MASON COUNTY PUD 1

MASON COUNTY WASHINGTON

VUECREST RESERVOIR AND BOOSTER PUMP STATION

PUD OFFICIALS

MIKE SHEETZ	RON GOLD	JACK JANDA
DISTRICT 1 COMMISSIONER	DISTRICT 2 COMMISSIONER	DISTRICT 3 COMMISSIONER

KRISTIN MASTELLER
GENERAL MANAGER

Gray & Osborne, Inc.
CONSULTING ENGINEERS
1130 RAINIER AVENUE SOUTH, SUITE 300
SEATTLE, WASHINGTON 98144 (206) 284-0860

SEPTEMBER 2023
G&O #21568

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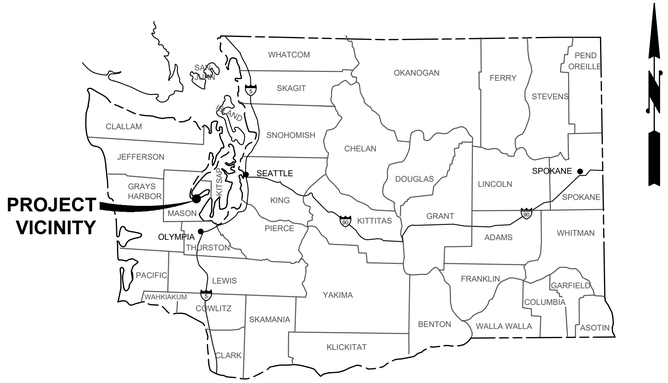
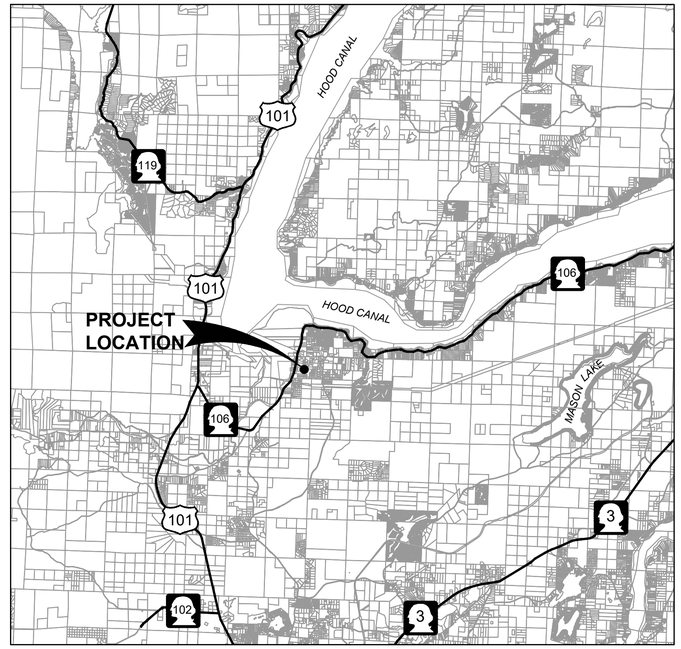
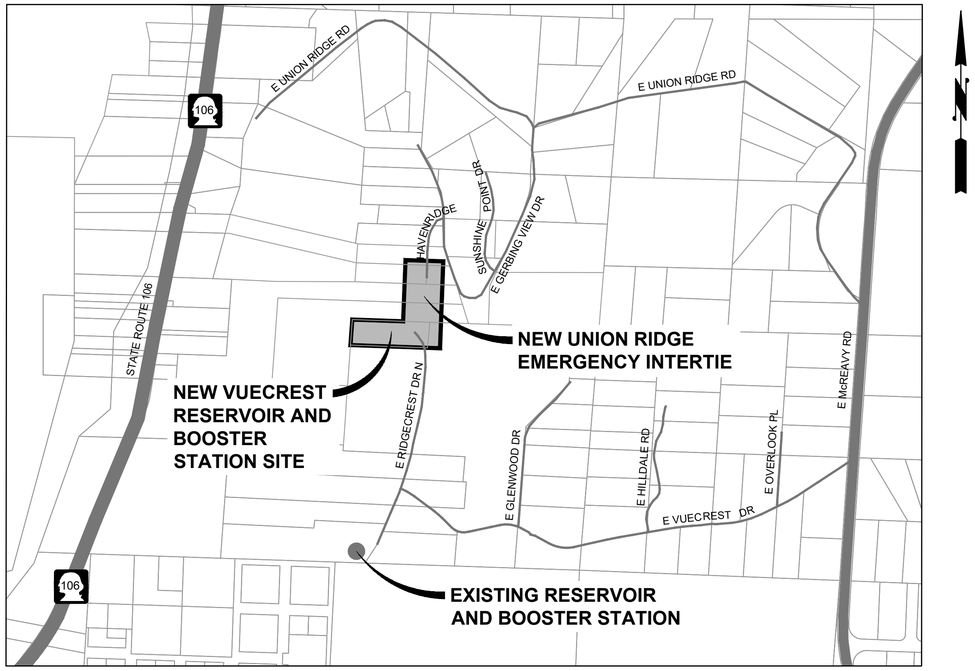


VICINITY MAP
NTS



LOCATION MAP
SCALE: 1" = 10,000'



AREA MAP
SCALE: 1" = 400'

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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DATE:	SEPT 2023
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CHECKED:	KS
APPROVED:	MBJ

No.	REVISION	DATE	APPD

MICHAEL B. JOHNSON — STATE OF WASHINGTON — 21568 — REGISTERED PROFESSIONAL ENGINEER — 9/29/23

MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
SHEET INDEX, VICINITY AND LOCATION MAPS

SHEET: G-1
OF: 9

JOB NO.: 21568
DWG: VICINITY

M:\Mason County PUD 1\21568.00 Vuecrest Reservoir\01 Design\Planset\General\VICINITY.dwg, 9/29/2023 11:23 AM, MARK NAGEL

ABBREVIATIONS

AC	ASBESTOS CEMENT PIPE
ADJ	ADJUST
ALT	ALTERNATE
ALUM	ALUMINUM
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
AP	ANGLE POINT
ASPH	ASPHALT
ASSY	ASSEMBLY
ASTM	AMERICAN SOCIETY OF TESTING AND MATERIALS
AVE	AVENUE
BF	BLIND FLANGE
BLDG	BUILDING
BLK	BLOCK
BO	BLOW OFF
BOP	BEGINNING OF PROJECT
BVCE	BEGIN VERTICAL CURVE ELEVATION
BVCS	BEGIN VERTICAL CURVE STATION
C	CONDUIT
CAP	CORRUGATED ALUMINUM PIPE
CB	CATCH BASIN
CF	CUBIC FEET
CFS	CUBIC FEET PER SECOND
CICL	CAST IRON CLASS
CLR	CLEARANCE
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
CONC	CONCRETE
CONN	CONNECTION
CONT	CONTINUED/CONTINUOUS
CPEP	CORRUGATED POLYETHYLENE PIPE
CPLG	COUPLING
CTR	CENTER
CY	CUBIC YARD
℄	CENTER LINE
D	DRAIN
DC	DEGREE OF CURVATURE
DI	DUCTILE IRON
DIA	DIAMETER
DIM	DIMENSION
DOT	DEPARTMENT OF TRANSPORTATION
DWGS	DRAWING(S)
E	EAST
EA	EACH
EL	ELEVATION
ELEC	ELECTRICAL
EOA	EDGE OF ASPHALT
EOP	END OF PROJECT
EVCE	END VERTICAL CURVE ELEVATION
EVCS	END VERTICAL CURVE STATION
EXIST	EXISTING
FIG	FIGURE
FIN	FINISHED
FL	FLANGE
FT	FEET
GA	GAUGE
GALV	GALVANIZED
GI	GALVANIZED IRON
GV	GATE VALVE
HDPE	HIGH DENSITY POLYETHYLENE PIPE
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IN	INCH
INV	INVERT
L	LENGTH
LB	POUND
LF	LINEAR FEET
MAX	MAXIMUM
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
N	NORTH
NO	NUMBER
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
PC	POINT OF CURVATURE
PE	PLAIN END
PERF	PERFORATED
PI	POINT OF INTERSECTION
PP	POWER POLE
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INTERSECTION
PVMT	PAVEMENT
PVT	POINT OF VERTICAL TANGENT
QTY	QUANTITY
R	RADIUS
R/W	RIGHT-OF-WAY
RED	REDUCER
REINF	REINFORCE
REQD	REQUIRED
RET	RETAINING
RR	RAILROAD
S	SOUTH
SCH	SCHEDULE
SF	SQUARE FEET
SHT	SHEET
SL	SLOPE
SPECS	SPECIFICATIONS
SQ	SQUARE
STA	STATION
STD	STANDARD
TB	THRUST BLOCK
TC	TOP OF CURB
TEL	TELEPHONE
TESC	TEMPORARY EROSION AND SEDIMENT CONTROL
THRD	THREADED
THRU	THROUGH
TYP	TYPICAL
VERT	VERTICAL
W	WEST
W/	WITH
W/O	WITHOUT
WSDOT	WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

LINETYPES

EXISTING	PROPOSED	DESCRIPTION
SURFACE FEATURES		
		ASPHALT PAVEMENT
		GRAVEL SURFACING
X X	X X	FENCE/RAILING (TYPE AS NOTED)
X X	X X	FENCE WITH GATE
		SHRUB/TREE/VEGETATION LINE
		EDGE OF LANDSCAPING
		SILT FENCE
		CLEARING LIMITS
SURVEY		
		RIGHT-OF-WAY LINE
		CENTERLINE OF RIGHT-OF-WAY
		PROPERTY LINE
		PERMANENT EASEMENT LINE
TCE TCE	TCE TCE	TEMPORARY CONSTRUCTION EASEMENT
10	10	CONTOUR LINE
UTILITIES		
E	E	BURIED ELECTRICAL
T		BURIED TELEPHONE/COMMUNICATIONS
W	W	WATER MAIN (SIZE AS NOTED)
D	D	STORM DRAIN (SIZE AS NOTED)
D	D	CULVERT (SIZE & TYPE AS NOTED)
		DITCH CENTERLINE/THALWEG

WATER SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		CAP/PLUG
		COUPLING/ADAPTER
		GUARD POST
		REDUCER
		THRUST BLOCK
		WATER METER
	JOINTS	
		FLANGE/BLIND FLANGE
		MECHANICAL JOINT
	VALVES	
		AIR RELIEF VALVE
		BLOW-OFF VALVE
		GATE VALVE

POWER/TELEPHONE SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		UTILITY POLE
		UTILITY POLE ANCHOR
		UTILITY PEDESTAL

SURVEY SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		CONTROL POINT
		MONUMENT (IN CASE)
		MONUMENT (SURFACE)
		BOUNDARY/PROPERTY CORNER
		IRON PIPE

GENERAL NOTES:

1. ALL MATERIALS AND WORKMANSHIP SHALL BE FURNISHED AND SUPPLIED IN ACCORDANCE WITH THE 2022 EDITION OF THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION, UNLESS OTHERWISE SPECIFICALLY NOTED.
2. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT AND COORDINATE WITH ALL UTILITY COMPANIES IN ORDER TO ASSURE THAT ALL LINES, PIPES, POLES AND OTHER APPURTENANCES ARE PROPERLY LOCATED, SECURED, AND/OR PROTECTED. BURIED UTILITIES (WHERE KNOWN) ARE SHOWN IN THEIR APPROXIMATE LOCATION. THE CONTRACTOR SHALL HAVE UTILITIES VERIFIED ON THE GROUND PRIOR TO ANY CONSTRUCTION. NOTIFY THE UNDERGROUND UTILITIES LOCATE CENTER: 1-800-424-5555.
3. ON-SITE EROSION AND SEDIMENT CONTROL MEASURES ARE REQUIRED AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
4. THE CONTRACTOR SHALL HAVE A COPY OF THESE PLANS, ANY ADDENDA, CHANGE ORDERS, AND THE CONTRACT SPECIFICATIONS ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
5. THE CONTRACTOR SHALL MAINTAIN A CLEAN LEGIBLE SET OF RECORD DRAWINGS AND PROVIDE A SET TO THE OWNER PRIOR TO DEMOBILIZATION OF THE SITE. SEE SPECIFICATIONS.

SANITARY/STORM SEWER SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
Ⓓ	Ⓓ	STORM DRAIN MANHOLE/TYPE 2 CATCH BASIN (ACTUAL DIMENSION SHOWN FOR PROPOSED)
□	▣	STORM DRAIN CATCH BASIN, CONCRETE INLET, OR YARD/AREA DRAIN (ACTUAL DIMENSION SHOWN FOR PROPOSED)
○	●	CLEAN OUT

SURFACE FEATURES/LANDSCAPING

EXISTING	PROPOSED	DESCRIPTION
		BUILDING
		MAIL BOX (NOTED)
		SIGN
		TREE STUMP
NOTED		TREE (CONIFER)
NOTED		TREE (DECIDUOUS)

0 1" 2"

TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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DATE: SEPT 2023	DRAWN: HLT	CHECKED: KS	APPROVED: MBJ

No.	REVISION	DATE	APPD

MICHAEL B. JOHNSON — STATE OF WASHINGTON — 21568 — REGISTERED PROFESSIONAL ENGINEER
9/29/23

MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
ABBREVIATIONS, LINETYPES, SYMBOLS, AND GENERAL NOTES

SHEET: G-2
OF: 9

JOB NO.: 21568
DWG: LEGEND

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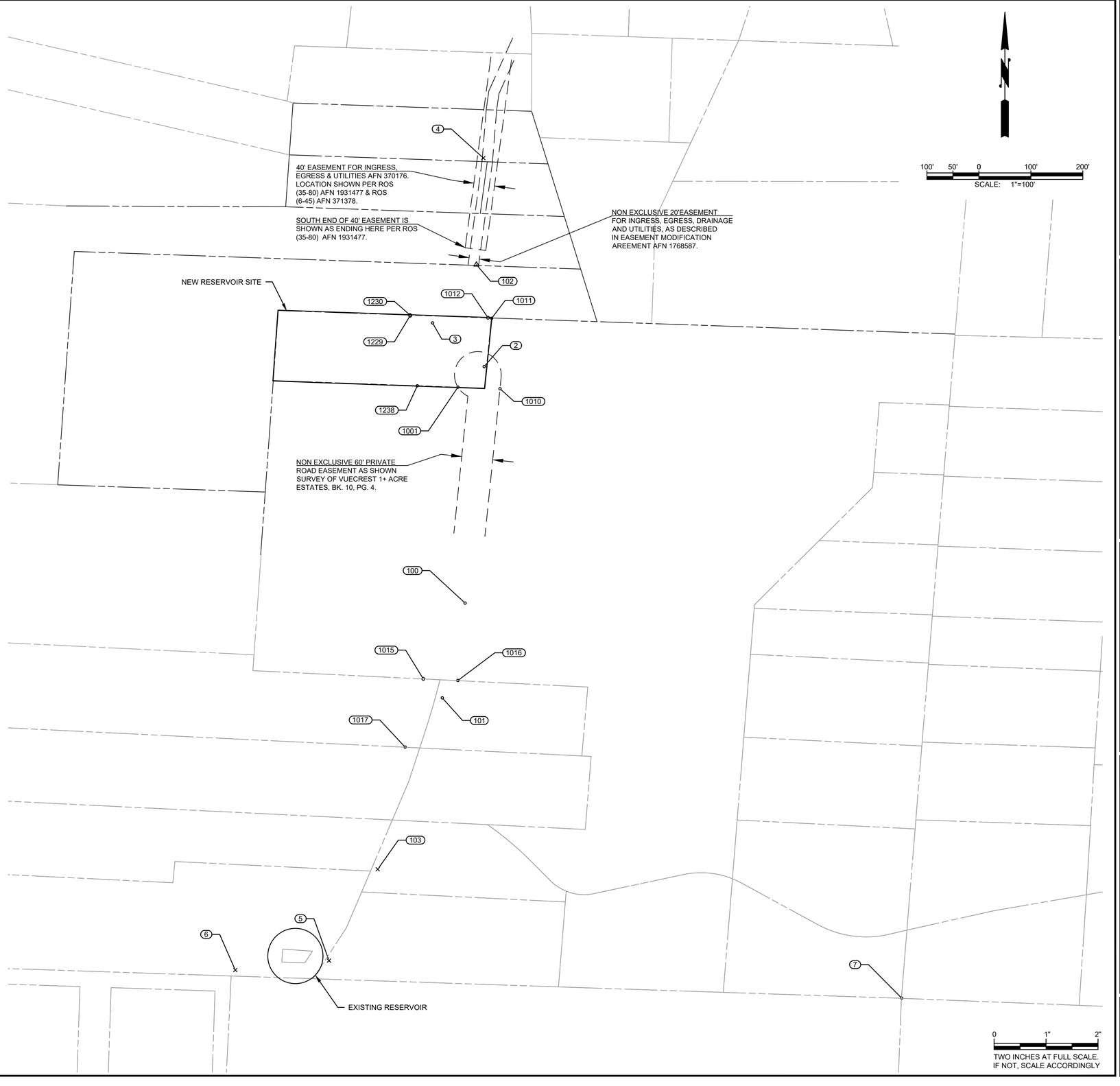
CONTROL POINT LIST

MASON COUNTY PUD NO. 1 - VUECREST RESERVOIR AND BOOSTER PUMP STATION

JOB NUMBER - 21568

HORIZONTAL DATUM:	NAD83/2011
WA. PLANE COORDINATE SYSTEM, SOUTH ZONE, GRID NORTH	
MODIFIED GROUND COORDINATES, SCALED TO GROUND USING AVG. CGF OF 0.999981687931 AT BASE POINT G&O #2	
VERTICAL DATUM:	NAVD88
HOLDING WSDOT PUBLISHED ELEVATION FOR "CRANBERRY"	

POINT	NORTHING	EASTING	ELEV.	DESCRIPTION
1	729829.42	996327.58	394.12	SFMC=FOUND MONUMENT IN CASE. E SIDE E MCREAVY RD. 3" BRASS DOME W/ PUNCH "WSDOT CRANBERRY 2000." DOWN 0.7' IN CASE. 4' S OF CARSONITE POST. 13' E OF E EDGE OF GRAVEL. 3 MILES S OF INTX E MCREAVY RD & E DALBY RD.
2	742894.10	994927.74	492.00	SSRC=SET 5/8" REBAR W/ RED PLASTIC "G&O CONTROL" CAP. AT N END E RIDGECREST DR N AT CLEARED LOT. 19' S05E OF 32"X20" JUNCTION BOX. 24' S09E OF VERTICAL WATER PIPE W/ VALVE.
3	742978.06	994828.35	506.96	SSRC, IN NW QUAD OF CLEARED LOT. 30' SSW OF START OF WESTERLY TRAIL. 33' S56W OF 14" CEDAR W/ CONTROL TAG UP 4.85' ON SW FACE. AT ENTRANCE TO WESTERLY TRAIL.
4	743295.24	994926.23	504.27	SSN=SET NAIL. SMALL MAG NAIL IN EDGE OF ASPHALT. 0.3' NE OF S DRIVEWAY EDGE AT AP OF PAVEMENT BREAK AND DRIVEWAY TO W (#120?). 7.40' NE OF CENTER OF "HOOD CANAL" FIBER OPTIC JBOX. 12.7' NNE OF CENTER OF A WATER VALVE.
5	741751.31	994629.24	527.56	SSN, SET 60D NAIL IN GRASS AT ORG. RESERVOIR & PUMPHOUSE SITE. 5' SSE OF SE EDGE GRAVEL IN CURVE. 27' N54E OF SIGN "210 PRIVATE PROP." 30' S76W OF SW'LYMOST CHERRY TREE. AT E EDGE ASPHALT EXTENDED INTX N EDGE GRAVEL EXTENDED.
6	741733.21	994448.83	543.34	SSN, SET 60D NAIL IN GRASS AT SW QUAD PROPERTY W/ YELLOW-BROWN HOUSE. 12' N60E OF SMALL FIG TREE. 15' S87W OF W EDGE GRAVEL AT "V" IN TWO DRIVEWAYS (ONE TO S, ONE TO N). 18' S47E OF S END CONC RETAINING WALL.
7	741679.22	995731.21	420.36	SFP=FOUND PIPE. 1" I.D. PIPE W/ ALUMINUM CAP & PUNCH AT ORANGE NEWISH CARSONITE WITNESS POST "SURVEY MARKER" AND OLD TBAR UP 1' ABOVE GRADE. 1/4 CORNER SECTION 6|5 T21N R3W. SE CORNER HOUSE #171 E VUECREST AT CLEARCUT BOUNDARY.
100	742439.11	994891.07	471.46	SSRC, DOWN 0.1' IN DIRT. 2' W OF E EDGE DIRT ROAD (RIDGECREST RD). 5' W OF E GROUND TYPE. 27' E OF NEW UTILITY JBOX UPSLOPE FROM W EDGE DIRT.
101	742256.82	994847.17	478.39	SSRC, DOWN 0.15' IN DIRT. 8.5' FROM E EDGE DIRT/EDGE VEGETATION OF RIDGECREST. 36' SW FROM TBAR "5|6." 60' N09E FROM N END OF N-S ROCKERY ON E SIDE RIDGECREST (S END & N END INTX).
102	743090.16	994912.88	496.44	SSNT=SET MAG NAIL W/ "G&O CONTROL" TAG, 1.0' N OF S END EDGE OF ASPHALT. CENTERLINE TRAIL/HAVENRIDGE DR.
103	741927.13	994722.98	519.43	SSN, 60D NAIL W/ PINK FLAGGING. DOWN 0.1' IN GRAVEL. 1.75' E OF E EDGE ASPHALT DRIVEWAY TO S'LY RESERVOIR & PUMP HOUSE SITE. 4.55' N11E OF N FACE POST FOR KEY PAD GATE ENTRY (MEASURED FROM BASE AT CONC).
1001	742854.45	994877.29	498.14	SFR, 5/8" REBAR W/ LOT STAKE "PROP LINE CORNER @ R/W."
1010	742851.42	994958.31	482.21	SFR, 5/8" REBAR. 0.45' ABOVE GRADE.
1011	742986.99	994942.22	491.44	SFR, 5/8" REBAR W/ LOT BOARD "COR LOT 1A."
1012	742988.04	994935.12	493.76	SFRC, 5/8" REBAR W/ YPC "HOLMAN LS 15653." AT LATH LABELED "PROP LINE."
1015	742293.30	994810.66	483.78	SFRC, 5/8" REBAR W/ YPC "TURNBO LS 42679."
1016	742290.24	994877.17	470.43	SFR, 5/8" REBAR. AT LATH LABELED "PROP COR."
1017	742162.09	994775.71	494.04	SFR, 5/8" REBAR. AT LATH LABELED "PROP COR." 0.5' ABOVE F/G.
1229	742991.93	994785.33	511.09	SFRC, 5/8" REBAR W/ DESTROYED YPC. "_NOVERBEN LS 7023."
1230	742993.14	994785.15	510.53	SFRC, 5/8" REBAR W/ YPC "HOLMAN 15653."
1238	742857.12	994799.23	511.94	SFR, 5/8" REBAR. AT LATH LABELED "PROP LINE."



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No.	REVISION	DATE	APPD

MICHAEL B. JOHNSON — STATE OF WASHINGTON — 19681 — REGISTERED PROFESSIONAL ENGINEER — 9/29/23

MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
SURVEY CONTROL

SHEET: G-3
OF: 9

JOB NO.: 21568
DWG: SURVEY CONTROL

M:\Mason County PUD 1\21568.00 Vuecrest Reservoir\01 Design\Planset\General\SURVEY CONTROL.dwg, 9/29/2023 11:23 AM, MARK NAGEL

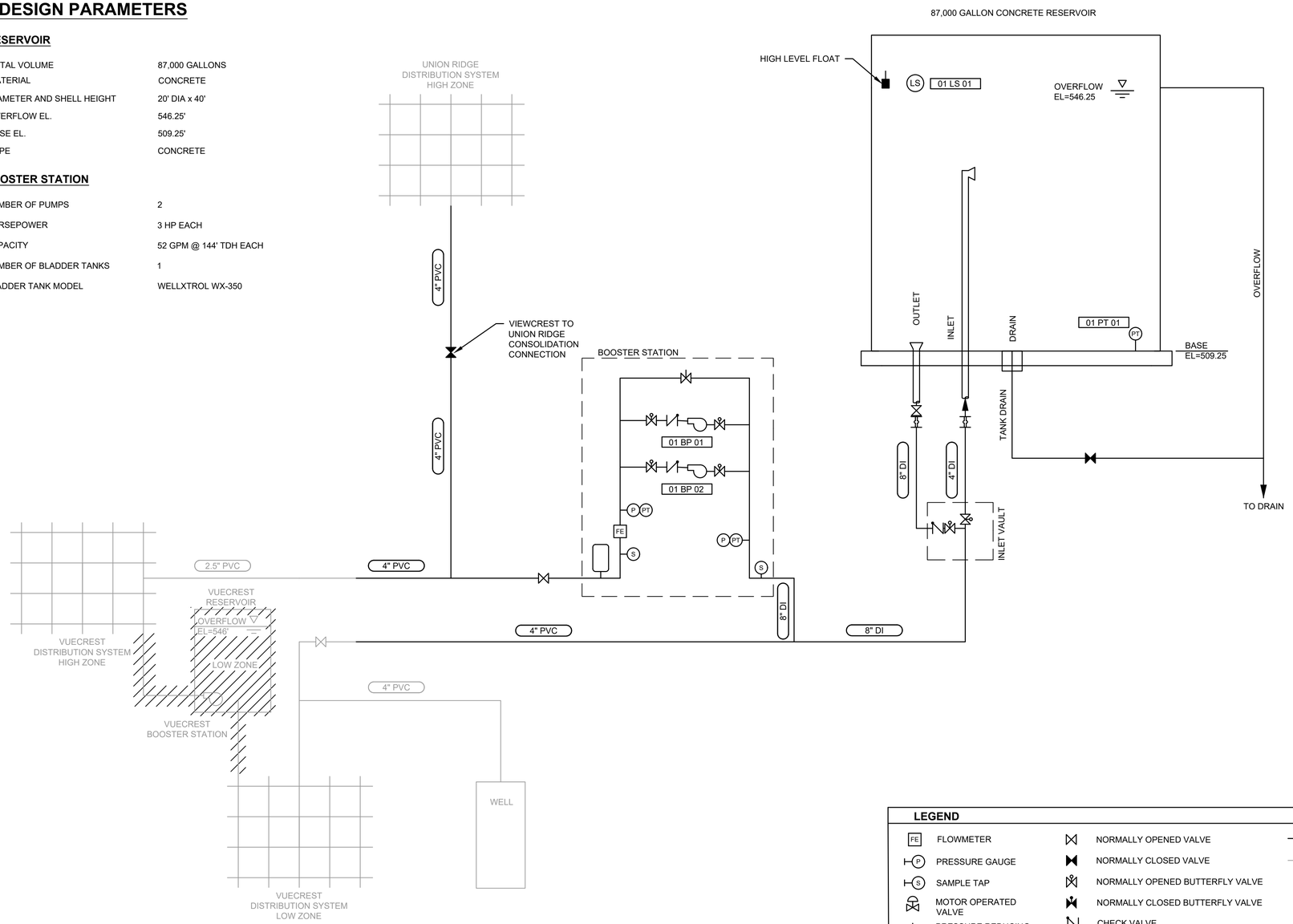
DESIGN PARAMETERS

RESERVOIR

TOTAL VOLUME	87,000 GALLONS
MATERIAL	CONCRETE
DIAMETER AND SHELL HEIGHT	20' DIA x 40'
OVERFLOW EL.	546.25'
BASE EL.	509.25'
TYPE	CONCRETE

BOOSTER STATION

NUMBER OF PUMPS	2
HORSEPOWER	3 HP EACH
CAPACITY	52 GPM @ 144' TDH EACH
NUMBER OF BLADDER TANKS	1
BLADDER TANK MODEL	WELLXTROL WX-350



LEGEND

FE — FLOWMETER	NORMALLY OPENED VALVE	PROPOSED
P — PRESSURE GAUGE	NORMALLY CLOSED VALVE	EXISTING
S — SAMPLE TAP	NORMALLY OPENED BUTTERFLY VALVE	
MOTOR OPERATED VALVE	NORMALLY CLOSED BUTTERFLY VALVE	
PRESSURE REDUCING VALVE	CHECK VALVE	
PUMP	FLEXIBLE EXPANSION COUPLING	
HIGH LEVEL FLOAT	FE — FLOW METER	
BLADDER TANK	PT — PRESSURE TRANSDUCER	

PROCESS FLOW DIAGRAM

NTS

0 1" 2"

TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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MICHAEL B. JOHNSON — STATE OF WASHINGTON — 19848 — REGISTERED PROFESSIONAL ENGINEER
9/29/23

MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
PROCESS FLOW DIAGRAM

SHEET: G-4
OF: 9

JOB NO.: 21568
DWG: PROC_FLOW_DIAGRAM

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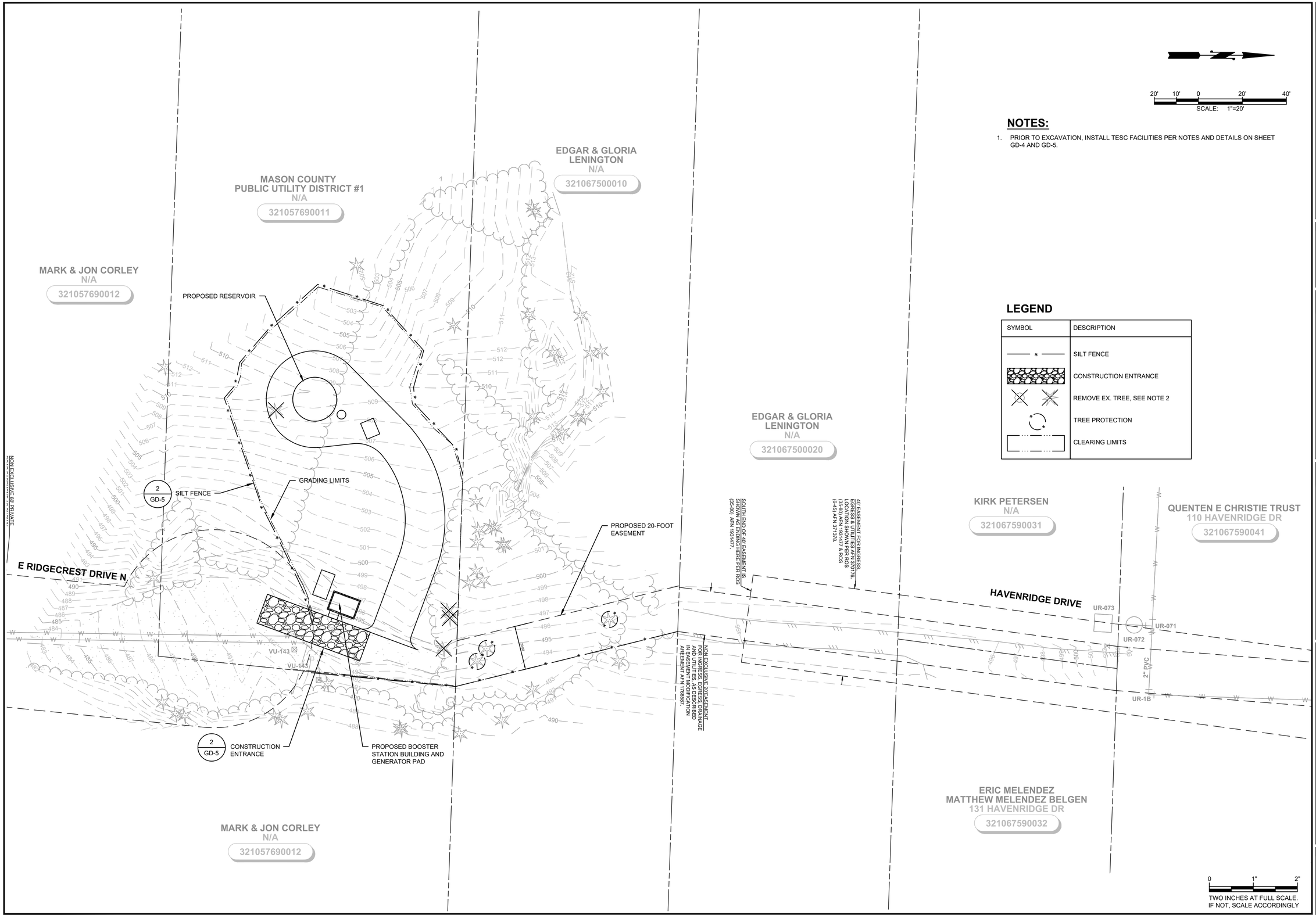

NOTES:

1. PRIOR TO EXCAVATION, INSTALL TESC FACILITIES PER NOTES AND DETAILS ON SHEET GD-4 AND GD-5.

LEGEND

SYMBOL	DESCRIPTION
	SILT FENCE
	CONSTRUCTION ENTRANCE
	REMOVE EX. TREE, SEE NOTE 2
	TREE PROTECTION
	CLEARING LIMITS

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MICHAEL B. JOHNSON — STATE OF WASHINGTON — 21568 — REGISTERED PROFESSIONAL ENGINEER — 9/29/23

MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
EXISTING SITE AND EROSION CONTROL PLAN

SHEET: G-5
OF: 9
JOB NO.: 21568
DWG: C-PLAN_EX

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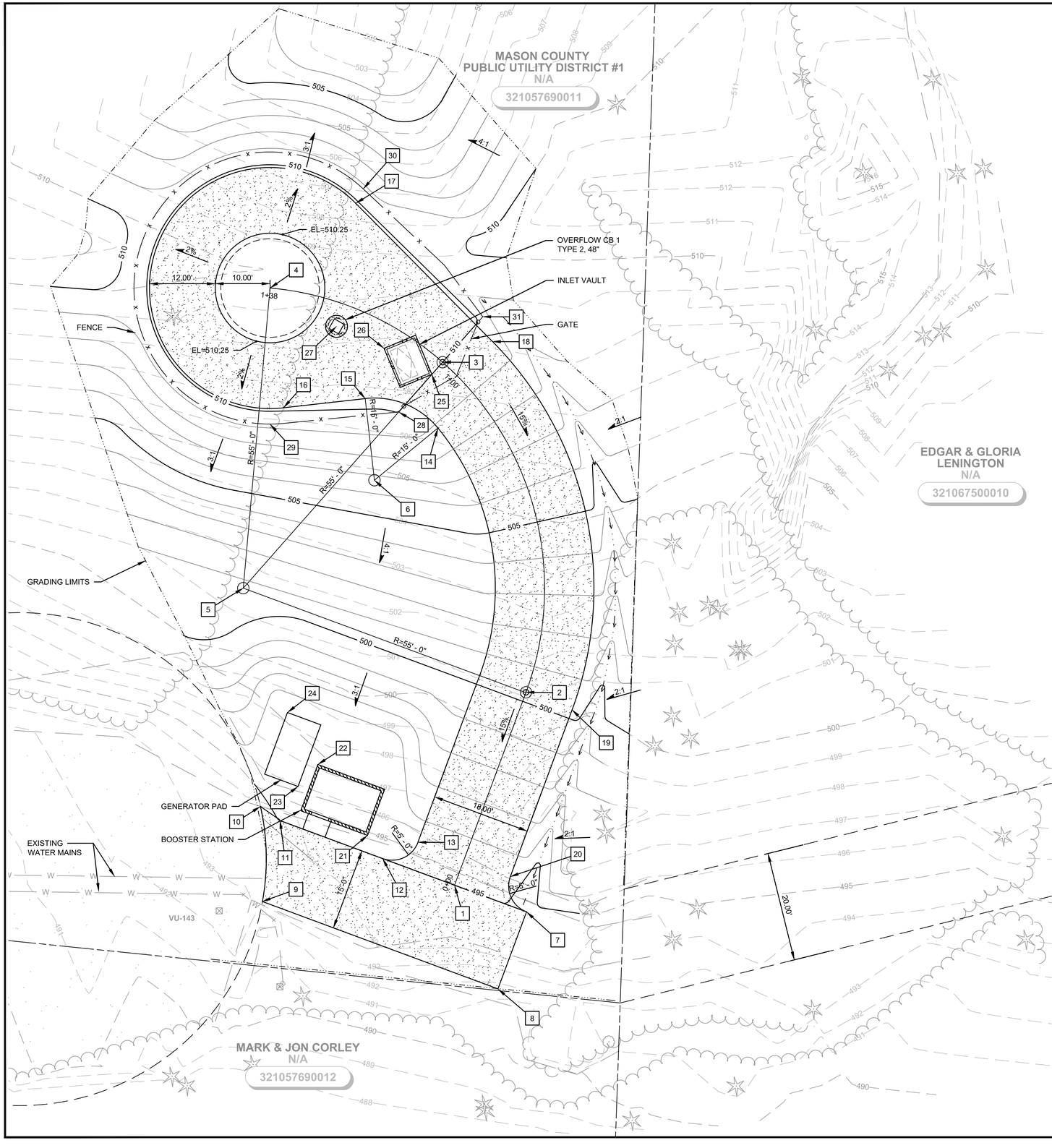


10' 5' 0 10' 20'
SCALE: 1"=10'

GRADING NOTES:

1. NUMERICAL CALL-OUTS REFER TO FINISHED GRADE ELEVATIONS UNLESS OTHERWISE NOTED.
2. SLOPE FINISHED GROUND AWAY FROM ALL STRUCTURES; SLOPE TO DRAIN AT 2% MIN SLOPE.
3. ADJUST RIM ELEVATIONS OF VAULTS, MANHOLES, AND VALVE EXTENSION BOXES TO MATCH FINISHED GRADE IN ACCORDANT WITH DETAILS AND SPECIFICATIONS.
4. EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO CONSTRUCTION ACTIVITIES. SEE SHEET G-5
5. ALL DISTURBED AREAS NOT SHOWN WITH HMA OR GRAVEL RESTORATION SHALL BE HYDROSEEDED.

