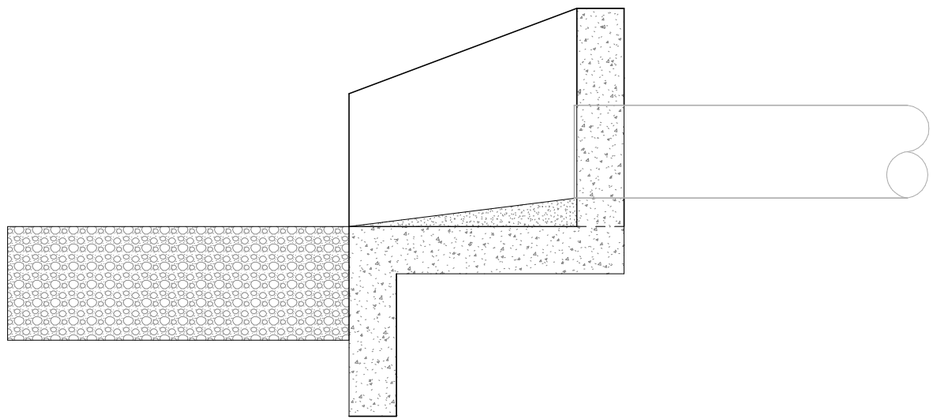
4 CROSS-SECTION
999C5 3/4" = 1'-0" (22"x34")

0 6" 1' 2' 3'



3 CROSS-SECTION
999C5 3/4" = 1'-0" (22"x34")

0 6" 1' 2' 3'



2 CROSS-SECTION
999C5 3/4" = 1'-0" (22"x34")

0 6" 1' 2' 3'

			No	DATE	REVISIONS	BY
PROJECT DATE: 2020-08-13	DRAWN BY: JBR					
	DESIGNED BY: JBR					
	CHECKED BY: JEM					

PLOT DATE: 8/11/2020 12:02:31 PM , BIM 360://Elk Run Heights WWTF Design/14573015 EFFLUENT SEWER OUTFALL DETAILS.rvt

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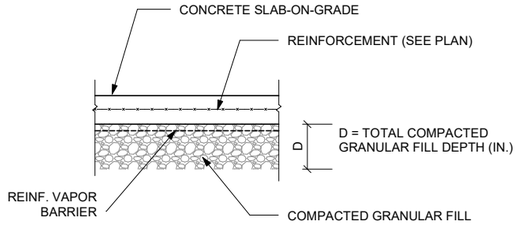
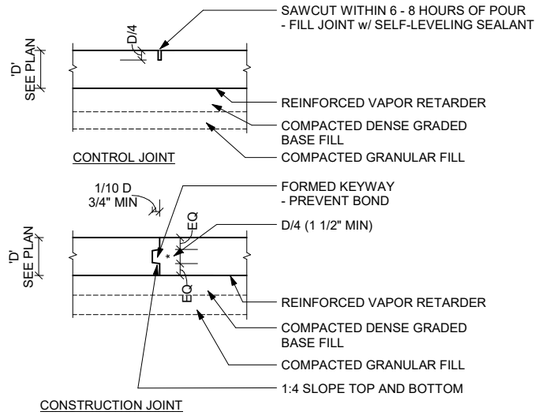


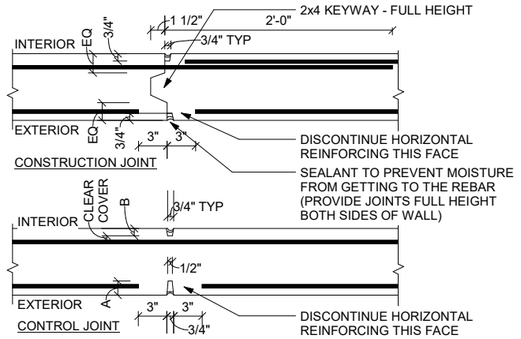
1 SLAB-ON-GRADE VAPOR BARRIER DETAIL

999S1 NONE



2 TYP SLAB ON GRADE JOINT (CJ) DETAIL

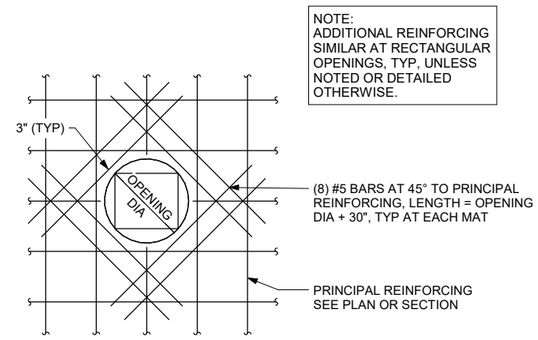
999S1 NONE



CONTROL JOINT DIMENSIONS					
	FOUNDATION WALL THICKNESS				
	8"	10"	12"	16"
A	1 1/4"	1 3/4"	2 1/4"	3 1/2"
B	3/4"	3/4"	3/4"	3/4"

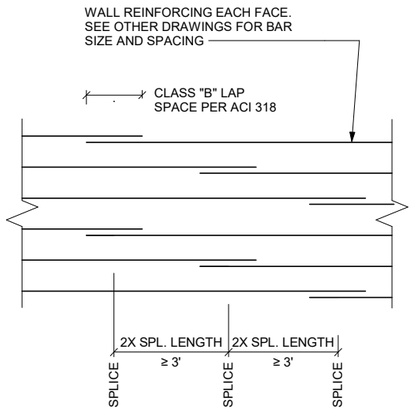
3 TYP FOUNDATION WALL JOINT (CJ) DETAIL

999S1 NONE



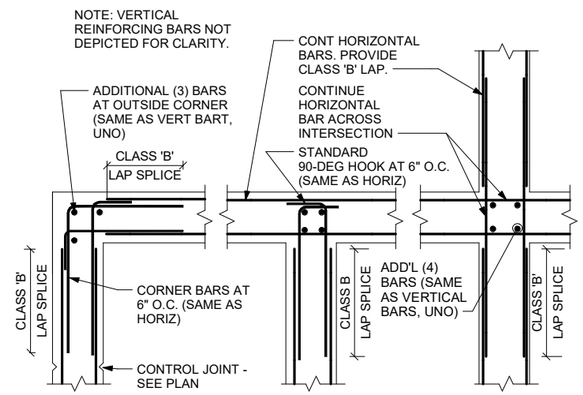
4 REINFORCING AT CONCRETE WALLS AND SLAB OPENINGS DETAIL

999S1 NONE



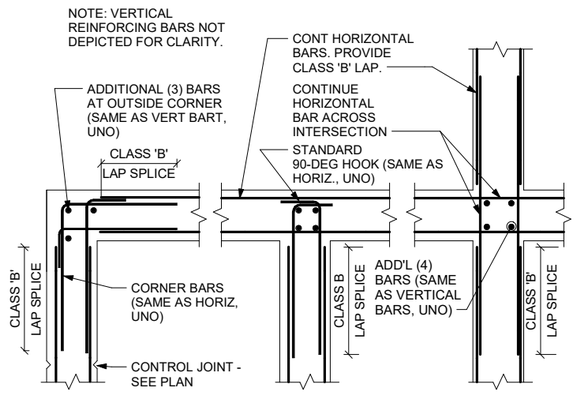
TYP WALL STAGGERED REIFORCING SPLICE DETAIL

5 999S1 NONE



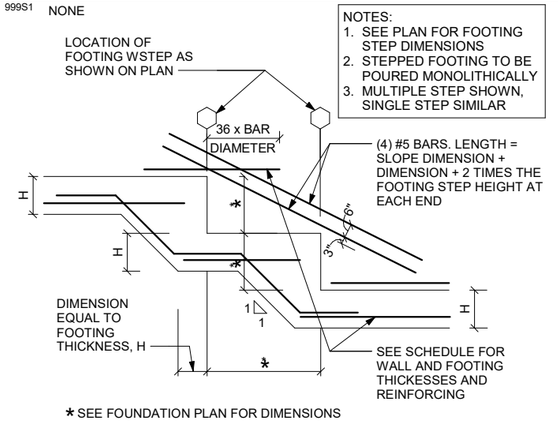
6 CORNER/INTERSECTION REINFORCING DETAIL

999S1 NONE



TYPICAL CORNER/INTERSECTION REINFORCING DETAIL

7 999S1 NONE



8 STEP FOOTING DETAIL

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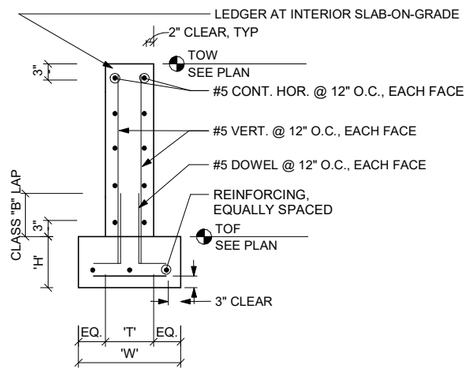
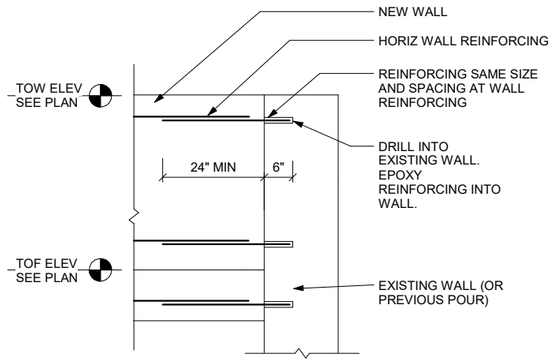


9 WALL FOOTING AND FOUNDATION WALL DETAIL

999S1 NONE

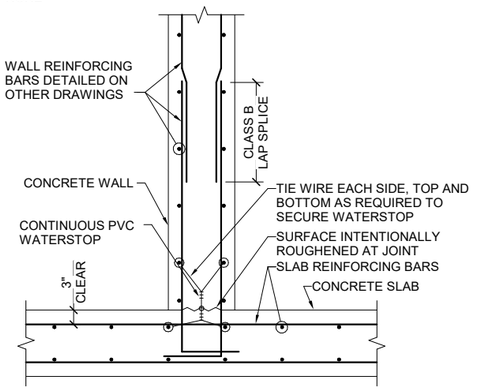


10 NEW/EXISTING WALL CONSTRUCTION DETAIL

999S1 NONE

11 NOT USED

999S1 NONE



TYPICAL WATER RETAINING STRUCTURE WALL INTERSECTION CONSTRUCTION JOINT DETAIL

12 999S1 NONE

PROJECT DATE:	2020-08-13	DRAWN BY:	JBR	No	DATE	REVISIONS BY
		DESIGNED BY:	JBR			
		CHECKED BY:	JM			

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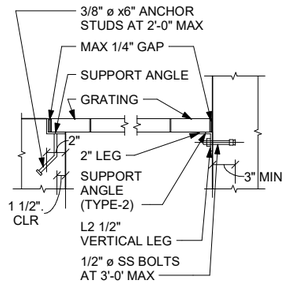
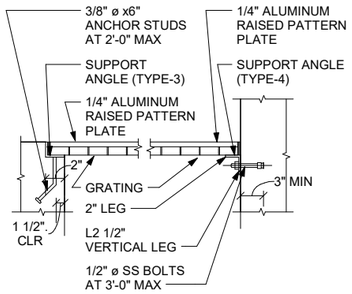


TYPE-1 TYPE-2



TYPE-3 TYPE 4

NOTES

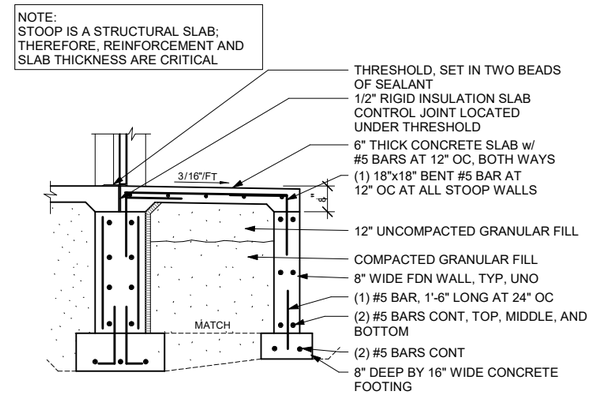
1. ANCHOR AND/OR FASTEN PANELS PER MANUFACTURERS RECOMMENDATIONS.
2. GENERAL CONTRACTOR SHALL CUT GRADING SUPPORT ANGLES WHERE NECESSARY FOR CLEARANCE w/ STOP PLATE GROOVES.
3. ALL ALUMINUM IN CONTACT WITH CONCRETE SHALL BE COATED w/ COAL TAR EPOXY.
4. ALL SUPPORT ANGLES SHALL BE TYPE-1 FOR GRATING AND TYPE-3 FOR PLATE, UNLESS NOTED OTHERWISE.
5. PROVIDE FIBERGLASS SUPPORTS AT FIBERGLASS GRATING, EXCEPT AS NOTED.
6. GRATING SCHEDULE

DEPTH, UNO	MAX SPAN	SUPPORT, UNO
1 1/4"	3'-0"	1 3/4" x 2" x 1/4"
1 1/2"	4'-0"	1 3/4" x 2" x 1/4"
2"	5'-0"	2 1/2" x 2" x 3/8"

7. GRATING DEPTH LISTED IS MINIMUM. ALL GRATING SHALL BE SELECTED PER MFG LOAD CHARTS FOR INSTALLATION LOCATION.

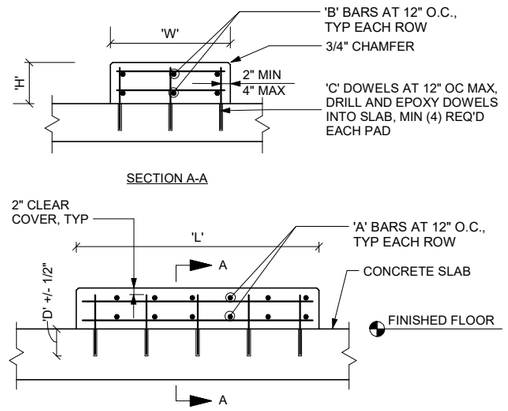
1 TYPICAL GRATING/RAISED PATTERN PLATE SUPPORT DETAIL

999S2 NONE



2 TYPICAL STOOP DETAIL

999S2 NONE

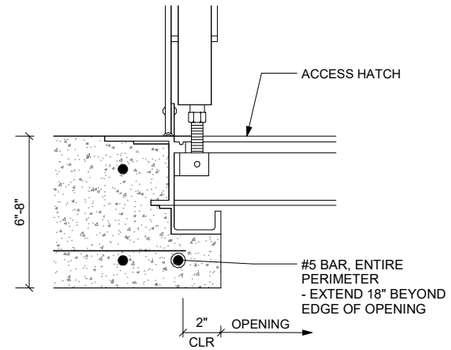


3 RAISED CONCRETE BASE DETAIL

999S2 NONE

4 NOT USED

999S2 NONE



5 TYPICAL HATCH OPENING SECTION

999S2 NONE

6 NOT USED

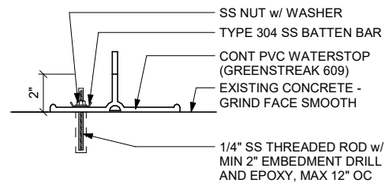
999S2 NONE

7 NOT USED

999S2 NONE

8 NOT USED

999S2 NONE



9 SPLIT PVC WATERSTOP DETAIL

999S2 NONE

10 NOT USED

999S2 NONE

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DRAWN BY: JBR
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CHECKED BY: JM
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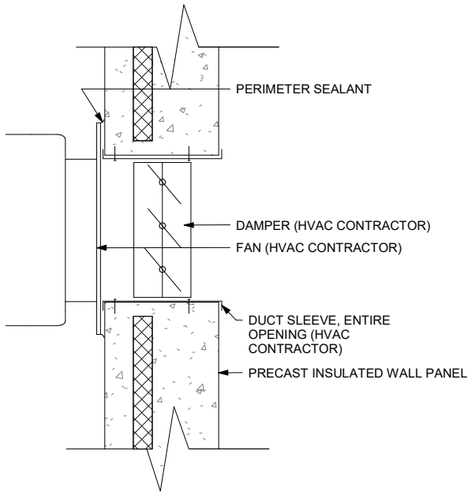
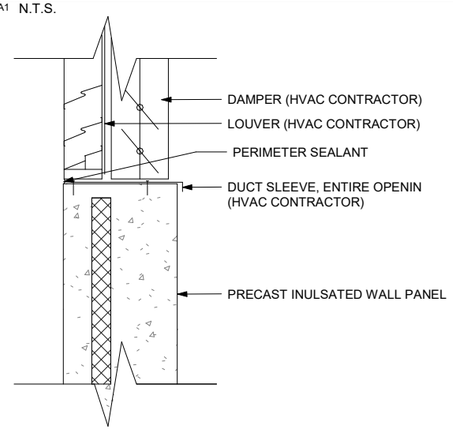


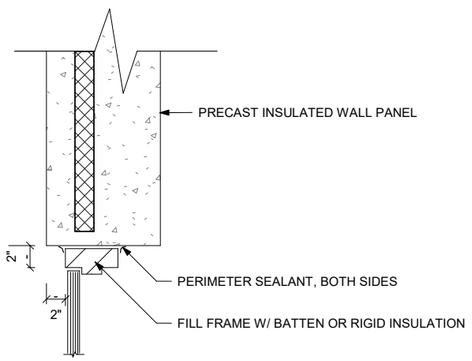
1 FAN WALL OPENING IN PRECAST WALL PANEL DETAIL

999A1 N.T.S.



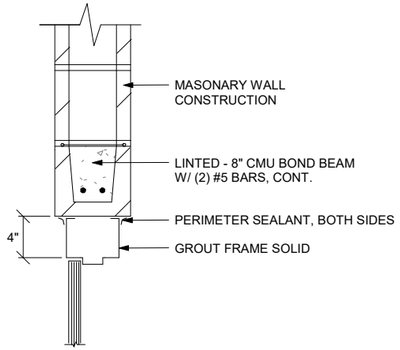
2 LOUVER SILL IN PRECAST WALL DETAIL

999A1 N.T.S.



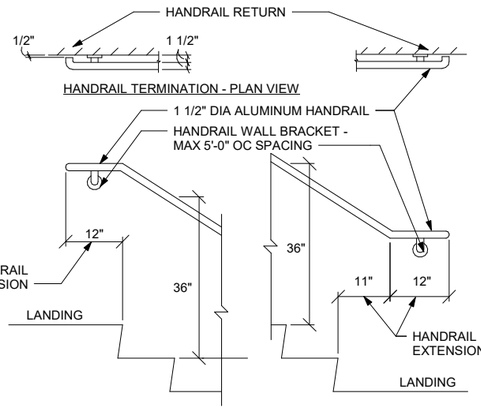
3 DOOR HEAD IN PRECAST WALL PANEL DETAIL

999A1 N.T.S. (JAMB SIMILAR)



4 DOOR HEAD IN MASONRY WALL DETAIL

999A1 N.T.S. (JAMB SIMILAR)

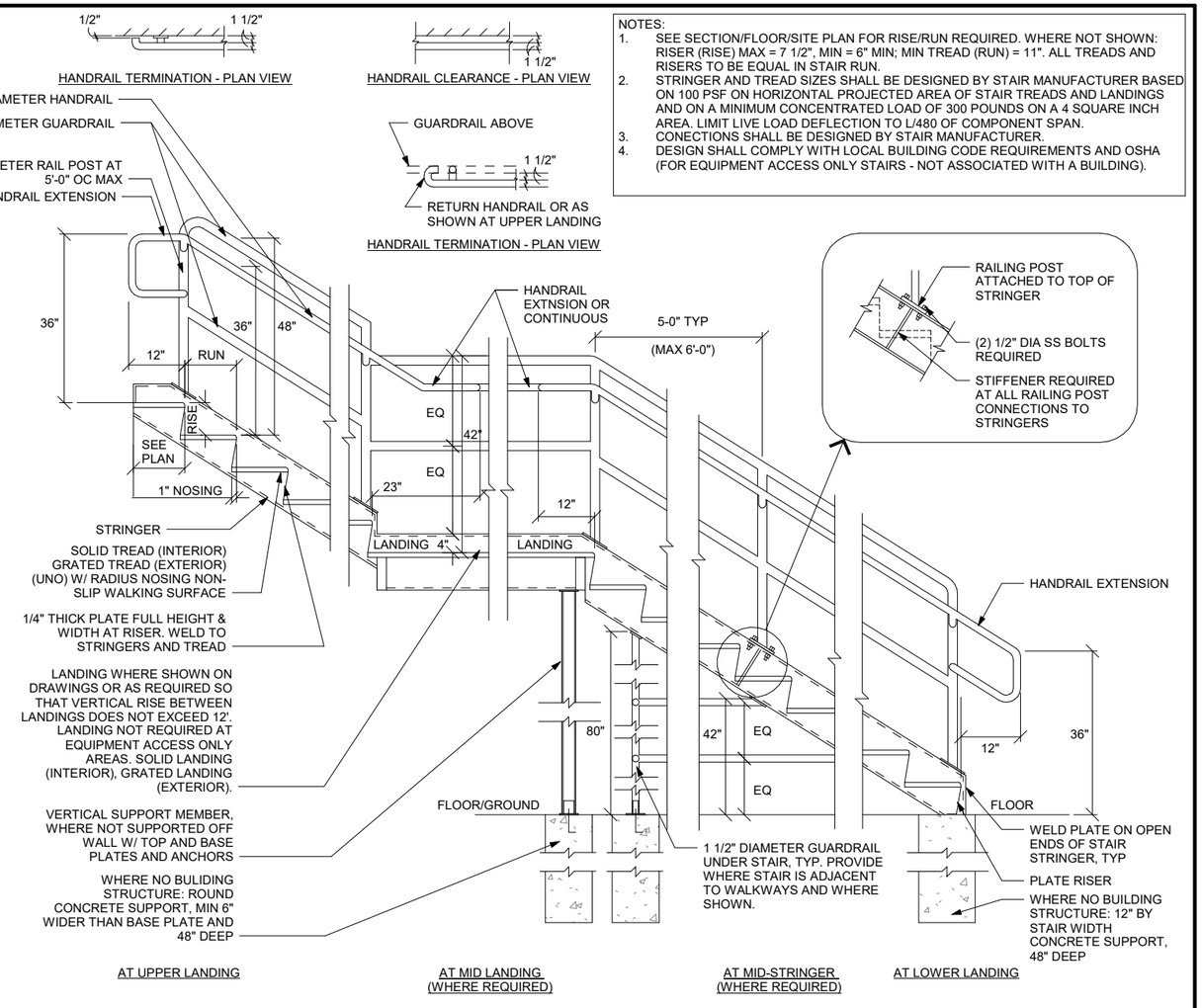


5 TYPICAL WALL MOUNTED STAIR HANDRAIL DETAIL

999A1 N.T.S.

