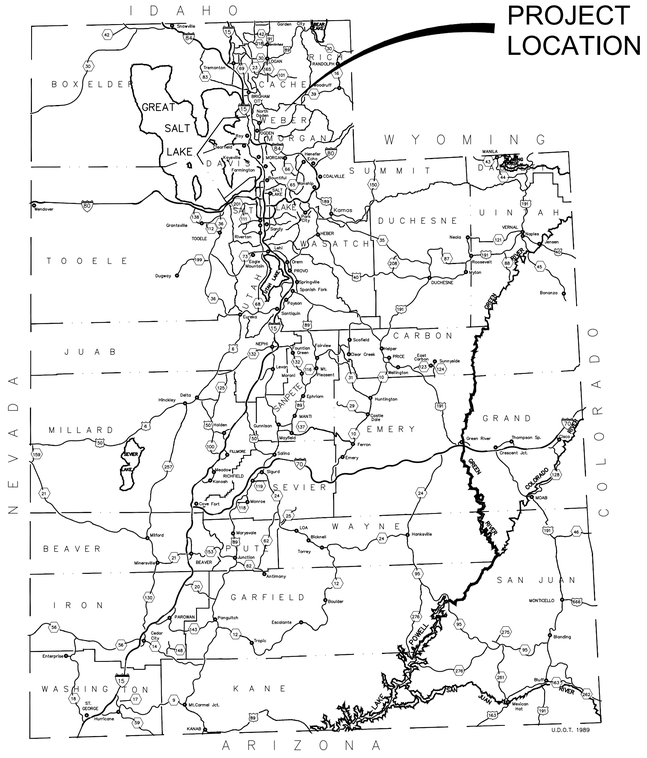
OSPREY RANCH

OSPREY AND BROWN LIFT STATION DESIGN

JUNE 2023

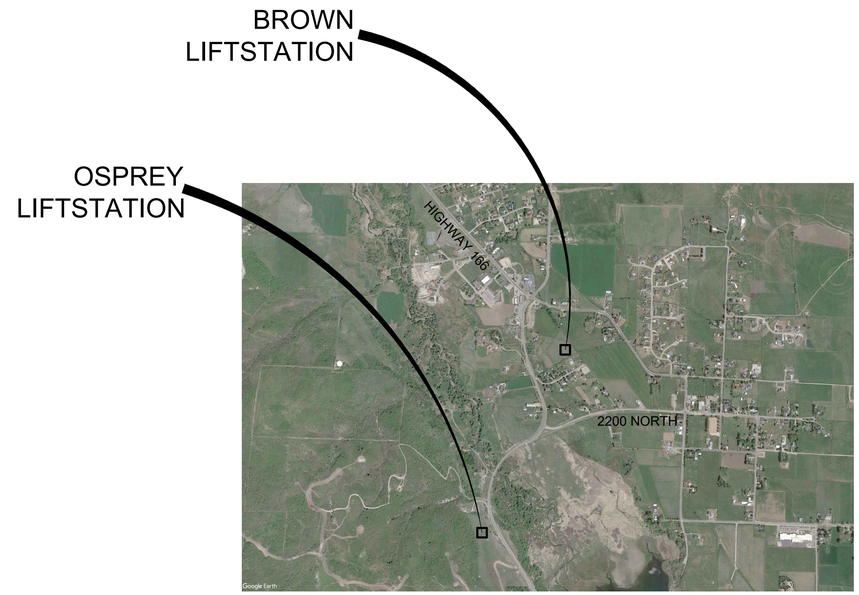
DESIGN DRAWINGS

CONFORMED SET



LOCATION MAP

REGISTERED PROFESSIONAL ENGINEER
No.318716
BRADLY M. RASMUSSEN
06-22-2023
STATE OF UTAH



VICINITY MAP

AQUA ENGINEERING
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING INDEX

DWG#	SHT#	GENERAL
G001	1	COVER
G002	2	INDEX
G003	3	LEGEND, SYMBOLS, AND ABBREVIATIONS
		CIVIL
01C201	4	OVERALL SITE PLAN
01C202	5	OSPREY SITE PLAN
01C203	6	BROWN SITE PLAN
01C901	7	CIVIL
		OSPREY GENERATOR BUILDING
10A201	8	ARCHITECTURAL PLAN
10A301	9	ARCHITECTURAL ELEVATIONS
10A302	10	ARCHITECTURAL ELEVATIONS
10A401	11	ARCHITECTURAL SECTION
10S201	12	STRUCTURAL PLAN
10S202	13	STRUCTURAL ROOF PLAN
10S301	14	STRUCTURAL ELEVATION
10S401	15	STRUCTURAL SECTION
		GRINDER STATION
12M201	16	MECHANICAL PLAN
12M401	17	MECHANICAL SECTIONS
		PIGGING MANHOLE
16M201	18	MECHANICAL PLAN
16M401	19	MECHANICAL SECTION
		BROWN GENERATOR BUILDING
20A201	20	ARCHITECTURAL PLAN
20A301	21	ARCHITECTURAL ELEVATIONS
20A302	22	ARCHITECTURAL ELEVATIONS
20A401	23	ARCHITECTURAL SECTION
20S201	24	STRUCTURAL PLAN
20S202	25	STRUCTURAL ROOF PLAN
20S301	26	STRUCTURAL ELEVATION
20S401	27	STRUCTURAL SECTION
		BROWN LIFT STATION
24M201	28	MECHANICAL PLAN
24M401	29	MECHANICAL SECTION
24M402	30	MECHANICAL SECTION
		SCHEDULES
80M801	31	MECHANICAL - PUMP - VALVE - HVAC
		DETAILS
91C901	32	CIVIL
91C902	33	CIVIL
92A901	34	ARCHITECTURAL
93S901	35	STRUCTURAL
93S902	36	STRUCTURAL
93S903	37	STRUCTURAL
93S904	38	STRUCTURAL
93S905	39	STRUCTURAL
93S906	40	STRUCTURAL
94M901	41	MECHANICAL
		INSTRUMENTATION - GENERAL
I001	42	INSTRUMENTATION LEGEND
I002	43	INSTRUMENTATION SYMBOLS
		INSTRUMENTATION - P&ID
I101	44	OSPREY
I102	45	BROWN

DWG#	SHT#	ELECTRICAL - GENERAL
E001	46	NOTES & SYMBOLS
		ELECTRICAL - OSPREY
E101	47	OSPREY SITE PLAN
E102	48	OSPREY GENERATOR BUILDING ELECTRICAL PLAN
		ELECTRICAL - BROWN
E201	49	BROWN SITE PLAN
E202	50	BROWN GENERATOR BUILDING ELECTRICAL PLAN
E203	51	BROWN LIFT STATION ELECTRICAL PLAN
		ELECTRICAL - POWER DISTRIBUTION
E501	52	ONELINE DIAGRAM
E502	53	CALCULATION & SCHEDULE
		ELECTRICAL - VFD SCHEMATIC
E601	54	VFD CONTROL SCHEMATIC
E602	55	OSPREY LEVEL CONTROLS & RTU SCHEMATIC
E603	56	OSPREY LS LCP PANEL LAYOUT
E604	57	BROWN LEVEL CONTROLS & RTU SCHEMATIC
E605	58	BROWN LS LCP PANEL LAYOUT
		ELECTRICAL - CONDUITS
E801	59	CONDUIT DEVELOPMENT
E802	60	CONDUIT & INSTRUMENT SCHEDULE 1
E803	61	CONDUIT & INSTRUMENT SCHEDULE 2
		ELECTRICAL - DETAILS
E901	62	ELECTRICAL
E902	63	ELECTRICAL
E903	64	ELECTRICAL

REGISTERED PROFESSIONAL ENGINEER
No.318716
BRADLY M. RASMUSSEN
06-22-2023
STATE OF UTAH

DRAWING IS TO SCALE
IF BAR MEASURES:
1" = FULL SCALE
1/2" = HALF SCALE
0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
C	06/14/2023	WMS	BDP	BMR

REVISIONS

OSPREY RANCH
EDEN, UTAH
LIFT STATION DESIGN

GENERAL
INDEX

AQUA ENGINEERING
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.
G002

SHEET

C:\USERS\EUNGEOL.KIM\ACCDOCS\AQUA ENGINEERING\001999.C - OSPREY RANCH PER\PROJECT FILES\000 GENERAL\000-G002 INDEX.DWG
6/20/2023

CROSS REFERENCING SYSTEM

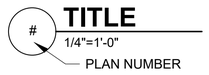
VIEW TITLES

1. PLAN TITLES AND ENLARGED PLAN TITLE:

SINGLE PLAN VIEW ON DRAWING

TITLE
1/4"=1'-0"

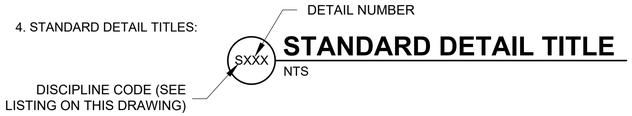
MULTIPLE PLAN VIEWS ON DRAWING



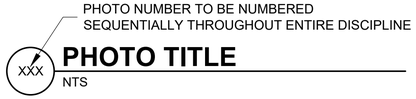
2. SECTION OR ELEVATION TITLES:

3. DETAIL TITLES:

4. STANDARD DETAIL TITLES:

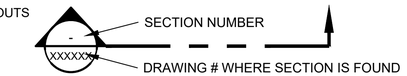


5. PHOTO TITLES:



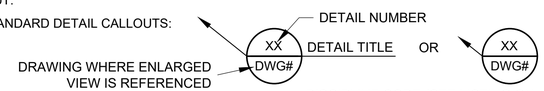
VIEW REFERENCE/CALLOUTS

1. SECTION CUTS:

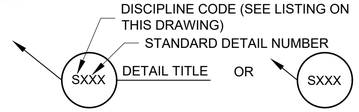


2. DETAIL CALLOUT:

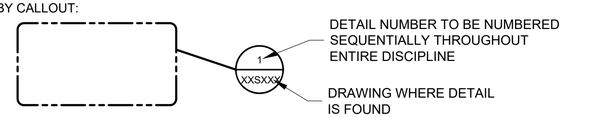
A. NON-STANDARD DETAIL CALLOUTS:



B. STANDARD DETAIL CALLOUTS:



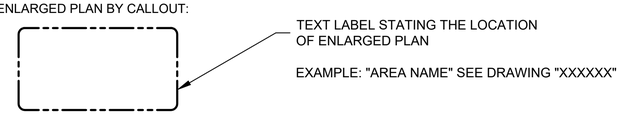
C. BY CALLOUT:



D. BY NOTES: "SEE DETAIL B/10S401"

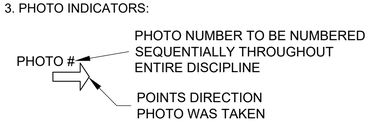
"B" IS DETAIL REFERENCE LETTER. "XXSXX" IS DRAWING WHERE DETAIL IS LOCATED

E. ENLARGED PLAN BY CALLOUT:

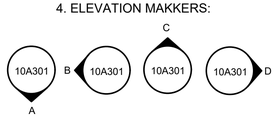


NOTE: IF PLAN AND SECTION (OR DETAIL REFERENCE AND DETAIL) ARE SHOWN ON THE SAME DRAWING, THE DRAWING NUMBER IS REPLACED WITH A LINE.

3. PHOTO INDICATORS:



4. ELEVATION MAKKERS:



DRAWING NUMBERING SYSTEM

TABLE 1 - FACILITY /PROCESS AREA

CODE	FACILITY/PROCESS AREAS
	GENERAL
01	CIVIL
10	OSPREY GENERATOR BUILDING
14	OSPREY LIFT STATION
16	PIGGING MANHOLE
20	BROWN GENERATOR BUILDING
24	BROWN LIFT STATION
80	CIVIL SCHEDULES
81	ARCHITECTURAL SCHEDULES
82	STRUCTURAL SCHEDULES
83	MECHANICAL SCHEDULES
84	PLUMBING SCHEDULES
85	HVAC SCHEDULES
91	CIVIL DETAILS
92	ARCHITECTURAL DETAILS
93	STRUCTURAL DETAILS
94	MECHANICAL DETAILS
95	HVAC DETAILS
	INSTRUMENTATION
	ELECTRICAL

TABLE 2 - DISCIPLINE CODES

CODE	DISCIPLINE
G	GENERAL
C	CIVIL
A	ARCHITECTURAL
S	STRUCTIONAL
M	MECHANICAL
H	HVAC
P	PLUMBING
I	INSTRUMENTATION
E	ELECTRICAL
Optional	
F	FIRE PROTECTION

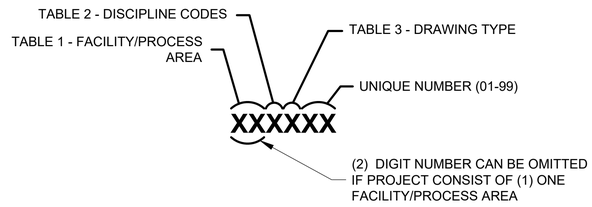


TABLE 3 - DRAWING TYPES

NUMBER	GENERAL, CIVIL, ARCHITECTURAL, STRUCTURAL, MECHANICAL, HVAC, ELECTRICAL	INSTRUMENTATION
0	GENERAL, SYMBOLS, LEGENDS, ABBREVIATIONS, NOTES, ETC.	
1	DEMOLITION / EXISTING / TEMPORARY	PROCESS AND INSTRUMENTATION DIAGRAMS
2	SITE AND/OR FACILITY PLANS	NETWORK DIAGRAMS
3	EXTERIOR ELEVATIONS	WIRING DIAGRAMS
4	SECTIONS	DISCIPLINE SPECIFIC / USER CHOICE
5	PERSPECTIVES / ISOMETRICS	DISCIPLINE SPECIFIC / USER CHOICE
6	DISCIPLINE SPECIFIC / USER CHOICE	DISCIPLINE SPECIFIC / USER CHOICE
7	DISCIPLINE SPECIFIC / USER CHOICE	DISCIPLINE SPECIFIC / USER CHOICE
8	SCHEDULES	SCHEDULES
9	DETAILS	DETAILS

TAG INDICATOR

EQUIPMENT TAGGING

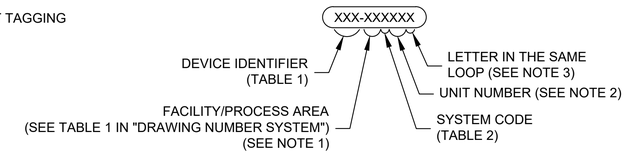
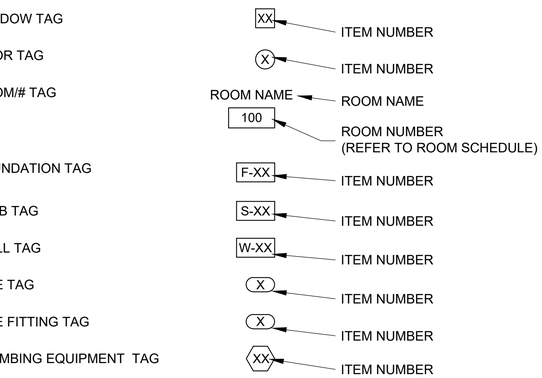


TABLE 1

CODE	DEVICE
CV	CHECK VALVE
FV	AUTOMATIC VALVE
G	GATE
H	HVAC
HV	HAND VALVE
M	METER
ME	MECHANICAL EQUIPMENT
P	PUMP
SPV	SAMPLE VALVE
SV	SOLENOID VALVE

TABLE 2

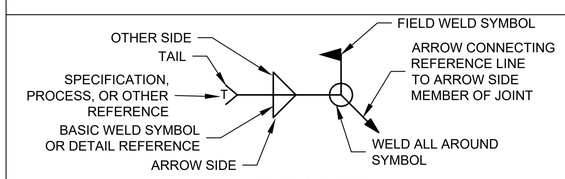
LOOP NUMBER	
0	GENERAL AND ANCILLARY SYSTEMS
1-6	PROCESS SYSTEMS
7	PLUMBING AND FIRE PROTECTION SYSTEMS
8	HVAC SYSTEMS
9	ELECTRICAL AND NETWORK SYSTEMS



NOTES:

1. IF THE PROJECT DOES NOT HAVE AREAS THEN THE "FACILITY/PROCESS AREA" MAY BE DROPPED FROM THE TAGGING EQUIPMENT.
2. UNIT NUMBERS ARE INCREMENTAL AND UNIQUE TO EACH CONTROL LOOP. IF THE PROJECT HAS LARGE AREAS AND THE 3 DIGIT NUMBERS (000 TO 999) ISN'T ENOUGH LOOP NUMBERS.
3. LETTER (A - Z) IS THE SUFFIX WHERE THERE ARE MULTIPLE PIECES OF THE SAME TYPE OF EQUIPMENT WITHIN THE SAME LOOP

MISCELLANEOUS



WELDING SYMBOL

B - BUTT JOINT
C - CORNER JOINT
T - T-JOINT
BC - BUTT OR CORNER JOINT
P - PARTIAL JOINT PENETRATION

PLAN NORTH

MATCH LINE
SEE SHEET XXXXXX

NEW/PROPOSED LINEWORK

EXISTING LINEWORK

FUTURE LINEWORK

REGISTERED PROFESSIONAL ENGINEER
No.318716
BRADLY M. RASMUSSEN
06-22-2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE, 1/2" = HALF SCALE

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
C	06/14/2023	WMS	BDP	BMR

REVISIONS

OSPREY RANCH
EDEN, UTAH
LIFT STATION DESIGN

GENERAL LEGEND

AQUA ENGINEERING
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.
G003

SHEET

5/11/2023 C:\USERS\BRETT.PRATT\DC\ACCDOCS\AQUA ENGINEERING\001999.C - OSPREY RANCH PER\PROJECT FILES\000 GENERAL\000-G003 - LEGEND.DWG

REGISTERED PROFESSIONAL ENGINEER
No. 318716
BRADLY M. RASMUSSEN
06-23-2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
C	06/14/2023	WMS	DCH	BMR

REVISIONS

OSPREY RANCH

EDEN, UTAH

LIFT STATION DESIGN

CIVIL

OVERALL SITE PLAN

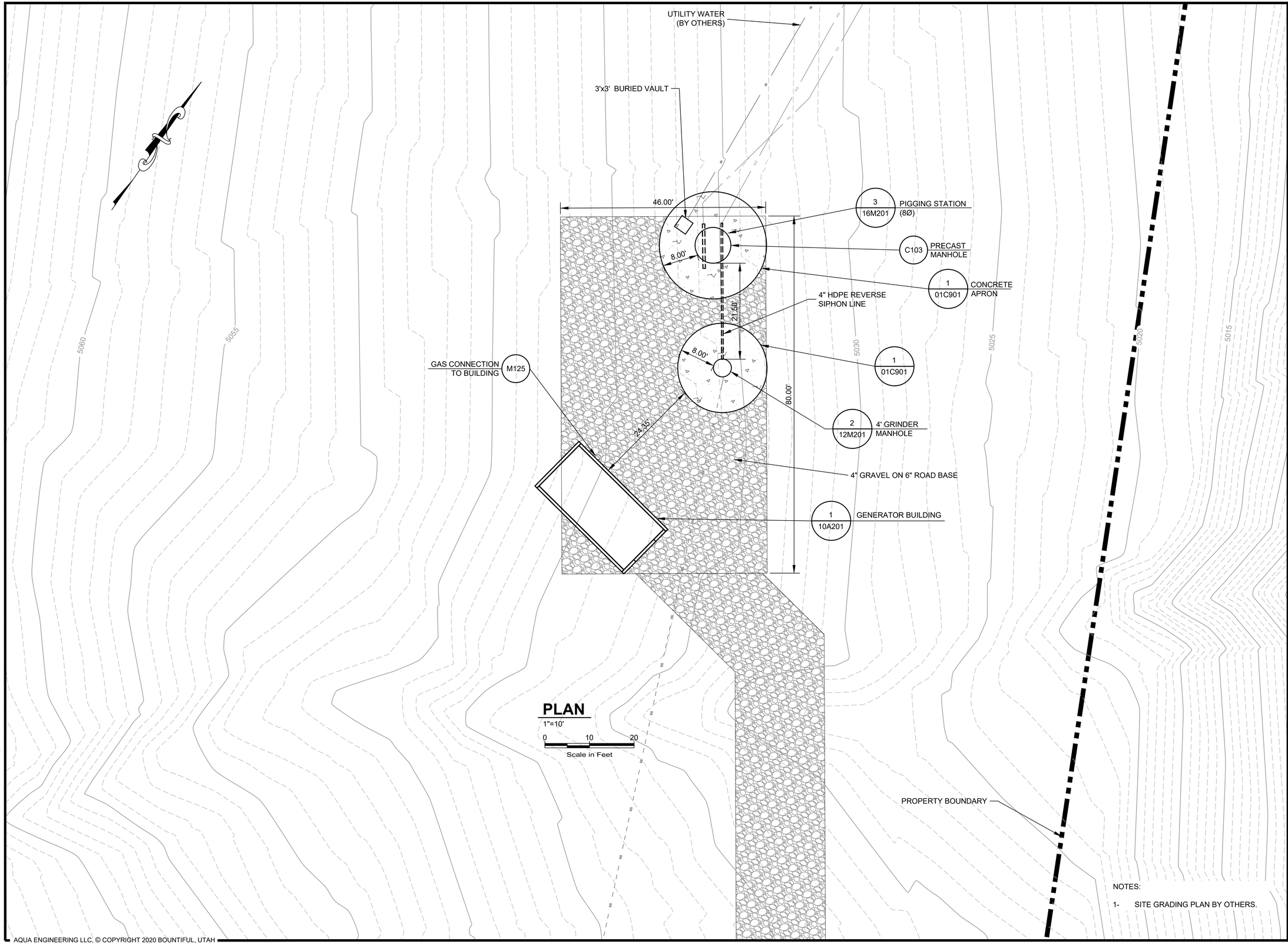
AQUA ENGINEERING
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

01C201

SHEET

6/22/2023 C:\USERS\DEREK.HYDE\DC\ACCDOCS\AQUA ENGINEERING\001999.C - OSPREY RANCH I PER\PROJECT FILES\001 SITE CIVIL\XREF\BROWN SEWER LIFT STATION-AQUA.DWG



NOTES:

1- SITE GRADING PLAN BY OTHERS.

REGISTERED PROFESSIONAL ENGINEER
No. 318716
BRADLY M. RASMUSSEN
06-22-2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
C	06/14/2023	WMS	DCH	BMR

REVISIONS

OSPREY RANCH
EDEN, UTAH
LIFT STATION DESIGN

OSPREY SEWER LIFT STATION
CIVIL
SITE PLAN

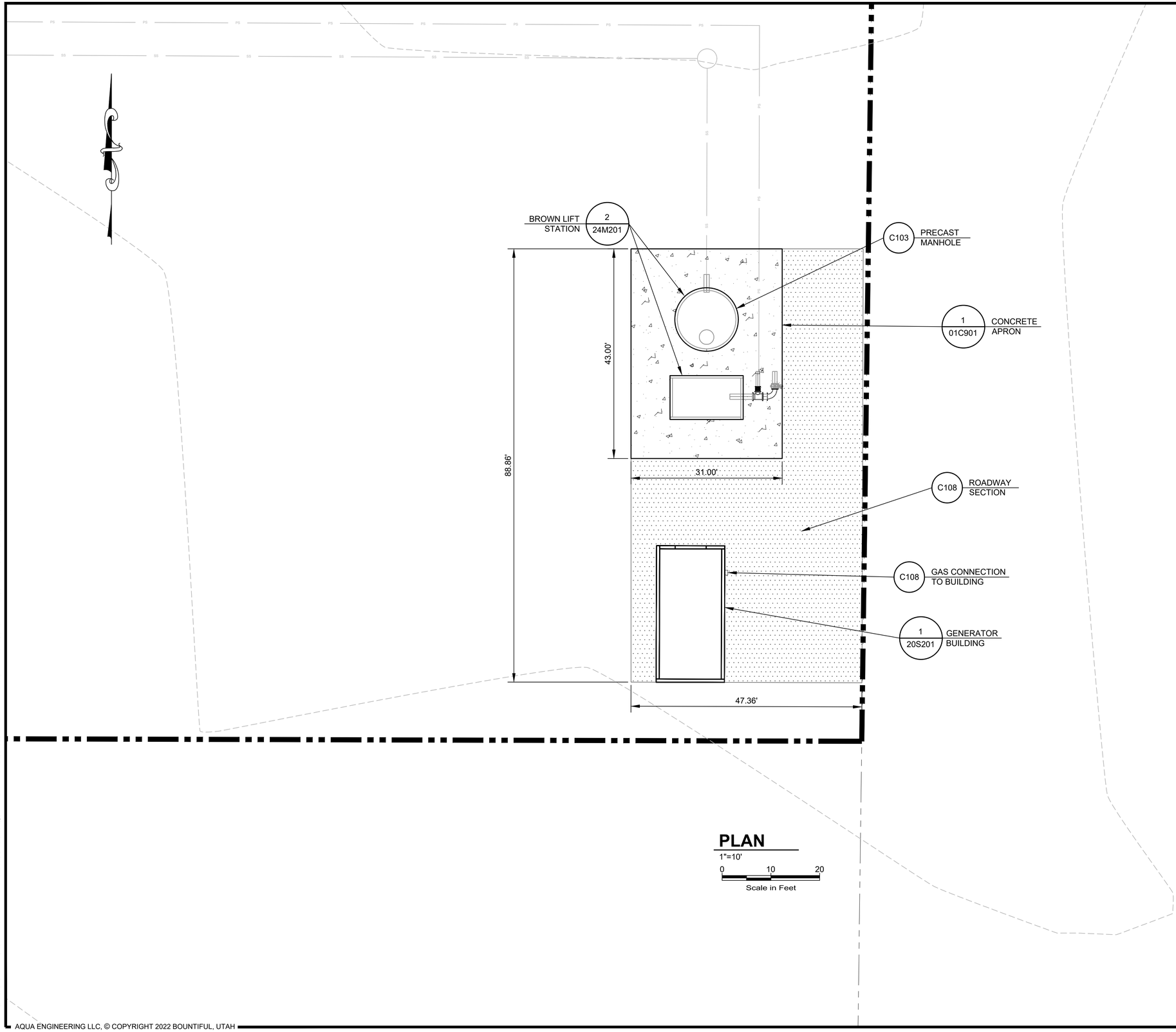
AQUA ENGINEERING
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

01C202

SHEET

6/14/2023 C:\USERS\DEREK.HYDE\DC\ACCDOCS\AQUA ENGINEERING\001999.C - OSPREY RANCH PER\PROJECT FILES\001 SITE CIVIL\011-01C202 - OSPREY SEWER LIFT STATION.DWG



PLAN

1"=10'

0 10 20

Scale in Feet

NOTES:

1- SITE GRADING PLAN BY OTHERS.

REGISTERED PROFESSIONAL ENGINEER
No.318716
BRADLY M. RASMUSSEN
06-22-2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
C	06/14/2023	WMS	DCH	BMR

REVISIONS

OSPREY RANCH
EDEN, UTAH
LIFT STATION DESIGN

BROWN SEWER LIFT STATION
CIVIL
SITE PLAN

AQUA ENGINEERING
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

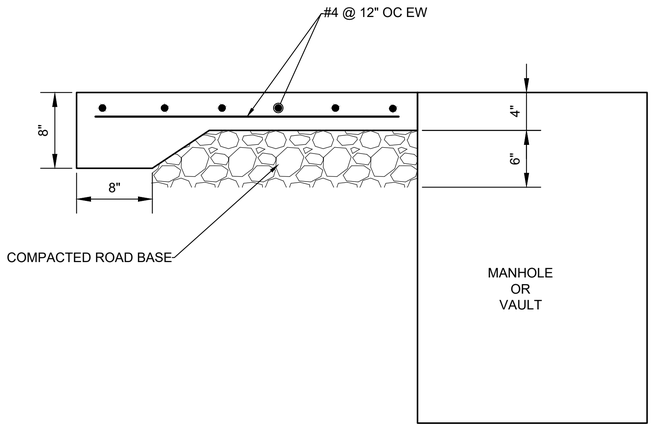
DRAWING NO.

01C203

SHEET

C:\USERS\DEREK.HYDE\DC\ACCDOCS\AQUA ENGINEERING\001999.C - OSPREY RANCH PER\PROJECT FILES\001 SITE CIVIL\011-01C203 - BROWN SEWER LIFT STATION.DWG

6/14/2023



1 **CONCRETE APRON**

1 1/2"=1'-0"

0 1 2

Scale in Feet

REGISTERED PROFESSIONAL ENGINEER
No. 318716
BRADLY M. RASMUSSEN
06-22-2023
STATE OF UTAH

DRAWING IS TO SCALE
IF BAR MEASURES:
1" = FULL SCALE
1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
C	06/14/2023	WMS	CML	BMR

REVISIONS

OSPREY RANCH

EDEN, UTAH

LIFT STATION DESIGN

OSPREY RANCH PROJECT

CIVIL

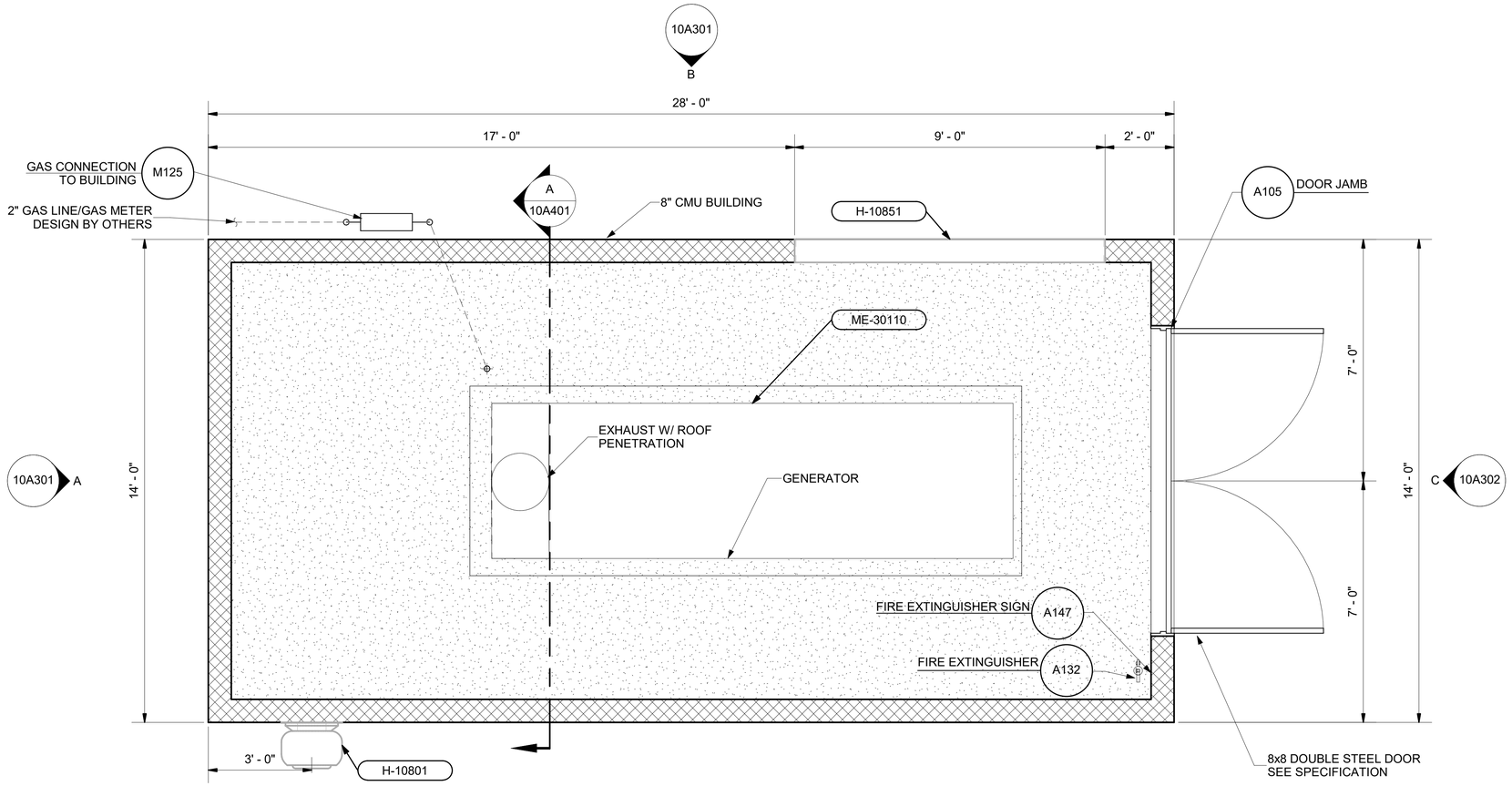
DETAILS

AQUA
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

01C901

SHEET



1 **ARCHITECTURAL PLAN**

1/2" = 1'-0"

0 2 4

Scale in Feet

REGISTERED PROFESSIONAL ENGINEER
No.318716
BRADLY M. RASMUSSEN
06-22-2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
C	06/14/2023	WMS	CML	BMR

REVISIONS

NO.	DATE	DESIGN	DRAWN	CHECKED

OSPREY RANCH
EDEN, UTAH
LIFT STATION DESIGN

OSPREY GENERATOR BUILDING
ARCHITECTURAL
PLAN

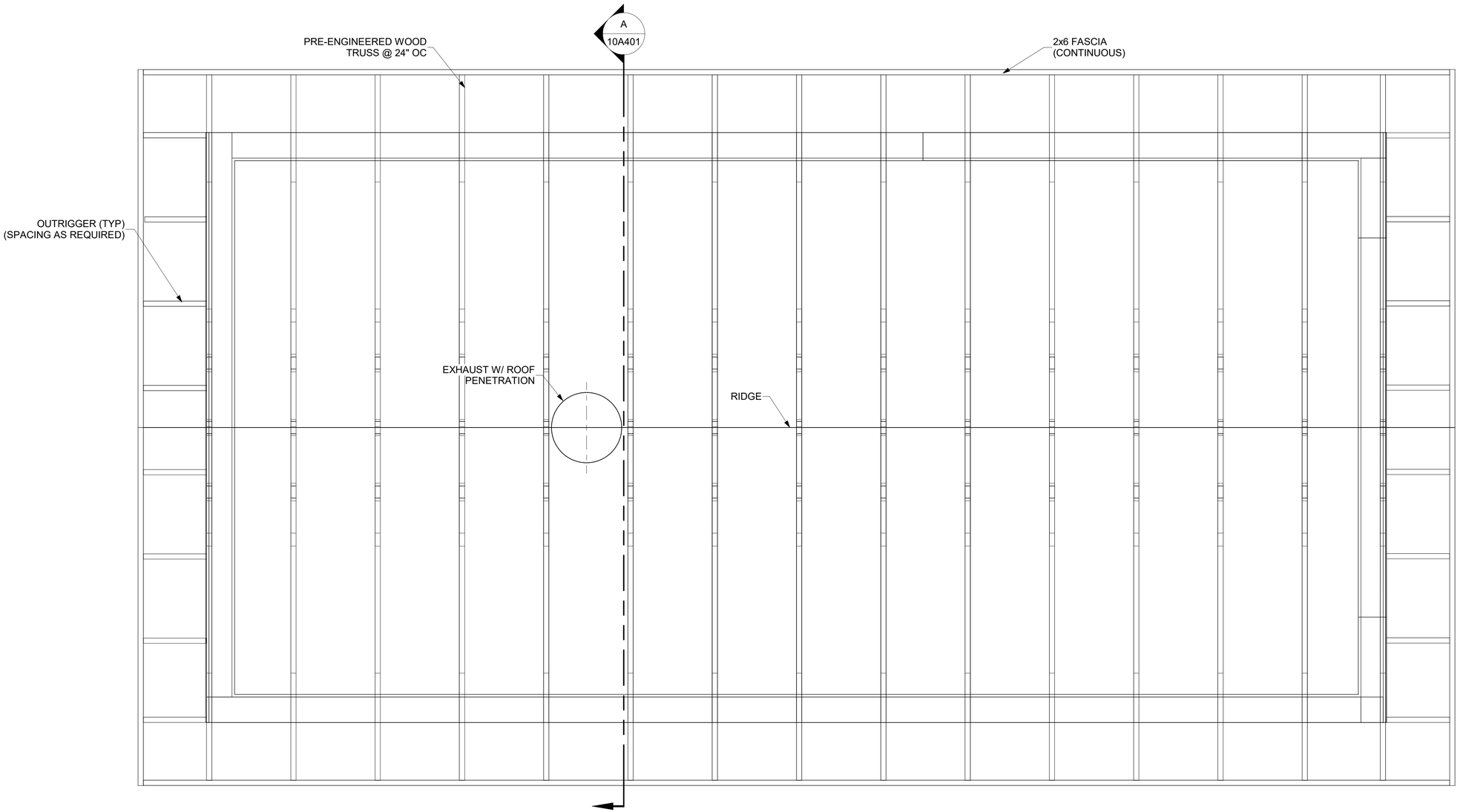
AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

10A201

SHEET

6/16/2023 10:49:49 AM BIM 360://001999.C - Osprey Ranch PER/OSPREY GENERATOR BLDG-V21.rvt



JOINT DESIGN CRITERIA

DESIGN LOAD:	20 PSF
ROOF LIVE LOAD:	20 PSF
ROOF SNOW LOAD:	57 PSF
LINE LOAD DEFLECTION:	L/360

TRUSSES TO BE DESIGNED BY MANUFACTURER AND SUBMITTED TO ENGINEER ON RECORD FOR APPROVAL.

ACTUAL LOCATION AND DESIGN OF BRIDGING SHALL BE PROVIDED BY MANUFACTURER AND SUBMITTED TO ENGINEER ON RECORD PRIOR TO ERECTION OF TRUSSES.

SEE GENERAL STRUCTURAL NOTES FOR INSPECTION AND REQUIREMENTS.

ROOF PLAN

3/4" = 1'-0"

0 1 2

Scale in Feet

6/14/2023 9:54:02 AM BIM 360://001999.C - Osprey Ranch PER/OSPREY GENERATOR BLDG-V21.rvt

REGISTERED PROFESSIONAL ENGINEER
No.318716
BRADLY M. RASMUSSEN
06-22-2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
C	06/14/2023	WMS	CML	BMR

REVISIONS

NO.	DATE	DESIGN	DRAWN	CHECKED

OSPREY RANCH
EDEN, UTAH
LIFT STATION DESIGN

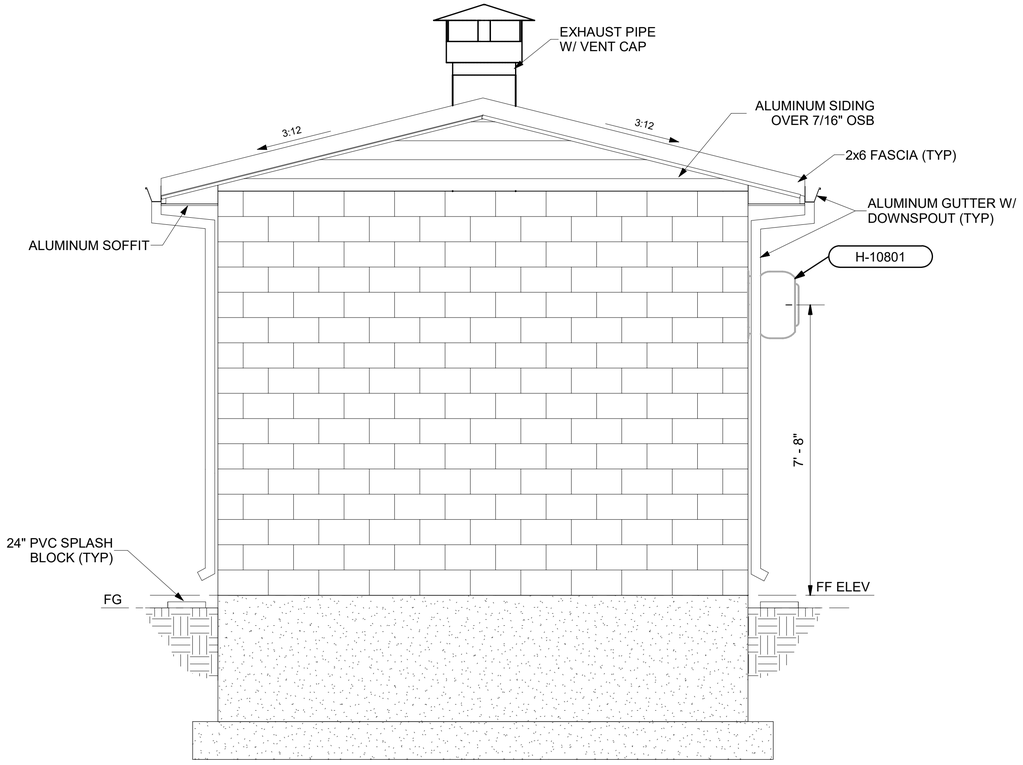
OSPREY GENERATOR BUILDING
ARCHITECTURAL
ROOF PLAN

AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

10A202

SHEET

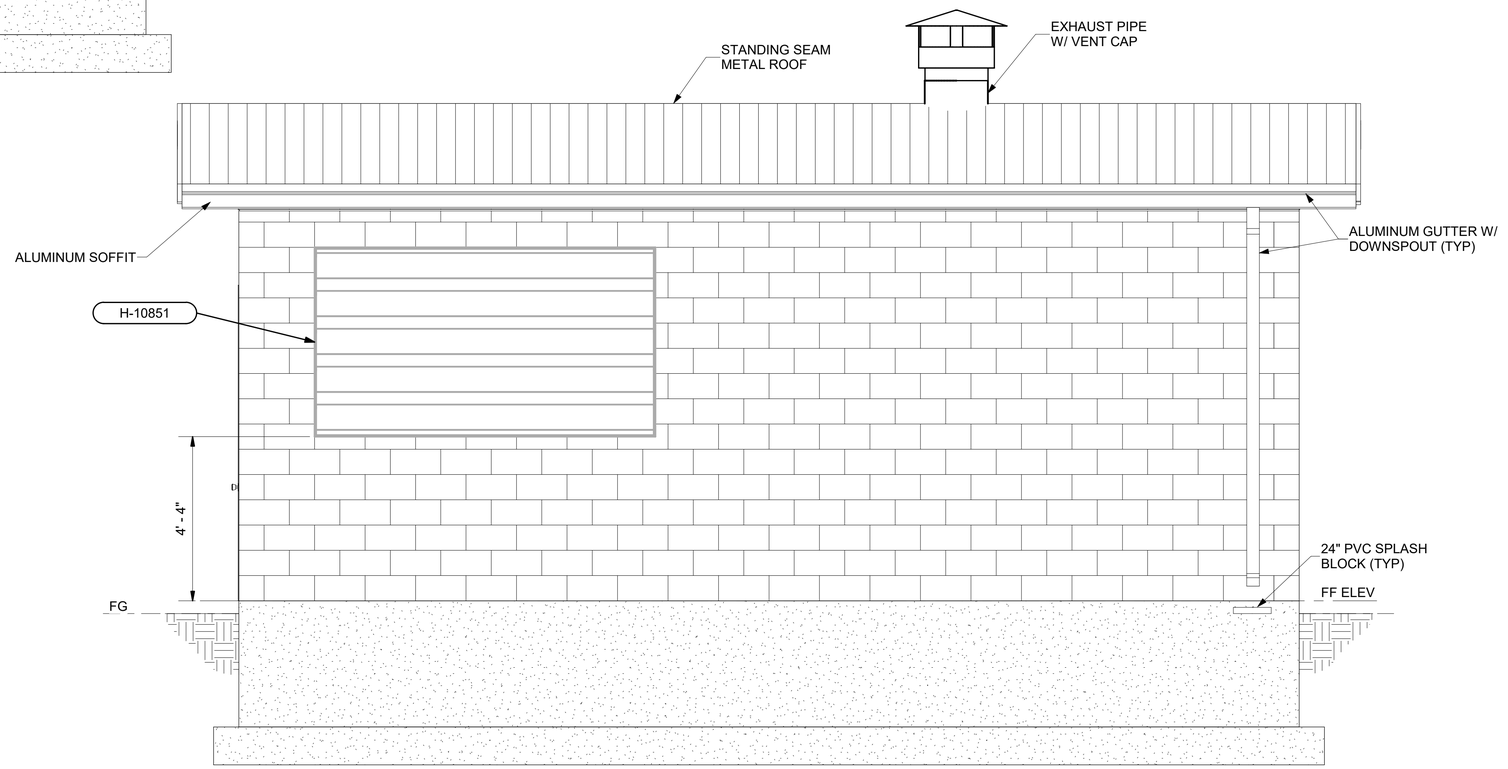


A **NORTH ELEVATION**

1/2" = 1'-0"

0 2 4

Scale in Feet



B **EAST ELEVATION**

1/2" = 1'-0"

0 2 4

Scale in Feet

REGISTERED PROFESSIONAL ENGINEER
No.318716
BRADLY M.
RASMUSSEN
06-22-2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
C	06/14/2023	WMS	CML	BMR

REVISIONS

NO.	DATE	DESIGN	DRAWN	CHECKED

OSPREY RANCH
EDEN, UTAH
LIFT STATION DESIGN

OSPREY GENERATOR BUILDING
ARCHITECTURAL
ELEVATIONS

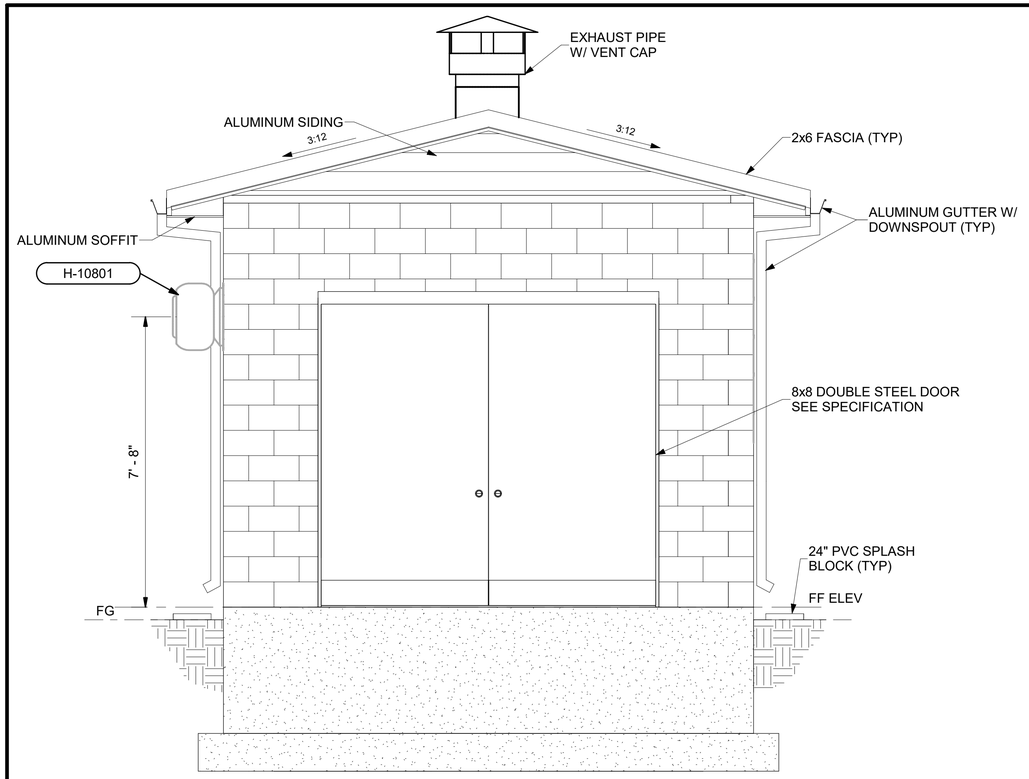
AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