CONTROL TABLE

X	DESCRIPTION	ELEVATION	NORTHING	EASTING	NOTES
1	ACCESS ROAD CENTERLINE	495.00	742957.37	994920.41	@ FINISH GRADE
2	ACCESS ROAD CENTERLINE	500.24	742970.37	994885.28	@ FINISH GRADE
3	ACCESS ROAD CENTERLINE	510.00	742955.20	994824.94	@ FINISH GRADE
4	RESERVOIR CENTER	509.25	742923.69	994811.40	@ TOP OF TANK FLOOR
5	ACCESS ROAD RADIUS POINT	500.80±	742918.81	994866.19	@ FINISH GRADE
6	ACCESS ROAD RADIUS POINT	506.70±	742942.75	994846.49	@ FINISH GRADE
7	ACCESS ROAD CORNER	494.80	742970.51	994925.28	@ FINISH GRADE
8	ACCESS ROAD CORNER	491.50	742965.30	994939.34	@ FINISH GRADE
9	ACCESS ROAD CORNER	493.20	742922.30	994923.39	@ FINISH GRADE
10	ACCESS ROAD CORNER	493.90	742921.94	994906.04	@ FINISH GRADE
11	ACCESS ROAD CORNER	495.00	742925.51	994908.62	@ FINISH GRADE
12	ACCESS ROAD CORNER	495.00	742944.27	994915.54	@ FINISH GRADE
13	ACCESS ROAD CORNER	495.60	742950.68	994912.59	@ FINISH GRADE
14	ACCESS ROAD CORNER	508.85	742954.33	994863.96	@ FINISH GRADE
15	ACCESS ROAD CORNER	510.00	742941.07	994831.58	@ FINISH GRADE
16	ACCESS ROAD CORNER	510.00	742926.16	994833.27	@ FINISH GRADE
17	ACCESS ROAD CORNER	510.00	742939.33	994795.93	@ FINISH GRADE
18	ACCESS ROAD CORNER	509.50	742964.31	994821.17	@ FINISH GRADE
19	ACCESS ROAD CORNER	500.24	742978.83	994888.40	@ FINISH GRADE
20	ACCESS ROAD CORNER	495.50	742967.56	994918.85	@ FINISH GRADE
21	BOOSTER STATION, NE CORNER	495.00	742941.49	994911.33	@ FINISH FLOOR
22	BOOSTER STATION, SW CORNER	495.00	742932.42	994898.38	@ FINISH FLOOR
23	GENERATOR PAD, NE CORNER	495.00	742928.80	994902.40	@ TOP OF SLAB
24	GENERATOR PAD, SW CORNER	495.00	742926.87	994888.89	@ TOP OF SLAB
25	INLET VAULT, NE CORNER	510.00	742953.22	994827.18	@ TOP OF VAULT
26	INLET VAULT, SW CORNER	510.00	742944.50	994822.41	@ TOP OF VAULT
27	CENTER, TYPE 2 OVERFLOW CB	510.75	742935.82	994818.40	TOP OF CB EXTENSION
28	FENCE CORNER	510.00	742947.18	994834.02	@ FINISH GRADE
29	FENCE CORNER	509.20	742923.69	994836.24	@ FINISH GRADE
30	FENCE CORNER	509.20	742940.71	994793.30	@ FINISH GRADE
31	FENCE CORNER	509.50	742962.52	994816.64	@ FINISH GRADE

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

Gray & Osborne, Inc.
CONSULTING ENGINEERS
1130 RAINIER AVENUE SOUTH, SUITE 300
SEATTLE, WASHINGTON 98144 • (206) 284-3880

DATE:	DRAWN:	CHECKED:	APPROVED:
SEPT 2023	XXX	XXX	XXX

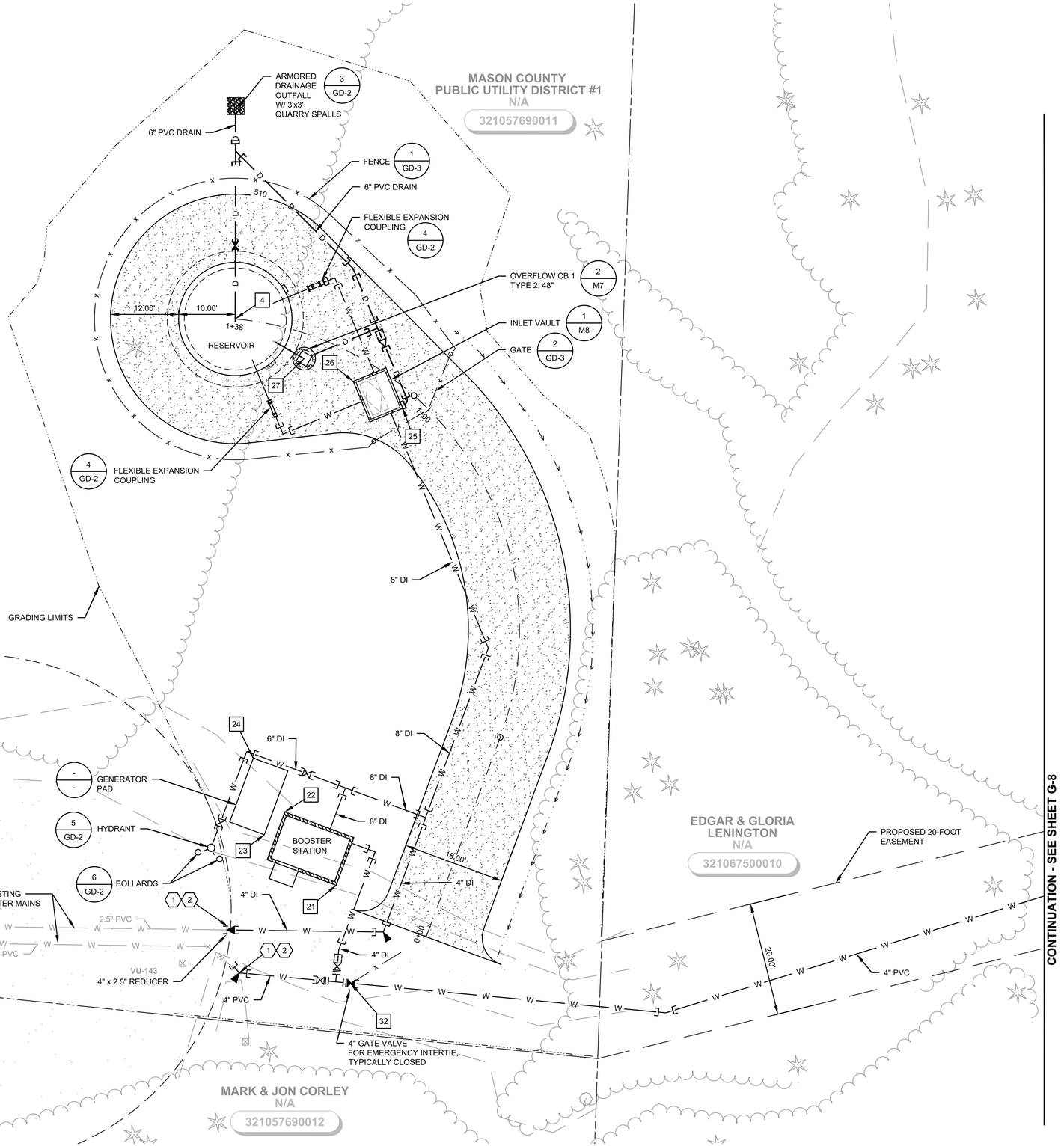
No.	REVISION	DATE	APPD

MICHAEL B. JOHNSON — STATE OF WASHINGTON — 21568 — REGISTERED PROFESSIONAL ENGINEER — 9/29/23

MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
GRADING AND FENCING PLAN

SHEET: G-6
OF: 9
JOB NO.: 21568
DWG: C-PLAN_GRADE

M:\Mason County PUD 1\21568.00 Vuecrest Reservoir\01 Design\Planset\Civil\C-PLAN_GRADE.dwg, 9/29/2023 11:24 AM, MARK NAGEL



10' 5' 0 10' 20'
SCALE: 1"=10'

PIPING NOTES:

1. SEE SHEET GD-1 FOR TYPICAL PIPE TRENCH SECTION.
2. PIPING BETWEEN POINTS OF INDICATED ELEVATION SHALL BE SET AT A SINGLE UNIFORM GRADE.
3. WHERE PIPES CROSS WITH LESS THAN ONE FOOT CLEARANCE, CDF SHALL BE USED BETWEEN THE PIPES.
4. ALL BURIED WATER PIPE SHALL BE PROVIDED WITH RESTRAINED JOINTS.

CONSTRUCTION NOTES:

1. CONTRACTOR TO POTHOLE AND FIELD VERIFY EXACT LOCATION AND DEPTH OF EXISTING UTILITY.
2. AFTER PRESSURE AND PURITY TEST AND ACCEPTANCE, CONNECT TO EXISTING SYSTEM.

CONTROL TABLE

X	DESCRIPTION	ELEVATION	NORTHING	EASTING	NOTES
4	RESERVOIR CENTER	509.25	742923.69	994811.40	@ TOP OF TANK FLOOR
21	BOOSTER STATION, NE CORNER	495.00	742941.49	994911.33	@ FINISH FLOOR
22	BOOSTER STATION, SW CORNER	495.00	742932.42	994898.38	@ FINISH FLOOR
23	GENERATOR PAD, NE CORNER	495.00	742928.80	994902.40	@ TOP OF SLAB
24	GENERATOR PAD, SW CORNER	495.00	742926.87	994888.89	@ TOP OF SLAB
25	INLET VAULT, NE CORNER	510.00	742953.22	994827.18	@ TOP OF VAULT
26	INLET VAULT, SW CORNER	510.00	742944.50	994822.41	@ TOP OF VAULT
27	CENTER, TYPE 2 OVERFLOW CB	510.75	742935.82	994818.40	TOP OF CB EXTENSION
32	EMERGENCY INTERTIE VALVE LID	494.20±	742944.12	994928.62	@ FINISH GRADE

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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SEATTLE, WASHINGTON 98144 • (206) 284-3880

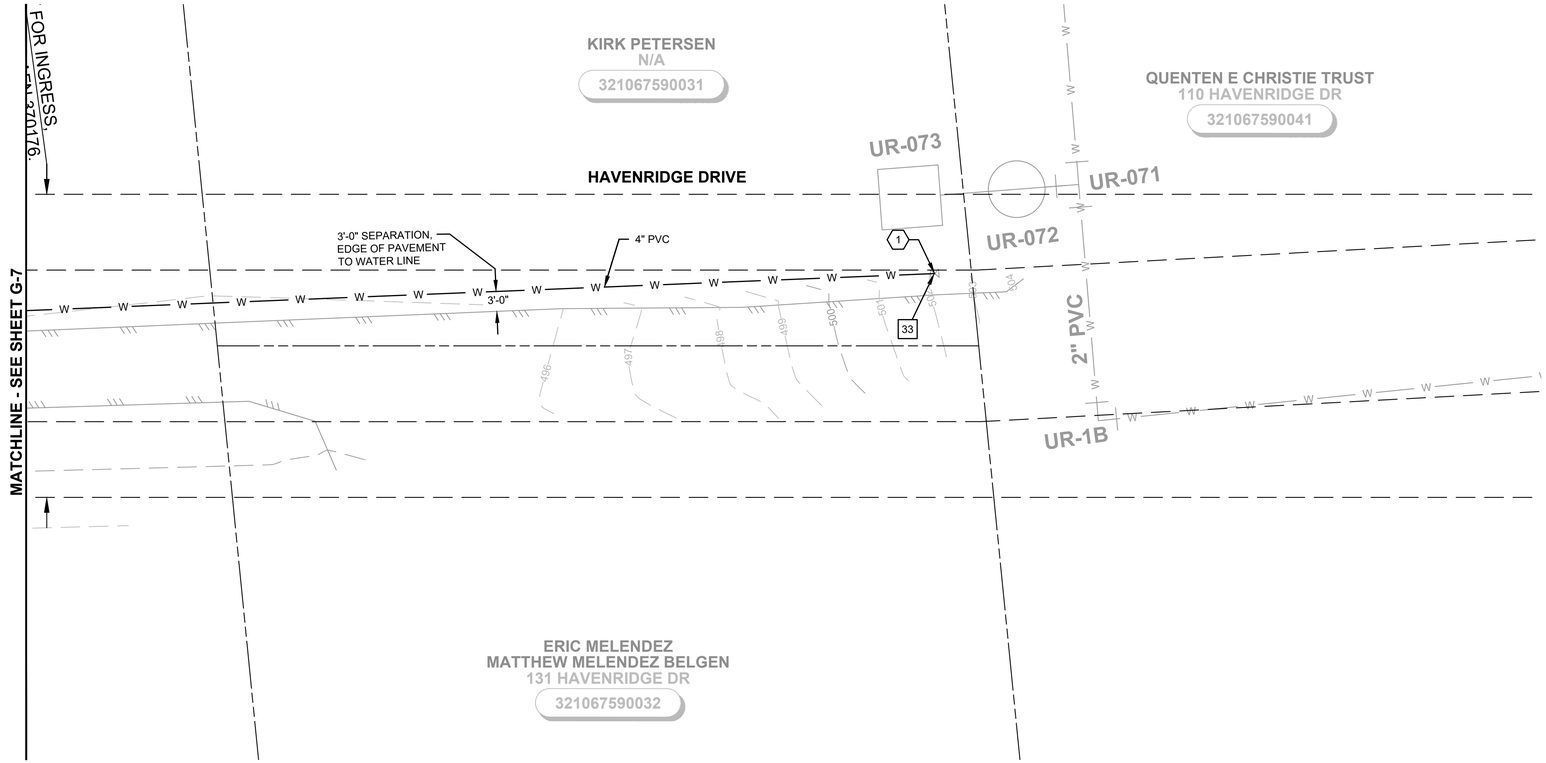
DATE: SEPT 2023 | DRAWN: HLT | CHECKED: KS | APPROVED: MBJ

No.	REVISION	DATE	APPD

MICHAEL B. JOHNSON — STATE OF WASHINGTON — 21568 — REGISTERED PROFESSIONAL ENGINEER
9/29/23

MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
SITE PIPING PLAN

SHEET: G-7
OF: 9
JOB NO.: 21568
DWG: C-PLAN_SITE



10' 5' 0 10' 20'
SCALE: 1"=10'

PIPING NOTES:

1. SEE SHEET GD-1 FOR TYPICAL PIPE TRENCH SECTION.
2. PIPING BETWEEN POINTS OF INDICATED ELEVATION SHALL BE SET AT A SINGLE UNIFORM GRADE.
3. WHERE PIPES CROSS WITH LESS THAN ONE FOOT CLEARANCE, CDF SHALL BE USED BETWEEN THE PIPES.
4. ALL BURIED WATER PIPE SHALL BE PROVIDED WITH RESTRAINED JOINTS.

CONSTRUCTION NOTES:

1. AFTER PRESSURE AND PURITY TEST AND ACCEPTANCE, CONNECT TO EXISTING SYSTEM.

CONTROL TABLE

X	DESCRIPTION	ELEVATION	NORTHING	EASTING	NOTES
33	SURFACE AT EXISTING VALVE	502.1	743283.60	994923.53	

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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No.	REVISION	DATE	APPD

MICHAEL B. JOHNSON — STATE OF WASHINGTON — 22787 — PROFESSIONAL ENGINEER
9/29/23

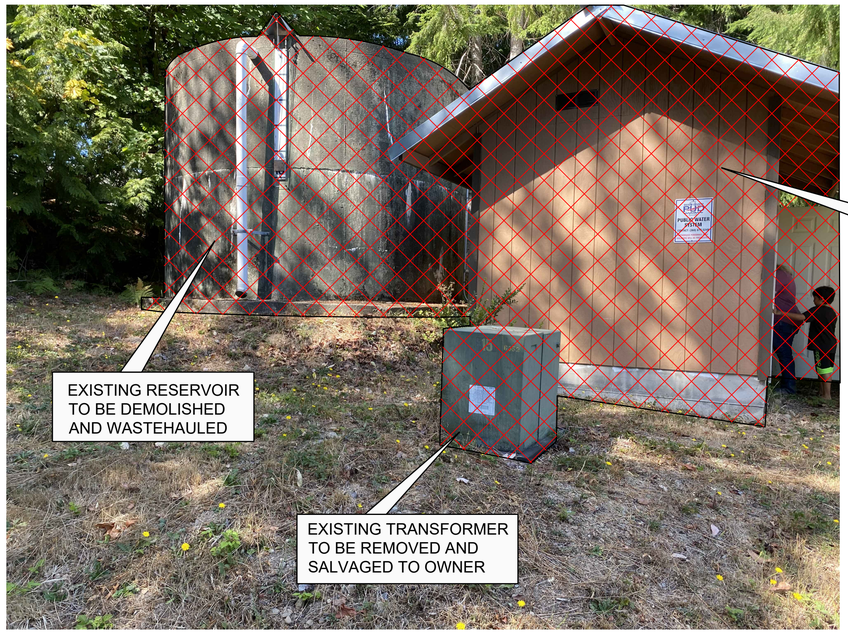
MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
SYSTEM CONSOLIDATION CONNECTION PIPING PLAN (NORTH)

SHEET: G-8
OF: 9
JOB NO.: 21568
DWG: C-PLAN_SITE

20' 10' 0 20' 40'
SCALE: 1"=20'

1 -

PHOTO DETAIL
EXISTING RESERVOIR AND BOOSTER STATION
NOT TO SCALE



2 -

PHOTO DETAIL
EXISTING RESERVOIR AND BOOSTER STATION
NOT TO SCALE

3 -

PHOTO DETAIL
ELECTRICAL INSIDE BOOSTER STATION BUILDING
NOT TO SCALE

4 -

PHOTO DETAIL
BLADDER TANKS INSIDE BOOSTER STATION BUILDING
NOT TO SCALE

DEMOLITION NOTES:

1. EXISTING RESERVOIR AND BOOSTER STATION TO REMAIN IN SERVICE UNTIL NEW BOOSTER STATION AND RESERVOIR ARE DISINFECTED, COMMISSIONED, AND CONNECTED TO SYSTEM AND IN SERVICE.
2. ISOLATE AND DRAIN EXISTING RESERVOIR BEFORE BEGINNING DEMOLITION WORK.
3. REMOVE AND WASTEHAUL EXISTING FENCE AND GATE.
4. REMOVE AND WASTEHAUL EXISTING TANK AND APPURTENANCES.
5. REMOVE AND WASTEHAUL OR SALVAGE TO OWNER EXISTING BOOSTER STATION COMPONENTS.
6. DEMOLISH EXISTING SITE PIPING AND APPURTENANCES. CAP ALL CUT PIPES THAT ARE TO REMAIN CONNECTED TO THE SYSTEM.

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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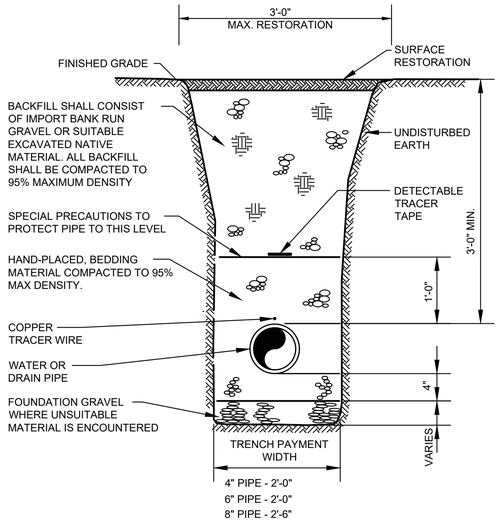
No.	REVISION	DATE	APPD

MICHAEL B. JOHNSON — STATE OF WASHINGTON — 19346 — REGISTERED PROFESSIONAL ENGINEER — 9/29/23

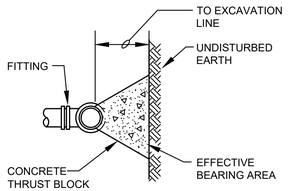
MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
DEMOLITION AND SALVAGE PLAN

SHEET: G-9
OF: 9
JOB NO.: 21568
DWG: C-PLAN_EX

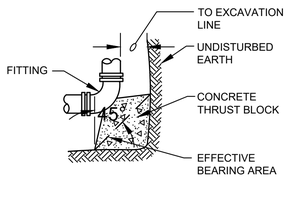


1 / TYP — **TYPICAL PIPE TRENCH SECTION**

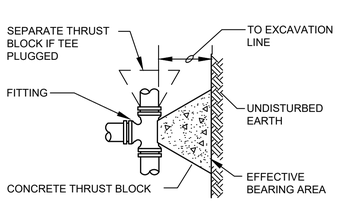
NOT TO SCALE



TYPICAL SECTION



90° EL PLAN



TEE PLAN

EFFECTIVE BEARING AREA REQUIRED

FITTING D	TEE	90°	45°	22 1/2°	11 1/4°
6"	4 SQ. FT.	6 SQ. FT.	3 SQ. FT.	2 SQ. FT.	2 SQ. FT.
8"	7 SQ. FT.	10 SQ. FT.	6 SQ. FT.	3 SQ. FT.	2 SQ. FT.

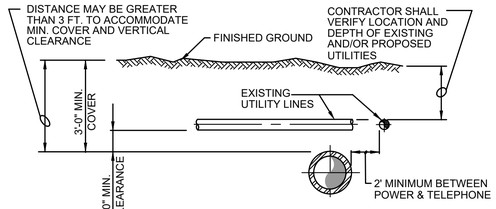
TYPICAL FOR SANDY SOIL WITH 2,000 P.S.F. BEARING STRENGTH & 100 P.S.I. WORKING PRESSURE. ADJUST BEARING AREA BY PRESSURE & SOIL BEARING CAPACITY. USE TEE FOR DEAD ENDS

NOTES:

1. BLOCKING SHALL BE TO SOLID BEARING SURFACE.
2. FITTING SHALL BE PROTECTED WITH VISQUEEN.
3. BEARING ARE SHALL BE PROPORTIONALLY INCREASED WITH PRESSURES IN EXCESS OF 100 P.S.I OR IN SOIL CONDITIONS WITH LESS THAN 2,OOO P.S.F BEARING STRENGTH.
4. ALL BLOCKS ON TEES SHALL BE SEPARATED FOR DIRECTION OF THRUST.
5. CONCRETE SHALL BE MIN. 3,000 PSI COMMERCIAL MIX.

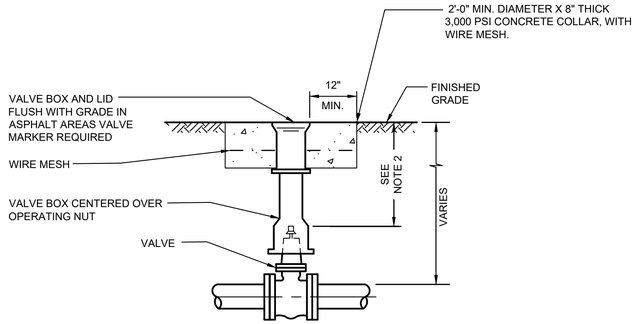
4 / - — **THRUST BLOCKING**

NOT TO SCALE



2 / TYP — **TYPICAL UTILITY CROSSING**

NOT TO SCALE



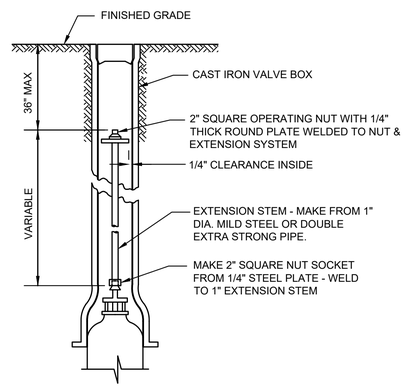
UNPAVED LOCATION

NOTES:

1. EACH VALVE SHALL BE PROVIDED WITH AND ADJUSTABLE CAST IRON VALVE BOX OF 5 INCHES (5") INSIDE DIAMETER. VALVE BOXES SHALL HAVE A TOP SECTION WITH AN EIGHTEEN INCH (18") MIN. LENGTH. THE VALVE BOX SHALL BE RICH No. 940 OR APPROVED EQUAL. VALVE BOX EARS SHALL BE PLACED IN LINE WITH PIPE IT SERVES.
2. 15" MINIMUM, 36" MAXIMUM FOR OPERATOR NUT. EXTENSION MAY BE REQUIRED.

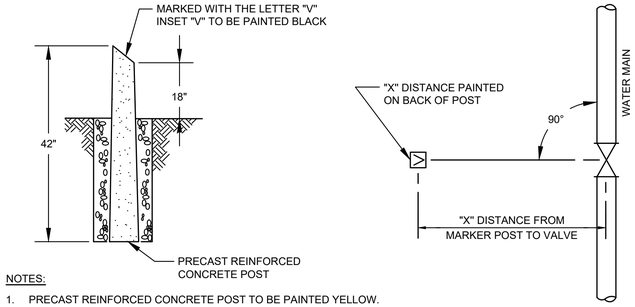
5 / - — **VALVE BOX**

SCALE: NOT SCALE



6 / - — **WATER VALVE STEM EXTENSION**

NOT TO SCALE

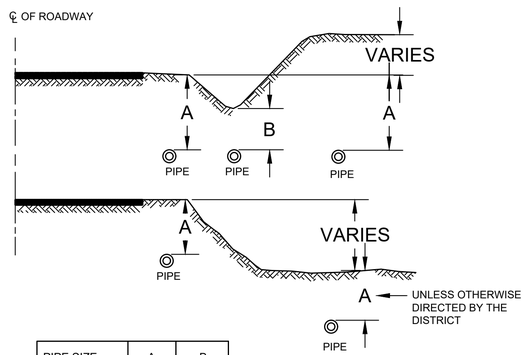


NOTES:

1. PRECAST REINFORCED CONCRETE POST TO BE PAINTED YELLOW.
2. THE DISTANCE FROM THE MARKER POST TO THE WATER VALVE SHALL BE PAINTED ON THE BACKSIDE OF THE MARKER POST IN BLACK WITH A 2" HIGH NUMBER.
3. VALVE MARKER POST SHALL BE REQUIRED WHEN EVER THE WATER VALVE IS LOCATED IN AN UNPAVED AREA.

3 / - — **VALVE MARKER POST**

NOT TO SCALE



PIPE SIZE	A	B
4"-8"	36"	24"

7 / - — **WATER MAIN DEPTH REQUIREMENTS**

NOT TO SCALE

0 1" 2"

TWO INCHES AT FULL SCALE. IF NOT, SCALE ACCORDINGLY

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DATE:	SEPT 2023	DRAWN:	HLT	CHECKED:	KS	APPROVED:	MBJ

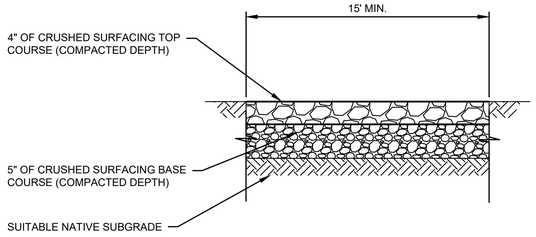
No.	REVISION	DATE	APPD

MICHAEL B. JOHNSON — STATE OF WASHINGTON — 21568 — REGISTERED PROFESSIONAL ENGINEER — 9/29/23

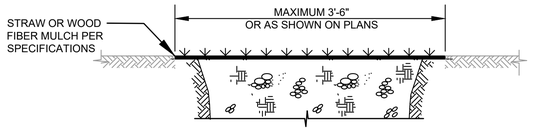
MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
CIVIL DETAILS

SHEET: **GD-1**
OF: **5**
JOB NO.: 21568
DWG: C-DETAILS

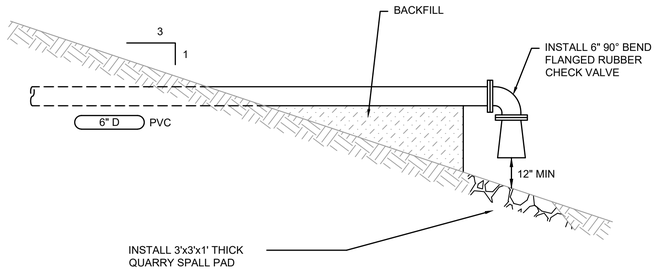
M:\Mason County PUD 1\21568.00 Vuecrest Reservoir\01 Design\Planset\Civil\C-DETAILS.dwg, 9/29/2023 11:25 AM, MARK NAGEL



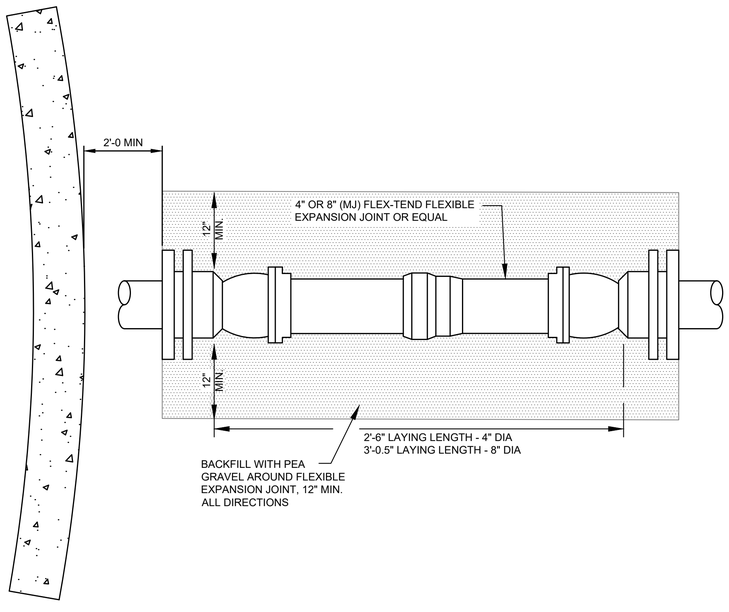
1 TYP **GRAVEL DRIVEWAY DETAIL**
SCALE: 1"=1'-0"



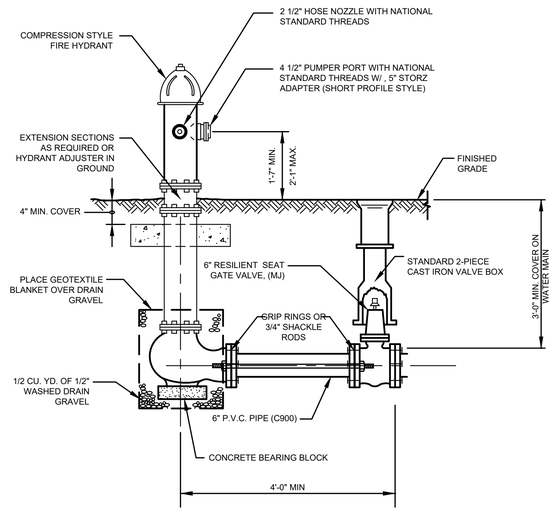
2 TYP **STRAW OR WOOD FIBER MULCH**
NOT TO SCALE



3 - **RESERVOIR DRAIN DETAIL**
NOT TO SCALE

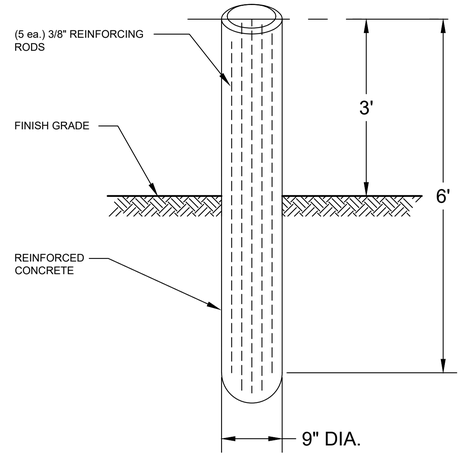


4 TYP **FLEXIBLE EXPANSION COUPLING**
NOT TO SCALE



NOTES
1. PROVIDE MIN. 3'-0" CLEARANCE AND LEVEL AREA AROUND HYDRANT.
2. PAINT FIRE HYDRANT WITH TWO COATS OF YELLOW RUST-RESISTANT PAINT TO
3. ACCEPTABLE HYDRANTS: MUELLER CENTURION.

5 TYP **FIRE HYDRANT DETAIL**
NOT TO SCALE



NOTES

1. HYDRANTS POSTS SHALL CONSIST OF REINFORCED 9" DIA. PRECAST UNIT SPECIFICALLY MANUFACTURED FOR PROTECTION OF HYDRANTS.
2. THE CONFIGURATION OF THE GUARD POST WILL BE 2, 3, OR 4 EACH HYDRANT AND SHALL BE DETERMINED BY THE DISTRICT BASED ON FIELD CONDITIONS.
3. HYDRANT GUARD POSTS SHALL BE PAINTED WITH TWO (2) COATS OF "STEELCOTE FEDERAL YELLOW" PAINT.

6 - **HYDRANT GUARD POST**
NOT TO SCALE

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

Gray & Osborne, Inc.
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1130 RAINIER AVENUE SOUTH, SUITE 300
SEATTLE, WASHINGTON 98144 • (206) 284-3860

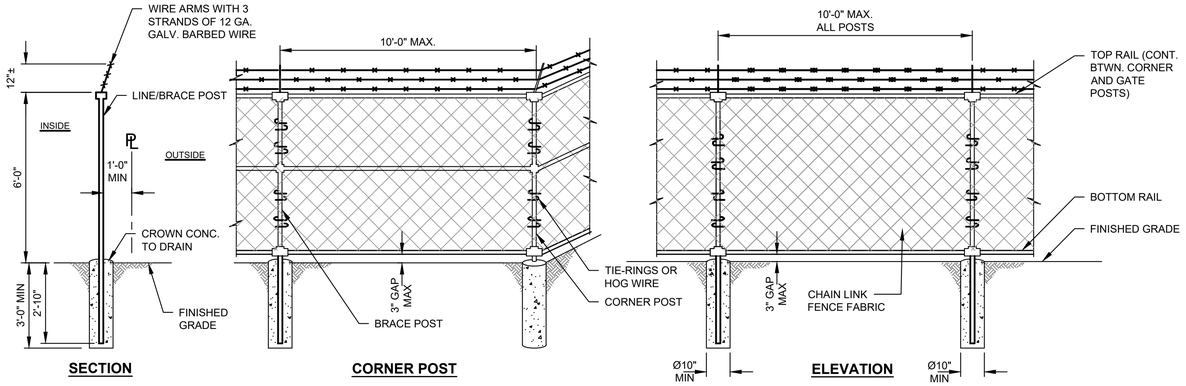
DATE: SEPT 2023	DRAWN: HLT	CHECKED: KS	APPROVED: MBJ

No.	REVISION	DATE	APPD

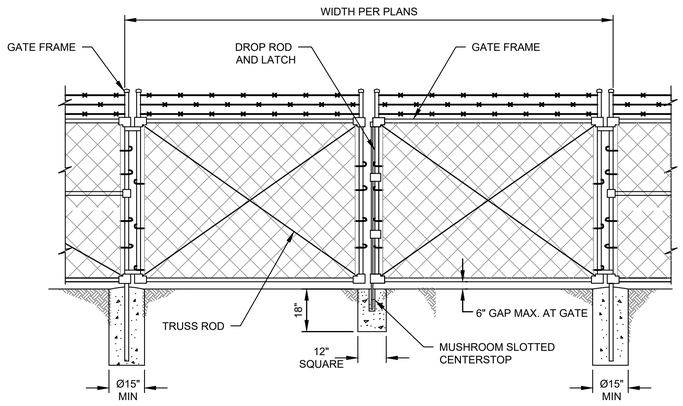
MICHAEL B. JOHNSON — STATE OF WASHINGTON — 21568 — PROFESSIONAL ENGINEER — 9/29/23

MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
CIVIL DETAILS

SHEET: **GD-2**
OF: **5**
JOB NO.: 21568
DWG: C-DETAILS



1 TYP **FENCE DETAIL**
SCALE: 3/8"=1'-0"



2 TYP **SWING GATE DETAIL**
SCALE: 3/8"=1'-0"

NOTES:

1. SEE SPECIFICATIONS FOR TYPICAL MATERIAL AND INSTALLATION REQUIREMENTS.
2. INSTALL CORNER POSTS WHERE ALIGNMENT CHANGES 30° OR MORE.
3. PROVIDE GALVANIZED FINISH ON POSTS, RAILS AND FITTINGS.
4. PROVIDE GALVANIZED IRON, MUSHROOM TYPE, SLOTTED CENTERSTOP FOR DOUBLE GATE DROP ROD. EMBED IN 12"X12"X18" DIA. CONC. FOUNDATION.
5. DROP ROD FOR SWING GATE AND MAN GATE SHALL COME EQUIPPED WITH PADLOCK LATCH.

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

Gray & Osborne, Inc.
CONSULTING ENGINEERS
1130 RAINIER AVENUE SOUTH, SUITE 300
SEATTLE, WASHINGTON 98144 • (206) 284-0860

DATE: SEPT 2023	DRAWN: HLT	CHECKED: KS	APPROVED: MBJ

No.	REVISION	DATE	APPD

MICHAEL B. JOHNSON — STATE OF WASHINGTON — 19818 — REGISTERED PROFESSIONAL ENGINEER
9/29/23

MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
CIVIL DETAILS

SHEET: **GD-3**
OF: **5**
JOB NO.: 21568
DWG: C-DETAILS

T.E.S.C. NOTES

GENERAL NOTES FOR TARGETED DRAINAGE PLAN:

1. ALL GRADING SHALL COMPLY WITH PERMIT CONDITIONS, CURRENT MASON COUNTY PUD AND MASON COUNTY CODES AND DEVELOPMENT STANDARDS, AND STATE (WSDOT) STANDARD SPECIFICATIONS, CURRENT EDITION.

2. IT SHALL BE THE OBLIGATION AND RESPONSIBILITY OF THE CONTRACTOR TO ADDRESS ANY NEW CONDITIONS THAT MAY BE CREATED BY THE CONTRACTOR'S ACTIVITIES AND TO PROVIDE ADDITIONAL FACILITIES THAT MAY BE NEEDED TO PROTECT THE NATURAL FEATURES OR ADJACENT PROPERTIES.

3. THE TEMPORARY EROSION/SEDIMENTATION CONTROL FACILITIES SHALL BE CONSTRUCTED PRIOR TO ANY GRADING OR SITE WORK. THESE FACILITIES MUST BE SATISFACTORILY MAINTAINED UNTIL CONSTRUCTION AND LANDSCAPING IS COMPLETED AND WITHIN 30 DAYS OF FINAL SITE STABILIZATION OR UNTIL THE POTENTIAL FOR ON-SITE EROSION HAS PASSED.

4. ALL PERSONS ENGAGING IN CONSTRUCTION ACTIVITIES SHALL PREVENT OR MINIMIZE EROSION AND SEDIMENTATION ON-SITE, AND SHALL PROTECT PROPERTIES AND WATER COURSES DOWNSTREAM FROM THE SITE.