6 BOLLARD (GUARD POST) DETAIL

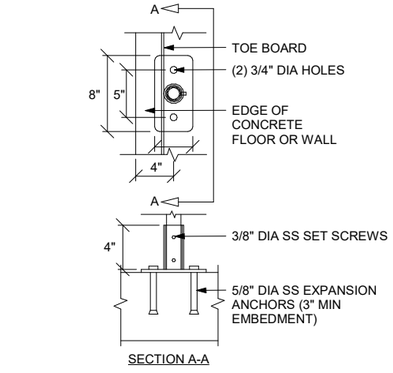
999A1 N.T.S.



7 TYPICAL ALUMINUM STAIR AND HANDRAIL WITH GUARDRAIL DETAIL

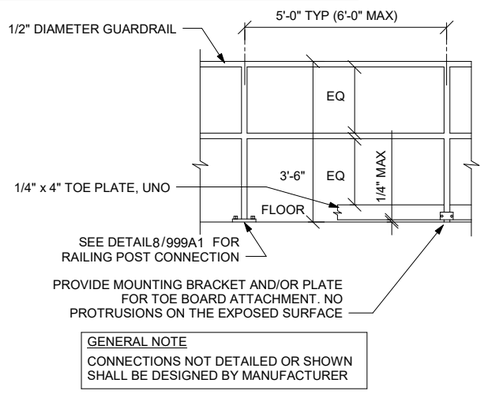
999A1 N.T.S.

NOTES:
1. SEE SECTION/FLOOR/SITE PLAN FOR RISE/RUN REQUIRED. WHERE NOT SHOWN: RISER (RISE) MAX = 7 1/2", MIN = 6" MIN; MIN TREAD (RUN) = 11". ALL TREADS AND RISERS TO BE EQUAL IN STAIR RUN.
2. STRINGER AND TREAD SIZES SHALL BE DESIGNED BY STAIR MANUFACTURER BASED ON 100 PSF ON HORIZONTAL PROJECTED AREA OF STAIR TREADS AND LANDINGS AND ON A MINIMUM CONCENTRATED LOAD OF 300 POUNDS ON A 4 SQUARE INCH AREA. LIMIT LIVE LOAD DEFLECTION TO L/480 OF COMPONENT SPAN.
3. CONECTIONS SHALL BE DESIGNED BY STAIR MANUFACTURER.
4. DESIGN SHALL COMPLY WITH LOCAL BUILDING CODE REQUIREMENTS AND OSHA (FOR EQUIPMENT ACCESS ONLY STAIRS - NOT ASSOCIATED WITH A BUILDING).



8 POST MOUNTING DETAIL

999A1 N.T.S.



GENERAL NOTE
CONNECTIONS NOT DETAILED OR SHOWN SHALL BE DESIGNED BY MANUFACTURER

9 GUARDRAIL DETAIL, TYP.

999A1 N.T.S.

PROJECT DATE: 2020-08-13	DRAWN BY: Author	No	DATE	REVISIONS	BY	PRELIMINARY
	DESIGNED BY: Designer					
	CHECKED BY: Checker					

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SHEET 999A1

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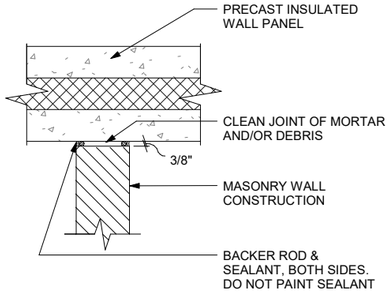
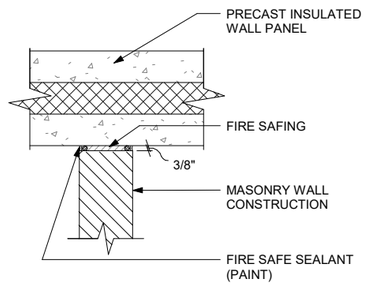
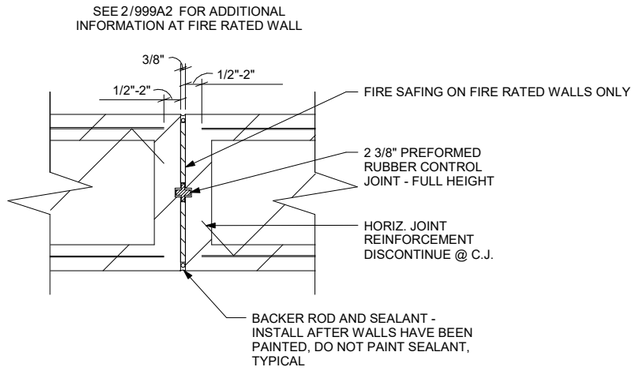


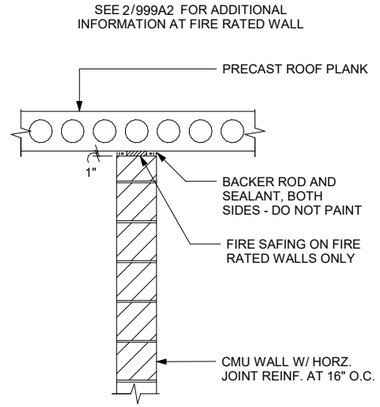
1 999A2 TYPICAL CONTROL JOINT DETAIL CMU - PC WALL CONNECTION
N.T.S.



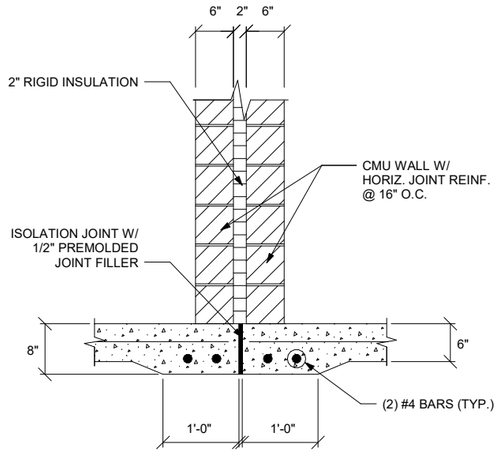
2 999A2 TYPICAL CONTROL JOINT DETAIL CMU - PC WALL CONNECTION (FIRE SAFE)
N.T.S.



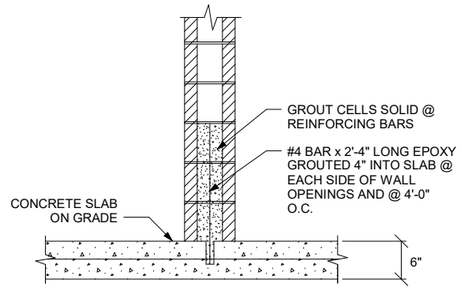
3 999A2 TYPICAL CMU CONTROL JOINT DETAIL AT INTERIOR WALLS
N.T.S.



4 999A2 CMU WALL - PC ROOF PLANK CONNECTION DETAIL
N.T.S.



5 999A2 DOUBLE CMU WALL DETAIL
N.T.S.



6 999A2 CMU WALL BASE REINFOCEMENT DETAIL
N.T.S.

PROJECT DATE: 2020-08-13	DRAWN BY: Author	No	DATE	REVISIONS	BY	PRELIMINARY
	DESIGNED BY: Designer					
	CHECKED BY: Checker					

PLOT DATE: 8/11/2020 1:49:42 PM , BIM 360://Elk Run Heights WWTF Design/14573015 - HEADWORKS BUILDING.rvt

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CITY OF ELK RUN HEIGHTS / CITY OF RAYMOND
BLACK HAWK COUNTY, IOWA

GENERAL
ARCHITECTURAL DETAILS

PROJECT NO. 14573015
SHEET 999A2

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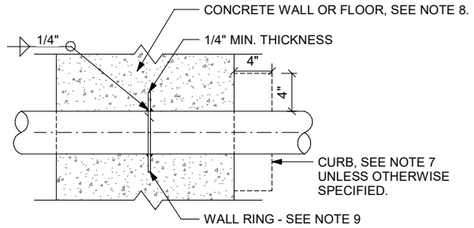
PIPE PENETRATION TYPES

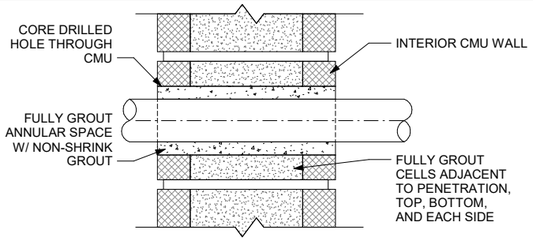
CONDITION		TYPE		
FROM	TO	STEEL	CAST OR DUCTILE IRON	PLASTIC
TANK	TANK ABOVE W.S.	A, C, D, OR F	C, D, OR F	D
TANK	TANK BELOW W.S.	D	D	D
PASSAGE	TANK ABOVE W.S.	A, C, D, OR F	A, C, D, OR F	D
PASSAGE	TANK BELOW W.S.	C, D, G, OR H	C, D, G, OR H	C, D, OR G
PASSAGE	PASSAGE	E OR H (SEE NOTE 6)	E OR H (SEE NOTE 6)	E OR H (SEE NOTE 6)
PASSAGE	OUTSIDE WALL	C OR D	C OR D	C OR D
PASSAGE	ROOF	AS SHOWN		
TANK	OUTSIDE WALL	C OR D	C OR D	C OR D

PIPE PENETRATION NOTES:

1. WHERE PIPES PASS THROUGH WALLS, FLOORS, OR CEILINGS, PENETRATIONS SHALL CONFORM TO PIPE PENETRATION TYPE TABLE, EXCEPT AS OTHERWISE SPECIFIED. SEE DETAILS ON THIS SHEET FOR PIPE PENETRATION TYPES.
2. PIPE PENETRATION SCHEDULES ARE PROVIDED FOR GUIDANCE PURPOSES. NOTIFY ENGINEER TO OBTAIN CLARIFICATION OF ANY OMISSIONS OR DISCREPANCIES BETWEEN SCHEDULE AND PIPE PENETRATION TYPE TABLE.
3. "TANK" SHALL MEAN ANY PART OF A STRUCTURE CONTAINING LIQUID, OR IN CONTACT WITH THE EARTH.
4. "PASSAGE" SHALL MEAN ROOM, GALLERY, TUNNEL, OR SIMILIAR ENCLOSURE.
5. "W.S." SHALL MEAN WATER SURFACE AN ELEVATION 9" ABOVE MAXIMUM WATER SURFACE SHOWN.
6. FOR PASSAGE TO PASSAGE, TYPE A OR TYPE C PIPE PENETRATIONS SHALL BE USED WHERE ONE SIDE CONTAINS EXPLOSION PROOF EQUIPMENT, WHERE FLOODING IS POSSIBLE, OR WHERE SPECIFIED.
7. PROVIDE CURB WHERE PENETRATING FLOOR, EXCEPT FOR PENETRATIONS TYPE E AND TYPE F. CURB SHALL BE 4" HIGH BY 4" WIDE.
8. PROVIDE A MINIMUM OF 3" CLEARANCE BETWEEN REINFORCING STEEL AND FERROUS METAL PENETRATIONS.
9. WALL RING OD AS RECOMMENDED BY MANUFACTURER. MINIMUM DIAMETER EQUAL TO PIPE DIAMETER PLUS 3 INCHES.
10. SEAL WITH MASTIC SEALANT WHERE WALL IS EXPOSED TO LIQUID, EARTH, OR AN EXPLOSION HAZARD AREA.
11. WHERE PIPES PENETRATION EXTERIOR MASONRY WALLS, SEE ARCHITECTURAL DETAILS.
12. TANK SIDE OF WALL SHALL MEAN SIDE OF WALL NORMALLY EXPOSED TO LIQUID.
13. SEAL FLANGES SHALL BE DRILLED TO 150 POUND STANDARD, EACH JOINT SHALL BE GASKETED.
14. CONTRACTOR SHALL FOLLOW MECHANICAL EXPANDING RUBBER SEAL MANUFACTURER RECOMMENDATION FOR CORE DRILL SIZE OR SLEEVE DIAMETER WHERE MECHANICAL EXPANDING RUBBER SEALS ARE USED.

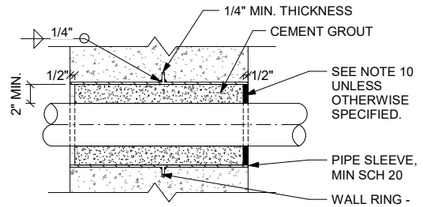


1 999M1 **TYPE A PIPE PENETRATION** WALLS, FLOORS, CEILINGS



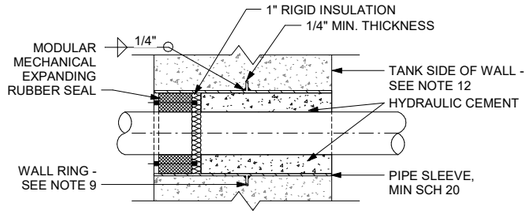
NOTE: ONLY APPLICABLE TO INTERIOR CMU WALLS. SEE ARCHITECTURAL DETAILS FOR EXTERIOR MASONRY PIPE PENETRATIONS.

2 999M1 **TYPE B PIPE PENETRATION** WALLS



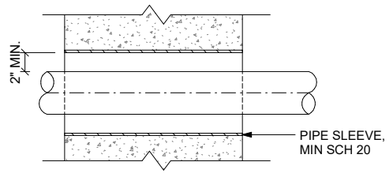
NOTE: SLEEVE INSIDE DIAMETER SHALL BE AS RECOMMENDED BY THE MANUFACTURER.

3 999M1 **TYPE C PIPE PENETRATION** WALLS



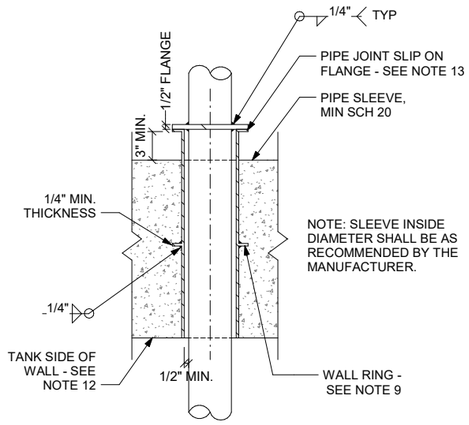
NOTE: SLEEVE INSIDE DIAMETER SHALL BE AS RECOMMENDED BY THE MECHANICAL SEAL MANUFACTURER.

4 999M1 **TYPE D PIPE PENETRATION** WALLS, FLOORS, CEILINGS

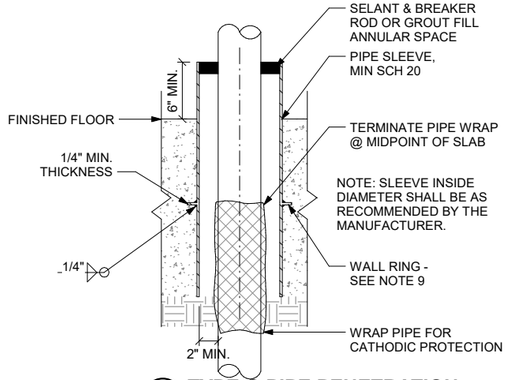


NOTE: SLEEVE INSIDE DIAMETER SHALL BE AS RECOMMENDED BY THE MANUFACTURER.

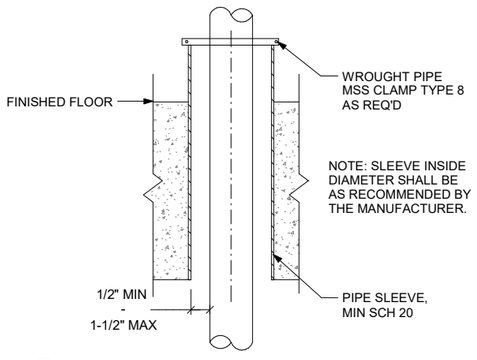
5 999M1 **TYPE E PIPE PENETRATION** WALLS



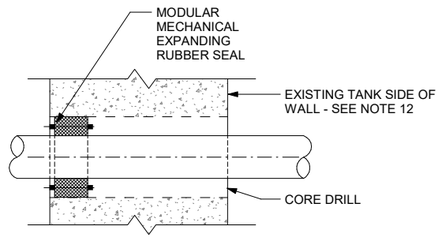
6 999M1 **TYPE F PIPE PENETRATION** FLOORS AND CEILINGS



7 999M1 **TYPE G PIPE PENETRATION** FLOORS

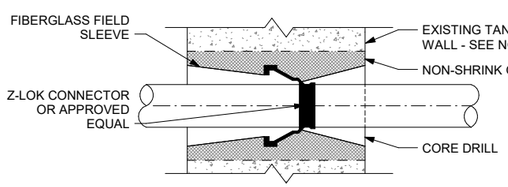


8 999M1 **TYPE H PIPE PENETRATION** FLOORS AND CEILINGS



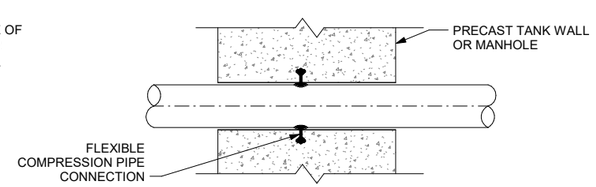
NOTE: SLEEVE INSIDE DIAMETER SHALL BE AS RECOMMENDED BY THE MECHANICAL SEAL MANUFACTURER.

9 999M1 **TYPE I PIPE PENETRATION** WALLS, FLOORS, CEILINGS



NOTE: CORE DRILL DIAMETER SHALL BE AS RECOMMENDED BY THE FIELD SLEEVE MANUFACTURER.

10 999M1 **TYPE J PIPE PENETRATION** WALLS, FLOORS, CEILINGS



11 999M1 **TYPE K PIPE PENETRATION**

PROJECT DATE: 2019-09-20
DRAWN BY: JBR
DESIGNED BY: JBR
CHECKED BY: JM
PLOT DATE: 8/11/2020 12:03:49 PM , BIM 360://Elk Run Heights WWTF Design/14573015 - STORM FLOW PUMP STATION.rvt

No	DATE	REVISIONS	BY

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ELK RUN HEIGHTS / RAYMOND WWTF
CITY OF ELK RUN HEIGHTS / CITY OF RAYMOND
BLACK HAWK COUNTY, IOWA

GENERAL
MECHANICAL SCHEDULES AND DETAILS

PROJECT NO. 14573015
SHEET 999M1

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STR-10 - INFLUENT STRUCTURE: PROCESS INSTRUMENTATION AND EQUIPMENT WIRING SCHEDULE

		FIRST SIGNAL/CONTROL HOMERUN			SECOND SIGNAL/CONTROL HOMERUN			POWER HOMERUN					
TAG NUMBER	DESCRIPTION	DESTINATION	WIRING TYPE	WIRING	DESTINATION	WIRING TYPE	WIRING	CIRCUIT	VOLTAGE	CKT.BKR.	WIRING	DETAIL	NOTES
	ELK RUN INFLUENT SAMPLER HEAT TRACE							20-LP-1 (1)	120/1Ø	20A/1P	2#12 & #12G		1
FI-1-1-1	ELK RUN FLOW INDICATOR - REMOTE MOUNTED	FE/FIT-1-1-1	INTRINSICALLY SAFE SIGNAL	M1								2690-902	1
FE/FT-1-1-1	ELK RUN FLOW TRANSMITTER	20-LCP-001	INTRINSICALLY SAFE SIGNAL	A1								2690-127	1
FI-1-1-2	RAYMOND FLOW INDICATOR - REMOTE MOUNTED	FE/FIT-1-1-1	INTRINSICALLY SAFE SIGNAL	M1								2690-902	1
FE/FT-1-1-2	RAYMOND FLOW TRANSMITTER	20-LCP-001	INTRINSICALLY SAFE SIGNAL	A1								2690-127	1
HTR-1-2-1	ELK RUN INFLUENT SAMPLER HEAT TRACE							20-LP-1 (1)	120/1Ø	20A/1P	2#12 & #12G		1
M-1-2-1	ELK RUN INFLUENT SAMPLER	20-LCP-001	24VDC ANALOG SIGNAL	A1				20-LP-1 (1)	120/1Ø	20A/1P	2#12 & #12G		2
HTR-1-2-2	RAYMOND INFLUENT SAMPLER HEAT TRACE							20-LP-1 (2)	120/1Ø	20A/1P	2#12 & #12G		1
M-1-2-2	RAYMOND INFLUENT SAMPLER	20-LCP-001	24VDC ANALOG SIGNAL	A1				20-LP-1 (3)	120/1Ø	20A/1P	2#12 & #12G		2