10A301

SHEET

6/14/2023 12:54:02 PM BIM 360://001999.C - Osprey Ranch PER/OSPREY GENERATOR BLDG-V21.rvt

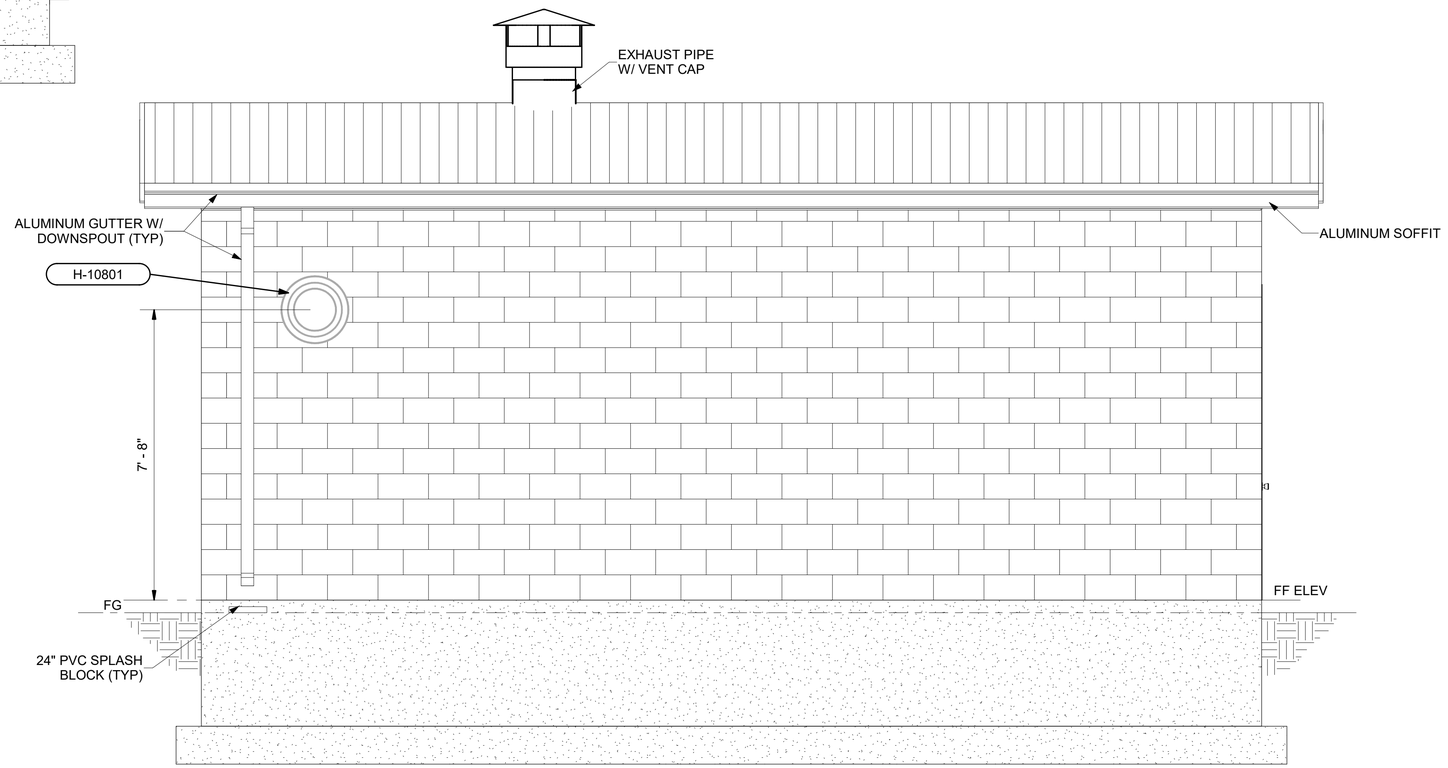


C **SOUTH ELEVATION**

1/2" = 1'-0"

0 2 4

Scale in Feet



D **WEST ELEVATION**

1/2" = 1'-0"

0 2 4

Scale in Feet

REGISTERED PROFESSIONAL ENGINEER
No.318716
BRADLY M. RASMUSSEN
06-22-2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
C	06/14/2023	WMS	CML	BMR

REVISIONS

NO.	DATE	DESIGN	DRAWN	CHECKED

OSPREY RANCH
EDEN, UTAH
LIFT STATION DESIGN

OSPREY GENERATOR BUILDING
ARCHITECTURAL
ELEVATIONS

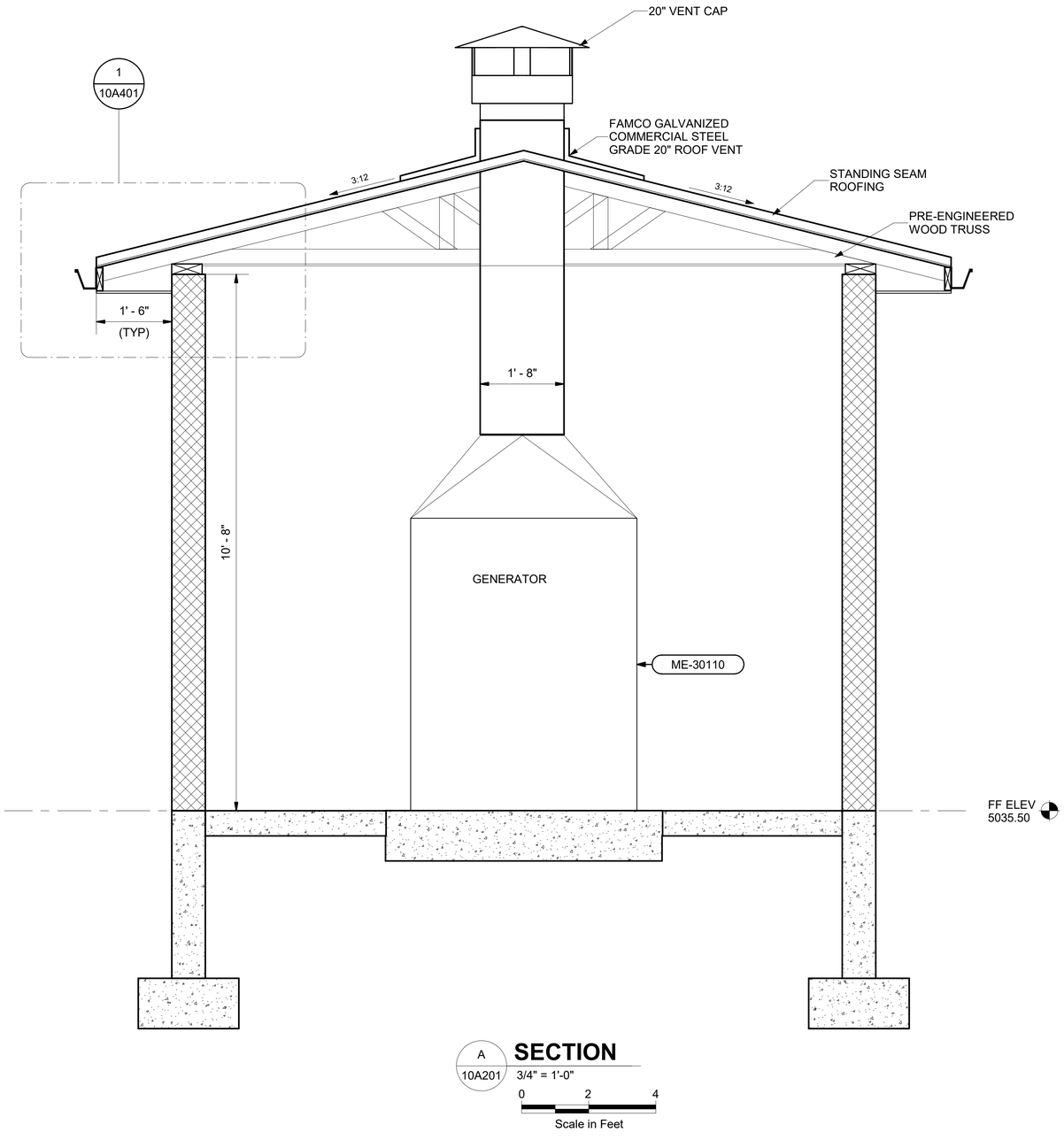
AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

10A302

SHEET

6/14/2023 12:54:40 PM BIM 360://001999.C - Osprey Ranch PER/OSPREY GENERATOR BLDG-V21.rvt

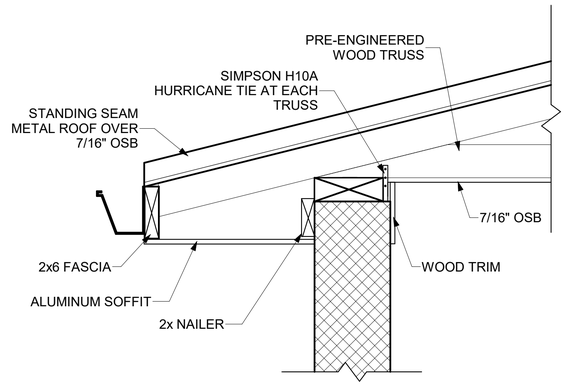


A 10A201 **SECTION**

3/4" = 1'-0"

0 2 4

Scale in Feet



1 **DETAIL**

1 1/2" = 1'-0"

0 1 2

Scale in Feet

REGISTERED PROFESSIONAL ENGINEER
No.318716
BRADLY M.
RASMUSSEN
06-22-2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
C.	06/14/2023	WMS	CML	BMR

REVISIONS

NO.	DATE	DESIGN	DRAWN	CHECKED

OSPREY RANCH
EDEN, UTAH
LIFT STATION DESIGN

OSPREY GENERATOR BUILDING
ARCHITECTURAL
SECTION

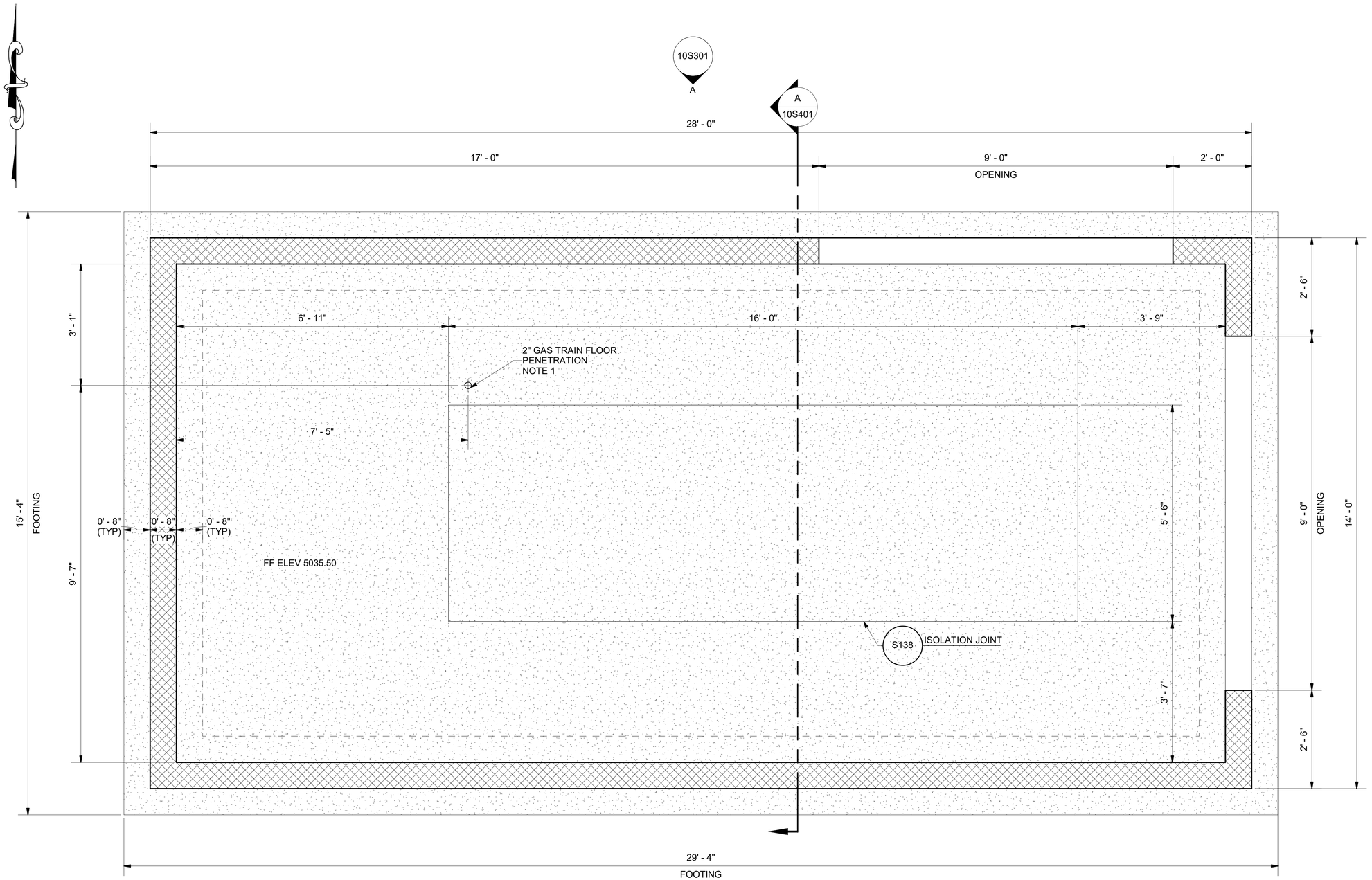
AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

10A401

SHEET

6/14/2023 9:54:04 AM BIM 360://001999.C - Osprey Ranch PER/OSPREY GENERATOR BLDG-V21.rvt



STRUCTURAL PLAN

3/4" = 1'-0"

0 2 4

Scale in Feet

NOTES:

1- FIELD VERIFY LOCATION CORRELATES WITH GENERATOR GAS CONNECTION LOCATION.

REGISTERED PROFESSIONAL ENGINEER
5252489
DARIN M. HAWKES
06/23/2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
C	04/16/2023	WMS	CML	BMR

REVISIONS

NO.	DATE	DESIGN	DRAWN	CHECKED

OSPREY RANCH
EDEN, UTAH
LIFT STATION DESIGN

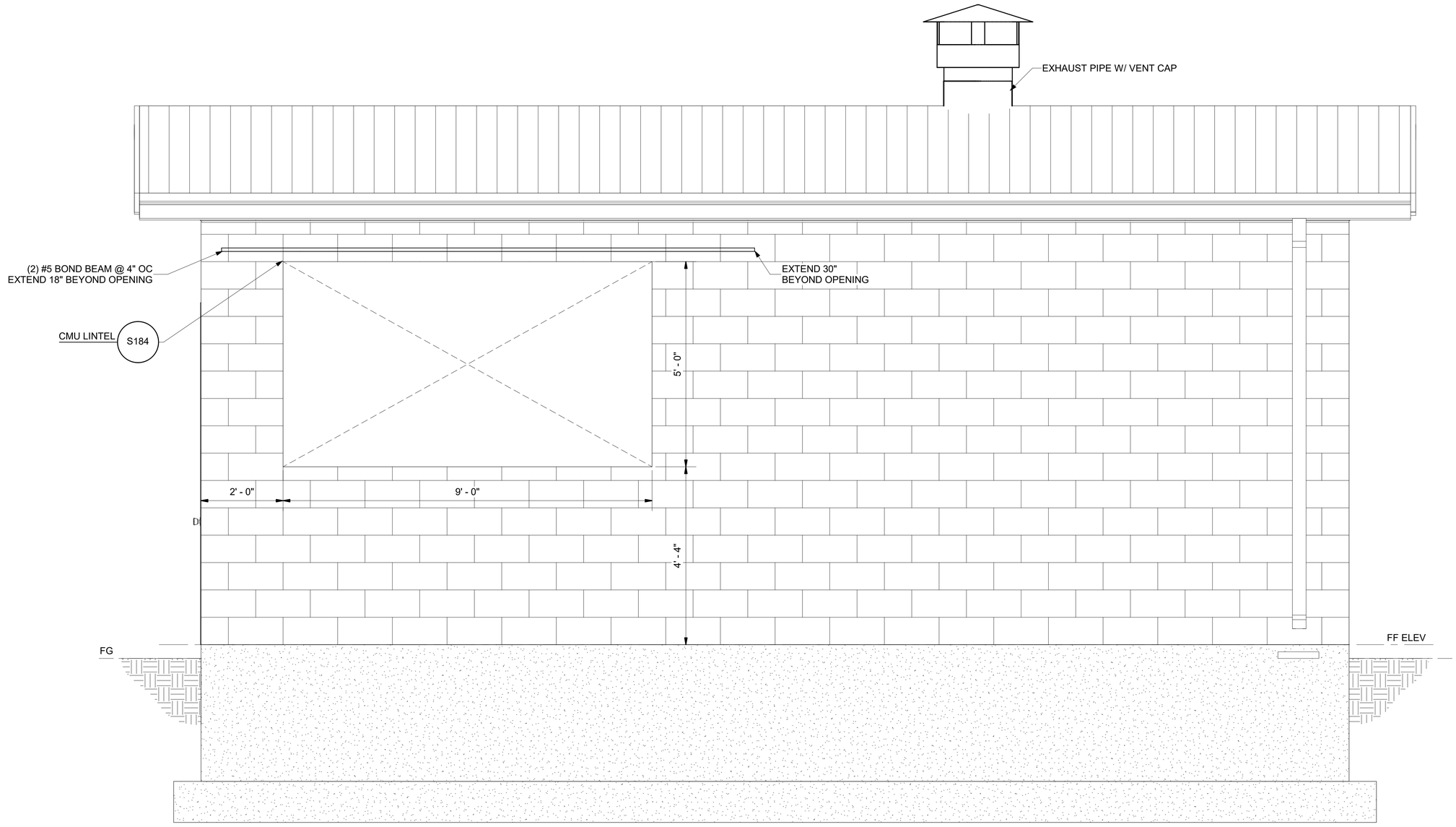
OSPREY GENERATOR BUILDING
STRUCTURAL PLAN

AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

10S201

SHEET



A **NORTH ELEVATION**

3/4" = 1'-0"

0 1 2

Scale in Feet

REGISTERED PROFESSIONAL ENGINEER
5252489
DARIN M. HAWKES
06/23/2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
C	06/14/2023	WMS	CML	BMR

REVISIONS

NO.	DATE	DESIGN	DRAWN	CHECKED

OSPREY RANCH
EDEN, UTAH
LIFT STATION DESIGN

OSPREY GENERATOR BUILDING
STRUCTURAL
ELEVATION

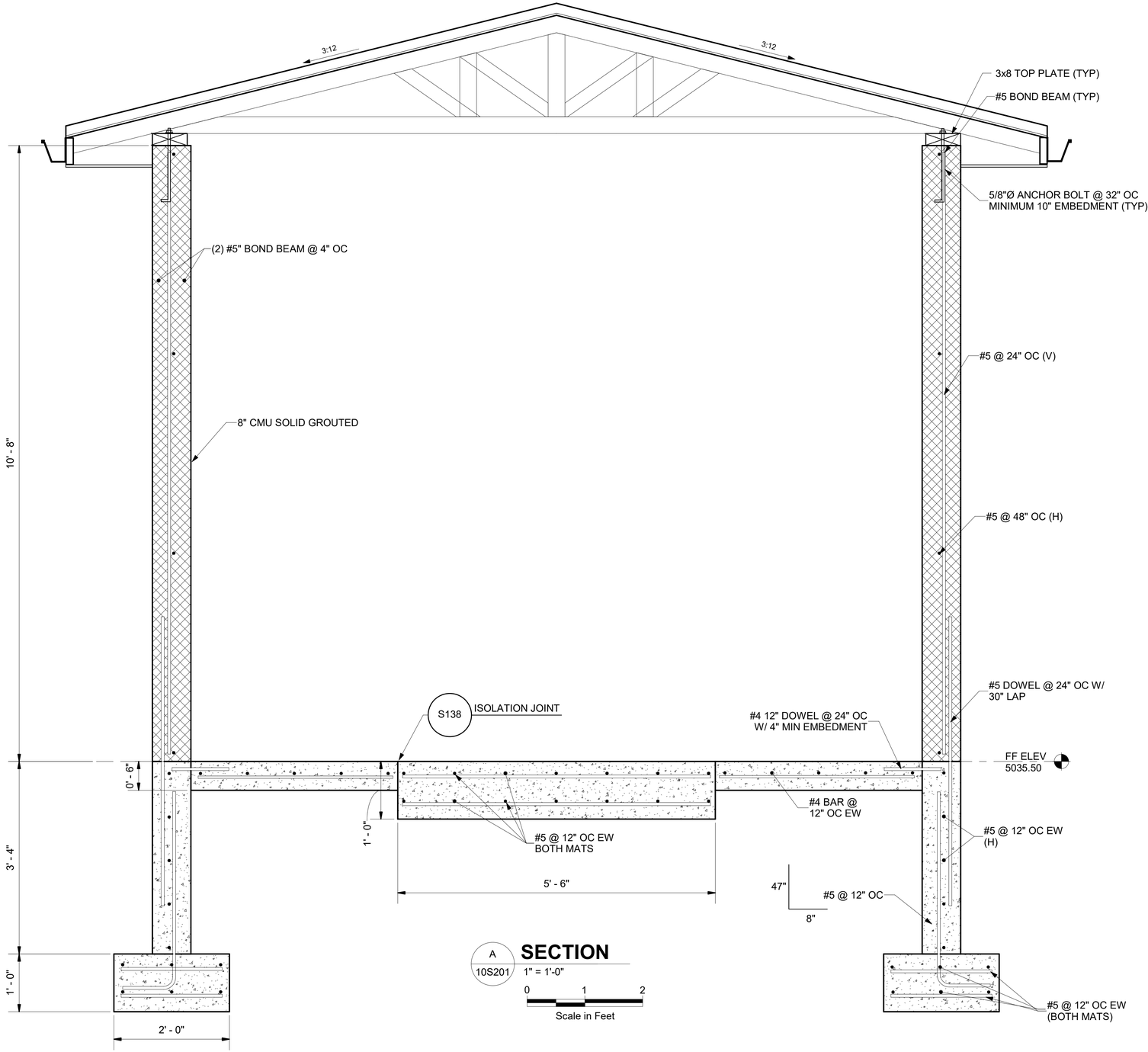
AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

10S301

SHEET

6/14/2023 9:54:04 AM BIM 360://001999.C - Osprey Ranch PER/OSPREY GENERATOR BLDG-V21.rvt



A 10S201 **SECTION**

1" = 1'-0"

0 1 2

Scale in Feet

REGISTERED PROFESSIONAL ENGINEER
5252489
DARIN M. HAWKES
06/23/2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
C	06/14/2023	WMS	CML	BMR

REVISIONS

NO.	DATE	DESIGN	DRAWN	CHECKED

OSPREY RANCH
EDEN, UTAH
LIFT STATION DESIGN

OSPREY GENERATOR BUILDING
STRUCTURAL
SECTION

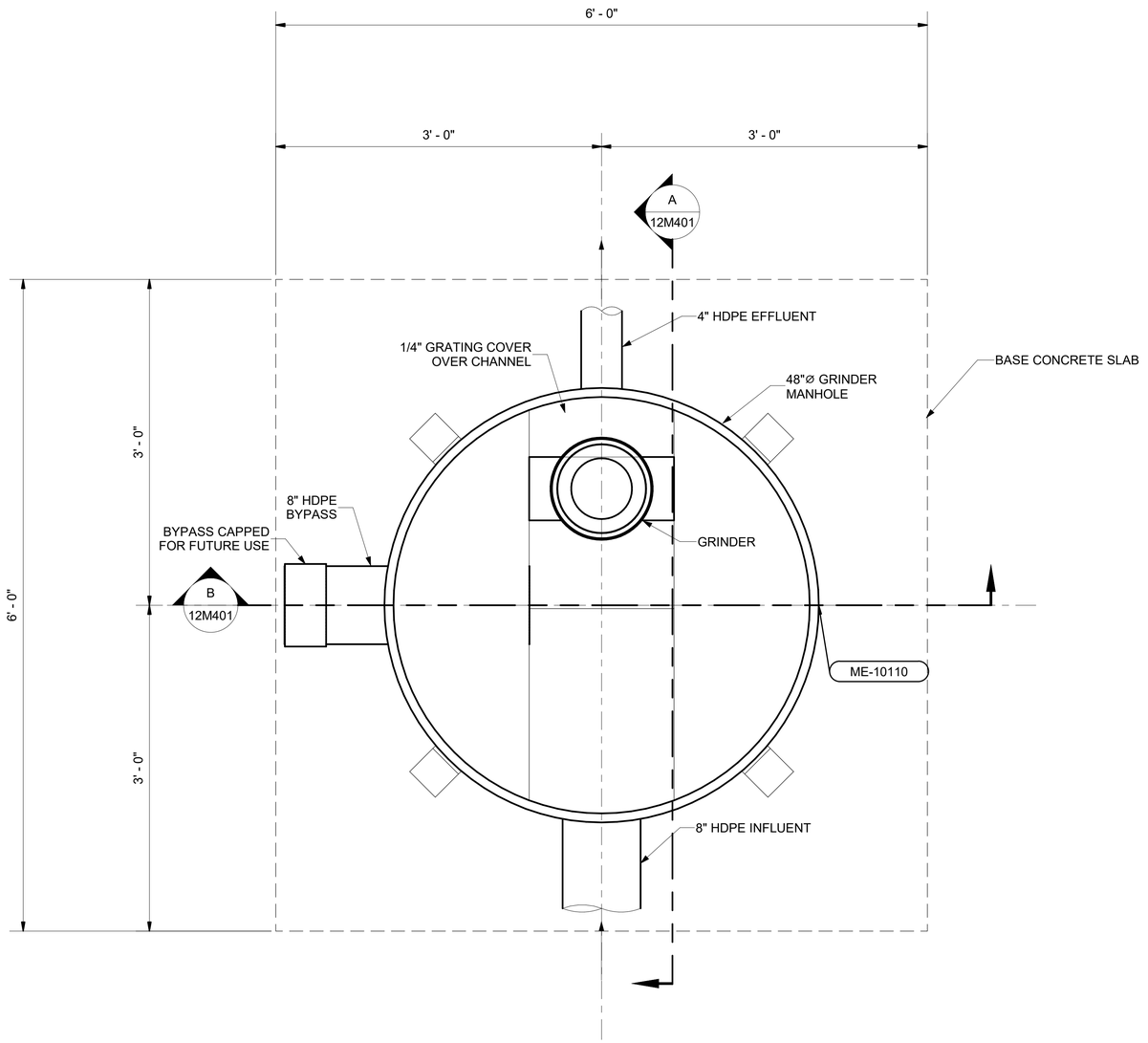
AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

10S401

SHEET

6/14/2023 9:54:04 AM BIM 360://001999.C - Osprey Ranch PER/OSPREY GENERATOR BLDG-V21.rvt



2 **MECHANICAL PLAN**

1 1/2" = 1'-0"

0 1 2

Scale in Feet

REGISTERED PROFESSIONAL ENGINEER
No.318716
BRADLY M. RASMUSSEN
06-22-2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL			
NO.	DATE	DESIGN	DRAWN	CHECKED
C	06/14/2023	WMS	BDP	BMR

REVISIONS				
NO.	DATE	DESIGN	DRAWN	CHECKED

OSPREY RANCH
EDEN, UTAH
LIFT STATION DESIGN

GRINDER STATION
MECHANICAL
PLAN

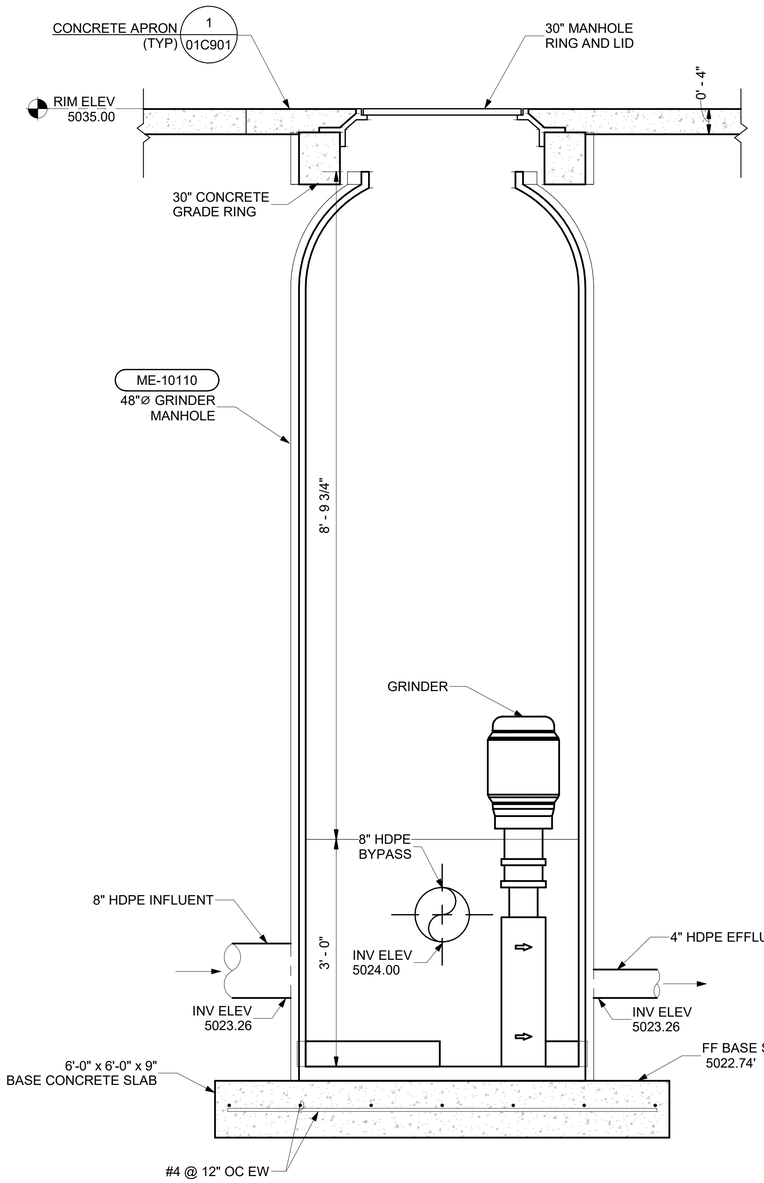
AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

12M201

SHEET

6/14/2023 2:13:49 PM BIM 360://001999.C - Osprey Ranch PER/GRINDER STATION-V21.rvt

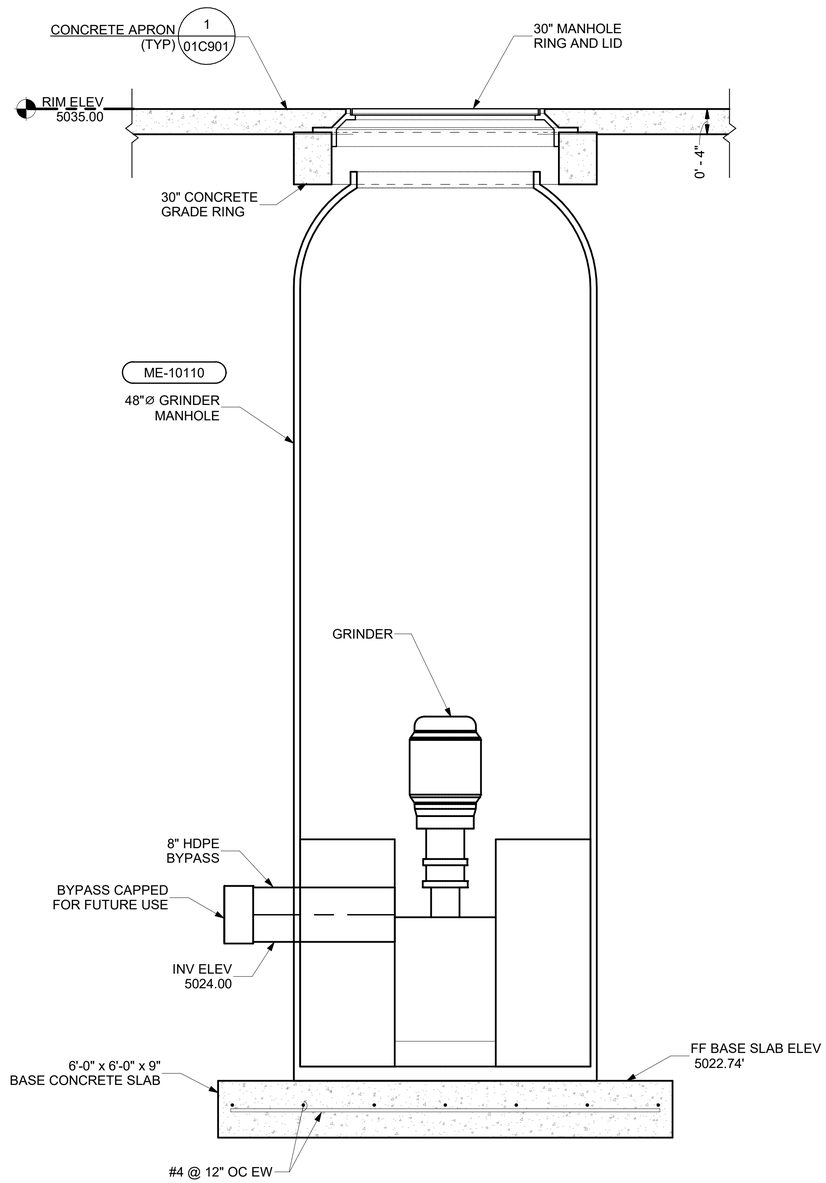


A 12M201 **SECTION**

1" = 1'-0"

0 1 2

Scale in Feet



B 12M201 **SECTION**

1" = 1'-0"

0 1 2

Scale in Feet

REGISTERED PROFESSIONAL ENGINEER
No.318716
BRADLY M. RASMUSSEN
06-22-2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
C	06/14/2023	WMS	BDP	BMR

REVISIONS

NO.	DATE	DESIGN	DRAWN	CHECKED

OSPREY RANCH
EDEN, UTAH
LIFT STATION DESIGN

GRINDER STATION
MECHANICAL
SECTION

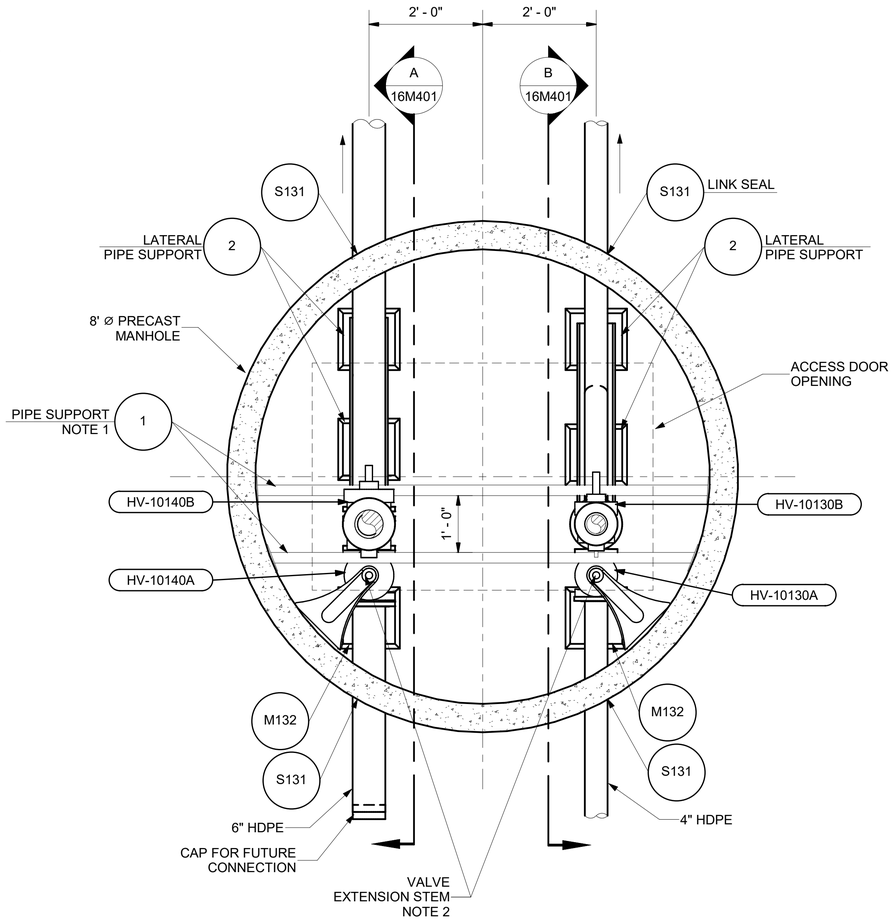
AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

12M401

SHEET

6/14/2023 10:08:54 AM BIM 360://001999.C - Osprey Ranch PER/GRINDER STATION-V21.rvt

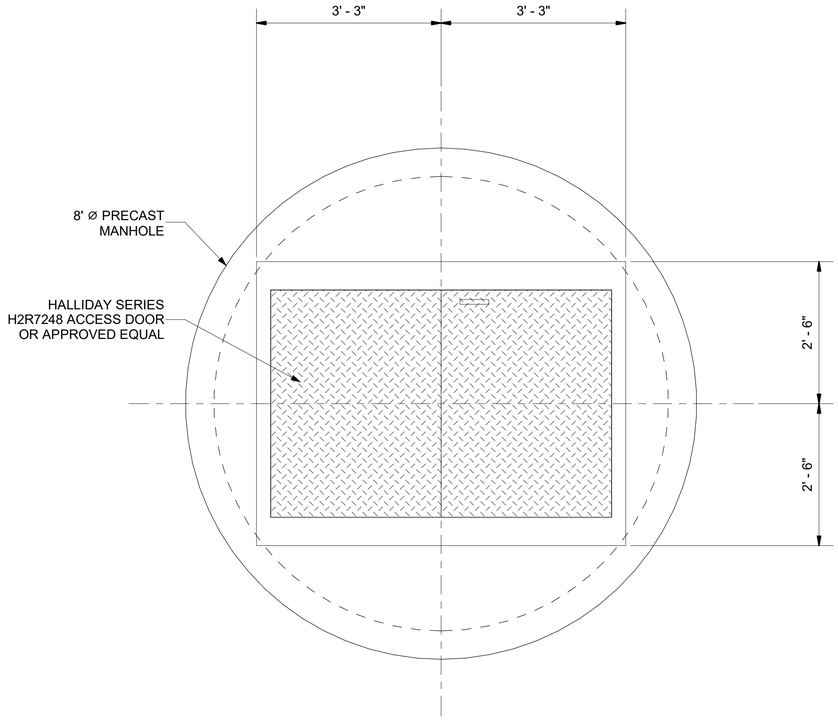


3 **MECHANICAL PLAN**

3/4" = 1'-0"

0 1 2

Scale in Feet



LID PLAN

3/4" = 1'-0"

0 1 2

Scale in Feet

NOTES:

1- CONTRACTOR TO VERIFY LENGTH AND LOCATION OF PIPE SUPPORTS.

2- TRUMBULL VALVE EXTENSION STEM WITH STEM GUIDE AT 6'-0" MAX SPACING AND UNIVERSAL JOINTS AS REQUIRED.

REGISTERED PROFESSIONAL ENGINEER
No.318716
BRADLY M. RASMUSSEN
06-22-2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
C	06/14/2023	WMS	BDP	BMR

REVISIONS

NO.	DATE	DESIGN	DRAWN	CHECKED

OSPREY RANCH
EDEN, UTAH
LIFT STATION DESIGN

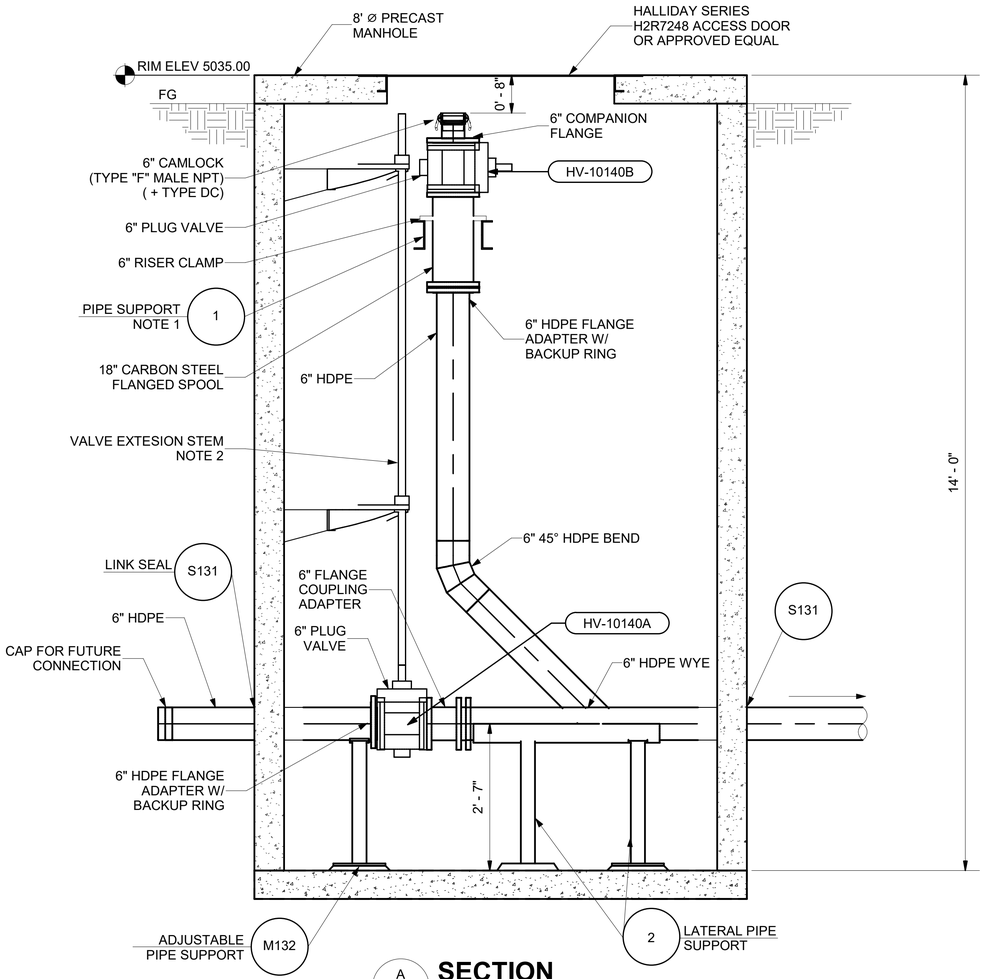
PIGGING MANHOLE
MECHANICAL
PLAN

AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

16M201

SHEET

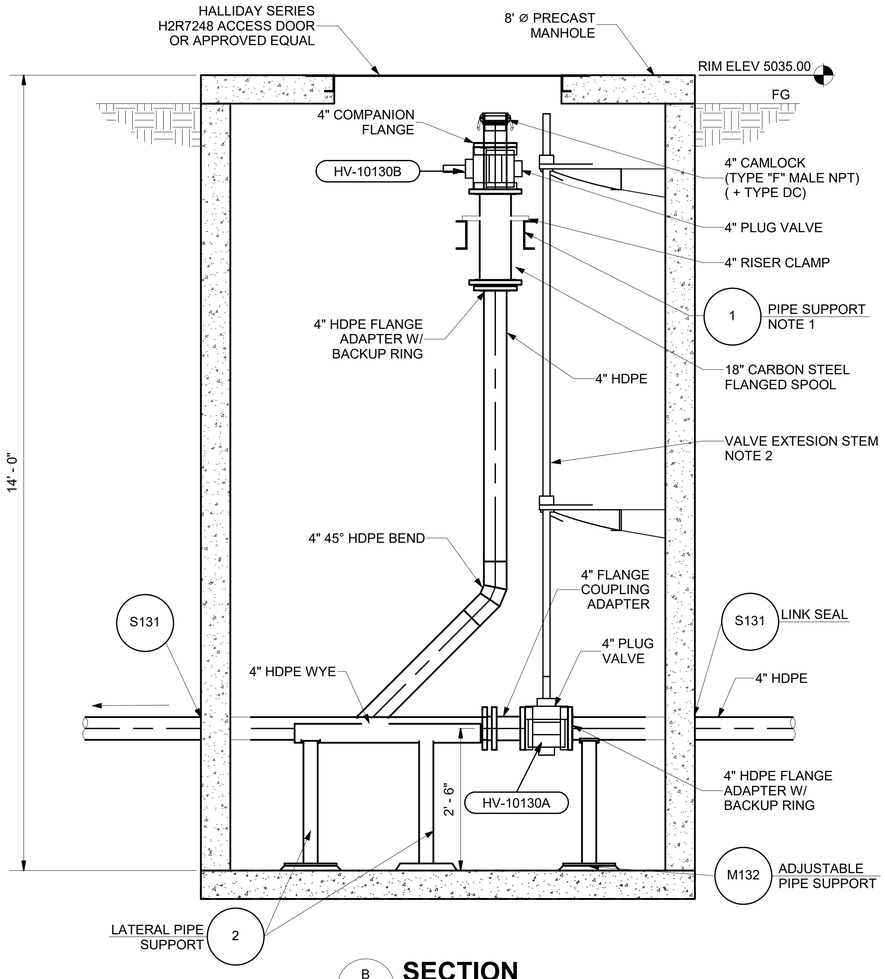


A 16M201 **SECTION**

3/4" = 1'-0"

0 1 2

Scale in Feet



B 16M201 **SECTION**

3/4" = 1'-0"

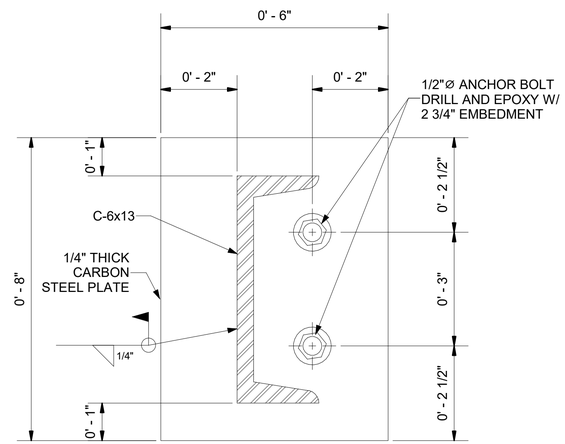
0 1 2

Scale in Feet

NOTES:

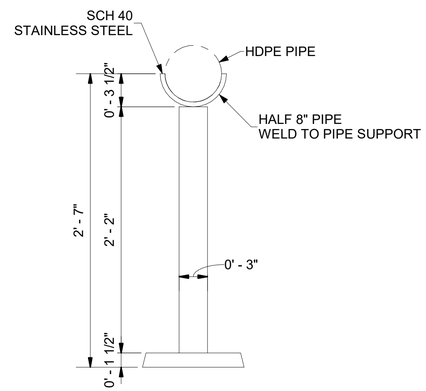
1- CONTRACTOR TO VERYIFY LENGTH AND LOCATION OF PIPE SUPPORTS.