5. NON COMPLIANCE WITH THE EROSION CONTROL REQUIREMENTS, WATER QUALITY REQUIREMENTS AND/OR CLEARING LIMITS MAY RESULT IN REVOCATION OF PROJECT PERMITS, REVOCATION OF PLAN APPROVAL, AND BOND FORECLOSURES.

6. PRIOR TO INITIATION OF SITE WORK, HIGHLY VISIBLE MARKERS SUCH AS ORANGE BARRIER FENCING OR FLAGGING SHALL BE USED TO IDENTIFY CLEARING LIMITS AND EXISTING NGPA AREAS.

7. ALL STREETS SHALL BE KEPT CLEAR OF DIRT AND DEBRIS DURING EXCAVATION AND FILL OPERATIONS. SWEEP STREETS IMMEDIATELY WHEN DIRT HAS BEEN TRACKED ONTO PAVED SURFACES.

8. STOCKPILES ARE TO BE LOCATED IN SAFE AREAS AND ADEQUATELY PROTECTED WITHIN 24 HOURS OF FORMATION TO PREVENT SOIL LOSS.

9. STORM SEWER INLETS RECEIVING SITE STORM WATER RUNOFF DURING CONSTRUCTION SHALL BE PROTECTED SO THAT WATER WILL NOT ENTER THE INLET WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO MINIMIZE THE AMOUNT OF SEDIMENT ENTERING THE INLET.

10. FROM MAY 1 TO SEPTEMBER 30, NO SOIL SHALL REMAIN EXPOSED FOR MORE THAN 7 DAYS. DENUDED AREAS SHALL BE COVERED BY MULCH, SOD, PLASTIC OR EQUIVALENT BMP LISTED IN THE WASHINGTON STATE DEPARTMENT OF ECOLOGY STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON FROM OCTOBER 1 TO APRIL 30. NO SOIL SHALL REMAIN EXPOSED FOR MORE THAN 2 DAYS. SEE WET SEASON SUPPLEMENTAL GRADING NOTES FOR ADDITIONAL BMP REQUIREMENTS.

11. WATER RESULTING FROM THE DEWATERING OF TRENCHES AND EXCAVATIONS SHALL BE FILTERED PRIOR TO DISCHARGE AS REQUIRED TO MEET TURBIDITY PERMITS. DISCHARGE OF SURFACE WATER FROM THE SITE SHALL BE SUBJECT TO MONITORING BY THE OWNER, AND TREATMENT AND/OR DIVERSION TO THE SANITARY SEWER SYSTEM WHERE APPROPRIATE, IN ACCORDANCE WITH THESE PLANS AND PROJECT SPECIFICATIONS. MAXIMUM ALLOWABLE TURBIDITY SHALL BE 5 NTU OVER BACKGROUND. DIVERSION OF STORM WATER DISCHARGE TO THE SANITARY SEWER SYSTEM SHALL BE SUBJECT TO OWNERS APPROVAL AND TO ANY PRE-TREATMENT REQUIREMENTS IMPOSED BY THE OWNER.

12. CONTRACTOR IS RESPONSIBLE FOR PREVENTING SURFACE WATER FROM RUNNING INTO EXCAVATIONS AND/OR PUMPING SURFACE RUN-OFF FROM EXCAVATION AND WORK AREA AS NEEDED.

13. FILTER FABRIC FENCE AND ALL OTHER TESC MEASURES SHALL BE CHECKED IMMEDIATELY AFTER EACH RAINFALL EVENT IN EXCESS OF 0.1 INCH AND DAILY DURING PROLONGED RAIN EVENTS. MAINTENANCE AND REPAIR OF TESC FACILITIES AND STRUCTURES SHALL BE CONDUCTED IMMEDIATELY UPON RECOGNITION OF A PROBLEM OR DAMAGE. SEE ALSO NOTES ON SILTATION BARRIER MAINTENANCE, THIS SHEET.

14. SEDIMENT DEPOSITS SHALL BE REMOVED FROM ALL TEMPORARY DRAINAGE FACILITIES AND STRUCTURES UPON REACHING A DEPTH OF 6 INCHES.

15. SUFFICIENT TEST BMP MATERIALS AND SUPPLIES TO PROTECT THE ENTIRE SITE SHALL BE STOCK PILED ON SITE.

16. CONSTRUCTION ACCEPTANCE WILL BE SUBJECT TO PLACEMENT OF STRAW OR WOOD FIBER MULCH OR EROSION CONTROL BLANKETS THAT FULFILLS THE REQUIREMENT OF THE APPROVED CONSTRUCTION PLANS AND MASON COUNTY DRAINAGE STANDARDS.

17. IMMEDIATELY FOLLOWING FINISH GRADING, PERMANENT VEGETATION SHALL BE APPLIED. ALL DISTURBED AREAS NOT DESIGNATED FOR OTHER SURFACE RESTORATION SHALL MULCHED WITH STRAW OR WOOD FIBER MATERIAL.

18. IF REQUIRED, SURFACE RUNOFF CONTROL MEASURES SUCH AS GRADIENT TERRACES, INTERCEPTOR DIKE/SWALES, LEVEL SPREADERS, AND SEDIMENT BASINS SHALL BE INSTALLED PRIOR TO MULCHING.

19. TRANSPORT ALL EXCAVATED MATERIALS OFF SITE TO APPROVED STORAGE LOCATION, EXCEPT AS ALLOWED IN THE SPECIFICATIONS. LIMIT TRUCK ACTIVITY TO PAVED AND GRAVELED SURFACES ONLY. MAINTAIN TRUCK ACCESS AREAS WHERE CLEAR OF DIRT AND SEDIMENT DURING PERIODS OF TRUCK ACTIVITY BY SWEEPING.

20. ADDITIONAL REQUIREMENTS FOR UTILITIES. THE INSTALLATION OF UNDERGROUND UTILITY LINES SHALL BE SUBJECT TO THE FOLLOWING ADDITIONAL REQUIRMENTS:

    a. NO MORE THAN FIVE HUNDRED (300) FEET OF TRENCH MAY REMAIN OPEN AT ONE TIME;

    b. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF THE TRENCHES UNLESS INCONSISTENT WITH SAFETY OR SITE CONSTRAINTS

CONSTRUCTION SEQUENCE:

1. ATTEND PRE-CONSTRUCTION MEETING.
2. FLAG OR FENCE CLEARING LIMITS.
3. INSTALL PERIMETER PROTECTION (SILT FENCE, BRUSH BARRIER, ETC.)
4. CONSTRUCT SURFACE WATER CONTROLS IF NEEDED (INTERCEPTOR DIKES, STRAW BALE BARRIERS, ETC.) SIMULTANEOUSLY WITH CLEARING AND GRADING FOR WATER MAIN CONSTRUCTION.
5. MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH COUNTY REQUIREMENTS AND MANUFACTURER'S RECOMMENDATIONS.
6. RELOCATE SURFACE WATER CONTROLS OR EROSION CONTROL MEASURES, OR INSTALL NEW MEASURES SO THAT AS SITE CONDITIONS CHANGE, THE EROSION AND SEDIMENT CONTROL IS ALWAYS IN ACCORDANCE WITH COUNTY REQUIREMENTS.
7. COVER ALL AREAS THAT WILL BE UNWORKED FOR MORE THAN TWO DAYS BETWEEN OCTOBER 1ST AND APRIL 30TH OR SEVEN DAYS BETWEEN MAY 1ST AND SEPTEMBER 30TH WITH STRAW, WOOD FIBER MULCH, COMPOST, PLASTIC SHEETING OR EQUIVALENT.
8. STABILIZE ALL AREAS WITHIN SEVEN DAYS OF REACHING FINAL GRADE.
9. PLACE STRAW OR FIBER MULCH ON ANY AREAS TO REMAIN UNWORKED FOR MORE THAN 30 DAYS.
10. UPON COMPLETION OF THE PROJECT, STABILIZE ALL DISTURBED AREAS AND REMOVE BMPS WHEN APPROPRIATE.

WET SEASON SUPPLEMENTAL GRADING NOTES (OCTOBER 1 THROUGH APRIL 30)

1. CONSTRUCTION SEQUENCE SHALL BE MODIFIED TO MINIMIZE THE AREA OF UNSTABILIZED SOIL, WITH A MAXIMUM OF 1,000 SQUARE FEET EXPOSED AT ANY TIME.
2. EARTHEN AREAS WITH THE POTENTIAL TO CONTRIBUTE SEDIMENTS DURING STORM EVENTS AND WHERE EARTH MOVEMENT IS NOT ANTICIPATED WITHIN 48-HOURS SHALL BE STABILIZED USING ONE OR MORE OF THE FOLLOWING BMPS INSTALLED IN ACCORDANCE WITH THE CURRENT MASON COUNTY DRAINAGE MANUAL: STRAW MULCH OF 4" THICKNESS, PLASTIC SHEETING, EROSION CONTROL BLANKETS.
3. WET SEASON TEST MEASURES SHALL BE EXPANDED TO INCLUDE:
    a. IMPLEMENT A PLAN TO PUMP TURBID WATER TO THE SANITARY SEWER SYSTEM OR TO PUMP TO ON SITE TANKS AND TREAT PRIOR TO DISCHARGE TO THE STORM SYSTEM. THE PLAN SHALL BE PRE-APPROVED BY THE OWNER PRIOR TO START OF WET SEASON GRADING AND SHALL BE SUBJECT TO MONITORING BY THE OWNER AS DESCRIBED IN THE SPECIFICATIONS. PUMPING TO THE SANITARY SEWER SYSTEM SHALL REQUIRE OWNERS APPROVAL AND SHALL BE SUBJECT TO SUCH CONDITIONS AS THE OWNER MAY IMPOSE, AS DESCRIBED IN THE SPECIFICATIONS.
    b. STOCKPILE BUILDING MATERIALS ON PAVED AND/OR GRAVELED SURFACES TO MINIMIZE TRAFFIC ON ERODABLE SURFACES.
4. SOILS SHALL NOT BE DISTURBED EXCEPT FOR CONSTRUCTION ACTIVITIES. PARKING IS ALLOWED ONLY ON PAVED AND/OR GRAVELED SURFACES.
5. SLOPES WITHOUT ESTABLISHED GROUND COVER SHALL BE STABILIZED WITH PLASTIC SHEETING, 6 MIL. MINIMUM. SHEETING SHALL BE ANCHORED WITH SANDBAGS LOCATED 5 FEET APART ON THE PERIMETER AND 10 FEET ON CENTER ELSEWHERE ON THE SHEETING. A MINIMUM OF 2 FEET OVERLAP IS REQUIRED FOR OVERLAPPING SHEETS.
6. WHEN RAINFALL IS HEAVY (DEFINED AS SUFFICIENT TO PRODUCE SEDIMENT RUNOFF FROM EXPOSED DIRT), ALL EXPOSED EARTHWORK SHALL BE COVERED. NO OTHER CONSTRUCTION ACTIVITY SHALL OCCUR ON PERVIOUS SURFACES DURING THESE PERIODS OF HEAVY RAINFALL.
7. ALL DRAINAGE SWALES AND AREAS WITH 2:1 OR GREATER SLOPES SHALL BE LINED WITH STAKED EROSION CONTROL BLANKETS.

CLEAR PLASTIC COVERINGS:

1. CLEAR PLASTIC COVERINGS SHALL HAVE A MINIMUM THICKNESS OF 6 MIL AND MEET THE REQUIREMENTS OF WSDOT/APWA SECTION 9-14.5.
2. COVERING SHALL BE INSTALLED AND MAINTAINED TIGHTLY IN PLACE BY USING SANDBAGS OR TIRES OR ROPES WITH A MAXIMUM 10 FOOT GRID SPACING IN ALL DIRECTIONS. ALL SEAMS SHALL BE TAPED OR WEIGHTED DOWN FULL LENGTH AND THERE SHALL BE AT LEAST A 1 TO 2 FOOT OVERLAP OF ALL SEAMS. SEAMS SHOULD THEN BE ROLLED AND STAKED OR TIED.
3. WHEN THE COVERING IS USED ON BARE SOIL SLOPES, IT SHALL BE LEFT IN PLACE UNTIL STRAW OR WOOD FIBER MULCH IS APPLIED.
4. SHEETING SHOULD BE TOED IN AT THE TOP OF THE SLOPE TO PREVENT SURFACE FLOW BENEATH THE PLASTIC.
5. SHEETING SHOULD BE REMOVED AS SOON AS IS POSSIBLE TO PREVENT BURNING THE VEGETATION.
6. CHECK SHEETING REGULARLY FOR RIPS AND PLACES WHERE THE PLASTIC MAY BE DISLODGED. CONTACT BETWEEN THE PLASTIC AND THE GROUND SHOULD ALWAYS BE MAINTAINED. ANY AIR BUBBLES FOUND SHOULD BE REMOVED IMMEDIATELY OR THE PLASTIC MAY RIP DURING THE NEXT WINDY PERIOD. RE-ANCHOR OR REPLACE THE PLASTIC AS NECESSARY.

FILTER FENCE:

1. THE FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6 INCH OVERLAP, AND BOTH ENDS SECURELY FASTENED TO THE POST.
2. POSTS SHALL BE SPACED A MAXIMUM OF 6 FEET APART AND DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 30 INCHES (WHERE PHYSICALLY POSSIBLE).
3. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 8 INCHES WIDE AND 8 INCHES DEEP ALONG THE LINE OF POSTS AND UPSLOPE FROM THE BARRIER. THE TRENCH SHALL BE CONSTRUCTED TO FOLLOW THE CONTOUR.
4. WHEN SILT FILM FILTER FABRIC IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING TIE WIRES, HOG RINGS, OR HEAVY-DUTY WIRE STAPLES AT LEAST 1 INCH LONG. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 4 INCHES AND SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
5. SILT FILM FILTER FABRIC SHALL BE WIRED TO THE FENCE, AND 20 INCHES OF THE FABRIC SHALL EXTEND INTO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES. OTHER TYPES OF FABRIC MAY BE STAPLED TO THE FENCE.
6. WHEN EXTRA-STRENGTH OR MONOFILAMENT FABRIC AND CLOSER POST SPACING ARE USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH A CASE, THE FILTER FABRIC IS STAPLED OR WIRED DIRECTLY TO THE POSTS WITH ALL OTHER PROVISIONS OF FILTER FENCE NOTE 5 APPLYING. EXTRA CARE SHOULD BE USED WHEN JOINING OR OVERLAPPING THESE STIFFER FABRICS.
7. THE BASE OF THE SILT FENCE SHALL BE SECURED WITH COMPACTED NATIVE SOIL OR 3/4" MIN DIA WASHED GRAVEL. THE MATERIAL SHALL BE WELL BEDDED TO ENSURE GOOD CONTACT BETWEEN THE FABRIC AND THE TRENCH BOTTOM.
8. FILTER FABRIC FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED. RETAINED SEDIMENT MUST BE REMOVED AND PROPERLY DISPOSED OF AND MULCHED.

FILTER FENCE MAINTENANCE

1. INSPECT IMMEDIATELY AFTER EACH RAINFALL, AND AT LEAST DAILY DURING PROLONGED RAINFALL. REPAIR AS NECESSARY.
2. SEDIMENT MUST BE REMOVED WHEN IT REACHES APPROXIMATELY ONE THIRD THE HEIGHT OF THE FENCE, ESPECIALLY IF HEAVY RAINS ARE EXPECTED.
3. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE FILTER FENCE IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED AND MULCHED.
4. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY "BEST MANAGEMENT PRACTICES" ARE NO LONGER NEEDED. TRAPPED SEDIMENT SHALL BE REMOVED OR STABILIZED ON SITE. DISTURBED SOIL AREAS RESULTING FROM REMOVAL SHALL BE PERMANENTLY STABILIZED.

0 1" 2"

TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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DATE: SEPT 2023	DRAWN: HLT	CHECKED: KS	APPROVED: MBJ

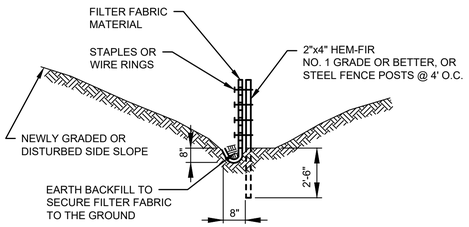
No.	REVISION	DATE	APPD

MICHAEL B. JOHNSON — STATE OF WASHINGTON — 21568 — REGISTERED PROFESSIONAL ENGINEER
9/29/23

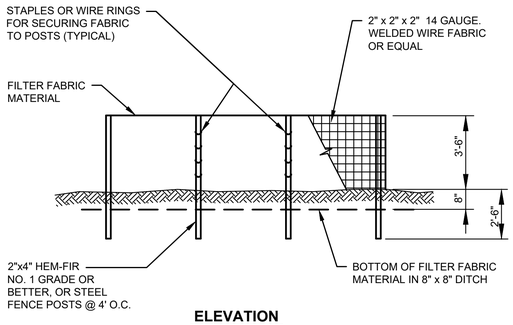
MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
TESC NOTES

SHEET: GD-4
OF: 5

JOB NO.: 21568
DWG: TESC



SECTION



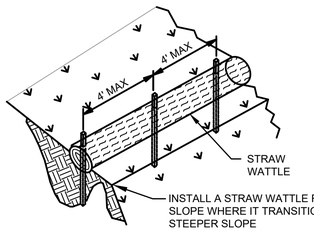
ELEVATION

NOTES:

1. WHERE POSSIBLE, MAINTAIN NATURAL VEGETATION FOR SILT CONTROL
2. TEMPORARY SILTATION CONTROL SHALL BE CONSTRUCTED BY PLACING FILTER FABRIC FENCES ACROSS SWALES UTILIZING FILTER SYSTEM PRIOR TO DISCHARGE
3. BE MAINTAINED IN A SATISFACTORY CONDITION UNTIL SUCH TIME THAT CLEARING AND/OR CONSTRUCTION IS COMPLETED AND SURFACE RESTORATION HAS BEEN COMPLETED
4. RETURN SILTATION CONTROL AREAS TO ORIGINAL GROUND CONDITIONS, UNLESS SPECIFICALLY DIRECTED OTHERWISE BY THE ENGINEER

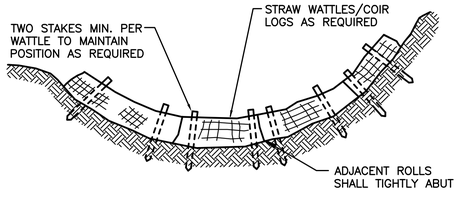
1 TYP **SILT FENCE**

NOT TO SCALE



NOTE:

INSTALL WATTLE ROLL ALONG A LEVEL CONTOUR.



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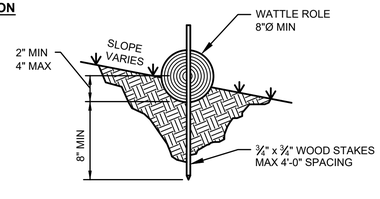
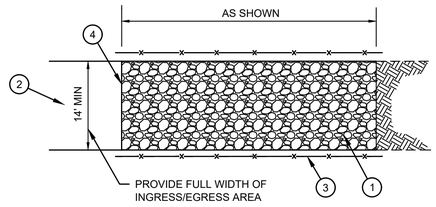
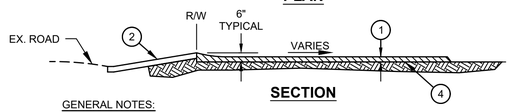


3 TYP **STRAW WATTLE ROLL DETAIL**

NOT TO SCALE



PLAN



SECTION

DETAIL NOTES:

1. 4" TO 8" QUARRY SPALLS AS SPECIFIED IN SECTION 9-13.6 OF THE WSDOT STANDARD SPECIFICATIONS.
2. ATB DRIVEWAY RAMP, OR SITE ACCESS ROAD. QUARRY SPALL ENTRANCE WIDTH AND LENGTH PER PLAN.
3. INSTALL ORANGE BARRIER FENCE TO DIRECT TRAFFIC ONTO CONSTRUCTION ENTRANCE.
4. FILTER FABRIC (GEOTEXTILE FABRIC) SHALL BE INSTALLED BENEATH THE ENTIRE CONSTRUCTION ENTRANCE AND SHALL CONFORM TO THE FOLLOWING PROPERTIES:

PROPERTY	UNIT	TEST METHOD	RESULT
WEIGHT	OZ/SY	ASTM D3776	2.5 MIN.
THICKNESS	MILS	ASTM D1776	15 MIN.
GRAB STRENGTH	LB	ASTM D1682	100 MIN.
UV RESISTANCE	%	ASTM D1682	90 MIN.
RETENTION EFFICIENCY	%	VIRGINIA DOT VTM-51	75 MIN.
EQUIVALENT SIZE OPENING	U.S. STD. SIEVE	COE CW 02215	20

GENERAL NOTES:

1. INSTALLATION - THE AREA OF THE ENTRANCE SHALL BE CLEARED OF ALL VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL. THE GRAVEL SHALL BE PLACED TO THE SPECIFIED DIMENSIONS. ANY DRAINAGE FACILITIES REQUIRED BECAUSE OF WASHING SHOULD BE CONSTRUCTED ACCORDING TO SPECIFICATIONS IN THE PLAN. IF WASH RACKS ARE USED, THEY SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
2. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A DRIVABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
3. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED IMMEDIATELY.
4. WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY. WHEN WASHING IS USED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
5. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

2 C-1 **CONSTRUCTION ENTRANCE**

NOT TO SCALE

0 1" 2"

TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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SEATTLE, WASHINGTON 98144 • (206) 284-0860

DATE:	SEPT 2023
DRAWN:	HLT
CHECKED:	KS
APPROVED:	MBJ

No.	REVISION	DATE	APPD

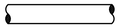
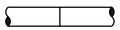
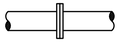
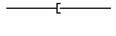
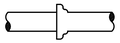
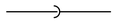
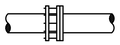
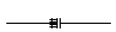
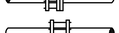
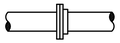
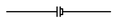
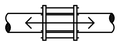
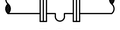
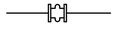
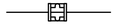
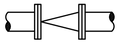
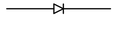
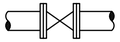
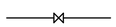
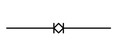
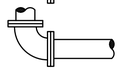
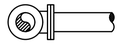
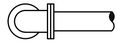
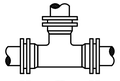
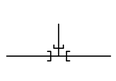
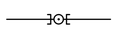
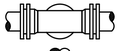
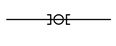
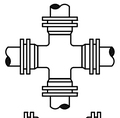
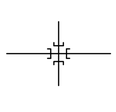
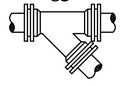
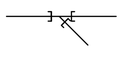
MICHAEL B. JOHANSON — STATE OF WASHINGTON — 21568 — PROFESSIONAL ENGINEER — 9/29/23

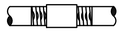
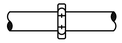
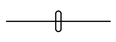
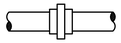
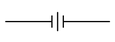
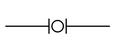
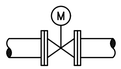
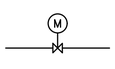
MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
TESC DETAILS

SHEET: **GD-5**
OF: **5**

JOB NO.: 21568
DWG: TESC

PIPING SYMBOLS

DOUBLE LINE	SINGLE LINE	
		EXISTING PIPE
		NEW PIPE
		EXISTING PIPE TO BE REMOVED
		WELDED
		FLANGED
		MECHANICAL JOINT
		SOLVENT WELDED JOINT
		FLANGED COUPLING ADAPTER
		FLEXIBLE COUPLING
		ADAPTOR FLANGE
		RESTRAINED FLEXIBLE COUPLING
		RUBBER EXPANSION JOINT
		RESTRAINED RUBBER EXPANSION JOINT
		BLIND FLANGE
		CHECK VALVE
		GATE VALVE
		PLUG VALVE
		BUTTERFLY VALVE
		CONCENTRIC REDUCER
		ECCENTRIC REDUCER
		ELBOW, 45°
		ELBOW, 90°
		ELBOW UP
		ELBOW DOWN
		TEE
		TEE UP
		TEE DOWN
		CROSS
		WYE

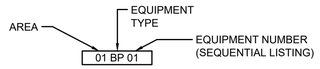
DOUBLE LINE	SINGLE LINE	
		SCREWED JOINT
		GROOVED COUPLING
		UNION
		BELL UP
		FLEXIBLE HOSE OR TUBING
		BALL VALVE
		VALVE WITH MOTOR ACTUATOR
		DENOTES ITEMS TO BE REMOVED AND DISPOSED OF BY CONTRACTOR IN ACCORDANCE WITH THE SPECIFICATIONS

PIPING MATERIAL AND JOINTING SCHEDULE

(EXCEPT WHERE SHOWN DIFFERENTLY ON THE DRAWINGS)

PROCESS PIPING CODE (SEE THIS SHEET)	INSIDE STRUCTURES	BURIED
W (OFFSITE)	-	C900 PVC W/ DI FITTING RESTRAINED JOINT & THRUST BLOCKED
W (ON SITE)	FLANGED DUCTILE IRON	RESTRAINED MECHANICAL JOINT DUCTILE IRON
D	<4" SOLVENT WELDED PVC >4" FLANGED DUCTILE IRON	RESTRAINED MECHANICAL JOINT DUCTILE IRON

AREA, PIPE AND EQUIPMENT IDENTIFICATIONS



PIPE

W	WATER
D	DRAIN

EQUIPMENT

BP	BOOSTER PUMP
CV	CONTROL VALVE
MFM	MAGNETIC FLOW METER
PRV	PRESSURE REDUCING VALVE

TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

Gray & Osborne, Inc.
CONSULTING ENGINEERS
1130 RAINIER AVENUE SOUTH, SUITE 300
SEATTLE, WASHINGTON 98144 • (206) 284-3880

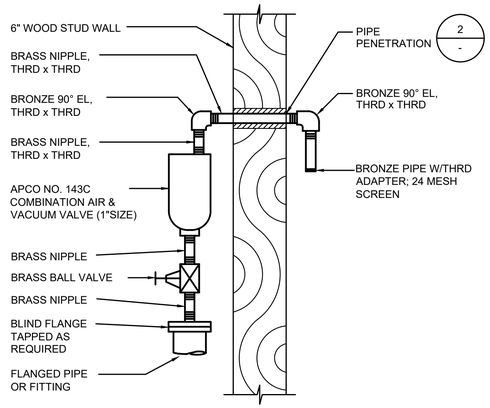
DATE:	SEPT 2023
DRAWN:	XXX
CHECKED:	XXX
APPROVED:	XXX

No.	REVISION	DATE	APPD

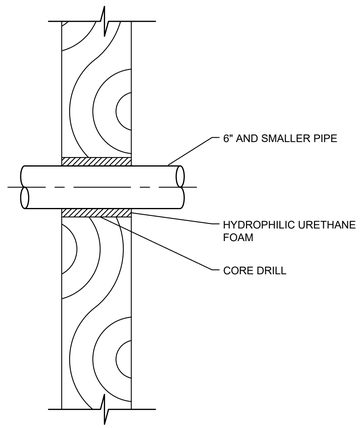
MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
PIPE SYMBOLS, GENERAL SYMBOLS, AND EQUIPMENT IDENTIFICATIONS

SHEET: **M-1**
OF: **9**

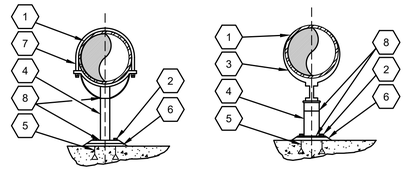
JOB NO.: 21568
DWG: M-LEGEND



1 / - **COMBINATION AIR/VACUUM VALVE**
NOT TO SCALE



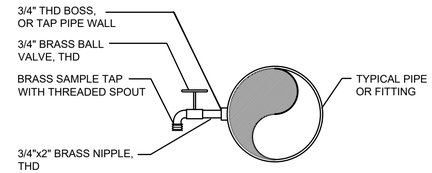
2 / TYP **TYPICAL WOOD WALL PIPE PENETRATION**
NOT TO SCALE



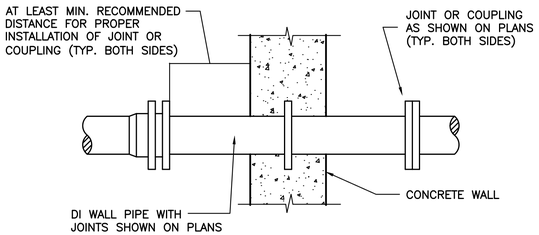
NOTES:

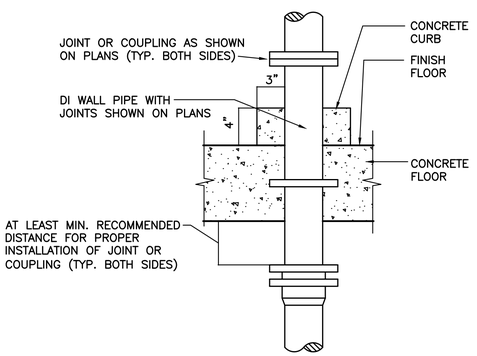
1. PIPE, SIZE VARIES
2. 5/8" DIAMETER EXPANSION BOLTS X 6" MIN. LENGTH EQUALLY SPACED
3. ADJUSTABLE STEEL PIPE, SADDLE SUPPORT (GRINNEL STYLE 264), SIZE VARIES.
4. SUPPORT, PIPE SIZE VARIES
5. 1/4" STEEL BASE PL, DIAMETER VARIES
6. NON-SHRINK LEVELING GROUT
7. GRINNELL PIPE SUPPORT (FIGURE No. 259)
8. WELD ALL AROUND

3 / TYP **PIPE SUPPORT TYPE A**
NOT TO SCALE

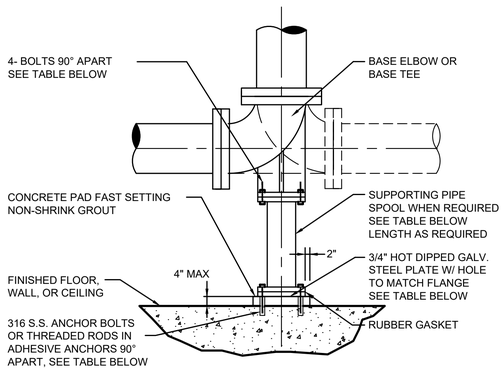


4 / - **HOSE BIBB**
NOT TO SCALE





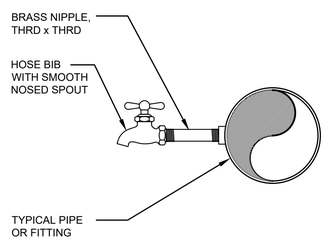
5 / TYP **TYPICAL CONCRETE PIPE PENETRATION**
NOT TO SCALE



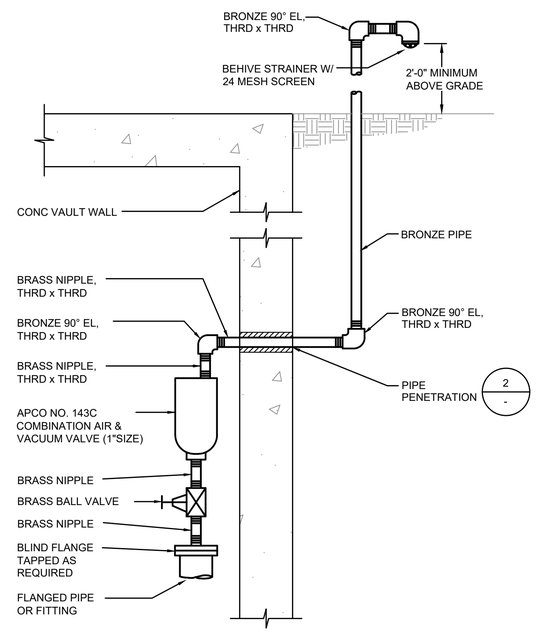
BASE TEE OR ELBOW DIA.	BOLT OR ROD DIA.	SUPPORTING PIPE SPOOL DIA.	STEEL PLATE DIMENSIONS
3"	1/2"	1 1/2"	5" X 5"

NOTES :
SUPPORTING PIPE SPOOL NOT REQUIRED WHEN CONCRETE PAD HAS TO BE LESS THAN 4" HIGH IN ORDER TO INSTALL A SUPPORTING PIPE SPOOL

6 / TYP **PIPE SUPPORT TYPE D**
NOT TO SCALE



7 / TYP **SAMPLE STATION**
NOT TO SCALE



8 / - **COMBINATION AIR/VACUUM VALVE IN VAULT**
NOT TO SCALE

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

Gray & Osborne, Inc.
CONSULTING ENGINEERS
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SEATTLE, WASHINGTON 98144 • (206) 284-3880

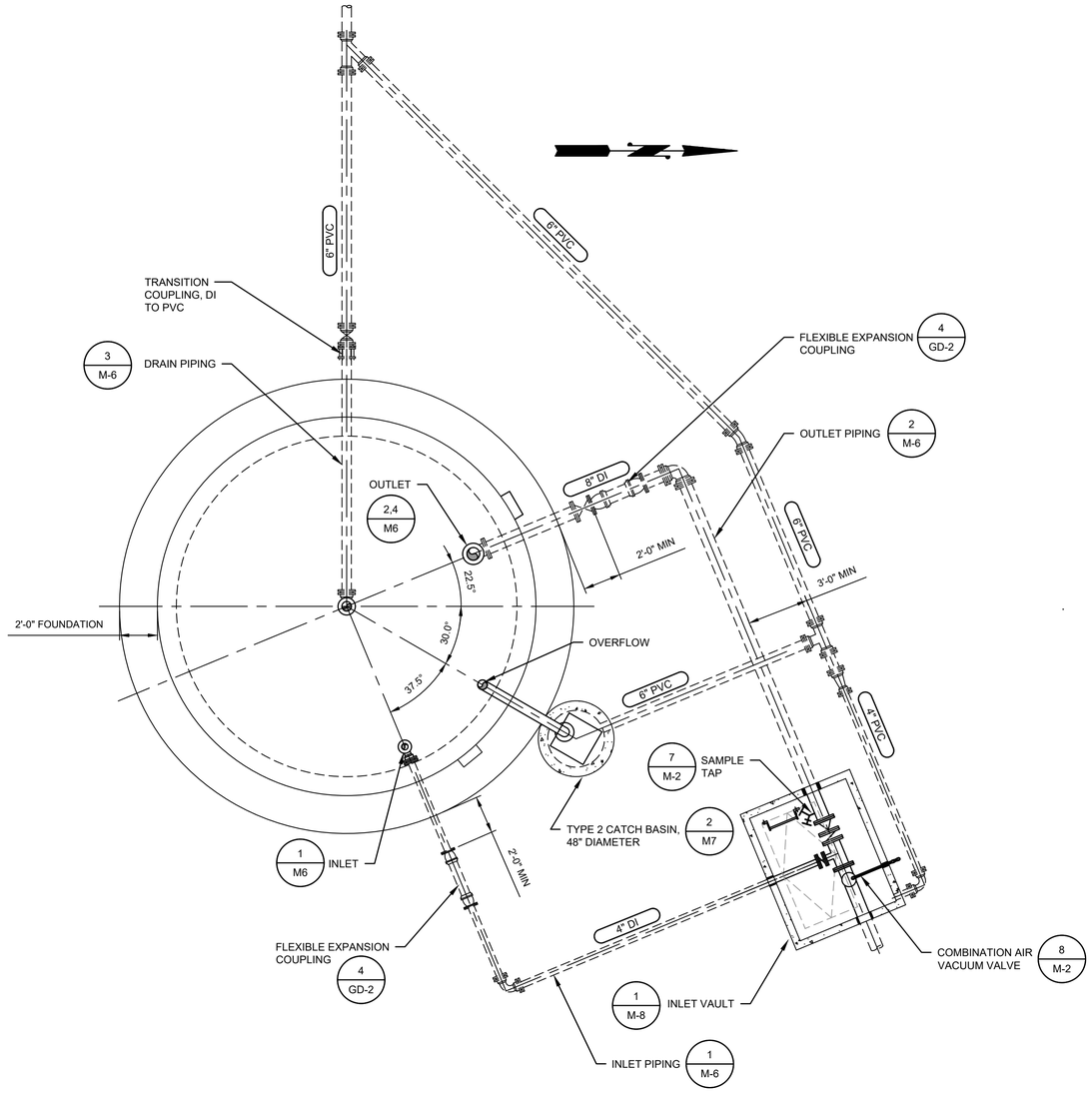
DATE:	SEPT 2023
DRAWN:	XXX
CHECKED:	XXX
APPROVED:	XXX

No.	REVISION	DATE	APPD

MICHAEL B. JOHNSON — STATE OF WASHINGTON — 19981 — REGISTERED PROFESSIONAL ENGINEER
9/29/23

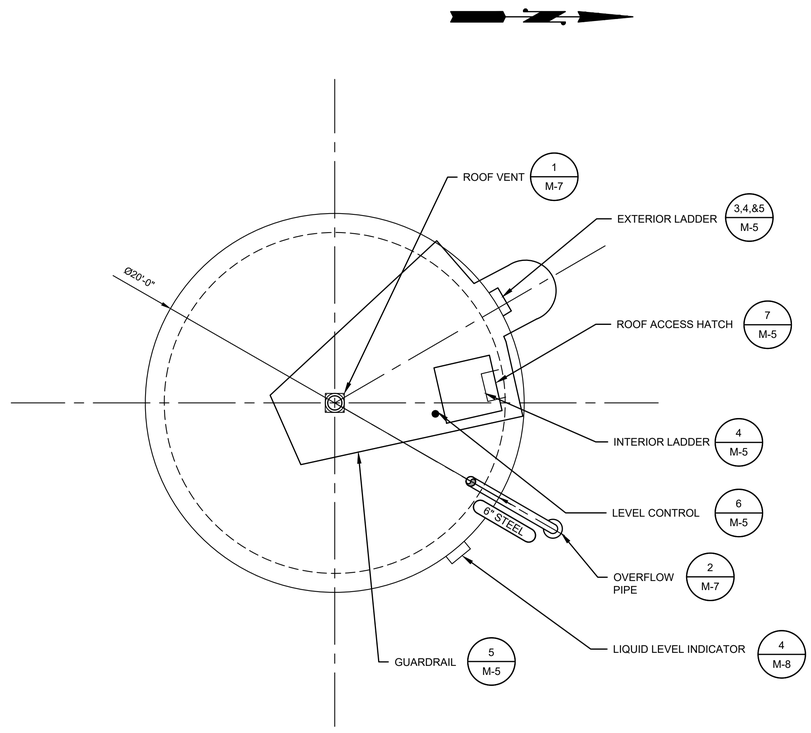
MASON COUNTY PUD 1
MASON COUNTY — WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
BOOSTER STATION DETAILS