STR-20 - HEADWORKS: PROCESS INSTRUMENTATION AND EQUIPMENT WIRING SCHEDULE

		FIRST SIGNAL/CONTROL HOMERUN			SECOND SIGNAL/CONTROL HOMERUN			POWER HOMERUN					
TAG NUMBER	DESCRIPTION	DESTINATION	WIRING TYPE	WIRING	DESTINATION	WIRING TYPE	WIRING	CIRCUIT	VOLTAGE	CKT.BKR.	WIRING	DETAIL	NOTES
L-1	LOUVER -L-1 DAMPER ACTUATORS	20-MCC-1	120VAC DISCRETE SIGNAL	D2				20-LP-1(47)	120/1Ø	20A/1P	2#12 & #12G		2
XS-10-1-1	AERATION BLOWER NO.1 CONTROL STATION (HOA)	20-MCC-1	120VAC DISCRETE SIGNAL	D4								2690-900	1
M-10-1-1	AERATION BLOWER NO.1	AFD-10-1-1	120VAC DISCRETE SIGNAL	D6									2
TSH-10-1-1-1	AERATION BLOWER NO.1 MOTOR OVER TEMP	20-MCC-1	120VAC DISCRETE SIGNAL	D2									2
TSH-10-1-1-2	AERATION BLOWER NO.1 HIGH DISCHARGE TEMP	20-MCC-1	120VAC DISCRETE SIGNAL	D2									2
XS-10-1-2	AERATION BLOWER NO.2 CONTROL STATION (HOA)	20-MCC-1	120VAC DISCRETE SIGNAL	D4								2690-900	1
M-10-1-2	AERATION BLOWER NO.2	AFD-10-1-2`	120VAC DISCRETE SIGNAL	D6									2
TSH-10-1-2-1	AERATION BLOWER NO.2 MOTOR OVER TEMP	20-MCC-1	120VAC DISCRETE SIGNAL	D2									2
TSH-10-1-2-2	AERATION BLOWER NO.2 HIGH DISCHARGE TEMP	20-MCC-1	120VAC DISCRETE SIGNAL	D2									2
M-10-1-3	AERATION BLOWER NO.3	AFD-10-1-3	120VAC DISCRETE SIGNAL	D6									2
XS-10-1-3	AERATION BLOWER NO.3 CONTROL STATION (HOA)	20-MCC-1	120VAC DISCRETE SIGNAL	D4								2690-900	1
TSH-10-1-3-1	AERATION BLOWER NO.3 MOTOR OVER TEMP	20-MCC-1	120VAC DISCRETE SIGNAL	D2									2
TSH-10-1-3-2	AERATION BLOWER NO.3 HIGH DISCHARGE TEMP	20-MCC-1	120VAC DISCRETE SIGNAL	D2									2
XS-10-2-1	BLOWER NO.1 COOLING FAN CONTROL STATIO (HOA)	20-MCC-1	120VAC DISCRETE SIGNAL	D4								2690-900	1
XS-10-2-2	BLOWER NO.2 COOLING FAN CONTROL STATIO (HOA)	20-MCC-1	120VAC DISCRETE SIGNAL	D4								2690-900	1
XS-10-2-3	BLOWER NO.3 COOLING FAN CONTROL STATIO (HOA)	20-MCC-1	120VAC DISCRETE SIGNAL	D4								2690-900	1
LCP-13-1-1	AIR COMPRESSOR ALTERNATION PANEL	20-LCP-001	120VAC DISCRETE SIGNAL	D6				20-LP-1 (17)	120/1Ø	20A/1P	2#12 & #12G	2690-800	1
MS-13-1-1	AIR COMPRESSOR NO.1 MOTOR STARTER	LCP-13-1-1	120VAC DISCRETE SIGNAL	D4				20-PDP-1 (7,9,11)	480/3Ø	20A/3P	3#12 & #12G		2
MS-13-1-2	AIR COMPRESSOR NO.2 MOTOR STARTER	LCP-13-1-1	120VAC DISCRETE SIGNAL	D4				20-PDP-1 (13,15,17)	480/3Ø	20A/3P	3#12 & #12G		2
AIT-14-1-1	HEADWORKS COMB GAS SYSTEM CONTROLLER	20-LCP-001	24VDC ANALOG SIGNAL	A4	20-LCP-001	120VAC DISCRETE SIGNAL	D4	20-LP-1 (14)	120/1Ø	20A/1P	2#12 & #12G	2690-900	1
AE-14-1-1	HEADWORKS COMB GAS SYSTEM COMBUSTIBLE GAS SENSOR	AIT-14-1-1	MFR SIGNAL CABLE	M1								2690-650	1
XA-14-1-1	HEADWORKS COMB GAS SYSTEM ALARM HORN	AIT-14-1-1	120VAC DISCRETE SIGNAL	D2								2690-900	1
XL-14-1-1	HEADWORKS COMB GAS SYSTEM WEST DOOR BEACON	AIT-14-1-1	120VAC DISCRETE SIGNAL	D2								2690-930	1
AE-14-1-2	HEADWORKS COMB GAS SYSTEM H2S SENSOR	AIT-14-1-1	MFR SIGNAL CABLE	M1								2690-650	1
XL-14-1-2	HEADWORKS COMB GAS SYSTEM SOUTH WALL BEACON	AIT-14-1-1	120VAC DISCRETE SIGNAL	D2								2690-930	1
AE-14-1-3	HEADWORKS COMB GAS SYSTEM OXYGEN SENSOR	AIT-14-1-1	MFR SIGNAL CABLE	M1								2690-650	1
XL-14-1-3	HEADWORKS COMB GAS SYSTEM INTERIOR BEACON	AIT-14-1-1	120VAC DISCRETE SIGNAL	D2								2690-900	1
AE-14-1-4	GARAGE CARBON MONOXIDE SENSOR	AIT-14-1-1	MFR SIGNAL CABLE	M1								2690-650	1
XL-14-1-4	GARAGE INTERIOR ALARM BEACON	AIT-14-1-1	120VAC DISCRETE SIGNAL	D2								2690-651	1
AE-14-1-5	GARAGE NOX SENSOR	AIT-14-1-1	MFR SIGNAL CABLE	M1								2690-650	1
JIT-15-2-1	POWER SYSTEM POWER MONITOR	20-LCP-001	ETHERNET	E1									1,5
JS-15-2-1	GENERATOR RUNNING CURRENT SWITCH	20-LCP-001	120VAC DISCRETE SIGNAL	D2									1
JS-15-2-2	GENERATOR FAIL CURRENT SWITCH	20-LCP-001	120VAC DISCRETE SIGNAL	D2									1
JS-15-2-3	GENERATOR IN EXERCISE CURRENT SWITCH	20-LCP-001	120VAC DISCRETE SIGNAL	D2									1
JS-15-2-4	ATS IN EMERGENCE POSITION CURRENT SWITCH	20-LCP-001	120VAC DISCRETE SIGNAL	D2									1
JS-15-2-5	ATS IN NORMAL POSITION CURRENT SWITCH	20-LCP-001	120VAC DISCRETE SIGNAL	D2									1
LSH-16-1-1	PROCESS ROOM FLOOD SWITCH	20-LCP-001	120VAC DISCRETE SIGNAL	D2								2690-080	1
TT-16-1-1	PROCESS ROOM TEMPERATURE SENSOR	20-LCP-001	120VAC DISCRETE SIGNAL	A1								2690-900	1
XS-16-1-1	PROCESS RM EXHAUST FAN NO.1 CONTROL STATION (HOA, RUN LT)	20-MCC-1	120VAC DISCRETE SIGNAL	D3								2690-900	1
XS-16-2-1	BLOWER RM EXHAUST FAN NO.3 CONTROL STATION (HOA, RUN LT)	20-MCC-1	120VAC DISCRETE SIGNAL	D3								2690-900	1
TSH-16-2-1	BLOWER ROOM HIGH TEMPERATURE SWITCH	20-LCP-001	120VAC DISCRETE SIGNAL	D4								2690-900	1
XS-16-2-2	BLOWER RM EXHAUST FAN NO.4 CONTROL STATION (HOA, RUN LT)	20-MCC-1	120VAC DISCRETE SIGNAL	D3								2690-900	1
XS-16-3-1	PROCESS ROOM EXHAUST FAN NO.2 CONTROL STATION (HOA, RUN LT)	20-LCP-001	120VAC DISCRETE SIGNAL	D6								2690-900	1
TSH-16-3-2	GARAGE HIGH TEMP SWITCH	20-LCP-001	120VAC DISCRETE SIGNAL	D2								2690-900	1
TSL-16-3-2	GARAGE LOW TEMPERATURE SWITCH	20-LCP-001	120VAC DISCRETE SIGNAL	D2								2690-900	1
XS-16-3-2	GARAGE EXHAUST FAN NO.5 CONTROL STATION (HOA, RUN LT)	20-LCP-001	120VAC DISCREET SIGNAL	D6								2690-900	1
XS-16-3-3	RESTROOM EXHAUST FAN NO.6 CONTROL STATION (HOA, RUN LT)	20-LCP-001	120VAC DISCREET SIGNAL	D6								2690-900	1
TSL-16-3-3	UTILITY ROOM LOW TEMPERATURE SWITCH	20-LCP-001	120VAC DISCRETE SIGNAL	D2								2690-900	1

EQUIPMENT WIRING SCHEDULE NOTES:

1. EQUIPMENT PROVIDED, INSTALLED, AND WIRED UNDER DIVISION 26.
2. EQUIPMENT PROVIDED AND INSTALLED UNDER ANOTHER DIVISION OF THE SPECIFICATIONS BUT WIRED UNDER DIVISION 26.
3. EQUIPMENT PROVIDED AND WIRED UNDER DIVISION 26 BUT INSTALLED UNDER ANOTHER DIVISION OF THE SPECIFICATIONS .
4. EQUIPMENT PROVIDED UNDER ANOTHER DIVISION OF THE SPECIFICATIONS BUT INSTALLED AND WIRED UNDER DIVISION 26.
5. REFER TO SCADA SYSTEM NETWORK ARCHITECTURE DRAWING FOR COMMUNICATION CABLING REQUIREMENTS.
6. REFER TO ONE-LINE DIAGRAM FOR POWER WIRING REQUIREMENTS.
7. PROVIDE 25% SPARE WIRING ALONG WITH SPECIFIED CONDUCTORS TO MCC.
8. INTERLOCK DAMPER OPERATOR WITH FAN F-XX. ROUTE POWER WIRING THROUGH XX-LCP-X TO IMPLEMENT INTERLOCK.
9. EXISTING CONTROL PANEL TO REMAIN AND BE MODIFIED.PROVIDE INTERNAL WIRING AND COMPONENTS TO DERIVE SIGNALS SHOWN ON P&ID'S. REFER TO SCADA SYSTEM NETWORK ARCHITECTURE, ELECTRICAL PLANS AND P&ID'S FOR REQUIRED WORK.
10. EXISTING CONTROL PANEL TO REMAIN AND BE MODIFIED FOR INCORPORATION INTO SCADA SYSTEM. PROVIDE INTERNAL WIRING AND COMPONENTS TO DERIVE SIGNALS SHOWN ON P&ID'S. REFER TO SCADA SYSTEM NETWORK ARCHITECTURE, ELECTRICAL PLANS AND P&ID'S FOR REQUIRED WORK.
11. EXISTING EQUIPMENT RE-INSTALLED AND WIRED UNDER DIVISION 26.
12. EXISTING EQUIPMENT, CONTROL WIRING AND POWER WIRING TO REMAIN. NO WORK UNDER THIS CONTRACT.
13. EXISTING EQUIPMENT TO REMAIN. REMOVE EXISTING WIRING AND INSTALL NEW AS INDICATED.
14. EXISTING EQUIPMENT TO REMAIN. REMOVE EXISTING CONTROL WIRING AND INSTALL NEW AS INDICATED. EXISTING POWER WIRING TO REMAIN.
15. FUTURE EQUIPMENT, INSTALL WIRING AS SHOWN FOR FUTURE USE.

PROJECT DATE: 2019-09-20	SCALE: AS SHOWN	NO.	DATE	REVISION	BY
	DRAWN BY: LET				
F.B. :	CHECKED BY: RJJ				
PLOT DATE: 7/1/2020					

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ELK RUN HEIGHTS / RAYMOND WWTF
CITY OF ELK RUN HEIGHTS / CITY OF RAYMOND
BLACK HAWK COUNTY, IOWA

PROCESS AND INSTRUMENTATION WIRING SCHEDULES

FILE NO. 14573015
SHEET 999E1

Return to Agenda

STR-20 - HEADWORKS: PROCESS INSTRUMENTATION AND EQUIPMENT WIRING SCHEDULE

		FIRST SIGNAL/CONTROL HOMERUN			SECOND SIGNAL/CONTROL HOMERUN			POWER HOMERUN					
TAG NUMBER	DESCRIPTION	DESTINATION	WIRING TYPE	WIRING	DESTINATION	WIRING TYPE	WIRING	CIRCUIT	VOLTAGE	CKT.BKR.	WIRING	DETAIL	NOTES
TSH-16-3-4	UV BUILDING THERMOSTAT	20-LCP-001	120VAC DISCRETE SIGNAL	D2								2690-900	1
L-2	PROCESS ROOM INTAKE LOUVER L-2	20-LCP-001	120VAC DISCRETE SIGNAL	D2				20-LP-1 (47)	120/1Ø	20A/1P	2#12 & #12G		1,8
F-2	PROCESS ROOM EXHAUST FAN NO.2	20-LCP-001	120VAC DISCRETE SIGNAL	D2				20-LP-1 (55)	120/1Ø	20A/1P	2#12 & #12G		1,8
TSH-2-1-1	MECHANICAL SCREEN MOTOR HIGH TEMP SWITCH	20-MCC-1	INTRINSICALLY SAFE SIGNAL	D2									2
XS-2-1-1	MECHANICAL SCREEN LOCAL CONTROL STATION	20-MCC-1	120VAC DISCRETE SIGNAL	D8	20-LCP-001	120VAC DISCRETE SIGNAL	D14					2690-910	2
ZS-2-1-1	MECHANICAL SCREEN HOME POSITION SWITCH	20-MCC-1	INTRINSICALLY SAFE SIGNAL	D2									2
LSH-2-1-1	MECHANICAL SCREEN CHANNEL HIGH LEVEL FLOAT	20-LCP-001	INTRINSICALLY SAFE SIGNAL	D2								2690-051	1
LIT-2-1-1	MECHANICAL SCREEN CHANNEL LEVEL TRANSMITTER	20-LCP-001	24VDC ANALOG SIGNAL	A2				20-LP-1 (4)	120/1Ø	20A/1P	2#12 & #12G	2690-900	1
LE-2-1-1-1	MECHANICAL SCREEN UPSTREAM CHANNEL LEVEL ELELMENT	LIT-2-1-1	MFR SIGNAL CABLE	M1								2690-126	1
LE-2-1-1-2	MECHANICAL SCREEN UdownSTREAM CHANNEL LEVEL ELELMENT	LIT-2-1-1	MFR SIGNAL CABLE	M1								2690-126	1
TSH-2-2-1	WASH PRESS MOTOR HIGH TEMP SWITCH	20-MCC-1	INTRINSICALLY SAFE SIGNAL	D2									2
FV-2-2-1-1	WASH PRESS HOLLOW SPIRAL SHAFT WASH WATER VALVE	20-LCP-001	120VAC DISCRETE SIGNAL	D2									2
FV-2-2-1-2	WASH PRESS WASHING ZONE WASH WATER VALVE	20-LCP-001	120VAC DISCRETE SIGNAL	D2									2
FV-2-2-1-3	WASH PRESS DEWATERING ZONE WASH WATER VALVE	20-LCP-001	120VAC DISCRETE SIGNAL	D2									2
FV-2-2-1-4	WASH PRESS DRAIN PAN WASH WATER VALVE	20-LCP-001	120VAC DISCRETE SIGNAL	D2									2
L-3	LOUVER -L-3 DAMPER ACTUATORS	20-MCC-1	120VAC DISCRETE SIGNAL	D2				20-LP-1(47)	120/1Ø	20A/1P	2#12 & #12G		2
L-3	LOUVER -L-3 DAMPER ACTUATORS	20-MCC-1	120VAC DISCRETE SIGNAL	D2				20-LP-1(49)	120/1Ø	20A/1P	2#12 & #12G		2
TSH-3-1-1	GRIT PADDLE DRIVE MOTOR OVER TEMP	20-MCC-1	120VAC DISCRETE SIGNAL	D2									2
XS-3-1-1	GRIT CHAMBER PADDLE DRIVE CONTROL STATION (HOA)	20-MCC-1	120VAC DISCRETE SIGNAL	D4								2690-910	1
XS-3-2-1	GRIT PUMP CONTROL STATION (HOA)	20-MCC-1	120VAC DISCRETE SIGNAL	D4								2690-910	1
TSH-3-2-1	GRIT PUMP MOTOR OVER TEMP	20-MCC-1	120VAC DISCRETE SIGNAL	D2									2
XS-3-3-1	GRIT WASHER CONTROL STATION (HOA)	20-MCC-1	120VAC DISCRETE SIGNAL	D4								2690-910	1
TSH-3-3-1	GRIT WASHER MOTOR OVER TEMP	20-MCC-1	120VAC DISCRETE SIGNAL	D2									2
P-3-4-1	GRIT ROOM SUMP PUMP							20-LP-1 (9)	120/1Ø	20A/1P	2#12 & #12G		2
L-4	GARAGE INTAKE LOUVER	20-LCP-001	120VAC DISCRETE SIGNAL	D2				20-LP-1 (51)	120/1Ø	20A/1P	2#12 & #12G		1,8
FE-4-1-1	INFLUENT FLOW ELEMENT	FIT-4-1-1	MFR SIGNAL CABLE	M1								2690-126	1
M-4-1-1	INFLUENT SAMPLER	20-LCP-001	24VDC ANALOG SIGNAL	A1				20-LP-1 (11)	120/1Ø	20A/1P	2#12 & #12G		2
FIT-4-1-1	INFLUENT FLOW TRANSMITTER	20-LCP-001	24VDC ANALOG SIGNAL	A1				20-LP-1 (6)	120/1Ø	20A/1P	2#12 & #12G	2690-900	1
L-5	UTILITY ROOM INTAKE LOUVER	20-LCP-001	120VAC DISCRETE SIGNAL	D2				20-LP-1 (57)	120/1Ø	20A/1P	2#12 & #12G		1,8
DF-5	GARAGE EXHAUST FAN DAMPER MOTOR	20-LCP-001	120VAC DISCRETE SIGNAL	D2				20-LP-1 (57)	120/1Ø	20A/1P	2#12 & #12G		2,8
F-5	GARAGE EXHAUST FAN NO.5	20-LCP-001	120VAC DISCRETE SIGNAL	D2				20-LP-1 (57)	120/1Ø	20A/1P	2#12 & #12G		1,8
F-6	RESTROOM EXHAUST FAN NO.6	20-LCP-001	120VAC DISCRETE SIGNAL	D2				20-LP-1 (59)	120/1Ø	20A/1P	2#12 & #12G		1,8
DF-6	RESTROOM EXHAUST FAN DAMPER MOTOR	20-LCP-001	120VAC DISCRETE SIGNAL	D2				20-LP-1 (59)	120/1Ø	20A/1P	2#12 & #12G		2,8
20-LCP-001	HEADWORKS SCADA CONTROL PANEL							20-LP-1 (2)	120/1Ø	20A/1P	2#12 & #12G	2690-800	1

STR-30 - FLOW SPLITTER STRUCTURE: PROCESS INSTRUMENTATION AND EQUIPMENT WIRING SCHEDULE

		FIRST SIGNAL/CONTROL HOMERUN			SECOND SIGNAL/CONTROL HOMERUN			POWER HOMERUN					
TAG NUMBER	DESCRIPTION	DESTINATION	WIRING TYPE	WIRING	DESTINATION	WIRING TYPE	WIRING	CIRCUIT	VOLTAGE	CKT.BKR.	WIRING	DETAIL	NOTES
FCV-5-1-1	STORM FLOW LAGOON INFLUENT FLOW CONTROL VALVE	20-LCP-001	120VAC DISCRETE SIGNAL	D6	20-LCP-001	24VDC ANALOG SIGNAL	A2	20-PDP-1 (2,4,6)	480/3Ø	15A/1P	3#12 & #12G		2
FE/FIT-5-1-1	STR-30 FLOW TRANSMITTER	20-LCP-001	INTRINSICALLY SAFE SIGNAL	A1								2690-128	1

EQUIPMENT WIRING SCHEDULE NOTES:

1. EQUIPMENT PROVIDED, INSTALLED, AND WIRED UNDER DIVISION 26.
2. EQUIPMENT PROVIDED AND INSTALLED UNDER ANOTHER DIVISION OF THE SPECIFICATIONS BUT WIRED UNDER DIVISION 26.
3. EQUIPMENT PROVIDED AND WIRED UNDER DIVISION 26 BUT INSTALLED UNDER ANOTHER DIVISION OF THE SPECIFICATIONS .
4. EQUIPMENT PROVIDED UNDER ANOTHER DIVISION OF THE SPECIFICATIONS BUT INSTALLED AND WIRED UNDER DIVISION 26.
5. REFER TO SCADA SYSTEM NETWORK ARCHITECTURE DRAWING FOR COMMUNICATION CABLING REQUIREMENTS.
6. REFER TO ONE-LINE DIAGRAM FOR POWER WIRING REQUIREMENTS.
7. PROVIDE 25% SPARE WIRING ALONG WITH SPECIFIED CONDUCTORS TO MCC.
8. INTERLOCK DAMPER OPERATOR WITH FAN F-XX. ROUTE POWER WIRING THROUGH XX-LCP-X TO IMPLEMENT INTERLOCK.
9. EXISTING CONTROL PANEL TO REMAIN AND BE MODIFIED.PROVIDE INTERNAL WIRING AND COMPONENTS TO DERIVE SIGNALS SHOWN ON P&ID'S. REFER TO SCADA SYSTEM NETWORK ARCHITECTURE, ELECTRICAL PLANS AND P&ID'S FOR REQUIRED WORK.
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BLACK HAWK COUNTY, IOWA