2- TRUMBULL VALVE EXTENSION STEM WITH STEM GUIDE AT 6'-0" MAX SPACING AND UNIVERSAL JOINTS AS REQUIRED.



1 **PIPE SUPPORT**

NTS



2 **LATERAL PIPE SUPPORT**

NTS

REGISTERED PROFESSIONAL ENGINEER
No.318716
BRADLY M. RASMUSSEN
06-22-2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

1 1/2 0

ORIGINAL				REVISIONS			
NO.	DATE	DESIGN	DRAWN	CHECKED	NO.	DATE	DESIGN	DRAWN	CHECKED
C.	06/14/2023	WMS	BDP	BMR					

OSPREY RANCH
EDEN, UTAH
LIFT STATION DESIGN

PIGGING MANHOLE MECHANICAL SECTIONS

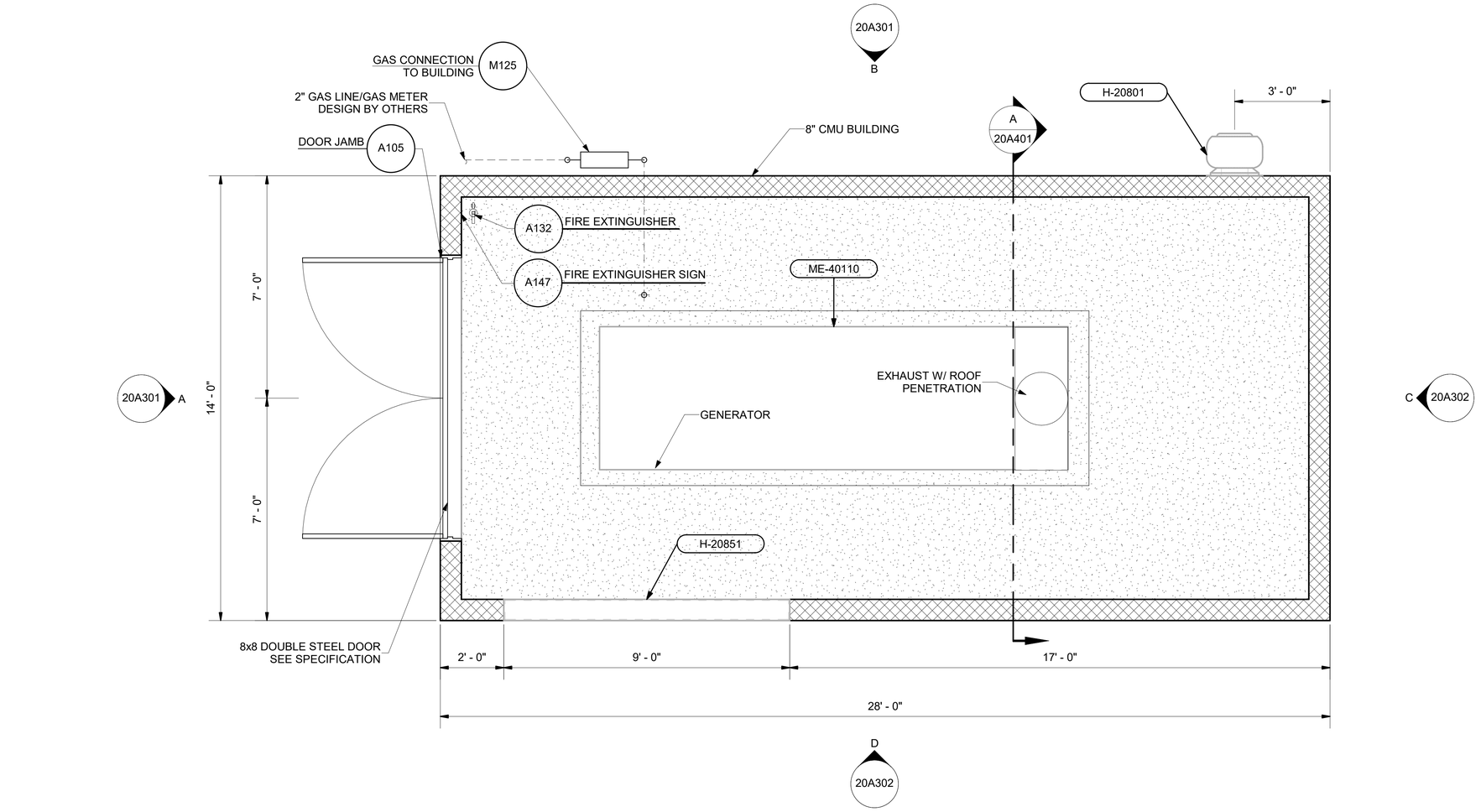
AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

16M401

SHEET

6/14/2023 10:41:50 AM BIM 360://001999.C - Osprey Ranch PER/PIGGING STATION-V21.rvt



ARCHITECTURAL PLAN

1/2" = 1'-0"

0 2 4

Scale in Feet

REGISTERED PROFESSIONAL ENGINEER
No.318716
BRADLY M. RASMUSSEN
06-22-2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
C	06/14/2023	WMS	CML	BMR

REVISIONS

NO.	DATE	DESIGN	DRAWN	CHECKED

OSPREY RANCH
EDEN, UT
LIFT STATION DESIGN

BROWN GENERATOR BUILDING
ARCHITECTURAL PLAN

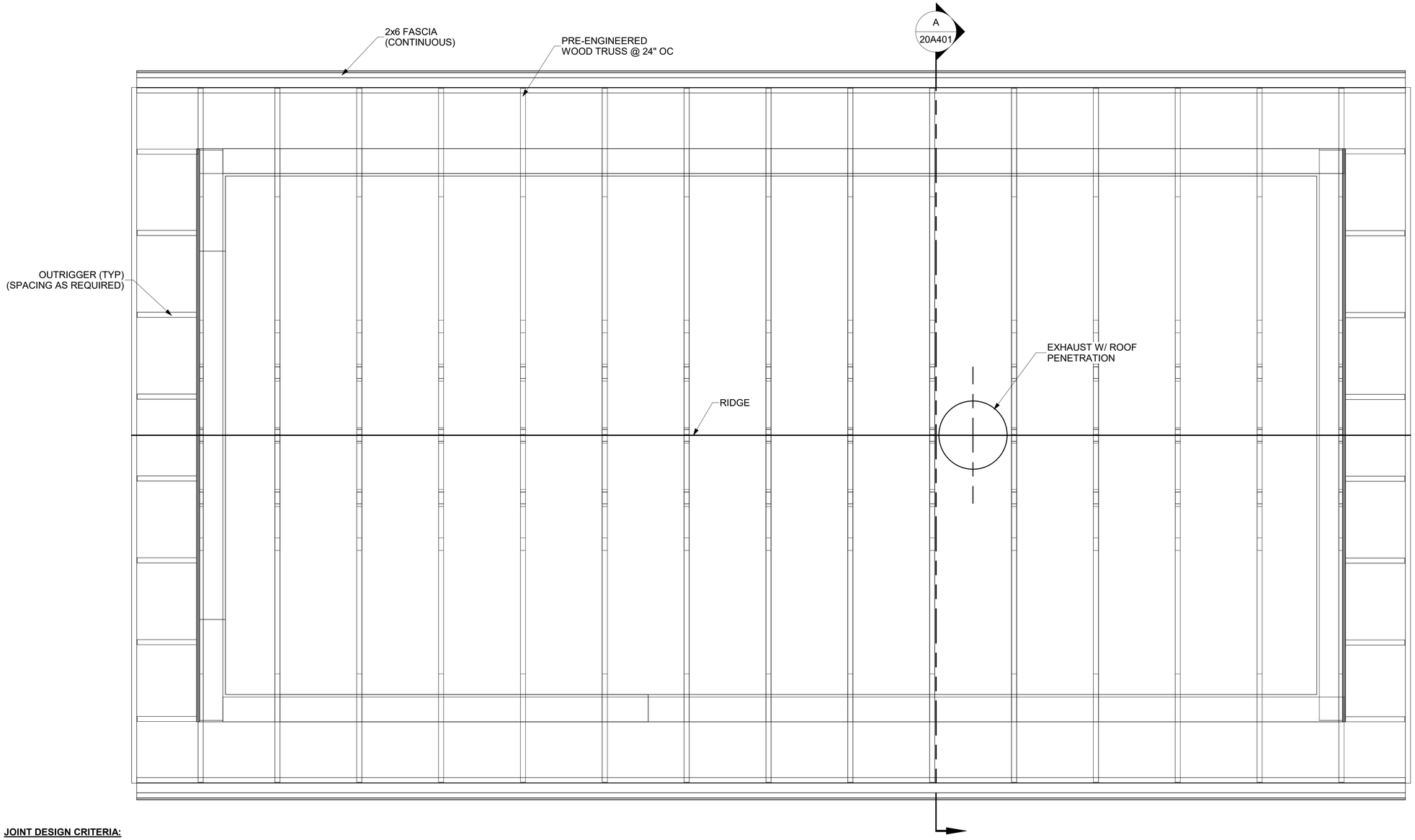
AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

20A201

SHEET

6/14/2023 12:43:38 PM BIM 360://001999.C - Osprey Ranch PER/BROWN GENERATOR BLDG-V21.rvt



JOINT DESIGN CRITERIA:

DESIGN LOAD:	20 PSF
ROOF LIVE LOAD:	20 PSF
ROOF SNOW LOAD:	57 PSF
LINE LOAD DEFLECTION:	L/360

TRUSSES TO BE DESIGNED BY MANUFACTURER AND SUBMITTED TO ENGINEER ON RECORD FOR APPROVAL.

ACTUAL LOCATION AND DESIGN OF BRIDGING SHALL BE PROVIDED BY MANUFACTURER AND SUBMITTED TO ENGINEER ON RECORD PRIOR TO ERECTION OF TRUSSES.

SEE GENERAL STRUCTURAL NOTES FOR INSPECTION AND REQUIREMENTS.

ROOF PLAN

3/4" = 1'-0"

0 1 2

Scale in Feet

REGISTERED PROFESSIONAL ENGINEER
No.318716
BRADLY M. RASMUSSEN
06-22-2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
C.	06/14/2023	WMS	CML	BMR

REVISIONS

NO.	DATE	DESIGN	DRAWN	CHECKED

OSPREY RANCH
EDEN, UT
LIFT STATION DESIGN

BROWN GENERATOR BUILDING
ARCHITECTURAL
ROOF PLAN

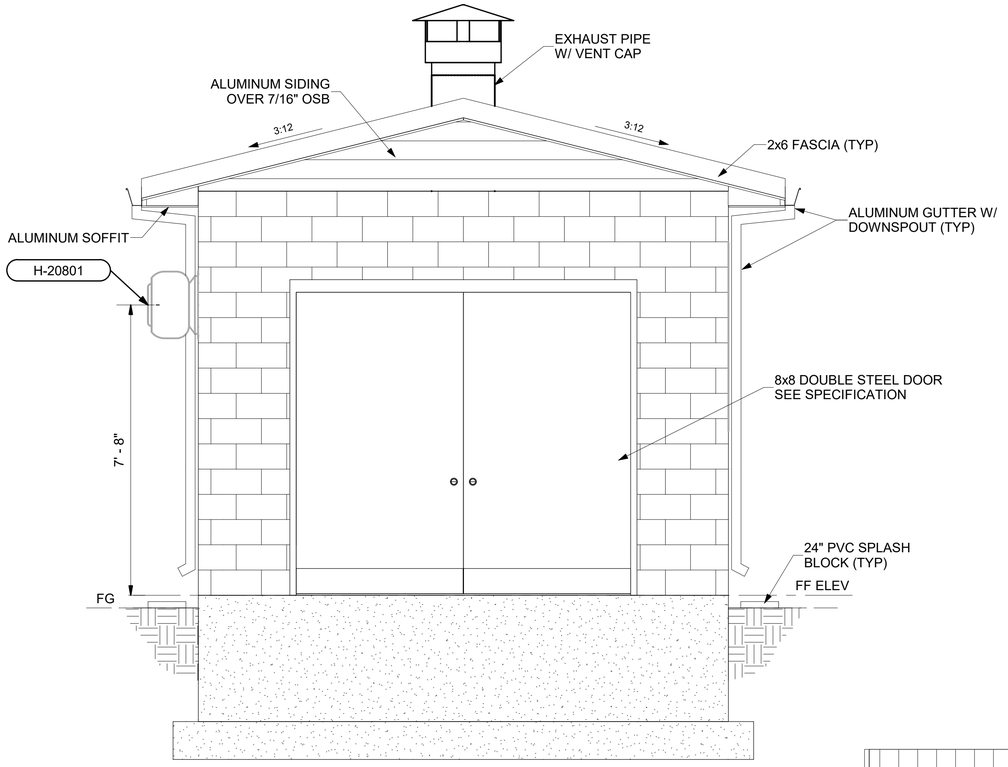
AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

20A202

SHEET

6/14/2023 12:43:39 PM BIM 360://001999.C - Osprey Ranch PER/BROWN GENERATOR BLDG-V21.rvt

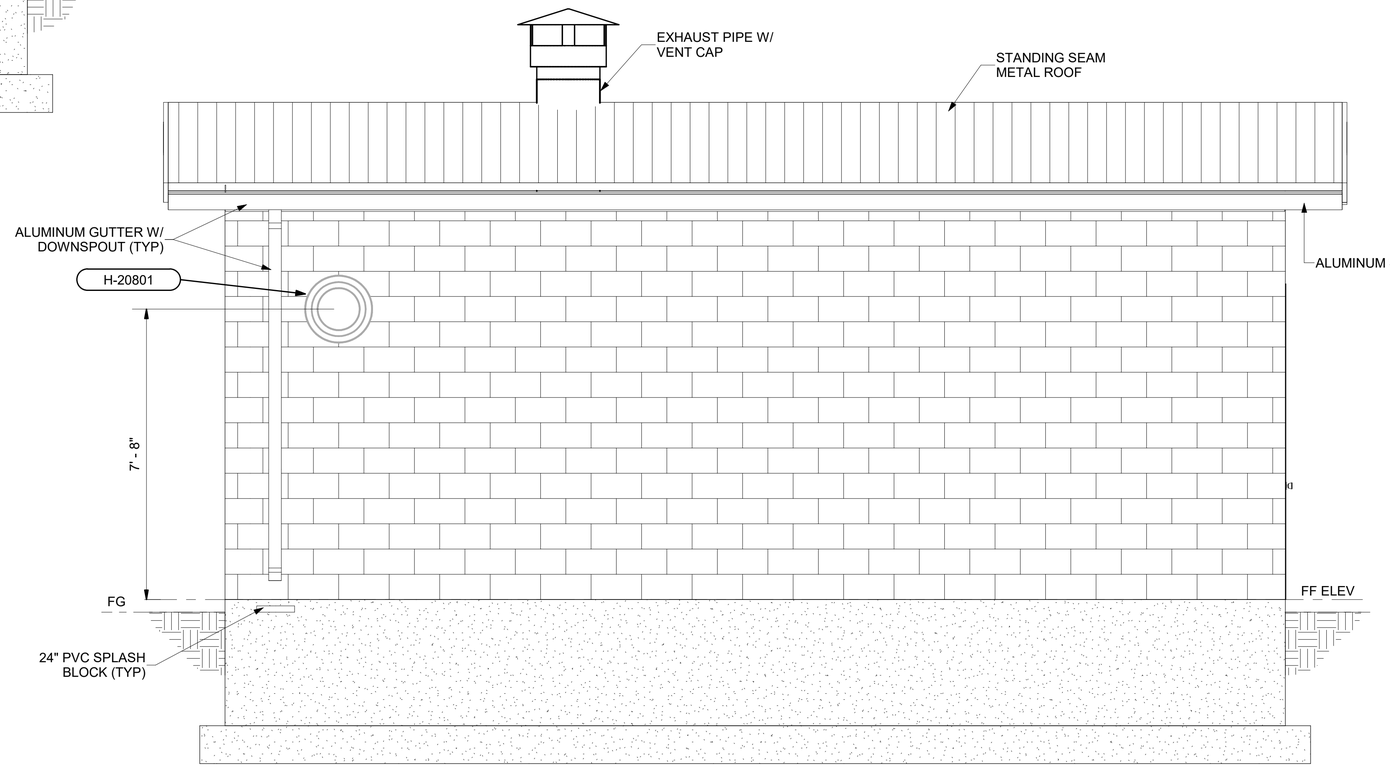


A **NORTH ELEVATION**

1/2" = 1'-0"

0 2 4

Scale in Feet



B **EAST ELEVATION**

1/2" = 1'-0"

0 2 4

Scale in Feet

REGISTERED PROFESSIONAL ENGINEER
No.318716
BRADLY M.
RASMUSSEN
06-22-2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
C	06/14/2023	WMS	CML	BMR

REVISIONS

NO.	DATE	DESIGN	DRAWN	CHECKED

OSPREY RANCH
EDEN, UT
LIFT STATION DESIGN

BROWN GENERATOR BUILDING
ARCHITECTURAL
ELEVATIONS

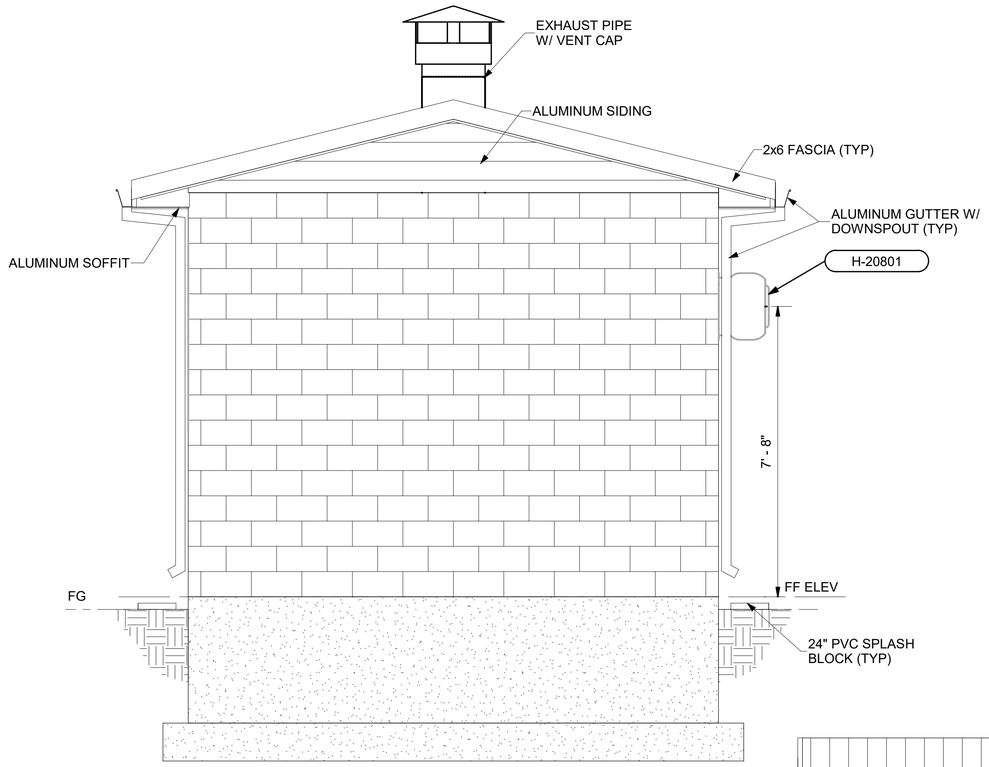
AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

20A301

SHEET

6/14/2023 12:43:39 PM BIM 360://001999.C - Osprey Ranch PER/BROWN GENERATOR BLDG-V21.rvt

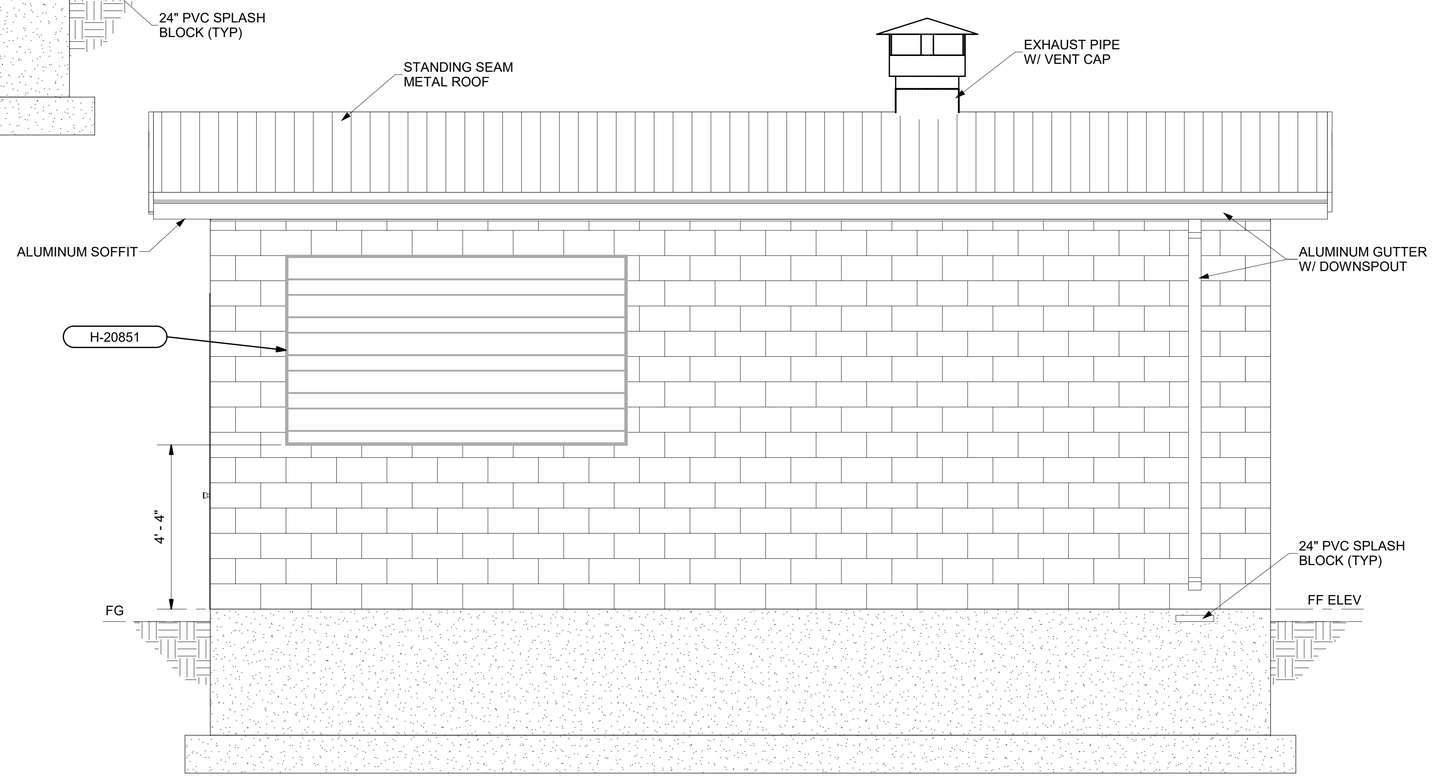


C **SOUTH ELEVATION**

1/2" = 1'-0"

0 2 4

Scale in Feet



D **WEST ELEVATION**

1/2" = 1'-0"

0 2 4

Scale in Feet

REGISTERED PROFESSIONAL ENGINEER
No.318716
BRADLY M.
RASMUSSEN
06-22-2023
STATE OF UTAH

DRAWING IS TO SCALE
IF BAR MEASURES:
1" = FULL SCALE
1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
		WMS	CML	BMR

REVISIONS

NO.	DATE	DESIGN	DRAWN	CHECKED
C.	06/14/2023			

OSPREY RANCH
EDEN, UT
LIFT STATION DESIGN

BROWN GENERATOR BUILDING
ARCHITECTURAL
ELEVATIONS

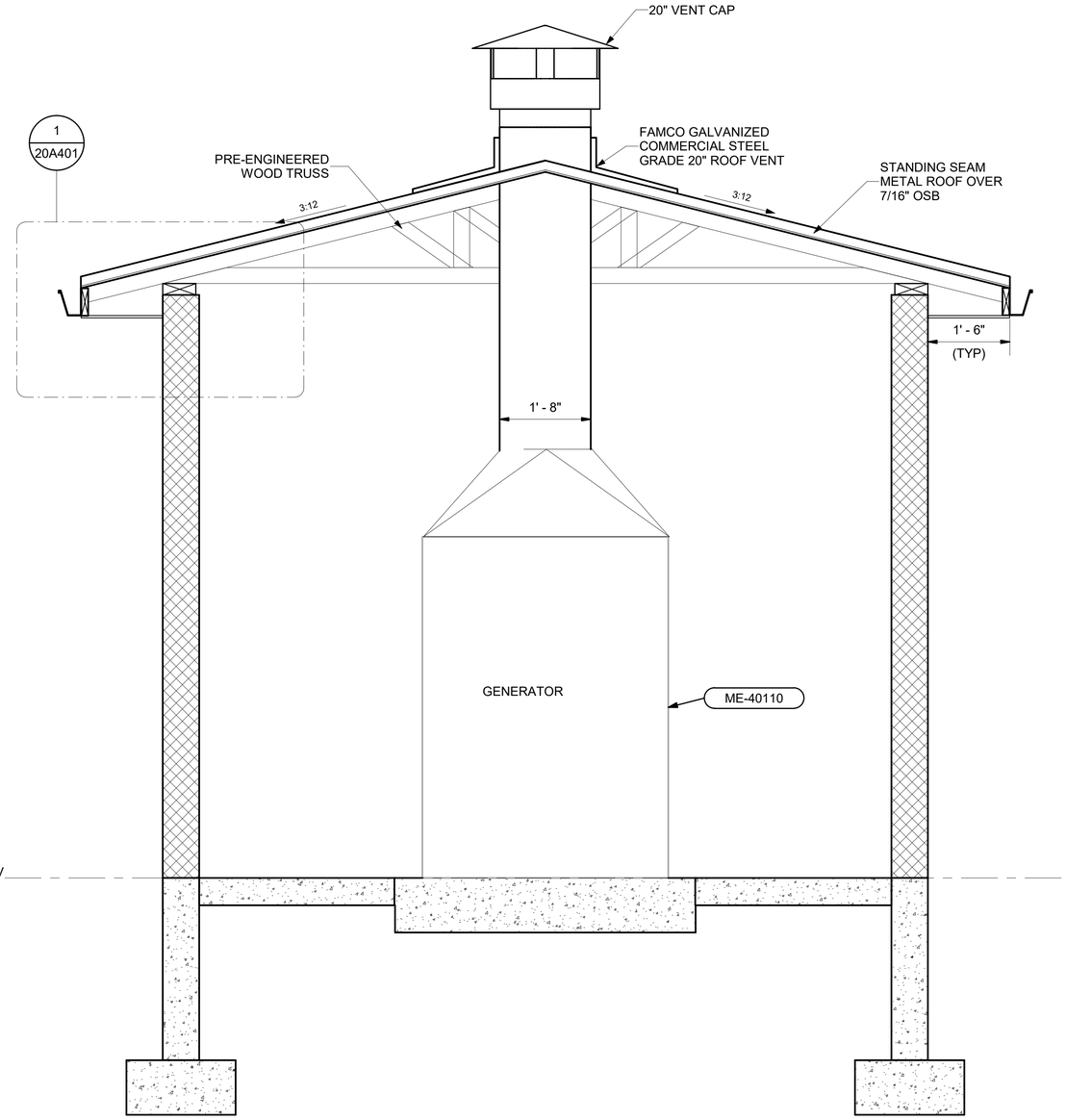
AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

20A302

SHEET

6/14/2023 12:43:39 PM BIM 360://001999.C - Osprey Ranch PER/BROWN GENERATOR BLDG-V21.rvt

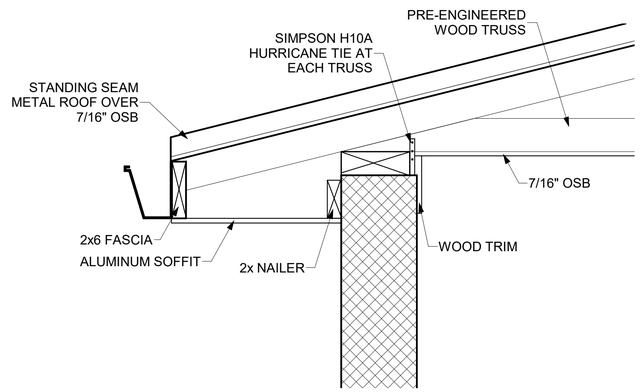


A 20A201 **SECTION**

3/4" = 1'-0"

0 1 2

Scale in Feet



1 **DETAIL**

1 1/2" = 1'-0"

0 1 2

Scale in Feet

REGISTERED PROFESSIONAL ENGINEER
No.318716
BRADLY M. RASMUSSEN
06-22-2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
C	06/14/2023	WMS	CML	BMR

REVISIONS

NO.	DATE	DESIGN	DRAWN	CHECKED

OSPREY RANCH
EDEN, UT
LIFT STATION DESIGN

BROWN GENERATOR BUILDING
ARCHITECTURAL
SECTION

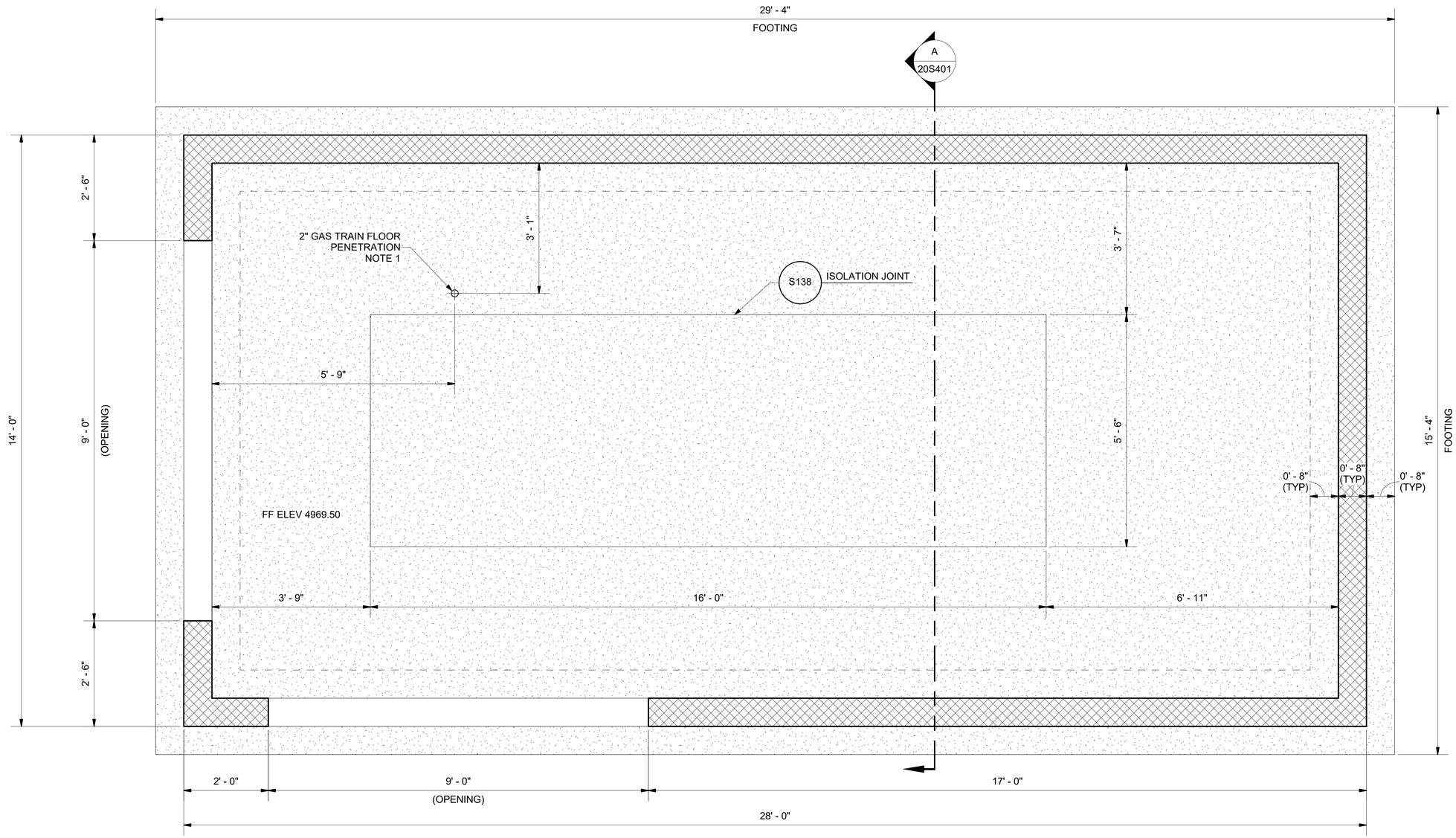
AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

20A401

SHEET

6/14/2023 12:43:40 PM BIM 360://001999.C - Osprey Ranch PER/BROWN GENERATOR BLDG-V21.rvt



A
20S301

1 **STRUCTURAL PLAN**

3/4" = 1'-0"

0 1 2

Scale in Feet

NOTES:

1- FIELD VERIFY LOCATION CORRELATES WITH GENERATOR GAS CONNECTION LOCATION.

6/16/2023 10:52:25 AM BIM 360://001999.C - Osprey Ranch PER/BROWN GENERATOR BLDG-V21.rvt

REGISTERED PROFESSIONAL ENGINEER
5252489
DARIN M. HAWKES
06/23/2023
STATE OF UTAH

0 1/2 1 DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
C	06/14/2023	WMS	CML	BMR

REVISIONS

NO.	DATE	DESIGN	DRAWN	CHECKED

OSPREY RANCH
EDEN, UT
LIFT STATION DESIGN

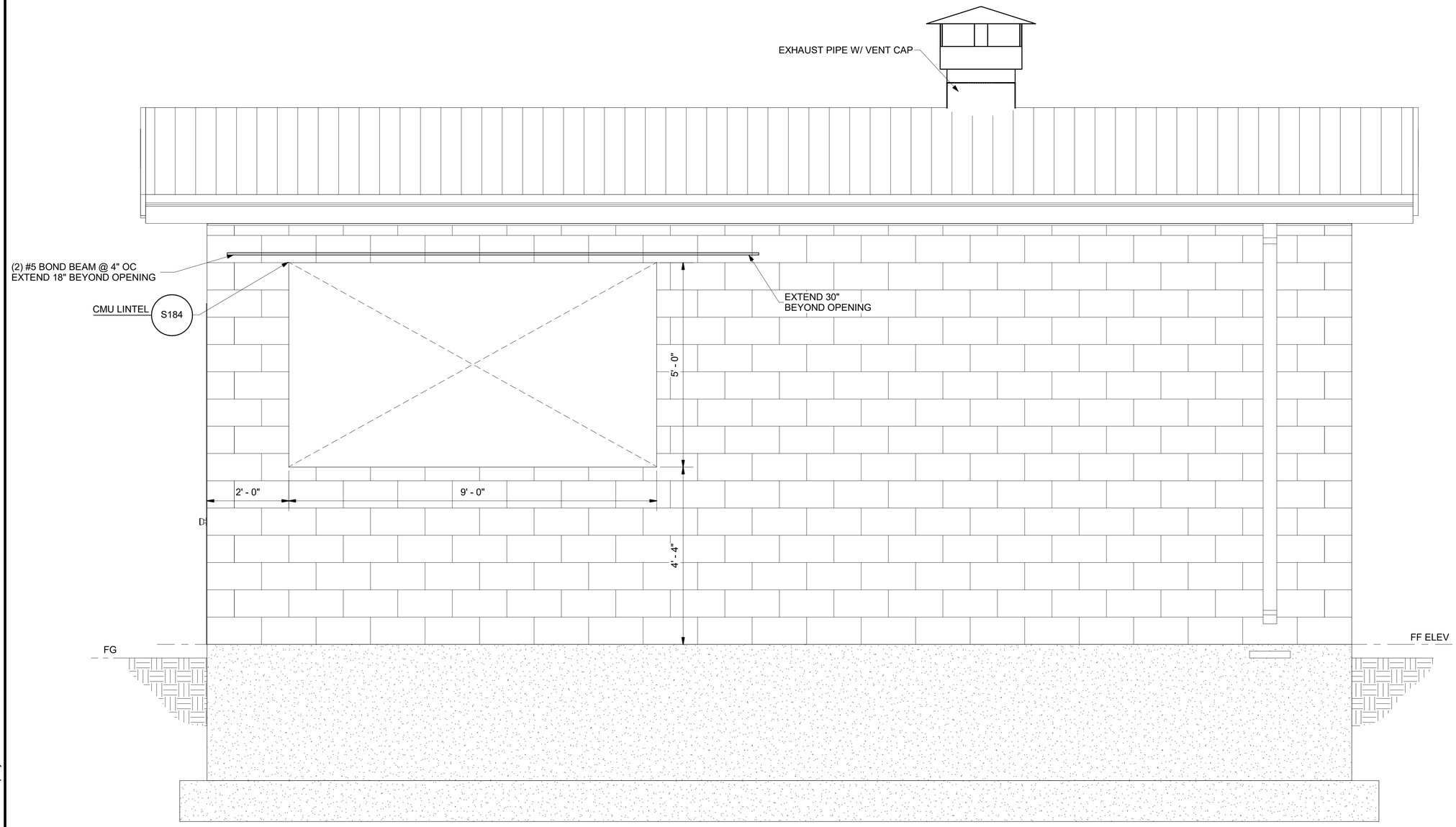
BROWN GENERATOR BUILDING
STRUCTURAL PLAN

AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

20S201

SHEET



A **WEST ELEVATION**

3/4" = 1'-0"

0 1 2

Scale in Feet

REGISTERED PROFESSIONAL ENGINEER
5252489
DARIN M. HAWKES
06/23/2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
C	06/14/2023	WMS	CML	BMR

REVISIONS

NO.	DATE	DESIGN	DRAWN	CHECKED

OSPREY RANCH
EDEN, UT
LIFT STATION DESIGN

BROWN GENERATOR BUILDING
STRUCTURAL
ELEVATION

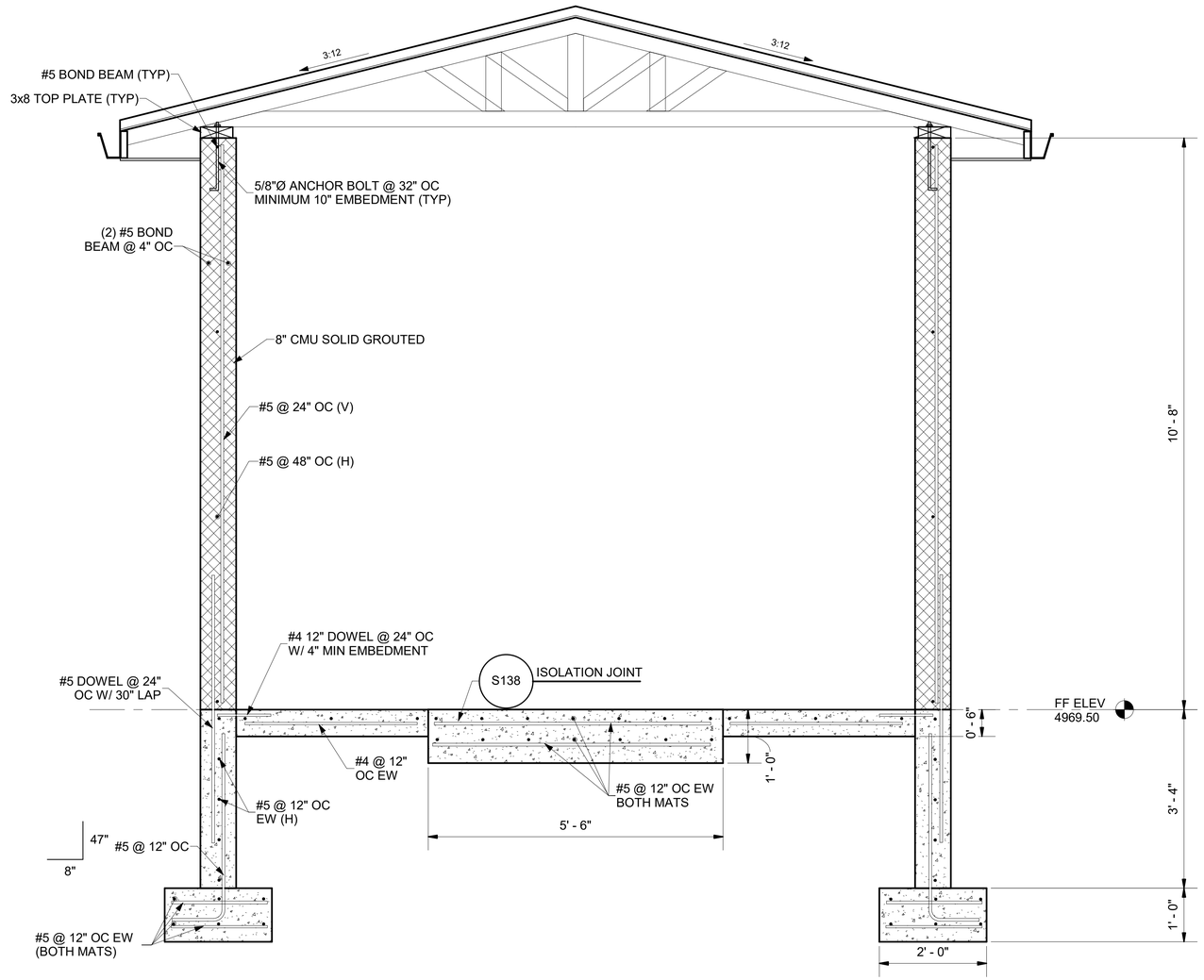
AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

20S301

SHEET

6/14/2023 12:47:25 PM BIM 360://001999.C - Osprey Ranch PER/BROWN GENERATOR BLDG-V21.rvt



A 20S201 **SECTION**

3/4" = 1'-0"

0 1 2

Scale in Feet

REGISTERED PROFESSIONAL ENGINEER
5252489
DARIN M. HAWKES
06/23/2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
C	06/14/2023	WMS	CML	BMR

REVISIONS

NO.	DATE	DESIGN	DRAWN	CHECKED

OSPREY RANCH
EDEN, UT
LIFT STATION DESIGN

BROWN GENERATOR BUILDING STRUCTURAL SECTION

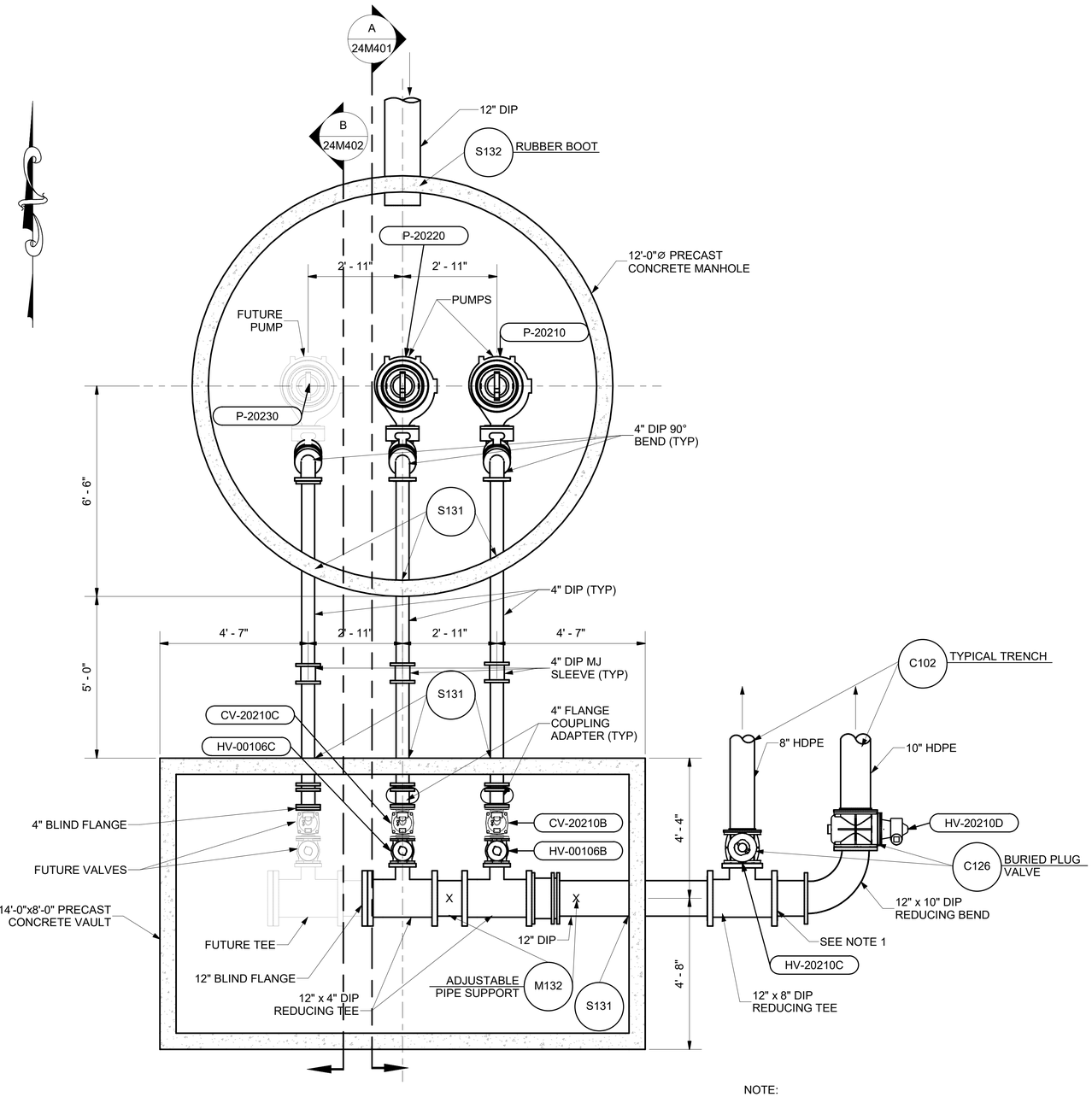
AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