SHEET: **M-2**
OF: **9**
JOB NO.: 21568
DWG: M-LEGEND



RESERVOIR FLOOR PLAN

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



RESERVOIR ROOF PLAN

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

0 1" 2"

TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

Gray & Osborne, Inc.
CONSULTING ENGINEERS
1130 RAINIER AVENUE SOUTH, SUITE 300
SEATTLE, WASHINGTON 98144 • (206) 284-3880

DATE: SEPT 2023	DRAWN: XXX	CHECKED: XXX	APPROVED: XXX

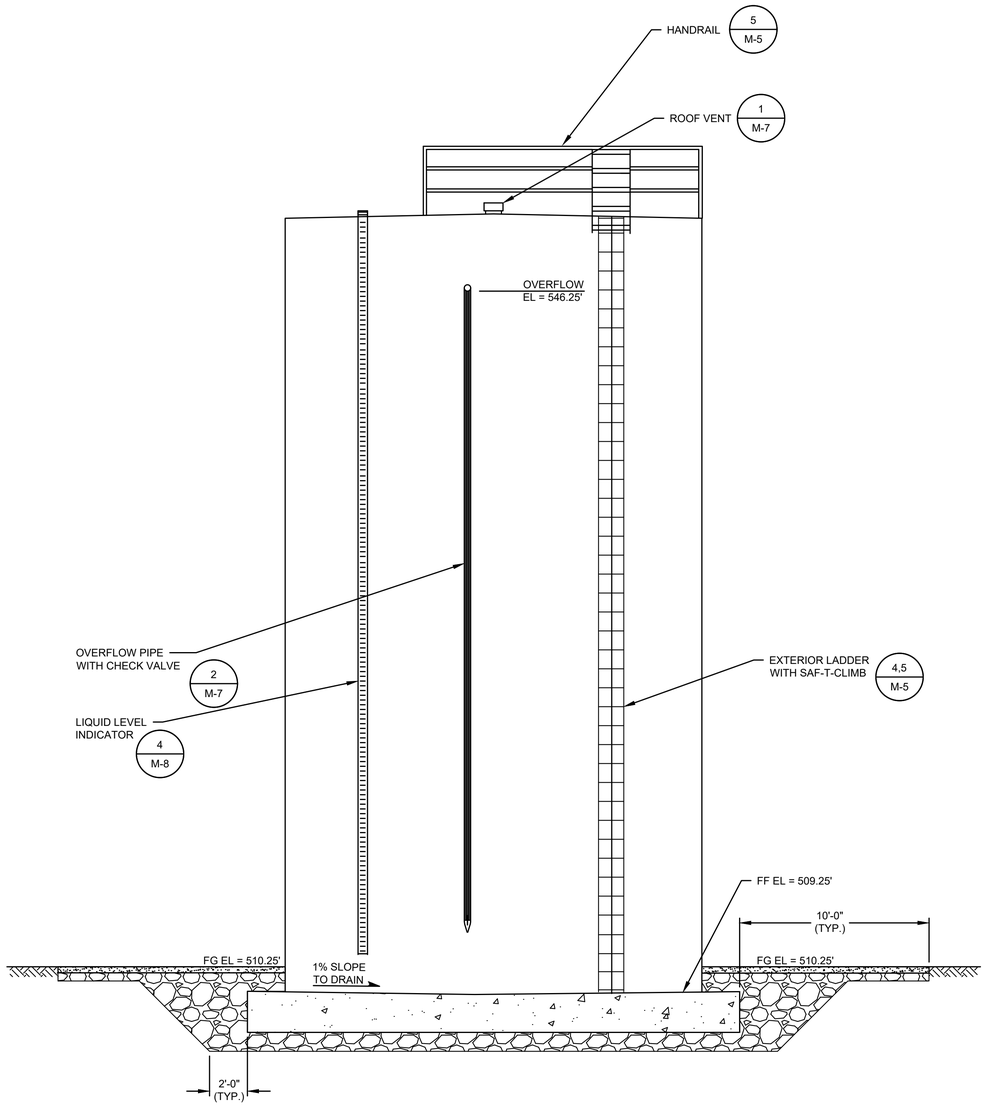
No.	REVISION	DATE	APPD

MICHAEL B. JOHNSON — STATE OF WASHINGTON — 21568 — REGISTERED PROFESSIONAL ENGINEER
9/29/23

MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
RESERVOIR FLOOR AND ROOF PLAN

SHEET: **M-3**
OF: **9**

JOB NO.: 21568
DWG: R-RESERVOIR

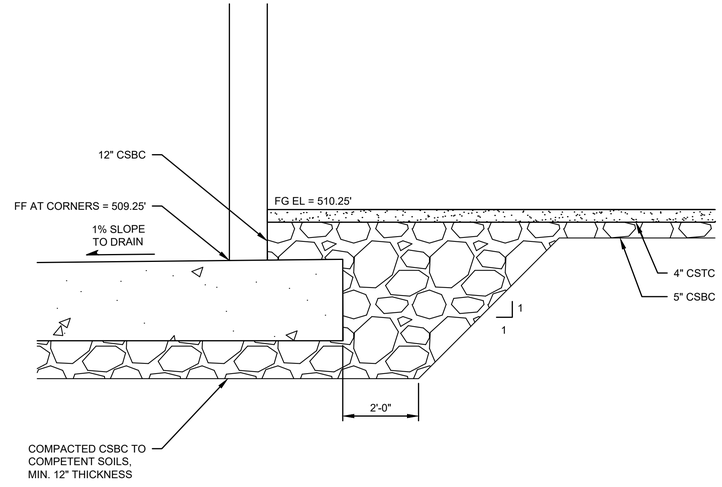


NOTE:

1. NOT ALL ITEMS SHOWN IN EXACT LOCATION FOR CLARITY

RESERVOIR ELEVATION

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



A / - **FOUNDATION DETAIL**

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

0 1" 2"

TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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SEATTLE, WASHINGTON 98144 • (206) 284-3880

DATE: SEPT 2023	DRAWN: XXX	CHECKED: XXX	APPROVED: XXX

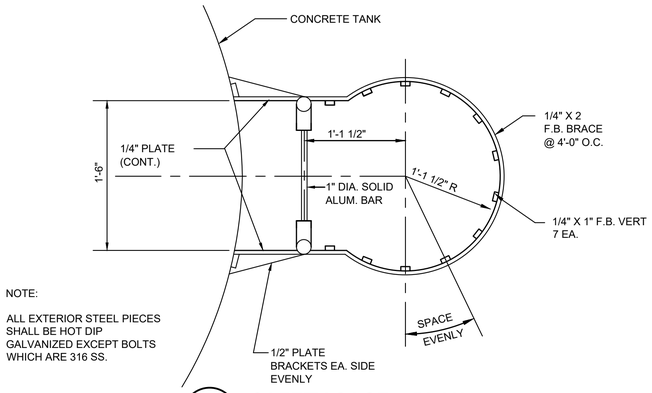
No.	REVISION	DATE	APPD

MICHAEL B. JOHNSON — STATE OF WASHINGTON — 21568 — REGISTERED PROFESSIONAL ENGINEER
9/29/23

MASON COUNTY PUD 1
MASON COUNTY — WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
RESERVOIR ELEVATION

SHEET: **M-4**
OF: **9**

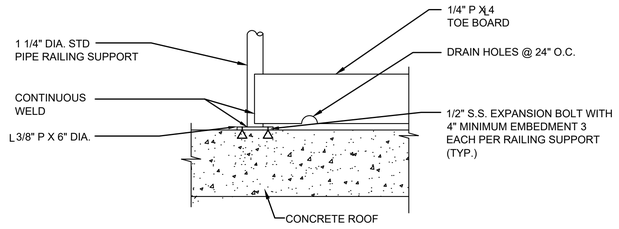
JOB NO.: 21568
DWG: R-RESERVOIR



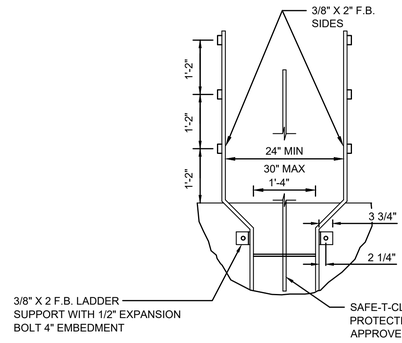
NOTE:

ALL EXTERIOR STEEL PIECES SHALL BE HOT DIP GALVANIZED EXCEPT BOLTS WHICH ARE 316 SS.

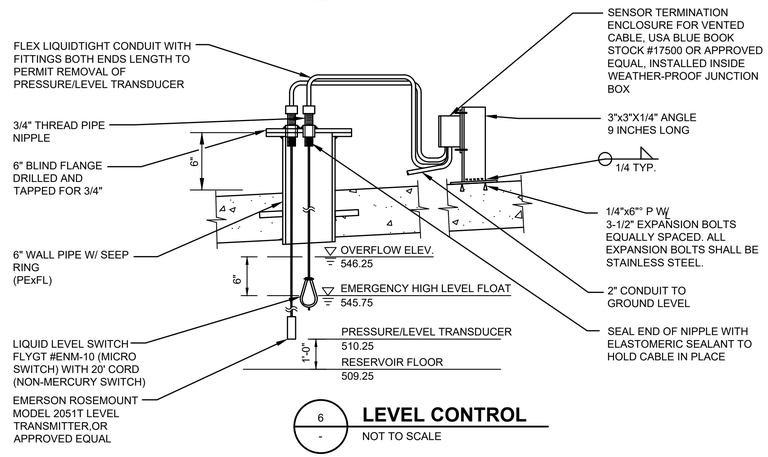
1 TYP — **SAFETY CAGE - PLAN**
NOT TO SCALE



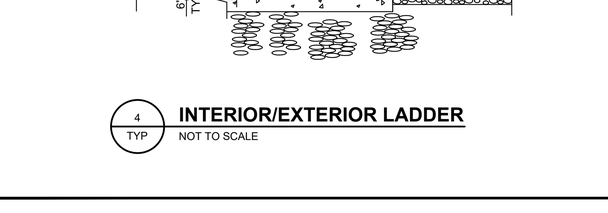
2 TYP — **TOEBOARD**
NOT TO SCALE



3 TYP — **EXTERIOR LADDER ELEVATION**
NOT TO SCALE



6 - **LEVEL CONTROL**
NOT TO SCALE



NOTE:

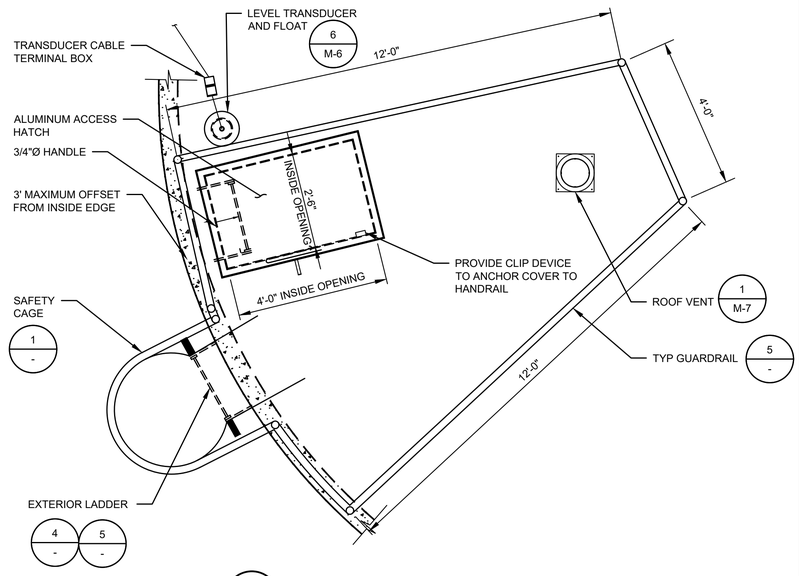
INTERIOR AND EXTERIOR LADDERS, HAND RAILING AND SUPPORT, ROOF VENT, LEVEL INDICATOR, AND ALL ASSOCIATED ITEMS SHALL BE HOT DIPPED GALVANIZED.

4 TYP — **INTERIOR/EXTERIOR LADDER**
NOT TO SCALE

NOTE:

1. SEE PLAN VIEWS FOR ACTUAL LOCATIONS

5 TYP — **NORTH ELEVATION**
NOT TO SCALE



7 TYP — **RESERVOIR ROOF ACCESS HATCH**
SCALE: 1/2"=1'-0"

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

Gray & Osborne, Inc.
CONSULTING ENGINEERS
1130 RAINIER AVENUE SOUTH, SUITE 300
SEATTLE, WASHINGTON 98144 • (206) 284-3880

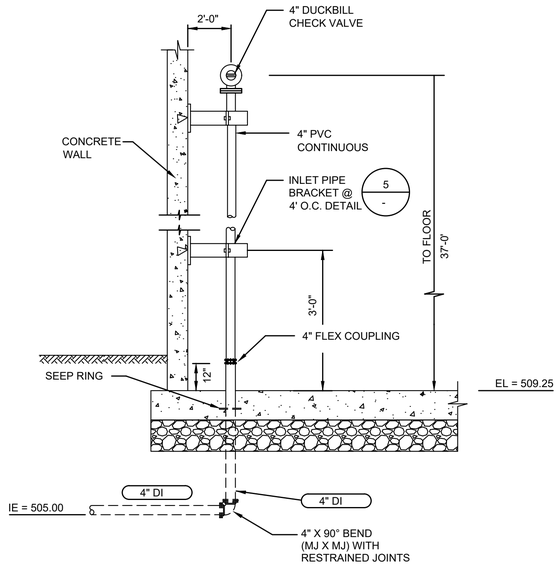
DATE:	SEPT 2023
DRAWN:	XXX
CHECKED:	XXX
APPROVED:	XXX

No.	REVISION	DATE	APPD

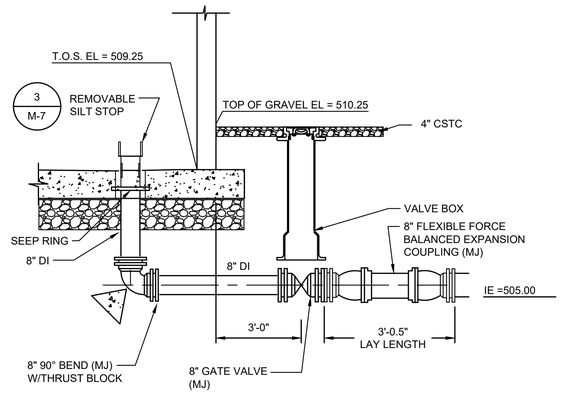
MICHAEL B. JOHNSON — STATE OF WASHINGTON — 19972 — REGISTERED PROFESSIONAL ENGINEER
9/29/23

MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
RESERVOIR DETAILS

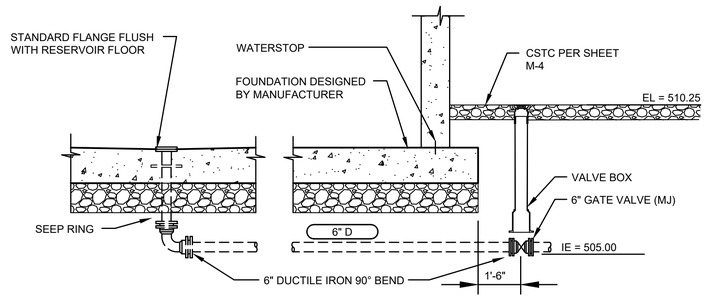
SHEET: **M-5**
OF: **9**
JOB NO.: 21568
DWG: RD-RES_DETAILS



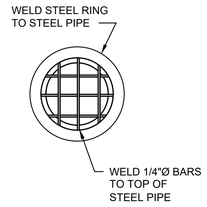
1 M-3 **INLET PIPE**
NOT TO SCALE



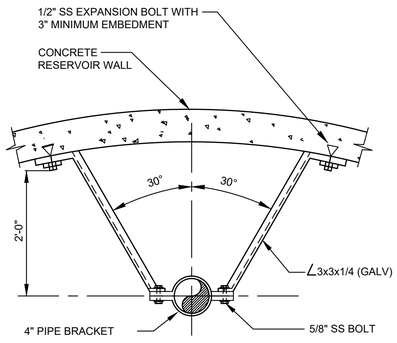
2 M-3 **OUTLET PIPE**
NOT TO SCALE



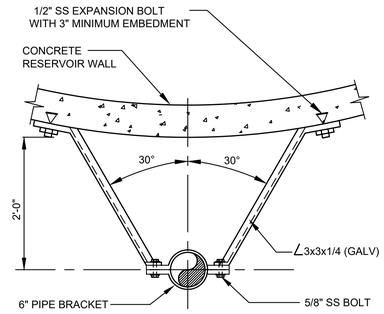
3 M-3 **DRAIN PIPE**
NOT TO SCALE



4 TYP **OUTLET PIPE GRATE**
NOT TO SCALE



5 TYP **INLET PIPE SUPPORT**
NOT TO SCALE



6 TYP **OVERFLOW PIPE BRACKET**
NOT TO SCALE

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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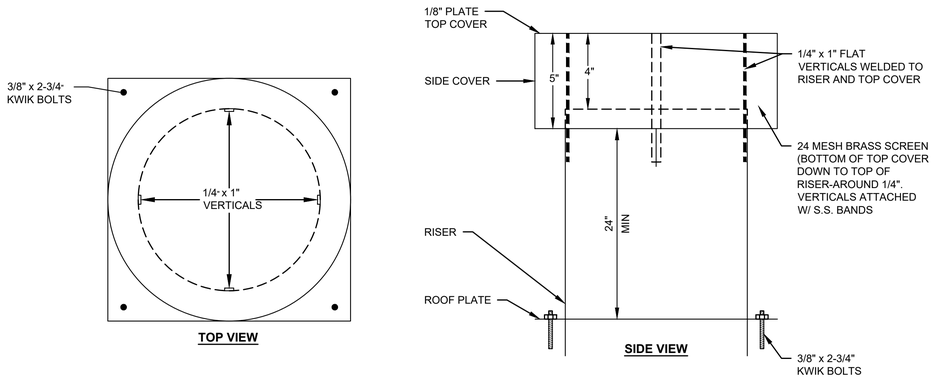
DATE: SEPT 2023	DRAWN: XXX	CHECKED: XXX	APPROVED: XXX

No.	REVISION	DATE	APPD

MICHAEL B. JOHNSON — STATE OF WASHINGTON — 21568 — REGISTERED PROFESSIONAL ENGINEER
9/29/23

MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
RESERVOIR DETAILS

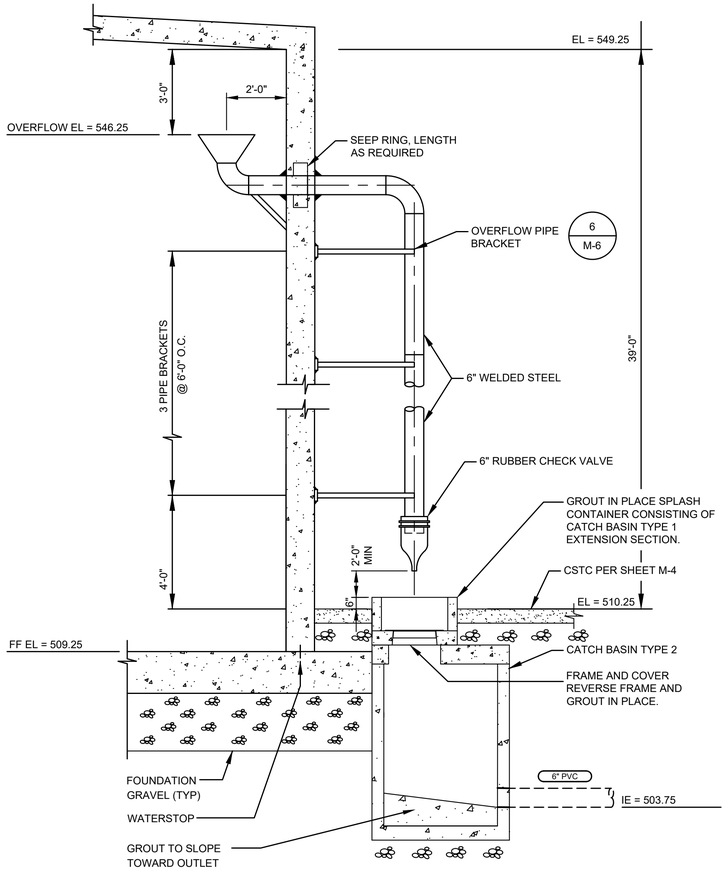
SHEET: **M-6**
OF: **9**
JOB NO.: 21568
DWG: RD-RES_DETAILS



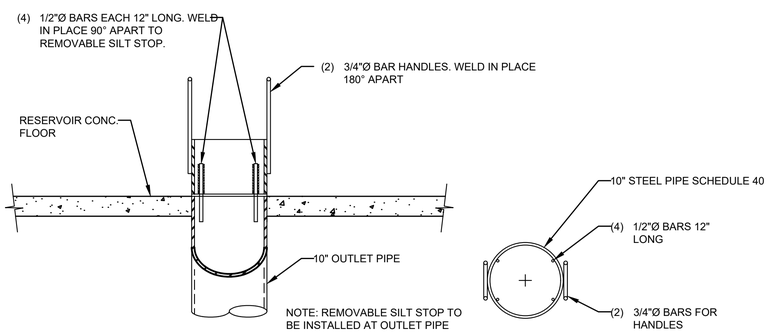
NOTES:

1. HOT DIP GALVANIZED AFTER FABRICATION, PRIOR TO INSTALLING SCREENS. CAN BE UPGRADED TO 12
2. ROOF VENT SHALL BE FURNISHED AND INSTALLED AS SPECIFIED IN SECTION 13212 OF THE SPECIFICATIONS.

1 / TYP **ROOF VENT**
NOT TO SCALE



2 / TYP **OVERFLOW PIPE**
NOT TO SCALE



3 / TYP **REMOVABLE SILT STOP**
NOT TO SCALE

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

Gray & Osborne, Inc.
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SEATTLE, WASHINGTON 98144 • (206) 284-0860

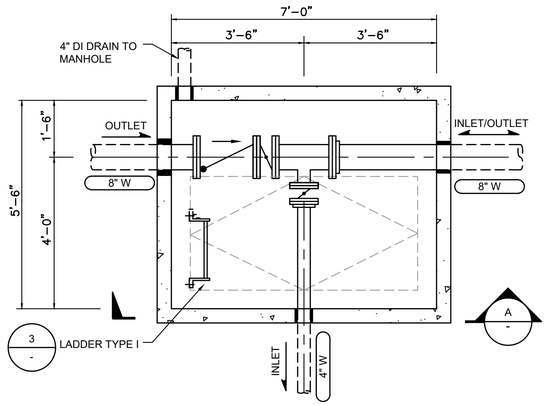
DATE:	SEPT 2023
DRAWN:	XXX
CHECKED:	XXX
APPROVED:	XXX

No.	REVISION	DATE	APPD

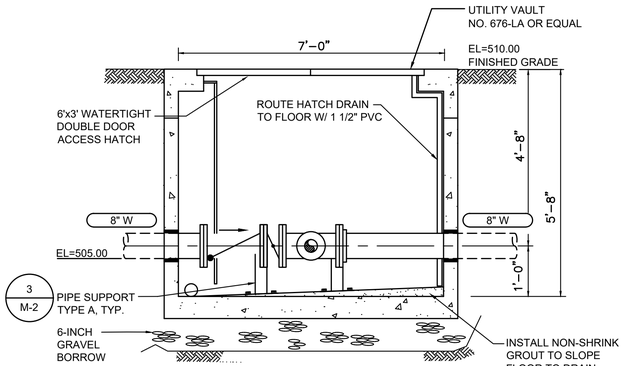
MICHAEL B. JOHNSON — STATE OF WASHINGTON — 19871 — REGISTERED PROFESSIONAL ENGINEER
9/29/23

MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
RESERVOIR DETAILS

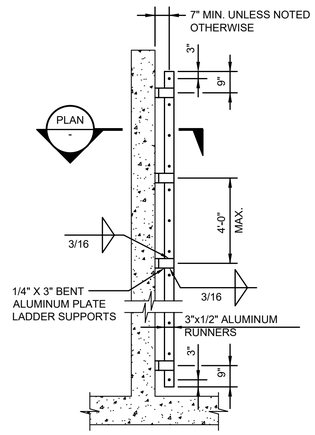
SHEET: **M-7**
OF: **9**
JOB NO.: 21568
DWG: RD-RES_DETAILS



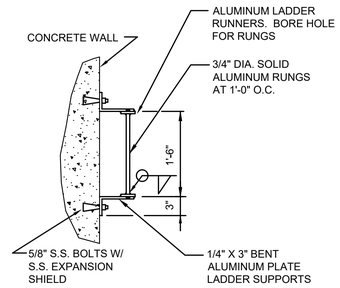
1 TYP **RESERVOIR VAULT PLAN**
SCALE: 3/4"=1'-0"



A - **RESERVOIR VAULT SECTION**
SCALE: 3/4"=1'-0"



TYPE I

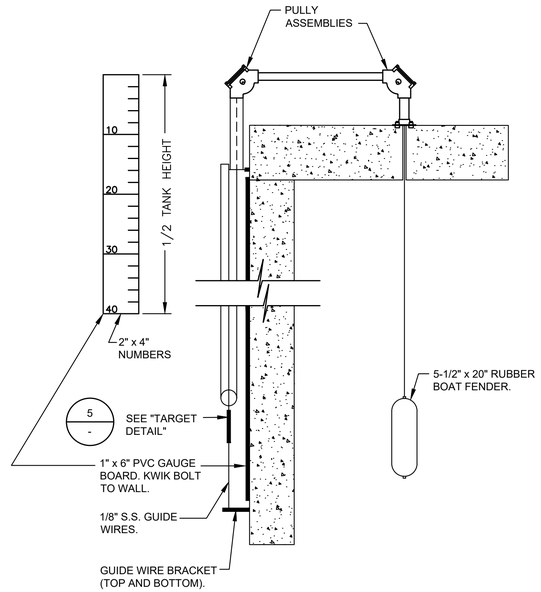


PLAN

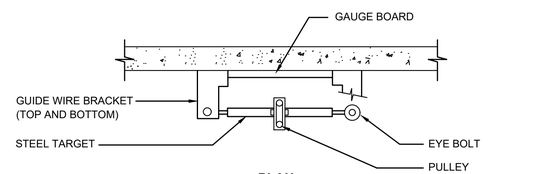
NOTES:

1. LADDERS TO COMPLY WITH WAC STANDARDS.
2. TYPE I LADDERS SHALL BE PROVIDED WITH A LADDER UP SAFETY POST.

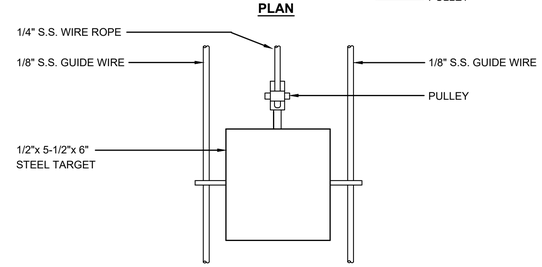
3 TYP **VAULT LADDER DETAIL**
NOT TO SCALE



4 TYP **LIQUID LEVEL INDICATOR**
NOT TO SCALE



PLAN



ELEVATION

5 TYP **TARGET DETAIL**
NOT TO SCALE

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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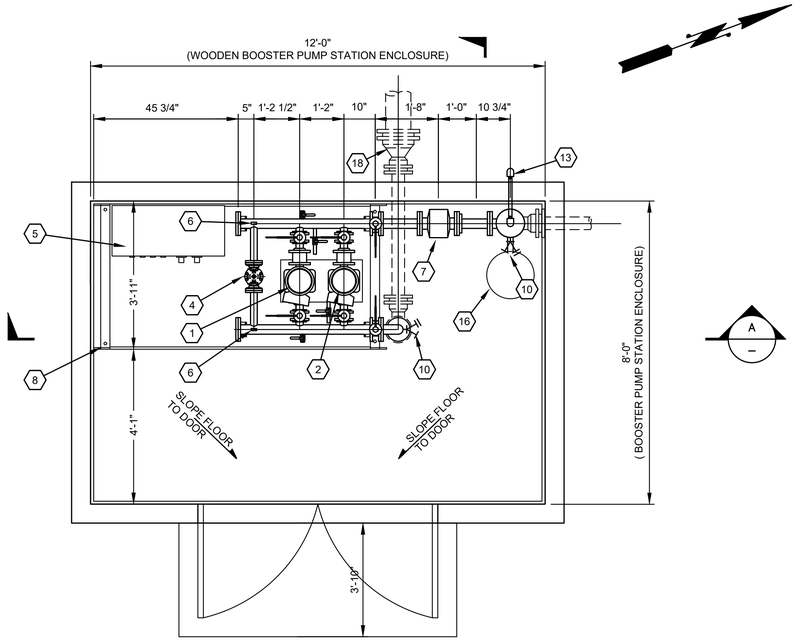
DATE: SEPT 2023	DRAWN: XXX	CHECKED: XXX	APPROVED: XXX

No.	REVISION	DATE	APPD

MICHAEL B. JOHNSON — STATE OF WASHINGTON — 9729 — REGISTERED PROFESSIONAL ENGINEER
9/29/23

MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
RESERVOIR DETAILS

SHEET: **M-8**
OF: **9**
JOB NO.: 21568
DWG: RD-RES_DETAILS

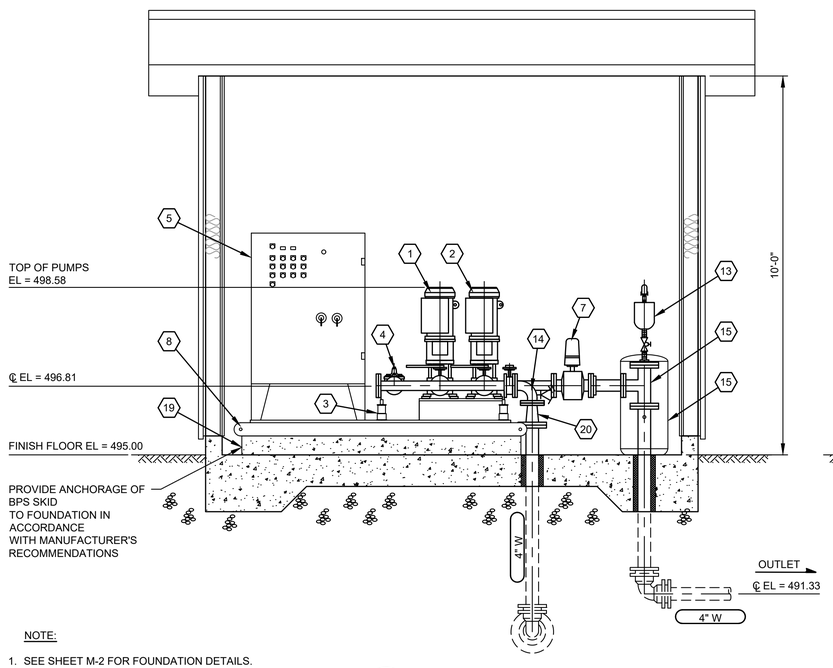


1. PUMP NO. 1* 01 BP 01
2. PUMP NO. 2* 01 BP 02
3. PIPE SUPPORT, TYP*
4. 2" PRESSURE RELIEF VALVE
5. CONTROL PANEL *
6. PRESSURE GAUGE AND TRANSDUCER TYP. *
7. 3" MAGNETIC FLOW METER* 01 FM 01
8. BOOSTER STATION SKID
9. PIPE SUPPORT TYPE A, TYP. * 3 / M-2
10. SAMPLE TAP IN 3/4" THD BOSS 4 / M-2
11. DOUBLE DOOR CHECK VALVE, TYP.*
12. BUTTERFLY VALVE, TYP. *
13. AIR/VACUUM RELEASE ASSEMBLY 1 / M-2
14. 3" 90° DI BEND (FLXFL)
15. 4"x3" TEE (FLXFL)
16. WX-201 18 GAL. HYDROPNEUMATIC TANK
17. 2"X1" REDUCER (FLXTHRD)*
18. 8"X4" REDUCER (FLXFL)
19. HOUSEKEEPING PAD 7 / S-2
20. 4"x3" REDUCER (FLXFL)

NOTE:

1. CONTRACTOR TO PROVIDE SPILL PREVENTION KIT FOR BOOSTER PUMP STATION.

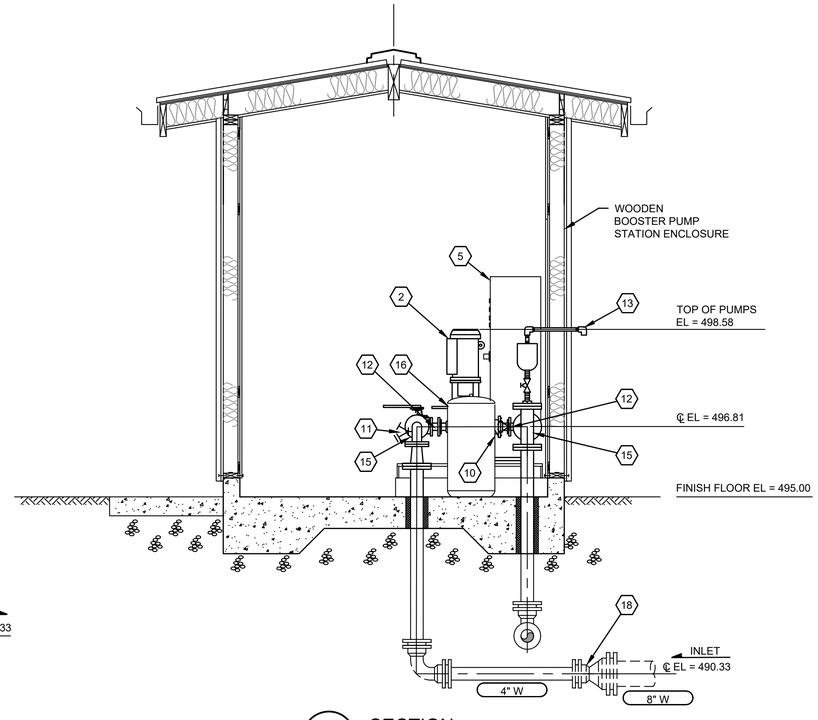
PLAN
SCALE: 1/2"=1'-0"



NOTE:

1. SEE SHEET M-2 FOR FOUNDATION DETAILS.
2. PROVIDE NEC CLEARANCES AS REQUIRED.

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



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

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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DATE: SEPT 2023	DRAWN: XXX	CHECKED: XXX	APPROVED: XXX

No.	REVISION	DATE	APPD

MICHAEL B. JOHNSON — STATE OF WASHINGTON — 23987 — REGISTERED PROFESSIONAL ENGINEER
9/29/23

MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
BOOSTER STATION PLAN AND SECTIONS

SHEET: **M-9**
OF: **9**
JOB NO.: 21568
DWG: M-PMP-STA

GENERAL STRUCTURAL NOTES

GENERAL
THE GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND SITE CONDITIONS BEFORE STARTING WORK. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCY. USE DETAIL MARKED "TYPICAL" WHEREVER APPLICABLE. CHANGES, OMISSIONS OR SUBSTITUTIONS ARE NOT PERMITTED WITHOUT WRITTEN APPROVAL OF THE ENGINEER. REFER TO THE SPECIFICATIONS FOR FURTHER REQUIREMENTS. DO NOT SCALE THE DRAWINGS.

ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE 2018 EDITION OF THE INTERNATIONAL BUILDING CODE.

THE DESIGN, ADEQUACY AND SAFETY OF ERECTION BRACING, SHORING, TEMPORARY SUPPORTS, ETC., IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR, AND HAS NOT BEEN CONSIDERED BY THE ENGINEER OF RECORD. THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE PRIOR TO ITS COMPLETION. THE CONTRACTOR SHALL PROVIDE THE NECESSARY BRACING TO PROVIDE STABILITY PRIOR TO THE COMPLETION OF THE STRUCTURE.

THE GENERAL NOTES APPLY TO ALL STRUCTURES UNLESS NOTED OTHERWISE (U.N.O.). LOCATION AND SIZE OF ANCHOR BOLTS FOR SPECIFIC EQUIPMENT SHALL BE SPECIFIED BY THE VENDOR. CONTRACTOR SHALL COORDINATE LOCATIONS OF STRUCTURAL OPENINGS, PENETRATIONS AND EMBEDDED ITEMS WITH THE MECHANICAL, ARCHITECTURAL, ELECTRICAL, PLUMBING AND VENTILATION SECTIONS OF THE DRAWINGS AND WITH SUPPLIERS AND SUBCONTRACTORS AS MAY BE REQUIRED.

SPECIAL INSPECTION & TESTING
SPECIAL INSPECTIONS SHALL MEET THE REQUIREMENTS OF IBC CHAPTER 17.
OBSERVE THE WORK ASSIGNED FOR CONFORMANCE WITH APPROVED DRAWINGS AND SPECIFICATIONS.

FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL AND ENGINEER. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION; THEN, IF NOT CORRECTED, TO THE BUILDING OFFICIAL AND ENGINEER. SUBMIT A FINAL REPORT STATING THE WORK WAS IN CONFORMANCE WITH THE APPROVED DRAWINGS AND SPECIFICATIONS AND THE APPLICABLE WORKMANSHIP PROVISIONS OF IBC.

SPECIAL INSPECTION REQUIRED:
CONCRETE: IN ACCORDANCE WITH SECTION 1705.3 AND TABLE 1705.3
WOOD: IN ACCORDANCE WITH SECTION 1705.5
SOIL: IN ACCORDANCE WITH SECTION 1705.6 AND TABLE 1705.6

SHOP DRAWINGS
SHOP DRAWINGS, WHERE REQUIRED, SHALL BE CHECKED AND APPROVED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTING FOR ENGINEER REVIEW. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW OF DESIGN INTENT, PRIOR TO FABRICATION. GENERAL CONTRACTOR IS RESPONSIBLE FOR VERIFICATION AND COORDINATION OF DIMENSIONS AND DETAILS FOR EACH SUBCONTRACTOR.