PROCESS AND INSTRUMENTATION WIRING SCHEDULES

FILE NO. 14573015
SHEET 999E2

Return to Agenda

STR-40 - AEROMOD PLANT: PROCESS INSTRUMENTATION AND EQUIPMENT WIRING SCHEDULE

		FIRST SIGNAL/CONTROL HOMERUN			SECOND SIGNAL/CONTROL HOMERUN			POWER HOMERUN					
TAG NUMBER	DESCRIPTION	DESTINATION	WIRING TYPE	WIRING	DESTINATION	WIRING TYPE	WIRING	CIRCUIT	VOLTAGE	CKT.BKR.	WIRING	DETAIL	NOTES
LT-10-1-1	DIGESTER TANK A LEVEL TRANSMITTER	LCP-40-1	INTRINSICALLY SAFE SIGNAL	A1								2690-000	2
LT-10-1-2	DIGESTER TANK B LEVEL TRANSMITTER	LCP-40-1	INTRINSICALLY SAFE SIGNAL	A1								2690-000	2
LCP-40-1	AEROMOD CONTROL PANEL							20-LP-1 (16)	120/1Ø	20A/1P	2#12 & #12G	2690-800	2
FIT-9-1-1	DIGESTER TANK A AIR FLOW TRANSMITTER	LCP-40-1	INTRINSICALLY SAFE SIGNAL	A1	LCP-40-1	INTRINSICALLY SAFE SIGNAL	A1 (24VDC POWER)					2690-151	2
FCV-9-1-1	DIGESTER TANK A AIR FLOW CONTROL VALVE - ELECTRIC	LCP-40-1	INTRINSICALLY SAFE SIGNAL	MODBUS				20-LP-1 (13)	120/1Ø	20A/1P	2#12 & #12G		2
FIT-9-1-4	DIGESTER TANK A AIR FLOW TRANSMITTER	LCP-40-1	INTRINSICALLY SAFE SIGNAL	A1	LCP-40-1	INTRINSICALLY SAFE SIGNAL	A1 (24VDC POWER)					2690-151	2
FCV-9-1-4	AERATION TANK A2 AIR FLOW CONTROL VALVE - ELECTRIC	LCP-40-1	INTRINSICALLY SAFE SIGNAL	MODBUS				20-LP-1 (13)	120/1Ø	20A/1P	2#12 & #12G		2
FCV-9-2-1	DIGESTER TANK B AIR FLOW CONTROL VALVE - ELECTRIC	LCP-40-1	INTRINSICALLY SAFE SIGNAL	MODBUS				20-LP-1 (15)	120/1Ø	20A/1P	2#12 & #12G		2
FIT-9-2-1	DIGESTER TANK B AIR FLOW TRANSMITTER	LCP-40-1	INTRINSICALLY SAFE SIGNAL	A1	LCP-40-1	INTRINSICALLY SAFE SIGNAL	A1 (24VDC POWER)					2690-151	2
FIT-9-2-4	DIGESTER TANK B AIR FLOW TRANSMITTER	LCP-40-1	INTRINSICALLY SAFE SIGNAL	A1	LCP-40-1	INTRINSICALLY SAFE SIGNAL	A1 (24VDC POWER)					2690-151	2
FCV-9-2-4	AERATION TANK B2 AIR FLOW CONTROL VALVE - ELECTRIC	LCP-40-1	INTRINSICALLY SAFE SIGNAL	MODBUS				20-LP-1 (15)	120/1Ø	20A/1P	2#12 & #12G		2
AIT-9-3-1	AERATION DO TRANSMITTER	LCP-40-1	24VDC ANALOG SIGNAL	A4				20-LP-1 (8)	120/1Ø	20A/1P	2#12 & #12G	2690-201	2
JB-9-3-1	AERATION TRAIN A DO PROBE J-BOX	AIT-9-3-1	MFR SIGNAL CABLE	M2								2690-201	2
AE-9-3-1	AERATION TANK A1 DO SENSOR	JB-9-3-1	INTRINSICALLY SAFE SIGNAL	M1								2690-200	2
AE-9-3-2	AERATION TANK A2 DO PROBE	JB-9-3-1	INTRINSICALLY SAFE SIGNAL	M1								2690-200	2
JB-9-4-1	AERATION TRAIN B DO PROBE J-BOX	AIT-9-3-1	MFR SIGNAL CABLE	M2								2690-201	2
AE-9-4-1	AERATION TANK B1 DO SENSOR	JB-9-3-1	INTRINSICALLY SAFE SIGNAL	M1								2690-200	2
AE-9-4-2	AERATION TANK B2 DO PROBE	JB-9-3-1	INTRINSICALLY SAFE SIGNAL	M1								2690-200	2
XC-9-5-1	CLARIFIER TANK A1 ALGEA POWER CONTROLLER							20-LP-1 (10)	120/1Ø	20A/1P	2#12 & #12G	2690-201	2
XE-9-5-1	CLARIFIER TANK A1 ALGEA TRANSDUCER	XC-9-5-1	MFR SIGNAL CABLE	M1								2690-200	2
XE-9-5-2	CLARIFIER TANK A2 ALGEA TRANSDUCER	XC-9-5-1	MFR SIGNAL CABLE	M1								2690-200	2
XC-9-6-1	CLARIFIER TRAIN ALGEA POWER CONTROLLER							20-LP-1 (12)	120/1Ø	20A/1P	2#12 & #12G	2690-201	2
XE-9-6-1	CLARIFIER TANK B1 ALGEA TRANSDUCER	XC-9-6-1	MFR SIGNAL CABLE	M1								2690-200	2
XE-9-6-2	CLARIFIER TANK B2 ALGEA TRANSDUCER	XC-9-6-1	MFR SIGNAL CABLE	M1								2690-200	2
XS-9-7-1	DIGESTER A SLUDGE PUMP CONTROL STATION (HOA)	20-MCC-1	120VAC DISCRETE SIGNAL	D4								2690-201	1
TSH-9-7-1	DIGESTER A SLUDGE PUMP MOTOR HIGH TEMP SENSOR	20-MCC-1	120VAC DISCRETE SIGNAL	D2									2
MSH-9-7-1	DIGESTER A SLUDGE PUMP SEAL FAIL SENSOR	20-MCC-1	120VAC DISCRETE SIGNAL	D2									2
ZS-9-7-1	DIGESTER A SLUDGE PUMP LOCAL DISCONNECT OPEN	20-MCC-1	120VAC DISCRETE SIGNAL	D2								2605-400	1
ZS-9-7-2	DIGESTER B SLUDGE PUMP LOCAL DISCONNECT OPEN	20-MCC-1	120VAC DISCRETE SIGNAL	D2								2605-400	1
TSH-9-7-2	DIGESTER B SLUDGE PUMP MOTOR HIGH TEMP SENSOR	20-MCC-1	120VAC DISCRETE SIGNAL	D2									2
XS-9-7-2	DIGESTER B SLUDGE PUMP CONTROL STATION (HOA)	20-MCC-1	120VAC DISCRETE SIGNAL	D4								2690-201	1
MSH-9-7-2	DIGESTER B SLUDGE PUMP SEAL FAIL SENSOR	20-MCC-1	120VAC DISCRETE SIGNAL	D2									2

STR-50 - UV BUILDING: PROCESS INSTRUMENTATION AND EQUIPMENT WIRING SCHEDULE

		FIRST SIGNAL/CONTROL HOMERUN			SECOND SIGNAL/CONTROL HOMERUN			POWER HOMERUN					
TAG NUMBER	DESCRIPTION	DESTINATION	WIRING TYPE	WIRING	DESTINATION	WIRING TYPE	WIRING	CIRCUIT	VOLTAGE	CKT.BKR.	WIRING	DETAIL	NOTES
M-11-1-1	UV LAMP BANK NO.1	PDC-11-1-1	MFR SIGNAL CABLE	M1									2
RE-11-1-1	UV LAMP BANK NO.1 UV INTENSITY SENSOR	PDC-11-1-1	24VDC ANALOG SIGNAL	A1									2
SCC-11-1-1	UV SYSTEM CONTROL PANEL	20-LCP-001	ETHERNET	FIBER				50-LP-1 (2)	120/1Ø	20A/2P	2#12 & #12G	2690-800	2
HCC-11-1-1	UV SYSTEM HYDRAULIC SYSTEM CENTER	SCC-11-1-1	MFR SIGNAL CABLE	M1	SCC-11-1-1	120VAC DISCRETE SIGNAL	D2	50-PDP-1 (2,4,6)	480/3Ø	20A/3P	3#12 & #12G		2
LSL-11-1-1	UV SYSTEM LOW LEVEL SENSOR	PDC-11-1-2	12VDC DISCRETE SIGNAL	D2									2
PDC-11-1-1	UV BANK NO.1 PDC	HCC-11-1-1	120VAC DISCRETE SIGNAL	D2	HCC-11-1-1	MFR SIGNAL CABLE	M1	50-PDP-1 (8,10,12)	480/3Ø	20A/3P	4#12 & #12G		2
RE-11-1-2	UV LAMP BANK NO.2 UV INTENSITY SENSOR	PDC-11-1-2	24VDC ANALOG SIGNAL	A1									2
PDC-11-1-2	UV BANK NO.2 PDC	PDC-11-1-1	120VAC DISCRETE SIGNAL	D4	PDC-11-1-1	MFR SIGNAL CABLE	M1	50-PDP-1 (14,16,18)	480/3Ø	20A/3P	4#12 & #12G		2
FE-11-2-1	EFFLUENT FLOW ELEMENT (ULTRASONIC)	FIT-11-2-1	MFR SIGNAL CABLE	M1								2690-126	1
FIT-11-2-1	EFFLUENT FLOW TRANSMITTER	20-LCP-001	24VDC ANALOG SIGNAL	A1	20-LCP-001	120VAC DISCRETE SIGNAL	D2	50-LP-1 (4)	120/1Ø	20A/1P	2#12 & #12G	2690-900	1
M-11-3-1	EFFLUENT SAMPLER	20-LCP-001	24VDC ANALOG SIGNAL	A1				50-LP-1 (1)	120/1Ø	20A/1P	2#12 & #12G		2
XS-12-1-1	EFFLUENT PUMP NO.1 CONTROL STATION (JOA)	20-MCC-1	120VAC DISCRETE SIGNAL	D4								2690-900	1
TSH-12-1-1	EFFLUENT PUMP NO.1 MOTOR HIGH TEMP SENSOR	20-MCC-1	120VAC DISCRETE SIGNAL	D2									2
ZS-12-1-1	EFFLUENT PUMP NO.1 LOCAL DISCONNECT OPEN	20-MCC-1	120VAC DISCRETE SIGNAL	D2								2690-900	1
MSH-12-1-1	EFFLUENT PUMP NO.1 SEAL FAIL SENSOR	20-MCC-1	120VAC DISCRETE SIGNAL	D2									2
TSH-12-1-2	EFFLUENT PUMP NO.2 MOTOR HIGH TEMP SENSOR	20-MCC-1	120VAC DISCRETE SIGNAL	D2									2
ZS-12-1-2	EFFLUENT PUMP NO.2 LOCAL DISCONNECT OPEN	20-MCC-1	120VAC DISCRETE SIGNAL	D2								2690-900	1
MSH-12-1-2	EFFLUENT PUMP NO.2 SEAL FAIL SENSOR	20-MCC-1	120VAC DISCRETE SIGNAL	D2									2
XS-12-1-2	EFFLUENT PUMP NO.2 CONTROL STATION (JOA)	20-MCC-1	120VAC DISCRETE SIGNAL	D4								2690-900	1
ZS-12-1-3	EFFLUENT PUMP NO.3 LOCAL DISCONNECT OPEN	20-MCC-1	120VAC DISCRETE SIGNAL	D2								2690-900	1
XS-12-1-3	EFFLUENT PUMP NO.3 CONTROL STATION (JOA)	20-MCC-1	120VAC DISCRETE SIGNAL	D4								2690-900	1
TSH-12-1-3	EFFLUENT PUMP NO.3 MOTOR HIGH TEMP SENSOR	20-MCC-1	120VAC DISCRETE SIGNAL	D2									2
MSH-12-1-3	EFFLUENT PUMP NO.3 SEAL FAIL SENSOR	20-MCC-1	120VAC DISCRETE SIGNAL	D2									2

EQUIPMENT WIRING SCHEDULE NOTES:

1. EQUIPMENT PROVIDED, INSTALLED, AND WIRED UNDER DIVISION 26.
2. EQUIPMENT PROVIDED AND INSTALLED UNDER ANOTHER DIVISION OF THE SPECIFICATIONS BUT WIRED UNDER DIVISION 26.
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4. EQUIPMENT PROVIDED UNDER ANOTHER DIVISION OF THE SPECIFICATIONS BUT INSTALLED AND WIRED UNDER DIVISION 26.
5. REFER TO SCADA SYSTEM NETWORK ARCHITECTURE DRAWING FOR COMMUNICATION CABLING REQUIREMENTS.
6. REFER TO ONE-LINE DIAGRAM FOR POWER WIRING REQUIREMENTS.
7. PROVIDE 25% SPARE WIRING ALONG WITH SPECIFIED CONDUCTORS TO MCC.
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ELK RUN HEIGHTS / RAYMOND WWTF
CITY OF ELK RUN HEIGHTS / CITY OF RAYMOND
BLACK HAWK COUNTY, IOWA

PROCESS AND INSTRUMENTATION WIRING SCHEDULES

FILE NO. 14573015
SHEET 999E3

Return to Agenda

STR-50 - UV BUILDING: PROCESS INSTRUMENTATION AND EQUIPMENT WIRING SCHEDULE

		FIRST SIGNAL/CONTROL HOMERUN			SECOND SIGNAL/CONTROL HOMERUN			POWER HOMERUN					
TAG NUMBER	DESCRIPTION	DESTINATION	WIRING TYPE	WIRING	DESTINATION	WIRING TYPE	WIRING	CIRCUIT	VOLTAGE	CKT.BKR.	WIRING	DETAIL	NOTES
FV-12-2-1	EFFLUENT PUMP STATION CONTROL VALVE	20-LCP-001	120VAC DISCRETE SIGNAL	D12				50-PDP-1 (7,9,11)	480/3Ø	20A/1P	3#12 & #12G		2
LSHH-12-3-1	EFFLUENT PUMP STATION HGIH LEVEL FLOAT / LAG-LAG PUMP ON	20-LCP-001	120VAC DISCRETE SIGNAL	D2								2690-051	1
LT-12-3-1	EFFLUENT PUMP STATION LEVEL TRANSMITTER	20-LCP-001	24VDC ANALOG SIGNAL	A1								2690-001	1
LSL-12-3-1	EFFLUENT PUMP STATION PUMPS OFF FLOAT	20-LCP-001	120VAC DISCRETE SIGNAL	D2								2690-051	1
LSLL-12-3-1	EFFLUENT PUMP STATION LOW LEVEL ALARM FLOAT	20-LCP-001	120VAC DISCRETE SIGNAL	D2								2690-051	1
LSC-12-3-1	EFFLUENT PUMP STATION LEAD PUMP ON	20-LCP-001	120VAC DISCRETE SIGNAL	D2								2690-051	1
LSH-12-3-1	EFFLUENT PUMP STATION LAG PUMP ON	20-LCP-001	120VAC DISCRETE SIGNAL	D2								2690-051	1
XS-16-3-4	UV BLDG EXHAUST FAN NO.7 CONTROL STATION (HOA, RUN LT)	20-LCP-001	120VAC DISCRETE SIGNAL	D6								2690-900	1
LSH-16-3-4	UV BUILDING FLOOD SWITCH	20-LCP-001	120VAC DISCRETE SIGNAL	D2								2690-080	1
TSL-16-3-4	UV BLDG LOW TEMPERATURE SWITCH	20-LCP-001	120VAC DISCRETE SIGNAL	D2								2690-900	1
L-6	UV BLDG INTAKE LOUVER	20-LCP-001	120VAC DISCRETE SIGNAL	D2				50-LP-1 (11)	120/1Ø	20A/1P	2#12 & #12G		1,8
F-7	UV BLDG EXHAUST FAN NO.7							50-LP-1 (11)	120/1Ø	20A/1P	2#12 & #12G		1,8

STR-70 - STORM FLOW PUMP STATION: PROCESS INSTRUMENTATION AND EQUIPMENT WIRING SCHEDULE

		FIRST SIGNAL/CONTROL HOMERUN			SECOND SIGNAL/CONTROL HOMERUN			POWER HOMERUN					
TAG NUMBER	DESCRIPTION	DESTINATION	WIRING TYPE	WIRING	DESTINATION	WIRING TYPE	WIRING	CIRCUIT	VOLTAGE	CKT.BKR.	WIRING	DETAIL	NOTES
FE/FIT-6-1-1	STORM FLOW LAGOON RETURN FLOW TRANSMITTER	20-LCP-001	24VDC ANALOG SIGNAL	A1								2690-127	1
XS-7-1-1	STORM FLOW PUMP NO.1 CONTROL STATION (HOA)	20-MCC-1	120VAC DISCRETE SIGNAL	D4								2605-400	1
TSH-7-1-1	STORM FLOW PUMP NO.1 MOTOR HIGH TEMP SENSOR	20-MCC-1	120VAC DISCRETE SIGNAL	D2									2
MSH-7-1-1	STORM FLOW PUMP NO.1 SEAL FAIL SENSOR	20-MCC-1	120VAC DISCRETE SIGNAL	D2									2
ZS-7-1-1	STORM FLOW PUMP NO.1 LOCAL DISCONNECT OPEN	20-MCC-1	120VAC DISCRETE SIGNAL	D2								2605-400	1
XS-7-1-2	STORM FLOW PUMP NO.2 CONTROL STATION (HOA)	20-MCC-1	120VAC DISCRETE SIGNAL	D4								2605-400	1
TSH-7-1-2	STORM FLOW PUMP NO.2 MOTOR HIGH TEMP SENSOR	20-MCC-1	120VAC DISCRETE SIGNAL	D2									2
MSH-7-1-2	STORM FLOW PUMP NO.2 SEAL FAIL SENSOR	20-MCC-1	120VAC DISCRETE SIGNAL	D2									2
ZS-7-1-2	STORM FLOW PUMP NO.2 LOCAL DISCONNECT OPEN	20-MCC-1	120VAC DISCRETE SIGNAL	D2								2605-400	1
LT-7-2-1	STORM FLOW PUMP STATION LEVEL	20-LCP-001	24VDC ANALOG SIGNAL	M1/AI								2690-051	1

STR-80 - SLUDGE LAGOON: PROCESS INSTRUMENTATION AND EQUIPMENT WIRING SCHEDULE

		FIRST SIGNAL/CONTROL HOMERUN			SECOND SIGNAL/CONTROL HOMERUN			POWER HOMERUN					
TAG NUMBER	DESCRIPTION	DESTINATION	WIRING TYPE	WIRING	DESTINATION	WIRING TYPE	WIRING	CIRCUIT	VOLTAGE	CKT.BKR.	WIRING	DETAIL	NOTES
TSH-8-1-1	SLUDGE LAGOON AERATOR NO.1 MOTOR HIGH TEMP SENSOR	20-MCC-1	120VAC DISCRETE SIGNAL	D2									2
XS-8-1-1	SLUDGE LAGOON AERATOR NO.1 CONTROL STATION (HOA)	20-LCP-001	120VAC DISCRETE SIGNAL	D4								2690-911	1
ZS-8-1-1	SLUDGE LAGOON AERATOR NO.1 LOCAL DISCONNECT OPEN	20-MCC-1	120VAC DISCRETE SIGNAL	D2								2690-911	1
XS-8-1-2	SLUDGE LAGOON AERATOR NO.2 CONTROL STATION (HOA)	20-LCP-001	120VAC DISCRETE SIGNAL	D4								2690-911	1
TSH-8-1-2	SLUDGE LAGOON AERATOR NO.2 MOTOR HIGH TEMP SENSOR	20-MCC-1	120VAC DISCRETE SIGNAL	D2									2
ZS-8-1-2	SLUDGE LAGOON AERATOR NO.2 LOCAL DISCONNECT OPEN	20-MCC-1	120VAC DISCRETE SIGNAL	D2								2690-911	1
TSH-8-1-3	SLUDGE LAGOON AERATOR NO.3 MOTOR HIGH TEMP SENSOR	20-MCC-1	120VAC DISCRETE SIGNAL	D2									2
XS-8-1-3	SLUDGE LAGOON AERATOR NO.3 CONTROL STATION (HOA)	20-LCP-001	120VAC DISCRETE SIGNAL	D4								2690-911	1
ZS-8-1-3	SLUDGE LAGOON AERATOR NO.3 LOCAL DISCONNECT OPEN	20-MCC-1	120VAC DISCRETE SIGNAL	D2								2690-911	1
TSH-8-1-4	SLUDGE LAGOON AERATOR NO.4 MOTOR HIGH TEMP SENSOR	20-MCC-1	120VAC DISCRETE SIGNAL	D2									2
XS-8-1-4	SLUDGE LAGOON AERATOR NO.4 CONTROL STATION (HOA)	20-LCP-001	120VAC DISCRETE SIGNAL	D4								2690-911	1
ZS-8-1-4	SLUDGE LAGOON AERATOR NO.4 LOCAL DISCONNECT OPEN	20-MCC-1	120VAC DISCRETE SIGNAL	D2								2690-911	1

EQUIPMENT WIRING SCHEDULE NOTES:

1. EQUIPMENT PROVIDED, INSTALLED, AND WIRED UNDER DIVISION 26.
2. EQUIPMENT PROVIDED AND INSTALLED UNDER ANOTHER DIVISION OF THE SPECIFICATIONS BUT WIRED UNDER DIVISION 26.
3. EQUIPMENT PROVIDED AND WIRED UNDER DIVISION 26 BUT INSTALLED UNDER ANOTHER DIVISION OF THE SPECIFICATIONS .
4. EQUIPMENT PROVIDED UNDER ANOTHER DIVISION OF THE SPECIFICATIONS BUT INSTALLED AND WIRED UNDER DIVISION 26.
5. REFER TO SCADA SYSTEM NETWORK ARCHITECTURE DRAWING FOR COMMUNICATION CABLING REQUIREMENTS.
6. REFER TO ONE-LINE DIAGRAM FOR POWER WIRING REQUIREMENTS.
7. PROVIDE 25% SPARE WIRING ALONG WITH SPECIFIED CONDUCTORS TO MCC.
8. INTERLOCK DAMPER OPERATOR WITH FAN F-XX. ROUTE POWER WIRING THROUGH XX-LCP-X TO IMPLEMENT INTERLOCK.
9. EXISTING CONTROL PANEL TO REMAIN AND BE MODIFIED.PROVIDE INTERNAL WIRING AND COMPONENTS TO DERIVE SIGNALS SHOWN ON P&ID'S. REFER TO SCADA SYSTEM NETWORK ARCHITECTURE, ELECTRICAL PLANS AND P&ID'S FOR REQUIRED WORK.
10. EXISTING CONTROL PANEL TO REMAIN AND BE MODIFIED FOR INCORPORATION INTO SCADA SYSTEM. PROVIDE INTERNAL WIRING AND COMPONENTS TO DERIVE SIGNALS SHOWN ON P&ID'S. REFER TO SCADA SYSTEM NETWORK ARCHITECTURE, ELECTRICAL PLANS AND P&ID'S FOR REQUIRED WORK.
11. EXISTING EQUIPMENT RE-INSTALLED AND WIRED UNDER DIVISION 26.
12. EXISTING EQUIPMENT, CONTROL WIRING AND POWER WIRING TO REMAIN. NO WORK UNDER THIS CONTRACT.
13. EXISTING EQUIPMENT TO REMAIN. REMOVE EXISTING WIRING AND INSTALL NEW AS INDICATED.
14. EXISTING EQUIPMENT TO REMAIN. REMOVE EXISTING CONTROL WIRING AND INSTALL NEW AS INDICATED. EXISTING POWER WIRING TO REMAIN.
15. FUTURE EQUIPMENT, INSTALL WIRING AS SHOWN FOR FUTURE USE.