20S401

SHEET

6/14/2023 12:43:41 PM BIM 360://001999.C - Osprey Ranch PER/BROWN GENERATOR BLDG-V21.rvt



MECHANICAL PLAN

2

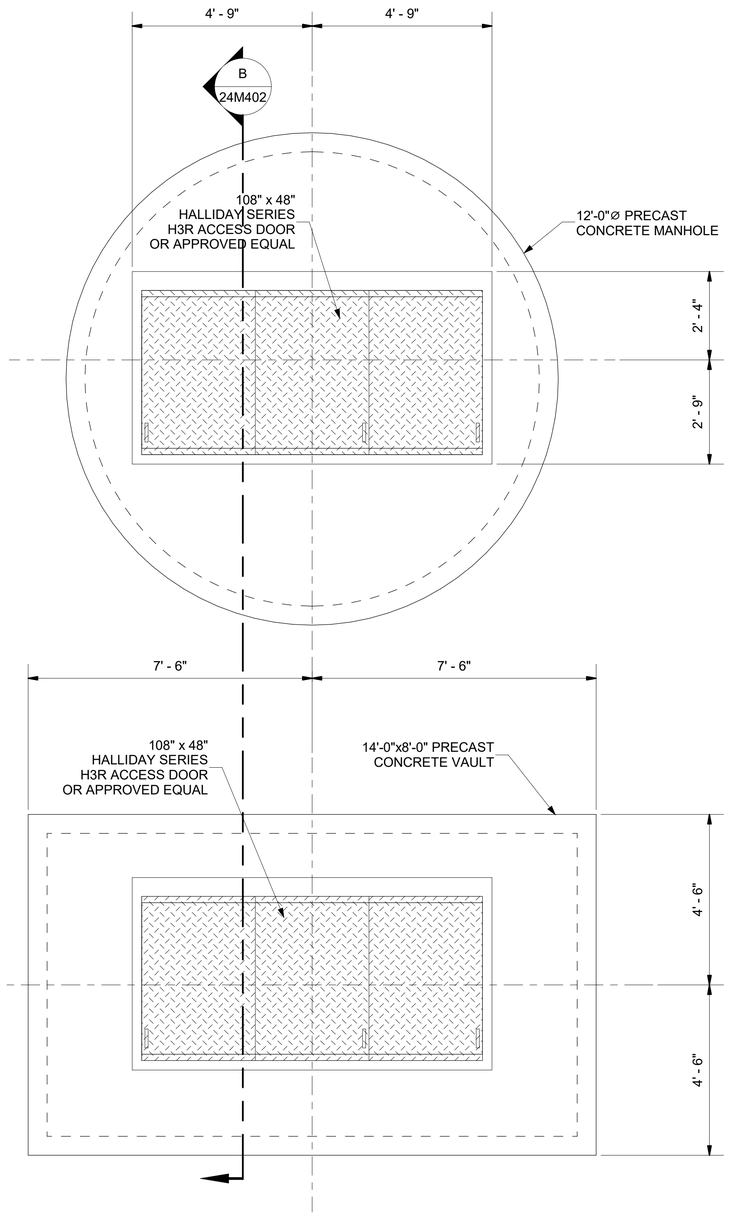
1/2" = 1'-0"

0 1 2

Scale in Feet

NOTE:

1- STAINLESS STEEL BOLT PACKS



LID PLAN

1/2" = 1'-0"

0 1 2

Scale in Feet

REGISTERED PROFESSIONAL ENGINEER
No.318716
BRADLY M.
RASMUSSEN
06-22-2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
C.	02/03/21	Designer	Author	Checker

REVISIONS

NO.	DATE	DESIGN	DRAWN	CHECKED

OSPREY RANCH
EDEN, UTAH
LIFT STATION DESIGN

BROWN LIFT STATION
MECHANICAL
PLAN

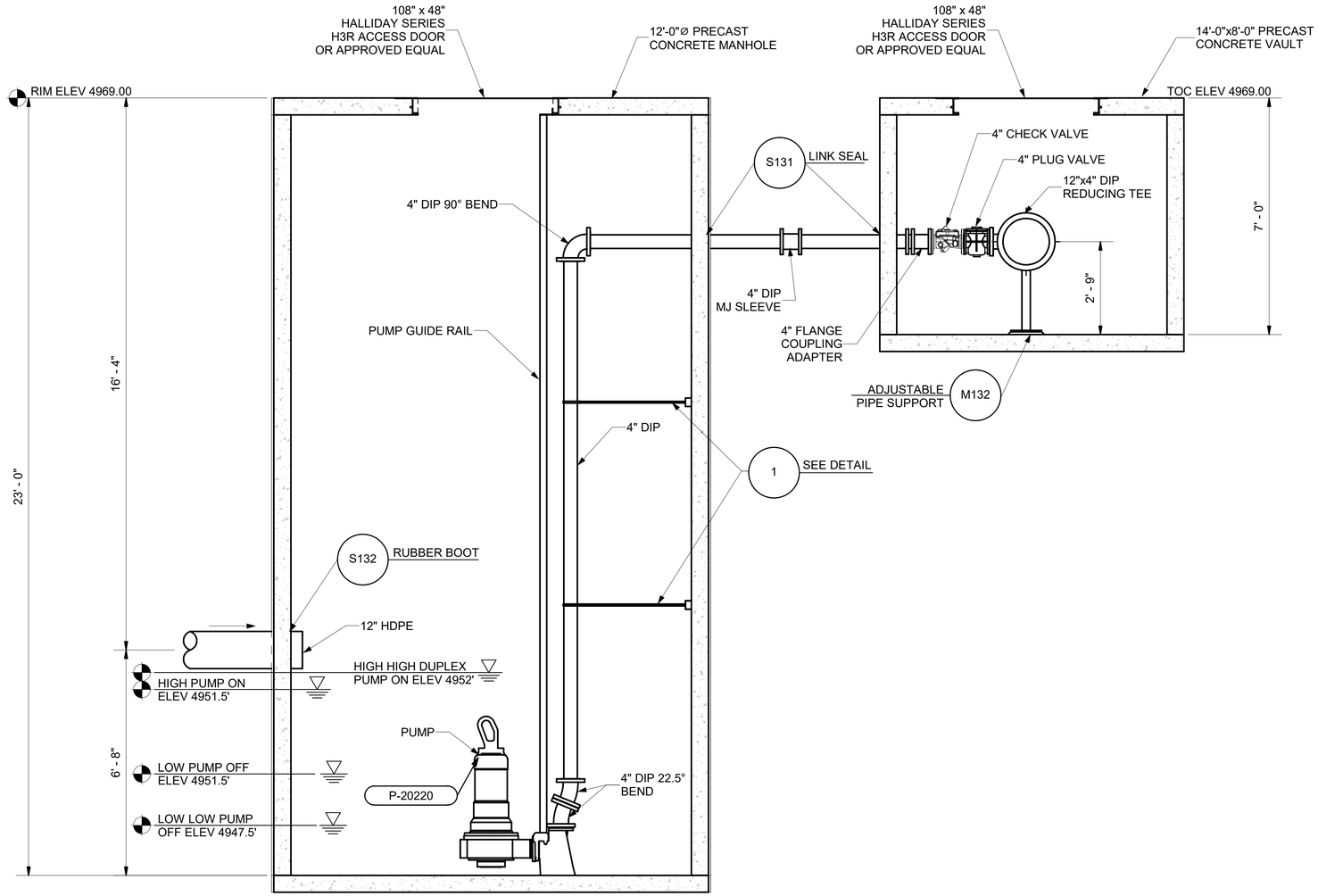
AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

24M201

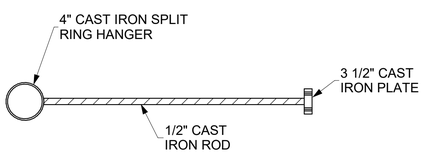
SHEET

6/14/2023 2:22:02 PM BIM 360://001999.C - Osprey Ranch PER/BROWN LIFT STATION-V21.rvt



A 24M201 **SECTION**
1/2" = 1'-0"

0 2 4
Scale in Feet



1 **Grainger - Horizontal Supports**
NTS

REGISTERED PROFESSIONAL ENGINEER
No.318716
BRADLY M.
RASMUSSEN
06-22-2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE
0 1/2 1

ORIGINAL
DESIGN | DRAWN | CHECKED
DATE | 06/14/2023 | WMS | BDP | BMR

REVISIONS
NO. | DATE | DESIGN | DRAWN | CHECKED

OSPREY RANCH
EDEN, UTAH
LIFT STATION DESIGN

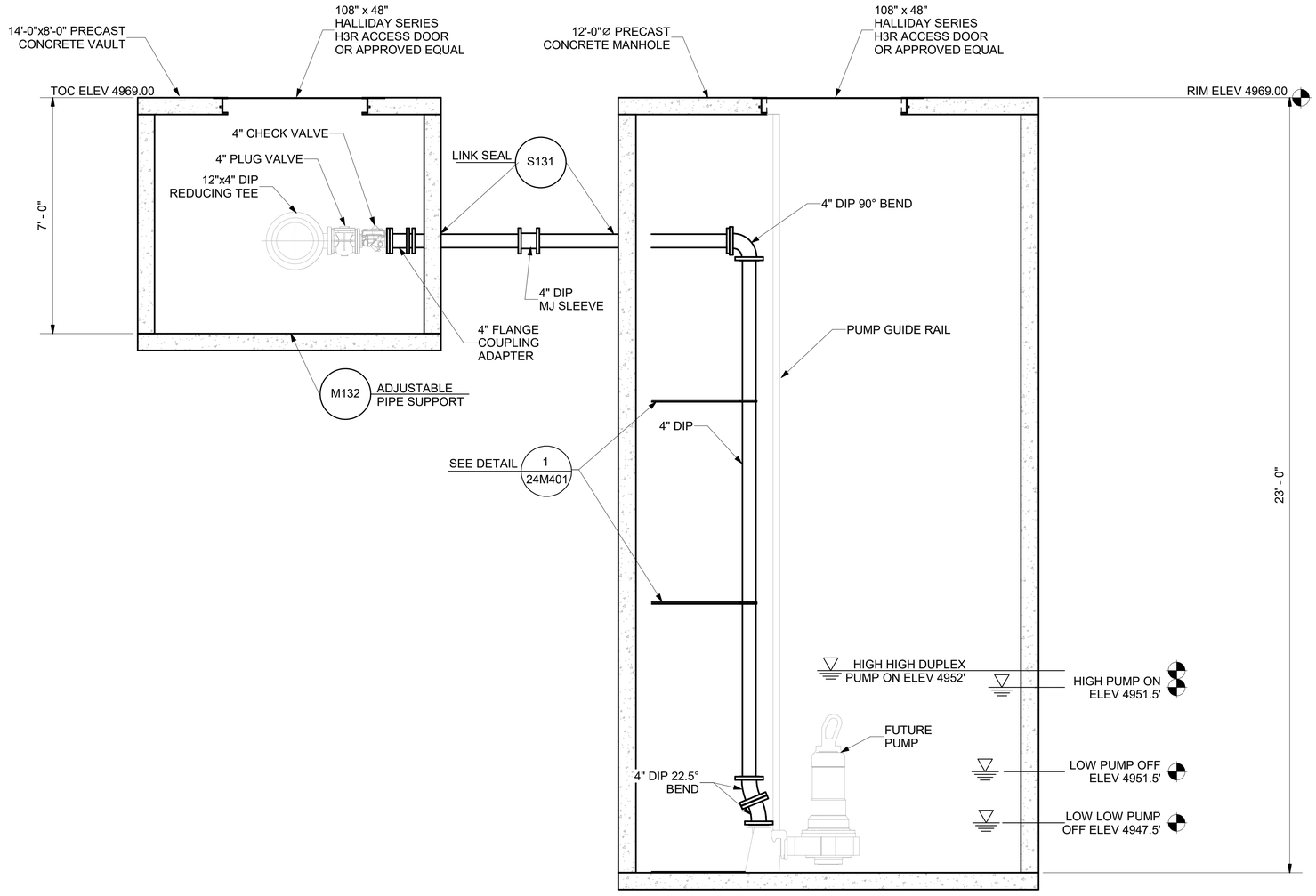
BROWN LIFT STATION
MECHANICAL
SECTION

AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.
24M401

SHEET

6/14/2023 1:23:47 PM BIM 360://001999.C - Osprey Ranch PER/BROWN LIFT STATION-V21.rvt



B 24M201 **SECTION**

1/2" = 1'-0"

0 2 4

Scale in Feet

REGISTERED PROFESSIONAL ENGINEER
No. 318716
BRADLY M. RASMUSSEN
06-22-2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
C	06/14/23	WMS	BDP	BMR

REVISIONS

NO.	DATE	DESIGN	DRAWN	CHECKED

OSPREY RANCH
EDEN, UTAH
LIFT STATION DESIGN

BROWN LIFT STATION
MECHANICAL
SECTION

AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

24M402

SHEET

6/14/2023 1:23:47 PM BIM 360://001999.C - Osprey Ranch PER/BROWN LIFT STATION-V21.rvt

MECHANICAL EQUIPMENT SCHEDULE					
ME#	**LOCATION**	**ITEM**	**SERVICE**	**HP (KW)**	**REMARKS**
ME-30110	OSPREY BUILDING	GENERATOR	NATURAL GAS	25	KOHLER 25CCL
ME-40110	BROWN BUILDING	GENERATOR	NATURAL GAS	200	KOHLER KG200
ME-10110	OSPREY GRINDER MANHOLE	GRINDER MANHOLE	GRINDER	5	JWC M3-30K5

PUMP SCHEDULE							
P#	**LOCATION**	**SERVICE**	**TYPE**	**HP (KW)**	**FLOW**	**TDH**	**REMARKS**
P-20210	BROWN WET WELL	LIFT PUMP	SUBMERSSIBLE	41	504	162	KSB KRT F 100-401/374XEG-S
P-20220	BROWN WET WELL	LIFT PUMP	SUBMERSSIBLE	41	504	162	KSB KRT F 100-401/374XEG-S
P-20230	BROWN WET WELL	FUTURE LIFT PUMP	SUBMERSSIBLE	61	612	206	KSB KRT F 100-401/554XEG-S

VALVE SCHEDULE								
V#	**LOCATION**	**SERVICE**	**TYPE**	**SIZE**	**MATERIAL**	**CONNECTION**	**ACTUATOR**	**REMARKS**
HV-10140A	OSPREY PIGGING STATION	6" PUMP LINE	PLUG	6"	DI	FLANGE	MANUAL	DEZURIK ECCENTRIC PLUG VALVE
HV-10140B	OSPREY PIGGING STATION	6" PIG LAUNCH	PLUG	6"	DI	FLANGE	MANUAL	DEZURIK ECCENTRIC PLUG VALVE
HV-10130A	OSPREY PIGGING STATION	4" SIPHON LINE	PLUG	4"	DI	FLANGE	MANUAL	DEZURIK ECCENTRIC PLUG VALVE
HV-10130B	OSPREY PIGGING STATION	4" PIG LAUNCH	PLUG	4"	DI	FLANGE	MANUAL	DEZURIK ECCENTRIC PLUG VALVE
HV-00106B	BROWN VALVE VAULT	4" PRESSURE LINE	PLUG	4"	DI	FLANGE	MANUAL	DEZURIK ECCENTRIC PLUG VALVE
HV-00106C	BROWN VALVE VAULT	4" PRESSURE LINE	PLUG	4"	DI	FLANGE	MANUAL	DEZURIK ECCENTRIC PLUG VALVE
CV-20210B	BROWN VALVE VAULT	4" PRESSURE LINE	SWING	4"	DI	FLANGE	SWING	VALMATIC 504A
CV-20210C	BROWN VALVE VAULT	4" PRESSURE LINE	SWING	4"	DI	FLANGE	SWING	VALMATIC 504A
HV-20210C	BROWN DISCHARGE LINE	8" DISCHARGE LINE	PLUG	8"	DI	FLANGE	MANUAL	DEZURIK ECCENTRIC PLUG VALVE
HV-20210D	BROWN DISCHARGE LINE	10" DISCHARGE LINE	PLUG	10"	DI	FLANGE	MANUAL	DEZURIK ECCENTRIC PLUG VALVE

HVAC SCHEDULE						
H#	**LOCATION**	**SERVICE**	**TYPE**	**V / HP (KW)**	**CAPACITY/SIZE**	**REMARKS**
H-10801	OSPREY BUILDING	EXHAUST	WALL VENTILATOR	1/4 HP	70.00000	LAUREN COOK ACWD 70W17DEC
H-20801	BROWN BUILDING	EXHAUST	WALL VENTILATOR	1/4 HP	70.00000	LAUREN COOK ACWD 70W17DEC
H-10851	OSPREY BUILDING	INTAKE AIR	LOUVER		108" X 60"	RUSKIN ACL845AF
H-20851	BROWN BUILDING	INTAKE AIR	LOUVER		108" X 60"	RUSKIN ACL845AF
H-10821	OSPREY BUILDING	EXHAUST	THERMOSTAT	24VDC		PECO TRF115-005 (OR EQUAL)
H-20821	BROWN BUILDING	EXHAUST	THERMOSTAT	24VDC		PECO TRF115-005 (OR EQUAL)

REGISTERED PROFESSIONAL ENGINEER
No.318716
BRADLY M. RASMUSSEN
06-22-2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE
0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
C	06/14/2023	WMS	BDP	BMR

REVISIONS

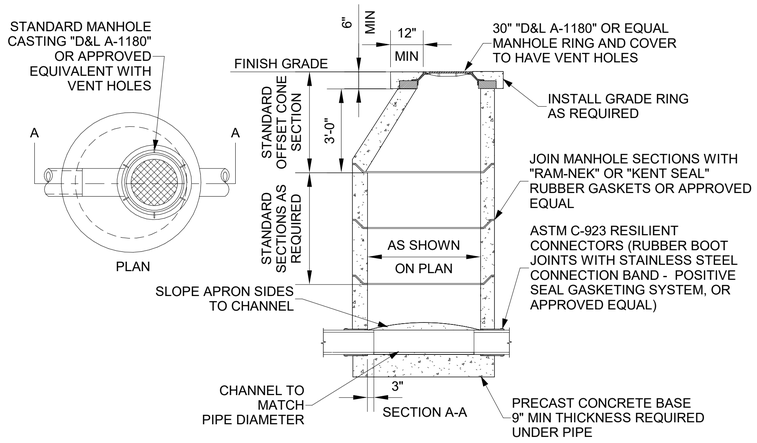
OSPREY RANCH
EDEN, UTAH
LIFT STATION DESIGN

SCHEDULES
MECHANICAL - PUMP - VALVE - HVAC

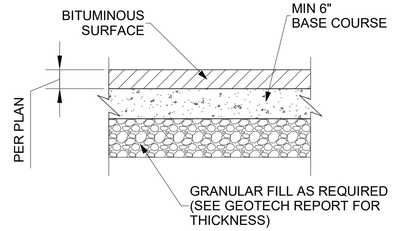
AQUA ENGINEERING
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.
80M801

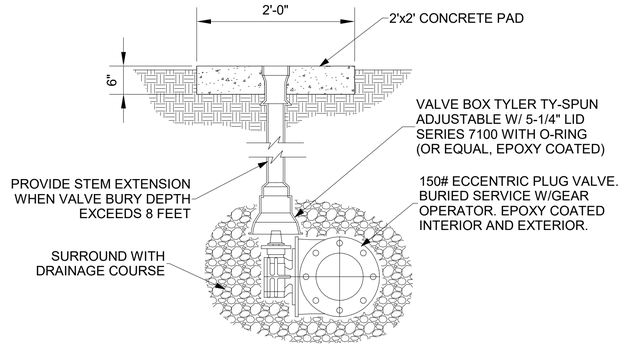
SHEET



C103 **PRECAST MANHOLE**
NTS



C108 **ROADWAY SECTION**
NTS



C126 **BURIED PLUG VALVE**
NTS

REGISTERED PROFESSIONAL ENGINEER
No.318716
BRADLY M. RASMUSSEN
06-22-2023
STATE OF UTAH

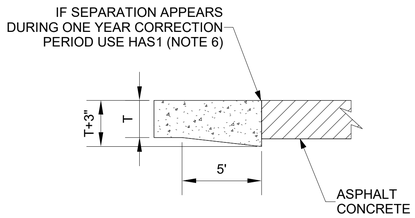
DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE
0 1/2 1

ORIGINAL				REVISIONS			
NO.	DATE	DESIGN	DRAWN	CHECKED	NO.	DATE	DESIGN	DRAWN	CHECKED
C	06/14/2023	WMS	BDP	BMR					

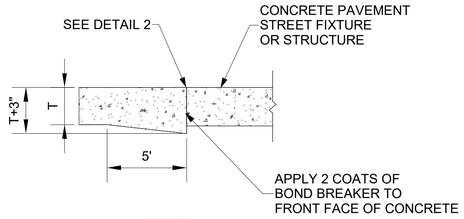
OSPREY RANCH
EDEN, UTAH
LIFT STATION DESIGN
OSPREY GENERATOR BUILDING
DETAILS
CIVIL

AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

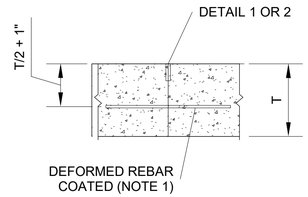
DRAWING NO.
91C901
SHEET



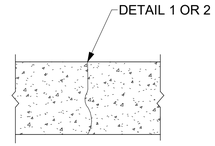
TYPE A



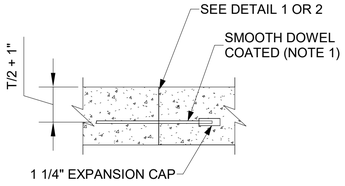
TYPE B



TYPE C

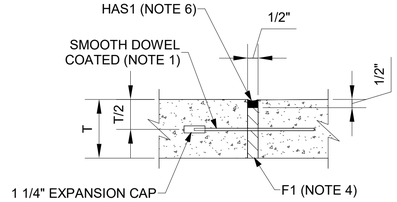


TYPE D



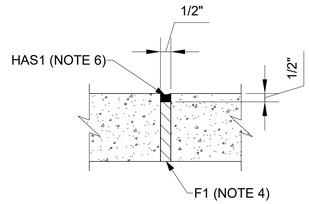
FOR DOWEL SIZE, SEE TABLE OF DIMENSION ON DRAWING

TYPE E

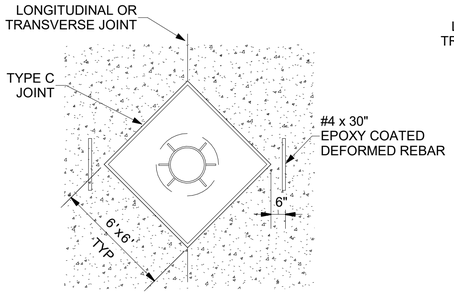


FOR DOWEL SIZE, SEE TABLE OF DIMENSION ON DRAWING

TYPE F

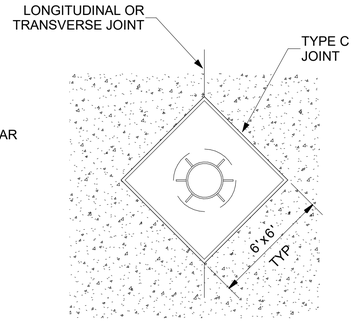


TYPE G

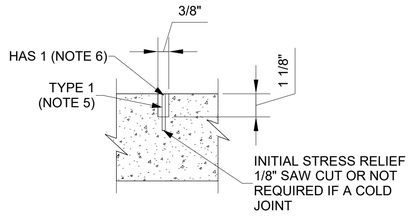


REBAR AT ALL CORNERS OF ISOLATION JOINTS THAT DO NOT INTERSECT A LONGITUDINAL OR TRANSVERSE JOINT

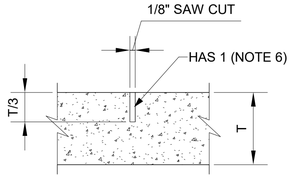
EXAMPLE 1



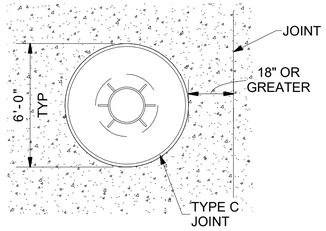
EXAMPLE 2



DETAIL 1

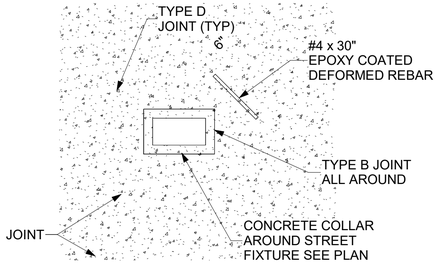


DETAIL 2



USE ROUND TYPE 'G' JOINT WHEN DISTANCE BETWEEN EXPANSION JOINT AND SLAB JOINT IS LESS THAN 18"

EXAMPLE 3



EXAMPLE 4

TYPICAL STREET FIXTURE ISOLATION JOINTS

DOWEL OR REBAR SIZE CHART			
T	DIAMETER (INCHES)	TOTAL LENGTH (INCHES)	SPACING
5"-8"	5"-8"	14	12" OC
9"-12"	1	18	12" OC

NOTES:

1- STEEL REINFORCEMENT SHALL BE ASTM A 615, GRADE 60, EPOXY COATED DEFORMED STEEL REBAR OR SMOOTH STEEL DOWELS WITH DIAMETER AND LENGTH AS INDICATED. SPACE REBAR AND DOWELS AT 12 TO 15' ON CENTER. GREASE DOWELS TO PROVIDE MOVEMENT IN EXPANSION JOINTS. KEEP TIE BARS IN THE VERTICAL CENTER OF THE CONCRETE SLAB AND PERPENDIULAR TO THE JOINT DURING CONCRETE PLACEMENT.

2- CONTRACTION JOINTS IN CONCRETE PAVEMENT SHALL BE SAWCUT. CONTRACTION JOINTS IN SIDEWALK, WATERWAYS, OR CURB AND GUTTER MAY BE TOOLED.

3- KEEP AT LEAST 3 WORKING POWER SAWS ON-SITE WHEN CONCRETE IS BEING PLACED. SAW CRACK CONTROL JOINTS (CONTRACTION JOINTS) BEFORE SHRINKAGE CRACKING TAKES PLACE. DO NOT TEAR OR RAVEL CONCRETE DURING SAWING. IN COOL WEATHER, THE JOINT SAWING MAY BE DELAYED ONLY FOR THE TIME REQUIRED TO PREVENT TEARING AND RAVELING THE CONCRETE CUT JOINT TO DIMENSIONS RECOMMENDED BY SEALANT MANUFATUER AND APPROVED BY ENGINEER.

4- LAY OUT JOINTS TO AID CONSTRUCTION AND CONTROL RANDOM CRACKING.

A. LONGITUDINAL JOINT SPACING IS 12 FEET FOR CONCRETE PAVEMENT LESS THAN 9 INCHES THICK AND 15 FEET FOR CONCRETE PAVEMENT 9 INCHES THICK AND THICKER.
B. TRANSVERSE JOINTS SPACING IS 30 X T (SLAB THICKNESS IN FEET) WHERE THE MAXIMUM SLAB LENGTH TO SLAB WIDTH RATIO IS 1 TO , AND MAXIMUM SPACING SHALL NOT EXCEED 15'.
C. EXTEND TRANSVERSE CONTRACTION JOINTS CONTINUOUSLY ACROSS THE FULL WIDTH OF THE CONCRETE. MAKE THE JOINTS COINCIDE WITH CURB AND GUTTER JOINTS.
D. MAKE ADJUSTMENTS IN JOINT LOCATIONS TO MEET INLET OR MANHOLE LOCATIONS.

5- JOINT FILLER: ASTM D 1751 OR D1752 PER SECTION 02571 EXTENDING TO THE BOTTOM OF THE CONCRETE SLAB.

6 BACKER ROD: PER SECTION 02764, OF SPECIFICATIONS BACKER ROD SHALL BE OVERSIZED APPROXIMATELY 25% TO FIT TIGHTLY INTO EACH JOINT AND COMPATIBLE WITH SEALANT USED.

7- JOINT SEALANT: PER SECION 02764 OF SPECIFICATION. REMOVE DIRT, OIL AND CURING COMPOUNDS FROM JOINT RESERVOIR. SEAL JOINTS IMMEDIATELY AFTER CLEANING.

C147

CONCRETE PAVEMENT JOINTS

NTS

REGISTERED PROFESSIONAL ENGINEER
No.318716
BRADLY M. RASMUSSEN
06-22-2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

ORIGINAL			
NO.	DATE	DESIGN	DRAWN	CHECKED
C.	06/14/2023	WMS	BDP	BMR

REVISIONS				
NO.	DATE	DESIGN	DRAWN	CHECKED

OSPREY RANCH
EDEN, UTAH
LIFT STATION DESIGN

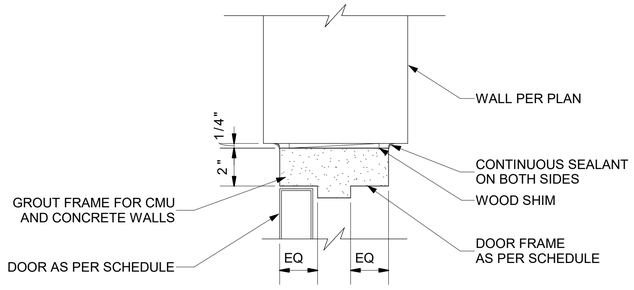
OSPREY GENERATOR BUILDING
DETAILS
CIVIL

AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

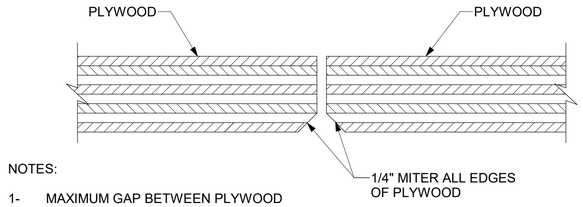
DRAWING NO.

91C902

SHEET



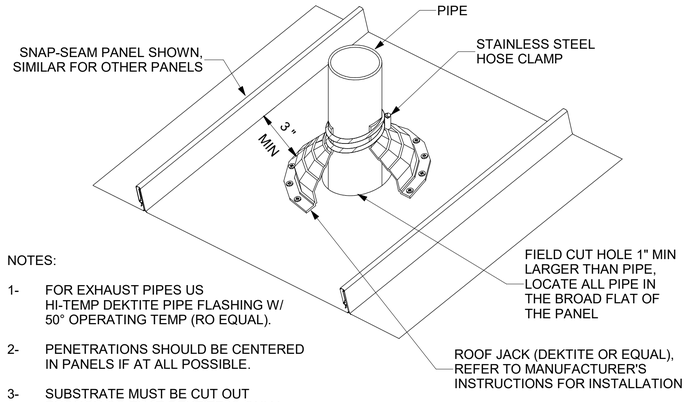
A105 **DOOR JAMB**
NTS



NOTES:

1- MAXIMUM GAP BETWEEN PLYWOOD SHEETS SHALL BE 1/8".

A116 **CEILING PLYWOOD EDGE**
NTS



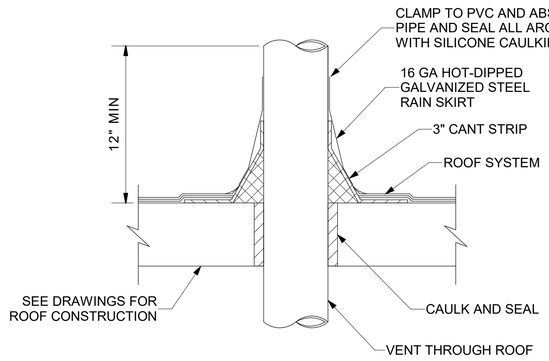
NOTES:

1- FOR EXHAUST PIPES US HI-TEMP DEKTITE PIPE FLASHING W/ 50° OPERATING TEMP (RO EQUAL).

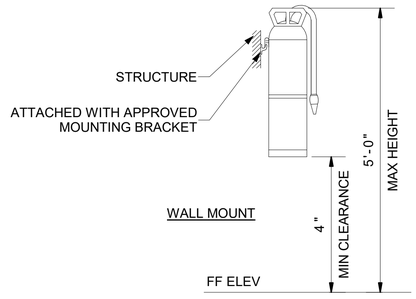
2- PENETRATIONS SHOULD BE CENTERED IN PANELS IF AT ALL POSSIBLE.

3- SUBSTRATE MUST BE CUT OUT ENOUGH SO THAT DEKTITE IS ONLY ATTACHED TO ROOF PANEL.

A117 **ROOF PIPE PENETRATION**
NTS

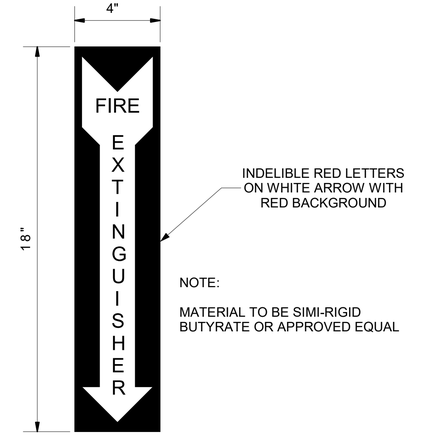


A118 **PIPE THROUGH ROOF**
NTS



CLASS	SIZE	TYPE	UL CLASSIFICATION
ABC	PER PLAN	DRY CHEMICAL	4A:80B:C
CO_2	PER PLAN	CARBON DIOXIDE	10B:C

A132 **FIRE EXTINGUISHER**
NTS



NOTE:

MATERIAL TO BE SIMI-RIGID BUTYRATE OR APPROVED EQUAL

A147 **FIRE EXTINGUISHER SIGN**
NTS

REGISTERED PROFESSIONAL ENGINEER
No.318716
BRADLY M. RASMUSSEN
06-22-2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

NO.	DATE	DESIGN	DRAWN	CHECKED
ORIGINAL				
C	06/14/2023	WMS	BDP	BMR

REVISIONS

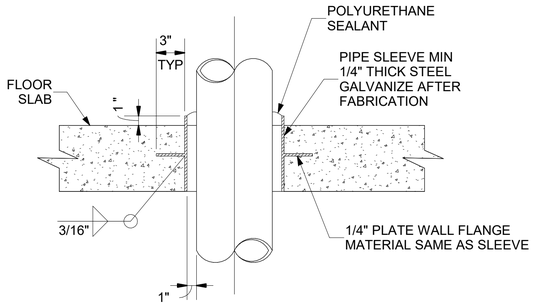
NO.	DATE	DESIGN	DRAWN	CHECKED

OSPREY RANCH
EDEN, UTAH
LIFT STATION DESIGN

OSPREY GENERATOR BUILDING
DETAILS
ARCHITECTURAL

AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

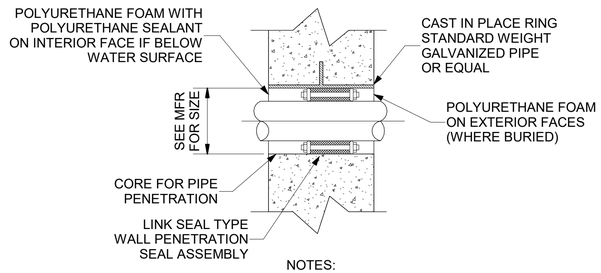
DRAWING NO.
92A901
SHEET



NOTE:

1- ALL FLOOR PENETRATIONS FOR HARD PIPING OF EQUIPMENT SHALL HAVE A FLOOR SLEEVE.

S127 **FLOOR PIPE SLEEVE**
NTS

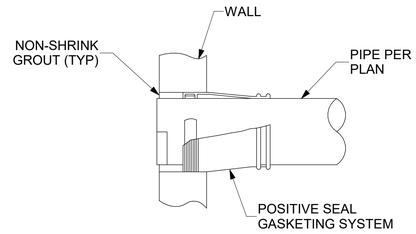


NOTES:

1- PIPE SLEEVE FOR WALL PENETRATION SEAL ASSEMBLY SIZED MY MANUFACTURER.

2- BOLTS SHALL BE STAINLESS STEEL.

S131 **LINK SEAL**
NTS



S132 **RUBBER BOOT**
NTS

S138 **ISOLATION JOINT**
NTS

REGISTERED PROFESSIONAL ENGINEER
No.318716
BRADLY M.
RASMUSSEN
06-22-2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
C	06/14/2023	WMS	BDP	BMR

REVISIONS

NO.	DATE	DESIGN	DRAWN	CHECKED

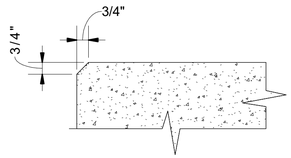
OSPREY RANCH
EDEN, UTAH
LIFT STATION DESIGN

OSPREY GENERATOR BUILDING
DETAILS
STRUCTURAL

AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.
93S901
SHEET

6/14/2023 2:07:29 PM BIM 360://001999.C - Osprey Ranch PER/OSPREY GENERATOR BLDG-V21.rvt

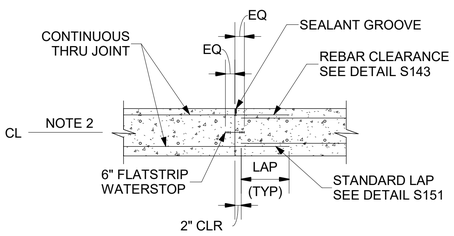


NOTE:

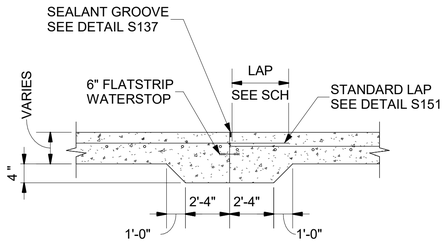
1- ALL EXPOSED CONCRETE CORNERS TO BE CHAMFERED.

S139 CONCRETE CHAMFER

NTS



DOUBLE MAT REINFORCEMENT



SINGLE MAT REINFORCEMENT

NOTE:

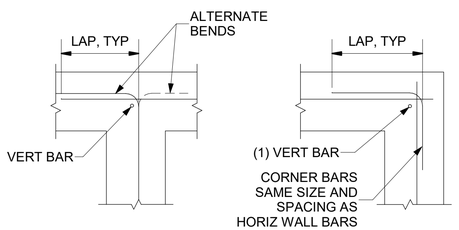
1- WATERSTOP AND SEALANT GROOVES TO BE PROVIDED IN ALL WATER RETAINING SLABS. SEE DRAWINGS FOR OTHER LOCATIONS WHER THEY MAY BE REQUIRED.

2- WATERSTOP AT CENTER OF SLAB UNLESS SHOWN OTHERWISE ON DRAWINGS.

3- SEE DRAWINGS FOR LAP LOCATIONS. IF NOT SPECIFIED, PLACE LAP AS SHOWN FOR TOP AND BOTTOM MATS.

S142 HYDRAULIC CONSTRUCTION JOINT FLOOR SLAB

NTS



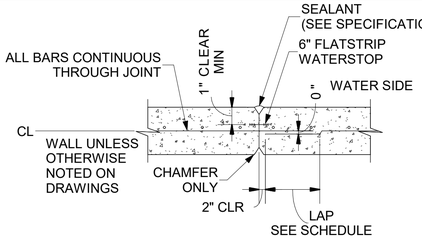
INTERSECTION CORNER

NOTE:

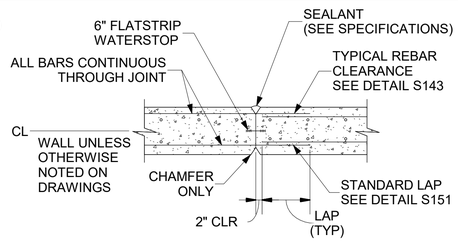
1- REFER TO REINFORCING LAP SCHEDULE DETAIL FOR LAP LENGTHS.

S144 SINGLE CURTAIN OF REBAR

NTS



SINGLE CURTAIN REINFORCEMENT



DOUBLE CURTAIN REINFORCEMENT

NOTES:

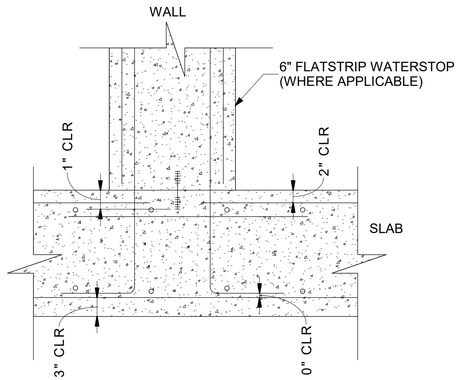
1- WATERSTOP AND SEALANT GROOVES TO BE PROVIDED IN ALL WATER RETAINING FLOORS

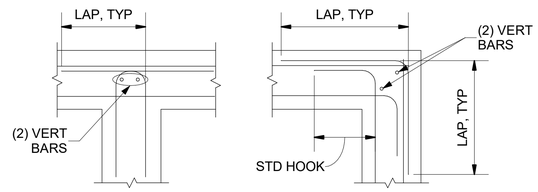
2- WHERE WATERSTOP IS REQUIRED IN SINGLE CURTAIN WALL REINFORCEMENT. PLACE WATERSTOP ON WATER SIDE OF WALL.

3- WHEN WATERSTOP IS REQUIRED IN DOUBLE CURTAIN WALL REINFORCEMENT. PLACE SEALANT GROOVE AND SEALANT ON WATER SIDE OF WALL.

S141 WALL CONSTRUCTION JOINT

NTS





INTERSECTION CORNER

NOTES:

1- REFER TO REINFORCING LAP SCHEDULE DETAIL FOR LAP LENGTHS.

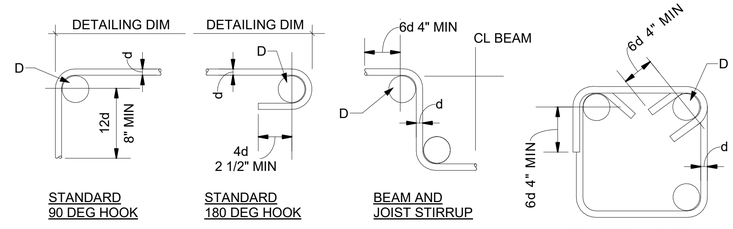
2- REFER TO BAR BENDING DETAIL FOR STANDARD HOOK LENGTHS.

S145 DOUBLE CURTAIN OF REBAR

NTS

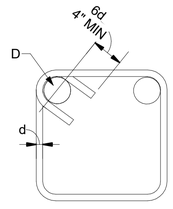
S143 REBAR CLEARANCE

NTS



STANDARD 90 DEG HOOK | STANDARD 180 DEG HOOK | BEAM AND JOIST STIRRUP | SPANDREL AND BEAM SUPPLEMENTARY TIE

D = 6d FOR #3 THRU #8 BARS
D = 8d FOR #9 THRU #11 BARS
D = 10d FOR #12 THRU #18 BARS



COLUMN AND SPANDREL TIE

TIES AND STIRRUPS ONLY
#3 D = 0'-1 1/2"
#4 D = 0'-2"
#5 D = 0'-2 1/2"

S146 BAR BENDING

NTS

REGISTERED PROFESSIONAL ENGINEER
5252489
DARIN M. HAWKES
06/23/2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

NO.	DATE	DESIGN	DRAWN	CHECKED
ORIGINAL				
C	06/14/2023	WMS	BDP	BMR
REVISIONS				

OSPREY RANCH
EDEN, UTAH
LIFT STATION DESIGN

OSPREY GENERATOR BUILDING
DETAILS
STRUCTURAL

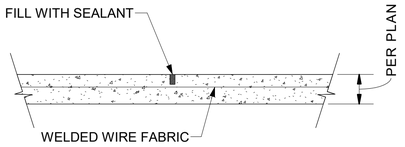
AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

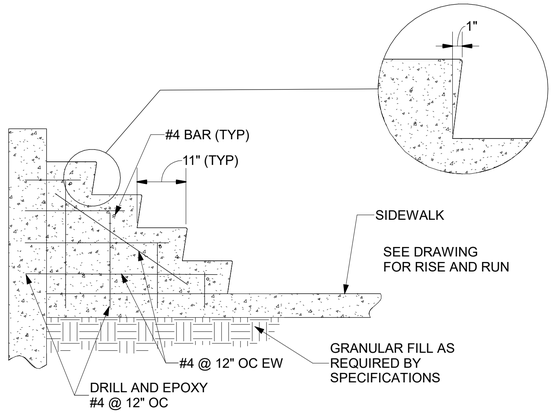
93S902

SHEET

6/14/2023 2:07:29 PM BIM 360://001999.C - Osprey Ranch PER/OSPREY GENERATOR BLDG-V21.rvt



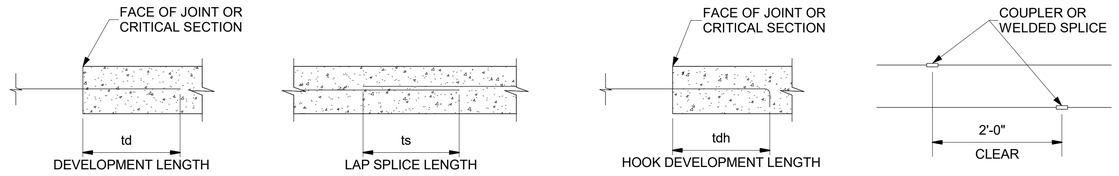
S147 **HYDRAULIC CONTROL JOINT**
NTS



S148 **CONCRETE STAIRS**
NTS

REBAR LAP SPLICE SCHEDULE

BAR LOCATION	CONCRETE TYPE	CONCRETE STRENGTH	CONCRETE REINFORCING & SPLICE LENGTHS (IN) BAR SIZE #3 td	#3 ts	#3 tdh	#4 td	#4 ts	#4 tdh	#5 td	#5 ts	#5 tdh	#6 td	#6 ts	#6 tdh	#7 td	#7 ts	#7 tdh	#8 td	#8 ts	#8 tdh	#9 td	#9 tdh	#10 td	#10 tdh
VERT WALL BARS FILL ON METAL DECK	NWC	4500 PSI	14	18	7	18	23	6	23	30	8	27	35	9	40	52	11	45	59	13	51	14	56	16
HORIZ WALL BARS FOOTING TOP BARS	NWC	4500 PSI	14	18	7	18	23	6	23	30	8	27	35	9	40	52	11	45	59	13	51	14	56	16
BEAM BOTTOM BARS COLUMN BARS	NWC	4500 PSI	14	18	7	18	23	6	23	30	11	27	35	13	40	52	16	45	59	18	51	20	56	22
FOOTING BOTTOM BARS	NWC	4500 PSI	12	16	7	12	16	6	14	18	8	17	22	9	24	31	11	27	35	13	31	14	34	16
BEAM TOP BARS	NWC	4500 PSI	18	23	7	24	31	9	30	39	11	35	46	13	51	66	16	59	77	18	66	20	73	22
SLAB ON GRADE	NWC	4500 PSI	12	16	7	12	16	6	14	18	8	17	22	9	27	35	11	34	44	13	44	14	56	22



NOTES:

1- MECHANICAL COUPLERS MAY BE USED IN LIEU OF LAP SPLICE SHOWN. SEE STRUCTURAL NOTES FOR MINIMUM COUPLER CAPACITY. WHERE MECHANICAL COUPLERS ARE USED. STAGGER ADJACENT SPLICES A MINIMUM OF 24" AS INDICATED ABOVE.