DESIGN LOADS
ROOF SNOW LOAD:

DESIGN SNOW LOAD,Ps	25 PSF
GROUND SNOW LOAD,Pg	25 PSF
SNOW EXPOSURE FACTOR, Ce	0.9
SNOW LOAD IMPORTANCE FACTOR, Is	1.2
THERMAL FACTOR, Ct	1.0
ROOF LIVE LOAD:, Lr	20 PSF
FLOOR LIVE LOAD:, Lf	125 PSF

WIND DESIGN DATA;

ULTIMATE WIND SPEED (3-SECOND GUST), Vult	110 MPH
NOMINAL WIND SPEED, Vasd	85.2 MPH
RISK CATEGORY	IV
WIND EXPOSURE	B

EARTHQUAKE DESIGN DATA

MAPPED SPECTRAL RESPONSE ACCELERATIONS	
Ss	1.599 g
S1	0.581 g
SITE CLASS	D
SPECTRAL RESPONSE COEFFICIENT	
Sds	1.247 g
Sdl	0.666 g
SEISMIC IMPORTANCE FACTOR, Ie	1.5
RISK CATEGORY	IV
SEISMIC DESIGN CATEGORY	D
BASIC SEISMIC-FORCE-RESISTING SYSTEM(S)	LIGHT FRAME WOOD WALLS WITH STRUCTURAL WOOD SHEAR PANELS
DESIGN BASE SHEAR	
SEISMIC RESPONSE COEFFICIENT(S), Cs	0.288
RESPONSE MODIFICATION FACTOR(S), R	6.5
ANALYSIS PROCEDURE USED	EQUIVALENT LATERAL FORCE ANALYSIS

ALLOWABLE BEARING PRESSURE:.....2000 PSF (PRESUMED PER 2018 IBC)

ABOVE ARE ASSUMED PER DATA PROVIDED,
CONTRACTOR MUST VERIFY IN FIELD.

EXTEND ALL EXTERIOR FOOTINGS 2'-0" MINIMUM BELOW FINISHED GRADE. UNO (UNLESS NOTED OTHERWISE), BOTTOM OF ALL FOOTINGS TO BEAR ON 12" MINIMUM COMPACTED CRUSHED SURFACING BASE COURSE (CSBC). NO FOOTING SHALL BEAR HIGHER THAN 1 VERTICAL TO 1.5 HORIZONTAL SLOPE ABOVE ANY EXCAVATION, EXISTING OR PLANNED. CONTRACTOR SHALL PROVIDE TEMPORARY SHORING TO PREVENT MOVEMENT OF WALLS IF BACKFILL IS PLACED BEFORE FLOOR SYSTEM IS IN PLACE. THERE SHALL BE 95% COMPACTION (ASTM D1557 MODIFIED PROCTOR DENSITY) OF ALL BACKFILL SOIL UNDER SLABS ON GRADE.

CAST-IN-PLACE CONCRETE
CONCRETE SHALL HAVE THE FOLLOWING PROPERTIES:
28-DAY STRENGTH f'c=4,000 PSI
AIR ENTRAINMENT: 5%-7%
MAXIMUM SLUMP: 3" FOR SLABS FOOTINGS, 4" FOR WALLS, COLUMNS AND BEAMS. CONSTRUCTION TO BE IN ACCORDANCE WITH ACI 318.

SUBMIT MIX DESIGN FOR REVIEW AND PROVIDE NOT LESS THAN 6 SACKS OF CEMENT PER CUBIC YARD FOR ALL CONCRETE WITH MAXIMUM W/C=0.45.

REINFORCING STEEL
WELDED WIRE FABRIC (W.W.F.): ASTM A82 AND A185
DEFORMED BARS: ASTM A615, GRADE 60 (GRADE 40 FOR #3).
UNLESS OTHERWISE NOTED ON THESE DRAWINGS, MINIMUM CONCRETE COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS:
- CONCRETE CAST AGAINST SOIL=3".
- FORMED CONCRETE AGAINST SOIL=2".
- WALLS, COLUMNS AND BEAMS EXPOSED TO WATER, SEWAGE & WEATHER=2".
- WALLS, COLUMNS AND BEAMS DRY CONDITION=1 1/2".

PROVIDE 2-#5 MIN. U.N.O. TRIM BARS AROUND ALL OPENINGS IN CONCRETE WALLS OR SLAB EXTENDING 2'-6" PAST CORNERS, TYP. AT TIME OF CONCRETE PLACEMENT, REINFORCING SHALL BE FREE OF MUD, OIL, OR OTHER NONMETALLIC COATINGS THAT MAY DECREASE BOND.

WELDING OF REINFORCING BARS SHALL CONFORM TO ANSI/AWS D1.4.
WHERE PERMITTED, LOW HYDROGEN WELDING RODS SHALL BE USED FOR ALL WELDING OF REINFORCING BARS. SPECIAL INSPECTION IS REQUIRED FOR ALL FIELD WELDING.

SUBMIT SHOP DRAWINGS OF REINFORCING STEEL FOR REVIEW BY THE ENGINEER PRIOR TO FABRICATION. REINFORCING SHALL BE DETAILED IN ACCORDANCE WITH ACI 315 AND 318 (LATEST EDITION).

STRUCTURAL STEEL AND MISCELLANEOUS METALS
"W" SHAPES: ASTM A992, Fy=50 KSI.
"HP" SHAPES: ASTM A572, Fy=50, KSI.
CHANNELS, ANGLES, PLATES, AND BARS: ASTM A36, Fy=36 KSI.
PIPE: ASTM A53 OR A501, Fy=35 KSI MINIMUM.
TUBING: ASTM A500, GRADE B, Fy=46 KSI.

ALL BOLTS FOR CONNECTIONS IN SUBMERGED CONDITION SHALL BE: ASTM F593C OR F593D STAINLESS STEEL (SS) BOLTS. ALL OTHERS SHALL BE GALVANIZED ASTM F3125 GRADE A325 BOLTS HIGH STRENGTH BOLTS (H.S.B.), U.N.O. AS ASTM A307 MACHINE BOLTS (M.B.). WHERE HIGH STRENGTH BOLTS ARE USED, THEY SHALL BE INSTALLED WITH LOAD INDICATOR DEVICES (LOAD INDICATOR WASHERS OR SNAP-OFF HEADS).

ADHESIVE ANCHORS: HILTI HIT-RE 500 V3 OR APPROVED EQUAL, U.N.O. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

HEADED ANCHOR STUDS (H.A.S.): ASTM A108, Fy=50 KSI, END WELDED PER MANUFACTURER'S RECOMMENDATIONS.
ALL ANCHOR BOLTS AND THREADED RODS: ASTM F1554, U.N.O., ASTM A193 GRADE B8 WHERE STAINLESS STEEL IS NOTED. ALL ANCHOR BOLTS MUST BE ACCURATELY PLACED IN THEIR FINAL LOCATION PRIOR TO POURING CONCRETE, "WET STICKING" OF ANCHOR BOLTS IS NOT ALLOWED.

WELDING ELECTRODES OR WIRES: AWS A5.1 OR A5.5, E70XX; AWS A5.17, E70S-X; AWS A5.20, E7XT-X.
FOR ALL SHOP WELDS AND FIELD WELDS OF ALL LATERAL RESISTING ELEMENTS, ELECTRODES SHALL BE E7O WITH A MINIMUM SPECIFIED CVN OF 20 FT-LBS AT -20 DEGREES FAHRENHEIT. ALL WELDS SHALL BE 3/16" MINIMUM U.N.O.

ERECTION AND FABRICATION IN ACCORDANCE WITH AISC "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS." WELDING SHALL CONFORM TO AWS "STRUCTURAL WELDING CODE - STEEL". ALL WELDING SHALL BE PERFORMED BY AWS/WABO CERTIFIED WELDERS.

ALL COLUMNS AND BEAMS TO BE FROM UNSPLICED LENGTHS U.N.O. ON THE DRAWINGS. SUBMIT SHOP DRAWINGS SHOWING SIZES, DIMENSIONS AND REQUIRED CONNECTION DETAILS FOR REVIEW BY THE ENGINEER PRIOR TO FABRICATION.

WOOD
ROOF SHEATHING SHALL BE 5/8" (NOMINAL) MIN. U.N.O. APA RATED SHEATHING 24/0, EXPOSURE 1, SIZED FOR SPACING. INSTALL PANELS WITH 1/4" SPACING AT END JOINTS AND 1/8" SPACING AT EDGE JOINTS MIN. INSTALL PLYWOOD SHEATHING WITH FACE GRAIN PERPENDICULAR TO SUPPORTS.

SAWN LUMBER: HEM-FIR #1 OR BETTER, U.N.O. WWPA GRADING RULES. ALL DIMENSIONS NOTED ARE NOMINAL. WOOD BEARING ON OR WITHIN 1" OF CONCRETE OR CMU OR WITHIN 6" OF EARTH SHALL BE TREATED WITH AN APPROVED PRESERVATIVE. ALL NAILS ARE TO BE "COMMON." ALL NAILS IN TREATED TIMBER SHALL BE GALVANIZED. ALL FRAMING CONNECTORS NOTED ARE PER SIMPSON STRONG TIE COMPANY INC. OR ENGINEER APPROVED EQUAL. SEE MANUFACTURER'S REQUIREMENTS.

TREATED LUMBER SHALL BE BRANDED WITH A QUALITY CONTROL AGENCY MARK BY AMERICAN WOOD PROTECTION ASSOCIATION.

GLUE-LAMINATED MEMBERS:
- SIMPLE SPAN BEAMS: 24F-V4.
- CONTINUOUS OR CANTILEVER BEAMS: 24F-V8.
- COMPRESSION MEMBERS: 2.
- TENSION MEMBERS: 3.

GLUE-LAMINATED MEMBERS SHALL CONFORM TO THE LATEST EDITION OF AITC 117, "DESIGN STANDARD SPECIFICATIONS FOR STRUCTURAL GLUED LAMINATED TIMBER OF SOFTWOOD SPECIES." SHOP DRAWINGS OF GLUE-LAMINATED MEMBERS TO BE SUBMITTED FOR REVIEW BY THE ENGINEER PRIOR TO FABRICATION. FRAMING ANCHORS AND CONNECTORS: SIMPSON OR APPROVED EQUAL AS INDICATED ON DRAWINGS. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. FOR NAILING NOT SHOWN ON DRAWINGS, USE IBC NAILING SCHEDULE, TABLE NO. 2304.10.1. ALL WOOD BEARING ON CONCRETE OR MASONRY, IF LESS THAN 4'-0" ABOVE GRADE, SHALL BE PRESSURE TREATED DOUGLAS FIR. STRUCTURAL MEMBERS SHALL NOT BE CUT FOR PIPES, ETC., UNLESS SPECIFICALLY NOTED OR DETAILED.

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

Gray & Osborne, Inc.
CONSULTING ENGINEERS
1130 RAINIER AVENUE SOUTH, SUITE 300
SEATTLE, WASHINGTON 98144 • (206) 284-3880

DATE: SEPT 2023	DRAWN: RAH	CHECKED: ZK	APPROVED: MJB

No.	REVISION	DATE	APPD

MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
GENERAL STRUCTURAL NOTES

SHEET: S-1
OF: 7
JOB NO.: 21568
DWG: S_STD

SPECIAL INSPECTION SCHEDULE

VERIFICATION AND INSPECTION	CI	PI	REMARKS/REFERENCES
CONCRETE:			
REINFORCING STEEL INCLUDING PLACEMENT	-	X	ACI 318: CH 20, 25.2, 25.3, 26.6.1-26.6.3
ANCHOR RODS, EMBEDDED BOLTS AND INSERTS	X	-	PRIOR TO AND DURING PLACEMENT OF CONCRETE
USE OF REQUIRED DESIGN MIX	-	X	ACI 318: CH. 19, 26.4.3, 26.4.4
CONCRETE SLUMP, AIR CONTENT, TEMPERATURE AND TEST SPECIMENS	X	-	WHILE MAKING SPECIMENS FOR STRENGTH TESTS
CONCRETE AND SHOTCRETE PLACEMENT	X	-	ACI 318: 26.5
CONCRETE CURING	-	X	ACI 318: 26.5.3-26.5.5
CONCRETE FORMWORK FOR SHAPE, LOCATIONS AND DIMENSIONS	-	X	ACI 318: 26.11.1.2(6)
SOILS:			
VERIFY DESIGN BEARING CAPACITY	-	X	
VERIFY EXCAVATIONS	-	X	
CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS	-	X	
USE OF MATERIALS, DENSITIES AND LIFT THICKNESSES	X	-	DURING PLACEMENT AND COMPACTION
OBSERVE SUBGRADE AND SITE PREPARED PROPERLY	-	X	PRIOR TO PLACEMENT OF COMPACTED FILL
WOOD:			
TYPE AND SPACING OF STRUCTURAL PANEL NAILING	-	X	IBC 1705.11.3
TYPE AND INSTALLATION OF TRUSS SEISMIC TIES	-	X	

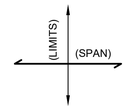
INSPECTION SCHEDULE NOTES

1. ITEMS MARKED WITH AN "X" REQUIRE INSPECTION BY A SPECIAL INSPECTOR APPROVED BY THE BUILDING OFFICIAL.
2. ITEMS MARKED "NA" ARE NOT APPLICABLE TO THIS PROJECT.
3. CI = CONTINUOUS INSPECTION DURING PROGRESS OF WORK BY SPECIAL INSPECTOR.
4. PI = PERIODIC INSPECTION BY SPECIAL INSPECTOR AS REQUIRED TO CONFIRM CONFORMANCE OF WORK.
5. TESTING AND INSPECTION REPORTS SHALL BE SUBMITTED TO THE ENGINEER, BUILDING OFFICIAL AND CONTRACTOR.
6. OWNER WILL CONTRACT FOR SPECIAL INSPECTION SERVICES.

SUPPLEMENTAL STRUCTURAL ABBREVIATIONS:

ABV	ABOVE
AFF	ABOVE FINISH FLOOR
ADD'L	ADDITIONAL
ADJ	ADJACENT
AL	ALUMINUM
APPRX	APPROXIMATE
ARCH	ARCHITECTURAL
@	AT
BEL	BELOW
BF	BRACED FRAME
BM	BEAM
BN	BOUNDRY NAIL
BNDRY	BOUNDRY
BO	BOTTOM OF
BOS	BOTTOM OF SLAB
BOT	BOTTOM
BRDG	BRIDGE(ING)
BRG	BEARING
CAM	CAMBER(ED)
CANT	CANTILEVER(ED)
CDF	CONTROLLED DENSITY FILL
CG	CENTER OF GRAVITY
CIP	CAST IN PLACE
CJ	CONTROL JOINT
CJP	COMPLETE JOINT PENETRATION
COL	COLUMN
CONST	CONSTRUCTION
CONT	CONTINUOUS
CTSK	COUNTERSINK
D	DEPTH
d	PENNY (NAILS)
DBL	DOUBLE
DF	DOUGLAS FIR
DIAG	DIAGONAL
DIAPH	DIAPHRAGM
do	DITTO (DO OVER)
DWG	DRAWING
DWL	DOWEL
EA	EACH
EF	EACH FACE
EJ	EXPANSION JOINT
EMBD	EMBED(MENT)
EN	EDGE NAIL
ENG	ENGINEER
EQ	EQUAL
ES	EACH SIDE
EXIST	EXISTING MEMBER
EXT	EXTERIOR
FFE	FINISHED FLOOR ELEVATION
FN	FACE NAIL
FND	FOUNDATION
FO	FACE OF
FRM'G	FRAMING
FS	FAR SIDE
FTG	FOOTING
GA	GAUGE
GB	GRADE BEAM
GLB	GLUE-LAMINATED BEAM
HAS	HEADER ANCHOR STUDS
HDR	HEADER
HF	HEM-FIR
HGR	HANGER
HSB	HIGH STRENGTH BOLT (A325 UNO)
HSS	HOLLOW STRUCTURAL STEEL
IBC	INTERNATIONAL BUILDING CODE
IF	INSIDE FACE
INT	INTERIOR
JST	JOIST
K	KIPS (1000 POUNDS)
LAT	LATERAL
LDGR	LEDGER
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LS	LAG SCREW
LSL	LAMINATED STRAND LUMBER
LT WT	LIGHT WEIGHT
LVL	LAMINATED VENEER LUMBER
MAS	MASONRY
MAT'L	MATERIAL
MB	MACHINE BOLT (A307)
MFR	MANUFACTURER
MRF	MOMENT RESISTING FRAME
MTL	METAL
(N)	NEW MEMBER
NS	NEAR SIDE
OH	OVERHANG
ORNT	ORIENTATE (ION)
PAR	PARALLEL
P/C	PRECAST CONCRETE
PERP	PERPENDICULAR
PSL	PARALLEL STRAND LUMBER
PT	PRESSURE TREAT(ED)
P/T	POST TENSIONED
QTY	QUANTITY
REF	REFERENCE
REINF	REINFORCEMENT
SHT	SHEET
SHTG	SHEATHING
SIM	SIMILAR
SKW	SKEW(ED)
SPC	SPACING
SS	STAINLESS STEEL
STGR	STAGGER
STIFF	STIFFENER
STIRR	STIRRUP
STRUC	STRUCTURE(AL)
SYM	SYMMETRICAL
T	TOP
T&G	TONGUE AND GROOVE
TMPRY	TEMPORARY
TN	TOE NAIL
TO	TOP OF
TOS	TOP OF SLAB
TRANS	TRANSVERSE
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VFY	VERIFY
WHS	WELDED HEADED STUD
WP	WORK POINT
WS	WESTERN SPECIES
WTS	WELDED THREADED STUD
X-STG	EXTRA STRONG
XX-STG	DOUBLE EXTRA STRONG

STRUCTURAL LEGEND



GRATING OR STRUCTURAL SPAN

DIFFERENCE IN ELEVATIONS

ELEVATION TARGET (REF.)

HANDRAILING

REMOVABLE HANDRAIL

CENTERLINE

PLATE

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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DATE: SEPT 2023	DRAWN: RAH	CHECKED: ZK	APPROVED: MJB

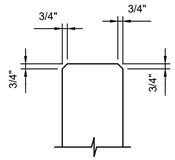
No.	REVISION	DATE	APPD

MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
SPECIAL INSPECTION SCHEDULE, SUPPLEMENTAL STRUCTURAL ABBREVIATIONS, AND STRUCTURAL LEGEND

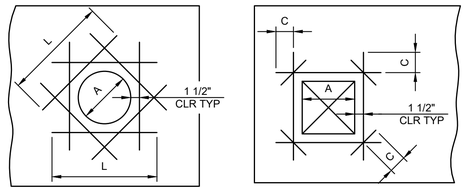
SHEET: **S-2**
OF: **7**
JOB NO.: 21568
DWG: S_STD

REINF	LAP
#4	2'-4"
#5	3'-0"
#6	3'-6"
#7	4'-3"
#8	4'-10"
#9	5'-3"
#10	6'-6"
#11	8'-0"

1 TYP — TYP LAP SCHEDULE
NOT TO SCALE



2 TYP — TYP CHAMFER DETAIL
NOT TO SCALE



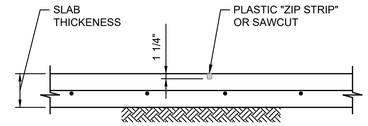
TYPE I **TYPE II**

OPENING SIZE (A)	TYPE I MINIMUM BAR LENGTH (L)	TYPE I BAR SIZE	TYPE II (C)	TYPE II BAR SIZE
0" - 12"	3' - 9"	#5	1' - 0"	MATCH VERTICAL BARS OR LARGEST BAR IN SLABS OR WALKWAYS
13" - 18"	4' - 9"	#6	1' - 3"	
19" - 24"	6' - 9"	MATCH VERTICAL BARS OR LARGEST BAR IN SLABS OR WALKWAYS	2' - 6"	
25" - 36"	7' - 9"		2' - 6"	
36" ⟶	8' - 9"		2' - 6"	

NOTE:

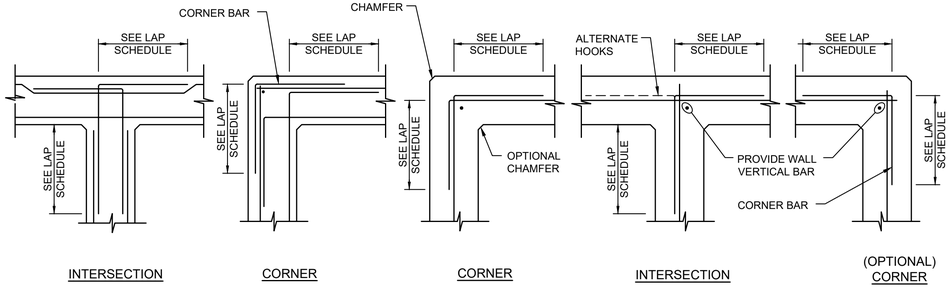
ALL BARS, EACH FACE. USE THESE BAR SIZES UNLESS OTHERWISE NOTED.

3 TYP — TYP PENETRATION REINFORCING DETAIL
NOT TO SCALE

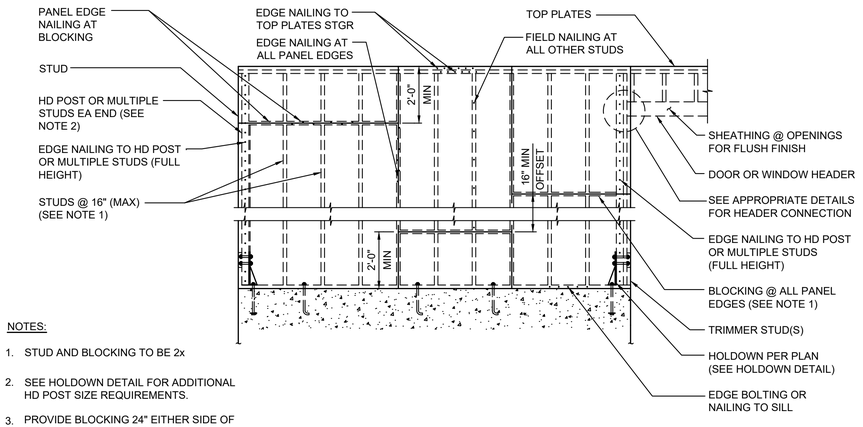


CONTROL JOINT

4 TYP — TYP SLAB JOINT DETAIL
NOT TO SCALE



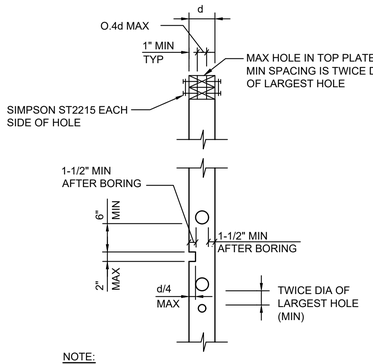
5 TYP — TYP REINFORCING @ WALL INTERSECTION DETAIL
NOT TO SCALE



NOTES:

1. STUD AND BLOCKING TO BE 2x
2. SEE HOLDOWN DETAIL FOR ADDITIONAL HD POST SIZE REQUIREMENTS.
3. PROVIDE BLOCKING 24" EITHER SIDE OF OPENING 24" WIDE OR LESS.
4. USE COMMON WIRE NAILS FOR ALL STRUCTURAL SHEATHING.

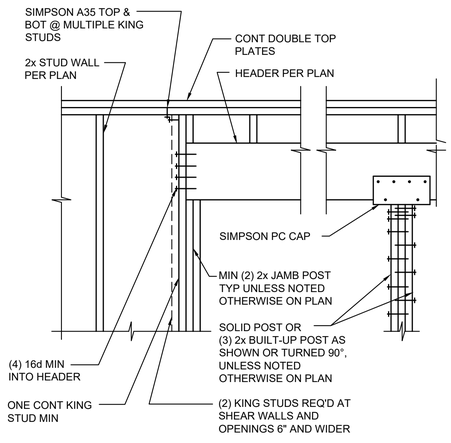
6 TYP — TYPICAL SHEAR WALL
NOT TO SCALE



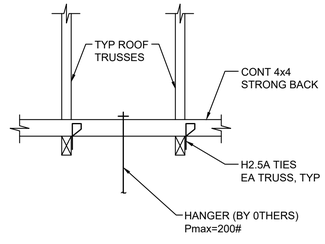
NOTE:

1. NOTCHING/CUTTING AND BORING OTHER THAN SHOWN REQUIRES PRIOR APPROVAL FROM STRUCTURAL ENGINEER.

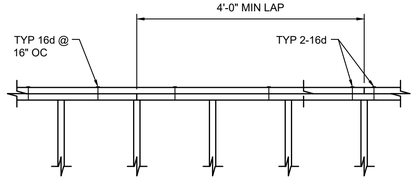
7 TYP — TYP ALL BEARING & SHEARWALLS FOR STUD NOTCHING/BOLTING & BORING
SCALE: 3/4"=1'-0"



8 TYP — TYP HEADER DETAIL
NOT TO SCALE



9 TYP — TYP MECHANICAL SUPPORT WOOD TRUSS
NOT TO SCALE



10 TYP — TYP MINIMUM DOUBLE PLATE LAP & NAILING DETAIL
SCALE: 3/4"=1'-0"

0 1" 2"
TWO INCHES AT FULL SCALE. IF NOT, SCALE ACCORDINGLY

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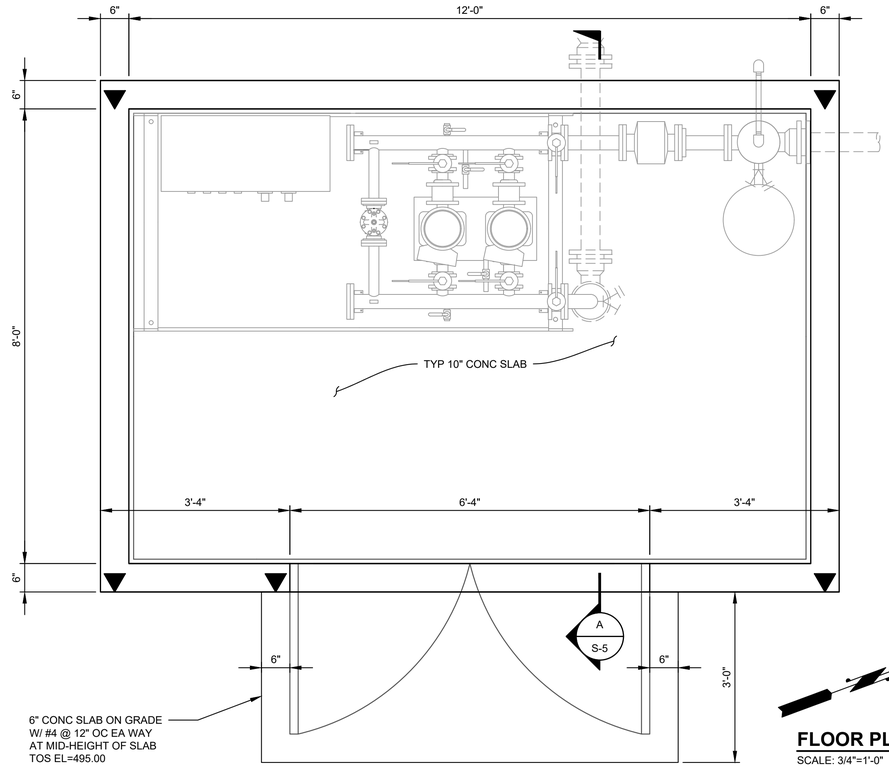
DATE: SEPT 2023	DRAWN: RAH	CHECKED: ZK	APPROVED: MJB

No.	REVISION	DATE	APPD

MARK J. NAGEL — STATE OF WASHINGTON — 24536 — REGISTERED PROFESSIONAL ENGINEER — 9/28/2023

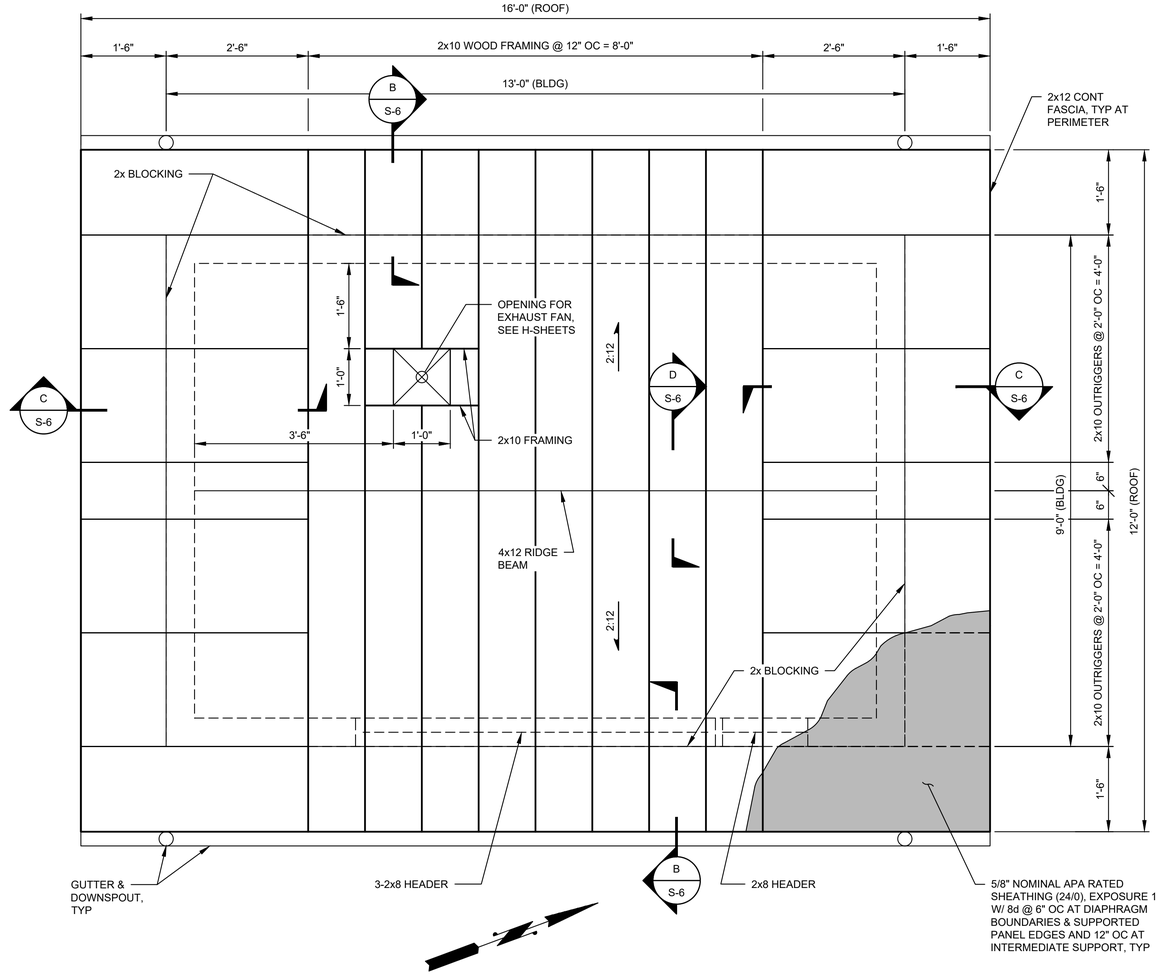
MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
TYPICAL STRUCTURAL DETAILS

SHEET: **S-3**
OF: **7**
JOB NO.: 21568
DWG: S_STD



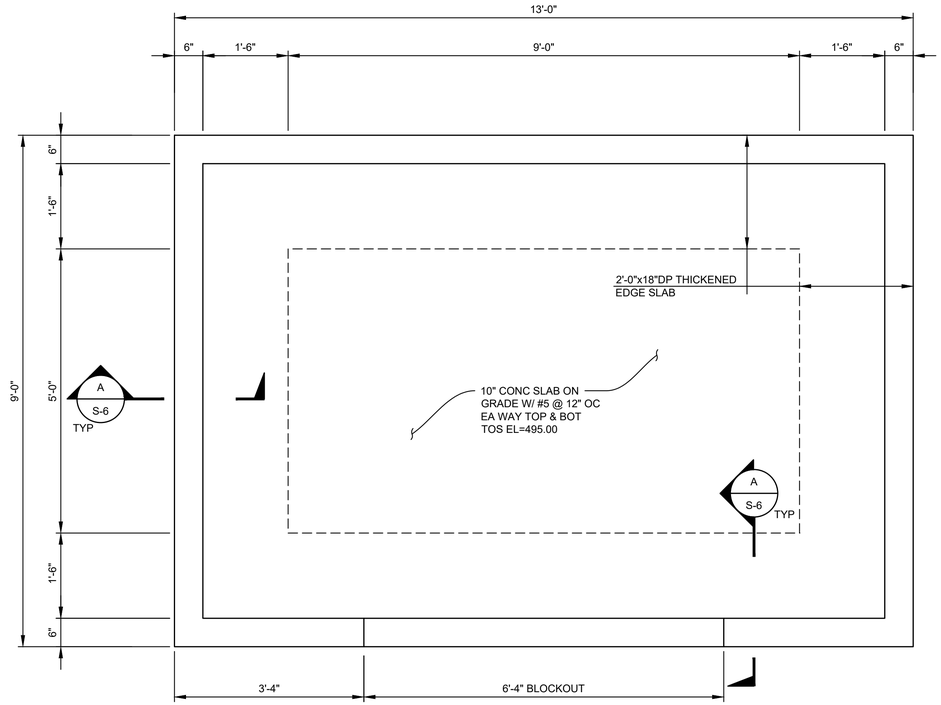
FLOOR PLAN

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



ROOF FRAMING PLAN

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



FOUNDATION PLAN

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

NOTES:

1. SEE SHEETS S-1 THROUGH S-3 FOR GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS.
2. DIMENSIONS SHOWN ON STRUCTURAL PLANS ARE FOR GENERAL INFORMATION ONLY AND MUST BE VERIFIED BY THE CONTRACTOR BEFORE START OF CONSTRUCTION. ANY DISCREPANCIES SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY.
3. NOT ALL SLAB, WALL, AND ROOF PENETRATIONS ARE SHOWN. CONTRACTOR SHALL COORDINATE SIZE AND LOCATIONS OF SLAB AND WALL PENETRATIONS WITH MECHANICAL AND ELECTRICAL SHEETS.
4. NOT ALL ROOF OPENINGS AND PENETRATIONS MAY BE SHOWN. CONTRACTOR SHALL VERIFY NUMBER, SIZE, AND LOCATIONS OF ALL OPENINGS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
5. "▼" DENOTES SIMPSON HD5 HOLDOWN. SEE DETAIL E/S-6. ALIGN HOLDOWN WITH EDGE OF DOOR ABOVE.
6. ALL FRAMING HARDWARE SHALL BE MANUFACTURED BY SIMPSON STRONG TIE COMPANY, INC. UNLESS OTHERWISE APPROVED BY THE ENGINEER.
7. TYP. DOOR/WINDOW HEADER TO BE 3-2x8 TYP., U.N.O.
8. USE MINIMUM OF TWO STUDS AT END OF SHEAR WALL, U.N.O.
9. FOR TYPICAL STUD NOTCHING/CUTTING/BORING DETAIL SEE 7/S-3.
10. FOR TYPICAL HEADER DETAIL SEE 8/S-3.