PROJECT DATE: 2019-09-20	SCALE: AS SHOWN	NO.	DATE	REVISION	BY	
	DRAWN BY: LET					
F.B. :	CHECKED BY: RJJ					
PLOT DATE: 7/1/2020						

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PROCESS AND INSTRUMENTATION WIRING SCHEDULES

FILE NO. 14573015
SHEET 999E4

Return to Agenda

20-MCC-1: ETHERNET I-O SCHEDULE

MODULE TYPE	EQUIPMENT TAG	DESCRIPTION	MCC COMPT	TYPE	MODULE	POINT	NOTES
ELECTRONIC OVERLOAD	JC-2-1-1	MECHANICAL SCREEN CONTROL AVAILABLE	01C	DI	01	01	1
		MECHANICAL SCREEN RUNNING	01C	DI	01	02	1
		MECHANICAL SCREEN REQUIRED	01C	DO	01	03	1
		MECHANICAL SCREEN MOT	01C	DO	01	04	1
		MECHANICAL SCREEN JAM	01C	DI	02	01	1
		MECHANICAL SCREEN SPARE	01C	DI	02	02	1
		MECHANICAL SCREEN SPARE	01C	DI	02	03	1
		MECHANICAL SCREEN SPARE	01C	DI	02	04	1
		MECHANICAL SCREEN SPARE	01C	DO	02	05	1
		MECHANICAL SCREEN SPARE	01C	DO	02	06	1
ELECTRONIC OVERLOAD	JC-2-2-1	WASH PRESS CONTROL AVAILABLE	01G	DI	01	01	1
		WASH PRESS RUNNING	01G	DI	01	02	1
		WASH PRESS REQUIRED	01G	DO	01	03	1
		WASH PRESS MOT	01G	DO	01	04	1
DRIVE I-O	AFD-3-1-1	GRIT CHAMBER PADDLE DRIVE CONTROL AVAILABLE	02A	DI	01	01	1
		GRIT CHAMBER PADDLE DRIVE IN HAND	02A	DI	01	02	1
		GRIT CHAMBER PADDLE DRIVE DISCONNECT OPEN	02A	DI	01	03	1
		GRIT CHAMBER PADDLE DRIVE REQUIRED	02A	DO	01	04	1
		GRIT CHAMBER PADDLE DRIVE MOTOR TEMP	02A	DI	02	01	1
		GRIT CHAMBER PADDLE DRIVE SPARE	02A	DI	02	02	1
		GRIT CHAMBER PADDLE DRIVE SPARE	02A	DI	02	03	1
		GRIT CHAMBER PADDLE DRIVE AFD FAIL	02A	DO	02	04	1
		GRIT CHAMBER PADDLE DRIVE AFD RUN	02A	DO	02	05	1
ELECTRONIC OVERLOAD	JC-3-2-1	GRIT PUMP CONTROL AVAILABLE	02G	DI	01	01	1
		GRIT PUMP RUNNING	02G	DI	01	02	1
		GRIT PUMP REQUIRED	02G	DO	01	03	1
		GRIT PUMP MOT	02G	DO	01	04	1
ELECTRONIC OVERLOAD	JC-3-3-1	GRIT WASHER CONTROL AVAILABLE	02J	DI	01		1
		GRIT WASHER RUNNING	02J	DI	02		1
		GRIT WASHER REQUIRED	02J	DO	03		1
		GRIT WASHER MOT	02J	DO	04		1
DRIVE I-O	AFD-7-1-1	STORM FLOW PUMP NO.1 CONTROL AVAILBLE	03A	DI	01	01	1
		STORM FLOW PUMP NO.1 IN HAND	03A	DI	01	02	1
		STORM FLOW PUMP NO.1 DISCONNECT OPEN	03A	DI	01	03	1
		STORM FLOW PUMP NO.1 REQUIRED	03A	DO	01	04	1
		STORM FLOW PUMP NO.1 SEAL FAIL	03A	DI	02	01	1
		STORM FLOW PUMP NO.1 RESET	03A	DI	02	02	1
		STORM FLOW PUMP NO.1 MOTOR TEMP	03A	DI	02	03	1
		STORM FLOW PUMP NO.1 AFD FAIL	03A	DO	02	04	1
		STORM FLOW PUMP NO.1 AFD RUN	03A	DO	02	05	1
ELECTRONIC OVERLOAD	JC-8-1-1	SLUDGE LAGOON AERATOR NO.1 CONTROL AVAILABLE	03G	DI	01	01	1
		SLUDGE LAGOON AERATOR NO.1 RUNNING	03G	DI	01	02	1
		SLUDGE LAGOON AERATOR NO.1 REQUIRED	03G	DO	01	03	1
		SLUDGE LAGOON AERATOR NO.1 MOT	03G	DO	01	04	1
ELECTRONIC OVERLOAD	JC-8-1-2	SLUDGE LAGOON AERATOR NO.2 CONTROL AVAILABLE	03J	DI	01	01	1
		SLUDGE LAGOON AERATOR NO.2 RUNNING	03J	DI	01	02	1
		SLUDGE LAGOON AERATOR NO.2 REQUIRED	03J	DO	01	03	1
		SLUDGE LAGOON AERATOR NO.2 MOT	03J	DO	01	04	1
DRIVE I-O	AFD-7-1-2	STORM FLOW PUMP NO.2 CONTROL AVAILBLE	04A	DI	01	01	1
		STORM FLOW PUMP NO.2 IN HAND	04A	DI	01	02	1
		STORM FLOW PUMP NO.2 DISCONNECT OPEN	04A	DI	01	03	1
		STORM FLOW PUMP NO.2 REQUIRED	04A	DO	01	04	1
		STORM FLOW PUMP NO.2 SEAL FAIL	04A	DI	02	01	1
		STORM FLOW PUMP NO.2 RESET	04A	DI	02	02	1
		STORM FLOW PUMP NO.2 MOTOR TEMP	04A	DI	02	03	1
		STORM FLOW PUMP NO.2 AFD FAIL	04A	DO	02	04	1
		STORM FLOW PUMP NO.2 AFD RUN	04A	DO	02	05	1
ELECTRONIC OVERLOAD	JC-8-1-3	SLUDGE LAGOON AERATOR NO.3 CONTROL AVAILABLE	04G	DI	01	01	1
		SLUDGE LAGOON AERATOR NO.3 RUNNING	04G	DI	01	02	1
		SLUDGE LAGOON AERATOR NO.3 REQUIRED	04G	DO	01	03	1
		SLUDGE LAGOON AERATOR NO.3 MOT	04G	DO	01	04	1
ELECTRONIC OVERLOAD	JC-8-1-4	SLUDGE LAGOON AERATOR NO.4 CONTROL AVAILABLE	04J	DI	01	01	1
		SLUDGE LAGOON AERATOR NO.4 RUNNING	04J	DI	01	02	1
		SLUDGE LAGOON AERATOR NO.4 MOT	04J	DO	01	03	1
		SLUDGE LAGOON AERATOR NO.4 REQUIRED	04J	DO	01	04	1
DRIVE I-O	AFD-10-1-1	AERATION BLOWER NO.1 CONTROL AVAILABLE	05A	DI	01	01	1
		AERATION BLOWER NO.1 DISC OPEN	05A	DI	01	02	1
		AERATION BLOWER NO.1 HIGH DISCHARGE TEMP	05A	DI	01	03	1
		AERATION BLOWER NO.1 REQUIRED	05A	DO	01	04	1
		AERATION BLOWER NO.1 MOTOR HIGH TEMP	05A	DI	02	01	1

20-MCC-1: ETHERNET I-O SCHEDULE

MODULE TYPE	EQUIPMENT TAG	DESCRIPTION	MCC COMPT	TYPE	MODULE	POINT	NOTES
		AERATION BLOWER NO.1 SPARE	05A	DI	02	02	1
		AERATION BLOWER NO.1 SPARE	05A	DI	02	03	1
		AERATION BLOWER NO.1 AFD FAIL	05A	DO	02	04	1
		AERATION BLOWER NO.1 AFD RUNNING	05A	DO	02	05	1
ELECTRONIC OVERLOAD	JC-10-2-1	AERATION BLOWER NO.1 COOLING FAN CONTROL AVAILABLE	05K	DI	01	01	1
		AERATION BLOWER NO.1 COOLING FAN RUNNING	05K	DI	01	02	1
		AERATION BLOWER NO.1 COOLING FAN REQUIRED	05K	DO	01	03	1
		AERATION BLOWER NO.1 COOLING FAN SPARE	05K	DO	01	04	1
DRIVE I-O	AFD-10-1-2	AERATION BLOWER NO.2 CONTROL AVAILABLE	06A	DI	01	01	1
		AERATION BLOWER NO.2 DISC OPEN	06A	DI	01	02	1
		AERATION BLOWER NO.2 HIGH DISCHARGE TEMP	06A	DI	01	03	1
		AERATION BLOWER NO.2 REQUIRED	06A	DO	01	04	1
		AERATION BLOWER NO.2 MOTOR HIGH TEMP	06A	DI	02	01	1
		AERATION BLOWER NO.2 SPARE	06A	DI	02	02	1
		AERATION BLOWER NO.2 SPARE	06A	DI	02	03	1
		AERATION BLOWER NO.2 AFD FAIL	06A	DO	02	04	1
		AERATION BLOWER NO.2 AFD RUNNING	06A	DO	02	05	1
ELECTRONIC OVERLOAD	JC-10-2-2	AERATION BLOWER NO.2 COOLING FAN CONTROL AVAILABLE	06K	DI	01	01	1
		AERATION BLOWER NO.2 COOLING FAN RUNNING	06K	DI	01	02	1
		AERATION BLOWER NO.2 COOLING FAN REQUIRED	06K	DO	01	03	1
		AERATION BLOWER NO.2 COOLING FAN SPARE	06K	DO	01	04	1
DRIVE I-O	AFD-10-1-3	AERATION BLOWER NO.3 CONTROL AVAILABLE	07A	DI	01	01	1
		AERATION BLOWER NO.3 DISC OPEN	07A	DI	01	02	1
		AERATION BLOWER NO.3 HIGH DISCHARGE TEMP	07A	DI	01	03	1
		AERATION BLOWER NO.3 REQUIRED	07A	DO	01	04	1
		AERATION BLOWER NO.3 MOTOR HIGH TEMP	07A	DI	02	01	1
		AERATION BLOWER NO.3 SPARE	07A	DI	02	02	1
		AERATION BLOWER NO.3 SPARE	07A	DI	02	03	1
		AERATION BLOWER NO.3 AFD FAIL	07A	DO	02	04	1
		AERATION BLOWER NO.3 AFD RUNNING	07A	DO	02	05	1
ELECTRONIC OVERLOAD	JC-10-2-3	AERATION BLOWER NO.3 COOLING FAN CONTROL AVAILABLE	07K	DI	01	01	1
		AERATION BLOWER NO.3 COOLING FAN RUNNING	07K	DI	01	02	1
		AERATION BLOWER NO.3 COOLING FAN REQUIRED	07K	DO	01	03	1
		AERATION BLOWER NO.3 COOLING FAN SPARE	07K	DO	01	04	1
ELECTRONIC OVERLOAD	JC-12-1-1	EFFLUENT PUMP NO.1 CONTROL AVAILABLE	08A	DI	01	01	1
		EFFLUENT PUMP NO.1 RUNNING	08A	DI	01	02	1
		EFFLUENT PUMP NO.1 RESET	08A	DI	01	03	1
		EFFLUENT PUMP NO.1 REQUIRED	08A	DO	01	04	1
		EFFLUENT PUMP NO.1 SEAL FAIL	08A	DI	02	01	1
		EFFLUENT PUMP NO.1 MOTOR TEMP	08A	DI	02	02	1
		EFFLUENT PUMP NO.1 SPARE	08A	DI	02	03	1
		EFFLUENT PUMP NO.1 SPARE	08A	DO	02	04	1
		EFFLUENT PUMP NO.1 SPARE	08A	DO	02	05	1
ELECTRONIC OVERLOAD	JC-SPARE	SPARE STARTER	08E	DI	01	01	1
		SPARE STARTER	08E	DI	01	02	1
		SPARE STARTER	08E	DI	01	02	1
		SPARE STARTER	08E	DO	01	03	1
ELECTRONIC OVERLOAD	JC-16-1-1	PROCESS ROOM EXHAUST FAN NO.1 CONTROL AVAILABLE	08G	DI	01	01	1
		PROCESS ROOM EXHAUST FAN NO.1 RUNNING	08G	DI	01	02	1
		PROCESS ROOM EXHAUST FAN NO.1 REQUIRED	08G	DO	01	03	1
		PROCESS ROOM EXHAUST FAN NO.1 SPARE	08G	DO	01	04	1
ELECTRONIC OVERLOAD		SPARE STARTER	08I	DI	01	01	1
		SPARE STARTER	08I	DI	01	02	1
		SPARE STARTER	08I	DI	01	02	1
		SPARE STARTER	08I	DO	01	03	1
ELECTRONIC OVERLOAD	JC-16-1-3	BLOWER ROOM FAN NO.3 CONTROL AVAILABLE	08K	DI	01	01	1
		BLOWER ROOM FAN NO.3 RUNNING	08K	DI	01	02	1
		BLOWER ROOM FAN NO.3 REQUIRED	08K	DO	01	03	1
		BLOWER ROOM FAN NO.3 SPARE	08K	DO	01	04	1
ELECTRONIC OVERLOAD	JC-12-1-2	EFFLUENT PUMP NO.2 CONTROL AVAILABLE	09A	DI	01	01	1
		EFFLUENT PUMP NO.2 RUNNING	09A	DI	01	02	1
		EFFLUENT PUMP NO.2 RESET	09A	DI	01	03	1
		EFFLUENT PUMP NO.2 REQUIRED	09A	DO	01	04	1
		EFFLUENT PUMP NO.2 SEAL FAIL	09A	DI	02	01	1
		EFFLUENT PUMP NO.2 MOTOR TEMP	09A	DI	02	02	1
		EFFLUENT PUMP NO.2 SPARE	09A	DI	02	03	1
		EFFLUENT PUMP NO.2 SPARE	09A	DO	02	04	1
		EFFLUENT PUMP NO.2 SPARE	09A	DO	02	05	1

I-O SCHEDULE NOTES:

1. I-O POINT PROVIDED, INSTALLED, AND CONFIGURED IN NEW MOTOR CONTROL CENTER SYSTEM UNDER THIS CONTRACT.
2. EXISTING I-O POINT IN EXISTING MOTOR CONTROL CENTER SYSTEM TO REMAIN IN PRESENT CONFIGURATION AND USAGE AS SHOWN.
3. EXISTING I-O POINT IN EXISTING MOTOR CONTROL CENTER SYSTEM TO BE MODIFIED FROM PRESENT CONFIGURATION AND USAGE TO THAT SHOWN.

PROJECT DATE: 2019-09-20	SCALE: AS SHOWN	NO.	DATE	REVISION	BY
	DRAWN BY: LET				
F.B. :	CHECKED BY: RJJ				
PLOT DATE: 7/1/2020					

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BLACK HAWK COUNTY, IOWA

20-MCC-1- I_O SCHEDULES

FILE NO. 14573015
SHEET 999E5

Return to Agenda

20-MCC-1: ETHERNET I-O SCHEDULE

MODULE TYPE	EQUIPMENT TAG	DESCRIPTION	MCC COMPT	TYPE	MODULE	POINT	NOTES
ELECTRONIC OVERLOAD	JC-16-1-4	BLOWER ROOM FAN NO.4 CONTROL AVAILABLE	09E	DI	01	01	1
		BLOWER ROOM FAN NO.4 RUNNING	09E	DI	01	02	1
		BLOWER ROOM FAN NO.4 REQUIRED	09E	DO	01	03	1
		BLOWER ROOM FAN NO.4 SPARE	09E	DO	01	04	1
ELECTRONIC OVERLOAD	JC-9-7-1	DIGESTER A SLUDGE PUMP CONTROL AVAILABLE	09H	DI	01	01	1
		DIGESTER A SLUDGE PUMP RUNNING	09H	DI	01	02	1
		DIGESTER A SLUDGE PUMP REQUIRED	09H	DO	01	03	1
		DIGESTER A SLUDGE PUMP MOT	09H	DO	01	04	1
		DIGESTER A SLUDGE PUMP RESET	09H	DI	02	01	1
		DIGESTER A SLUDGE PUMP SEAL FAIL	09H	DI	02	02	1
		DIGESTER A SLUDGE PUMP SPARE	09H	DI	02	03	1
		DIGESTER A SLUDGE PUMP SPARE	09H	DI	02	04	1
		DIGESTER A SLUDGE PUMP SPARE	09H	DO	02	05	1
		DIGESTER A SLUDGE PUMP SPARE	09H	DO	02	06	1
ELECTRONIC OVERLOAD	JC-12-1-3	EFFLUENT PUMP NO.3 CONTROL AVAILABLE	10C	DI	01	01	1
		EFFLUENT PUMP NO.3 RUNNING	10C	DI	01	02	1
		EFFLUENT PUMP NO.3 RESET	10C	DI	01	03	1
		EFFLUENT PUMP NO.3 REQUIRED	10C	DO	01	04	1
		EFFLUENT PUMP NO.3 SEAL FAIL	10C	DI	02	01	1
		EFFLUENT PUMP NO.3 MOTOR TEMP	10C	DI	02	02	1
		EFFLUENT PUMP NO.3 SPARE	10C	DI	02	03	1
		EFFLUENT PUMP NO.3 SPARE	10C	DO	02	04	1
		EFFLUENT PUMP NO.3 SPARE	10C	DO	02	05	1
ELECTRONIC OVERLOAD	JC-9-7-2	DIGESTER B SLUDGE PUMP CONTROL AVAILABLE	10G	DI	01	01	1
		DIGESTER B SLUDGE PUMP RUNNING	10G	DI	01	02	1
		DIGESTER B SLUDGE PUMP REQUIRED	10G	DO	01	03	1
		DIGESTER B SLUDGE PUMP MOT	10G	DO	01	04	1
		DIGESTER B SLUDGE PUMP RESET	10G	DI	02	01	1
		DIGESTER B SLUDGE PUMP SEAL FAIL	10G	DI	02	02	1
		DIGESTER B SLUDGE PUMP SPARE	10G	DI	02	03	1
		DIGESTER B SLUDGE PUMP SPARE	10G	DI	02	04	1
		DIGESTER B SLUDGE PUMP SPARE	10G	DO	02	05	1
		DIGESTER B SLUDGE PUMP SPARE	10G	DO	02	06	1

I-O SCHEDULE NOTES:

1. I-O POINT PROVIDED, INSTALLED, AND CONFIGURED IN NEW MOTOR CONTROL CENTER SYSTEM UNDER THIS CONTRACT.
2. EXISTING I-O POINT IN EXISTING MOTOR CONTROL CENTER SYSTEM TO REMAIN IN PRESENT CONFIGURATION AND USAGE AS SHOWN.
3. EXISTING I-O POINT IN EXISTING MOTOR CONTROL CENTER SYSTEM TO BE MODIFIED FROM PRESENT CONFIGURATION AND USAGE TO THAT SHOWN.