2- DEVELOPMENT LENGTHS SHALL BE INCREASED BY 50% FOR STRAIGHT BAR DEVELOPMENT AND 20% FOR HOOKED BARS WHERE EPOXY COATING IS USED.

3- WHEN SPLICING BARS OF DIFFERENT SIZES, USE LAP SPLICE LENGTH OF LARGER BARS UNO.

4- SPLICE #9 AND LARGER BARS USING MECHANICAL COUPLERS.

S151 **REINFORCING LAP SCHEDULE**
NTS

EQUIPMENT ANCHOR BOLT NOTES:

1- PAD SIZE SHALL BE MINIMUM INDICATED OR AS SHOWN ON THE PLANS OR AS DETERMINED BY THE EQUIPMENT MANUFACTURER AND APPROVED BY THE ENGINEER.

2- THE SIZE, NUMBER, TYPE, LOCATION, AND THREAD PROJECTION OF THE ANCHOR BOLTS SHALL BE DETERMINED BY THE EQUIPMENT MANUFACTURER, AND SHALL BE AS APPROVED BY THE ENGINEER. ANCHOR BOLTS SHALL BE HELD IN POSITION WITH A TEMPLATE WHILE PAD IS BEING POURED.

3- ANCHOR BOLT SLEEVES SHALL BE USED TO PROVIDE THE ANCHOR BOLT A MINIMUM MOVEMENT OF 1/2" IN ALL DIRECTIONS. THE MINIMUM SLEEVE LENGTH SHALL BE 8 TIMES THE BOLT DIAMETER. SLEEVES SHALL BE FILLED WITH NON-SHRINK GROUT.

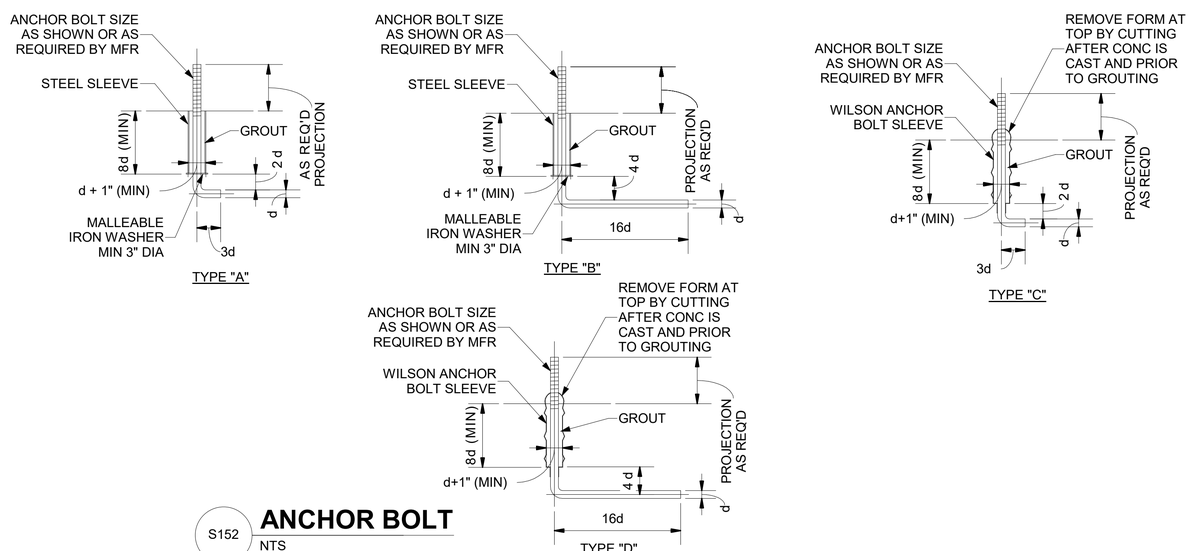
4- ANCHOR BOLT SLEEVES SHALL HAVE A MINIMUM INTERNAL DIAMETER 1" GREATER THAN BOLT DIAMETER AND A MAXIMUM INTERNAL DIAMETER 3" GREATER THAN ANCHOR BOLT DIAMETER. SLEEVES SHALL BE FILLED WITH NON-SHRINK GROUT.

5- EQUIPMENT BASES SHALL BE INSTALLED LEVEL UNLESS SPECIFIED OTHERWISE.

6- THE SURROUNDING FLOOR SLAB SHALL NOT BE PLACED UNTIL THE EXACT SIZE AND LOCATION OF THE PAD IS KNOWN.

7- WEDGES OR SHIMS SHALL BE USED TO SUPPORT THE BASE WHILE THE NON-SHRINK GOURT IS PLACED. TEMPORARY LEVELING NUTS SHALL BE BACKED OFF. IF LEFT IN, THE WEDGES OR SHIMS SHALL NOT BE EXPOSED TO VIEW.

8- ALL ANCHOR BOLTS TO BE STAINLESS STEEL.



S152 **ANCHOR BOLT**
NTS

REGISTERED PROFESSIONAL ENGINEER
5252489
DARIN M. HAWKES
06/23/2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
C	06/14/2023	WMS	BDP	BMR

REVISIONS

NO.	DATE	DESIGN	DRAWN	CHECKED

OSPREY RANCH
EDEN, UTAH
LIFT STATION DESIGN

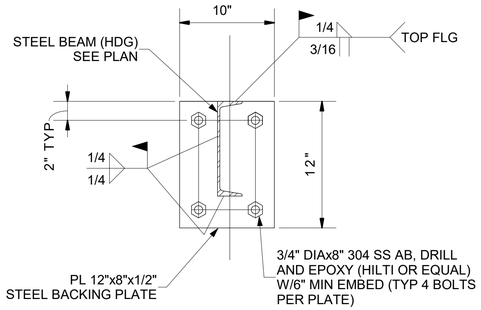
OSPREY GENERATOR BUILDING
DETAILS
STRUCTURAL

AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

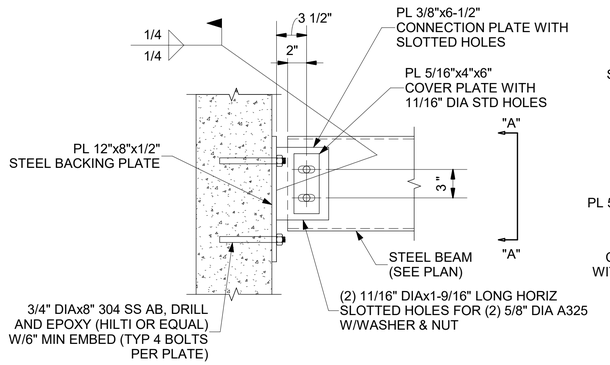
DRAWING NO.
93S903

SHEET

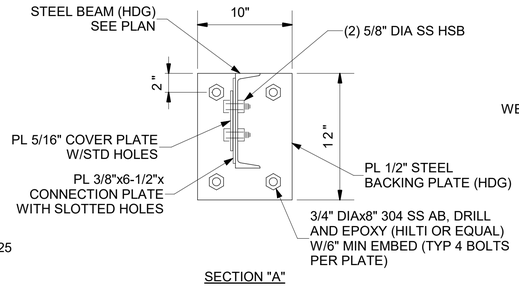
6/14/2023 2:07:29 PM BIM 360://001999.C - Osprey Ranch PER/OSPREY GENERATOR BLDG-V21.rvt



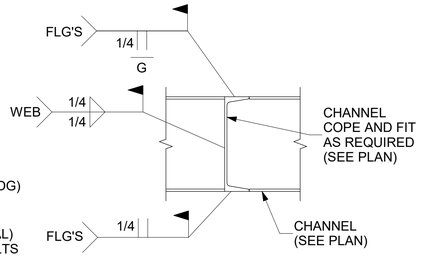
CHANNEL TO CONCRETE WALL CONNECTION



CHANNEL TO CONCRETE WALL CONNECTION (ADJUSTABLE)



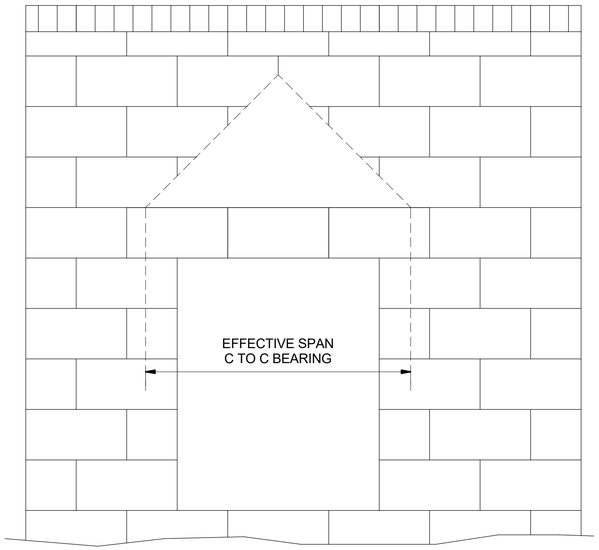
SECTION "A"



CHANNEL TO CHANNEL CONNECTION

S175 STEEL BEAM CONNECTIONS

NTS



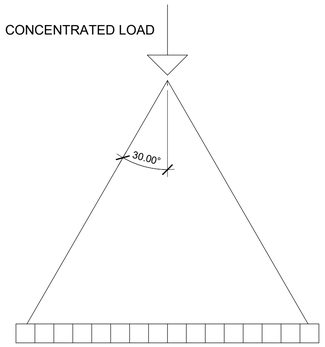
REQUIRED REINFORCING FOR SIMPLY SUPPORTED REINFORCED CONCRETE MASONRY LINTELS

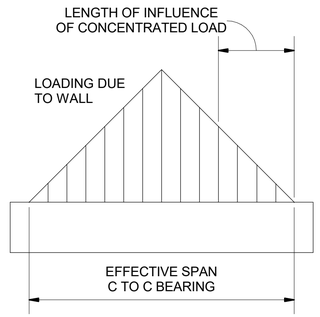
TYPE OF LOADING *	LINTEL SECTION NOMINAL SIZE	REQUIRED REINFORCING CLEAR SPAN							
		3'-4"	4'-0"	4'-8"	5'-4"	6'-0"	6'-8"	7'-4"	8'-0"
WALL LOADS	6"x8"	1-#3	1-#4	1-#4	2-#4	2-#5			
	6"x16"					1-#4	1-#4	1-#4	1-#4
FLOOR AND ROOF LOADS	6"x16"	1-#4	1-#4	2-#3	1-#5	2-#4	2-#4	2-#5	2-#5
WALL LOADS	8"x8"	1-#3	2-#3	2-#3	2-#4	2-#4	2-#5	2-#6	
	8"x16"							2-#5	2-#5
FLOOR AND ROOF LOADS	8"x8"	2-#4							
	8"x16"	2-#3	2-#3	2-#3	2-#4	2-#4	2-#4	2-#5	2-#5

*INCLUDING WEIGHT OF LINTEL

S180 LINTEL LOADING

NTS





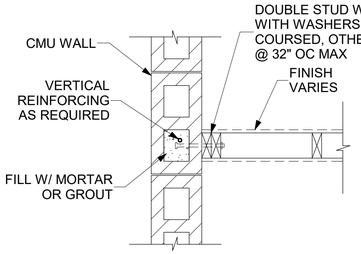
NOTES:

1- WALL LOADS ASSUMED 300 LBS PER LINEAR FOOT.

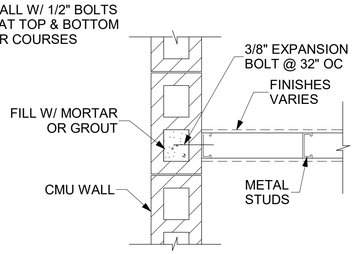
2- FLOOR AND ROOF LOADS INCLUDING WALL LOADS ASSUMED 1000 LBS PER LINEAR FOOT.

3- 8" LINTELS ASSUMED TO WEIGH 50 LBS PER FOOT.

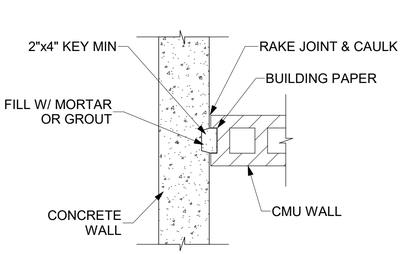
4- 16" LINTELS ASSUMED TO WEIGH 100 LBS PER FOOT.



CMU WALL & WOOD STUD WALL



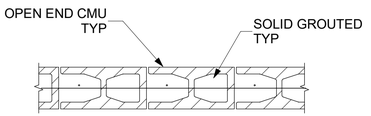
CMU WALL & STEEL STUD WALL



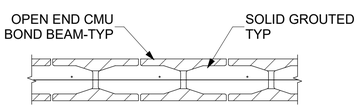
CMU WALL & CONCRETE WALL

S181 CMU WALL INTERSECTION

NTS



TYPICAL CMU WALL COURSE
BETWEEN BOND BEAM UNITS



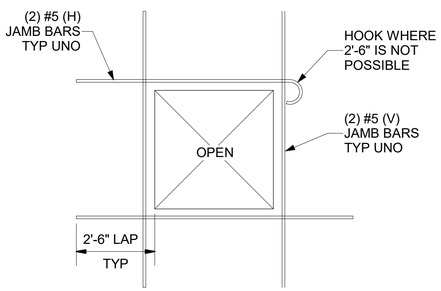
TYPICAL BOND BEAM COURSE

NOTE:

1- SINGLE CURTAIN OF REINF AT 8"CMU
DOUBLE CURTAIN OF REINF AT 12" CMU

S182 CMU COARSING

NTS



WHERE OPENING IS OVER 3'-4"
WIDE VERTICAL JAMB SHALL BE
FULL HEIGHT

S183 CMU JAMB AT OPENING

NTS

REGISTERED PROFESSIONAL ENGINEER
5252489
DARIN M. HAWKES
06/23/2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

ORIGINAL				REVISIONS			
NO.	DATE	DESIGN	DRAWN	CHECKED	NO.	DATE	DESIGN	DRAWN	CHECKED
C	06/14/2023	WMS	BDP	BMR					

OSPREY RANCH
EDEN, UTAH
LIFT STATION DESIGN

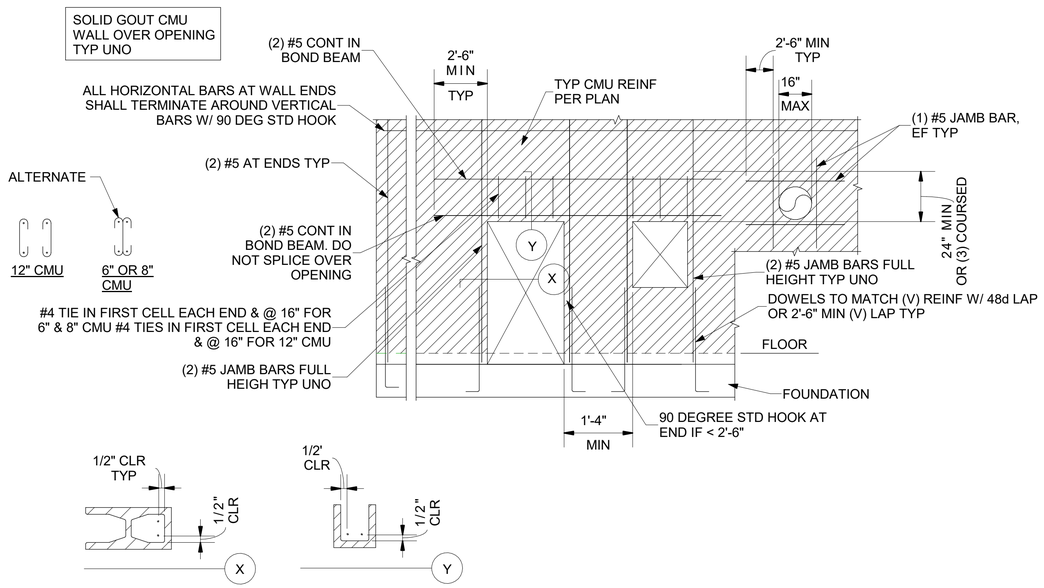
OSPREY GENERATOR BUILDING
DETAILS
STRUCTURAL

AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

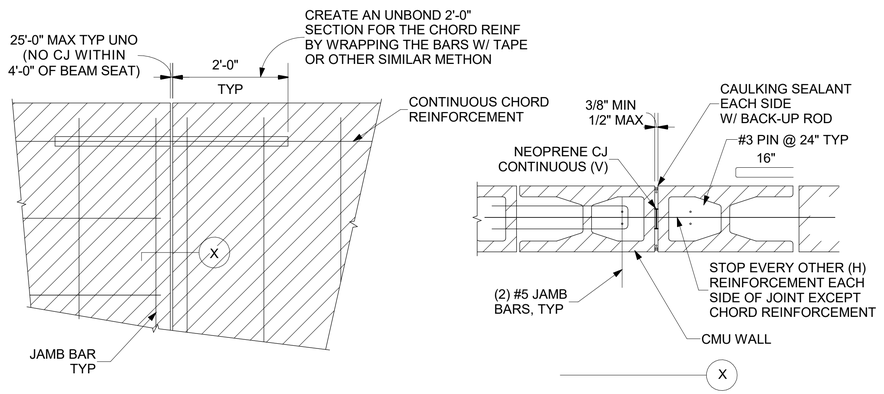
DRAWING NO.

93S904

SHEET



S184 **CMU LINTEL**
NTS

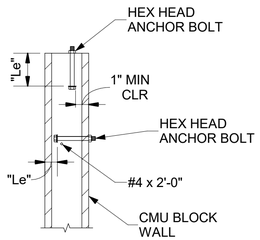


S185 **VERTICAL WCJ (WALL CONTROL JOINT)**
NTS

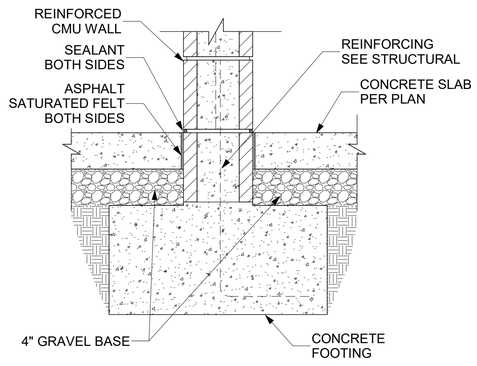
NOTE:

ALL BOLTS SHALL BE GROUTED IN PLACE WITH AT LEAST 1 INCH OF GROUT BETWEEN THE BOLT & THE CMU & SHALL BE ACCURATELY SET WITH TEMPLATES.

MINIMUM EMBEDMENT				
ANCHOR SIZE	1/2"	5/8"	3/4"	7/8"
"Le"	5"	5"	6"	7"



S186 **AB EMBED IN CMU**
NTS



S187 **INTERIOR BEARING WALL**
NTS

REGISTERED PROFESSIONAL ENGINEER
5252489
DARIN M. HAWKES
06/23/2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
C	06/14/2023	WMS	BDP	BMR

REVISIONS

NO.	DATE	DESIGN	DRAWN	CHECKED

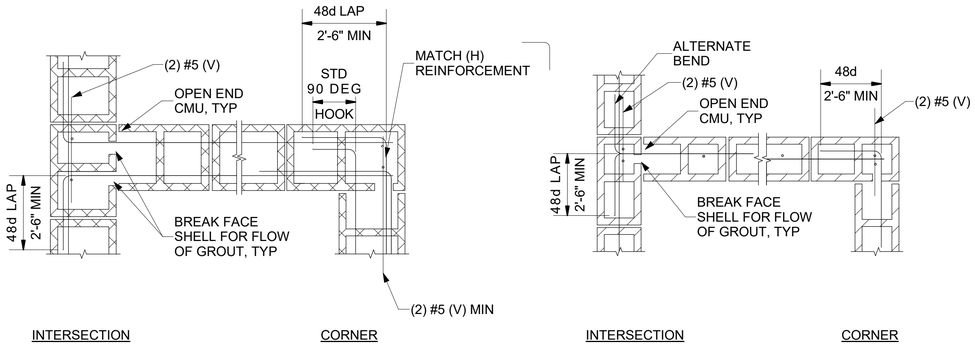
OSPREY RANCH
EDEN, UTAH
LIFT STATION DESIGN

OSPREY GENERATOR BUILDING
HEADWORKS
STRUCTURAL - DETAILS

AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

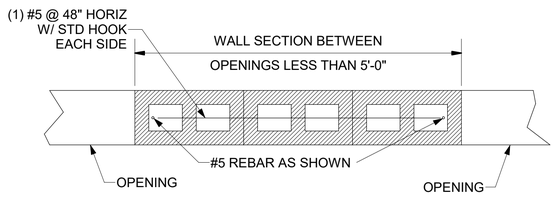
DRAWING NO.
93S905
SHEET

6/14/2023 2:07:30 PM BIM 360://001999.C - Osprey Ranch PER/OSPREY GENERATOR BLDG-V21.rvt



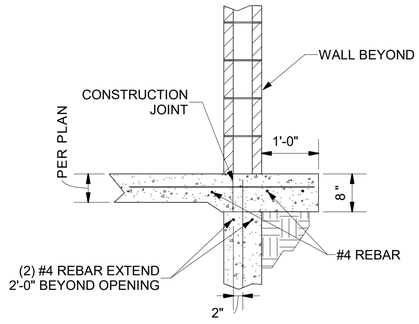
S188 CMU REINF - PLAN VIEW

NTS



S189 SECTION BETWEEN OPENINGS

NTS



S190 THRESHOLD SECTION

NTS

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
C.	06/14/2023	WMS	BDP	BMR

REVISIONS

NO.	DATE	DESIGN	DRAWN	CHECKED

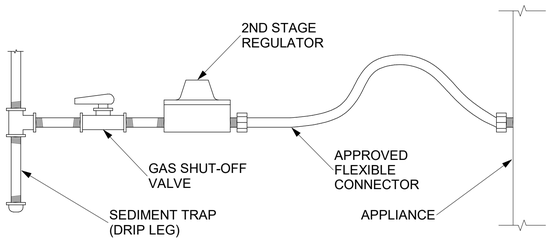
OSPREY RANCH
EDEN, UTAH
LIFT STATION DESIGN
OSPREY GENERATOR BUILDING
DETAILS
STRUCTURAL

AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

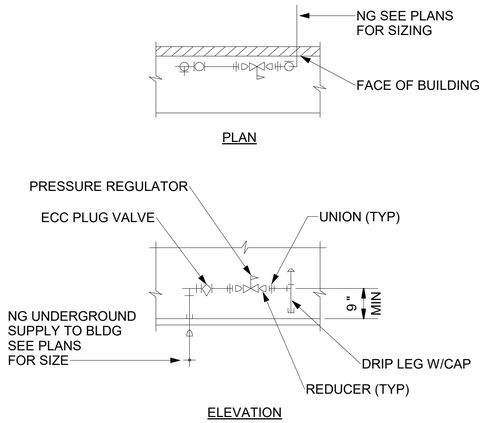
DRAWING NO.

93S906

SHEET



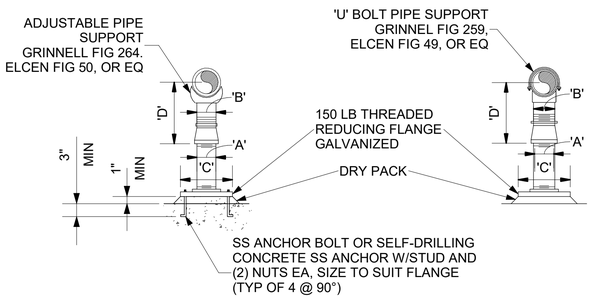
M123 **GAS CONNECTION TO APPLIANCE**
NTS



M125 **GAS CONNECTION TO BUILDING**
NTS

ADJUSTABLE PIPE SUPPORT APPROXIMATE DIMENSIONS IN INCHES					
PIPE DIA	'A'	'B'	'C'	'D' MINIMUM	'D' MAXIMUM
2 1/2	2 1/2	1 1/2	9	8	11 1/2
3	2 1/2	1 1/2	9	8 1/4	11 3/4
3 1/2	2 1/2	1 1/2	9	8 1/2	12
4	3	*2 1/2	9	10 1/4	14
6	3	*2 1/2	9	11 5/8	15 1/4
8	3	*2 1/2	9	13 5/8	16 1/2
10	3	*2 1/2	9	14 5/8	18 1/4
12	3	*2 1/2	9	15 5/8	19 3/4
14	4	3	11	18 7/8	20 3/4
16	4	3	11	19 7/8	22 1/4
18	6	3 1/2	13 1/2	21 1/4	24
20	6	3 1/2	13 1/2	23 1/4	25 1/2
24	6	4	13 1/2	26 1/2	28 1/4
30	6	4	13 1/2	29 5/8	32 5/8
32	6	4	13 1/2	30 5/8	32 5/8
36	6	4	13 1/2	32 5/8	32 5/8

*SEE MFR.



M132 **ADJUSTABLE PIPE SUPPORT**
NTS

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
		WMS	BDP	BMR

REVISIONS

NO.	DATE	DESIGN	DRAWN	CHECKED
C.	06/14/2023			

OSPREY RANCH
EDEN, UTAH
LIFT STATION DESIGN

OSPREY GENERATOR BUILDING
DETAILS
MECHANICAL

AQUA ENGINEERING
533 W 2600 S,SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

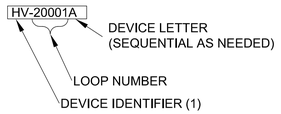
DRAWING NO.
94M901
SHEET

6/14/2023 2:07:31 PM BIM 360://001999.C - Osprey Ranch PER/OSPREY GENERATOR BLDG-V21.rvt

ISA INSTRUMENT IDENTIFICATION TABLE

PRECEDING LETTERS			SUCCEEDING LETTERS		
MEASURED OR INITIATING VARIABLE		MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		EMERGENCY	USER'S CHOICE	USER'S CHOICE
C	CONDUCTIVITY			CONTROL	
D	DENSITY OR SPECIFIC GRAVITY	DIFFERENTIAL			
E	VOLTAGE		PRIMARY ELEMENT		
F	FLOW RATE	RATIO			
G	GAUGE		GLASS, VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MOTOR	MOMENTARY	MOISTURE		MIDDLE
N	VIDEO		USER'S CHOICE	USER'S CHOICE	NORMAL
O	USER'S CHOICE		ORIFICE, RESTRICTION		OPEN
P	PRESSURE, VACUUM		POINT CONNECTION		STOP
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD, OR PRINT		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, LOUVER	
W	WEIGHT, FORCE		WELL		
X	UNCLASSIFIED	X-AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE, OR PRESENCE	Y-AXIS		RELAY, COMPUTE, CONVERT	
Z	POSITION, DIMENSION	Z-AXIS		DRIVER, ACTUATOR, FINAL CONTROL ELEMENT	

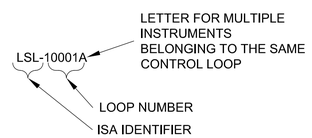
EQUIPMENT TAG



(1) DEVICE IDENTIFIERS

CNV	CONVEYANCE EQUIPMENT
CV	CHECK VALVE
FV	AUTOMATIC VALVE (ACTUATED VALVE)
G	GATE
H	HVAC/ODOR
HV	HAND VALVE
M	METERING
ME	CHEMICAL/MECHANICAL EQUIPMENT
MFV	MULTIFUNCTION VALVE
P	PUMP
SPV	SAMPLE VALVE
SV	SOLENOID VALVE

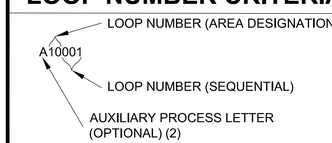
INSTRUMENT/SCADA TAG



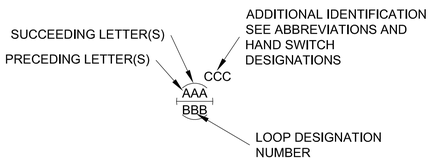
(2) AUXILIARY PROCESS LETTERS

A	ACCESS CONTROL SYSTEMS
C	COLLECTIONS SYSTEM
F	FIRE SYSTEMS
H	HVAC SYSTEMS
P	POWER SYSTEMS

LOOP NUMBER CRITERIA



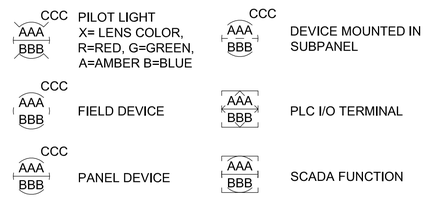
TAG NUMBERS AND ADDITIONAL DESIGNATIONS



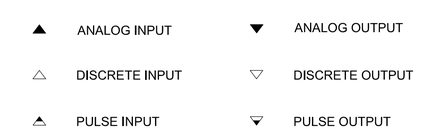
P&ID INTERFACE SYMBOLS

NOTE:

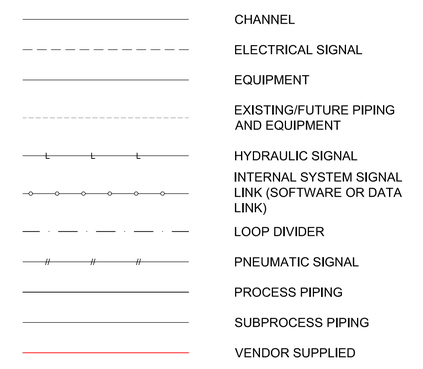
REFER TO ISA INSTRUMENT IDENTIFICATION TABLE FOR DEFINITION OF LETTERS AAA INSIDE THE BUBBLES. BBB REPRESENTS LOOP ID (IF USED). SEE ABBREVIATIONS LIST FOR SUPERSCRIPT CCC.



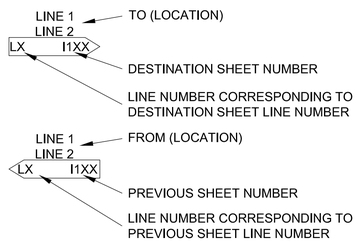
INPUT/OUTPUT SYMBOLS



P&ID LINETYPES



PROCESS/SIGNAL LINE TO/FROM A PRECEDING SHEET



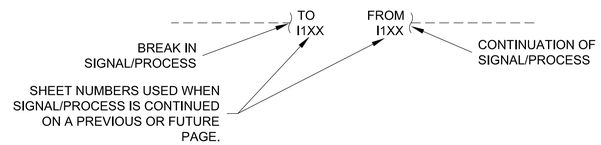
P&ID ABBREVIATIONS

AI	ANALOG INPUT
AO	ANALOG OUTPUT
ARV	AIR RELIEF VALVE
AS	AIR SUPPLY
BWL	BOTTOM WATER LEVEL
CL2	CHLORINE
CV	CONTROL VALVE/CONTROL VARIABLE
DCS	DISTRIBUTED CONTROL SYSTEM
DI	DISCRETE INPUT
DO	DISSOLVED OXYGEN
DP	DIFFERENTIAL PRESSURE
DWG	DRAWING
ETM	ELAPSED TIME METER
ETMf	ELAPSED TIME METER (FAST SPEED)
ETMs	ELAPSED TIME METER (SLOW SPEED)
ES	EMERGENCY STOP
FA	FOUL AIR
FC	FAIL CLOSED
FE	FLOW ELEMENT
FVNR	FULL VOLTAGE NON-REVERSING
FVR	FULL VOLTAGE REVERSING
GA	GALLONS
GCP	GENERATOR CONTROL PANEL
GND	GROUND
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
H2S	HYDROGEN SULFIDE
HMI	HUMAN MACHINE INTERFACE
IO	INPUT/OUTPUT
ISB	INTRINSICALLY SAFE BARRIER
LAN	LOCAL AREA NETWORK
LCP	LOCAL CONTROL PANEL
M	MOTOR
MA	MILLIAMP
MCC	MOTOR CONTROL CENTER
MFR(S)	MANUFACTURER(S)
MGD	MILLION GALLONS PER DAY
MGL	MILLIGRAMS PER LITER
MLR	MIXED LIQUOR RETURN
MO	MOISTURE
MOD	MODULATING
MTU	MASTER TELEMETRY UNIT
NTU	TURBIDITY
OIT	OPERATOR INTERFACE TERMINAL
OL	OVERLOAD
PER	PERMISSIVE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PNL	PANEL
POS	POSITION
POT	POTENTIOMETER
PPM	PARTS PER MILLION
PR	PAIR
PSI	POUNDS PER SQUARE INCH
PV	PROCESS VARIABLE
RF	RADIO FREQUENCY
RIO	REMOTE INPUT OUTPUT
RST	RESET
RTU	REMOTE TELEMETRY UNIT
RVSS	REVERSE VOLTAGE SOFT START
SB	SLUDGE BLANKET
SD	SMOKE DETECTOR
SLC	SINGLE LOOP CONTROLLER
SO2	SULFUR DIOXIDE
SP	SET POINT/SPARE
SPD	SPEED
SV	SOLENOID OPERATED VALVE
T/M	TEMPERATURE AND/OR MOISTURE
TSS	TOTAL SUSPENDED SOLIDS
TWL	TOP WATER LEVEL
UG	UNDERGROUND
VFD	VARIABLE FREQUENCY DRIVE
VTP	VERTICAL TURBINE PUMP

PROCESS IDENTIFIERS

A	AERATION
AIR	COMPRESSED AIR
AS	AIR SUPPLY
BD	BOTTOM DRAIN
BS	BENDED SLUDGE
C	CONDENSATE
CD	CHEMICAL DRAIN AND VENT
CL	CHLORINE (GAS OR LIQUID STATE)
CLS	CHLORINE SOLUTION
CLV	CHLORINE GAS UNDER VACUUM
CSL	CIRCULATED SLUDGE
CV	CHLORINATOR VENT AND DETECTION LINE
DN	DECANT
DSL	DIGESTED SLUDGE
DW	DEMINERALIZED WATER
EE	ENGINE EXHAUST
EV	EVAPORATIVE COOLING
EWR	ENGINE COOLING WATER RETURN
EWS	ENGINE COOLING WATER SUPPLY
EX	AIR EXHAUST
FA	FOUL AIR
FE	FINAL EFFLUENT
FM	FORCE MAIN
FOR	FUEL RETURN
FOS	FUEL SUPPLY
FS	FROTH SPRAY
FSP	FIRE PROTECTION SPRINKLER SYSTEM
FW	FINISHED WATER
G	GRIT
H	HYPOCHLORITE
HR	HEATING WATER RETURN
HS	HEATING WATER SUPPLY
HW	HOT WATER
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HY	HYDRAULIC
IA	INSTRUMENT AIR
LO	LUBE OIL
LSP	LANDSCAPING SPRINKLER SYSTEM
ML	MIXED LIQUOR
NG	NOT USED NATURAL GAS
NPW	NON-POTABLE WATER
OF	OVERFLOW
PA	PLANT AIR
PD	PLANT DRAIN
PEA	POLYMER-ANIONIC
PEC	POLYMER-CATIONIC
PEF	PRIMARY EFFLUENT
PEN	POLYMER-NONIONIC
PI	PLANT INFLUENT
PW	POTABLE WATER
RAS	RETURN ACTIVATED SLUDGE
RSL	RAW SLUDGE
RW	RAW WATER
RWL	RAINWATER LEADER
S	SCUM
SA	SAMPLE LINE (SEE LIST AT RIGHT)
SB	SODIUM BISULFITE
SD	SANITARY DRAIN AND VENT
SDR	STORM DRAIN
SE	SECONDARY EFFLUENT
SF	SLUDGE FILTRATE
SG	SLUDGE GAS
SN	SUBNATANT
SPD	SUMP PUMP DISCHARGE
SS	SANITARY SEWER
ST	STEAM
SU	STRUCTURE UNDERDRAIN
SUC	STRUCTURE UNDERDRAIN COLLECTOR
TSL	THICKENED SLUDGE
UW	UTILITY WATER
WAS	WASTE ACTIVATED SLUDGE
WLO	WASTE LUBE OIL
WW	WASTEWATER

CONTINUATION



GENERAL NOTES

1. ADDITIONAL INSTRUMENTATION AND CONTROL SYMBOLS MAY BE USED AS REQUIRED. SYMBOLS AND NOMENCLATURE ARE BASED ON ISA STANDARD S-5.1.
2. SEE ASSOCIATED ELECTRICAL SYMBOL SHEETS FOR ELECTRICAL SYMBOLS AND ABBREVIATIONS.

HAND SWITCH DESIGNATIONS

ES	EMERGENCY STOP
FOR	FORWARD-OFF-REVERSE
FR	FORWARD-REVERSE
HOA	HAND-OFF-AUTO
HOR	HAND-OFF-REMOTE
HORA	HAND-OFF-REMOTE-AUTO
IOE	INTERNAL-OFF-EXTERNAL
JOA	JOG-OFF-AUTO
LOAR	LOWER-OFF-AUTO-RAISE
LOR	LOCAL-OFF-REMOTE
LR	LOCAL-REMOTE
MA	MANUAL-AUTO
MOA	MANUAL-OFF-AUTO
MOR	MOMENTARY-OFF-RUN
OC	OPEN-CLOSE
OCA	OPEN-CLOSE-AUTO
OCR	OPEN-CLOSE-REMOTE
OO	ON-OFF
OOA	ON-OFF-AUTO
OOC	ON-OFF-CLOSE
OOR	ON-OFF-REMOTE
OSC	OPEN-STOP-CLOSE
POT	POTENTIOMETER
ROO	RESET-OFF-ON
RST	RESET PUSHBUTTON
SS	START-STOP

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

NO.	DATE	DESIGN	DRAWN	CHECKED
0	00/00/0000	ORIGINAL		

REVISIONS

OSPREY RANCH PER
OSPREY LIFT STATION &
BROWN LIFT STATION
INSTRUMENTATION - GENERAL
INSTRUMENTATION LEGEND

skm
533 W 2600 S, Suite 25
Bountiful, Utah 84010
Phone: (801) 677-0011
www.skmeng.com

AQUA ENGINEERING
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

I001

SHEET

C:\USERS\EUNGEOL.KIM\AQUA ENGINEERING\OSPREY RANCH - 001999.C OSPREY RANCH PER\050 DRAFTING\I998 INSTRUMENTATION\BROWN LS\I998-I001 LEGEND.DWG

6/9/2023

VALVES

- 3 WAY VALVE
- 4 WAY VALVE
- ANGLE VALVE
- BACK PRESSURE RELIEF VALVE
- BALANCING VALVE
- BALL VALVE
- BUTTERFLY VALVE
- CHECK VALVE
- DIAPHRAGM VALVE
- ECCENTRIC PLUG VALVE
- GATE VALVE
- GLOBE VALVE
- KNIFE VALVE
- LUBRICATED PLUG VALVE
- MIX VALVE
- MUD VALVE
- NEEDLE VALVE
- PINCH VALVE
- PRESSURE REDUCING VALVE
- PRESSURE RELIEF VALVE
- SLEEVE VALVE
- TELESCOPING VALVE
- VACUUM VALVE

HVAC

- AIR COMPRESSOR
- AIR FILTER
- DAMPER
- FILTER
- GUIDE VANES
- HEAT EXCHANGER
- LOUVER WITH HOOD
- SILENCER
- UNIT HEATER

GATES

- FLAPPER GATE
- SLIDE GATE
- SLUICE GATE
- STOP GATE

ACTUATORS

- ACTUATOR: H=HYDRAULIC, M=MOTOR, P=PNEUMATIC, S=SOLENOID
- MANUAL
- PNEUMATIC DIAPHRAGM
- PNEUMATIC DIAPHRAGM WITH POSITIONER

PIPING

- BLIND FLANGE
- CAPPED OR PLUGGED END
- DRAIN
- QUICK CONNECT/ DISCONNECT
- REDUCER
- Y-STRAINER
- FLEXIBLE CONNECTOR

PUMPS

- CENTRIFUGAL PUMP
- MECHANICAL DIAPHRAGM PUMP
- METERING PUMP
- MIXED FLOW PUMP
- PERISTALTIC PUMP
- PROGRESSIVE CAVITY PUMP
- ROTARY LOBE PUMP
- SUBMERSIBLE PUMP
- VERTICAL TURBINE PUMP

FLOW ELEMENTS

- MAGNETIC FLOW ELEMENT
- MASS FLOW ELEMENT ANNUBAR (INSERTION)
- MASS FLOW ELEMENT ANNUBAR (SPOOL)
- PITOT TUBE
- PROPELLER FLOW ELEMENT (INSERTION)
- PROPELLER FLOW ELEMENT (SPOOL)
- ROTAMETER
- THERMAL MASS FLOW ELEMENT (INSERTION)
- THERMAL MASS FLOW ELEMENT (SPOOL)
- ULTRASONIC FLOW ELEMENT (INSERTION)
- ULTRASONIC FLOW ELEMENT (SPOOL)

MISCELLANEOUS

- VFD KEYPAD
- GRINDER

PRIMARY ELEMENT SYMBOLS

- ANALYZER ELEMENT
- DO ANALYZER
- DO SENSOR
- FLOAT SWITCH
- ORP ANALYZER
- ORP SENSOR
- pH ANALYZER
- pH SENSOR
- ULTRASONIC LEVEL TRANSDUCER
- RADAR LEVEL TRANSDUCER

REGISTERED PROFESSIONAL ENGINEER
No. 5338864
MARK P. JEPPSEN
06/26/2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

NO.	DATE	DESIGN	DRAWN	CHECKED
0	00/00/0000	REVISIONS		

ORIGINAL

OSPREY RANCH PER

OSPREY LIFT STATION &
BROWN LIFT STATION
INSTRUMENTATION - GENERAL
INSTRUMENTATION SYMBOLS

skm
533 W 2600 S, Suite 25
Bountiful, Utah 84010
Phone: (801) 677-0011
www.skmeng.com

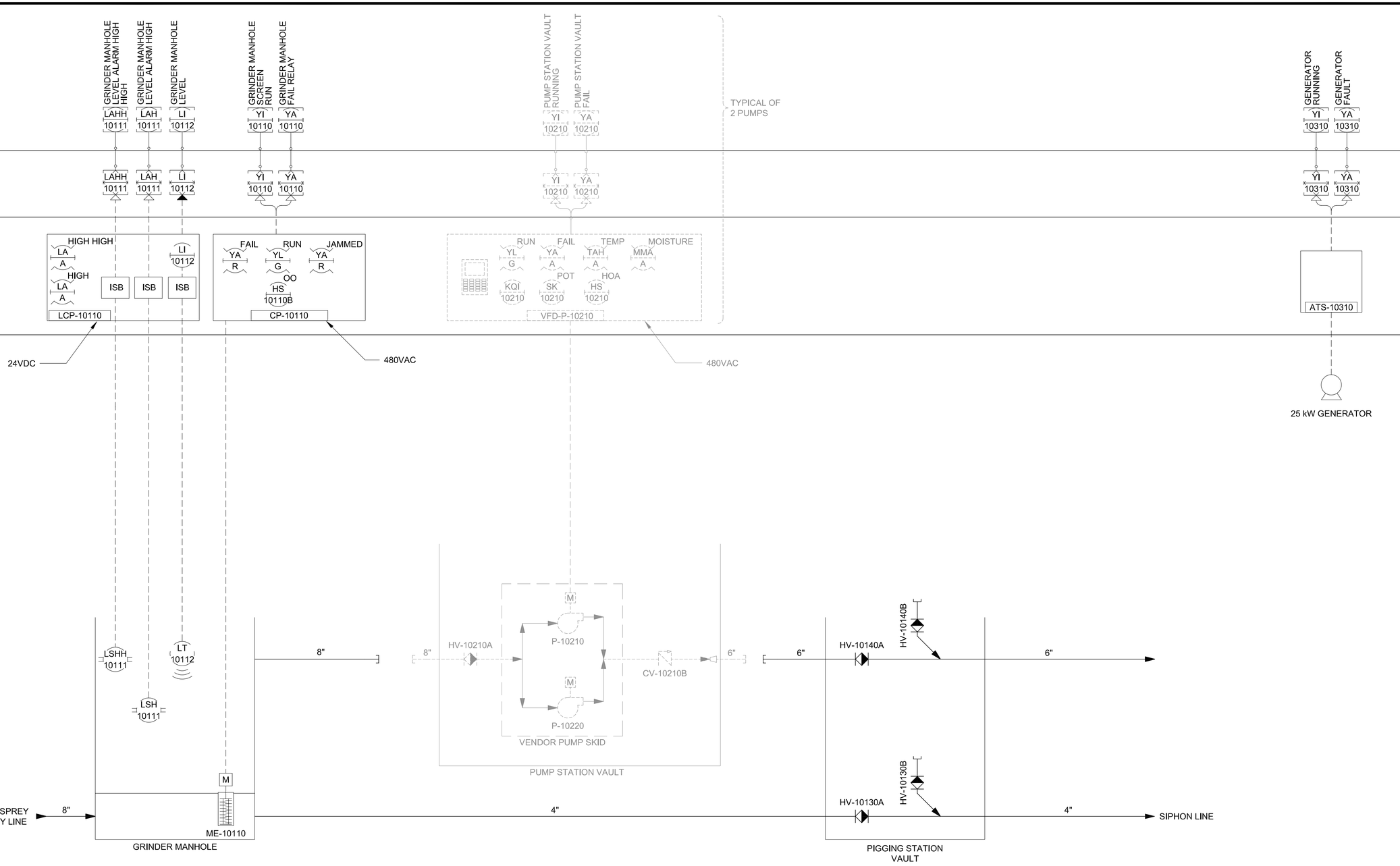
AQUA ENGINEERING
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