0 1" 2"

TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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DATE: SEPT 2023	DRAWN: RAH	CHECKED: ZK	APPROVED: MJB

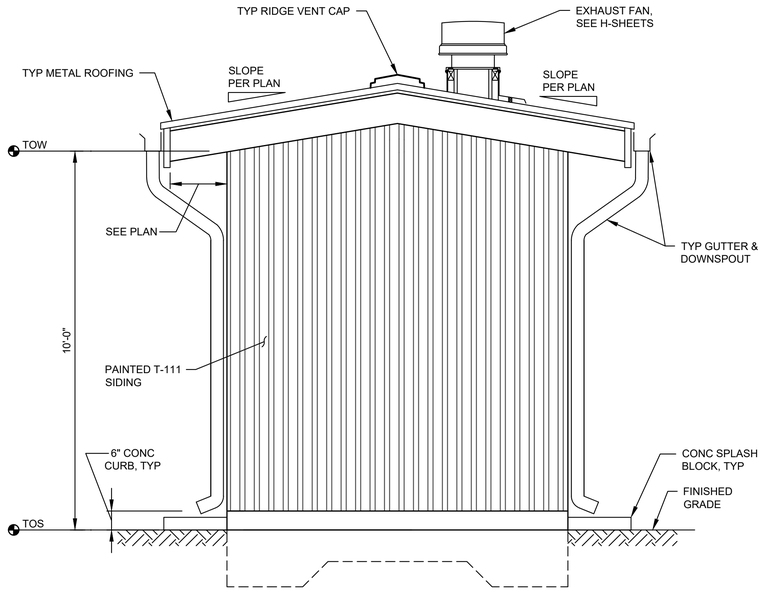
No.	REVISION	DATE	APPD

NELSON J. BASDEN — REGISTERED PROFESSIONAL ENGINEER — STATE OF WASHINGTON — 9/28/2023

MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
BOOSTER PUMP STATION FOUNDATION, FLOOR, AND ROOF FRAMING PLANS

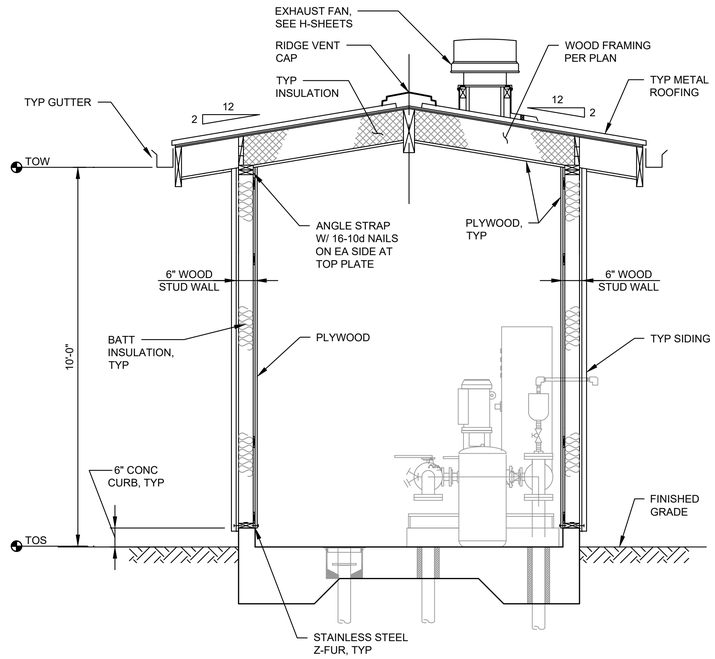
SHEET: S-4
OF: 7
JOB NO.: 21568
DWG: S_BPS_PLN

M:\Mason County PUD 1\21568.00 Vuecrest Reservoir\01 Design\Planset\Structural\S_BPS_PLN.dwg, 9/28/2023 1:59 PM, MARK NAGEL



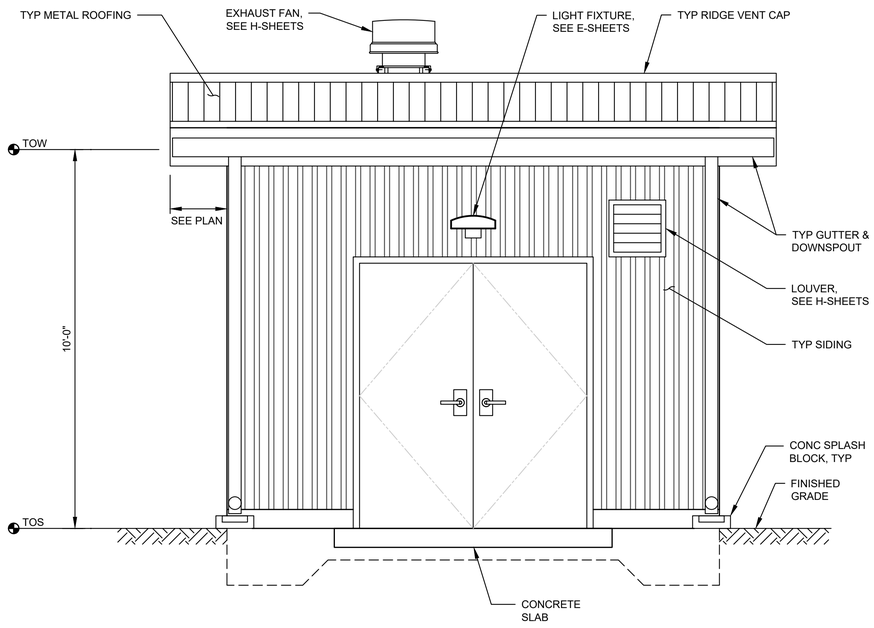
NORTHEAST ELEVATION

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



A / S-4 **SECTION**

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



SOUTHEAST ELEVATION

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

0 1" 2"

TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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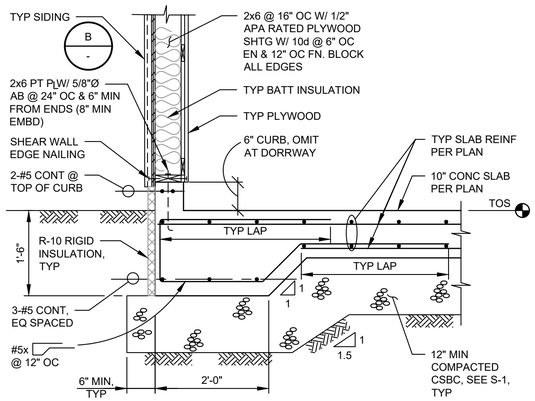
DATE:	SEPT 2023	DRAWN:	RAH	CHECKED:	ZK	APPROVED:	MJB

No.	REVISION	DATE	APPD

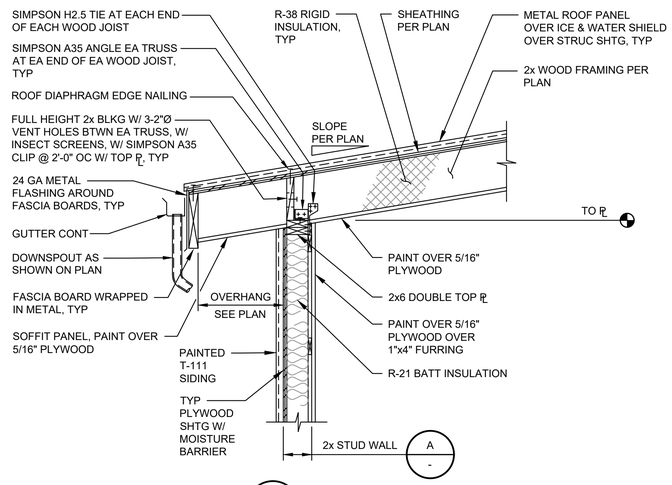
MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
BOOSTER PUMP STATION ELEVATIONS AND SECTION

SHEET: S-5
OF: 7

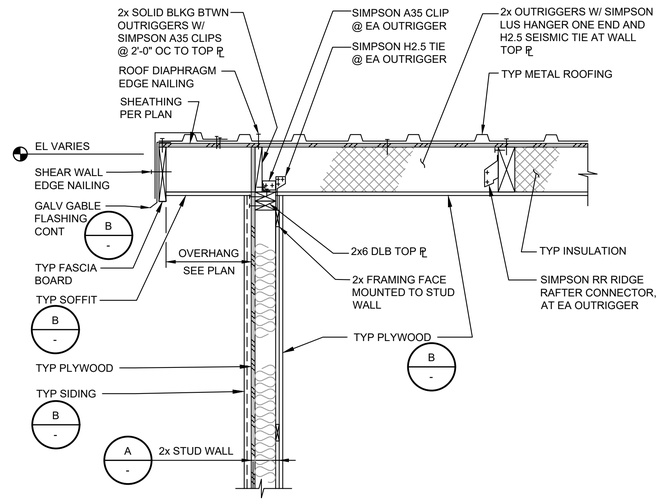
JOB NO.: 21568
DWG: S_BPS_PLN



A S-4 **SECTION**
SCALE: 3/4"=1'-0"



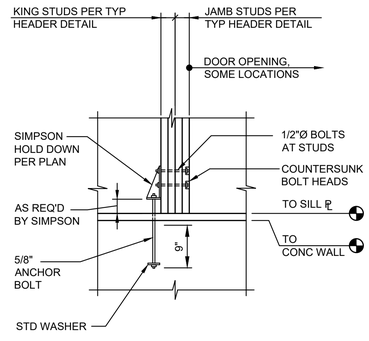
B S-4 **SECTION**
SCALE: 3/4"=1'-0"



C S-4 **SECTION**
SCALE: 3/4"=1'-0"

NOTE:
1. RIDGE CAP MUST PROVIDE A MINIMUM OF 6.5 SQUARE INCHES OF NET FREE VENTILATION AREA PER ROOF OF LENGTH.

D S-4 **SECTION**
SCALE: 1 1/2"=1'-0"



E S-4 **DETAIL**
SCALE: 3/4"=1'-0"

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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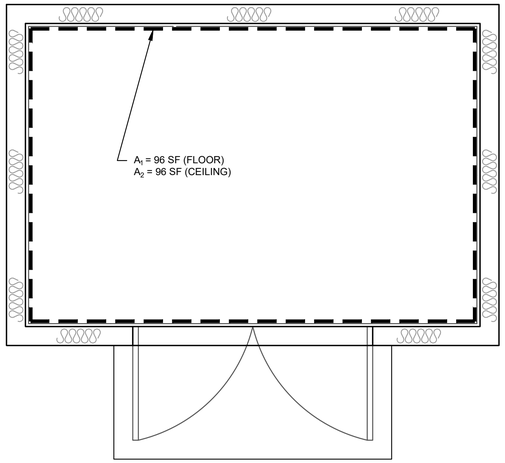
DATE: SEPT 2023	DRAWN: RAH	CHECKED: ZK	APPROVED: MJB

No.	REVISION	DATE	APPD

NEIL J. BASDEN — REGISTERED PROFESSIONAL ENGINEER — STATE OF WASHINGTON — 19331 — 9/28/2023

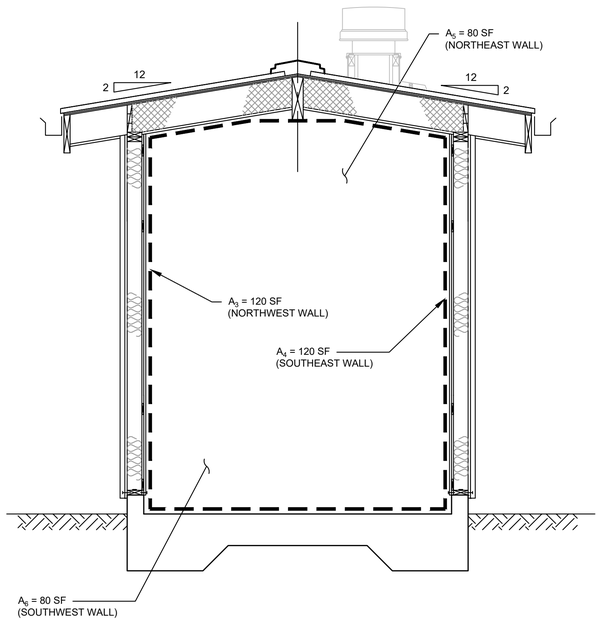
MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
BOOSTER PUMP STATION DETAILS

SHEET: **S-6**
OF: **7**
JOB NO.: 21568
DWG: S_BPS_PLN



PLAN - FLOOR/CEILING AREA A_1 / A_2

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



SECTION - WALL AREAS A_3 / A_4 / A_5 / A_6

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

ROOM FINISH SCHEDULE

ROOM NAME	FLOOR		WALLS								CEILING	
			NORTHEAST		NORTHWEST		SOUTHEAST		SOUTHWEST			
	MATL	FIN	MATL	FIN	MATL	FIN	MATL	FIN	MATL	FIN	MATL	FIN
PUMP ROOM	CONC	CSH	PWD	-	PWD	-	PWD	-	PWD	-	PWD	-

CONC - CONCRETE
CMU - CONCRETE MASONRY UNIT
CSH - CONCRETE SURFACE HARDENER
PWD - PAINTED 5/16" PLYWOOD
PTS - PAINT TO SPECIFICATIONS

BUILDING ENVELOPE GENERAL NOTES:

ALL INSULATION MATERIALS TO BE INSTALLED SHALL INCLUDE IDENTIFICATION MARKINGS WHICH INDICATE THE INSULATION VALUE. MARKINGS SHALL BE READILY OBSERVABLE DURING INSPECTION.

AN AIR BARRIER TEST SHALL BE PERFORMED IN ACCORDANCE WITH THE WASHINGTON STATE ENERGY CODE AND ASTM E779 AS FOLLOWS:

1. BUILDING AIR LEAKAGE RATE SHALL NOT EXCEED 0.40 CFM/FT² AT A PRESSURE DIFFERENTIAL OF 0.3 INCHES OF WATER COLUMN.
2. SUBMIT BARRIER TEST REPORT TO OWNER, ENGINEER, AND BUILDING OFFICIAL.
3. IF LEAKAGE RATE EXCEEDS 0.40 CFM/FT², PERFORM VISUAL INSPECTION OF ALL SURFACES AND SEAL ANY NOTED SOURCES OF LEAKAGE.
4. SUBMIT FOLLOW-UP REPORT TO OWNER, ENGINEER, AND BUILDING OFFICIAL NOTING CORRECTIVE ACTIONS TAKEN.
5. TOTAL AIR BARRIER AREA:

$A_{TOT} = A_1 + A_2 + A_3 + A_4 + A_5 + A_6$

$A_{TOT} = (96 + 96 + 120 + 120 + 80 + 80)$ SF

$A_{TOT} = 592$ SF

PROJECT DATA

CODES:

IBC	2018	INTERNATIONAL BUILDING CODE
IMC	2015	INTERNATIONAL MECHANICAL CODE
IFC	2015	INTERNATIONAL FIRE CODE
UPC	2015	UNIFORM PLUMBING CODE
WSEC	2015	WASHINGTON STATE ENERGY CODE

PROJECT DESCRIPTION:

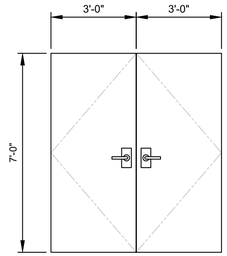
A SINGLE STORY WOOD-FRAMED BUILDING CONTAINING A BOOSTER PUMP AND ASSOCIATED PIPING.

OCCUPANCY:

U - UTILITY

GENERAL NOTES:

1. SEE SHEETS S-1 THROUGH S-3 FOR GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS.
2. METAL ROOFING PANEL SHALL BE AEP SPAN KLIP RIB OR EQUAL. METAL WALL PANEL SHALL BE HR-36 OR EQUAL



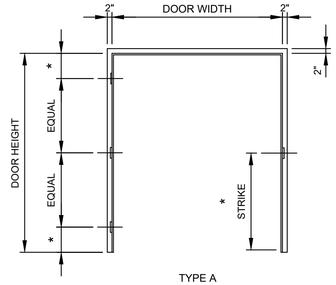
TYPE A

NOTE:

1. SWING DIRECTION AS SHOWN ON PLAN.

DOOR TYPE A

NTS



TYPE A

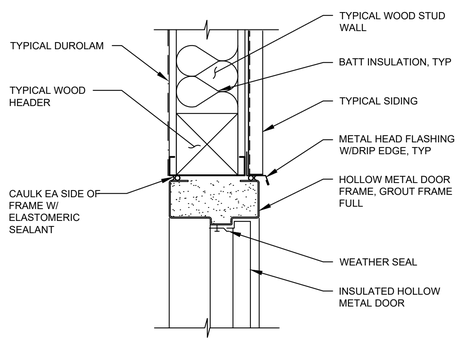
* = AS PER MANUFACTURER

DOOR FRAME TYPE A

NTS

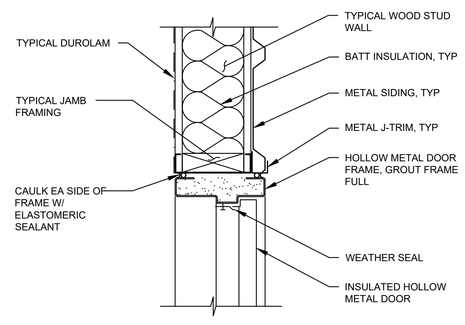
DOOR SCHEDULE

NO.	MATERIAL AND TYPE	SIZE - WIDTH X HEIGHT X THICKNESS	DOOR TYPE	FRAME TYPE	FRAME GUAGE	FINISH	HARDWARE GROUP	INSULATION FACTOR
1	HOLLOW METAL INSULATED	6'-0" X 7'-0" X 1 3/4"	A	A	16	PAINT	1	U = 0.37



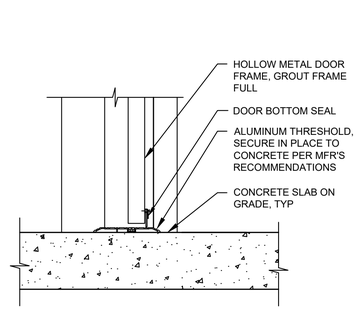
2 TYP — **TYPICAL DOOR HEAD SECTION**

NTS



3 TYP — **TYPICAL DOOR JAMB SECTION**

NTS



4 TYP — **TYPICAL DOOR SILL SECTION**

NTS

0 1" 2"

TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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CONSULTING ENGINEERS
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SEATTLE, WASHINGTON 98144 • (206) 284-3880

DATE:	SEPT 2023
DRAWN:	RAH
CHECKED:	ZK
APPROVED:	MJB

No.	REVISION	DATE	APPD

MYRON J. BASDEN — REGISTERED PROFESSIONAL ENGINEER — STATE OF WASHINGTON — 9/28/2023

MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
STRUCTURAL DETAILS, DOOR AND ROOM FINISH SCHEDULES AND PROJECT DATA

SHEET: S-7
OF: 7

JOB NO.: 21568
DWG: S_BPS_PLN

HVAC DESIGN CRITERIA

EXISTING CONDITIONS

OA VENTILATION

NONE: THE BOOSTER PUMP BUILDING IS CONSIDERED A NON-OCCUPIED EQUIPMENT ROOM.

DESIGN TEMPERATURES

WINTER AMBIENT TEMP:	23 °F
SUMMER AMBIENT TEMP:	85 °F
INTERIOR HEATING SETPOINT:	50 °F
INTERIOR COOLING SETPOINT:	95 °F

HEATING/COOLING

BOOSTER PUMP BUILDING:

REQ'D HEATING LOAD:	1.4 MBH
TYPE:	ELECTRIC RESISTANCE
CAPACITY:	0.4 KW
REQ'D COOLING LOAD:	4.6 MBH
TYPE:	VENTILATION; 10 °F DIFFERENCE
REQ'D AIR FLOW:	425 CFM

CONTROL DESCRIPTION:

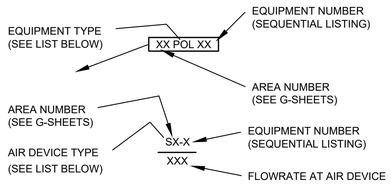
EXHAUST FAN [01 EF 01] PROVIDES COOLING VENTILATION TO THE BOOSTER PUMP BUILDING AND IS CONTROLLED BY THERMOSTAT [01 T 01].

UNIT HEATER [01 HT 01] PROVIDES HEAT TO THE BOOSTER PUMP BUILDING AND IS CONTROLLED BY AN INTERNAL THERMOSTAT.

HVAC GENERAL NOTES

1. MATERIALS, METHODS AND INSTALLATION SHALL COMPLY WITH THE CONTRACT SPECIFICATIONS AND WITH THE PROVISIONS OF THE 2018 INTERNATIONAL MECHANICAL CODE, 2018 INTERNATIONAL BUILDING CODE, 2018 INTERNATIONAL FIRE CODE AS AMENDED BY THE STATE OF WASHINGTON AND THE LOCAL AUTHORITY HAVING JURISDICTION.
2. THESE PLANS ARE SCHEMATIC AND DO NOT SHOW EXACT ROUTING OR EVERY OFFSET, WHICH MAY BE REQUIRED. THE HVAC CONTRACTOR IS TO COORDINATE WITH ALL OTHER TRADES AND IS TO VERIFY ALL CLEARANCES BEFORE COMMENCING WORK.
3. CONTRACTOR SHALL VERIFY THE DIMENSIONS WITH THE EQUIPMENT MANUFACTURER TO PROVIDE DUCT TRANSITIONS TO HVAC VENTILATORS, FANS, LOUVERS, OR SUPPLY/EXHAUST GRILLES TO MATCH THE INLET/OUTLET DIMENSIONS OF THE EQUIPMENT.
4. PROVIDE EARTHQUAKE RESTRAINT FOR HVAC EQUIPMENT IN ACCORDANCE WITH SMACNA RESTRAINT MANUAL AS REQUIRED BY 2018 INTERNATIONAL BUILDING CODE REQUIREMENTS.
5. CONSTRUCTION, SUPPORTS AND INSTALLATION SHALL BE INSTALLED AND COMPLY WITH THE 2018 INTERNATIONAL MECHANICAL CODE (IMC) AND WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS-METAL AND FLEXIBLE.
6. ALL DUCTWORK IS CLASSIFIED AS LOW PRESSURE.
7. ALL HVAC SYSTEMS SHALL BE BALANCED BY A LICENSED CONTRACTOR IN ACCORDANCE WITH ACCEPTED ENGINEERING STANDARDS AND SPECIFICATION.
8. AN AIR BARRIER TEST SHALL BE PERFORMED IN ACCORDANCE WITH THE WASHINGTON STATE ENERGY CODE AND ASTM E779.
9. LOCATE THERMOSTATS 5 FEET AFF. UNLESS OTHERWISE NOTED.
10. PROVIDE FLEXIBLE DUCT CONNECTIONS ON ALL DUCTWORK CONNECTING TO EQUIPMENT.
11. CONTRACTOR SHALL COORDINATE CEILING EQUIPMENT LOCATIONS WITH ELECTRICAL LIGHTING LAYOUT.
12. BUILDING HVAC DOCUMENTS SUCH AS RECORDS, CALCULATIONS, COMPLIANCE FORMS, AND EQUIPMENT MANUALS SHALL BE SUPPLIED TO THE BUILDING OWNER.

HVAC EQUIPMENT & AIR DEVICE IDENTIFICATIONS



EQUIPMENT

EF	EXHAUST FAN
HT	HEATER
MD	MOTORIZED DAMPER
T	THERMOSTAT
VD	VOLUME DAMPER

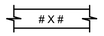
AIR DEVICE

E	EXHAUST GRILLE
LVR	LOUVER
R	RETURN GRILLE
S	SUPPLY DIFFUSER/GRILLE

HVAC ABBREVIATIONS

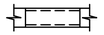
A	AMPERE
ACH	AIR CHANGES PER HOUR
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JUSIDICTION
BLDG	BUILDING
BTU	BRITISH THERMAL UNIT
CAP	CAPACITY
CFM	CUBIC FEET PER MINUTE
DIA	DIAMETER
DN	DOWN
EA	EXHAUST AIR
ECM	ELECTRONICALLY COMMUTATED MOTOR
EF	EXHAUST FAN
°F	DEGREES FAHRENHEIT
MBH	1,000 BTU'S/HR
MCA	MINIMUM CIRCUIT AMPS
MFR	MANUFACTURER
MOCP	MAXIMUM OVER CURRENT PROTECTION
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
OA	OUTSIDE AIR
SA	SUPPLY AIR
SP	STATIC PRESSURE
TEMP	TEMPERATURE
UNO	UNLESS NOTED OTHERWISE
V	VOLTS
VD	VOLUME DAMPER
W	WATT
WC	WATER COLUMN
WP	WALL PENETRATION

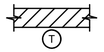
HVAC SYMBOLS



RECTANGULAR DUCT
(DIMENSION SHOWN X DIMENSION HIDDEN)


DAMPER


LOUVER



THERMOSTAT, WALL MOUNTED
WALL TYPE VARIES, SEE S-SHEETS FOR WALL TYPE

FLOW DIRECTION, EXHAUST LOUVER OR SUPPLY DIFFUSER/GRILLE


FLOW DIRECTION, INTAKE LOUVER OR EXHAUST/RETURN GRILLE

FAN SCHEDULE

BUILDING	UNIT NO.	TYPE	MANUFACTURER & MODEL NO.	HP, VOLTAGE, AND PHASE	CONTROLS	CFM AND STATIC PRESSURE	REMARKS
BOOSTER PUMP STATION	01 EF 01	ROOFTOP EXHAUST FAN	GREENHECK G-090-VG OR EQUAL	1/10 HP 115 V 1 Ø	01 T 01	500 CFM @ 0.25" WC	PROVIDE THERMAL OVERLOAD, NEMA 4X DISCONNECT, INSULATED ROOF CURB, GRAVITY BACKDRAFT DAMPER, & HI-PRO POLYESTER FINISH.

HEATER SCHEDULE

BUILDING	UNIT NO.	TYPE	MANUFACTURER & MODEL NO.	KW OUTPUT	CONTROLS	VOLTAGE AND PHASE	MOUTING TYPE	REMARKS
BOOSTER PUMP STATION	01 HT 01	UNIT HEATER	QMARK MUH OR EQUAL	3 KW	INTERNAL	240 V 1 Ø	WALL BRACKET	PROVIDE INTERNAL THERMOSTAT, INTEGRAL DISCONNECT, MOUNT 8'-0" ABOVE FINISH FLOOR.

CONTROL SCHEDULE

BUILDING	UNIT NO.	TYPE	CONTROLLED EQUIPMENT	MANUFACTURER & MODEL NO.	HEAT SET POINT	COOL SET POINT	VOLTAGE AND PHASE	REMARKS
BOOSTER PUMP STATION	01 T 01	MODULATING THERMOSTAT	01 EF 01	GREENHECK TEMP/HUMID CONTROLLER OR EQUAL	N/A	95 °F	12 VDC	

LOUVER SCHEDULE

BUILDING	LOUVER NO.	TYPE	MANUFACTURER & MODEL NO.	ROUGH OPENING SIZE (WxH)	MOUNTING HEIGHT	REMARKS
BOOSTER PUMP STATION	01 LVR 01	INTAKE LOUVER	GREENHECK ESD-635 OR EQUAL	18" x 18"	BOTTOM 86" AFF	PROVIDE GRAVITY BACKDRAFT DAMPER, EXTENDED SILL, HYLAR/KYNAR FINISH, INSECT SCREEN, AND CLIP ANGLES.

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

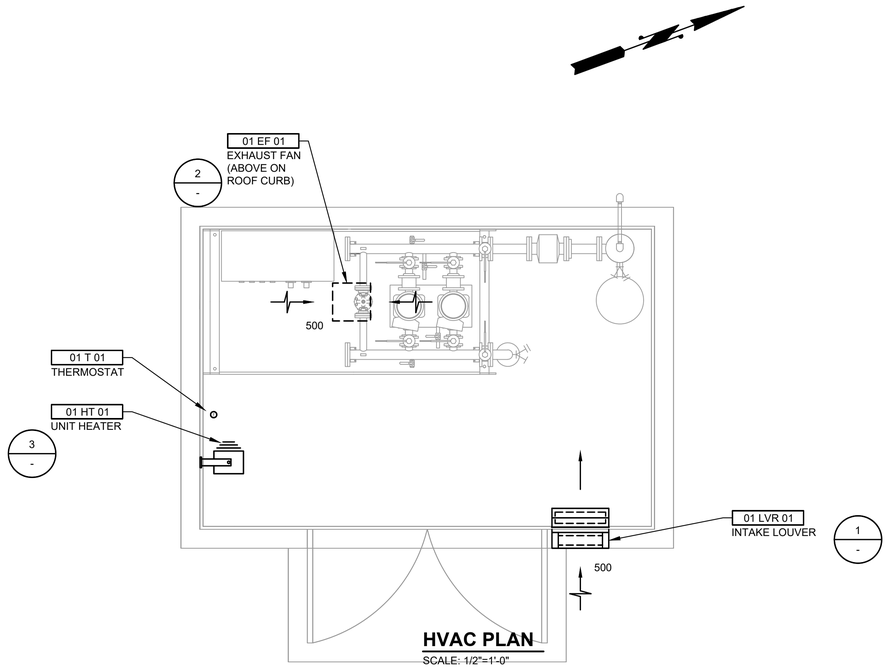
Gray & Osborne, Inc.
CONSULTING ENGINEERS
1130 RAINIER AVENUE SOUTH, SUITE 300
SEATTLE, WASHINGTON 98144 • (206) 284-3880

DATE: SEPT 2023 | DRAWN: ASD | CHECKED: ASD | APPROVED: AMP

No.	REVISION	DATE	APPD

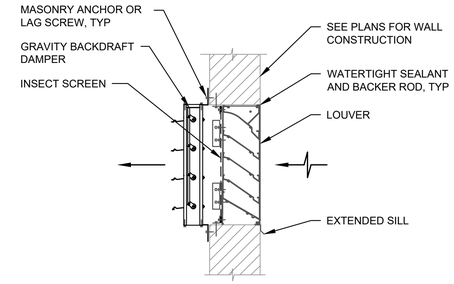
MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
HVAC NOTES, ABBREVIATIONS, AND EQUIPMENT SCHEDULES

SHEET: H-1
OF: 2
JOB NO.: 21568
DWG: H-PMP-STA



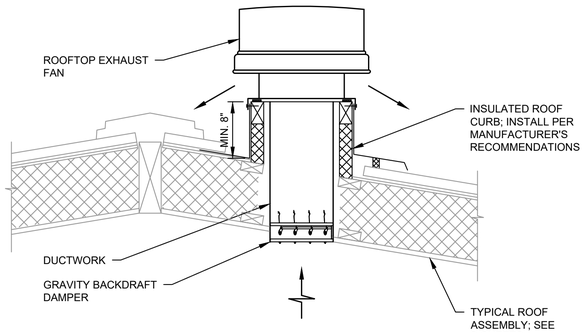
HVAC PLAN

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



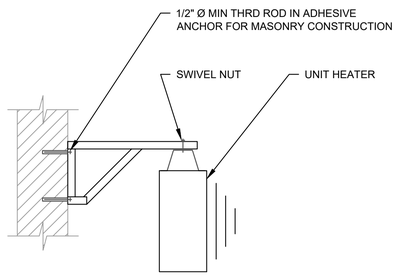
1 - LOUVER AND BACKDRAFT DAMPER

SCALE: 1"=1'-0"



2 - ROOFTOP EXHAUST FAN W/ CURB AND BACKDRAFT DAMPER

SCALE: 1"=1'-0"



3 - HEATER MOUNTING

SCALE: 1"=1'-0"

0 1" 2"

TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

Gray & Osborne, Inc.
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SEATTLE, WASHINGTON 98144 • (206) 284-0880

DATE: SEPT 2023	DRAWN: ASD	CHECKED: ASD	APPROVED: AMP

No.	REVISION	DATE	APPD

AARON M. PEASE — STATE OF WASHINGTON — 21568 — REGISTERED PROFESSIONAL ENGINEER — 09/29/23

MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
HVAC PLAN AND DETAILS

SHEET: **H-2**
OF: **2**

JOB NO.: 21568
DWG: H-PMP-STA

ABBREVIATIONS

A	AMPERE (AMP)
AC	ALTERNATING CURRENT
AF	BREAKER FRAME SIZE (IN AMPS)
AI	ANALOG INPUT
AIC	AMPERES-INTERRUPTING CAPACITY
AL	ALUMINUM
AM	AMMETER
AO	ANALOG OUTPUT
AT	BREAKER TRIP (SETTING IN AMPS)
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BATT	BATTERY
BKR	BREAKER
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CST	CONTROL STATION
CT	CURRENT TRANSFORMER
CU	COPPER
DC	DIRECT CURRENT
DI	DISCRETE INPUT
DIST	DISTRIBUTION
DO	DISCRETE OUTPUT
DTWV	DISCHARGE-TO-WASTE VALVE
EIOM	EXTENDED I/O MODULE
ETC	ELAPSED TIME/COUNTER METER
ETM	ELAPSED TIME METER
ENCL	ENCLOSURE
EXIST	EXISTING
FDR	FEEDER
FLA	FULL LOAD AMPS
FU	FUSE
FVNR	FULL VOLTAGE NON REVERSING
FVR	FULL VOLTAGE REVERSING
FY	FLOW COMPUTATION
G	GROUND CONDUCTOR
GEC	GROUNDING ELECTRODE CONDUCTOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
H	HORN
HA	HAND-AUTO
HIM	HUMAN INTERFACE MODULE
HMI	HUMAN MACHINE INTERFACE
HOA	HAND-OFF-AUTO
HOR	HAND-OFF-REMOTE
HP	HORSEPOWER
JCXXX	JUNCTION BOX, CONTROL
JPXXX	JUNCTION BOX, POWER
JSXXX	JUNCTION BOX, SIGNAL
kA	KILOAMPERES
kAIC	KILOAMPERES-INTERRUPTING CAPACITY
KCM	THOUSAND CIRCULAR MILLS
kV	KILOVOLT
kVA	KILOVOLT-AMPERE
kVAh	KILOVOLT-AMPERE HOUR
kVAR	KILOVAR (REACTIVE KILOVOLT-AMPERE)
KVARh	KILOVAR-HOUR
kW	KILOWATT
kWh	KILOWATT-HOUR
LA	LIGHTNING ARRESTOR
LAN	LOCAL AREA NETWORK
LFMC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT
LINE	POWER LINE/POWER BLOCK
LV	LOW VOLTAGE
M	MAGNETIC CONTACTOR
mA	MILLIAMPERES
MCC	MOTOR CONTROL CENTER
MCM	THOUSAND CIRCULAR MILLS
MCP	MOTOR CIRCUIT PROTECTOR
MOV	METAL OXIDE VARISTOR
MS	MOTOR STARTER
MSDS	MOTOR SAFETY DISCONNECT SWITCH
MTS	MANUAL TRANSFER SWITCH
MTU	MASTER TELEMETRY UNIT
mV	MILLIVOLT
MW	MEGAWATT
N	NEUTRAL CONDUCTOR
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRIC MANUFACTURERS ASSOC.
NESC	NATIONAL ELECTRICAL SAFETY CODE
NFPA	NATIONAL FIRE PROTECTION AGENCY
OCPD	OVERCURRENT PROTECTION DEVICE
OE	OVERHEAD ELECTRIC
OIU	OPERATOR INTERFACE UNIT
OL	OVERLOAD, THERMAL
OLR	OVERLOAD RELAY
P	POLE
PF	POWER FACTOR
PH	PHASE
PLC	PROGRAMMABLE LOGIC CONTROL
PMR	PHASE MONITOR RELAY
PMU	POWER MONITOR UNIT
POT	POTENTIOMETER
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE CONDUIT
PVC-RGS	PVC COATED RGS
RGS	RIGID GALVANIZED STEEL CONDUIT
RVSS	REDUCED-VOLTAGE SOFT START
RTU	REMOTE TELEMETRY UNIT
s	SECOND
SHD	SHIELDED
SPD	SURGE PROTECTION DEVICE
SS	STAINLESS STEEL
SUSE	SUITABLE FOR USE AS A SERVICE ENTRANCE
TB	TERMINAL BLOCK
TDAD	TIME DELAY AFTER DE-ENERGIZATION
TDAE	TIME DELAY AFTER ENERGIZATION
TQS	TORQUE SWITCH
TP	TWISTED PAIR
TSP	TWISTED SHIELDED PAIR
TST	TWISTED SHIELDED TRIAD
TT	TWISTED TRIAD
T/M	THERMAL MAGNETIC
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLT
VA	VOLT-AMPERE
VFD	VARIABLE FREQUENCY DRIVE
VMR	VOLTAGE MONITORING RELAY
W	WATT
WAN	WIDE AREA NETWORK
Wh	WATT-HOUR
WP	WEATHER PROOF
XFMR	POWER TRANSFORMER

SYMBOL LEGEND

PLAN SYMBOLS

- CONDUIT DOWN
- CONDUIT UP
- CONDUIT STUB UP/END CAP
- DISCONNECT SWITCH
- F — FUSED DISCONNECT SWITCH
- COMMUNICATION OUTLET
- TELEPHONE OUTLET
- SPECIAL OUTLET
- SIMPLEX RECEPTACLE
- DUPLEX RECEPTACLE
- DUPLEX RECEPTACLE (HIDDEN)
- QUAD RECEPTACLE
- QUAD RECEPTACLE (HIDDEN)
- FLOOR MOUNTED RECEPTACLE
- OR
- SINGLE — DUAL — LED LIGHT POLES
- #12 AWG GROUND CONDUCTOR
- #12 AWG NEUTRAL CONDUCTOR
- #12 AWG BRANCH CONDUCTOR

CROSSMARKS INDICATE QUANTITY AND USE OF CONDUCTORS

SX LIGHT SWITCH, X =
3 = 3-WAY K = KEY
4 = 4-WAY M = MOTION

- SEAL OFF
- X — MOTOR X = HORSE POWER

XX — XX= CV CHECK VALVE; FE FLOW ELEMENT; FI FLOW INDICATOR; FIT FLOW INDICATOR/TRANSMITTER; FS FLOW SWITCH; FT FLOW TRANSMITTER; HD HEAT DETECTOR; IS INTRUSION SWITCH; J JUNCTION BOX; L LIMIT SWITCH; LE LEVEL ELEMENT; LI LEVEL INDICATOR; LIT LEVEL INDICATOR/TRANSMITTER; LS LEVEL SWITCH/FLOAT; LT LEVEL TRANSDUCER; MDT MOTION DETECTOR; MFM MAGNETIC FLOW METER; MOV MOTOR OPERATED VALVE; PC PHOTO CELL; PE PRESSURE ELEMENT; PI PRESSURE INDICATOR; PIT PRESSURE INDICATOR TRANSMITTER; PS PRESSURE SWITCH; PT PRESSURE TRANSMITTER; SD SMOKE DETECTOR; SV SOLENOID VALVE; T THERMOSTAT

ELEMENTARY WIRING DIAGRAM SYMBOLS

- CONNECTION POINT
- TERMINAL POINT
- SCREW TERMINAL
- MOUNTED ON OUTER DOOR
- MOUNTED ON INNER DOOR
- LOCKABLE DEVICE
- NC CONTACT
- NC CONTACTOR
- NO CONTACT
- NO CONTACTOR
- SS — SOLID STATE CONTACTOR
- ALT — ALTERNATING RELAY
- CR — CONTROL RELAY
- C — CONTACTOR
- C BP — "BYPASS" CONTACTOR
- C IC — "ISOLATION" CONTACTOR
- C SS — SOLID STATE CONTACT RELAY
- M — MOTOR RELAY
- TR — TIME DELAY RELAY (TDAE)
- TR — TIME DELAY RELAY (TDAD)
- LIGHT EMITTING DIODE
- OR — DIODE
- X — LIGHT FIXTURE
  X = REFERENCE LIGHTING SCHEDULE IF APPLICABLE
- L — X — "PUSH TO TEST" LED PILOT LIGHT
  A = AMBER R = RED
  B = BLUE W = WHITE
  G = GREEN
- OFF ON — XO
- OR — OFF ON — OX — SELECTOR SWITCHES
- OX
- OFF — HAND AUTO — XOO — OXO — OOX
- OR — OFF — HAND AUTO — XOO — OOX — HAND-OFF-AUTO SWITCHES
- OFF — ON RESET — XOO — OOX — ON-OFF-RESET SWITCH

ELEMENTARY WIRING DIAGRAM SYMBOLS (cont.)

- GFCI DUPLEX OUTLET
- DUPLEX OUTLET
- FUSE
- FUSED SWITCH W/ LED
- N.O. TOGGLE SPST SWITCH
- N.C. TOGGLE SPST SWITCH
- N.O. TEMPERATURE SWITCH
- N.C. TEMPERATURE SWITCH
- N.O. PRESSURE SWITCH
- N.C. PRESSURE SWITCH
- N.O. LIMIT SWITCH
- N.C. LIMIT SWITCH
- N.O. FLOW SWITCH
- N.C. FLOW SWITCH
- N.O. FLOAT SWITCH
- N.C. FLOAT SWITCH
- N.O. DIFFERENTIAL PRESSURE SWITCH
- N.C. DIFFERENTIAL PRESSURE SWITCH
- N.O. PUSHBUTTON
- N.C. PUSHBUTTON
- N.O. MUSHROOM PUSHBUTTON
- N.C. MUSHROOM PUSHBUTTON
- TDAE, N.O., TIME DELAY CLOSE, INSTANTANEOUS RE-OPEN
- TDAE, N.C., TIME DELAY OPEN, INSTANTANEOUS RE-CLOSE
- TDAD, N.O., INSTANTANEOUS CLOSE, TIME DELAY RE-OPEN
- TDAD, N.C., INSTANTANEOUS OPEN, TIME DELAY RE-CLOSE
- GROUND EQUIPMENT/CHASSIS
- GROUND, ISOLATED
- RESISTOR
- POTENTIOMETER
- SOLENOID VALVE COIL
- METAL OXIDE VARISTOR (MOV)
- TRANSFORMER WINDING/ REACTOR/CHOKE

ONE LINE SYMBOLS

- CAPACITOR
- REACTOR/CHOKE
- M — CIRCUIT BREAKER, MAGNETIC ONLY
- T/M — CIRCUIT BREAKER, THERMAL-MAGNETIC
- CONNECTION POINT
- CONTACTOR
- CURRENT TRANSFORMER
- FUSE
- FUSIBLE DISCONNECT
- AM — ANALOG AMMETER
- THERMAL OVERLOAD RELAY
- GROUND EQUIPMENT/CHASSIS
- S/N — SOLID NEUTRAL
- TRANSFORMER

GENERAL SYMBOLS

- XXXXX — CONDUIT
- XX XXXX XX — TAG LABEL
- GFCI — GFCI PANELBOARD CIRCUIT
- X — AREA ID TAG
- DEMOLITION (DEMO)
- INTRINSICALLY SAFE AREA
- CLEARANCE AREA

LINETYPES

- EXPOSED CONDUIT
- UNDERGROUND (BURIED) CONDUIT
- GROUNDING ELECTRODE CONDUCTORS
- EMBEDDED CONDUIT (WALLS, CONCRETE, ETC.)