PROJECT DATE: 2019-09-20	SCALE: AS SHOWN	NO.	DATE	REVISION	BY
	DRAWN BY: LET				
F.B. :	CHECKED BY: RJJ				
PLOT DATE: 7/1/2020					

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20-MCC-1 - I_O SCHEDULES CONT

FILE NO. 14573015
SHEET 999E6

Return to Agenda

20-LCP-001: CONTROL PANEL PLC I-O SCHEDULE

RACK	SLOT	POINT	TYPE	DESCRIPTION	NOTES
01	00	NA	NA	TYPE 1 COMPACTLOGIX PLC PROCESSOR	1
01	01	00	AI	ELK RUN FLOW	1
01	01	01	AI	RAYMOND FLOW	1
01	01	02	AI	MECHANICAL SCREEN CHANNEL UPSTREAM LEVEL	1
01	01	03	AI	MECHANICAL SCREEN CHANNEL DOWN STREAM LEVEL	1
01	01	04	AI	INFLUENT FLOW	1
01	01	05	AI	STORM FLOW LAGOON RETURN FLOW	1
01	01	06	AI	STR-30 FLOW	1
01	01	07	AI	STORM FLOW PUMP STATION LEVEL	1
01	02	00	AI	STORM FLOW LAGOON INFLUENT FLOW CONTROL VALVE POSITION FEEDBACK	1
01	02	01	AI	GENERATOR INSTANTANEOUS LOAD	1
01	02	02	AI	EFFLUENT FLOW	1
01	02	03	AI	EFFLUENT PUMP STATION LEVEL	1
01	02	04	AI	EFFLUENT PUMP STATION CONTROL VALVE POSITION	1
01	02	05	AI	COMBUSTIBLE GAS SYSTEM COMB GAS LEVEL	1
01	02	06	AI	COMBUSTIBLE GAS SYSTEM H2S GAS LEVEL	1
01	02	07	AI	COMBUSTIBLE GAS SYSTEM O2LEVEL	1
01	03	00	AI	GARAGE NOX LEVEL	1
01	03	01	AI	GARAGE CARBON MONOXIDE LEVEL	1
01	03	02	AI	PROCESS ROOM TEMPERATURE	1
01	03	03	AI	SPARE	1
01	03	04	AI	SPARE	1
01	03	05	AI	SPARE	1
01	03	06	AI	SPARE	1
01	03	07	AI	SPARE	1
01	03A	NA	NA	POWER SUPPLY	1
01	04	00	AO	ELK RUN INFLUENT SAMPLER FLOW PACE	1
01	04	01	AO	RAYMOND INFLUENT SAMPLER FLOW PACE	1
01	04	02	AO	INFLUENT SAMPLER FLOW PACE	1
01	04	03	AO	STORM FLOW LAGOON INFLUENT FLOW CONTROL VALVE POSITION CMD	1
01	05	00	AO	EFFLUENT SAMPLER FLOW PACE	1
01	05	01	AO	SPARE	1
01	05	02	AO	SPARE	1
01	05	03	AO	SPARE	1
01	06	00	DI	ELK RUN FLOW TOTAL	1
01	06	01	DI	RAYMOND FLOW TOTAL	1
01	06	02	DI	MECHANICAL SCREEN CHANNEL HIGH LEVEL ALARM	1
01	06	03	DI	MECHANICAL SCREEN HOME POSITION	1
01	06	04	DI	MECHANICAL SCREEN / WASH PRESS - ESTOP	1
01	06	05	DI	WASH PRESS RUN SELECTOR - FORWARD	1
01	06	06	DI	WASH PRESS RUN SELECTOR - REVERSE	1
01	06	07	DI	WASH PRESS INITIATE	1
01	06	08	DI	HEADWORKS CONTROL PANEL POWER FAIL	
01	06	09	DI	HEADWORKS CONTROL PANEL UPS FAIL	1
01	06	10	DI	INFLUENT FLOW TOTAL	1
01	06	11	DI	STORM FLOW LAGOON INFLUENT FLOW CONTROL VALVE OPEN	1
01	06	12	DI	STORM FLOW LAGOON INFLUENT FLOW CONTROL VALVE CLOSED	1
01	06	13	DI	STORM FLOW LAGOON INFLUENT CONTROL VALVE CONTROL AVAILABLE	1
01	06	14	DI	STR-30 FLOW TOTAL	1

20-LCP-001: CONTROL PANEL PLC I-O SCHEDULE

RACK	SLOT	POINT	TYPE	DESCRIPTION	NOTES
01	06	15	DI	STORM FLOW LAGOON RETURN FLOW TOTAL	1
01	07	00	DI	GENERATOR EXERSICE	1
01	07	01	DI	GENERATOR FAILED	1
01	07	02	DI	GENERATOR RUNNING	1
01	07	03	DI	UTILITY POWER FAILED	1
01	07	04	DI	UTILITY POWER NORMAL	1
01	07	05	DI	GENERATOR KWH	1
01	07	06	DI	EFFLUENT PUMP STATION ALL PUMPS OFF	1
01	07	07	DI	EFFLUENT PUMP STATION LOW LEVEL ALARM	1
01	07	08	DI	EFFLUENT PUMP STATION LEAD PUMP ON	1
01	07	09	DI	EFFLUENT PUMP STATION LAG PUMP ON	1
01	07	10	DI	EFFLUENT PUMP STATION LAG-LAG PUMP ON / HIGH WATER ALARM	1
01	07	11	DI	EFFLUENT PUMP STATION FLOAT MODE ACTIVE	1
01	07	12	DI	EFFLUENT PUMP STATION CONTROL VALVE CONTROL AVAILABLE	1
01	07	13	DI	EFFLUENT PUMP STATION CONTROL VALVE TORQUE ALARM	1
01	07	14	DI	EFFLUENT PUMP STATION CONTROL VALVE CLOSED	1
01	07	15	DI	EFFLUENT PUMP STATION CONTROL VALVE OPEN	1
01	08	00	DI	EFFLUENT FLOW TOTAL	1
01	08	01	DI	PROCESS RM EXHAUST FAN NO.2 IN AUTO	1
01	08	02	DI	PROCESS RM EXHAUST FAN NO.2 LOCAL REQUIRED	1
01	08	03	DI	PROCESS RM EXHAUST FAN NO.2 RUNNING	1
01	08	04	DI	PROCESS ROOM FLOOD ALARM	1
01	08	05	DI	GARAGE LOW TEMPERATURE INHIBIT	1
01	08	06	DI	GARAGE EXHAUST FAN NO.5 IN AUTO	1
01	08	07	DI	GARAGE EXHAUST FAN NO.5 LOCAL REQUIRED	1
01	08	08	DI	GARAGE EXHAUST FAN NO.5 RUNNING	1
01	08	09	DI	GARAGE COOLING REQUIRED	1
01	08	10	DI	RESTROOM EXHAUST FAN NO.6 IN AUTO	1
01	08	11	DI	RESTROOM EXHAUST FAN NO.6 LOCAL REQUIRED	1
01	08	12	DI	RESTROOM EXHAUST FAN NO.6 RUNNING	1
01	08	13	DI	UTILITY LOW TEMPERATURE INHIBIT	1
01	08	14	DI	HEADWORKS COMB GAS DETECTION SYSTEM TROUBLE	1
01	08	15	DI	SPARE	1
01	09	00	DI	UV BUILDING FLOOD ALARM	1
01	09	01	DI	UV BLDG LOW TEMPERATURE INHIBIT	1
01	09	02	DI	UV BLDG COOLING REQUIRED	1
01	09	03	DI	UV BLDG EXHAUST FAN NO.7 IN AUTO	1
01	09	04	DI	UV BLDG EXHAUST FAN NO.7 LOCAL REQUIRED	1
01	09	05	DI	UV BLDG EXHAUST FAN NO.7 RUNNING	1
01	09	06	DI	BLOWER RM 1ST STAGE COOLING REQUIRED	1
01	09	07	DI	BLOWER RM 2ND STAGE COOLING REQUIRED	1
01	09	08	DI	SPARE	1
01	09	09	DI	SPARE	1
01	09	10	DI	SPARE	1
01	09	11	DI	SPARE	1
01	09	12	DI	SPARE	1
01	09	13	DI	SPARE	1
01	09	14	DI	SPARE	1
01	09	15	DI	SPARE	1

20-LCP-001: CONTROL PANEL PLC I-O SCHEDULE

RACK	SLOT	POINT	TYPE	DESCRIPTION	NOTES
01	10	00	DI	SPARE	1
01	10	01	DI	SPARE	1
01	10	02	DI	SPARE	1
01	10	03	DI	SPARE	1
01	10	04	DI	SPARE	1
01	10	05	DI	SPARE	1
01	10	06	DI	SPARE	1
01	10	07	DI	SPARE	1
01	10	08	DI	SPARE	1
01	10	09	DI	SPARE	1
01	10	10	DI	SPARE	1
01	10	11	DI	SPARE	1
01	10	12	DI	SPARE	1
01	10	13	DI	SPARE	1
01	10	14	DI	SPARE	1
01	10	15	DI	SPARE	1
01	11	00	DO	SYSTEM ALARM NO.1	1
01	11	01	DO	SYSTEM ALARM NO. 2	1
01	11	02	DO	SYSTEM ALARM NO. 3	1
01	11	03	DO	SYSTEM ALARM NO. 4	1
01	11	04	DO	SYSTEM ALARM NO. 5	1
01	11	05	DO	SYSTEM ALARM NO. 6	1
01	11	06	DO	SYSTEM ALARM NO. 7	1
01	11	07	DO	SYSTEM ALARM NO. 8	1
01	11	08	DO	SYSTEM ALARM NO. 9	1
01	11	09	DO	SYSTEM ALARM NO. 10	1
01	11	10	DO	SYSTEM ALARM NO. 11	1
01	11	11	DO	SYSTEM ALARM NO. 12	1
01	11	12	DO	SYSTEM ALARM NO. 13	1
01	11	13	DO	SYSTEM ALARM NO. 14	1
01	11	14	DO	SYSTEM ALARM NO. 15	1
01	11	15	DO	SYSTEM ALARM NO. 16	1
01	12	00	DO	WASH PRESS HOLLOW SPIRAL SHAFT WASH WATER VALVE OPEN	1
01	12	01	DO	WASH PRESS WASHING ZONE WASH WATER VALVE OPEN	1
01	12	02	DO	WASH PRESS DEWATERING ZONE WASH WATER VALVE OPEN	1
01	12	03	DO	WASH PRESS DRAIN PAN WASH WATER VALVE OPEN	1
01	12	04	DO	HEADWORKS CONTROL PANEL PLC FAIL	1
01	12	05	DO	EFFLUENT PUMP STATION CONTROL VALVE CLOSE	1
01	12	06	DO	EFFLUENT PUMP STATION CONTROL VALVE OPEN	1
01	12	07	DO	PROCESS RM EXHAUST FAN NO.2 REQUIRED	1
01	12	08	DO	GARAGE EXHAUST FAN NO.5 REQUIRED	1
01	12	09	DO	RESTROOM EXHAUST FAN NO.6 REQUIRED	1
01	12	10	DO	UV BLDG EXHAUST FAN NO.7 REQUIRED	1
01	12	11	DO	SPARE	1
01	12	12	DO	SPARE	1
01	12	13	DO	SPARE	1
01	12	14	DO	SPARE	1
01	12	15	DO	SPARE	1

I-O SCHEDULE NOTES:

1. I-O POINT PROVIDED, INSTALLED, AND CONFIGURED IN NEW PROGRAMMABLE LOGIC CONTROLLER SYSTEM UNDER THIS CONTRACT.
2. VENDOR FURNISHED I-O POINT CONFIGURED IN NEW PROGRAMMABLE LOGIC CONTROLLER SYSTEM UNDER ANOTHER DIVISION. FIELD WIRE INSTALLED AND TESTED UNDER THIS CONTRACT

PROJECT DATE: 2019-09-20	SCALE: AS SHOWN	NO.	DATE	REVISION	BY
	DRAWN BY: LET				
F.B. :	CHECKED BY: RJJ				
PLOT DATE: 7/1/2020					

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20-PLC-1 - I_O SCHEDULES

FILE NO. 14573015
SHEET 999E7

Return to Agenda

LCP-40-1: CONTROL PANEL PLC I-O SCHEDULE

RACK	SLOT	POINT	TYPE	DESCRIPTION	NOTES
01	00	NA	NA	TYPE 1 COMPACTLOGIX PLC PROCESSOR	2
01	01	00	AI	DIGESTER TANK A LEVEL	2
01	01	01	AI	AERATION TANK A2 AIR FLOW	2
01	01	02	AI	DIGESTER TANK A AIR FLOW	2
01	01	03	AI	DIGESTER TANK B LEVEL	2
01	01	04	AI	AERATION TANK B2 AIR FLOW	2
01	01	05	AI	DIGESTER TANK B AIR FLOW	2
01	01	06	AI	SPARE	2
01	01	07	AI	SPARE	2
01	02	00	AO	SPARE	2
01	02	01	AO	SPARE	2
01	02	02	AO	SPARE	2
01	02	03	AO	SPARE	2
01	02A	NA	NA	POWER SUPPLY	2
01	03	00	DI	AEROMOD CONTROL PANEL POWER FAIL	2
01	03	01	DI	AEROMOD CONTROL PANEL UPS FAIL	2
01	03	02	DI	AEROMOD CONTROL PANEL TIMER/PLC SELECTOR SWITCH INPUT	2
01	03	03	DI	AIR COMPRESSOR NO.1 READY TO RUN	2
01	03	04	DI	AIR COMPRESSOR NO.1 RUNNING	2
01	03	05	DI	AIR COMPRESSOR NO.1 FAIL	2
01	03	06	DI	AIR COMPRESSOR NO.2 READY TO RUN	2
01	03	07	DI	AIR COMPRESSOR NO.2 RUNNING	2
01	03	08	DI	AIR COMPRESSOR NO.2 FAIL	2
01	03	09	DI	SPARE	2
01	03	10	DI	SPARE	2
01	03	11	DI	SPARE	2
01	03	12	DI	SPARE	2
01	03	13	DI	SPARE	2
01	03	14	DI	SPARE	2
01	03	15	DI	SPARE	2
01	04	00	DI	SPARE	2
01	04	01	DI	SPARE	2
01	04	02	DI	SPARE	2
01	04	03	DI	SPARE	2
01	04	04	DI	SPARE	2
01	04	05	DI	SPARE	2
01	04	06	DI	SPARE	2
01	04	07	DI	SPARE	2
01	04	08	DI	SPARE	2

LCP-40-1: CONTROL PANEL PLC I-O SCHEDULE

RACK	SLOT	POINT	TYPE	DESCRIPTION	NOTES
01	04	09	DI	SPARE	2
01	04	10	DI	SPARE	2
01	04	11	DI	SPARE	2
01	04	12	DI	SPARE	2
01	04	13	DI	SPARE	2
01	04	14	DI	SPARE	2
01	04	15	DI	SPARE	2
01	05	00	DO	DIGESTER TRAIN A AIR HEADER PNEUMATIC VALVE REQUIRED	2
01	05	01	DO	AERATION TANK A1 AIR HEADER PNEUMATIC VALVE REQUIRED	2
01	05	02	DO	AERATION TANK A2 AIR HEADER PNEUMATIC VALVE REQUIRED	2
01	05	03	DO	AERATION TANK A3 VALVE FV-9-1-5 PNEUMATIC VALVE REQUIRED	2
01	05	04	DO	AERATION TANK A3 VALVE FV-9-1-6 PNEUMATIC VALVE REQUIRED	2
01	05	05	DO	AERATION TANK A3 VALVE FV-9-1-7 PNEUMATIC VALVE REQUIRED	2
01	05	06	DO	AERATION TANK A3 VALVE FV-9-1-8 PNEUMATIC VALVE REQUIRED	2
01	05	07	DO	DIGESTER TRAIN B AIR HEADER PNEUMATIC VALVE REQUIRED	2
01	05	08	DO	AERATION TANK B1 AIR HEADER PNEUMATIC VALVE REQUIRED	2
01	05	09	DO	AERATION TANK B2 AIR HEADER PNEUMATIC VALVE REQUIRED	2
01	05	10	DO	AERATION TANK B3 AVALVE FV-9-2-5 PNEUMATIC VALVE REQUIRED	2
01	05	11	DO	AERATION TANK B3 AVALVE FV-9-2-6 PNEUMATIC VALVE REQUIRED	2
01	05	12	DO	AERATION TANK B3 AVALVE FV-9-2-7 PNEUMATIC VALVE REQUIRED	2
01	05	13	DO	AERATION TANK B3 AVALVE FV-9-2-8 PNEUMATIC VALVE REQUIRED	2
01	05	14	DO	SPARE	2
01	05	15	DO	SPARE	2
01	06	00	DO	AERO-MOD CONTROL PANEL PLC FAIL	2
01	06	01	DO	AERATION TANK A1 DO PROBE AIR BLAST REQUIRED	2
01	06	02	DO	TRAIN A WAS AIR LIFT PUMP REQUIRED	2
01	06	03	DO	AERATION TANK A2 DO PROBE AIR BLAST REQUIRED	2
01	06	04	DO	TRAIN B WAS AIR LIFT PUMP REQUIRED	2
01	06	05	DO	AERATION TANK B1 DO PROBE AIR BLAST REQUIRED	2
01	06	06	DO	AERATION TANK B2 DO PROBE AIR BLAST REQUIRED	2
01	06	07	DO	SPARE	2
01	06	08	DO	SPARE	2
01	06	09	DO	SPARE	2
01	06	10	DO	SPARE	2
01	06	11	DO	SPARE	2
01	06	12	DO	SPARE	2
01	06	13	DO	SPARE	2
01	06	14	DO	SPARE	2
01	06	15	DO	SPARE	2

I-O SCHEDULE NOTES:

1. I-O POINT PROVIDED, INSTALLED, AND CONFIGURED IN NEW PROGRAMMABLE LOGIC CONTROLLER SYSTEM UNDER THIS CONTRACT.
2. VENDOR FURNISHED I-O POINT CONFIGURED IN NEW PROGRAMMABLE LOGIC CONTROLLER SYSTEM UNDER ANOTHER DIVISION. FIELD WIRE INSTALLED AND TESTED UNDER THIS CONTRACT

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LCP-40-1 - I_O SCHEDULES

FILE NO. 14573015
SHEET 999E8

Return to Agenda

FIXTURE SCHEDULE

TYPE	DESCRIPTION	WATTS	LAMP TYPE	LAMP QTY.	MANUFACTURER	CATALOG NUMBER	NOTE
D1	4' SURFACE ENCLOSED LED INDUSTRIAL - WET LABEL	38	LED-4000K	W/FIX.	LITHONIA	FEM-L48-6000LM-IMAFD-WD-120-GZ10-40K-80CRI-WLFEND	
D2	4' SURFACE ENCLOSED LED INDUSTRIAL - WET LABEL	75	LED-5000K	W/FIX.	LITHONIA	FEM-L48-12000LM-IMACD-WD-120-GZ10-50K-80CRI-WLFEND	1
H1	EXTERIOR LED WALL PACK W/ PHOTOCELL,	29	LED-5000K	W/FIX.	LITHONIA	TWR1 LED-P2-40K-MVOLT-PE-XXXX	
H2	EXTERIOR LED WALL FLOOD,	42	LED-5000K	W/FIX.	LITHONIA	DSXF1-LED-PC-50K-WFL-MVOLT-IS-PE-DDBXD	3
J1	CEILING MOUNTED LED, CLASS I, DIVISION 1, GROUPS C, D	112	LED/5000K/70CRI 10997 LUMENS	W/FIX.	CROUSE-HINDS	EVLL-11L-C CX2/UNV1	1
J2	CEILING MOUNTED LED, HIGH BAY LIGHTS	200	LED/5000K/ 27000 LUMENS	W/FIX.	LITHONIA	CHB-P-200W-50K-WD-U-D-W-PM2	1
J3	WALL MOUNTED LED, CLASS I DIVISION 1, GROUPS C,D	112	LED/5000K/70CRI 8293 LUMENS	W/FIX.	CROUSE-HINDS	EVLL-7L-C CX2/UNV1	
L4	2x2 TROFFER LED	30	LED-4000K 3300 LUMENS	W/FIX.	LITHONIA	BLC 2X2 3300LM 80CRI 40K ADSM MIN10 ZT MVOLT	
Y1	POLE MOUNTED FIXTURE - DOUBLE HEAD - TYPE 5 - 4" POLE	133	LED-5000K	W/FIX.	LITHONIA	RSX1 LED - P4-50K-R3-MVOLT-SPA-HS-PE-DDBXD	2
Y1	25 FT ALUMINUM SQ. POLE, DARK BRONZE	N/A	N/A	N/A	LITHONIA	SSS-25-4G-DM19-FDL2Y-DDB + 3' BASE	2
Y2	POLE MOUNTED FIXTURE - DOUBLE HEAD - TYPE 5 - 4" POLE	133	LED-5000K	W/FIX.	LITHONIA	RSX1 LED - P4-50K-R4-MVOLT-SPA-HS-PE-DDBXD	2
Y2	25 FT ALUMINUM SQ. POLE, DARK BRONZE	N/A	N/A	N/A	LITHONIA	SSS-25-4G-DM19-FDL2Y-DDB + 3' BASE	2
Y3	POLE MOUNTED FIXTURE - DOUBLE HEAD - TYPE 5 - 4" POLE	133	LED-5000K	W/FIX.	LITHONIA	RSX1 LED - P4-50K-R5-MVOLT-SPA-PE-DDBXD	2
X1	EXT LIGHT WITH LIGHTS	1.65	LED	W/FIX.	DUAL LIGHT	EVC-U-R-W-D	
X2	EXT LIGHT WITH LIGHTS - EXPLOSION PROOF	3.3	N/A	N/A	LARSON	EXP-EMG-EXT-LE6-3L-V2	

GENERAL NOTES:

1. ALL FIXTURES SHALL BE UNIVERSAL VOLTAGE UNLESS OTHERWISE INDICATED.
2. ALL LED FIXTURES SHALL BE DESIGNLIGHTS$_{TM}$ CONSORTIUM QUALIFIED.
3. FIXTURES BY MANUFACTURERS OTHER THAN THOSE SHOWN IN THE SCHEDULE SHALL BE CONSIDERED EQUAL PROVIDED THEY ARE OF SIMILAR QUALITY OF CONSTRUCTION AND HAVE ALL FEATURES, OPTIONS AND ACCESSORIES AS THE SCHEDULED FIXTURE.