I002

SHEET

5/24/2023 C:\USERS\EUNGEOL.KIM\AQUA ENGINEERING\OSPREY RANCH - 001999.C OSPREY RANCH PER\060 DRAFTING\998 INSTRUMENTATION\BROWN LS\I998-I002 SYMBOLS.DWG



LIFT STATION PUMP 1, 2: P-10210(FUTURE), P-10220(FUTURE)
GRINDER: ME-10110
LOOPS: 10210(FUTURE), 10220(FUTURE)

C:\USERS\EUNGEOL.KIM\APPDATA\LOCAL\AUTODESK\AUTOCAD PLANT 3D\COLLABORATION\CACHE\OSPREY RANCH PER-P-ID\PID DWG\I999-I101-OSPREY LS.DWG

6/7/2023

REGISTERED PROFESSIONAL ENGINEER
No. 5338864
MARK P. JEPPSEN
06/26/2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES:
1" = FULL SCALE
1/2" = HALF SCALE
0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
0	00/00/0000	AAA	BBB	CCC

REVISIONS

OSPREY RANCH PER

OSPREY LIFT STATION &
BROWN LIFT STATION
INSTRUMENTATION - P&ID
OSPREY LIFT STATION

skm
533 W 2600 S, Suite 25
Bountiful, Utah 84010
Phone: (801) 677-0011
www.skmeng.com

AQUA ENGINEERING
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

I101

SHEET OF

SCADA

RTU

ELECTRICAL EQUIPMENT

FIELD

PUMP STATION VAULT LEVEL ALARM LOW — LAL 20111

PUMP STATION VAULT LEVEL ALARM HIGH — LAH 20111

PUMP STATION VAULT LEVEL — LI 20112

PUMP STATION VAULT 1 RUNNING — YI 20210

PUMP STATION VAULT 1 FAIL — YA 20210

TYPICAL OF 2 PUMPS

PUMP STATION VAULT 3 RUNNING — YI 20230

PUMP STATION VAULT 3 FAIL — YA 20230

GENERATOR RUNNING — YI 20310

GENERATOR FAULT — YA 20310

LCP-20110: LOW LA A; HIGH LA A; LI 20112; ISB; ISB; ISB

VFD-P-20210: RUN YL G; FAIL YA A; TEMP TAH A; MOISTURE MMA A; POT KQI 20210; SK 20210; HOA HS 20210

VFD-P-20230: RUN YL G; FAIL YA A; TEMP TAH A; MOISTURE MMA A; POT KQI 20230; SK 20230; HOA HS 20230

ATS-20310

24VDC

480VAC

480VAC

200kW GENERATOR

LSH 20111

LT 20112

LSL 20111

BROWN GRAVITY LINE — 12"

4" — CV-20210B HV-00106B

4" — CV-20210C HV-00106C

4" — CV-20210D HV-00106D

HV-20210C — 8" — TO WOLF CREEK

HV-20210D — 10" — TO WOLF CREEK

M P-20210

M P-20220

M P-20230

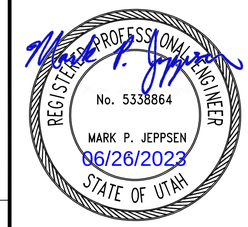
PUMP STATION VAULT

VALVE VAULT

LIFT STATION PUMP 1, 2, 3
P-20210, 20220, 20230(FUTURE)
LOOPS: 20210, 20220, 20230(FUTURE)

C:\USERS\EUNGEOL.KIM\APPDATA\LOCAL\AUTODESK\AUTOCAD PLANT 3D\COLLABORATION\CACHE\OSPREY RANCH PER-P-IDP\ID DWG\I998-I102-BROWN LS.DWG

6/19/2023



DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
0	00/00/0000	AAA	BBB	CCC

REVISIONS

OSPREY RANCH PER

OSPREY LIFT STATION &

BROWN LIFT STATION

INSTRUMENTATION - P&ID

BROWN LIFT STATION

skm
533 W 2600 S, Suite 25
Bountiful, Utah 84010
Phone: (801) 677-0011
www.skmeng.com

AQUA ENGINEERING
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

I102

SHEET OF

SCHEMATIC LINETYPES

- ELECTRICAL BUS
- EXISTING OR FUTURE ELECTRICAL BUS
- MANUFACTURER/SHOP WIRE TYPICALLY INSTALLED OFF-SITE
- EXISTING OR FUTURE MANUFACTURER/SHOP WIRE
- FIELD/CONTRACTOR INSTALLED WIRE
- EXISTING OR FUTURE FIELD/CONTRACTOR INSTALLED WIRE

SCHEMATIC SYMBOLS

- DEVICE CONNECTION LUG OR TERMINAL
- SCHEMATIC POINT OF CONNECTION
- POWER STABS BUS CONNECTION
- POWER STABS LOAD CONNECTION

CIRCUIT BREAKER
- 100AF — FRAME SIZE
- 50AT — TRIP RATING
- MCP — BREAKER TYPE

DISCONNECT
- 30A — AMPERE RATING
- 4X — NEMA RATING

FUSE
- 30A — AMPERE RATING
- R — FUSE TYPE

FUSED DISCONNECT
- 30A — AMPERE RATING
- 4X — NEMA RATING
- 30A — AMPERE RATING
- R — FUSE TYPE

TRANSFORMER

CURRENT TRANSFORMER
- 100:5 — CT TURNS RATIO
- 3 — NUMBER OF CT'S

POTENTIAL TRANSFORMER
- 480:120 — PT VOLTAGE RATIO
- 3 — NUMBER OF PT'S

METERING EQUIPMENT
- UM — METER TYPE DESIGNATION
  - AM = AMMETER
  - SSM = SOLID STATE METER
  - UM = UTILITY METER
  - VM = VOLTMETER
  - WHM = WATT HOUR METER
  - WM = WATT METER

GENERATOR

MANUAL OR AUTOMATIC TRANSFER SWITCH
- 600A — AMPERE RATING
- 3R — NEMA RATING

TRANSIENT VOLTAGE SURGE SUPRESSOR
- TVSS CLASS C — TVSS CLASSIFICATION

MOTOR OVERLOAD RELAY

FULL VOLTAGE NON-REVERSING STARTER (FVNR)
- NEMA SIZE 1 — STARTER TYPE AND SIZE

FULL VOLTAGE REVERSING STARTER (FVR)
- NEMA SIZE 1 — STARTER TYPE AND SIZE

TWO-SPEED STARTER
- NEMA SIZE 1 — STARTER TYPE AND SIZE

- HF — HARMONIC FILTER
- LR — LOAD REACTOR
- VFD — VARIABLE FREQUENCY DRIVE
- RVSS — REDUCED VOLTAGE SOFT STARTER
- GROUND CONNECTION
- 5 — MOTOR, NUMBER DESIGNATES NEMA HORSEPOWER SIZE
- M — MOTOR STARTER, CONTACTOR, RELAY OR TIMER COIL
- NORMALLY OPEN CONTACT
- NORMALLY CLOSED CONTACT
- SOLENOID VALVE
- EQUIPMENT PROGRAMMING CONSOLE
- OFF — ON — XO — 2 POSITION SELECTOR SWITCH POSITION LEGEND: X=CLOSED O=OPEN
- H O A — XOO — 3 POSITION SELECTOR SWITCH HAND - OFF - AUTO POSITION LEGEND: X=CLOSED O=OPEN
- O C A — XOO — 3 POSITION SELECTOR SWITCH OPEN - CLOSE - AUTO POSITION LEGEND: X=CLOSED O=OPEN
- F O R — XOO — 3 POSITION SELECTOR SWITCH FORWARD - OFF - REVERSE POSITION LEGEND: X=CLOSED O=OPEN
- STOP — NORMALLY CLOSED PUSH BUTTON
- START — NORMALLY OPEN PUSH BUTTON

TYPICAL SWITCH CONFIGURATION
- FLOAT SWITCH - MAKE ON FALL
- FLOAT SWITCH - MAKE ON RISE
- FLOAT SWITCH - BREAK ON FALL
- FLOAT SWITCH - BREAK ON RISE
- SWITCH TYPE SYMBOL (SEE BELOW)
  - LEVEL SWITCH
  - PRESSURE SWITCH
  - FLOW OR TORQUE SWITCH
  - TEMPERATURE SWITCH
  - LIMIT SWITCH
- NOTC — TIMER RELAY CONTACT NORMALLY OPEN TIME DELAY CLOSE
- ETM — ELAPSED TIME METER
- CR — CONTROL RELAY
- TD — TIME DELAY RELAY
- AR — ALARM RELAY
- R — PILOT LIGHT LETTER INDICATES COLOR R=RED, A=AMBER, B=BLUE, G=GREEN
- 50 — INSTANTANEOUS SHORT-CIRCUIT TRIP DEVICE
- 51 — TIME OVERCURRENT TRIP DEVICE
- 51G — GROUND FAULT TRIP DEVICE

ELECTRICAL PLAN LINETYPES

- EXPOSED CONDUIT
- EXISTING OR FUTURE EXPOSED CONDUIT
- UNDERGROUND CONDUIT
- EXISTING OR FUTURE UNDERGROUND CONDUIT
- E — E — CONDUIT DUCTBANK
- E — E — EXISTING OR FUTURE CONDUIT DUCTBANK
- BARE COPPER GROUND CONDUCTOR
- ELECTRICAL EQUIPMENT
- EXISTING OR FUTURE ELECTRICAL EQUIPMENT
- DEMOLITION
- CAPPED UNDERGROUND CONDUIT

ELECTRICAL PLAN HAZARDOUS LOCATION CLASSIFICATION LINETYPES

- C1D1 — CLASS I DIV 1
- C1D2 — CLASS I DIV 2
- C2D1 — CLASS II DIV 1
- C2D2 — CLASS II DIV 2

ELEC. PLAN SYMBOLS

SITE PLAN DEVICES
- X — X= (SEE BELOW)
  - AE - ANALYZER ELEMENT
  - AIT - ALALYZING INDICATING TRANSMITTER
  - FE - FLOW ELEMENT
  - FIT - FLOW INDICATING TRANSMITTER
  - FS - FLOW SWITCH
  - J - JUNCTION BOX
  - JS - TORQUE SWITCH
  - LE - LEVEL ELEMENT
  - LIT - LEVEL INDICATING TRANSMITTER
  - LS - LEVEL SWITCH
  - M - MOTOR
  - MH - MANHOLE
  - MV - MOTOR OPERATED VALVE
  - PB - PULLBOX
  - PIT - PRESSURE INDICATING TRANSMITTER
  - PS - PRESSURE SWITCH
  - PT - PRESSURE TRANSMITTER
  - SV - SOLENOID VALVE
  - TS - TEMPERATURE SWITCH
  - WE - WEIGHT ELEMENT
  - WIT - WEIGHT INDICATING TRANSMITTER
  - ZS - LIMIT SWITCH
- GROUND ROD
- WP — DUPLEX RECEPTACLE — DENOTES RECEPTACLE TYPE (BLANK) = STANDARD INDOORS GFCI = GND FLT CURRENT INT. WP = WEATHER PROOF & GFCI
- QUADRAPLEX RECEPTACLE
- DATA JACK
- $ — SINGLE POLE SWITCH
- $3 — 3-WAY SWITCH
- $4 — 4-WAY SWITCH
- CONDUIT SEALOFF
- LTC CONNECTION
- MC CONNECTION
- DISCONNECT SWITCH
- T — THERMOSTAT
- 3 — CONDUIT HOME RUN NUMBER INDICATES QUANTITY OF CONDUCTORS INCLUDING GROUND

TB'S & PLC SYMBOLS

LOCAL PANEL OR DEVICE TERMINAL BLOCK
- TERMINAL LABEL — X

PLC PANEL TERMINAL BLOCK
- TERMINAL LABEL — X

MCC TERMINAL BLOCK
- TERMINAL LABEL — X

DEVICE TERMINAL BLOCK
- TERMINAL LABEL — X

PLC DISCRETE INPUT
- DISCRETE INPUT LABEL — DIXX

PLC DISCRETE OUTPUT (NORMALLY OPEN)
- DISCRETE OUTPUT LABEL — DOXX

PLC DISCRETE OUTPUT (NORMALLY CLOSED)
- DISCRETE OUTPUT LABEL — DOXX

PLC ANALOG INPUT
- ANALOG INPUT LABEL — AIXX

PLC ANALOG OUTPUT
- ANALOG OUTPUT LABEL — AOXX

PLC RTD
- RTD LABEL — RTDXX

EQUIPMENT CALLOUT

EQUIP. TAG — EQUIPMENT CALLOUT

DESCRIPTOR #1
DESCRIPTOR #2
DESCRIPTOR #3

100 / TYP — DETAIL CALLOUT

FE / 101 — FIELD INSTRUMENT CALLOUT

CONDUIT CALLOUT

CXXX
PXXX
FXXX
SPXXX

GROUPED CONDUIT AND CIRCUIT IDENTIFICATION TAGS. REFER TO THE POWER ONE-LINE AND CONTROL ONE-LINE DIAGRAMS OR CONDUIT SCHEDULES FOR CONDUIT SIZES AND CONTENTS.
C-CONTROL/INSTRUMENTATION
P-POWER
F-FIBER OPTIC/NETWORK
SP-SPARE CONDUITS

ABBREVIATIONS

A	AMPERE
AFF	ABOVE FINISHED FLOOR
AI	ANALOG INPUT
AIC	AMPS INTERRUPTING CAPACITY
AO	ANALOG OUTPUT
AS	AIR SUPPLY
ATS	AUTOMATIC TRANSFER SWITCH
C	CONDUIT
CB	CIRCUIT BREAKER
CL2	CHLORINE
CPT	CONTROL POWER TRANSFORMER
CTC	COMMUNICATIONS TERMINATION CABINET
CU	COPPER, BARE
CV	CONTROL VALVE
DCS	DISTRIBUTED CONTROL SYSTEM
DI	DISCRETE INPUT
DO	DISCRETE OUTPUT
DP	DISTRIBUTION PANEL
DS	DISCONNECT SWITCH
DV/DT	DIFFERENTIAL VOLTAGE/TIME
DWG	DRAWING
ETM	ELAPSED TIME METER
EOL	ELECTRONIC OVERLOAD
FE	FLOW ELEMENT
FLA	FULL LOAD AMPS
FOC	FIBER OPTIC CABLE
FOR	FORWARD-OFF-REVERSE
FS	FLOW SWITCH
FVNR	FULL VOLTAGE NON-REVERSING
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFP	GROUND FAULT PROTECTION
GND	GROUND
GPM	GALLONS PER MINUTE
GRS	GALVANIZED RIGID STEEL
H2S	HYDROGEN SULFIDE
HH	HANDHOLE
HMI	HUMAN MACHINE INTERFACE
HOA	HAND-OFF-AUTO
HOR	HAND-OFF-REMOTE
I	CURRENT
IC	INSTRUMENTATION CABLE
IO	INPUT/OUTPUT
ISC	SHORT CIRCUIT CURRENT
J	JUNCTION BOX
LAN	LOCAL AREA NETWORK
LCP	LOCAL CONTROL PANEL
LOS	LOCK-OUT-STOP
LP	LIGHTING PANEL
LR	LOCAL/REMOTE
LS	LEVEL SWITCH
LTC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT
M	MOTOR
MA	MANUAL/AUTO, MILLIAMP
MC	MANUFACTURER'S CABLE
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MFR(S)	MANUFACTURER(S)
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MOV	MOTOR OPERATED VALVE
MTU	MASTER TELEMETRY UNIT
NEC	NATIONAL ELECTRICAL CODE
NOTC	NORMALLY OPEN TIMED CLOSED
NPW	NON-POTABLE WATER
NTS	NOT TO SCALE
NTU	TURBIDITY
OIT	OPERATOR INTERFACE TERMINAL
OL	OVERLOAD
OO	ON/OFF (MAINTAINED)
OR	OFF-REMOTE
PB	PULL BOX
PC	PERSONAL COMPUTER
PFR	PHASE/POWER FAILURE RELAY
PLC	PROGRAMMABLE LOGIC CONTROLLER
PNL	PANEL
PPM	PARTS PER MILLION
PR	PAIR
P	PRESSURE
PS	PRESSURE SWITCH
PSI	POUNDS PER SQUARE INCH
PV	PROCESS VARIABLE
RCP	REMOTE CONTROL PANEL
RF	RADIO FREQUENCY
RIO	REMOTE INPUT OUTPUT
RST	RESET
RTD	RESISTANCE TEMPERATURE DETECTOR
RTU	REMOTE TELEMETRY UNIT
RVSS	REDUCED VOLTAGE SOFT STARTER
SEQ	SERVICE ENTRANCE EQUIPMENT
SES	SERVICE ENTRANCE SECTION
SLOS	START-LOCK-OFF-STOP
SMC	SUBMERSIBLE MANUFACTURER CABLE
SO2	SULFUR DIOXIDE
SP	SET POINT/SPARE
SPD	SURGE PROTECTION DEVICE
SS	START/STOP
ST	SHUNT TRIP
TC	TELEPHONE CABLE
TS	TEMPERATURE SWITCH
TYP	TYPICAL
UG	UNDERGROUND
V	VOLT
VA	VOLTAMP
VFD	VARIABLE FREQUENCY DRIVE
W	WATT, WIRE
WP	WEATHERPROOF
XFMR	TRANSFORMER
ZS	POSITION SWITCH

NOTES

1. THE COMPLETED INSTALLATION SHALL COMPLY WITH APPLICABLE FEDERAL, STATE, AND LOCAL CODES, ORDINANCES, AND REGULATIONS. THE CONTRACTOR SHALL OBTAIN NECESSARY PERMITS AND INSPECTIONS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION. ALL WORK SHALL BE COMPLETED IN A NEAT, WORKMANLIKE MANNER IN ACCORDANCE WITH THE LATEST NEC STANDARDS OF INSTALLATION UNDER COMPETENT SUPERVISION. INSTALL GROUNDING PER NEC.
2. VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS AND OTHER FACTORS, WHICH MAY AFFECT THE EXECUTION OF THE WORK. INCLUDE ALL RELATED COSTS IN THE INITIAL BID PROPOSAL.
3. THE CONTRACTOR SHALL COORDINATE WORK WITH THE UTILITIES PROVIDING SERVICES ON THIS PROJECT, AND SHALL COMPLY WITH ALL THEIR INSTALLATION REQUIREMENTS.
4. ALL MATERIALS SHALL BE NEW AND OF THE BEST QUALITY, MANUFACTURED IN ACCORDANCE WITH NEMA, ANSI, UL, OR OTHER APPLICABLE STANDARDS. THE USE OF MANUFACTURERS' NAMES, MODELS, AND NUMBERS IS INTENDED TO ESTABLISH STYLE, QUALITY, APPEARANCE, USEFULNESS, AND BID PRICE.
5. PROTECT ALL ELECTRICAL MATERIAL AND EQUIPMENT INSTALLED AGAINST DAMAGE BY OTHER TRADES, WEATHER CONDITIONS, OR ANY OTHER PREVENTABLE CAUSES. EQUIPMENT DAMAGED DURING SHIPPING OR CONSTRUCTION, PRIOR TO ACCEPTANCE BY THE ENGINEER OR THE OWNER, WILL BE REJECTED AS DEFECTIVE.
6. LEAVE THE SITE CLEAN. REMOVE ALL DEBRIS, EMPTY CARTONS, TOOLS, CONDUIT, WIRE SCRAPS AND ALL MISCELLANEOUS SPARE EQUIPMENT AND MATERIALS USED IN THE WORK DURING CONSTRUCTION. ALL COMPONENTS SHALL BE FREE OF DUST, GRIT AND FOREIGN MATERIALS, LEFT AS NEW BEFORE FINAL ACCEPTANCE OF WORK. DAMAGED PAINT AND FINISHES SHALL BE TOUCHED UP OR REPAINTED WITH MATCHING COLOR PAINT AND FINISH.
7. CIRCUIT CONDUCTORS #6 AWG OR SMALLER SHALL BE THWN STRANDED COPPER. #4 AWG THROUGH #2 AWG SHALL BE XHHW STRANDED COPPER. #1 AWG OR LARGER SHALL BE XHHW-2 STRANDED COPPER. MINIMUM POWER CONDUCTOR SIZE SHALL BE #12 AWG WITH #12 AWG GROUND. ALL WIRE TO BE SIZED PER NEC TABLE 310-15 (B)(16), 75° C BASED ON A 30° C AMBIENT.
8. UNDERGROUND CONDUITS SHALL BE SCHEDULE 40 PVC. MINIMUM CONDUIT DEPTH SHALL BE 24 INCHES. MINIMUM UNDERGROUND CONDUIT SIZE SHALL BE 1 INCH.
   MINIMUM CONDUIT DEPTH UNDER SLAB SHALL BE 1 INCH.
9. CONDUITS SHALL BE MARKED AT EACH END WITH MATCHING NUMBERED BRASS OR NYLON TAGS. SPARE CONDUITS SHALL HAVE A PULL STRING INSTALLED AND SECURED.
10. EXPOSED CONDUITS SHALL BE GALVANIZED RIGID STEEL (GRS). MINIMUM SIZE 3/4 INCH, UNLESS OTHERWISE NOTED ON THE PLANS.
11. SAFETY SWITCHES, ELECTRICAL DISTRIBUTION EQUIPMENT, CONTROL PANELS, AND OTHER ELECTRICAL DEVICES SHALL BE UL LISTED, AND RATED FOR HEAVY DUTY SERVICE.
12. WIRING DEVICES SHALL BE SPECIFICATION GRADE.
13. THE CONTRACTOR IS RESPONSIBLE FOR MANAGING, SCHEDULING, DOCUMENTING, AND PERFORMING THE WORK SO THAT A COMPLETE ELECTRICAL, INSTRUMENTATION AND CONTROL SYSTEM FOR THE FACILITY IS PROVIDED. ACCURATE SHOP AND RECORD DRAWINGS, AND OEM MANUALS SHALL BE SUBMITTED PRIOR TO FINAL ACCEPTANCE OF THE WORK.
14. TYPICAL DETAILS SHALL APPLY IN ALL CASES, WHETHER SPECIFICALLY REFERRED TO OR NOT.
15. REFER TO SPECIFICATION 260533 "RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS" FOR CONDUIT SPACING AND ROUTING REQUIREMENTS.

REGISTERED PROFESSIONAL ENGINEER
No. 5338864
MARK P. JEPPSEN
06/26/2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE
0 1/2 1

NO.	DATE	DESIGN	DRAWN	CHECKED
0	00/00/0000			

REVISIONS

ORIGINAL

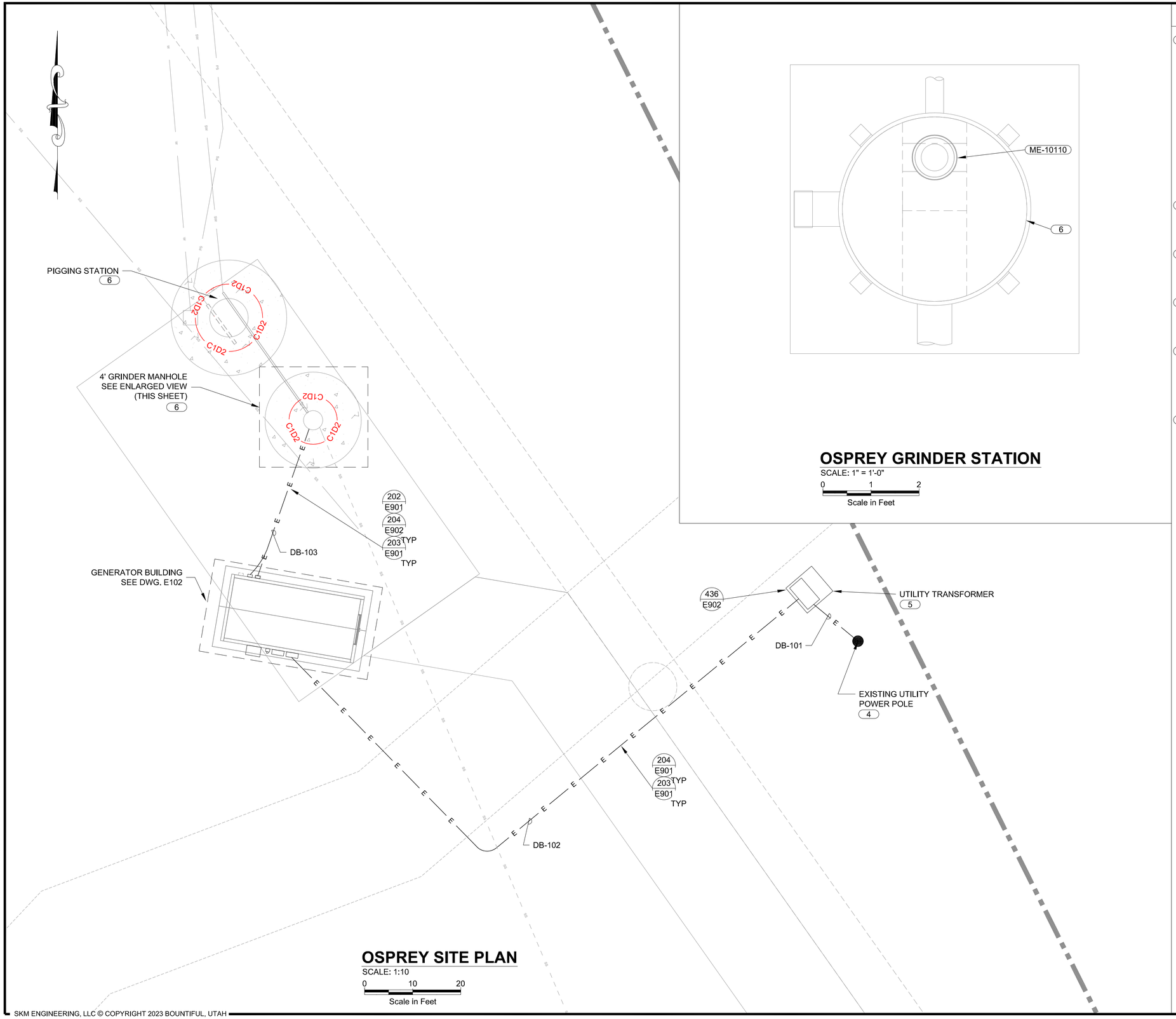
OSPREY RANCH PER
OSPREY LIFT STATION &
BROWN LIFT STATION
ELECTRICAL - GENERAL
NOTES & SYMBOLS

skm
533 W 2600 S, Suite 25
Bountiful, Utah 84010
Phone: (801) 677-0011
www.skmeng.com

AQUA ENGINEERING
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.
E001
SHEET

C:\USERS\EUNGEOL.KIM\AQUA ENGINEERING\OSPREY RANCH - 001999.C OSPREY RANCH PER\050 DRAFTING\999 ELECTRICAL\999-E001 NOTES & SYMBOLS.DWG
5/24/2023



OSPREY SITE PLAN

SCALE: 1:10

0 10 20

Scale in Feet

OSPREY GRINDER STATION

SCALE: 1" = 1'-0"

0 1 2

Scale in Feet

NOTES

1. CONDUIT SHALL ONLY RUN EXPOSED WHERE NECESSARY. ALL EXPOSED CONDUIT AND FITTINGS IN THE GRINDER STATION SHALL BE PVC COATED GRS OR 316 SS. POWER AND INSTRUMENT JUNCTION BOXES THAT SERVICE THE GRINDER STATION SHALL BE 316SS. EXPOSED CONDUITS FROM THE GRINDER STATION TO THESE JUNCTION BOXES SHALL BE PVC COATED GRS OR 316 SS. EXPOSED CONDUITS ON THE SOUTH EXTERIOR SIDE OF THE BUILDING SHALL BE GRS. PANELS ON THE SOUTH SIDE SHALL BE NEMA 3R OR NEMA 4. EXPOSED CONDUITS INSIDE THE BUILDING SHALL BE EMT. PANELS IN THE BUILDING SHALL BE NEMA 1 OR NEMA 12.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING CONDUIT DETAILS AND A CONDUIT ROUTING PLAN TO THE ELECTRICAL ENGINEER FOR APPROVAL.
3. LIMIT EXPOSED CONDUITS, 90° BENDS, AND WALL PENETRATIONS. MAINTAIN SEPARATION BETWEEN SIGNAL AND POWER-CARRYING CONDUITS.
4. PROPOSED UTILITY PLAN SHALL BE COORDINATED WITH ROCKY MOUNTAIN POWER. REFERENCE WORK ORDER NUMBER 7028142.
5. INSTALL A PAD AND PRIMARY AND SECONDARY CONDUITS FOR THE UTILITY TRANSFORMER PER RMP REQUIREMENTS. UTILITY WILL INSTALL THE TRANSFORMER ON THE PAD, AND WILL INSTALL ALL PRIMARY AND SECONDARY CABLING.
6. THE INTERIOR OF THE PIGGING STATION AND THE GRINDER STATION ARE CLASS I DIV 1 AREAS. A CLASS I DIV 2 AREA EXTENDS OUT 3' HORIZONTALLY FROM THE STATION MANHOLE LID AND VERTICALLY 1.5'. THE ELECTRICAL CONTRACTOR SHALL MEET ALL NEC REQUIREMENTS FOR EQUIPMENT AND CONDUIT SYSTEMS THAT ARE ROUTED TO THESE STATIONS.

REGISTERED PROFESSIONAL ENGINEER
No. 5338864
MARK P. JEPPSEN
06/26/2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES:
1" = FULL SCALE
1/2" = HALF SCALE
0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
0	00/00/0000			

REVISIONS

OSPREY RANCH PER

OSPREY LIFT STATION &
BROWN LIFT STATION
ELECTRICAL - SITE
OSPREY SITE PLAN

skm
533 W 2600 S, Suite 25
Bountiful, Utah 84010
Phone: (801) 677-0011
www.skmeng.com

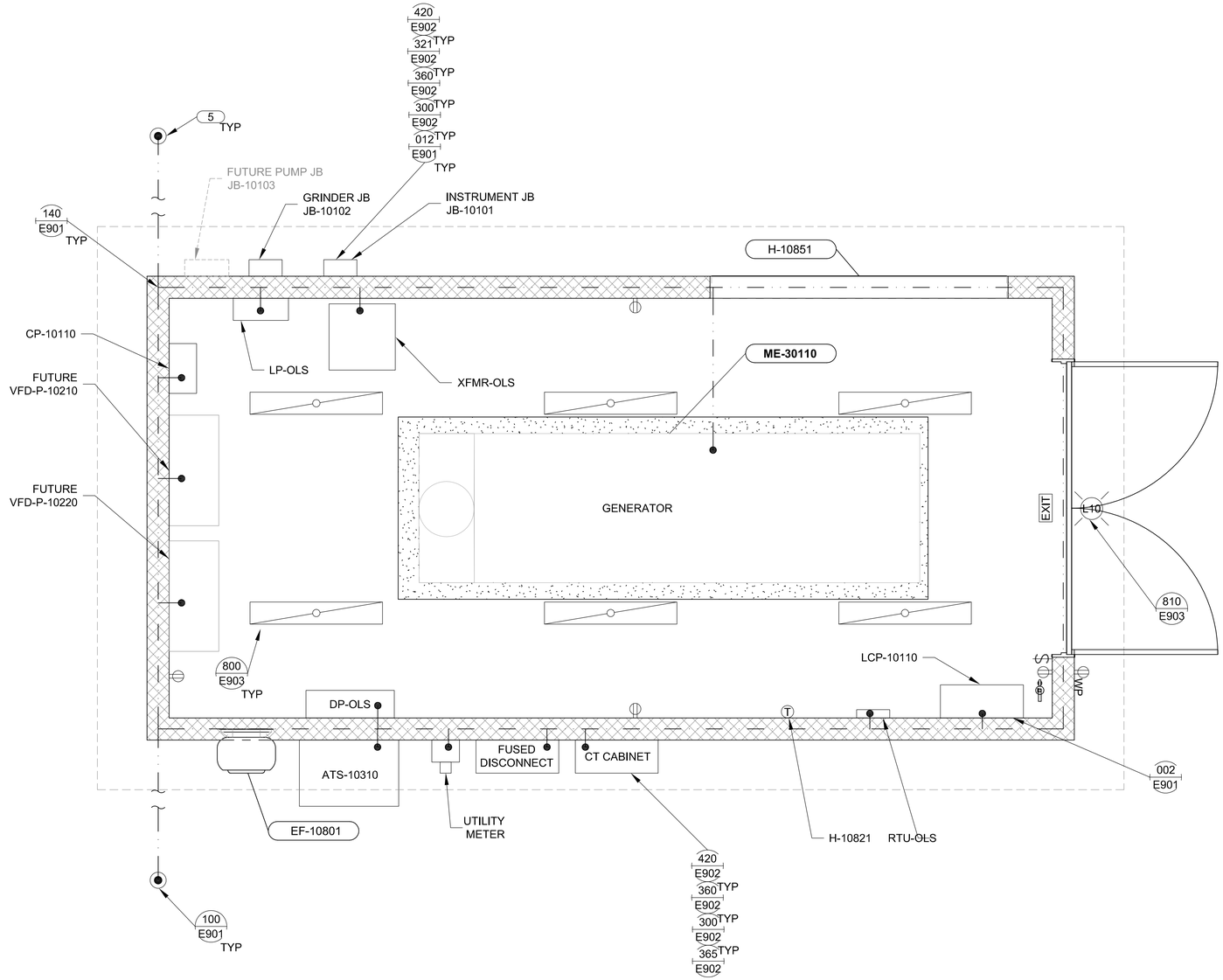
AQUA ENGINEERING
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

E101

SHEET

6/19/2023 C:\USERS\EJUNGEOL.KIM\ACCDOCS\AQUA ENGINEERING\001999.C - OSPREY RANCH PER\PROJECT FILES\999 ELECTRICAL\999-E101 OSPREY SITE PLAN.DWG



OSPREY GENERATOR BUILDING ELECTRICAL PLAN

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

0 2 4

Scale in Feet

NOTES

1. CONDUIT SHALL ONLY RUN EXPOSED WHERE NECESSARY. POWER AND INSTRUMENT JUNCTION BOXES THAT SERVICE THE GRINDER STATION SHALL BE 316SS. EXPOSED CONDUITS FROM THE GRINDER STATION TO THESE JUNCTION BOXES SHALL BE PVC COATED GRS OR 316 SS. EXPOSED CONDUITS ON THE SOUTH EXTERIOR SIDE OF THE BUILDING SHALL BE GRS. PANELS ON THE SOUTH SIDE SHALL BE NEMA 3R OR NEMA 4. EXPOSED CONDUITS INSIDE THE BUILDING SHALL BE EMT. PANELS IN THE BUILDING SHALL BE NEMA 1 OR NEMA 12.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING CONDUIT DETAILS AND A CONDUIT ROUTING PLAN TO THE ELECTRICAL ENGINEER FOR APPROVAL.
3. LIMIT EXPOSED CONDUITS, 90° BENDS, AND WALL PENETRATIONS. MAINTAIN SEPARATION BETWEEN SIGNAL AND POWER-CARRYING CONDUITS.
4. CONTRACTOR SHALL PROVIDE 2 CONCRETE ENCASED ELECTRODES IN FOOTINGS PER SPECIFICATIONS 60' PER CONDUCTOR.
5. CONTRACTOR SHALL INSTALL (2) 10'X3/4"Ø COPPER GROUND RODS 10' MINIMUM SPACING AND 10' MINIMUM FROM BUILDING.
6. BOND ALL BUILDING STEEL TO GROUND PER NEC.

ELECTRICAL LEGEND

- L1 — H.E. WILLIAMS 30W 1'X4' LED FIXTURE WITH EMERGENCY & DIMMING DRIVERS. MODEL ATS1-14-L30/840-D-EM/10WLP-DIM-UNV OR APPROVED EQUAL
- L10 — GE CURRENT EVOLVE LED 36W WALL LIGHT (WALL PACK) WITH PHOTO CELL CONTROL, BATTERY BACKUP AND DARK SKY COMPLIANCE. MODEL EWAS-01-1-B3 -AW-7-40-D-3-FM-DKBZ-EMBR OR APPROVED EQUAL.
- EXIT — CHLORIDE VE SERIES EXIT SIGN. MODEL VEGW OR APPROVED EQUAL.
- DUPLEX OUTLET
  WP: WEATHER-PROOF OUTLET, GFCI PROTECTED
- $ — LIGHT SWITCH
- T — THERMOSTAT
  MODEL PECO TF115-005 OR APPROVED EQUAL.

REGISTERED PROFESSIONAL ENGINEER
No. 5338864
MARK P. JEPPSEN
06/26/2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE, 1/2" = HALF SCALE (0, 1/2, 1)

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
0	00/00/0000			

REVISIONS

OSPREY RANCH PER

OSPREY LIFT STATION &
BROWN LIFT STATION
ELECTRICAL - LAYOUT

OSPREY GENERATOR BUILDING ELECTRICAL PLAN

skm
533 W 2600 S, Suite 25
Bountiful, Utah 84010
Phone: (801) 677-0011
www.skmeng.com

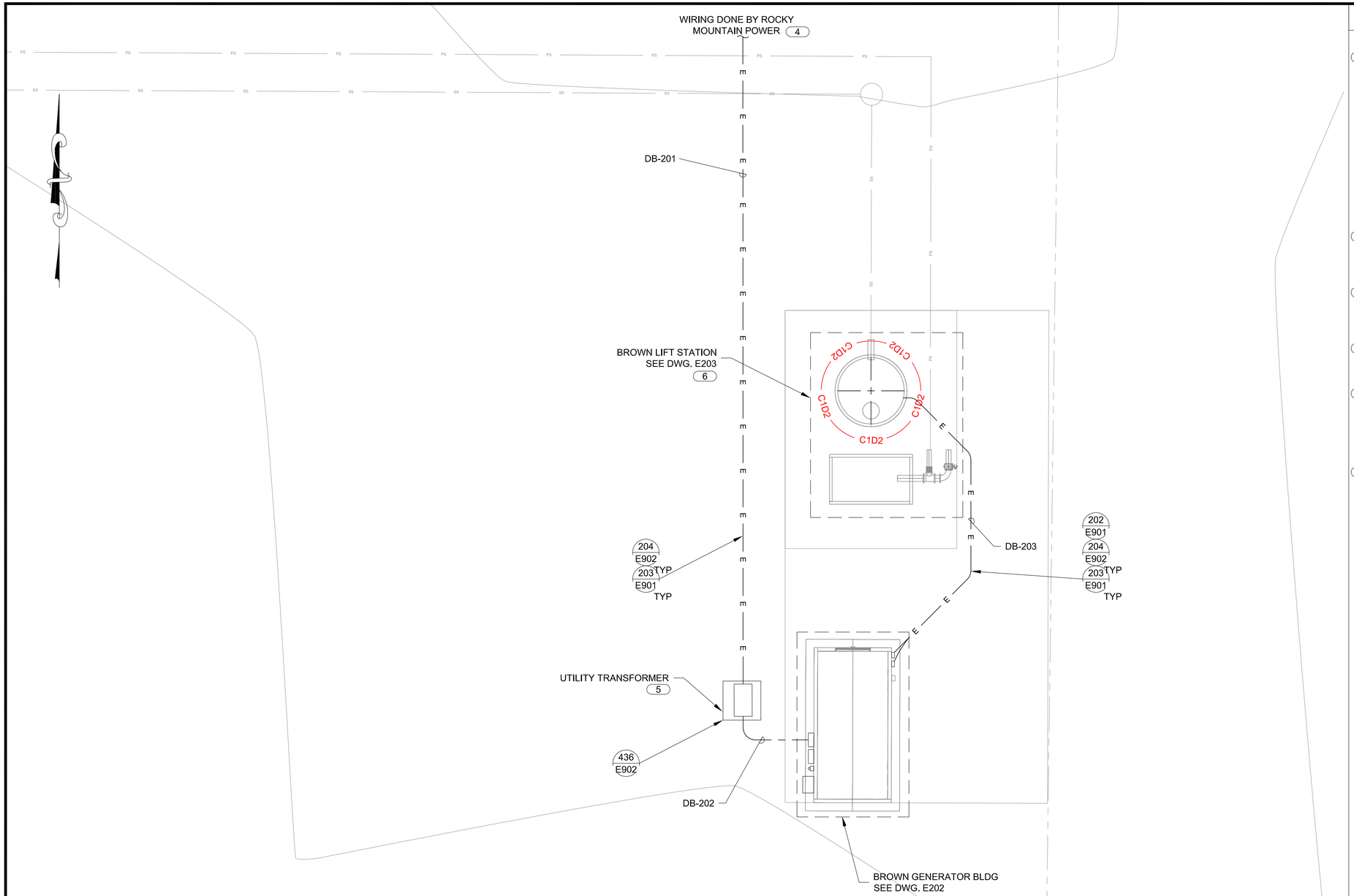
AQUA ENGINEERING
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

E102

SHEET

6/19/2023 C:\USERS\EJUNGEOL.KIM\ACCDOCS\AQUA ENGINEERING\001999.C - OSPREY RANCH PER\PROJECT FILES\999 ELECTRICAL\999-E102 OSPREY GENERATOR BLDG ELECTRICAL PLAN.DWG



BROWN LIFT STATION SITE PLAN

SCALE: 1:10

0 10 20

Scale in Feet

NOTES

1. CONDUIT SHALL ONLY RUN EXPOSED WHERE NECESSARY. ALL EXPOSED CONDUIT AND FITTINGS IN THE LIFT STATION SHALL BE PVC COATED GRS OR 316 SS. POWER AND INSTRUMENT JUNCTION BOXES THAT SERVICE THE LIFT STATION SHALL BE 316SS. EXPOSED CONDUITS FROM THE LIFT STATION TO THESE JUNCTION BOXES SHALL BE PVC COATED GRS OR 316 SS. EXPOSED CONDUITS ON THE SOUTH EXTERIOR SIDE OF THE BUILDING SHALL BE GRS. PANELS ON THE SOUTH SIDE SHALL BE NEMA 3R OR NEMA 4. EXPOSED CONDUITS INSIDE THE BUILDING SHALL BE EMT. PANELS IN THE BUILDING SHALL BE NEMA 1 OR NEMA 12.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING CONDUIT DETAILS AND A CONDUIT ROUTING PLAN TO THE ELECTRICAL ENGINEER FOR APPROVAL.
3. LIMIT EXPOSED CONDUITS, 90° BENDS, AND WALL PENETRATIONS. MAINTAIN SEPARATION BETWEEN SIGNAL AND POWER-CARRYING CONDUITS.
4. UTILITY PLAN SHALL BE COORDINATED WITH ROCKY MOUNTAIN POWER. REFERENCE WORK ORDER 7028138.
5. INSTALL A PAD AND PRIMARY AND SECONDARY CONDUITS FOR THE UTILITY TRANSFORMER PER RMP REQUIREMENTS. UTILITY WILL INSTALL THE TRANSFORMER ON THE PAD, AND WILL INSTALL ALL PRIMARY AND SECONDARY CABLING.
6. THE INTERIOR OF THE LIFT STATION IS CLASS I DIV 1 AREA. A CLASS I DIV 2 AREA EXTENDS OUT 3' HORIZONTALLY FROM THE STATION MANHOLE LID AND VERTICALLY 1.5'. THE ELECTRICAL CONTRACTOR SHALL MEET ALL NEC REQUIREMENTS FOR EQUIPMENT AND CONDUIT SYSTEMS THAT ARE ROUTED TO THIS STATION.

REGISTERED PROFESSIONAL ENGINEER
No. 5338864
MARK P. JEPPSEN
06/26/2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES:
1" = FULL SCALE
1/2" = HALF SCALE
0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
0	00/00/0000			

REVISIONS

OSPREY RANCH PER

OSPREY LIFT STATION &
BROWN LIFT STATION
ELECTRICAL - SITE
BROWN LIFT STATION SITE PLAN

skm
533 W 2600 S, Suite 25
Bountiful, Utah 84010
Phone: (801) 677-0011
www.skmeng.com

AQUA ENGINEERING
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

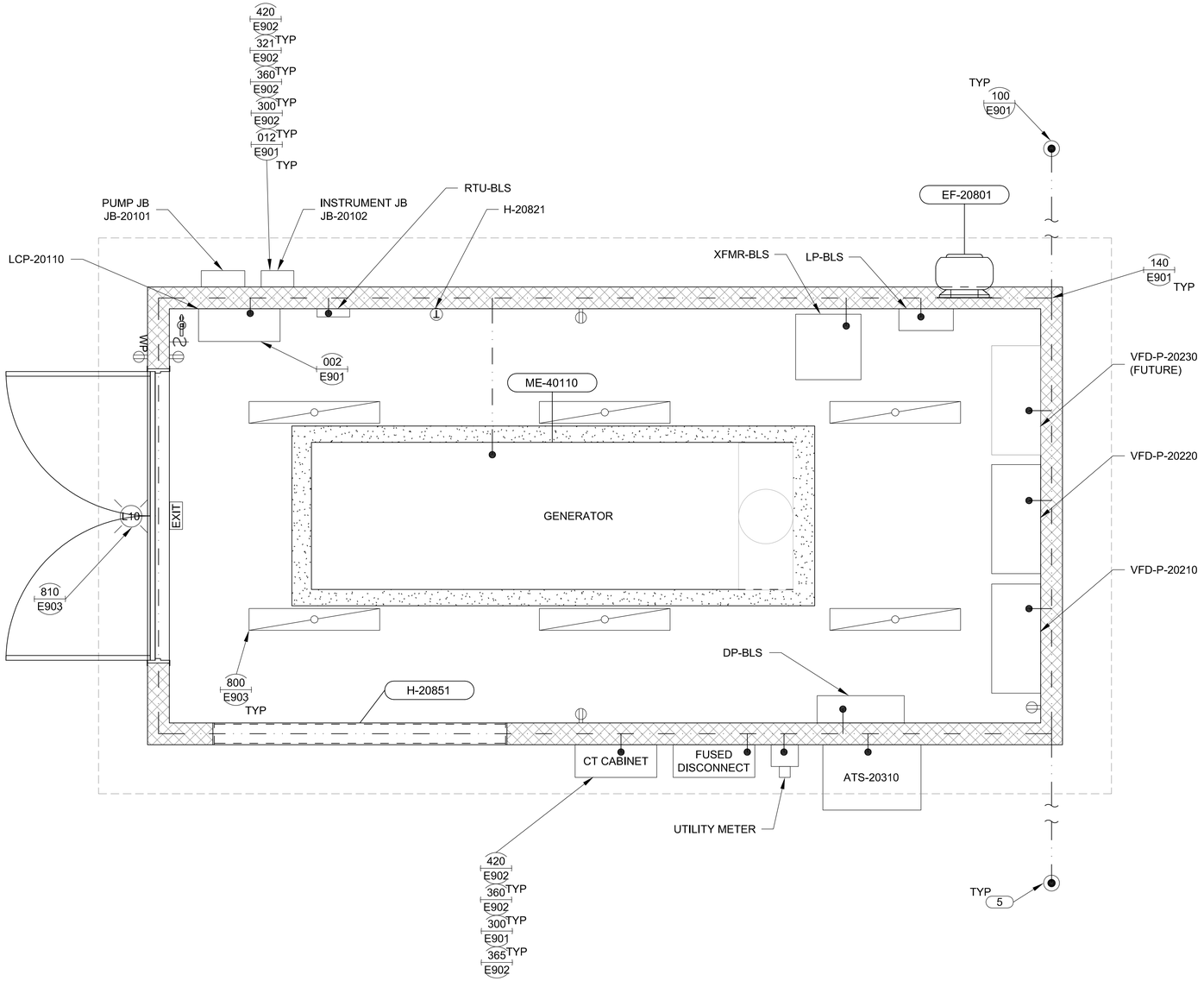
DRAWING NO.