NOTE: UNLESS NOTED OTHERWISE.

NOTE:
THIS IS A GENERAL LEDGER SHEET. ALL SYMBOLS MAY NOT APPLY.

GENERAL ELECTRICAL NOTES:

SITE AND BUILDING PLANS:

1. CONDUIT ROUTING IS SHOWN FOR CLARITY. ACTUAL ROUTING MAY BE MORE DIRECT AND IS LEFT TO THE CONTRACTOR FOLLOWING SPECIFICATIONS 16130. NON-ELECTRICAL BURIED PIPING HAS ROUTING PRIORITY OVER ELECTRICAL BURIALS.
2. ALL TRENCHING SHALL BE PER ELECTRICAL TRENCHING DETAIL, REFERENCE ED-SHEETS.
3. THE CONTRACTOR SHALL TAKE ALL STEPS NECESSARY TO PROTECT EXISTING UTILITIES.
4. THROUGHOUT THIS DOCUMENT, THE TERMS "DEMO" AND "DEMOLISH" MEAN TO REMOVE, THEN WASTEHAUL OR RETURN TO THE OWNER, PER THE OWNER'S DIRECTION.

GENERAL CONTROL PANEL NOTES:

1. UNLESS SPECIFICALLY NOTED OTHERWISE ON THE CONTROL PANEL DETAILS, THE FOLLOWING NOTES APPLY.
   1.1 ALL ENCLOSURES SHALL BE PROVIDED WITH AN ENGRAVED NAMEPLATE CORRESPONDING TO THE ASSOCIATED TAG ID NUMBER AND TAG DESCRIPTION.

   TAG DESCRIPTION ← 1/4" TEXT
   [TAG NUMBER] ← 3/16" TEXT

   NOTE: MOTOR STARTER NAMEPLATES SHALL BE BLACK WITH WHITE LETTERING, REFERENCE MCC PANEL DOOR NAMEPLATE SCHEDULE.

   1.2 WHERE PANELS CONTAIN POWER FROM MULTIPLE SOURCES, PROVIDE A YELLOW SAFETY STICKER, APPROXIMATELY 2" x 3", AS SHOWN BELOW.

   CAUTION
   THIS DEVICE IS POWERED FROM SEVERAL SOURCES
   THE DISCONNECT SWITCH WILL NOT SHUT OFF ALL SOURCES OF ELECTRICAL ENERGY

INDOOR INSTALLATIONS:

1. ALL EXPOSED PORTIONS OF CONDUITS FROM UNDERGROUND SHALL BE RGS.
2. PANELS MOUNTED ON INTERIOR WALLS SHALL BE SUPPORTED TO THE WALL WITH 1/2-INCH (MINIMUM) GALVANIZED UNISTRUT.

PULLBOX/VAULT/OUTDOOR INSTALLATIONS:

1. ALL MOUNTING FASTENERS (NUTS, BOLTS SCREWS, WASHERS, ETC.) SHALL BE 316 STAINLESS STEEL.
2. ALL MOUNTING BRACKETS AND BRACING SHALL BE 316L STAINLESS STEEL.
3. ALL CONNECTIONS INTO ENCLOSURES SHALL BE WATERTIGHT, MADE INTO THE BOTTOM OF THE PANELS. TOP AND SIDE CONNECTIONS, WHERE NECESSARY, SHALL USE MYER-TYPE HUBS. REFERENCE SPECIFICATION 16130.
4. PANELS MOUNTED ON VERTICAL WALLS SHALL BE SUPPORTED TO THE WALL WITH 1/2-INCH (MINIMUM) 316L STAINLESS STEEL UNISTRUT.
5. ENCLOSURE SHALL INCLUDE WELDED MOUNTING TABS. HOLES SHALL NOT BE DRILLED THROUGH ENCLOSURE SURFACES FOR MOUNTING PURPOSE.

CABLE AND CONDUIT NOTES:

1. REFERENCE SPECIFICATION 16120 FOR CONDUCTORS, INSTRUMENTATION, COMMUNICATION, AND OTHER SPECIAL CABLES AND CONDUCTORS.
2. REFERENCE SPECIFICATION 16130 FOR RACEWAYS, BOXES, AND JUNCTION BOX TYPES, AND HANDHOLE, PULLBOX, AND VAULT CONDUIT INSTALLATION METHODS.
3. CONDUIT NUMBERS ARE FORMATTED AS:

   TAANN(S) WHERE: T = TYPE (P=POWER; C=CONTROL; S=SIGNAL/INSTRUMENTATION)
   AA= AREA NUMBER (01-99)
   NN= CONDUIT NUMBER WITHIN THE AREA (01-99)
   S = SPARE CONDUIT (~ "TILDE") (IF APPLICABLE)

   P0319~ = AREA 03 POWER CONDUIT NO. 19, SPARE
   C0112 = AREA 01 CONTROL CONDUIT NO. 12
   S0521~ = AREA 05 INSTRUMENTATION CONDUIT NO. 21, SPARE

4. CABLE AND CONDUIT SCHEDULES:
   4.1. THE CABLE AND CONDUIT SCHEDULE PROVIDES CONDUIT NUMBER, SOURCE, DESTINATION, AND SIZE AS WELL AS CONDUCTOR AND CABLE REQUIREMENTS. REFERENCE SPECIFICATION 16130 FOR CONDUIT COMPOSITION AND COATING.
   4.2. CONDUITS MARKED WITH "* n" (WHERE n = 1, 2, OR 3) SHALL BE 100% CONTINUOUS PER SPECIFICATION 16130.

   SPECIFICALLY, CONDUITS MARKED WITH:

   "* 1" NOT USED.
   "* 2" NOT USED.
   "* 3" DENOTE INSTRUMENTATION CIRCUITS THAT ARE NOT INTRINSICALLY SAFE. IF THESE CONDUITS ENTER A PULLBOX, THEN THEY MUST CONNECT TO A "TYPE 3" J-BOX INSIDE THE PULLBOX.

5. REGARDLESS OF THE TYPE OF CONDUIT BEING ROUTED TO A MOTOR, THE LAST 18 INCHES OF THE CONDUIT CONNECTING TO THE MOTOR SHALL BE LFMC.

ENVIRONMENT DETERMINATION:

1. THE INSIDE OF THE BUILDING, BELOW THE FINISHED CEILING SHALL BE CONSIDERED "WET"; ABOVE THE FINISHED CEILING SHALL BE CONSIDERED "DRY".
2. REFERENCE DIVISION 16 SPECIFICATIONS FOR REQUIREMENTS OF INSTALLATIONS IN WET AND DRY AREAS.

SHEET LIST

DEVICE TAG LIST

TAG ID#	TAG DESCRIPTION	VINTAGE
01 ATS 01	AUTOMATIC TRANSFER SWITCH	NEW
01 EF 01	EXHAUST FAN	NEW
01 FTP 01	FIBER TERMINATION PANEL, PUMP HOUSE	NEW
01 GADP 01	GENERATOR ACCESSORY DEVICE PANEL, GENERATOR SET - 1 PH 240VAC	NEW
01 GCB 01	CIRCUIT BREAKER - GENERATOR, MAIN LOAD, GENERATOR SET - 1 PH 240VAC	NEW
01 GCB 02	CIRCUIT BREAKER - GENERATOR, LOAD BANK, GENERATOR SET - 1 PH 240VAC	NEW
01 GCP 01	GENERATOR CONTROL PANEL, GENERATOR SET - 1 PH 240VAC	NEW
01 GEN 01	GENERATOR SET - 1 PH 240VAC	NEW
01 HT 01	HEATER, PUMP HOUSE	NEW
01 LS 01	HIGH LEVEL FLOAT SWITCH (RESERVOIR)	NEW
01 LT 01	LEVEL TRANSDUCER (RESERVOIR)	NEW
01 MB 01	METER BASE	NEW
01 MCP 01	MOTOR CONTROL PANEL, SKID MANUFACTURER'S, PUMP HOUSE SKID MOUNTED BOOSTER PUMP STATION	NEW
01 MFM 01	FLOW METER NO. 1, PUMP HOUSE SKID MOUNTED BOOSTER PUMP STATION	NEW
01 MS 01	MOTOR STARTER , VFD, PUMP HOUSE SKID MOUNTED BOOSTER PUMP STATION BOOSTER PUMP NO. 1	NEW
01 MS 02	MOTOR STARTER , VFD, PUMP HOUSE SKID MOUNTED BOOSTER PUMP STATION BOOSTER PUMP NO. 2	NEW
01 MTR 01	MOTOR - PUMP NO. 1, PUMP HOUSE SKID MOUNTED BOOSTER PUMP STATION BOOSTER PUMP NO. 1	NEW
01 MTR 02	MOTOR - PUMP NO. 2, PUMP HOUSE SKID MOUNTED BOOSTER PUMP STATION BOOSTER PUMP NO. 2	NEW
01 PB 01	PANELBOARD	NEW
01 SD 01	SMOKE DETECTOR, PUMP HOUSE	NEW
01 SDB 01	SERVICE DISCONNECT BREAKER	NEW
01 SMBS 01	SKID MOUNTED BOOSTER PUMP STATION, PUMP HOUSE	NEW
01 SPD 01	SURGE PROTECTION DEVICE, PANELBOARD	NEW
01 T 01	THERMOSTAT, EXHAUST FAN	NEW
01 UT 01	UTILITY TRANSFORMER	NEW
02 FTP 01	FIBER TERMINATION PANEL, WELL HOUSE	NEW
02 MCP 01	MOTOR CONTROL PANEL, WELL HOUSE	NEW

ELECTRICAL WORK SUMMARY:

THIS SUMMARY OF ELECTRICAL WORK IS INCLUDED AS A COURTESY AND IS INTENDED TO PROVIDE A GENERAL UNDERSTANDING OF ELECTRICAL DESIGN INTENT AND MAJOR ELECTRICAL CONSTRUCTION TASKS. IT IS NOT PROVIDED AS A COMPLETE LIST OF WORK AND SHALL NOT BE USED FOR BIDDING PURPOSES. REFER TO ALL PLANS AND SPECIFICATIONS.

1. THIS PROJECT ADDS A NEW SKID MOUNTED BOOSTER SYSTEM IN NEW BUILDING WITH NEW UTILITY SERVICE. MOTOR STARTERS AND CONTROLS ARE CONTAINED IN A MANUFACTURER'S CONTROL PANEL INCLUDED WITH THE SKID.
2. A NEW 25 kW GENERATOR [01 GEN 01], WILL BE PROVIDED AND INSTALLED.
3. A NEW CONCRETE RESERVOIR WILL BE BUILT ADJACENT TO THE BOOSTER BUILDING, WITH FLOATS AND LEVEL TRANSDUCER. THESE SIGNALS NEED TO BE TRANSMITTED TO THE OFFSITE WELL BUILDING ASSOCIATED WITH THE SYSTEM, VIA THE MANUFACTURER'S CONTROL PANEL FOR THE SKID.
4. WELL NO.2 WILL REQUIRE A NEW CONTROLLER. WHILE SCOPED ON SHEET E-2 IT IS NOT EXPLICITLY DESIGNED AS AN "OFF THE SHELF" UNIT MAY BE AVAILABLE THAT WOULD MEET THE NEEDS OF THE SYSTEM.

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				DATE
				REVISION
				No.

JASON R. QUIST — STATE OF WASHINGTON — 21568 — REGISTERED PROFESSIONAL ENGINEER

MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
ELECTRICAL SYMBOLS AND ABBREVIATIONS, SHEET LIST AND TAG LIST

SHEET: E-1
OF: 8

JOB NO.: 21568
DWG: E_SYM_ABBR

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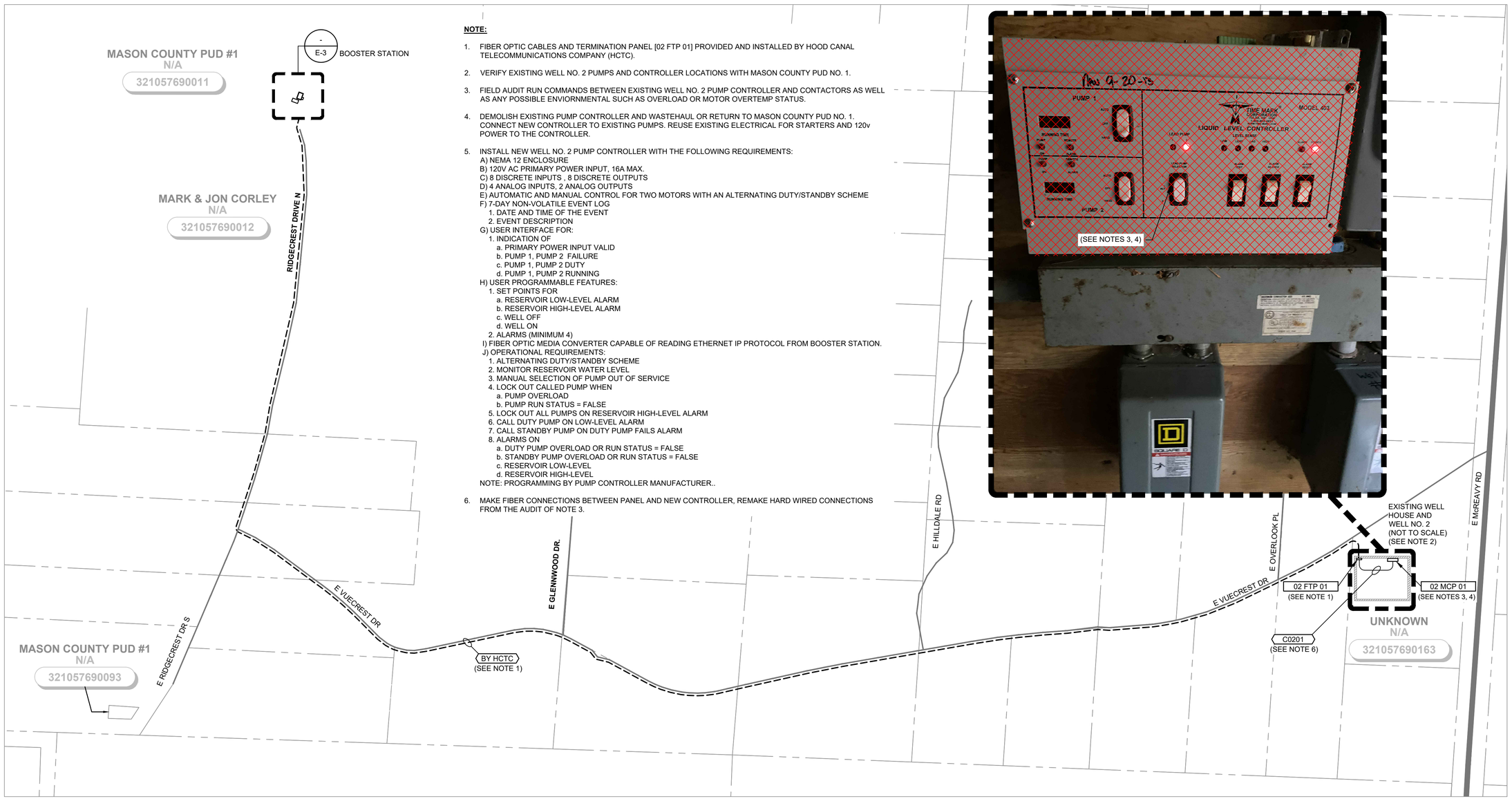
NOTE:

1. FIBER OPTIC CABLES AND TERMINATION PANEL [02 FTP 01] PROVIDED AND INSTALLED BY HOOD CANAL TELECOMMUNICATIONS COMPANY (HCTC).
2. VERIFY EXISTING WELL NO. 2 PUMPS AND CONTROLLER LOCATIONS WITH MASON COUNTY PUD NO. 1.
3. FIELD AUDIT RUN COMMANDS BETWEEN EXISTING WELL NO. 2 PUMP CONTROLLER AND CONTACTORS AS WELL AS ANY POSSIBLE ENVIORNMENTAL SUCH AS OVERLOAD OR MOTOR OVERTEMP STATUS.
4. DEMOLISH EXISTING PUMP CONTROLLER AND WASTEHAUL OR RETURN TO MASON COUNTY PUD NO. 1. CONNECT NEW CONTROLLER TO EXISTING PUMPS. REUSE EXISTING ELECTRICAL FOR STARTERS AND 120v POWER TO THE CONTROLLER.
5. INSTALL NEW WELL NO. 2 PUMP CONTROLLER WITH THE FOLLOWING REQUIREMENTS:
   A) NEMA 12 ENCLOSURE
   B) 120V AC PRIMARY POWER INPUT, 16A MAX.
   C) 8 DISCRETE INPUTS , 8 DISCRETE OUTPUTS
   D) 4 ANALOG INPUTS, 2 ANALOG OUTPUTS
   E) AUTOMATIC AND MANUAL CONTROL FOR TWO MOTORS WITH AN ALTERNATING DUTY/STANDBY SCHEME
   F) 7-DAY NON-VOLATILE EVENT LOG
      1. DATE AND TIME OF THE EVENT
      2. EVENT DESCRIPTION
   G) USER INTERFACE FOR:
      1. INDICATION OF
         a. PRIMARY POWER INPUT VALID
         b. PUMP 1, PUMP 2 FAILURE
         c. PUMP 1, PUMP 2 DUTY
         d. PUMP 1, PUMP 2 RUNNING
   H) USER PROGRAMMABLE FEATURES:
      1. SET POINTS FOR
         a. RESERVOIR LOW-LEVEL ALARM
         b. RESERVOIR HIGH-LEVEL ALARM
         c. WELL OFF
         d. WELL ON
      2. ALARMS (MINIMUM 4)
   I) FIBER OPTIC MEDIA CONVERTER CAPABLE OF READING ETHERNET IP PROTOCOL FROM BOOSTER STATION.
   J) OPERATIONAL REQUIREMENTS:
      1. ALTERNATING DUTY/STANDBY SCHEME
      2. MONITOR RESERVOIR WATER LEVEL
      3. MANUAL SELECTION OF PUMP OUT OF SERVICE
      4. LOCK OUT CALLED PUMP WHEN
         a. PUMP OVERLOAD
         b. PUMP RUN STATUS = FALSE
      5. LOCK OUT ALL PUMPS ON RESERVOIR HIGH-LEVEL ALARM
      6. CALL DUTY PUMP ON LOW-LEVEL ALARM
      7. CALL STANDBY PUMP ON DUTY PUMP FAILS ALARM
      8. ALARMS ON
         a. DUTY PUMP OVERLOAD OR RUN STATUS = FALSE
         b. STANDBY PUMP OVERLOAD OR RUN STATUS = FALSE
         c. RESERVOIR LOW-LEVEL
         d. RESERVOIR HIGH-LEVEL

   NOTE: PROGRAMMING BY PUMP CONTROLLER MANUFACTURER..
6. MAKE FIBER CONNECTIONS BETWEEN PANEL AND NEW CONTROLLER, REMAKE HARD WIRED CONNECTIONS FROM THE AUDIT OF NOTE 3.

(SEE NOTES 3, 4)



EXISTING WELL NO. 2 ELECTRICAL EXTENSION SITE PLAN

SCALE: 1"=100'

0 1" 2"

TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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No.	REVISION	DATE	APPD

RANDY OUIST — STATE OF WASHINGTON — 24511 — REGISTERED PROFESSIONAL ENGINEER

MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
EXISTING WELL NO. 2 ELECTRICAL EXTENSION SITE PLAN

SHEET: **E-2**
OF: **8**
JOB NO.: 21568
DWG: E_SP-X

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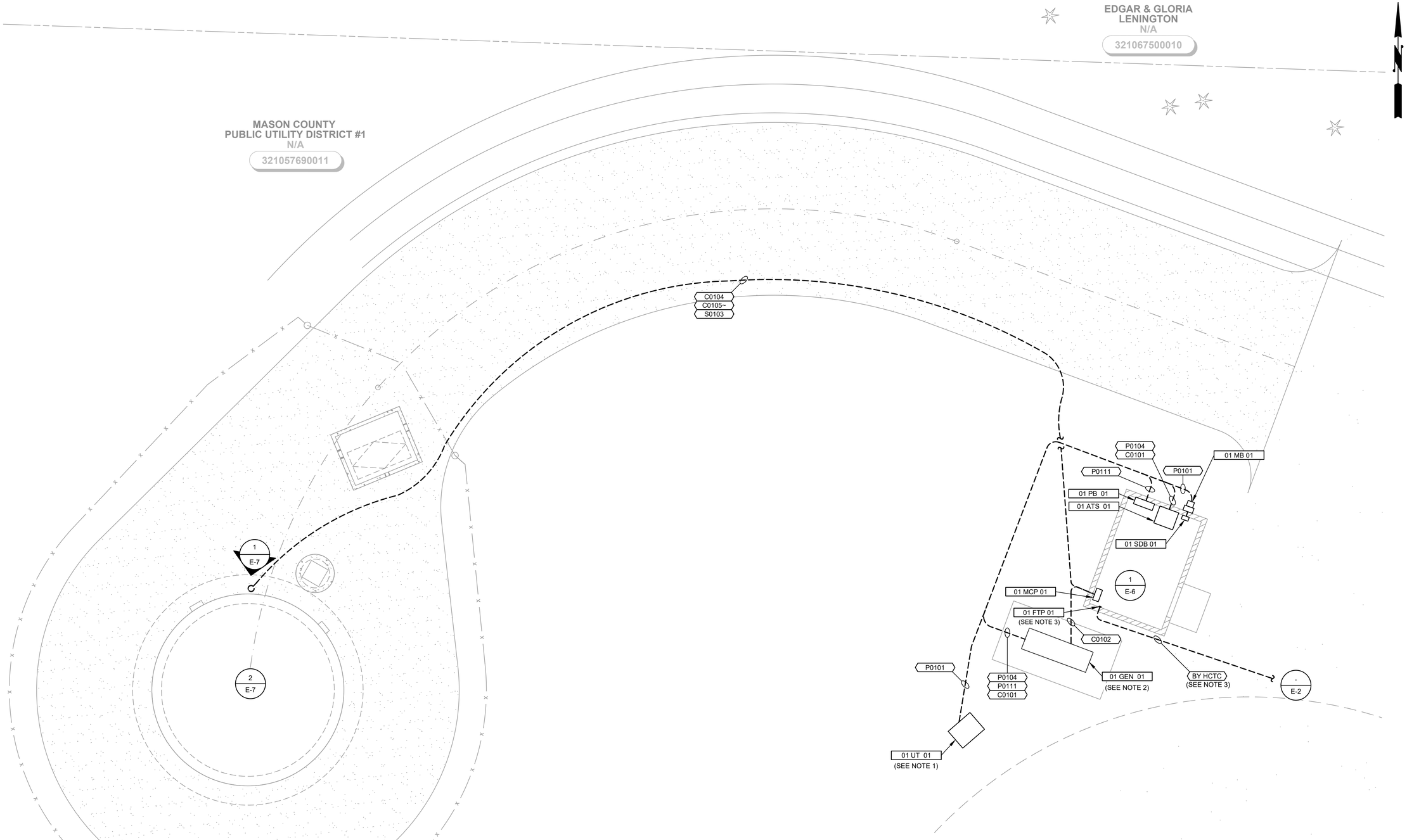

NOTES:

1. MASON COUNTY PUD #1 TO EXTEND 240 VAC, 1 PH SERVICE TO THE SITE. CONTRACTOR SHALL FIELD-VERIFY AND COORDINATE INSTALLATION WITH THE PUD.
2. GROUNDING NOT SHOWN. REFERENCE SHEET E-5
3. PUMP CONTROL FIBER OPTIC CABLES AND TERMINATION PANEL [01 FTP 01] PROVIDED AND INSTALLED BY HOOD CANAL TELECOMMUNICATIONS COMPANY (HCTC). SEE SHEET E-2.

ELECTRICAL SITE PLAN

SCALE: 1"=5'

0 1" 2"

TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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JASON R. NEWQUIST — STATE OF WASHINGTON — 21568 — REGISTERED PROFESSIONAL ENGINEER

MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
ELECTRICAL SITE PLAN

SHEET: **E-3**
OF: **8**

JOB NO.: 21568
DWG: E_SP

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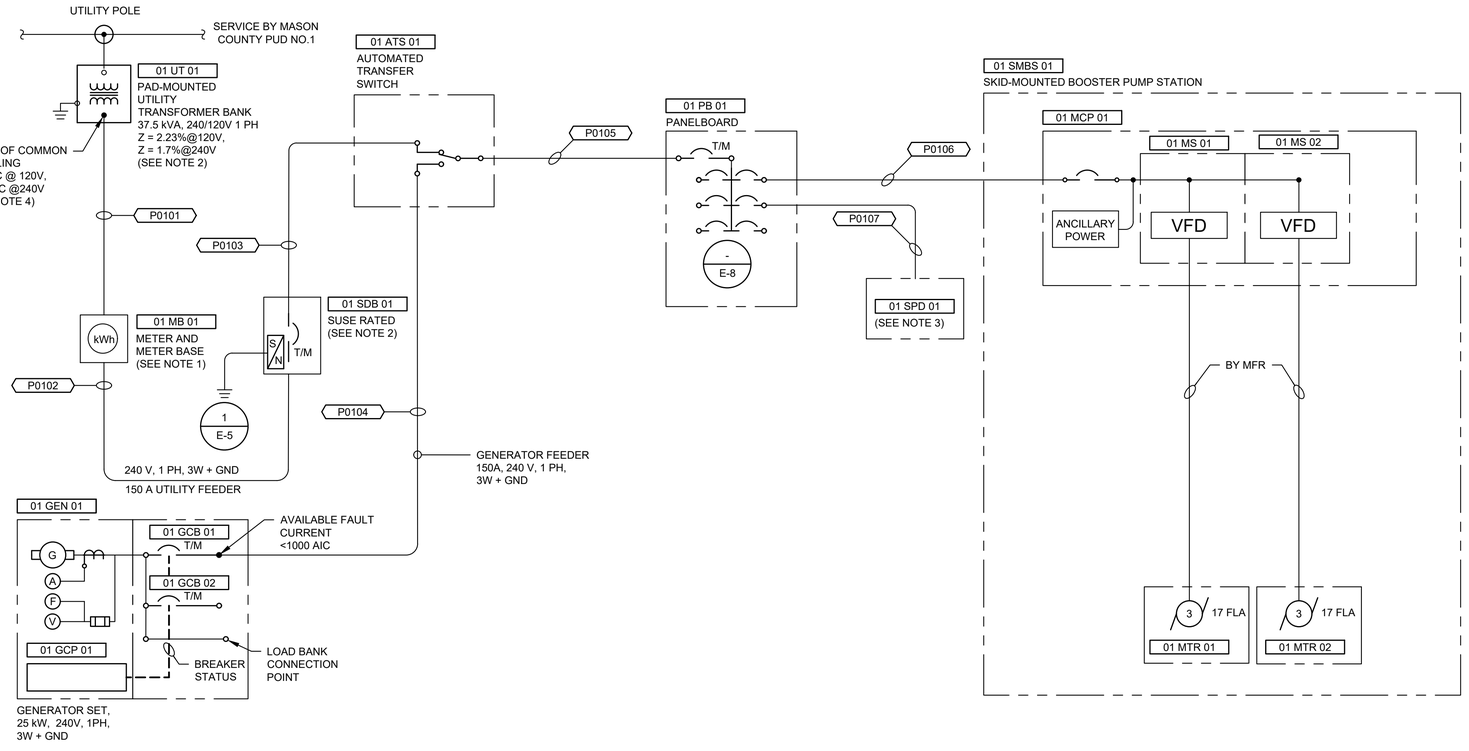

1 / - **MODIFIED ONE LINE DIAGRAM**

NOT TO SCALE

POWER DEVICE SIZING

TAG NUMBER	RATED VOLTAGE	OPERATING VOLTAGE	POLES/ PHASES	AMPACITY	MIN. INTERRUPT AND WITHSTAND RATING	ENCLOSURE TYPE
01 ATS 01	600 V	240 V	1	150 A	22 kAIC	NEMA 12
01 GCB 01	600 V	240 V	1	150 AT / 200 AF	10 kAIC	IN [01 GEN 01]
01 GCB 02	600 V	240 V	1	150 AT / 200 AF	10 kAIC	IN [01 GEN 01]
01 MB 01	600 V	240 V	1	200 A	22 kAIC	NEMA 3R
01 SDB 01	600 V	240 V	1	150 AT / 200 AF	22 kAIC	NEMA 12

NOTES:

1. REVENUE METER IS PROVIDED BY MASON COUNTY PUD #1. METER BASE SHALL BE PROVIDED BY THE CONTRACTOR PER MASON COUNTY PUD #1 SPECIFICATIONS.
2. MASON COUNTY PUD #1 WILL EXTEND 240 VAC, 1 PH SERVICE TO THE SITE. CONTRACTOR SHALL COORDINATE AND FIELD-VERIFY INTERCONNECTION WITH THE PUD.
3. [01 SPD 01] SHALL BE 120 kA PER PHASE/60 kA PER MODE, FULL MODE, WITH NEUTRAL, WITH FILTER AND SHALL INCLUDE INTERNAL DISCONNECT WITH OVERCURRENT PROTECTION AND A FORM C CONTACT THAT OPENS WHEN THE UNIT IS FAULTED. SPD SHALL BE ALLOWED TO BE SUBMITTED AS AN INTEGRAL PART OF [01 PB 01].
4. SINGLE PHASE SHORT CIRCUIT BOLTED FAULT CALCULATIONS ARE BASED ON INFINITE UTILITY CONTRIBUTION, +10% VARIANCE IN UTILITY VOLTAGE, -10% VARIANCE IN TRANSFORMER IMPEDANCE, AND A 37.5 kVA TRANSFORMER BANK WITH 2.23% ASSUMED IMPEDANCE @ 120V, 1.7%@ 240V. FAULT CALCULATIONS ALSO INCLUDE 385 AIC MOTOR REGENERATIVE CONTRIBUTION FROM THE 2 MOTORS ADDED TO EACH FAULT POINT. ALL CALCULATIONS ARE BASED ON 240 V.

0 1" 2"

TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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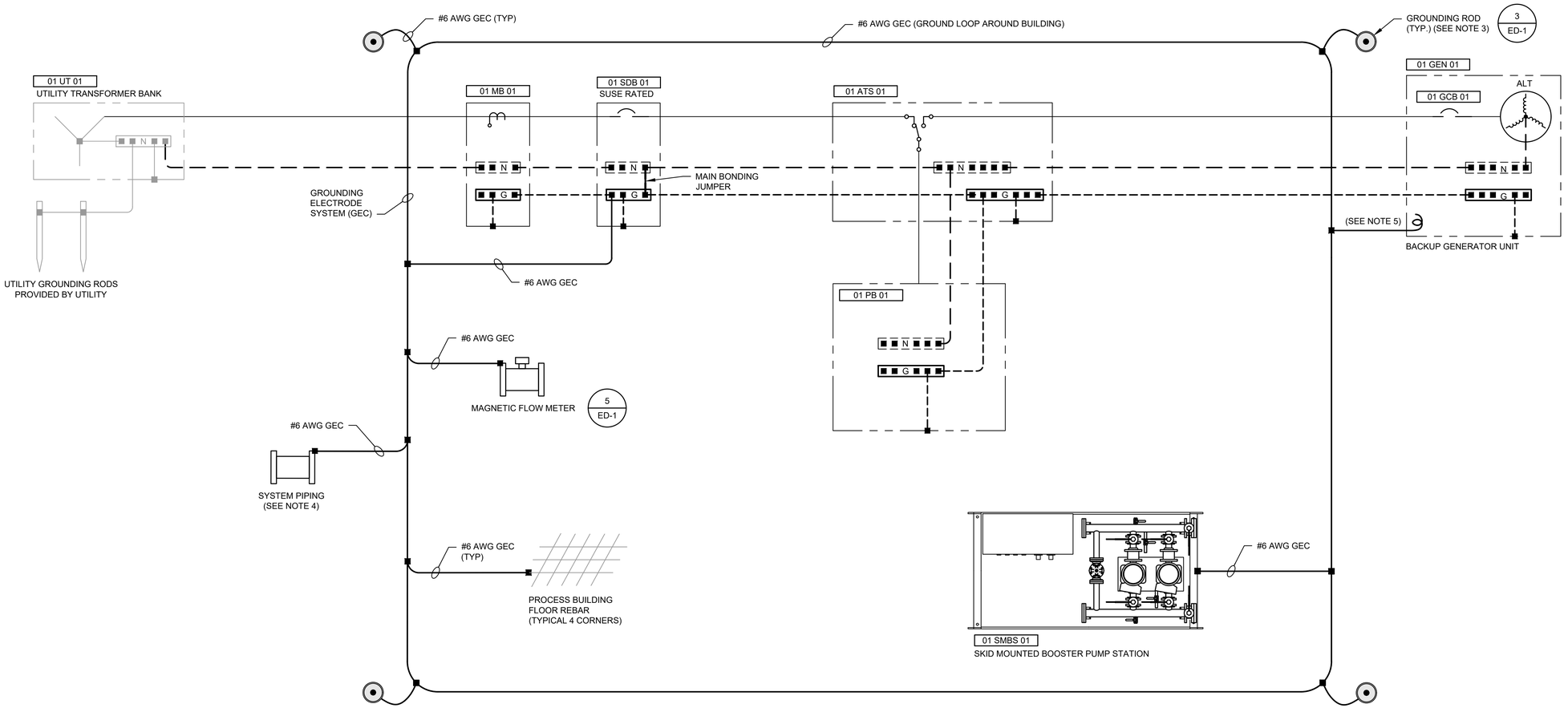
JASON R. NEWQUIST — STATE OF WASHINGTON — 21568 — REGISTERED PROFESSIONAL ENGINEER

MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
ONE LINE DIAGRAM

SHEET: **E-4**
OF: **8**

JOB NO.: 21568
DWG: E_OLD



NOTES:

1. REFERENCE SPECIFICATION 16060.
2. NEUTRALS ARE NOT SWITCHED IN THE ATS UNITS.
3. DRIVE 10' X 3/4" GROUND RODS AT EACH CORNER OF [01 BLDG 01]. CONNECT TO GROUND LOOP WITH #6 BARE COPPER GECs BURIED AT A DEPTH OF 30" MINIMUM. GROUND ROD CONNECTIONS SHALL BE ACCESSIBLE FROM WITHIN GROUND BOXES. (3 / ED-1)
4. RUN A #6 AWG BARE COPPER GEC TO ALL METAL PROCESS PIPING GREATER THAN 6-INCH DIAMETER PENETRATING THE CONCRETE FLOOR. CONNECT THE GROUND AT THE CLOSEST BOLT NEAREST THE FLOOR. ARRANGE THE WIRE TO PREVENT A TRIP HAZARD.
5. PROVIDE A GROUND PIGTAIL FROM THE GROUND LOOP JUST UNDER GENERATOR CIRCUIT BREAKER [01 GCB 01]. CONNECT TO GENERATOR GROUND BUS IF REQUIRED BY L&I INSPECTOR.