FIXTURE NOTES:

1. PROVIDE PENDENT MOUNT WHERE REQUIRED ON PLANS TO MEET SPECIFIED MOUNTING HEIGHT.
2. PROVIDE 2-POLE MOUNTED FIXTURES WITH PHOTOCELL CONTROL AND OUTLET 2 FT ABOVE POLE BASE.
3. PROVIDE WITH WALL BRACKET PN - FRWB-DDBXD

FEEDER SCHEDULE

ID	THERMAL-MAGNETIC CIRCUIT BREAKER	SINGLE-PHASE TWO-WIRE CIRCUIT		SINGLE OR THREE-PHASE THREE-WIRE CIRCUIT		THREE-PHASE FOUR-WIRE CIRCUIT		ALL	MAX. DISTANCES (FT) 480V 3-PHASE		MAX. DISTANCES (FT) 240V 3-PHASE		MAX. DISTANCES (FT) 208V 3-PHASE OR 120/240V 1-PHASE	
		CONDUIT	CIRCUIT CONDUCTORS	CONDUIT	CIRCUIT CONDUCTORS	CONDUIT	CIRCUIT CONDUCTORS	EQUIPMENT GROUNDING CONDUCTOR	FEEDER (2% DROP)	BRANCH (3% DROP)	FEEDER (2% DROP)	BRANCH (3% DROP)	FEEDER (2% DROP)	BRANCH (3% DROP)
1	10	3/4"	(2) #12	3/4"	(3) #12	3/4"	(4) #12	#12	335	502	167	251	145	218
2	15	3/4"	(2) #12	3/4"	(3) #12	3/4"	(4) #12	#12	223	335	112	167	97	145
3	20	3/4"	(2) #12	3/4"	(3) #12	3/4"	(4) #12	#12	167	251	84	126	73	109
4	25	3/4"	(2) #10	3/4"	(3) #10	3/4"	(4) #10	#10	212	317	106	159	92	138
5	30	3/4"	(2) #10	3/4"	(3) #10	3/4"	(4) #10	#10	176	264	88	132	76	115
6	35	3/4"	(2) #8	3/4"	(3) #8	3/4"	(4) #8	#10	241	361	120	181	104	157
7	40	3/4"	(2) #8	3/4"	(3) #8	3/4"	(4) #8	#10	211	316	105	158	91	137
8	45	3/4"	(2) #8	3/4"	(3) #8	3/4"	(4) #8	#10	187	281	94	140	81	122
9	50	3/4"	(2) #8	3/4"	(3) #8	3/4"	(4) #8	#10	169	253	84	126	73	110
10	60	3/4"	(2) #6	3/4"	(3) #6	1"	(4) #6	#10	224	336	112	168	97	146
11	70	1"	(2) #4	1"	(3) #4	1-1/4"	(4) #4	#8	305	457	152	228	132	198
12	80	1"	(2) #4	1"	(3) #4	1-1/4"	(4) #4	#8	266	400	133	200	115	173
13	90	1"	(2) #3	1"	(3) #3	1-1/4"	(4) #3	#8	290	436	145	218	126	189
14	100	1"	(2) #3	1"	(3) #3	1-1/4"	(4) #3	#8	261	392	131	196	113	170
15	110	1"	(2) #2	1"	(3) #2	1-1/2"	(4) #2	#6	307	461	154	230	133	200
16	125	1-1/4"	(2) #1	1-1/2"	(3) #1	1-1/2"	(4) #1	#6	340	510	170	255	147	221
17	150	1-1/4"	(1) #1/0	1-1/2"	(3) #1/0	2"	(4) #1/0	#6	355	533	178	266	154	231
18	175	N/A	N/A	2"	(3) #2/0	2"	(4) #2/0	#6	377	566	189	283	163	245
19	200	N/A	N/A	2"	(3) #3/0	2"	(4) #3/0	#6	413	619	206	310	179	268
20	225	N/A	N/A	2"	(3) #4/0	2-1/2"	(4) #4/0	#4	459	688	229	344	199	298
21	250	N/A	N/A	2-1/2"	(3) 250KCMIL	3"	(4) 250KCMIL	#4	484	725	242	363	210	314
22	300	N/A	N/A	3"	(3) 350KCMIL	3"	(4) 350KCMIL	#4	552	829	276	414	239	359
23	350	N/A	N/A	3"	(3) 500KCMIL	3-1/2"	(4) 500KCMIL	#3	647	970	323	485	280	420
24	400	N/A	N/A	3-1/2"	(3) 600KCMIL	4"	(4) 600KCMIL	#3	661	992	331	496	286	430
25	450	N/A	N/A	(2) 2"	2 SETS OF (3) #4/0	(2) 2-1/2"	2 SETS OF (4) #4/0	#2	459	688	229	344	199	298
26	500	N/A	N/A	(2) 2-1/2"	2 SETS OF (3) 250KCMIL	(2) 3"	2 SETS OF (4) 250KCMIL	#2	484	725	242	363	210	314
27	600	N/A	N/A	(2) 3"	2 SETS OF (3) 350KCMIL	(2) 3"	2 SETS OF (4) 350KCMIL	#1	552	829	276	414	239	359
28	700	N/A	N/A	(2) 3"	2 SETS OF (3) 500KCMIL	(2) 3-1/2"	2 SETS OF (4) 500KCMIL	#1/0	647	970	323	485	280	420
29	800	N/A	N/A	(2) 3-1/2"	2 SETS OF (3) 600KCMIL	(2) 4"	2 SETS OF (4) 600KCMIL	#1/0	661	992	331	496	286	430
39	20	N/A	N/A	1"	3C#12 SHIELDED MOTOR CABLE	N/A	N/A	(3) #10	167	251	84	126	73	109
40	30	N/A	N/A	1"	3C#10 SHIELDED MOTOR CABLE	N/A	N/A	(3) #10	176	264	88	132	76	115
41	50	N/A	N/A	1"	3C#8 SHIELDED MOTOR CABLE	N/A	N/A	(3) #10	169	253	84	126	73	110
42	60	N/A	N/A	1 1/4"	3C#6 SHIELDED MOTOR CABLE	N/A	N/A	(3) #10	224	336	112	168	97	146
43	80	N/A	N/A	1 1/4"	3C#4 SHIELDED MOTOR CABLE	N/A	N/A	(3) #10	266	400	133	200	115	173
44	100	N/A	N/A	1 1/2"	3C#3 SHIELDED MOTOR CABLE	N/A	N/A	(3) #10	261	392	131	196	113	170

PLAN NOTATION:

△ SINGLE-PHASE, TWO-WIRE FEEDER, NUMBER IS THE FEEDER IDENTIFIER

□ SINGLE OR THREE-PHASE, THREE-WIRE FEEDER, NUMBER IS THE FEEDER IDENTIFIER

○ THREE-PHASE, FOUR-WIRE FEEDER, NUMBER IS THE FEEDER IDENTIFIER

PROJECT DATE: 2019-09-20	SCALE: AS SHOWN	NO.	DATE	REVISION	BY
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FIXTURE AND FEEDER SCHEDULE

FILE NO. 14573015
SHEET 999E9

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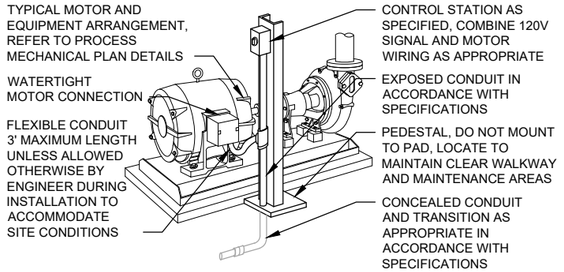
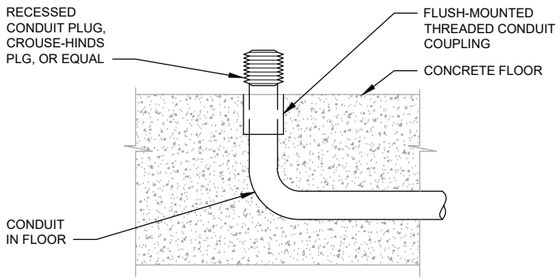
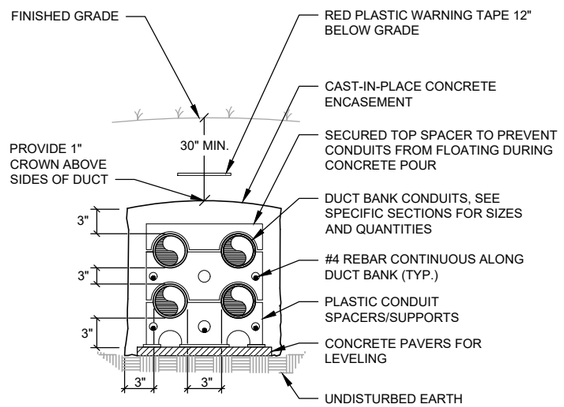


2605-001 PROCESS EQUIPMENT CONNECTION CONCEALED CONDUIT
NTS



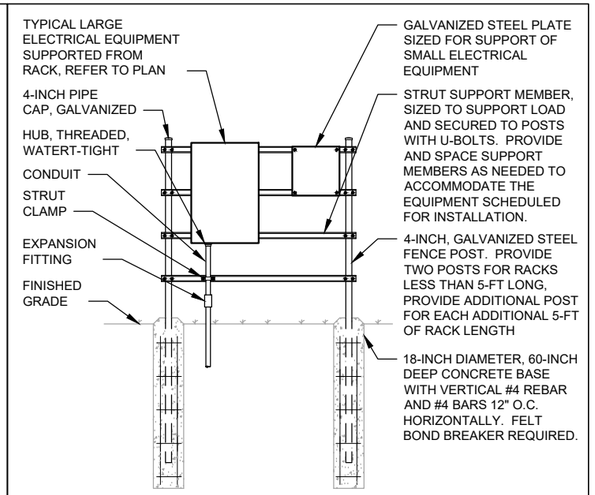
2605-301 CONDUIT INSTALLATION IN-FLOOR FUTURE EQUIPMENT
NTS



SECTION VIEW

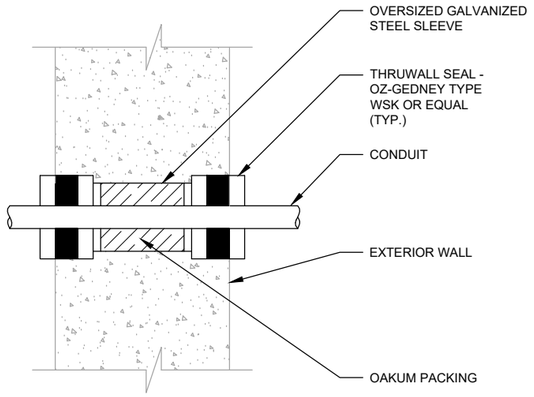
DETAIL NOTES:
1. ADJUST TRENCH AND DUCT BANK DEPTH AND WIDTH TO ACCOMMODATE CONDUITS SCHEDULED.
2. COORDINATE ROUTING TO AVOID CONFLICTS WITH MECHANICAL PIPING.
3. DIMENSION SHOWN ARE MINIMUM REQUIREMENTS.

2605-312 RACEWAY INSTALLATION UNDERGROUND, CONCRETE ENCASED DUCT BANK
NTS

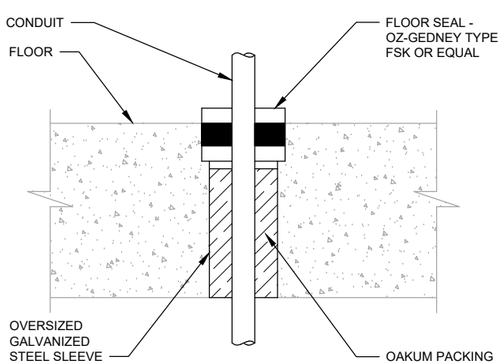


DETAIL NOTES:
1. REFER TO PLAN, FOR LOCATION, ORIENTATION, AND IDENTIFICATION OF EQUIPMENT SCHEDULED FOR INSTALLATION ON RACK..
2. CONTRACTOR SHALL VERIFY THAT SELECTED COMPONENTS ARE SUITABLE FOR THE WEIGHT OF THE MOUNTED EQUIPMENT.
3. SUPPORT MEMBERS SHALL BE CONSTRUCTED OF GALVANIZED OR STAINLESS STEEL AS SPECIFIED. ALL HARDWARE SHALL BE CONSTRUCTED OF STAINLESS STEEL.

2605-400 SUPPORT HARDWARE INSTALLATION EXTERIOR FREE-STANDING RACK
NTS

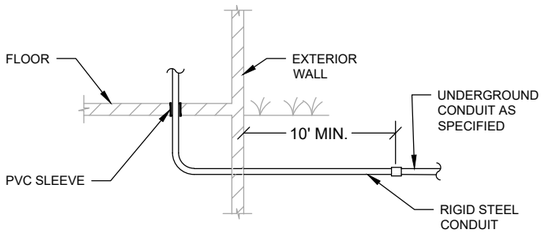


WALL PENETRATION

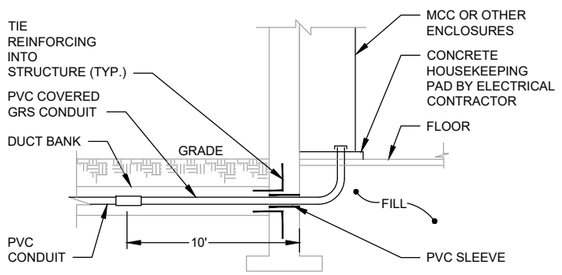


FLOOR PENETRATION

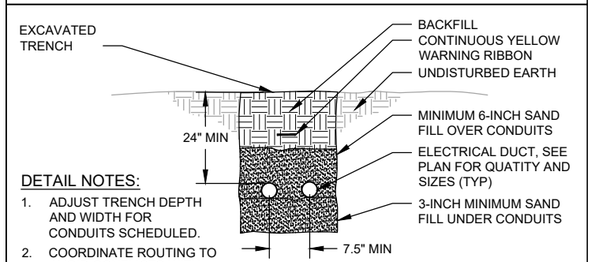
2605-305 CONDUIT WALL AND FLOOR PENETRATIONS
NTS



2605-303 CONDUIT INSTALLATION, EXTERIOR DIRECT BURIED INTO NEW SPACE
NTS

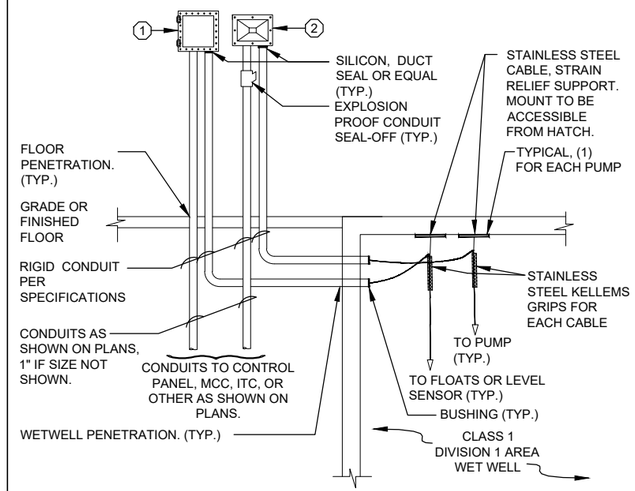


2605-304 CONDUIT INSTALLATION, EXTERIOR DUCT INTO NEW SPACE
NTS



DETAIL NOTES:
1. ADJUST TRENCH DEPTH AND WIDTH FOR CONDUITS SCHEDULED.
2. COORDINATE ROUTING TO AVOID CONFLICTS WITH MECHANICAL PIPING.

2605-310 RACEWAY INSTALLATION UNDERGROUND, DIRECT-BURIED
NTS



PLAN NOTES: (X)
1. GASKETED, WATERTIGHT J-BOX CROUSE-HINDS WJB OR EQUAL. BOX FOR INTRINSICALLY SAFE CIRCUIT WIRING (FLOATS, LEVEL SENSOR, ETC.). PROVIDE BONDING BUSHING ON ALL CONDUITS, BOND TO GROUNDING BUS. PROVIDE CONDENSATE DRAIN, CROUSE-HINDS ECD-384 OR EQUAL.
2. HINGED, GASKETED, WATERTIGHT J-BOX SUITABLE FOR CLASS 1 DIVISION 1 ATMOSPHERE CROUSE-HINDS EJB OR EQUAL. BOX FOR PUMP POWER AND SENSOR CABLES. PROVIDE BONDING BUSHING ON ALL CONDUITS, BOND TO GROUNDING BUS. PROVIDE CONDENSATE DRAIN, CROUSE-HINDS ECD-384 OR EQUAL.

DETAIL NOTES:
1. ALL WIRE SPLICES SHALL BE DONE IN J-BOXES.
2. LOCATE CONTROL PANEL/J-BOX MINIMUM OF 3 FEET FROM STATIC VENT.
3. PROVIDE SEPARATE CONDUITS PER SPECIFICATION 26 05 34. ONE CONDUIT FOR EACH PUMP POWER CABLE, SIZE PER ONE-LINE.
4. CONDUIT(S) FOR LEVEL SENSING EQUIPMENT, SIZE AND QUANTITY PER DETAILS 2690-000 & 2690-051.
5. MOUNT BOXES PER DETAIL AS SHOWN ON DRAWINGS.
6. INSTALL LEVEL SENSOR IN LOCATION WHERE SUSPENSION HOOKS, CABLES, AND CONDUIT(S) ARE ALL ACCESSIBLE FROM THE WET WELL HATCH WITHOUT ENTERING THE WET WELL.
7. INSTALL AND CONNECT LEVEL SENSOR BREATHER TUBE (IF PROVIDED) PER MANUFACTURER'S INSTRUCTIONS.
8. PROVIDE SUFFICIENT SLACK CABLE, COILED AND SUSPENDED FROM HOOK, TO ALLOW ADJUSTMENT +/- 3 FT. FROM SPECIFIED ELEVATION.
9. WET WELL OR FLOOR PENETRATION SHALL CONSIST OF NON-METALLIC SLEEVE FOR CAST IN-PLACE STRUCTURE OR CORED HOLE FOR PRE-CAST OR EXISTING STRUCTURE. PROVIDE MODULAR RUBBER SEAL AT EACH PENETRATION.
10. CONDUIT SHALL BE SIZED TO ACCOMMODATE LEVEL SENSOR CABLE. MATERIALS SHALL BE AS SPECIFIED.

2605-606 WETWELL JUNCTION BOXES
NTS

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ELECTRICAL DETAILS

FILE NO. 14573015
SHEET 999E10

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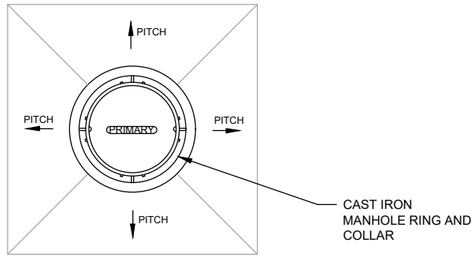
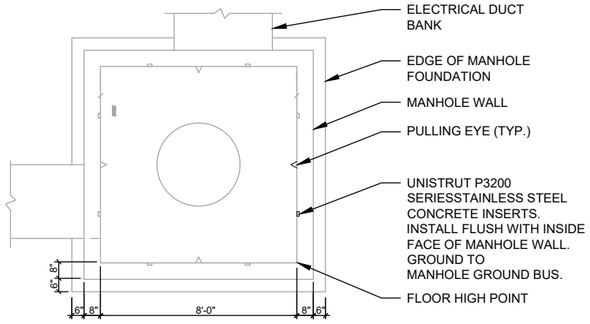
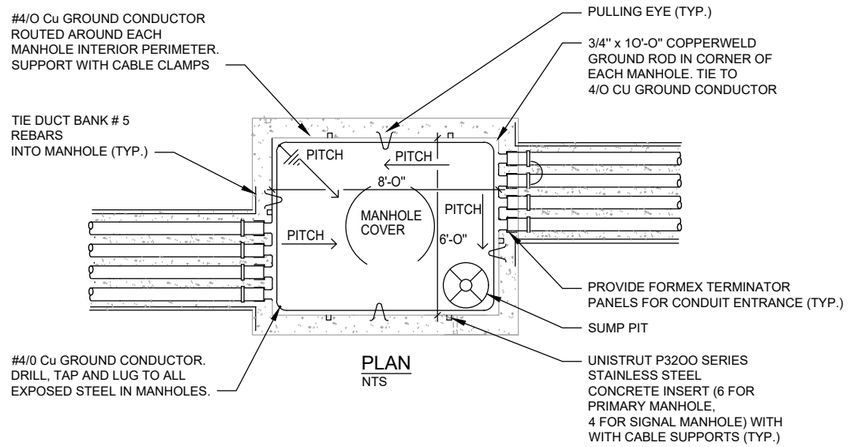


ROOF PLAN (GROUND COVER NOT SHOWN)
NTS



PLAN
NTS

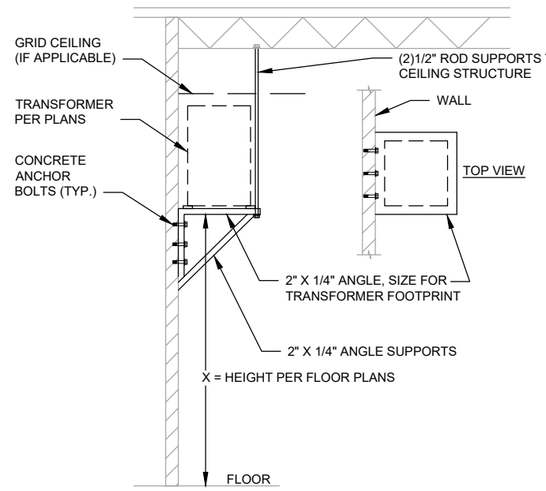


PLAN
NTS

DETAIL NOTES:

1. DETAIL SHOWS GENERAL REQUIREMENTS FOR ELECTRIC MANHOLES. CONTRACTOR IS RESPONSIBLE FOR ELECTRICAL MANHOLE CONSTRUCTION AND SHALL ADJUST ACCORDINGLY TO MATCH INTENT OF DESIGN FOR THE SPECIFIC SITE APPLICATIONS.

2605-504 ELECTRIC MANHOLE DETAIL
NTS

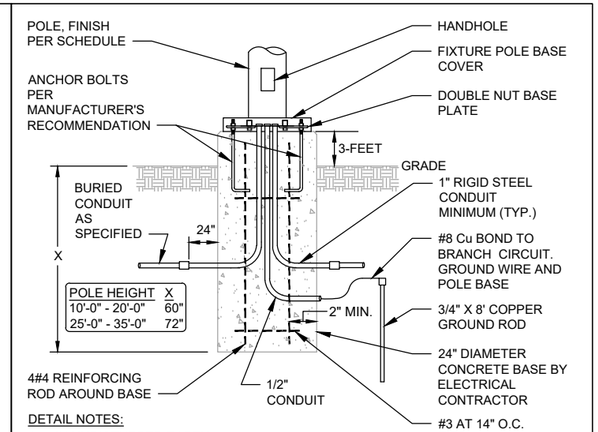


SIDE VIEW

DETAIL NOTES:

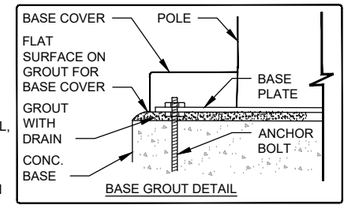
1. STEEL FRAME TO BE WELDED, PRIMER PAINTED AND FINISH PAINTED GRAY.

2624-100 EQUIPMENT INSTALLATION, WALL-MOUNTED TRANSFORMER
NTS



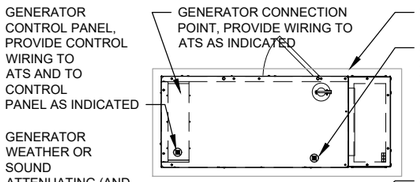
DETAIL NOTES:

1. IN UNDISTURBED EARTH, EXCLUDING FILL MATERIAL, A 2'-0" DIA. HOLE WHICH SHALL BE USED AS THE FORM FOR THE CONCRETE BASE SHALL BE DRILLED.
2. IN EXCAVATED AREAS OR IN EXISTING SOIL CONTAINING FILL OF OBJECTIONABLE MATERIAL, BACKFILL AROUND CONCRETE BASE WITH COMPACTED GRANULAR BACKFILL A MIN. OF 2'-0" IN ALL DIRECTIONS.