E201

SHEET

C:\USERS\EUNGEOL.KIM\ACCDOCS\AQUA ENGINEERING\001999.C - OSPREY RANCH PER\PROJECT FILES\999 ELECTRICAL\999-E201 BROWN LIFT STATION SITE PLAN.DWG

6/19/2023



BROWN GENERATOR BUILDING ELECTRICAL PLAN

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

0 2 4

Scale in Feet

NOTES

1. CONDUIT SHALL ONLY RUN EXPOSED WHERE NECESSARY. POWER AND INSTRUMENT JUNCTION BOXES THAT SERVICE THE LIFT STATION SHALL BE 316SS. EXPOSED CONDUITS FROM THE LIFT STATION TO THESE JUNCTION BOXES SHALL BE PVC COATED GRS OR 316 SS. EXPOSED CONDUITS ON THE SOUTH EXTERIOR SIDE OF THE BUILDING SHALL BE GRS. PANELS ON THE SOUTH SIDE SHALL BE NEMA 3R OR NEMA 4. EXPOSED CONDUITS INSIDE THE BUILDING SHALL BE EMT. PANELS IN THE BUILDING SHALL BE NEMA 1 OR NEMA 12.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING CONDUIT DETAILS AND A CONDUIT ROUTING PLAN TO THE ELECTRICAL ENGINEER FOR APPROVAL.
3. LIMIT EXPOSED CONDUITS, 90° BENDS, AND WALL PENETRATIONS. MAINTAIN SEPARATION BETWEEN SIGNAL AND POWER-CARRYING CONDUITS.
4. CONTRACTOR SHALL PROVIDE 2 CONCRETE ENCASED ELECTRODES IN FOOTINGS PER SPECIFICATIONS 60' PER CONDUCTOR.
5. CONTRACTOR SHALL INSTALL (2) 10'X3/4"Ø COPPER GROUND RODS 10' MINIMUM SPACING AND 10' MINIMUM FROM BUILDING.
6. BOND ALL BUILDING STEEL TO GROUND PER NEC.

ELECTRICAL LEGEND

- L1 — H.E. WILLIAMS 30W 1'X4' LED FIXTURE WITH EMERGENCY & DIMMING DRIVERS. MODEL ATS1-14-L30/840-D-EM/10WLP-DIM-UNV OR APPROVED EQUAL
- L10 — GE CURRENT EVOLVE LED 36W WALL LIGHT (WALL PACK) WITH PHOTO CELL CONTROL, BATTERY BACKUP AND DARK SKY COMPLIANCE. MODEL EWAS-01-1-B3 -AW-7-40-D-3-FM-DKBZ-EMBR OR APPROVED EQUAL.
- EXIT — CHLORIDE VE SERIES EXIT SIGN. MODEL VEGW OR APPROVED EQUAL.
- DUPLEX OUTLET
  WP: WEATHER-PROOF OUTLET, GFCI PROTECTED
- $ — LIGHT SWITCH
- T — THERMOSTAT
  MODEL PECO TF115-005 OR APPROVED EQUAL.

REGISTERED PROFESSIONAL ENGINEER
No. 5338864
MARK P. JEPPSEN
06/26/2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE, 1/2" = HALF SCALE (0, 1/2, 1)

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
0	00/00/0000			

REVISIONS

OSPREY RANCH PER

OSPREY LIFT STATION &

BROWN LIFT STATION

ELECTRICAL - LAYOUT

BROWN GENERATOR BUILDING ELECTRICAL PLAN

skm
533 W 2600 S, Suite 25
Bountiful, Utah 84010
Phone: (801) 677-0011
www.skmeng.com

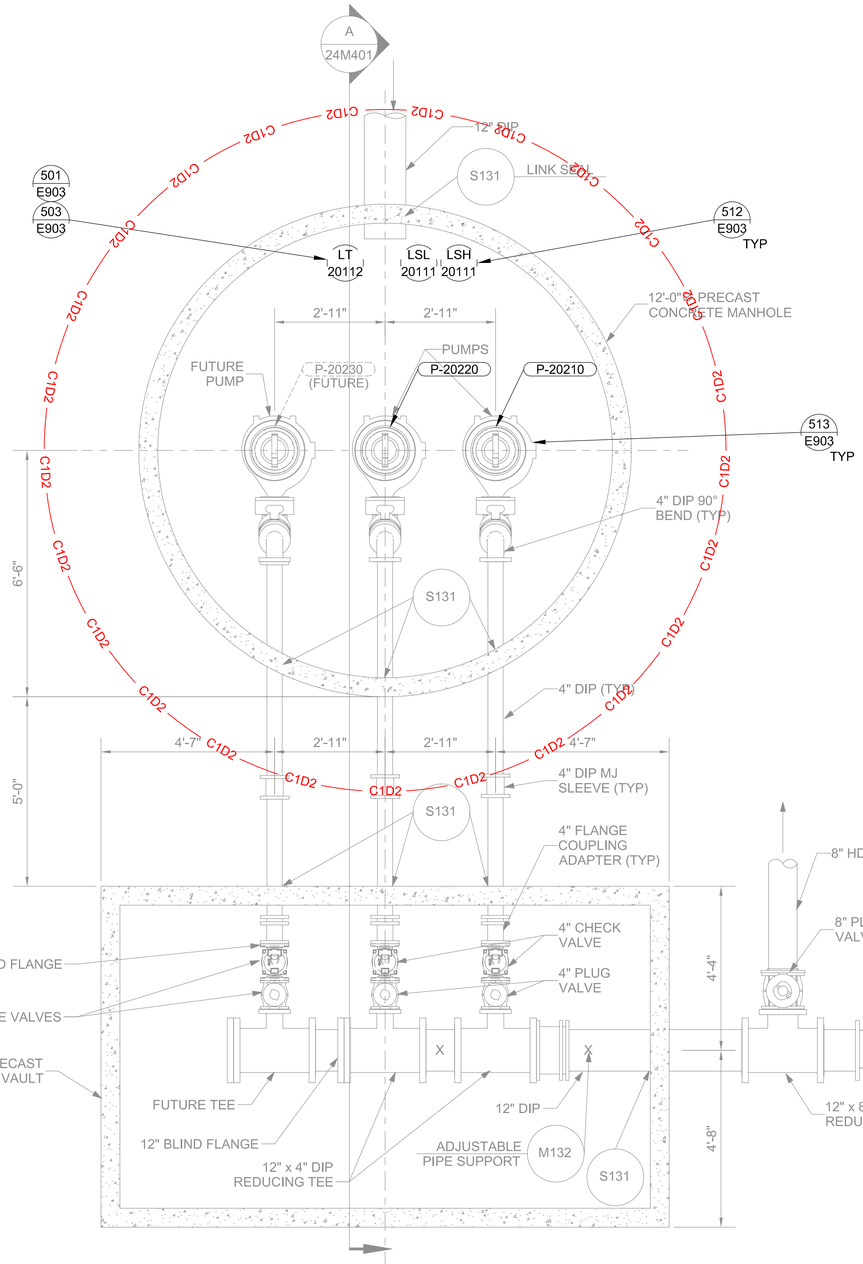
AQUA ENGINEERING
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

E202

SHEET

6/19/2023 C:\USERS\EUNGEOL.KIM\ACCDOCS\AQUA ENGINEERING\001999.C - OSPREY RANCH PER\PROJECT FILES\999 ELECTRICAL\999-E202 BROWN GENERATOR BLDG ELECTRICAL PLAN.DWG



BROWN LIFT STATION ELECTRICAL PLAN

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

0 2 4

Scale in Feet

NOTES

1. CONDUIT SHALL ONLY RUN EXPOSED WHERE NECESSARY. ALL EXPOSED CONDUIT AND FITTINGS IN THE LIFT STATION SHALL BE PVC COATED GRS OR 316 SS. POWER AND INSTRUMENT JUNCTION BOXES THAT SERVICE THE LIFT STATION SHALL BE 316SS. EXPOSED CONDUITS FROM THE LIFT STATION TO THESE JUNCTION BOXES SHALL BE PVC COATED GRS OR 316 SS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING CONDUIT DETAILS AND A CONDUIT ROUTING PLAN TO THE ELECTRICAL ENGINEER FOR APPROVAL.
3. LIMIT EXPOSED CONDUITS, 90° BENDS, AND WALL PENETRATIONS. MAINTAIN SEPARATION BETWEEN SIGNAL AND POWER-CARRYING CONDUITS.
4. THE INTERIOR OF THE LIFT STATION IS CLASS I DIV 1 AREA. A CLASS I DIV 2 AREA EXTENDS OUT 3' HORIZONTALLY FROM THE STATION MANHOLE LID AND VERTICALLY 1.5'. THE ELECTRICAL CONTRACTOR SHALL MEET ALL NEC REQUIREMENTS FOR EQUIPMENT AND CONDUIT SYSTEMS THAT ARE ROUTED TO THIS STATION.

REGISTERED PROFESSIONAL ENGINEER
No. 5338864
MARK P. JEPPSEN
06/26/2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
0	00/00/0000			

REVISIONS

OSPREY RANCH PER

OSPREY LIFT ST

BROWN LIFT ST

ELECTRICAL - L

BROWN LIFT STATION EL

skm
533 W 2600 S, Suite 25
Bountiful, Utah 84010
Phone: (801) 677-0011
www.skmeng.com

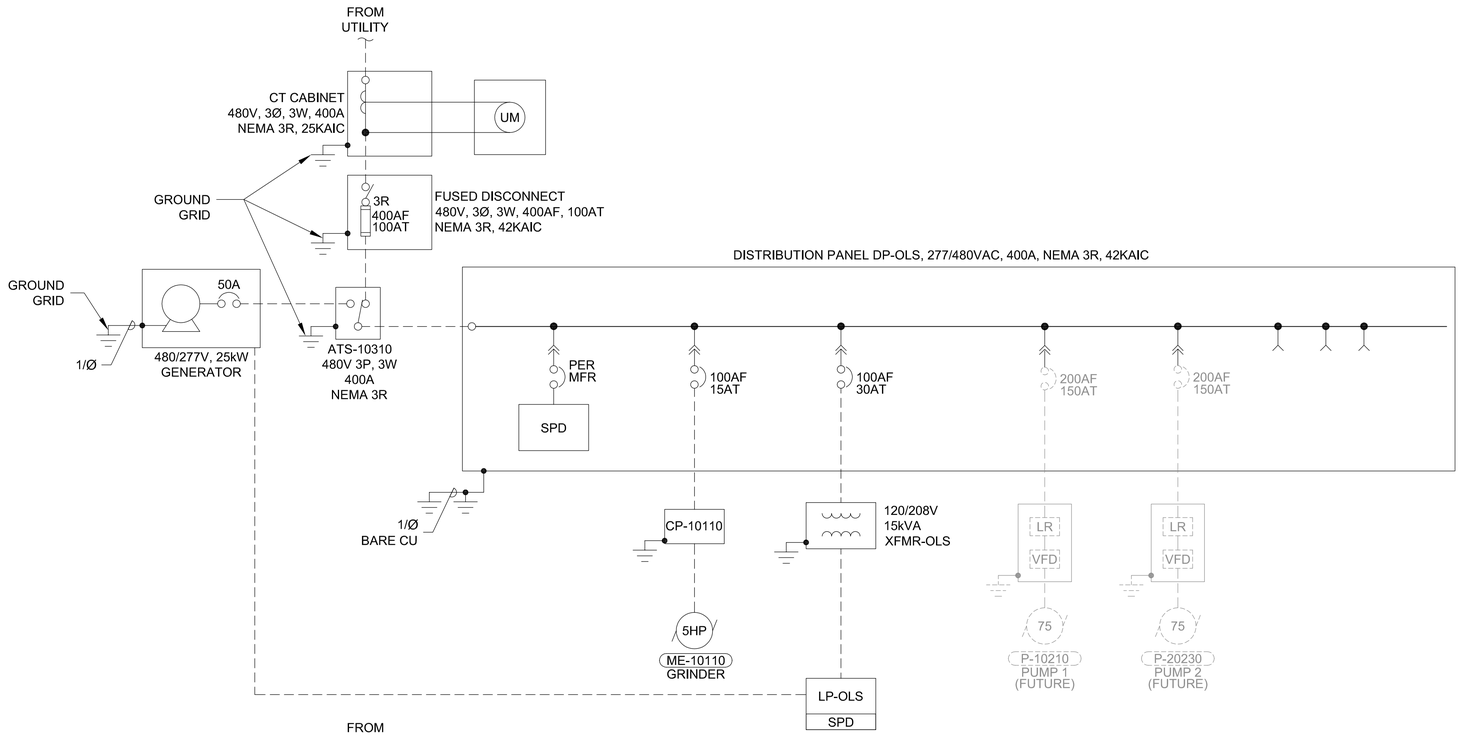
AQUA ENGINEERING
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

E203

SHEET

6/9/2023 C:\USERS\EUNGEOL.KIM\ACCDOCS\AQUA ENGINEERING\001999.C - OSPREY RANCH PERI\PROJECT FILES\999 ELECTRICAL\999-E203 BROWN LIFT STATION ELECTRICAL PLAN.DWG



OSPREY LIFT STATION

BROWN LIFT STATION

ONELINE DIAGRAM

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

NO.	DATE	DESIGN	DRAWN	CHECKED
0	00/00/0000			

ORIGINAL

REVISIONS

OSPREY RANCH PER

OSPREY LIFT STATION &
BROWN LIFT STATION
ELECTRICAL - POWER DISTRIBUTION
ONELINE DIAGRAM

skm
533 W 2600 S, Suite 25
Bountiful, Utah 84010
Phone: (801) 677-0011
www.skmeng.com

AQUA ENGINEERING
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

E501

SHEET

6/9/2023 C:\USERS\EUNGEOL.KIM\AQUA ENGINEERING\OSPREY RANCH - 001999.C OSPREY RANCH PER\050 DRAFTING\999 ELECTRICAL\999-E501 ONELINE DIAGRAM.DWG

CIRCUIT/DESCRIPTION	KVA	HP	FLA
MOTOR LOADS			
GRINDER (ME-10110)			15.0
FUTURE PUMP P-10210		75.0	*
FUTURE PUMP P-10220		75.0	*
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
NON-MOTOR LOADS			
LIGHTING PANEL	15.0		18.1
			0.0
SUBTOTAL			33.1
+ 25% OF LARGEST MOTOR			3.8
TOTAL AMPS @ 480V/3PHASE			36.8
SERVICE SIZE (AMPS)			400.0

OSPREY LS CALCULATION

PANEL: LP-OLS		VOLTAGE: 120/208		MAIN CB: 50 AMP		BUS AMPS: 100 AMP		
		BUS A.I.C: 22KA		BKR AIC: 22KA		MOUNTING: SURFACE		
CIRCUIT DESCRIPTION	**BKR**	**CIRCUIT**	**LOAD**	**PHASE**	**LOAD**	**CIRCUIT**	**BKR**	**CIRCUIT DESCRIPTION**
LIGHTS	20/1	1	180	A	100	2	20/1	LEVEL PANEL LCP-10110
OUTLETS	20/1	3	720	B	500	4	20/1	RTU-OLS
OUTDOOR LIGHTS	20/1	5	36	C	2000	6	20/1	GENERATOR BLOCK HEATER
GENERATOR BATTERY CHARGER	20/1	7	500	A	1000	8	20/1	VENTILATION
	20/1	9		B		10	20/1	
	20/1	11		C		12	20/1	
	20/1	13		A		14	20/1	
	20/1	15		B		16	20/1	
	20/1	17		C		18	20/1	
	20/1	19		A		20	20/1	
	20/1	21		B		22	20/1	
	20/1	23		C		24	20/1	
	20/1	25		A		26	20/1	
	20/1	27		B		28	20/1	
	20/1	29		C		30	20/1	
		PHASE A		**PHASE B**		**PHASE C**	NOTES:	
CONNECTED VA PER PHASE		1780.0		1220.0		2036.0		
CONNECTED AMPS PER PHASE		14.8		10.2		17.0		
25% OF CONTINUOUS & LIGHTING LOAD (VA)		445.0		305.0		509.0		
CODE VA PER PHASE		2225.0		1525.0		2545.0		
CODE AMPS PER PHASE		18.5		12.7		21.2		

OSPREY LS LIGHTING PANEL SCHEDULE

CIRCUIT/DESCRIPTION	KVA	HP	FLA
MOTOR LOADS			
PUMP P-10210		50.0	65.0
PUMP P-10220		50.0	65.0
FUTURE PUMP P-10230		50.0	*
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
NON-MOTOR LOADS			
LIGHTING XFMR	15.0		18.1
			0.0
SUBTOTAL			148.1
+ 25% OF LARGEST MOTOR			16.3
TOTAL AMPS @ 480V/3PHASE			164.3
SERVICE SIZE (AMPS)			400.0

BROWN LS CALCULATION

PANEL: LP-BLS		VOLTAGE: 120/208		MAIN CB: 50 AMP		BUS AMPS: 100 AMP		
		BUS A.I.C: 22KA		BKR AIC: 22KA		MOUNTING: SURFACE		
CIRCUIT DESCRIPTION	**BKR**	**CIRCUIT**	**LOAD**	**PHASE**	**LOAD**	**CIRCUIT**	**BKR**	**CIRCUIT DESCRIPTION**
LIGHTS	20/1	1	180	A	100	2	20/1	LEVEL PANEL LCP-20110
OUTLETS	20/1	3	720	B	500	4	20/1	RTU-BLS
OUTDOOR LIGHTS	20/1	5	36	C	2000	6	20/1	GENERATOR BLOCK HEATER
GENERATOR BATTERY CHARGER	20/1	7	500	A	1000	8	20/1	VENTILATION
	20/1	9		B		10	20/1	
	20/1	11		C		12	20/1	
	20/1	13		A		14	20/1	
	20/1	15		B		16	20/1	
	20/1	17		C		18	20/1	
	20/1	19		A		20	20/1	
	20/1	21		B		22	20/1	
	20/1	23		C		24	20/1	
	20/1	25		A		26	20/1	
	20/1	27		B		28	20/1	
	20/1	29		C		30	20/1	
		PHASE A		**PHASE B**		**PHASE C**	NOTES:	
CONNECTED VA PER PHASE		1780.0		1220.0		2036.0		
CONNECTED AMPS PER PHASE		14.8		10.2		17.0		
25% OF CONTINUOUS & LIGHTING LOAD (VA)		445.0		305.0		509.0		
CODE VA PER PHASE		2225.0		1525.0		2545.0		
CODE AMPS PER PHASE		18.5		12.7		21.2		

BROWN LS LIGHTING PANEL SCHEDULE

CALCULATION & SCHEDULE

REGISTERED PROFESSIONAL ENGINEER
No. 5338864
MARK P. JEPPSEN
06/26/2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE, 1/2" = HALF SCALE (0, 1/2, 1)

NO.	DATE	DESIGN	DRAWN	CHECKED
ORIGINAL				
0	00/00/0000	REVISIONS		

OSPREY RANCH PER
OSPREY LIFT STATION &
BROWN LIFT STATION
ELECTRICAL - POWER DISTRIBUTION
CALCULATION & SCHEDULE

skm
533 W 2600 S, Suite 25
Bountiful, Utah 84010
Phone: (801) 677-0011
www.skmeng.com

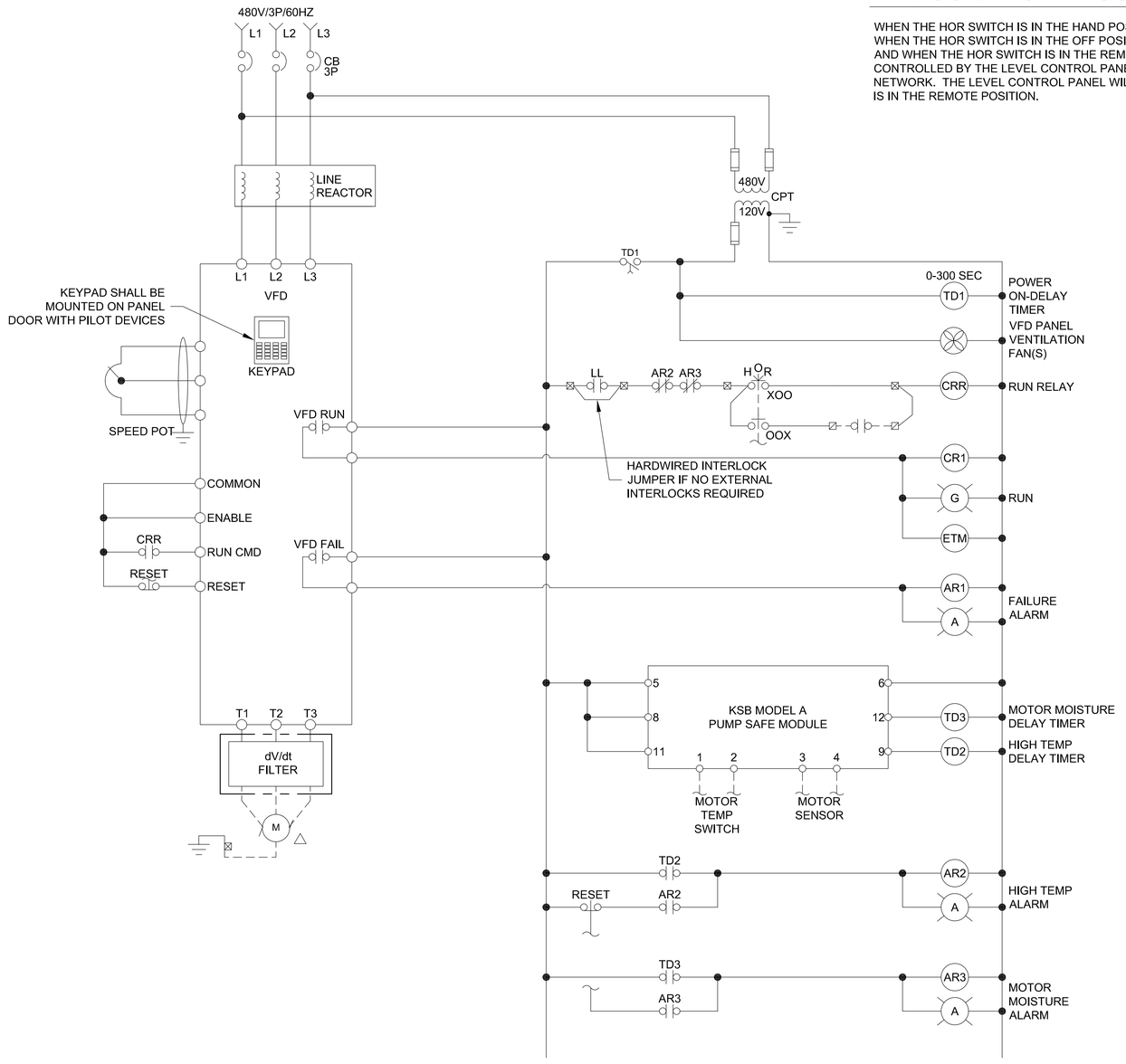
AQUA ENGINEERING
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.
E502
SHEET

6/9/2023 C:\USERS\EUNGEOL.KIM\AQUA ENGINEERING\OSPREY RANCH - 001999.C OSPREY RANCH PER\050 DRAFTING\999 ELECTRICAL\999-E502 CALCULATION & SCHEDULE.DWG

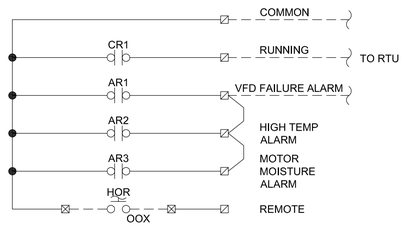
VFD CONTROL DESCRIPTION

WHEN THE HOR SWITCH IS IN THE HAND POSITION, THE MOTOR SHOULD RUN. WHEN THE HOR SWITCH IS IN THE OFF POSITION, THE MOTOR SHOULD STOP. AND WHEN THE HOR SWITCH IS IN THE REMOTE POSITION, THE MOTOR IS CONTROLLED BY THE LEVEL CONTROL PANEL THROUGH THE ETHERNET NETWORK. THE LEVEL CONTROL PANEL WILL BE ABLE TO MONITOR IF THE HOR IS IN THE REMOTE POSITION.



NOTES:

1. TYPICAL SCHEMATIC DIAGRAMS ARE INTENDED TO REFLECT THE GENERAL CONTROL STRATEGY. ACTUAL CIRCUITRY MAY VARY FOR SPECIFIC EQUIPMENT SUPPLIED. THE NUMBER AND TYPE OF DEVICES SHALL BE FURNISHED AS REQUIRED FOR PROPER OPERATION OF THE EQUIPMENT.
2. CONTROL POWER TRANSFORMERS (CPT) SHALL BE ADEQUATELY SIZED AND SHALL BE PROVIDED WITH PROPERLY SIZED FUSES FOR BOTH THE PRIMARY AND SECONDARY WINDINGS.
3. FUSES SHALL BE ADEQUATELY SIZED PER THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.
4. ALL THERMOSTATS AND CONTROL SWITCHES SHALL BE DOOR MOUNTED ON THEIR RESPECTIVE PANELS. DEVICES SHALL BE RATED FOR LINE VOLTAGE AND 125% OF LOAD CURRENT.



VFD CONTROL SCHEMATIC

TYPICAL FOR: P-10210(FUTURE), P-10220(FUTURE), P-20210, P-20220, P-20230(FUTURE)

REGISTERED PROFESSIONAL ENGINEER
No. 5338864
MARK P. JEPPSEN
06/26/2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE, 1/2" = HALF SCALE

NO.	DATE	DESIGN	DRAWN	CHECKED
0	00/00/0000	REVISIONS		

ORIGINAL

OSPREY RANCH PER

OSPREY LIFT STATION &
BROWN LIFT STATION
ELECTRICAL - VFD SCHEMATIC
VFD CONTROL SCHEMATIC

skm
533 W 2600 S, Suite 25
Bountiful, Utah 84010
Phone: (801) 677-0011
www.skmeng.com

AQUA
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

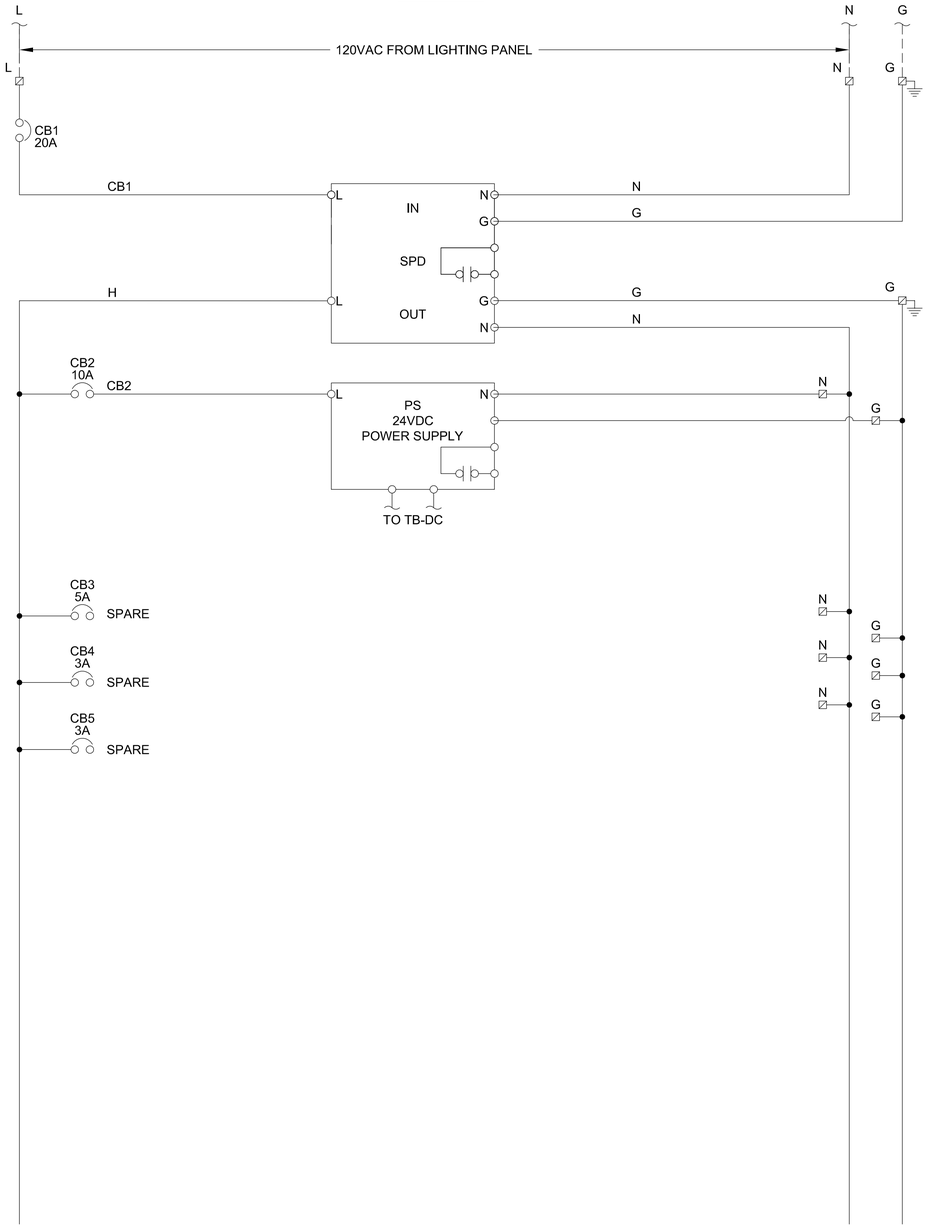
DRAWING NO.

E601

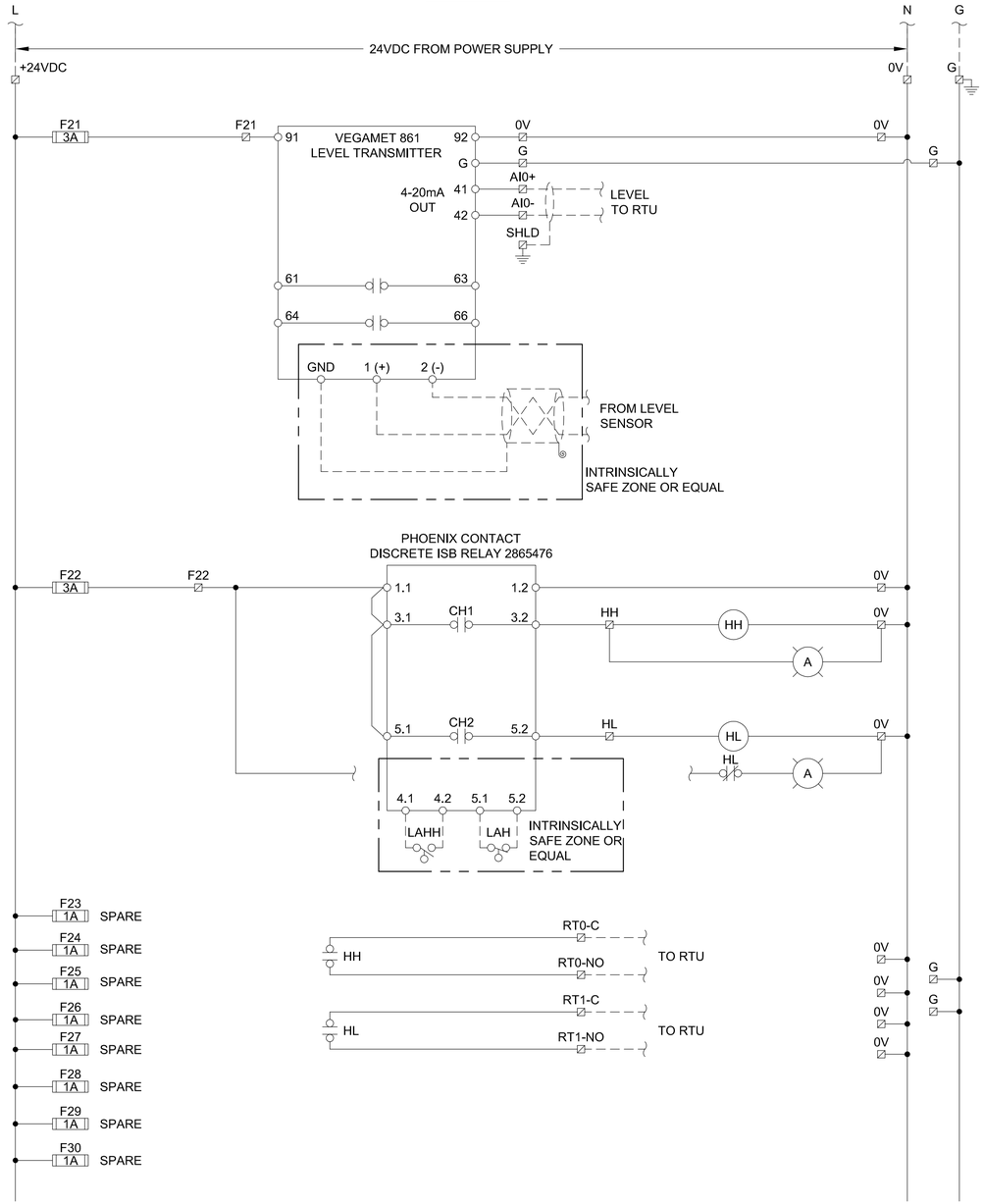
SHEET

6/20/2023 C:\USERS\EUNGEOL.KIM\AQUA ENGINEERING\OSPREY RANCH - 001999.C OSPREY RANCH PER\050 DRAFTING\999 ELECTRICAL\999-E601 VFD CONTROL SCHEMATIC.DWG

TB-AC



TB-DC



OSPREY LS LEVEL CONTROLS & RTU SCHEMATIC

REGISTERED PROFESSIONAL ENGINEER
No. 5338864
MARK P. JEPPSEN
06/26/2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

NO.	DATE	DESIGN	DRAWN	CHECKED
0	00/00/0000	REVISIONS		

ORIGINAL

OSPREY RANCH PER
OSPREY LIFT STATION &
BROWN LIFT STATION
ELECTRICAL - VFD SCHEMATIC
OSPREY LS LEVEL CONTROLS & RTU SCHEMATIC

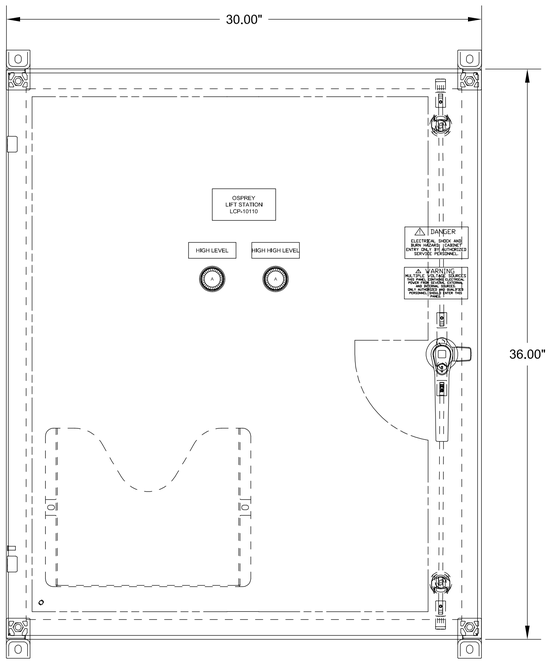
skm
533 W 2600 S, Suite 25
Bountiful, Utah 84010
Phone: (801) 677-0011
www.skmeng.com

AQUA
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

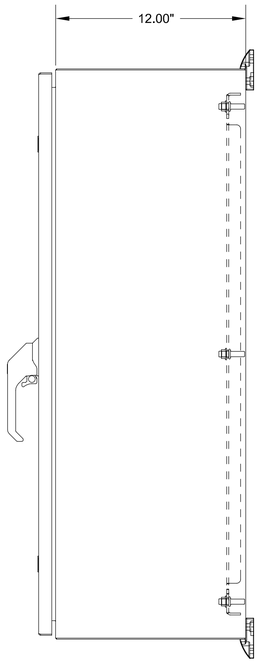
DRAWING NO.
E602

SHEET

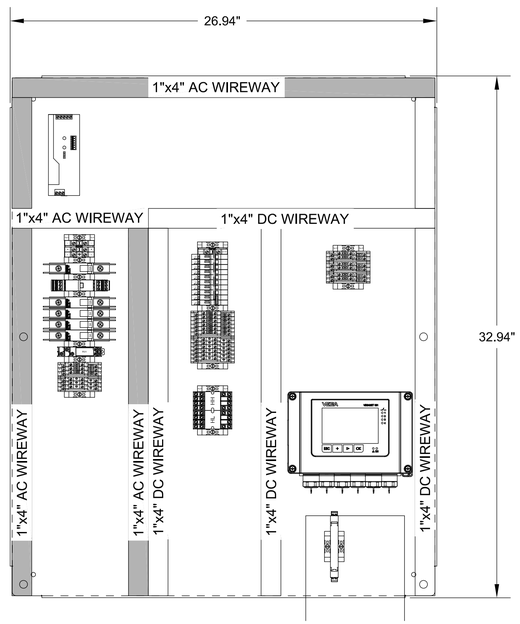
6/20/2023 C:\USERS\EUNGEOL.KIM\AQUA ENGINEERING\OSPREY RANCH - 001999.C OSPREY RANCH PER\050 DRAFTING\999 ELECTRICAL\999-E602 OSPREY LS LEVEL CONTROLS & RTU SCHEMATIC.DWG



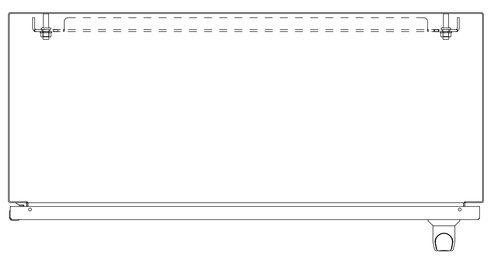
PANEL FRONT VIEW



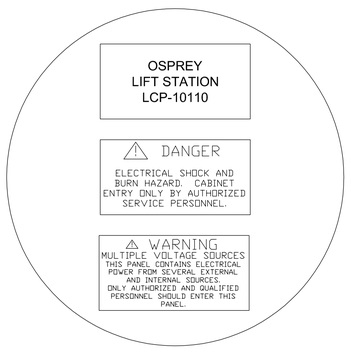
PANEL SIDE VIEW



BACKPANEL LAYOUT VIEW



PANEL TOP VIEW



PANEL TOP VIEW

NOTES:

1. THE PANEL SHALL BE OVERSIZED SO THAT IT MAY BE MODIFIED TO HAVE PUMP CONTROL ADDED TO IT IN THE FUTURE.

OSPREY LS LCP PANEL LAYOUT

REGISTERED PROFESSIONAL ENGINEER
No. 5338864
MARK P. JEPPSEN
06/26/2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE
0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
		REVISIONS		

OSPREY RANCH PER

OSPREY LIFT STATION &
BROWN LIFT STATION
ELECTRICAL - VFD SCHEMATIC
OSPREY LS LCP PANEL LAYOUT

skm
533 W 2600 S, Suite 25
Bountiful, Utah 84010
Phone: (801) 677-0011
www.skmeng.com

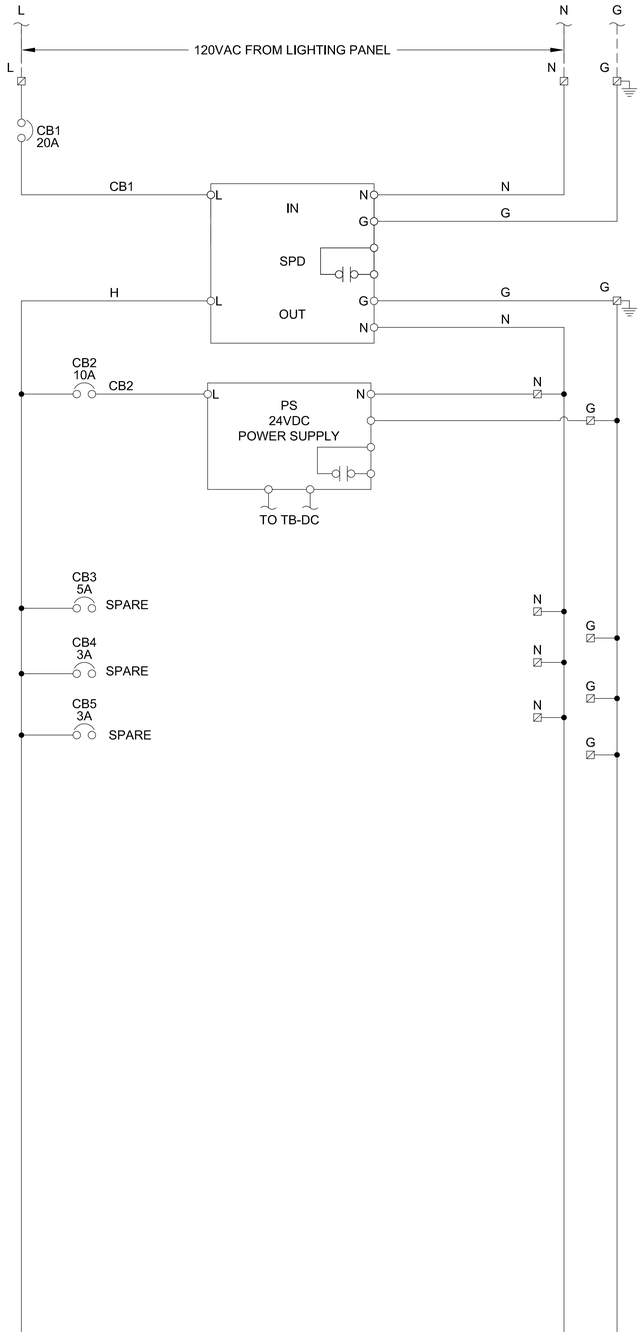
AQUA
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.
E603

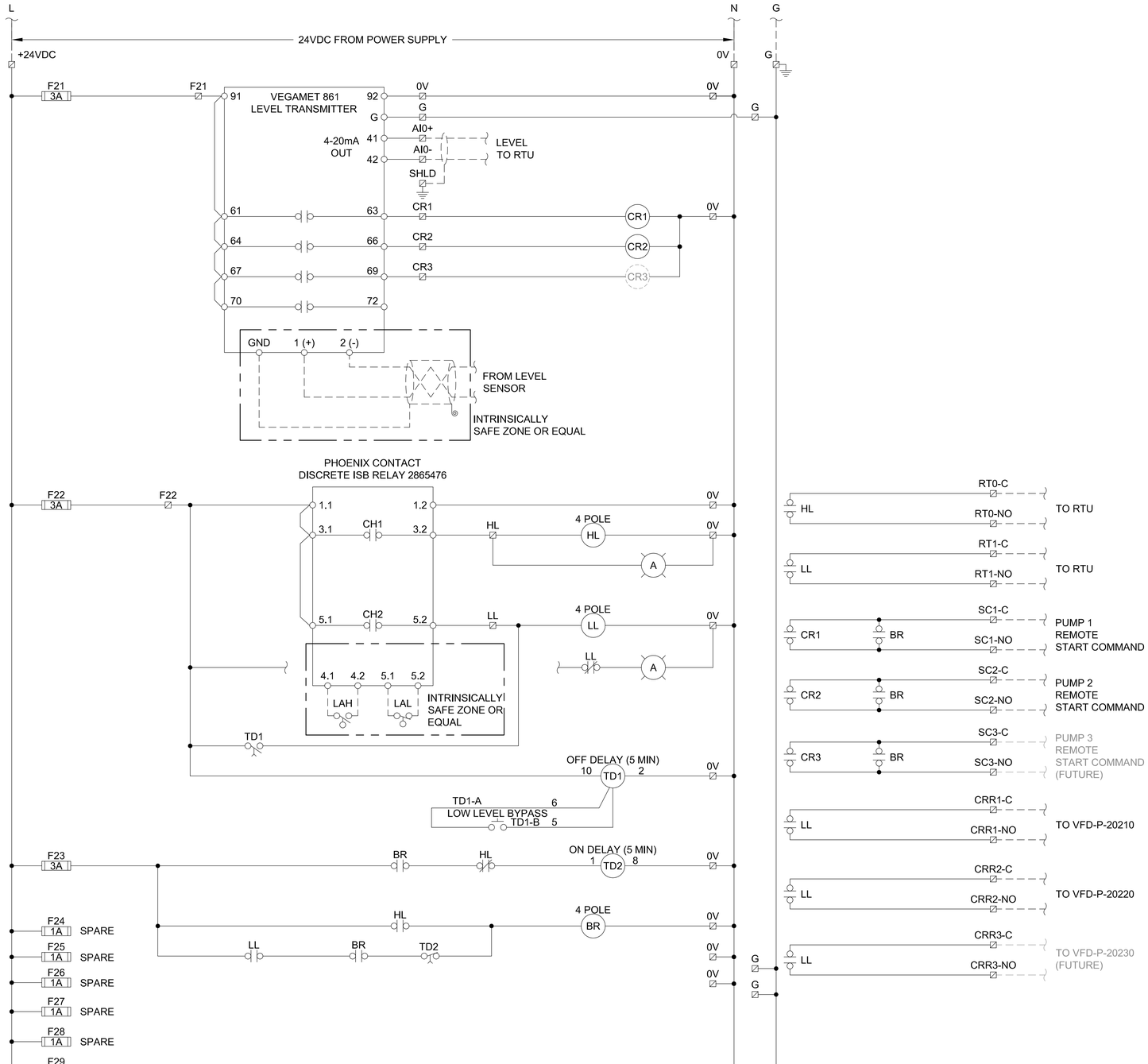
SHEET

6/21/2023
C:\USERS\EUNGEOL.KIM\AQUA ENGINEERING\OSPREY RANCH - 001999.C OSPREY RANCH PER\050 DRAFTING\999 ELECTRICAL\999-E603 OSPREY LS LCP PANEL LAYOUT.DWG