GROUNDING LEGEND

———	POWER CONDUCTORS
— — —	NEUTRAL CONDUCTORS
– – – – –	EQUIPMENT GROUND CONDUCTORS
———	GROUNDING ELECTRODE CONDUCTORS (GEC)
	GROUNDING ELECTRODE TAP
N	NEUTRAL BUS
G	GROUND BUS
	GROUNDING ROD BOX W/ 10' X ¾" GROUNDING ROD

(1 / -) **GROUNDING ONE LINE DIAGRAM**
NOT TO SCALE

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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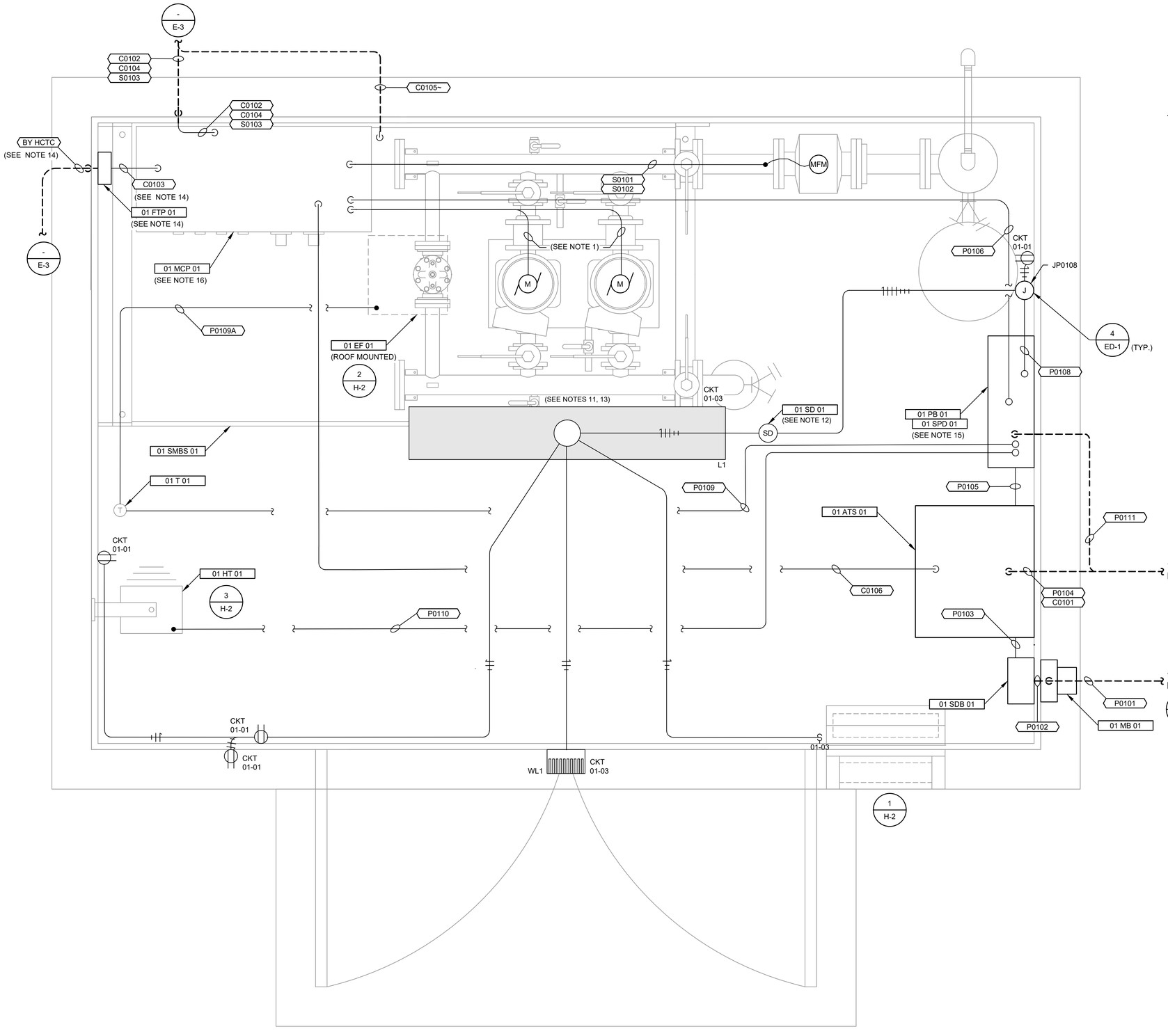
JASON R. NEWQUIST — STATE OF WASHINGTON — 45187 — REGISTERED PROFESSIONAL ENGINEER

MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
GROUNDING ONE LINE DIAGRAM

SHEET: E-5
OF: 8
JOB NO.: 21568
DWG: E_OLD



NOTES:

1. MOTORS PREWIRED TO [01 MCP 01] BY SKID MANUFACTURER.
2. ALL EXPOSED CONDUITS SHALL BE RGS.
3. CONDUIT NUMBERS FOR CONVENIENCE RECEPTACLE AND LIGHTING CIRCUITS ARE ONLY APPLIED TO THE CONDUIT LEAVING THE POWER SOURCE. CONDUITS BETWEEN DEVICES ARE REQUIRED AND ARE NOT SHOWN IN THE CABLE AND CONDUIT SCHEDULE.
4. RECEPTACLES SHALL BE SURFACE MOUNTED TO THE INTERIOR AND EXTERIOR WALLS.
5. ALL INTERIOR CONVENIENCE RECEPTACLES SHALL BE 20A, WHITE, DUPLEX, IN CAST ALUMINUM BOXES WITH WEATHERPROOF COVERS. RECEPTACLES MOUNTED TO CONCRETE OR CMU WALLS SHALL BE SURFACE-MOUNTED.
6. WHERE A CONVENIENCE RECEPTACLE (INTERIOR OR EXTERIOR) IS NOT CONNECTED TO A GFCI BREAKER, AT LEAST ONE RECEPTACLE WITH INTEGRAL GFCI PROTECTION SHALL BE INSTALLED PER CIRCUIT. REFERENCE PANELBOARD SCHEDULES.
7. ALL EXTERIOR RECEPTACLES SHALL BE 20A, WHITE, DUPLEX, IN CAST ALUMINUM BOXES WITH FULL IN SERVICE COVERS, AND SURFACE-MOUNTED.
8. ALL INTERIOR RECEPTACLES SHALL BE MOUNTED 42 INCHES ABOVE THE FLOOR. EXTERIOR RECEPTACLES SHALL BE MOUNTED AT 24 INCHES ABOVE GRADE AND ALIGNED WITH SMOOTH BLOCK.
9. THE ROUTING OF CONDUITS FOR LIGHTING AND RECEPTACLES ARE SHOWN FOR CLARITY ONLY. THE CONTRACTOR MAY USE MORE DIRECT ROUTING.
10. EXPOSED CONDUITS TO CONVENIENCE RECEPTACLES AND LIGHT SWITCHES MAY BE 1/2-INCH TRADE SIZE WHERE ALLOWED BY CODE.
11. THE POWER CONDUCTORS TO CHARGING CIRCUITS FOR EMERGENCY LIGHTS SHALL NOT BE SWITCHED.
12. SMOKE DETECTOR SHALL BE 120V AC POWERED WITH FORM C (DRY) CONTACTS.
13. REFERENCE SHEET EC-1 FOR LIGHT FIXTURE SCHEDULE.
14. FIBER CABLING AND TERMINATION EQUIPMENT PROVIDED AND INSTALLED BY HOOD CANAL TELECOMMUNICATIONS COMPANY (HCTC). FIBER OPTIC CABLE ROUTING SHOWN FOR REFERENCE ONLY.
15. [01 SPD 01] SHALL MOUNTED BELOW [01 PB 01]. CONDUIT P0107 NOT SHOWN HERE.
16. MCP MANUFACTURER SHALL PROVIDE TERMINALS FOR THE CONTRACTOR TO LAND THE SIGNALS REFERENCED PER SPECIFICATION 11265

1 - **BOOSTER BUILDING ELECTRICAL SYSTEMS PLAN**

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

0 1" 2"

TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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JASON R. NEWQUIST — STATE OF WASHINGTON — 19587 — REGISTERED PROFESSIONAL ENGINEER

MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
BUILDING ELECTRICAL PLAN

SHEET: **E-6**
OF: **8**

JOB NO.: 21568
DWG: E_BLDG

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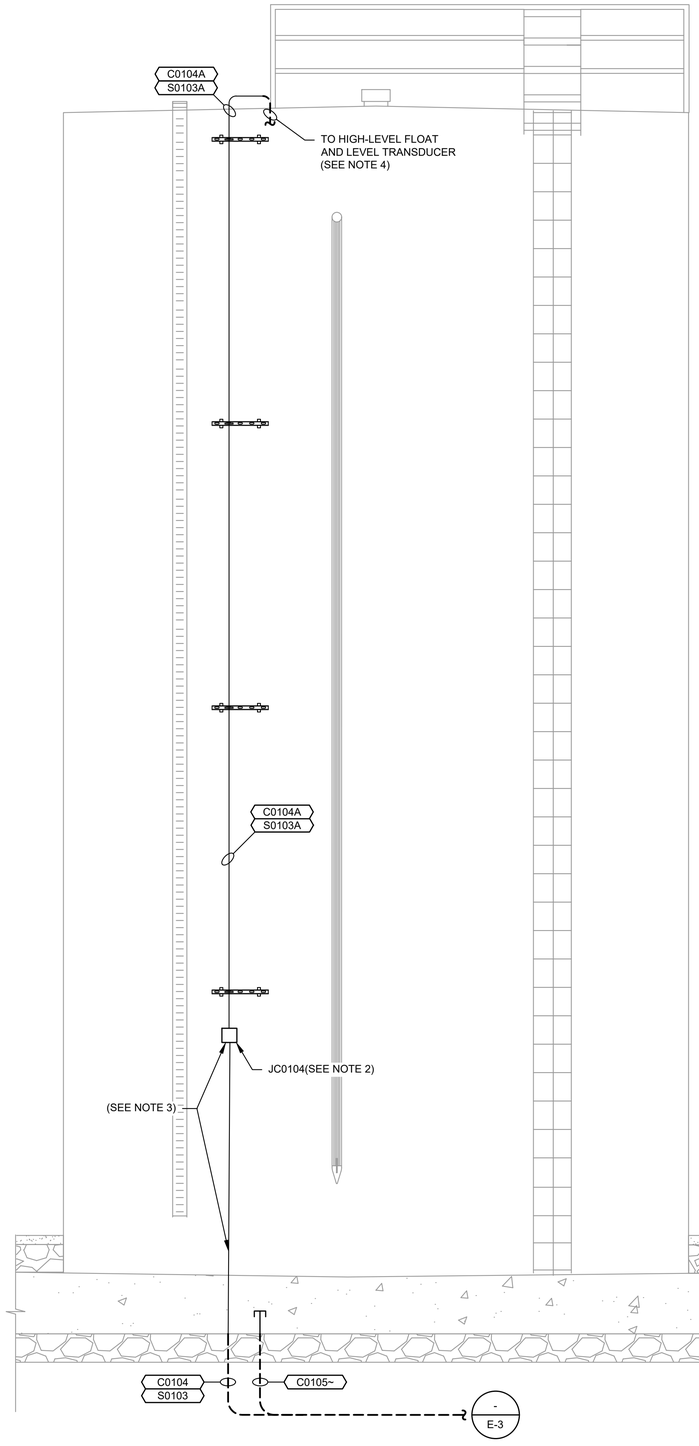
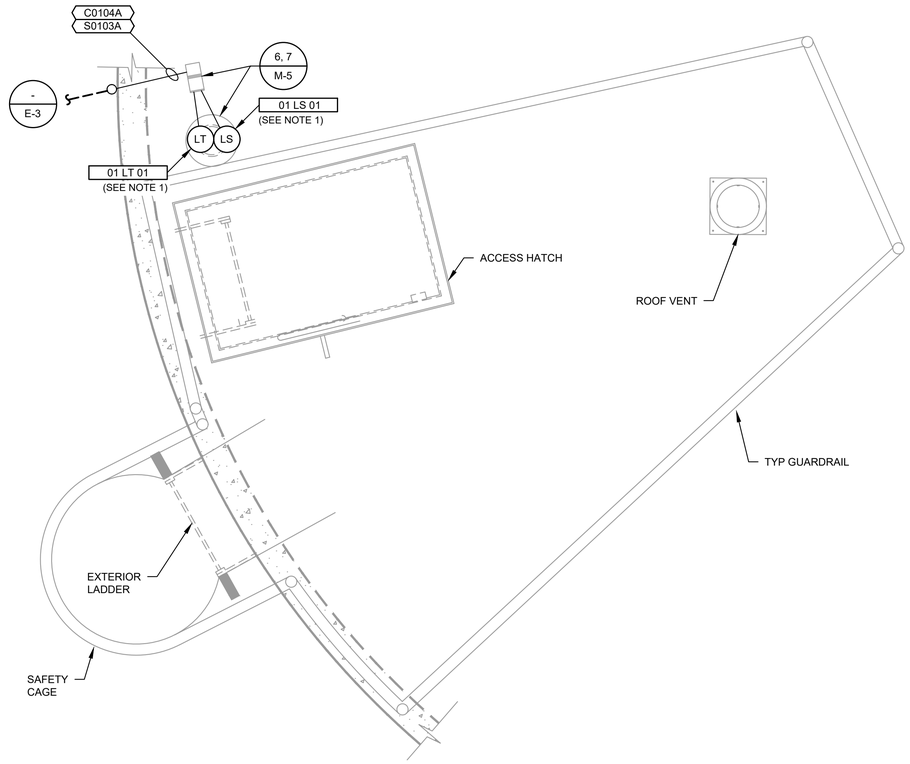


1 / - **RESERVOIR ELECTRICAL ELEVATION**

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

NOTES:

1. FOR CLARITY, NOT ALL ITEMS SHOWN IN EXACT LOCATION.
2. JC0104 SHALL BE NEMA 4X SS 8"x 8" X 4" MINIMUM WITH TAMPER RESISTANT SCREWS.
3. SUPPORT CONDUITS AND J-BOXES PER 2 / ED-2 .
4. REFERENCE M-SHEETS FOR MOUNTING DETAIL.



NOTES:

1. J-BOXES ASSOCIATED WITH TRANSITIONS FROM MANUFACTURER'S CABLES TO FIELD WIRING ARE NOT SHOWN HERE. REFERENCE INSTALLATION DETAILS. SPLICING SHALL BE ALLOWED IN THE J-BOXES. 1 / ED-2

2 / - **RESERVOIR ROOF ENLARGED ELECTRICAL DETAIL**

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

0 1" 2"

TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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JASON R. NEWQUIST — STATE OF WASHINGTON — 19581 — REGISTERED PROFESSIONAL ENGINEER

MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
RESERVOIR ELECTRICAL PLAN

SHEET: **E-7**
OF: **8**

JOB NO.: 21568
DWG: E_RES

PANELBOARD [01 PB 01] SCHEDULE

CKT. NO.	DIRECTORY	PHASE A VA	PHASE A A	PHASE B VA	PHASE B A	LOAD TYPE	BKR AMPS	BUS	BKR AMPS	LOAD TYPE	PHASE A VA	PHASE A A	PHASE B VA	PHASE B A	DIRECTORY	CKT. NO.
1	INDOOR RECEPTACLES GFCI	900	6.0			R	1/20	A	2/70	M	6,000	52.2			SKID MOUNTED BOOSTER PUMP STATION	2
3	LIGHTING			54	0.5	L	1/20	B	|	M			6,000	52.2	SKID MOUNTED BOOSTER PUMP STATION	4
5	[01 HT 01], HEATER, PUMP HOUSE	1,500	12.5			H	2/20	A	1/20	H	506	4.2			[01 EF 01], EXHAUST FAN	6
7	[01 HT 01], HEATER, PUMP HOUSE			1,500	12.5	H	|	B	2/20	Z			1,075	9.0	[01 GCP 01], GENERATOR CONTROL PANEL, GENERATOR SET - 1 PH 240VAC	8
9	[01 SD 01], SMOKE DETECTOR, BOOSTER BUILDING	20	0.2			Z	1/20	A	|	Z	1,075	9.0			[01 GCP 01], GENERATOR CONTROL PANEL, GENERATOR SET - 1 PH 240VAC	10
11	SPARE BREAKER			-		Z	1/20	B	1/20	Z			-	-	SPARE BREAKER	12
13	SPARE BREAKER	-	-			Z	1/20	A	1/20	Z	-	-			SPARE BREAKER	14
15	SPARE BREAKER			-	-	Z	1/20	B	1/20	Z			-	-	SPARE BREAKER	16
17	SPARE BREAKER	-	-			Z	1/20	A	1/20	Z	-	-			SPARE BREAKER	18
19	SPARE BREAKER			-	-	Z	1/20	B	1/20	Z			-	-	SPARE BREAKER	20
21	SPARE BREAKER	-	-			Z	1/20	A	1/20	Z	-	-			SPARE BREAKER	22
23	SPARE BREAKER			-	-	Z	1/20	B	1/20	Z			-	-	SPARE BREAKER	24
	SUM OF PHASE LOADS	2,420	18.7	1,574	13.0						7,581	65.3	7,075	61.1	SUM OF PHASE LOADS	

[01 PB 01] ELECTRICAL AND CONSTRUCTION SPECIFICATIONS:

CONFIGURATION:	240/120 VAC, 1 PH, 60 Hz
POWER BUS:	200 A, COPPER
NEUTRAL BUS:	200 A (100% OF POWER BUS), ISOLATED FROM GROUND, SOLDERLESS CONNECTIONS
GROUND BUS:	PROVIDE PER UL 67
BUS BRACING:	10 kAIC, MINIMUM
MAIN BREAKER:	150 AT, 200 AF, 1 PH, 2 P, 10 kAIC, MOLDED CASE, VERTICAL MOUNTING
DISTRIBUTION BREAKERS:	BOLT-ON, MOLDED CASE, 10 kAIC, MINIMUM
GROUND BONDING:	GROUND AND NEUTRAL SEPARATED
ENCLOSURE:	NEMA 12
NUMBER OF CIRCUITS:	24
UNCOMMITTED CIRCUITS:	FILL WITH SPARE 10 kAIC BREAKERS AS SHOWN IN THE SCHEDULE
POWER DERIVED FROM:	[01 UT 01], UTILITY TRANSFORMER
BUS BREAKERS:	2 POLE BREAKERS, 1x 70 A, 10 kAIC
	2 POLE BREAKERS, 2x 20 A, 10 kAIC
	1 POLE BREAKERS, 18x 20 A, 10 kAIC

NOTES:

1. THE CONTRACTOR SHALL PROVIDE A TYPED PANELBOARD SCHEDULE FOR ALL ACTUAL LOAD ASSIGNMENTS.
2. AIC RATING OF BRANCH CIRCUIT BREAKERS MAY BE REDUCED WHEN SUBMITTED TO ENGINEERING IF THEY ARE SHOWN TO BE PART OF A TESTED AND LISTED COMBINATION WITH MAIN PANELBOARD BREAKER AND COMPLIANT TO NEC 240.86 AND MARKED PER NEC 110.22. BRANCH BREAKERS SHALL BE NO LESS THAN 10 kAIC.

LEGEND:

GFCI DENOTES GFCI PANELBOARD CIRCUIT BREAKER.

LOAD DISTRIBUTION:	AMPS	VA	%
BY PHASE:			
TOTAL LOAD, PHASE A:	83.3 A	10,001 VA	53.7%
TOTAL LOAD, PHASE B:	71.9 A	8,629 VA	46.3%
BY LOAD TYPE:			
TOTAL LIGHTING (L):		54 VA	0.3%
TOTAL MOTOR (M):		12,000 VA	64.4%
TOTAL HVAC (H):		3,506 VA	18.8%
TOTAL RECEPTACLE (R):		900 VA	4.8%
TOTAL OTHER (Z):		2,170 VA	11.7%
TOTAL CONNECTED LOAD:		18.63 kVA	100.0%
TOTAL CALCULATED (NEC) LOAD:		21.46 kVA	

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

Gray & Osborne, Inc.
CONSULTING ENGINEERS
1130 RAINIER AVENUE SOUTH, SUITE 300
SEATTLE, WASHINGTON 98144 • (206) 284-3880

DATE: SEPT 2023 | DRAWN: PEB | CHECKED: DAC | APPROVED: JRN

No.	REVISION	DATE	APPD

JASON R. NEWQUIST — STATE OF WASHINGTON — 19579 — REGISTERED PROFESSIONAL ENGINEER

MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
PANELBOARD SCHEDULE, SPECIFICATION AND LOAD DISTRIBUTION

SHEET: E-8
OF: 8
JOB NO.: 21568
DWG: E_PB_112

M:\Mason County PUD 1\21568.00 Vuecrest Reservoir\01 Design\Planset\Electrical\E_PB_112.dwg, 9/29/2023 3:00 PM, JASON NEWQUIST

POWER CABLE AND CONDUIT SCHEDULE

NUMBER	SOURCE	DESTINATION	SIZE	CONDUCTORS	E-1	NOTES
P0101	[01 UT 01], UTILITY TRANSFORMER	[01 MB 01], METER BASE	1-1/2"	2X #1/0 AWG XHHW-2; 1X #4 AWG XHHW-2 N		
P0102	[01 MB 01], METER BASE	[01 SDB 01], SERVICE DISCONNECT BREAKER	1-1/2"	2X #1/0 AWG XHHW-2; 1X #4 AWG XHHW-2 N; 1X #6 AWG XHHW-2 G		
P0103	[01 SDB 01], SERVICE DISCONNECT BREAKER	[01 ATS 01], AUTOMATIC TRANSFER SWITCH	1-1/2"	2X #1/0 AWG XHHW-2; 1X #4 AWG XHHW-2 N; 1X #6 AWG XHHW-2 G		
P0104	[01 ATS 01], AUTOMATIC TRANSFER SWITCH	[01 GEN 01], GENERATOR SET - 1 PH 240VAC	1-1/2"	2X #1/0 AWG XHHW-2; 1X #4 AWG XHHW-2 N; 1X #6 AWG XHHW-2 G		
P0105	[01 ATS 01], AUTOMATIC TRANSFER SWITCH	[01 PB 01], PANELBOARD	1-1/2"	2X #1/0 AWG XHHW-2; 1X #4 AWG XHHW-2 N; 1X #6 AWG XHHW-2 G		
P0106	[01 PB 01], PANELBOARD	[01 MCP 01], MOTOR CONTROL PANEL, SKID MANUFACTURER'S, PUMP HOUSE SKID MOUNTED BOOSTER PUMP STATION	1-1/2"	2X #4 AWG XHHW-2; 1X #6 AWG XHHW-2 N; 1X #8 AWG XHHW-2 G		
P0107	[01 PB 01], PANELBOARD	[01 SPD 01], SURGE PROTECTION DEVICE, PANELBOARD	3/4"	MANUFACTURER'S CABLE		MFR LEADS SHALL NOT BE EXTENDED
P0108	[01 PB 01], PANELBOARD	J-BOX JP0108 (LIGHTING AND CONVENIENCE RECEPTACLES AND SMOKE DETECTOR)	1"	3X #12 AWG XHHW-2; 3X #12 AWG XHHW-2 N; 1X #12 AWG XHHW-2 G		
P0109	[01 PB 01], PANELBOARD	[01 T 01], THERMOSTAT, EXHAUST FAN	3/4"	1X #12 AWG XHHW-2; 1X #12 AWG XHHW-2 N; 1X #12 AWG XHHW-2 G		
P0109A	[01 T 01], THERMOSTAT, EXHAUST FAN	[01 EF 01], EXHAUST FAN	3/4"	1X #12 AWG XHHW-2; 1X #12 AWG XHHW-2 N; 1X #12 AWG XHHW-2 G		
P0110	[01 PB 01], PANELBOARD	[01 HT 01], HEATER, PUMP HOUSE	1"	2X #10 AWG XHHW-2; 1X #10 AWG XHHW-2 N; 1X #10 AWG XHHW-2 G		
P0111	[01 PB 01], PANELBOARD	[01 GADP 01], GENERATOR ACCESSORY DEVICE PANEL, GENERATOR SET - 1 PH 240VAC	1"	2X #10 AWG XHHW-2; 1X #10 AWG XHHW-2 N; 1X #10 AWG XHHW-2 G		

CONTROL CABLE AND CONDUIT SCHEDULE

NUMBER	SOURCE	DESTINATION	SIZE	CONDUCTORS	E-1	NOTES
C0101	[01 ATS 01], AUTOMATIC TRANSFER SWITCH	[01 GCP 01], GENERATOR CONTROL PANEL, GENERATOR SET - 1 PH 240VAC	3/4"	4X #14 AWG XHHW-2		ATS RUN CALL TO GENERATOR + (2) SPARES
C0102	[01 GCP 01], GENERATOR CONTROL PANEL, GENERATOR SET - 1 PH 240VAC	[01 MCP 01], MOTOR CONTROL PANEL, SKID MANUFACTURER'S, PUMP HOUSE SKID MOUNTED BOOSTER PUMP STATION	3/4"	8X #14 AWG XHHW-2		GENERATOR WARNING, GENERATOR ALARM + 4 SPARES
C0103	[01 FTP 01], FIBER TERMINATION PANEL, PUMP HOUSE	[01 MCP 01], MOTOR CONTROL PANEL, SKID MANUFACTURER'S, PUMP HOUSE SKID MOUNTED BOOSTER PUMP STATION	1"	OM 2 FIBER OPTIC JUMPERS		
C0104	[01 MCP 01], MOTOR CONTROL PANEL, SKID MANUFACTURER'S, PUMP HOUSE SKID MOUNTED BOOSTER PUMP STATION	JUNCTION BOX JC0104 (AT BASE OF RESERVOIR)	2"	8X #14 AWG XHHW-2		TANK LEVEL SWITCHES, INCLUDES SPARES. COIL SPARES IN JC0104. INCLUDE PULL WIRE.
C0104A	JUNCTION BOX JC0104 (AT BASE OF RESERVOIR)	[01 LS 01], HIGH LEVEL FLOAT SWITCH (RESERVOIR)	1"	2X #14 AWG XHHW-2; 1X #12 AWG XHHW-2 G		SPLICE TO MANUFACTURER'S CABLES FOR FLOAT AND TRANSDUCER
C0105~	STUB UP AGAINST WALL NEAR SKID MOUNTED BOOSTER PUMP STATION	BASE OF RESERVOIR, STUB UP 6" ABOVE GRADE, CAP	1"	PULL WIRE		SPARE CONDUIT.
C0106	[01 MCP 01], MOTOR CONTROL PANEL, SKID MANUFACTURER'S, PUMP HOUSE SKID MOUNTED BOOSTER PUMP STATION	[01 ATS 01], AUTOMATIC TRANSFER SWITCH	3/4"	4X #14 AWG XHHW-2		ATS IN GENERATOR POSITION + 2 SPARES
C0201	[02 FTP 01], FIBER TERMINATION PANEL, WELL HOUSE	[02 MCP 01], MOTOR CONTROL PANEL, WELL HOUSE	1"	16X #14 AWG XHHW-2		

INSTRUMENTATION CABLE AND CONDUIT SCHEDULE

NUMBER	SOURCE	DESTINATION	SIZE	CONDUCTORS	E-1	NOTES
S0101	[01 MCP 01], MOTOR CONTROL PANEL, SKID MANUFACTURER'S, PUMP HOUSE SKID MOUNTED BOOSTER PUMP STATION	[01 MFM 01], FLOW METER NO. 1, PUMP HOUSE SKID MOUNTED BOOSTER PUMP STATION	3/4"	MANUFACTURER'S RECOMMENDED CABLE	* 3	COIL POWER
S0102	[01 MCP 01], MOTOR CONTROL PANEL, SKID MANUFACTURER'S, PUMP HOUSE SKID MOUNTED BOOSTER PUMP STATION	[01 MFM 01], FLOW METER NO. 1, PUMP HOUSE SKID MOUNTED BOOSTER PUMP STATION	3/4"	MANUFACTURER'S RECOMMENDED CABLE	* 3	COIL SIGNAL, MAY BE COMBINED WITH S0101 WHERE ALLOWED BY FLOW METER MANUFACTURER
S0103	[01 MCP 01], MOTOR CONTROL PANEL, SKID MANUFACTURER'S, PUMP HOUSE SKID MOUNTED BOOSTER PUMP STATION	JUNCTION BOX JC0104A AT BASE OF RESERVOIR	3/4"	2X 2-C, 1-TP, #18 AWG, OS	* 3	
S0103A	JUNCTION BOX JC0104A AT BASE OF RESERVOIR	[01 LT 01], LEVEL TRANSDUCER (RESERVOIR)	3/4"	2X 2-C, 1-TP, #18 AWG, OS	* 3	

LIGHTING SCHEDULE

MNEMONIC	TECHNOLOGY	APPLICATION	EM *	DESCRIPTION	MANUFACTURER		INPUT (VA)	VOLTAGE	COMMENTS
					NAME	MODEL			
L1	LED	WET, CEILING/OVERHEAD	YES	8" X 48", RECTANGULAR	HOLOPHANE	EMS L48 4000LM BSL722	24	120 VAC, 1 PH	4067 LUMENS, 40K CRI, SPREAD DISTRIBUTION, EMERGENCY BATTERY BACKUP
WL1	LED	WET, WALL-MOUNT, BUILDING	NO	ARCHITECTURAL WALL, SURFACE, LOW-LEVEL, INVERTED, FLOODLIGHT, 18W.	COOPER	XTOR CROSSTOUR	18	120 VAC, 1 PH	4000 K COLOR, 2103 LUMENS, 70 CRI, LOW-PROFILE.

ALL FIXTURES ARE "ORIGINAL".

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

Gray & Osborne, Inc.
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1130 RAINIER AVENUE SOUTH, SUITE 300
SEATTLE, WASHINGTON 98144 • (206) 284-0860

DATE: SEPT 2023 | DRAWN: PEB | CHECKED: DAC | APPROVED: JRN

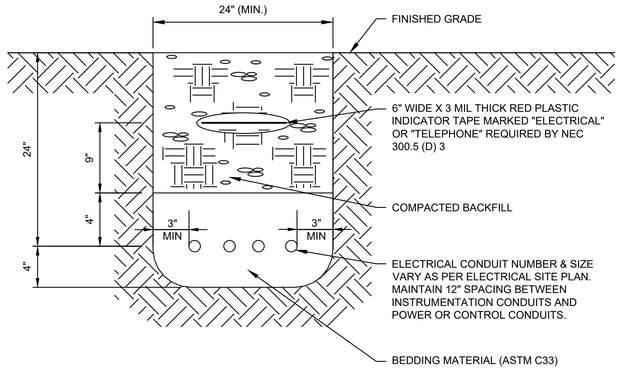
No.	REVISION	DATE	APPD

JASON R. NEWQUIST — STATE OF WASHINGTON — 21568 — PROFESSIONAL ENGINEER

MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
CABLE AND CONDUIT SCHEDULE, LIGHT FIXTURE SCHEDULE

SHEET: EC-1
OF: 1
JOB NO.: 21568
DWG: E_CCS

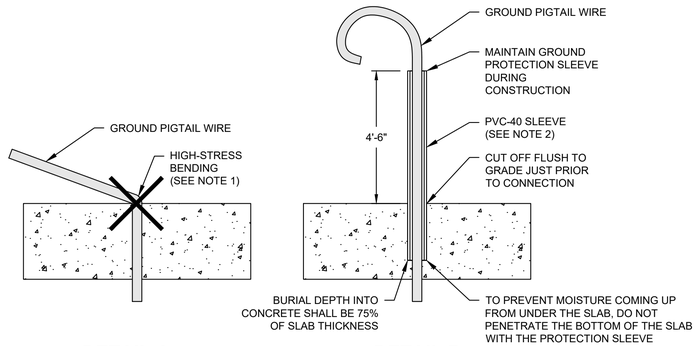
M:\Mason County PUD 1\21568.00 Vuecrest Reservoir\01 Design\Planset\Electrical\E_CCS.dwg, 9/29/2023 3:00 PM, JASON NEWQUIST



NOTE:

1. SPACING BETWEEN CONDUITS AND OTHER UTILITIES SHALL BE IN COMPLIANCE WITH THE UTILITIES OR 24 INCHES MINIMUM, WHICHEVER IS THE GREATER.

1 TYP **ELECTRICAL TRENCHING DETAIL**
NOT TO SCALE

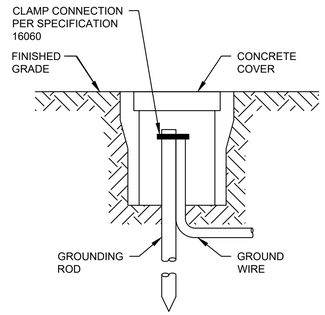


DETAIL A **DETAIL B**

NOTES:

1. BARE COPPER GROUND WIRES SHALL NOT PENETRATE DIRECTLY OUT OF CONCRETE FLOORS. CONSTRUCTION ACTIVITIES CAN CAUSE TIGHT WIRE BENDING AND POSSIBLE GROUND WIRE DEGRADATION. DETAIL "A" IS NOT ACCEPTABLE.
2. PROTECT THE GROUND PIGTAIL DURING CONSTRUCTION WITH A PVC-40 SLEEVE INSTALLED AS DESCRIBED IN DETAIL "B".
3. JUST PRIOR TO SETTING EQUIPMENT OVER, OR MAKING THE FINAL CONNECTION OF THE GROUND WIRE, CUT OFF THE SLEEVE FLUSH TO THE FLOOR TAKING CARE NOT TO CUT INTO THE GROUND WIRE.

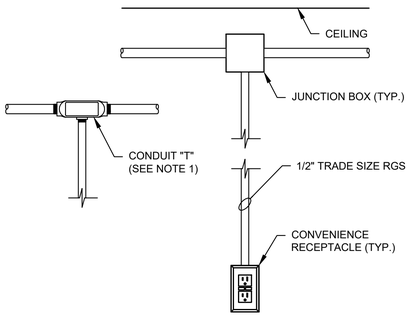
2 TYP **GROUND PIGTAIL CONSTRUCTION PROTECTION SLEEVE DETAIL**
NOT TO SCALE



NOTES:

1. GROUND ROD BOX SHALL BE FOGTITE GROUND ROD BOX WITH ROAD RATING EQUAL TO THE DEVICE OR STRUCTURE IT SUPPORTS (H20 MINIMUM).

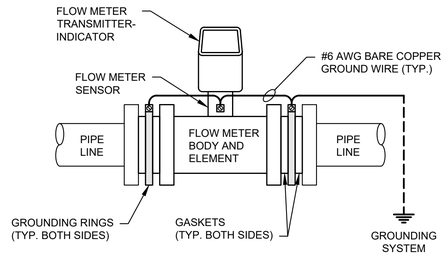
3 TYP **GROUND ROD BOX DETAIL**
NOT TO SCALE



NOTES:

1. WHERE SPLICING FOR CONVENIENCE RECEPTACLE IS PERFORMED IN A CONDUIT BODY THE CONDUIT BODY SHALL BE SIZED PER THE NEC AND HAVE ITS VOLUME MARKED BY THE MANUFACTURER COMPLIANT TO NEC 314.16(C).

4 TYP **JUNCTION BOX AND RECEPTACLE DETAIL**
NOT TO SCALE



NOTES:

1. CONTRACTOR SHALL PROVIDE AND INSTALL INSULATING GASKETS AND MANUFACTURER'S GROUND RINGS TO EACH SIDE OF THE FLOW METER BODY. THE GROUND RINGS AND FLOW METER SENSOR SHALL BE TIED TO THE SYSTEM GROUND WITH A #6 AWG GROUNDING WIRE. CONNECT AS SHOWN OR PER MANUFACTURER'S REQUIREMENTS.
2. PROVIDED AS PART OF SKID MOUNTED BOOSTER PUMP STATION [01 SMBS 01].

5 TYP **FLOW METER GROUNDING DETAIL**
NOT TO SCALE

0 1" 2"
TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

Gray & Osborne, Inc.
CONSULTING ENGINEERS
1130 RAINIER AVENUE SOUTH, SUITE 300
SEATTLE, WASHINGTON 98144 • (206) 284-3880

DATE:	SEPT 2023
DRAWN:	PEB
CHECKED:	DAC
APPROVED:	JRN

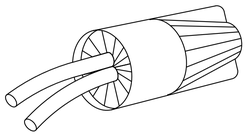
No.	REVISION	DATE	APPD

JASON R. NEWQUIST — STATE OF WASHINGTON — 15520 — REGISTERED PROFESSIONAL ENGINEER

MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
ELECTRICAL DETAILS

SHEET: **ED-1**
OF: **2**
JOB NO.: 21568
DWG: E_DET

M:\Mason County PUD 1\21568.00 Vuecrest Reservoir\01 Design\Planset\Electrical\E_DET.dwg, 9/29/2023 3:00 PM, JASON NEWQUIST



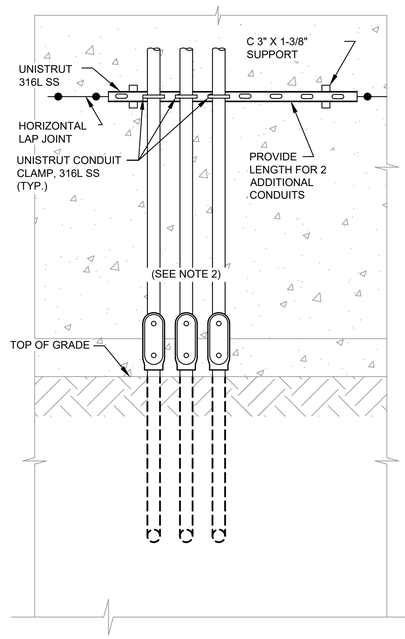
NOTES:

1. PROVIDE WATER-TIGHT CONNECTOR FOR CONTROL AND INSTRUMENTATION CONDUCTOR SPLICING. INCLUDE A STRAIN RELIEF ON CONTROL CONDUCTOR SPLICE CONNECTORS. REFERENCE SPECIFICATION 16120 FOR SPECIFIC REQUIREMENTS.

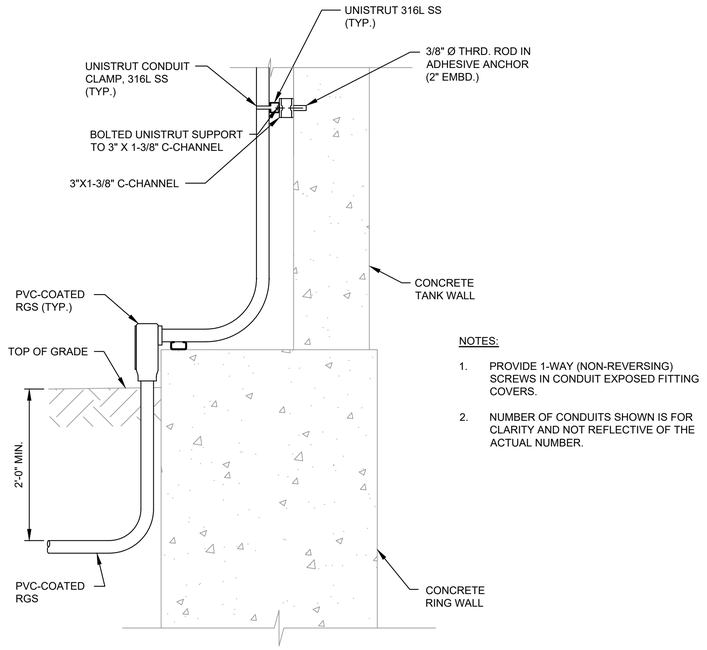
2. SUBMERGE THE SPLICE AND TEST FOR WATER-TIGHT INTEGRITY.

1 TYP CONTROL AND INSTRUMENTATION CONDUCTOR WATER-TIGHT SPLICE DETAIL

NOT TO SCALE



ELEVATION



SECTION

NOTES:

1. PROVIDE 1-WAY (NON-REVERSING) SCREWS IN CONDUIT EXPOSED FITTING COVERS.

2. NUMBER OF CONDUITS SHOWN IS FOR CLARITY AND NOT REFLECTIVE OF THE ACTUAL NUMBER.

2 TYP CONCRETE RESERVOIR CONDUIT MOUNTING DETAIL

SCALE: 1"=1'-0"

0 1" 2"

TWO INCHES AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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SEATTLE, WASHINGTON 98144 • (206) 284-3880

DATE: SEPT 2023	DRAWN: PEB	CHECKED: DAC	APPROVED: JRN

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MASON COUNTY PUD 1
MASON COUNTY WASHINGTON
VUECREST RESERVOIR AND BOOSTER PUMP STATION
ELECTRICAL DETAILS

SHEET: **ED-2**
OF: **2**

JOB NO.: 21568
DWG: E_DET