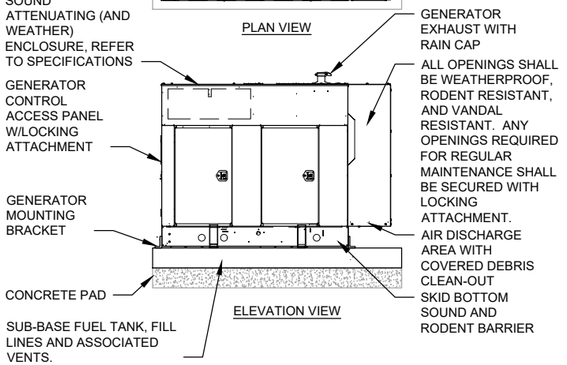


BASE GROUT DETAIL

2650-200 EXTERIOR MOUNTED FIXTURE BASE
NTS



PLAN VIEW

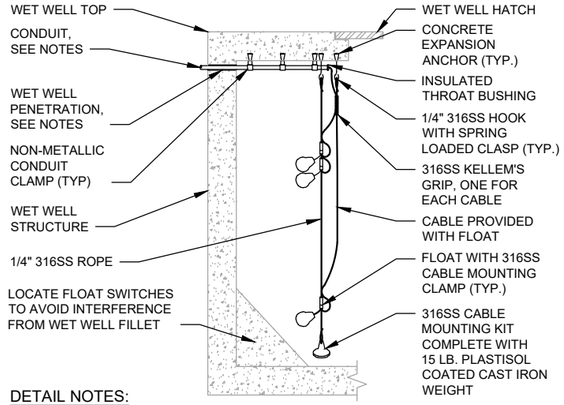


ELEVATION VIEW

NOTES:

1. INSTALL GENERATOR PER MANUFACTURER'S INSTRUCTIONS, IN ACCORDANCE WITH ALL CODES, AND ON CONCRETE ISOLATION PAD, REFER TO ARCHITECTURAL/STRUCTURAL/CIVIL PLANS.
2. REFER TO SITE PLAN FOR LOCATION AND ORIENTATION.

2632-400 PERMANENT GENERATOR EXTERIOR INSTALLATION
NTS



DETAIL NOTES:

1. INSTALL FLOAT SWITCHES IN LOCATION WHERE SUSPENSION HOOKS, CABLES, AND CONDUIT(S) ARE ALL ACCESSIBLE FROM THE WET WELL HATCH WITHOUT ENTERING THE WET WELL. ADJUST FLOAT SWITCH MOUNTING TO ACHIEVE ACTIVATION ELEVATIONS AS SPECIFIED, SHOWN ON PLANS, OR DIRECTED IN THE FIELD BY THE ENGINEER.
2. INSTALL NO MORE THAN THREE FLOAT SWITCH CABLES IN EACH CONDUIT. PROVIDE MULTIPLE CONDUITS IF MORE THAN THREE FLOATS ARE SPECIFIED. CONDUIT SHALL BE 2-1/2". MATERIALS SHALL BE AS SPECIFIED.
3. FLOAT SWITCH GROUND CONDUCTOR SHALL BE SOLIDLY GROUNDED
4. PROVIDE SUFFICIENT SLACK CABLE, COILED AND SUSPENDED FROM HOOK, TO ALLOW ADJUSTMENT +/- 3 FT. FROM SPECIFIED ELEVATION.
5. WET WELL PENETRATION SHALL CONSIST OF NON-METALLIC SLEEVE FOR CAST IN-PLACE STRUCTURE OR CORED HOLE FOR PRE-CAST OR EXISTING STRUCTURE. PROVIDE MODULAR RUBBER SEAL AT EACH PENETRATION.

2690-051 INSTRUMENT INSTALLATION FLOAT SWITCH
NTS

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ELECTRICAL DETAILS

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SHEET 999E11

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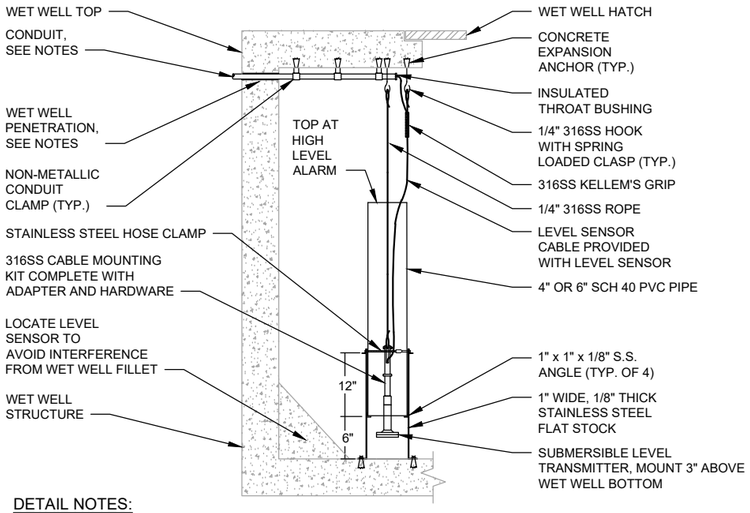
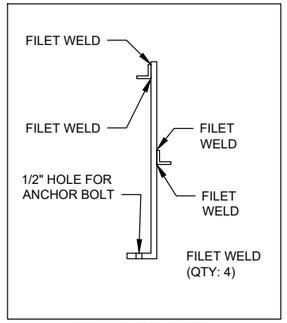


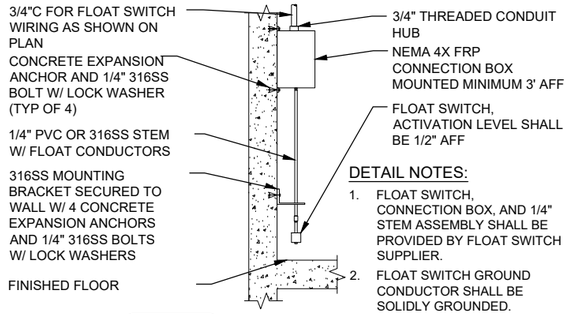


STAINLESS STEEL FLAT STOCK DETAIL

DETAIL NOTES:

1. INSTALL LEVEL SENSOR IN LOCATION WHERE SUSPENSION HOOKS, CABLES, AND CONDUIT(S) ARE ALL ACCESSIBLE FROM THE WET WELL HATCH WITHOUT ENTERING THE WET WELL.
2. INSTALL AND CONNECT LEVEL SENSOR BREATHER TUBE (IF PROVIDED) PER MANUFACTURER'S INSTRUCTIONS.
3. PROVIDE SUFFICIENT SLACK CABLE, COILED AND SUSPENDED FROM HOOK, TO ALLOW ADJUSTMENT +/- 3 FT. FROM SPECIFIED ELEVATION.
4. WET WELL PENETRATION SHALL CONSIST OF NON-METALLIC SLEEVE FOR CAST IN-PLACE CONSTRUCTION OR CORED HOLE FOR PRE-CAST OR EXISTING CONSTRUCTION, GROUT FOR WATERTIGHT CONDUIT PENETRATION.
5. CONDUIT SHALL BE SIZED TO ACCOMMODATE LEVEL SENSOR CABLE. MATERIALS SHALL BE AS SPECIFIED.

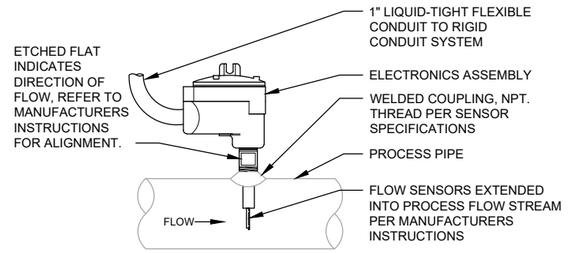
2690-001 INSTRUMENT INSTALLATION SUBMERSIBLE LEVEL TRANSMITTER
NTS



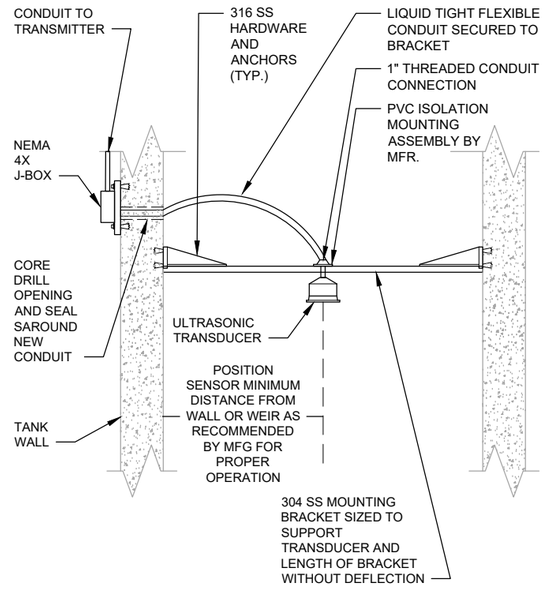
DETAIL NOTES:

1. FLOAT SWITCH, CONNECTION BOX, AND 1/4" STEM ASSEMBLY SHALL BE PROVIDED BY FLOAT SWITCH SUPPLIER.
2. FLOAT SWITCH GROUND CONDUCTOR SHALL BE SOLIDLY GROUNDED.

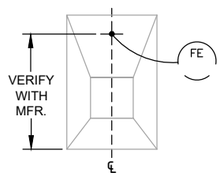
2690-080 FLOAT SWITCH INSTALLATION DRY WELL
NTS



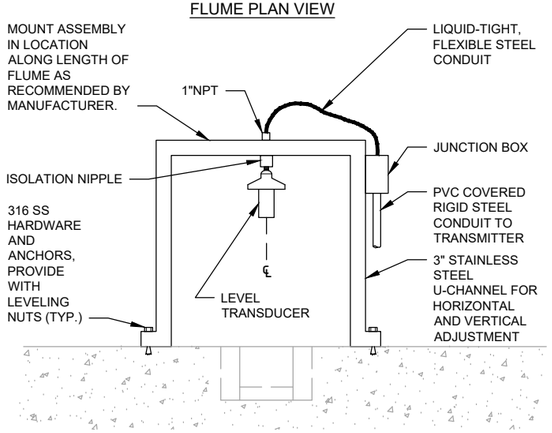
2690-151 INSTRUMENT INSTALLATION, THERMAL DISPERSION FLOW SWITCH
NTS



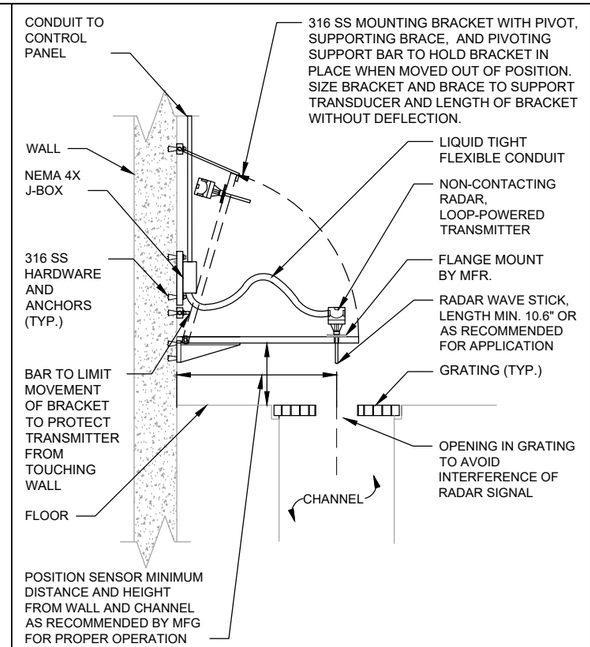
2690-126 INSTRUMENT INSTALLATION ULTRASONIC LEVEL/FLOW SENSOR
NTS



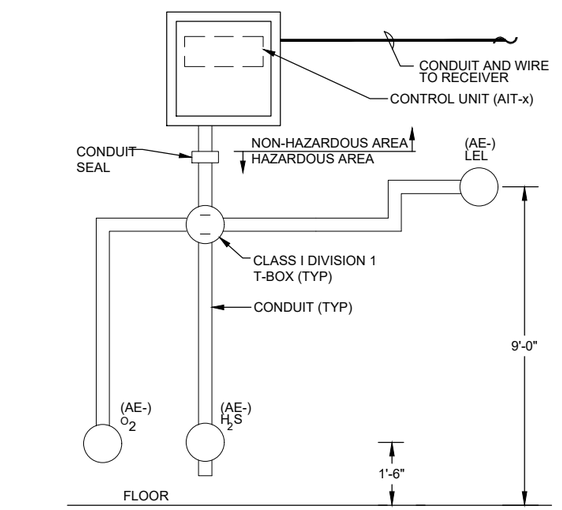
FLUME PLAN VIEW



2690-127 INSTRUMENT INSTALLATION, OPEN CHANNEL ULTRASONIC LEVEL/FLOW SENSOR
NTS



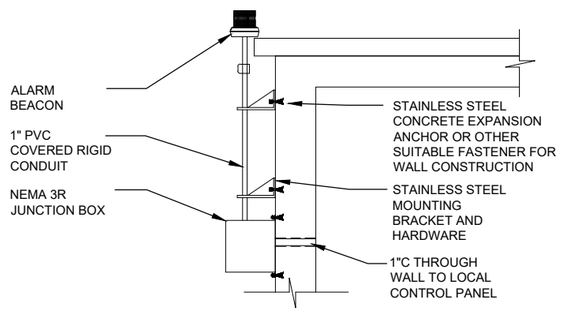
2690-128 INSTRUMENT INSTALLATION RADAR LEVEL/FLOW SENSOR
NTS



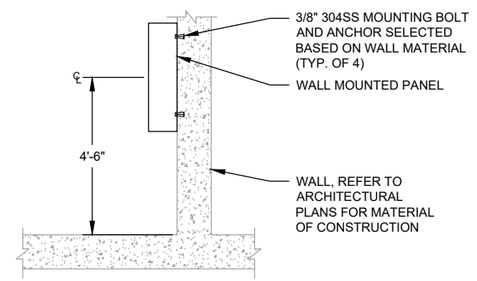
DETAIL NOTES:

1. EACH TRANSDUCER REQUIRES A 3C SHIELDED 20GA CABLE TO BE FURNISHED BY CONTRACTOR.
2. USE ALL STAINLESS STEEL MOUNTING HARDWARE.
3. SINGLE CHANNEL SHOWN. PROVIDE DUAL CHANNEL WHERE SHOWN ON P&ID DRAWINGS.
4. REFER TO P&ID DRAWINGS FOR TYPES OF SENSORS REQUIRED.

2690-650 GAS DETECTOR INSTALLATION
NTS



2690-651 ALARM BEACON MOUNTING (BUILDING)
NTS



2690-800 CONTROL PANEL INSTALLATION WALL-MOUNTED
NTS

PROJECT DATE: 2019-09-20	SCALE: AS SHOWN	NO.	DATE	REVISION	BY
	DRAWN BY: LET				
F.B. :	CHECKED BY: RJJ				
PLOT DATE: 7/1/2020					

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ELECTRICAL DETAILS

FILE NO. 14573015
SHEET 999E12

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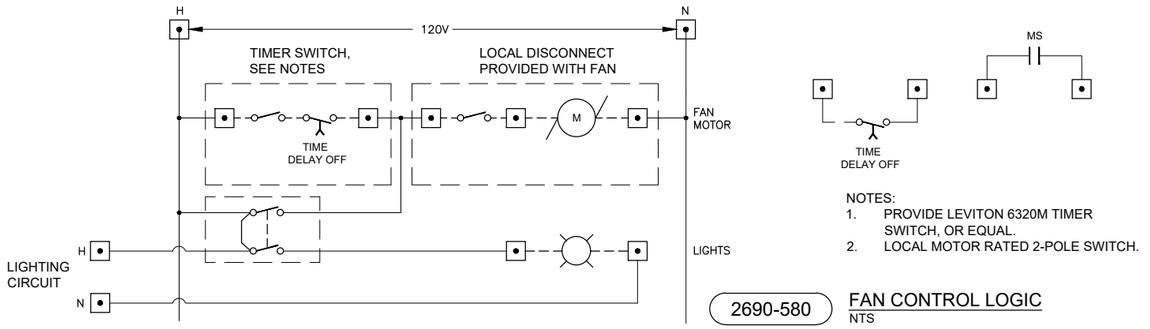
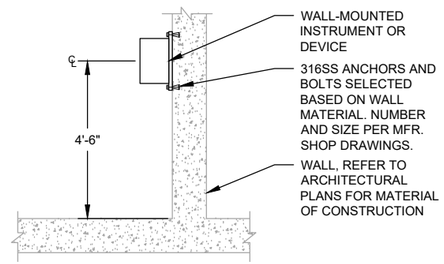
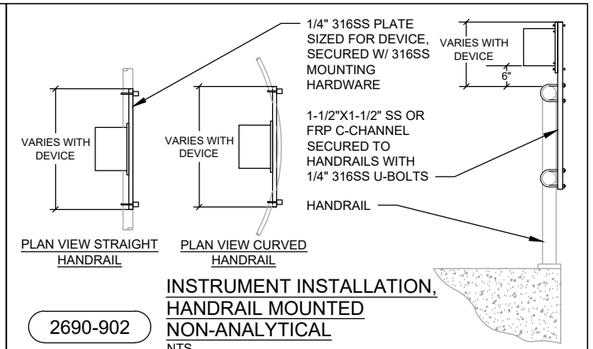


NOTES:
1. PROVIDE LEVITON 6320M TIMER SWITCH, OR EQUAL.
2. LOCAL MOTOR RATED 2-POLE SWITCH.

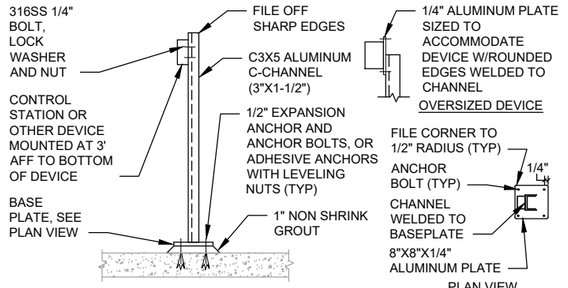
2690-580 FAN CONTROL LOGIC
NTS



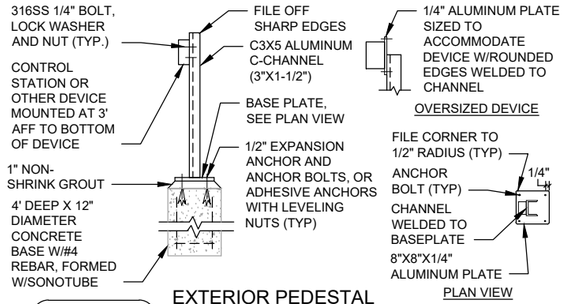
2690-900 CASE-MOUNTED DEVICE WALL-MOUNT INSTALLATION
NTS



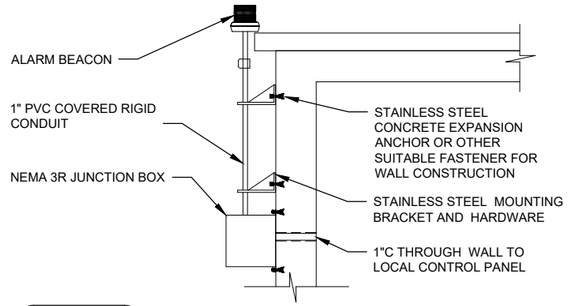
2690-902 INSTRUMENT INSTALLATION, HANDRAIL MOUNTED NON-ANALYTICAL
NTS



2690-910 INTERIOR PEDESTAL MOUNTED DEVICE
NTS



2690-911 EXTERIOR PEDESTAL MOUNTED DEVICE
NTS



2690-930 ALARM BEACON MOUNTING (BUILDING)
NTS

PROJECT DATE: 2019-09-20	SCALE: AS SHOWN	NO.	DATE	REVISION	BY
	DRAWN BY: LET				
F.B. :	CHECKED BY: RJJ				
PLOT DATE: 7/1/2020					

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ELECTRICAL DETAILS

FILE NO. 14573015
SHEET 999E13

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Sewer Department	FY19 TOTALS:	FY20 BUDGET	FY20 TOTALS:	PROPOSED FY21 BUDGET
Pat wages	$54,052.18	$52,500.00	$32,532.22	$0.00
Julie	$2,356.40	$2,400.00	$0.00	$0.00
Tom wages	$2,137.22	$2,358.00	$1,267.76	$0.00
Jamie wages	$5,489.52	$9,430.00	$4,025.73	$0.00
FICA	$4,894.99	$5,200.00	$2,890.79	$0.00
IPERS	$5,812.03	$6,250.00	$3,394.01	$0.00
Health/Dental Insurance	$3,499.18	$5,600.00	$1,449.83	$0.00
Vision Insurance	$120.00	$120.00	$46.07	$0.00
Life Insurance	$228.36	$250.00	$0.00	$0.00
TOTAL WAGES	$78,589.88	$84,108.00	$45,606.41	$0.00
Training	$691.74	$1,000.00	$282.88	$0.00
Uniforms	$417.01	$400.00	$279.96	$0.00
Fuel	$2,178.00	$2,000.00	$968.04	$0.00
Plant Repair/Maintenance	$29,850.25	$12,000.00	$14,573.70	$5,000.00
Plant Utilities	$11,017.32	$12,500.00	$11,434.85	$12,500.00
Communications	$1,260.62	$1,380.00	$935.00	$0.00
Plant Insurance	$3,000.00	$3,000.00	$3,000.00	$3,000.00
Sludge Hauling	$16,564.50	$15,000.00	$12,962.45	$15,000.00
Permits	$9,338.50	$9,510.00	$0.00	$210.00
Office Supplies	$328.08	$500.00	$226.55	$0.00
Operating Supplies	$915.17	$300.00	$257.95	$0.00
Miscellaneous	$382.98	$100.00	$102.00	$0.00
Sewer Replacment fund	$0.00	$9,000.00	$9,000.00	$9,000.00
PeopleServices, Inc.				$110,572.80
	$154,534.05	$150,798.00	$99,629.79	$155,282.80
Raymond Flow %:	0.47	$0.33	0.33	0.38
Raymond Annual Sewer Total:	$72,631.00	$49,763.34	$32,877.83	$59,007.46
Raymond share/liftstaions & water services:				$5,000.00
GRAND TOTAL:				$64,007.46

MONTHLY PAYMENT:

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