TB-AC



TB-DC



BROWN LS LEVEL CONTROLS & RTU SCHEMATIC

REGISTERED PROFESSIONAL ENGINEER
No. 5338864
MARK P. JEPPSEN
06/26/2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE, 1/2" = HALF SCALE

NO.	DATE	DESIGN	DRAWN	CHECKED
		ORIGINAL		

REVISIONS

OSPREY RANCH PER

OSPREY LIFT STATION &
BROWN LIFT STATION
ELECTRICAL - VFD SCHEMATIC
BROWN LS LEVEL CONTROLS & RTU SCHEMATIC

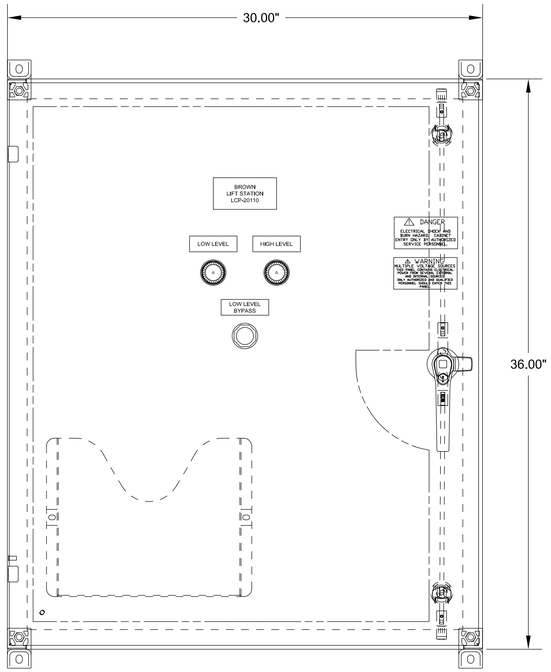
skm
533 W 2600 S, Suite 25
Bountiful, Utah 84010
Phone: (801) 677-0011
www.skmeng.com

AQUA
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

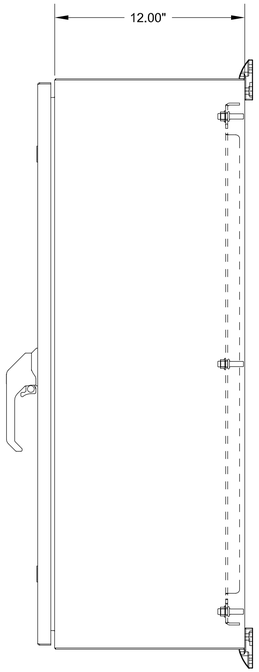
DRAWING NO.
E604

SHEET

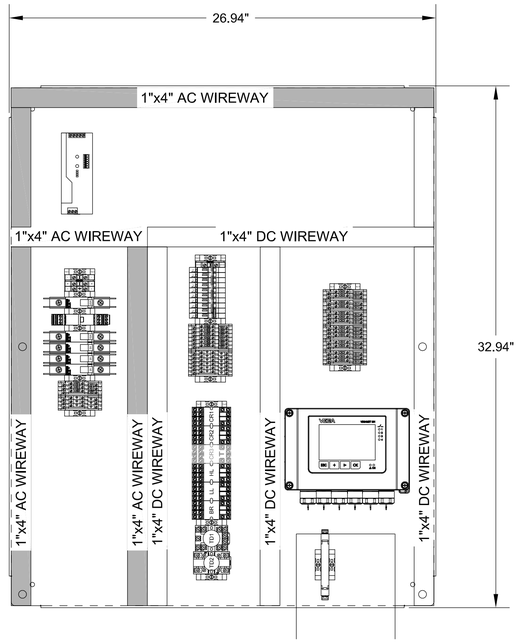
6/21/2023 C:\USERS\EJUNGEOL.KIM\AQUA ENGINEERING\OSPREY RANCH - 001999.C OSPREY RANCH PER\050 DRAFTING\999 ELECTRICAL\999-E604 BROWN LS LEVEL CONTROLS & RTU SCHEMATIC 1.DWG



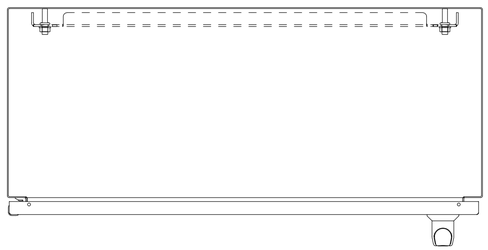
PANEL FRONT VIEW



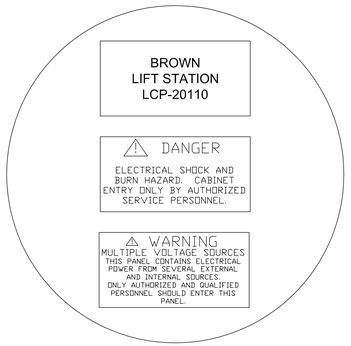
PANEL SIDE VIEW



BACKPANEL LAYOUT VIEW



PANEL TOP VIEW



PANEL TOP VIEW

BROWN LS LCP PANEL LAYOUT

REGISTERED PROFESSIONAL ENGINEER
No. 5338864
MARK P. JEPPSEN
06/26/2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

NO.	DATE	DESIGN	DRAWN	CHECKED
		ORIGINAL		
		REVISIONS		

OSPREY RANCH PER

OSPREY LIFT STATION &
BROWN LIFT STATION
ELECTRICAL - VFD SCHEMATIC
BROWN LS LCP PANEL LAYOUT

skm
533 W 2600 S, Suite 25
Bountiful, Utah 84010
Phone: (801) 677-0011
www.skmeng.com

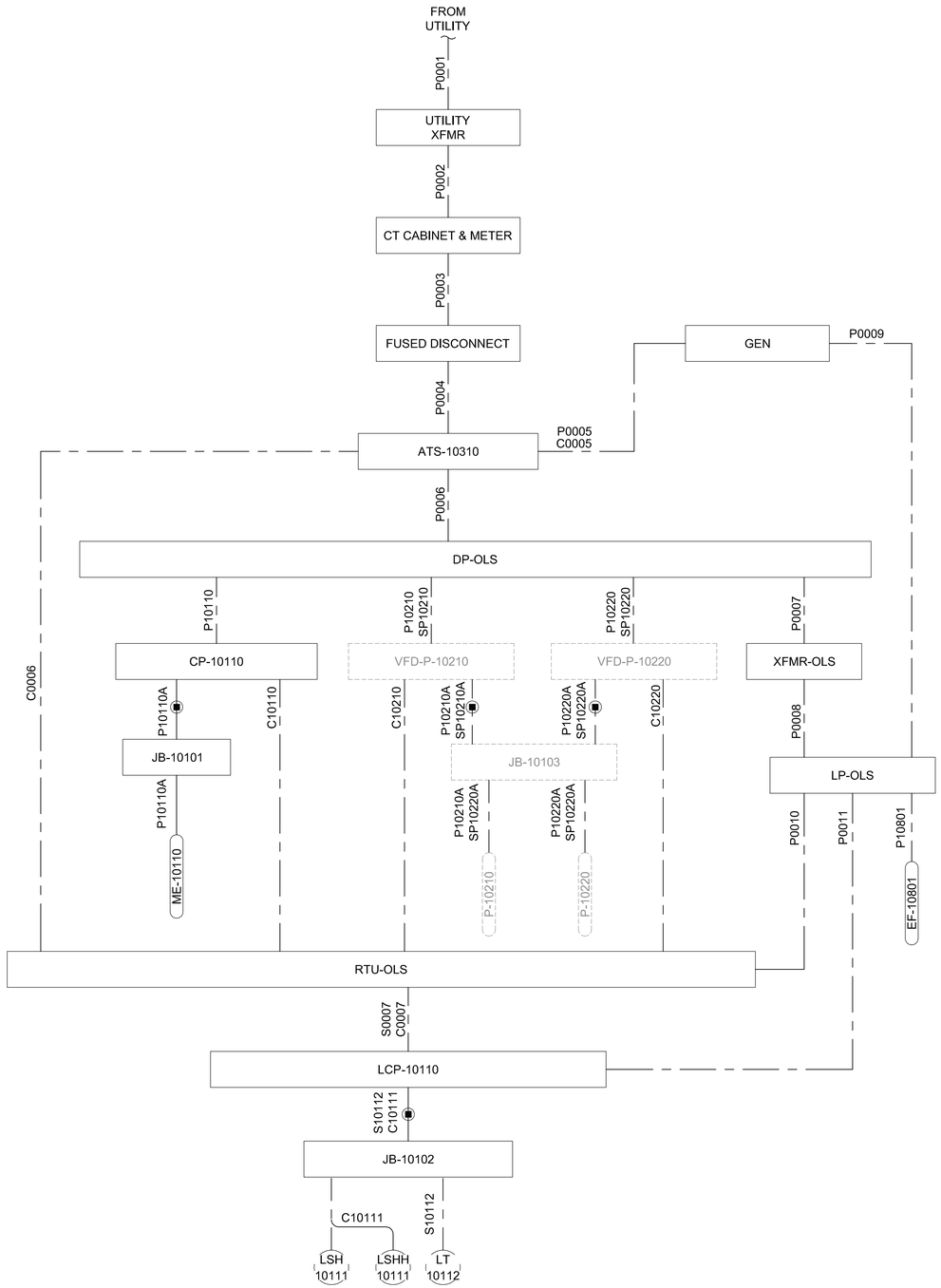
AQUA
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

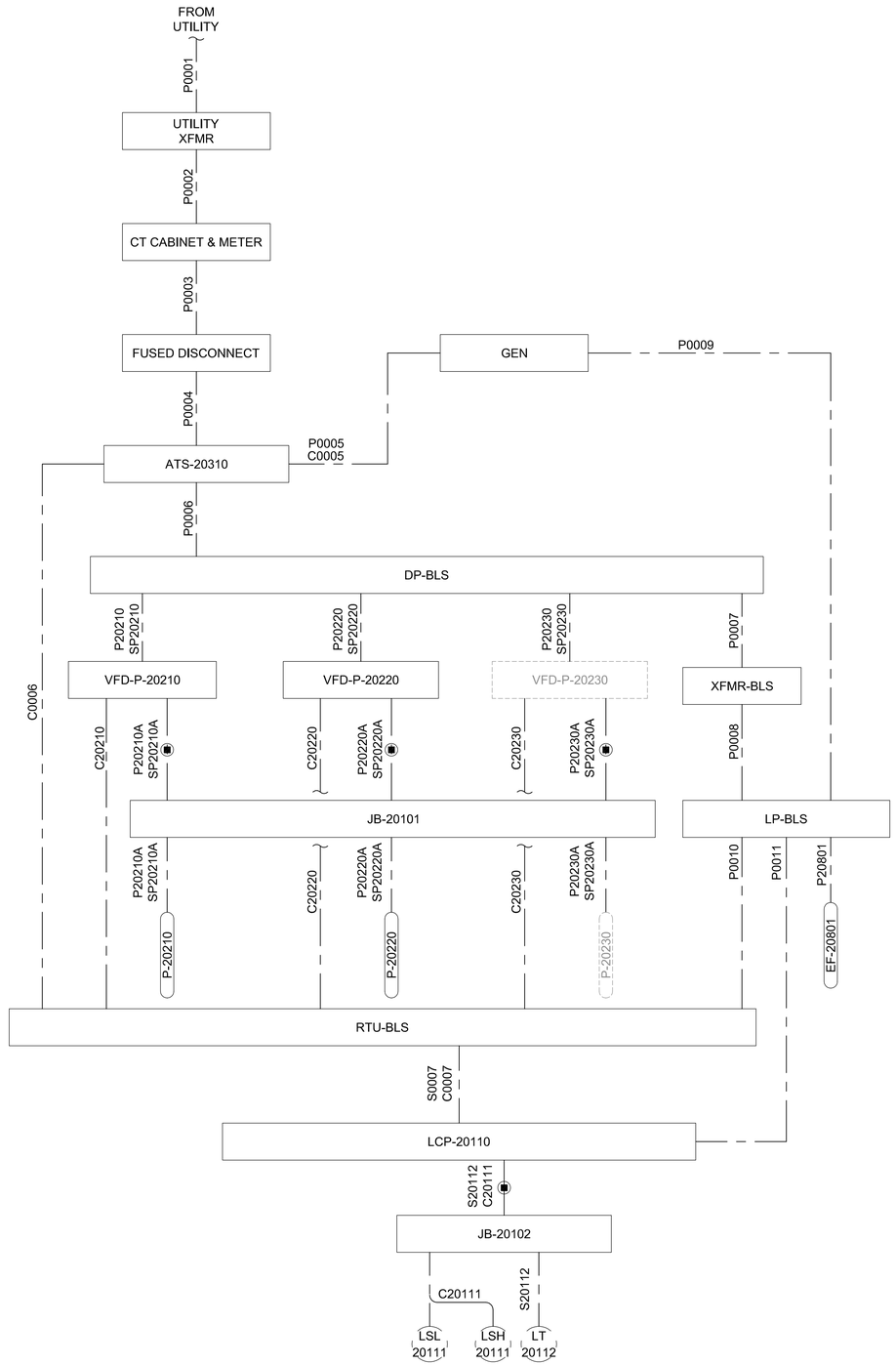
E605

SHEET

6/21/2023 C:\USERS\EUNGEOL.KIM\AQUA ENGINEERING\OSPREY RANCH - 001999.C OSPREY RANCH PER\060 DRAFTING\999 ELECTRICAL\999-E605 BROWN LS LCP PANEL LAYOUT.DWG



OSPREY LS CONDUIT DEVELOPMENT



BROWN LS CONDUIT DEVELOPMENT

NOTES:

(1) CONDUIT DEVELOPMENT IS NOT ALL INCLUSIVE.

CONDUIT DEVELOPMENT

C:\USERS\EUNGEOL.KIM\AQUA ENGINEERING\OSPREY RANCH - 001999.C OSPREY RANCH PER\090 DRAFTING\999 ELECTRICAL\999-E801 CONDUIT DEVELOPMENT.DWG

6/20/2023

REGISTERED PROFESSIONAL ENGINEER
No. 5338864
MARK P. JEPPSEN
06/26/2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
0	00/00/0000			

REVISIONS

OSPREY RANCH PER

OSPREY LIFT STATION & BROWN LIFT STATION ELECTRICAL - CONDUIT DEVELOPMENT

skm
533 W 2600 S, Suite 25
Bountiful, Utah 84010
Phone: (801) 677-0011
www.skmeng.com

AQUA ENGINEERING
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

E801

SHEET

POWER CONDUIT							
CONDUIT	**SIZE**	**CONDUCTORS**	**SERVICE**	**FROM**	**TO**	**DUCTBANKS**	**NOTES**
P0001	-	BY UTIL	-	UTIL	UTIL XFMR	DB-101	COORDINATE W/ UTILITY
P0002	4"	2 PARALLEL 4#250 W #2 GND	480V	UTIL XFMR	CT CABINET & METER	DB-102	
P0003	4"	2 PARALLEL 4#250 W #2 GND	480V	CT CABINET & METER	FUSED DISCONNECT		
P0004	4"	2 PARALLEL 4#250 W #2 GND	480V	FUSED DISCONNECT	ATS-10310		
P0005	4"	2 PARALLEL 4#250 W #2 GND	480V	GEN	ATS-10310		
P0006	4"	2 PARALLEL 4#250 W #2 GND	480V	ATS-10310	DP-OLS		
P0007	1"	3 #10 W/ #10 GND	480V	DP-OLS	XFMR-OLS		
P0008	1"	4 #6 W/ #10 GND	208/120V	XFMR-OLS	LP-OLS		
P0009	1"	4 #12 W/ #12 GND	120V	LP-OLS	GEN		
P0010	1"	2 #12 W/ #12 GND	120V	LP-OLS	RTU-OLS		
P0011	1"	2 #12 W/ #12 GND	120V	LP-OLS	LCP-10110		
P10110	1"	3 #12 W/ #12 GND	480V	DP-OLS	CP-10110		
P10110A	1"	3 #12 W/ #12 GND	480V	CP-10110	ME-10110	DB-103	THROUGH JB-10101
P10210	2"	WIRE FUTURE	480V	DP-OLS	VFD-P-10210 (FUTURE)		
P10210A	2"	WIRE FUTURE	480V	VFD-P-10210 (FUTURE)	P-10210 (FUTURE)	DB-103	THROUGH JB-10103 (FUTURE)
P10220	2"	WIRE FUTURE	480V	DP-OLS	VFD-P-10220 (FUTURE)		
P10220A	2"	WIRE FUTURE	480V	VFD 2 (FUTURE)	P-10220 (FUTURE)	DB-103	THROUGH JB-10103 (FUTURE)
P10801	1"	2 #14 W/ #14 GND	120V	LP-OLS	EF-10801		
CONTROL CONDUIT							
C0005	1"	6 #14	120V	ATS-10310	GEN		
C0006	1"	6 #14	120V	ATS-10310	RTU-OLS		
C0007	1"	4 #14	24V	LCP-10110	RTU-OLS		
C10110	1"	4 #14	24V	CP-10110	RTU-OLS		
C10111	1"	4 #14	24V	LSH/LSHH-10111	LCP-10110	DB-103	INTRINSICALLY SAFE, THROUGH JB-10102
C10210	1"	WIRE FUTURE	120V	VFD-P-10210 (FUTURE)	RTU-OLS		
C10220	1"	WIRE FUTURE	120V	VFD-P-10220 (FUTURE)	RTU-OLS		
SIGNAL CONDUIT							
S0007	1"	1 TSP	4-20mA	LCP-10110	RTU-OLS		
S10112	1"	1 TSP	4-20mA	LT-10112	LCP-10110	DB-103	INTRINSICALLY SAFE, THROUGH JB-10103
SPARE CONDUIT							
SP10210	2"	PULL STRING	480V	DP-OLS	VFD-P-10210 (FUTURE)		
SP10210A	2"	PULL STRING	480V	VFD-P-10210 (FUTURE)	P-10210 (FUTURE)	DB-103	THROUGH JB-10103
SP10220	2"	PULL STRING	480V	DP-OLS	VFD-P-10220 (FUTURE)		
SP10220A	2"	PULL STRING	480V	VFD-P-10210 (FUTURE)	P-10220 (FUTURE)	DB-103	THROUGH JB-10103

OSPREY LS CONDUIT SCHEDULE

SHEET	TAG	DESCRIPTION	MAKE	MODEL	SUPPLY	RANGE	COMMENTS
E802	LAHH-10111	GRINDER MANHOLE LEVEL ALARM HIGH HIGH	FLYGT	ENM-10	24VDC		OR APPROVED EQUAL
E802	LAH-10111	GRINDER MANHOLE LEVEL ALARM HIGH	FLYGT	ENM-10	24VDC		OR APPROVED EQUAL
E802	LI-10112	GRINDER MANHOLE LEVEL DISPLAY	VEGA	861	24VDC		OR APPROVED EQUAL
E802	LT-10112	GRINDER MANHOLE LEVEL TRANSMITTER	VEGA	C21	24VDC		OR APPROVED EQUAL

OSPREY LS INSTRUMENT SCHEDULE

CONDUIT & INSTRUMENT SCHEDULE 1

REGISTERED PROFESSIONAL ENGINEER
No. 5338864
MARK P. JEPPSEN
06/26/2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
0	00/00/0000			

REVISIONS

OSPREY RANCH PER

OSPREY LIFT STATION &
BROWN LIFT STATION
ELECTRICAL - CONDUIT
CONDUIT & INSTRUMENT SCHEDULE 1

skm
533 W 2600 S, Suite 25
Bountiful, Utah 84010
Phone: (801) 677-0011
www.skmeng.com

AQUA ENGINEERING
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.
E802

SHEET

C:\USERS\EUNGEOL.KIM\AQUA ENGINEERING\OSPREY RANCH - 001999.C OSPREY RANCH PER\050 DRAFTING\999 ELECTRICAL\999-E802 CONDUIT & INSTRUMENT SCHEDULE 1.DWG
6/21/2023

POWER CONDUIT							
CONDUIT	SIZE	CONDUCTORS	SERVICE	FROM	TO	DUCTBANKS	NOTES
P0001	-	BY UTIL	-	UTIL	UTIL XFMR	DB-201	COORDINATE W/ UTILITY
P0002	4"	2 PARALLEL 4#250 W #2 GND	480V	UTIL XFMR	CT CABINET & METER	DB-202	
P0003	4"	2 PARALLEL 4#250 W #2 GND	480V	CT CABINET & METER	FUSED DISCONNECT		
P0004	4"	2 PARALLEL 4#250 W #2 GND	480V	FUSED DISCONNECT	ATS-20310		
P0005	4"	2 PARALLEL 4#250 W #2 GND	480V	GEN	ATS-20310		
P0006	4"	2 PARALLEL 4#250 W #2 GND	480V	ATS-20310	DP-BLS		
P0007	1"	3 #10 W/ #10 GND	480V	DP-BLS	XFMR-BLS		
P0008	1"	4 #6 W/ #10 GND	208/120V	XFMR-BLS	LP-BLS		
P0009	1"	4 #12 W/ #12 GND	120V	LP-BLS	GEN		
P0010	1"	2 #12 W/ #12 GND	120V	LP-BLS	RTU-BLS		
P0011	1"	2 #12 W/ #12 GND	120V	LP-BLS	LCP-20110		
P20210	2"	3 #4 W/ #8 GND	480V	DP-BLS	VFD-P-20210		
P20210A	2"	3 #4 W/ #8 GND	480V	VFD-P-20210	P-20210	DB-203	THROUGH JB-20101
P20220	2"	3 #4 W/ #8 GND	480V	DP-BLS	VFD-P-20220		
P20220A	2"	3 #4 W/ #8 GND	480V	VFD-P-20220	P-20220	DB-203	THROUGH JB-20101
P20230	2"	WIRE FUTURE	480V	DP-BLS	VFD-P-20230 (FUTURE)		
P20230A	2"	WIRE FUTURE	480V	VFD-P-20230 (FUTURE)	P-20230 (FUTURE)	DB-203	THROUGH JB-20101
P20801	1"	2 #14 W/ #14 GND	120V	LP-BLS	EF-20801		
CONTROL CONDUIT							
C0005	1"	6 #14	120V	ATS-20310	GEN		
C0006	1"	6 #14	120V	ATS-20310	RTU-BLS		
C0007	1"	4 #14	24V	LCP-20110	RTU-BLS		
C20111	1"	4 #14	24V	LSL/LSH-20111	LCP-20110		INTRINSICALLY SAFE, THROUGH JB-20102
C20210	1"	6 #14	120V	VFD-P-20210	RTU-BLS		
C20220	1"	6 #14	120V	VFD-P-20220	RTU-BLS		
C20230	1"	WIRE FUTURE	120V	VFD-P-20230 (FUTURE)	RTU-BLS		
SIGNAL CONDUIT							
S0007	1"	1 TSP	4-20mA	LCP-20110	RTU-BLS		
S20112	1"	1 TSP	4-20mA	LT-20112	LCP-20110	DB-203	INTRINSICALLY SAFE, THBROUGH JB-20102
SPARE CONDUIT							
SP20210	2"	PULL STRING	480V	DP-BLS	VFD-P-20210		
SP20210A	2"	PULL STRING	480V	VFD-20210	P-20210	DB-203	THROUGH JB-20101
SP20220	2"	PULL STRING	480V	DP-BLS	VFD-P-20220		
SP20220A	2"	PULL STRING	480V	VFD-20210	P-20220	DB-203	THROUGH JB-20101
SP20230	2"	PULL STRING	480V	DP-BLS	VFD-P-20230 (FUTURE)		
SP20230A	2"	PULL STRING	480V	VFD-20210 (FUTURE)	P-20230 (FUTURE)	DB-203	THROUGH JB-20101

BROWN LS CONDUIT SCHEDULE

SHEET	TAG	DESCRIPTION	MAKE	MODEL	SUPPLY	RANGE	COMMENTS
E803	LSL-20111	PUMP STATION VAULT LOW LEVEL ALARM LOW	FLYGT	ENM-10	24VDC		OR APPROVED EQUAL
E803	LSH-20111	PUMP STATION VAULT LOW LEVEL ALARM HIGH	FLYGT	ENM-10	24VDC		OR APPROVED EQUAL
E803	LI-20112	PUMP STATION VAULT LEVEL DISPLAY	VEGA	861	24VDC		OR APPROVED EQUAL
E803	LT-20112	PUMP STATION VAULT LEVEL TRANSMITTER	VEGA	C21	24VDC		OR APPROVED EQUAL

BROWN LS INSTRUMENT SCHEDULE

CONDUIT & INSTRUMENT SCHEDULE 2

REGISTERED PROFESSIONAL ENGINEER
No. 5338864
MARK P. JEPPSEN
06/26/2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE
0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
0	00/00/0000			

REVISIONS

OSPREY RANCH PER

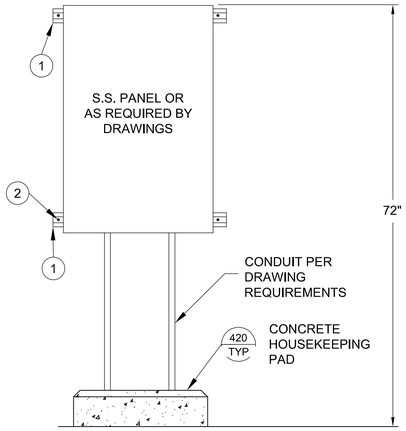
OSPREY LIFT STATION &
BROWN LIFT STATION
ELECTRICAL - CONDUIT
CONDUIT & INSTRUMENT SCHEDULE 2

skm
533 W 2600 S, Suite 25
Bountiful, Utah 84010
Phone: (801) 677-0011
www.skmeng.com

AQUA ENGINEERING
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.
E803
SHEET

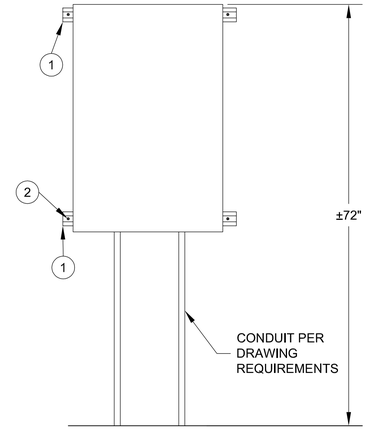
6/21/2023 C:\USERS\EUNGEOL.KIM\AQUA ENGINEERING\OSPREY RANCH - 001999.C OSPREY RANCH PER\050 DRAFTING\999 ELECTRICAL\999-E803 CONDUIT & INSTRUMENT SCHEDULE 2.DWG



1. STAINLESS STEEL 1-5/8" X 1-5/8" UNISTRUT CHANNEL.
2. ½" X 3" S.S. ANCHOR BOLT OR LAG BOLT WITH WASHER, ANCHORED TO WALL (EVERY 18", 2 MIN.)
3. MAXIMUM PANEL HEIGHT NOT TO EXCEED 72".
4. CENTER OF INSTRUMENT DISPLAYS SHALL BE 62".
5. CENTER OF LOCAL CONTROL STATIONS SHALL BE 48".

WALL MOUNTED PANEL

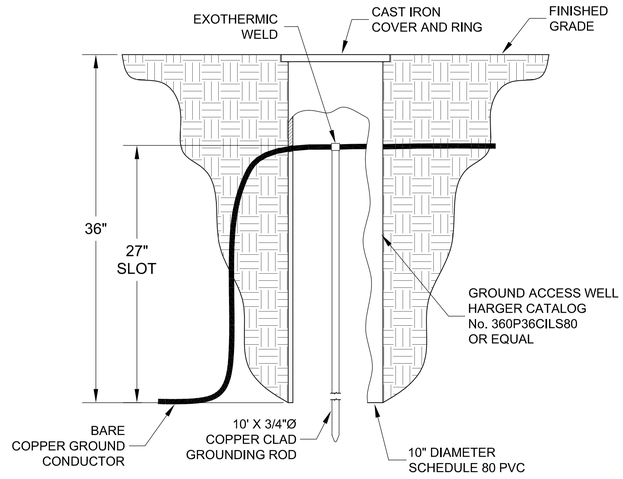
002 TYP SCALE: NONE



1. STAINLESS STEEL 1-5/8" x 1-5/8" UNISTRUT CHANNEL
2. 1/2" x 3" SS ANCHOR BOLT OR LAG BOLT WITH WASHER ANCHORED TO WALL (EVERY 18" MAX 2" MIN"

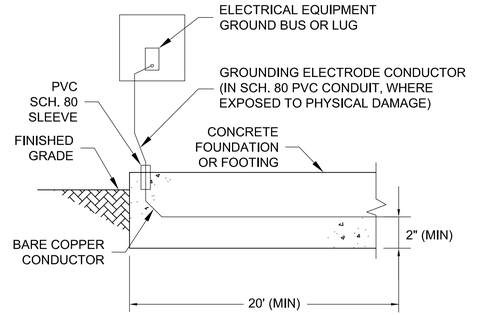
WALL MOUNTED J-BOX

012 TYP SCALE: NONE



GROUND ROD WITH ACCESS WELL

100 TYP SCALE: NONE

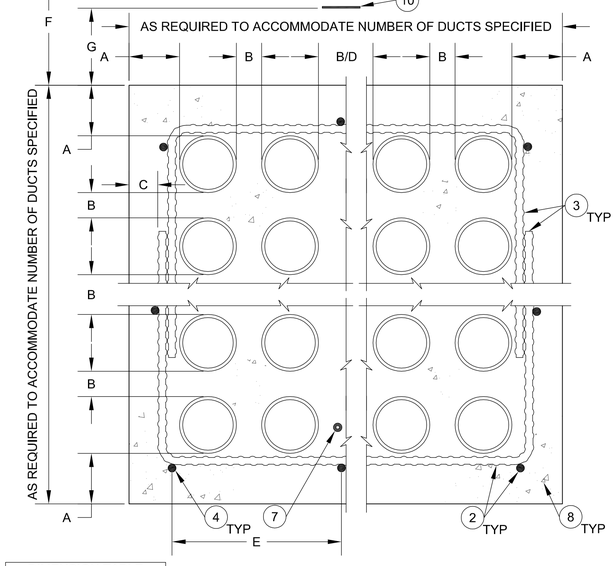


NOTE:

ALL WORK SHALL BE PER NATIONAL ELECTRICAL CODE AND LOCAL GOVERNING AUTHORITY.

UFER GROUNDING DETAIL

140 TYP SCALE: NONE



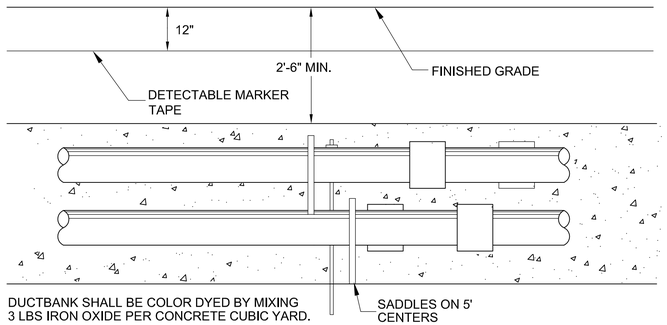
DIMENSION TABLE	
A	4" MIN. TYP.
B	2" MIN. SEE NOTE 12
C	2" MIN. SEE NOTE 2
D	12" MIN. SEE NOTE 13
E	18" MAX. SEE NOTE 4
F	18" MIN. 30" MAX.
G	12"

MULTIPLE DUCT DUCTBANK DETAIL

202 TYP SCALE: N.T.S.

NOTES:

1. ALL DIMENSIONS SHOWN ARE MINIMUM DIMENSIONS. UNLESS NOTED OTHERWISE ON THE DRAWINGS.
2. ALL REBAR SHALL BE #4 BAR AND HAVE A MINIMUM CONCRETE EMBEDMENT OF 2" (EDGE OF REBAR TO OUTSIDE SURFACE OF CONCRETE).
3. REBAR HOOPS SHALL OVERLAP 9" MINIMUM AND SHALL BE PROVIDED EVERY 4 FEET HORIZONTALLY. HOOPS SHALL NOT BE REQUIRED ON SINGLE ROW DUCTBANKS.
4. HORIZONTAL REBAR SHALL BE PLACED @ A MAXIMUM OF 18" ON CENTER ALL AROUND THE DUCTBANK ENVELOPE AND SHALL BE SUPPORTED EVERY 4 FEET LONGITUDINALLY. SINGLE ROW DUCTBANKS LESS THAN 24" WIDE SHALL HAVE A MIN. OF 2 HORIZONTAL BARS.
5. DUCT SPACERS (SADDLES) SHALL BE PROVIDED FOR PROPER SUPPORT OF CONDUIT DUCTS. SPACERS SHALL BE PROVIDED HORIZONTALLY AS RECOMMENDED BY THE MANUFACTURER AND TO PREVENT ANY SAGGING OF THE DUCTS (LOW SPOTS WILL NOT BE ALLOWED).
6. DUCTS SHALL BE SECURED TO PREVENT FLOATING DURING THE CONCRETE ENCASEMENT.
7. PROVIDE A 4/0 BARE CONTINUOUS COPPER GROUND. SEE GROUNDING SPECIFICATION SECTION 16170.
8. DUCTBANK CONCRETE SHALL BE COLOR DYED RED BY MIXING 3 LBS. IRON OXIDE PER CUBIC YARD OF CONCRETE.
9. ALL DUCTBANKS SHALL BE SLOPED @ 1/4" PER 10 FEET TO ALLOW DRAINAGE.
10. A 3" WIDE DETECTABLE PLASTIC MARKER TAPE WITH INSCRIPTION "CAUTION ELECTRICAL LINES BURIED BELOW" (BLACK LETTERS ON RED BACKGROUND) SHALL BE INSTALLED 12" ABOVE THE TOP OF ALL CONCRETE ENCASED DUCTBANKS.
11. REFER TO CONDUIT SCHEDULE FOR WIRE FILL OF ALL DUCTS.
12. ALL DUCTS OF THE SAME DUTY (480V POWER, 120V POWER, 120V CONTROLS, AND SIGNAL) SHALL BE SEPARATED BY A MINIMUM OF 2".
13. SIGNAL AND FIBER DUCTS SHALL BE SEPARATED FROM 480V POWER BY A MIN. OF 12", FROM 120V POWER BY A MIN. OF 6" AND FROM 120V CONTROL BY MIN. OF 4" UNLESS NOTED OTHERWISE ON THE DRAWINGS. 120V POWER AND 120V CONTROL DUCTS SHALL BE SEPARATED FROM 480V POWER BY A MIN. OF 4" UNLESS NOTED OTHERWISE ON THE DRAWINGS.



ALL DUCTBANKS SHALL BE SLOPED 1/4" PER DUCT 10'
TO ALLOW DRAINAGE. NO LOW SPOTS WILL BE ALLOWED IN RACEWAY

DUCTBANK DETAIL

203 TYP SCALE: NONE

DETAILS 1

C:\USERS\EUNGEOL.KIM\AQUA ENGINEERING\OSPREY RANCH - 001999.C OSPREY RANCH PER\050 DRAFTING\999 ELECTRICAL\999-E901 DETAILS 1.DWG

6/9/2023

REG/STERED PROFESSIONAL ENGINEER
No. 5338864
MARK P. JEPPSEN
06/26/2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

NO.	DATE	DESIGN	DRAWN	CHECKED
0	00/00/0000	REVISIONS		

ORIGINAL

OSPREY RANCH PER
OSPREY LIFT STATION &
BROWN LIFT STATION
ELECTRICAL - DETAILS
DETAILS 1

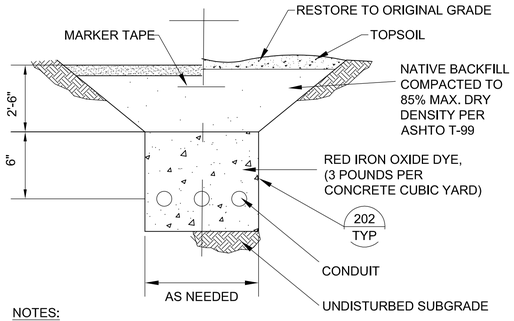
skm
533 W 2600 S, Suite 25
Bountiful, Utah 84010
Phone: (801) 677-0011
www.skmeng.com

AQUA ENGINEERING
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

E901

SHEET

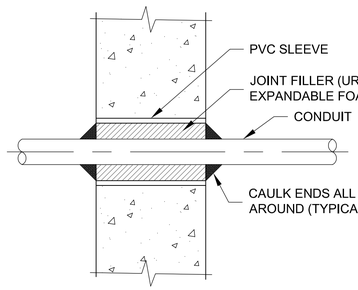


NOTES:
DIMENSIONS ARE MINIMUM.

THE GROUND CONDUCTOR SHALL RUN CONTINUOUSLY THROUGH MANHOLES AND PULL BOXES AND SHALL CONTINUE FROM THE DUCTBANK INTO THE ELECTRICAL EQUIPMENT OR BUILDING GROUNDING SYSTEM AND SHALL BE BONDED TO EACH RIDGID METAL CONDUIT.

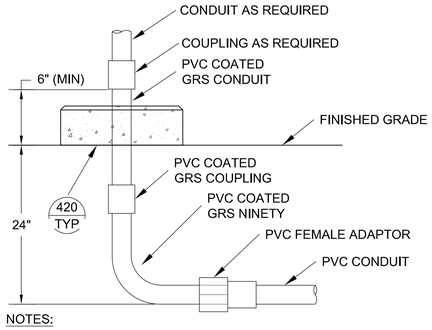
TYPICAL TRENCH DETAIL FOR BELOW 600 VOLTS

204 TYP SCALE: NONE



CONDUIT PENETRATION AT NEW WALL OR SLAB

300 TYP SCALE: NONE

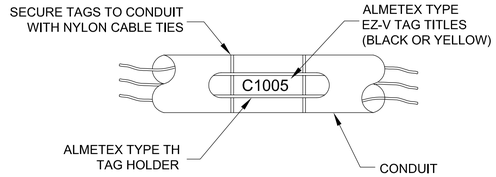


NOTES:

1. WHERE CONDUITS ARE INSTALLED IN OR UNDER A CONCRETE SLAB, THE 24" DIMENSION DOES NOT APPLY. CONDUITS SHALL BE INSTALLED BETWEEN REBAR MATS OR UNDER A SINGLE REBAR MAT.
2. IN CORROSIVE AREAS, PVC COATED GRS SHALL BE USED.

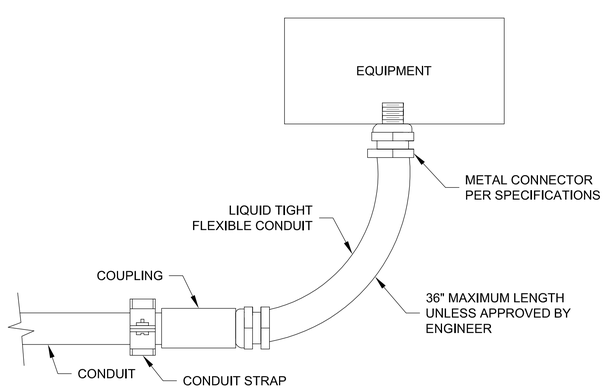
STUB UP DETAIL

321 TYP SCALE: NONE



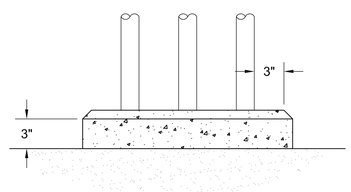
CONDUIT MARKING SYSTEM

360 TYP SCALE: NONE



FLEXIBLE CONDUIT DETAIL

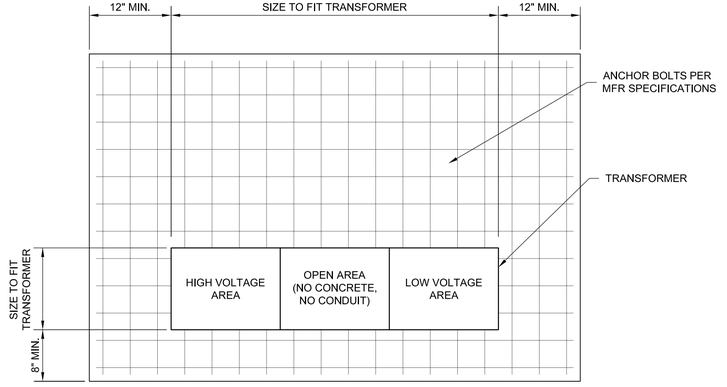
365 TYP SCALE: NONE



HOUSEKEEPING CURB REQUIRED AT ALL INTERIOR WALL LOCATIONS FOR SINGLE AND MULTIPLE RISERS. RISERS SHALL BE COUPLED SO THAT SINGLE RISERS ARE SIX FEET APART MIN.

CONCRETE HOUSEKEEPING CURB DETAIL

420 TYP SCALE: NONE



TRANSFORMER PAD

436 TYP SCALE: NONE

DETAILS 2

REGISTERED PROFESSIONAL ENGINEER
No. 5338864
MARK P. JEPPSEN
06/26/2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

NO.	DATE	DESIGN	DRAWN	CHECKED
0	00/00/0000	REVISIONS		

ORIGINAL

OSPREY RANCH PER

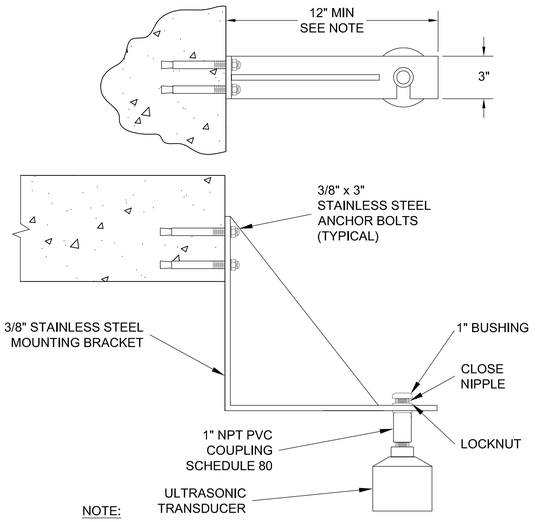
OSPREY LIFT STATION &
BROWN LIFT STATION
ELECTRICAL - DETAILS
DETAILS 2

skm
533 W 2600 S, Suite 25
Bountiful, Utah 84010
Phone: (801) 677-0011
www.skmeng.com

AQUA ENGINEERING
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.
E902
SHEET

6/20/2023 C:\USERS\EUNGEOL.KIM\AQUA ENGINEERING\OSPREY RANCH - 001999.C OSPREY RANCH PER\050 DRAFTING\999 ELECTRICAL\999-E902 DETAILS 2.DWG

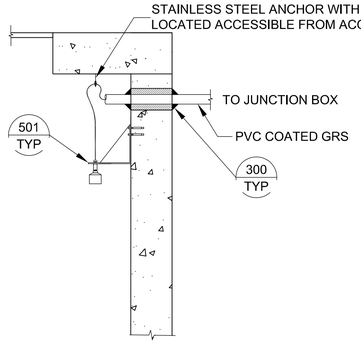


NOTE:

VERIFY BRACKET DIMENSIONS WITH THE ULTRASONIC TRANSDUCER MANUFACTURER, TO INSURE PROPER OPERATION.

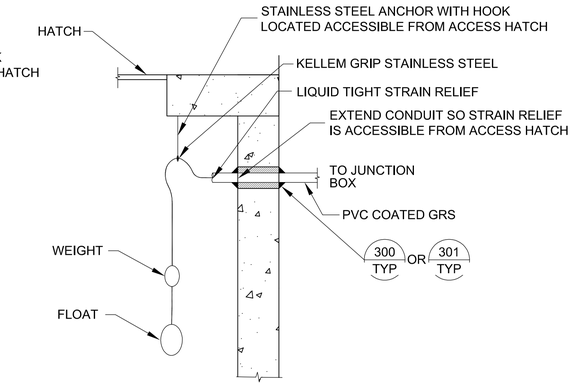
RADAR TRANSDUCER MOUNTING

501 TYP SCALE: NONE



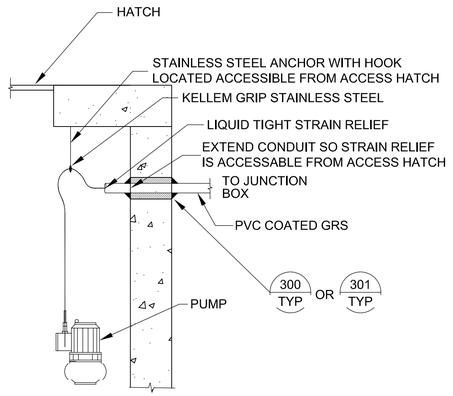
RADAR TRANSDUCER WETWELL MOUNTING

503 TYP SCALE: NONE



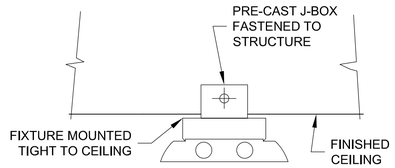
CEILING SUSPENDED FLOAT DETAIL

512 TYP SCALE: NONE



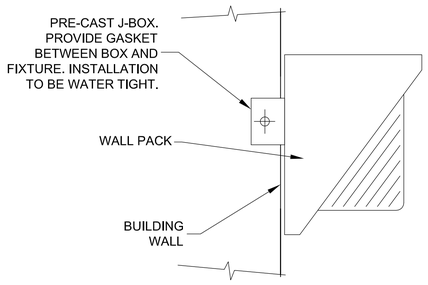
CEILING SUSPENDED MOTOR LEADS DETAIL

513 TYP SCALE: NONE



CEILING MOUNTED LIGHT FIXTURE DETAIL

800 TYP SCALE: NONE



WALL MOUNTED LIGHT FIXTURE DETAIL

810 TYP SCALE: NONE

DETAILS 3

Mark P. Jeppsen
REGISTERED PROFESSIONAL ENGINEER
No. 5338864
MARK P. JEPPSEN
06/26/2023
STATE OF UTAH

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE

0 1/2 1

ORIGINAL

NO.	DATE	DESIGN	DRAWN	CHECKED
0	00/00/0000	REVISIONS		

OSPREY RANCH PER

OSPREY LIFT STATION &

BROWN LIFT STATION

ELECTRICAL - DETAILS

DETAILS 3

skm
533 W 2600 S, Suite 25
Bountiful, Utah 84010
Phone: (801) 677-0011
www.skmeng.com

AQUA ENGINEERING
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

E903

SHEET

6/9/2023 C:\USERS\EUNGEOL.KIM\AQUA ENGINEERING\OSPREY RANCH - 001999.C OSPREY RANCH PER\050 DRAFTING\999 ELECTRICAL\999-E903 DETAILS 3.DWG