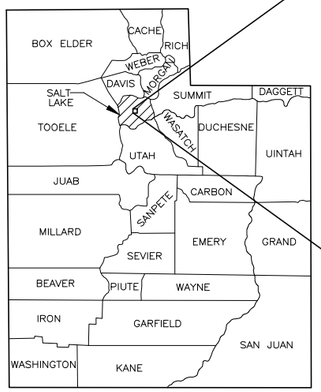
WEST JORDAN CITY

WELL NUMBER 8 PUMP BUILDING
CONSTRUCTION PLANS
APRIL 2024

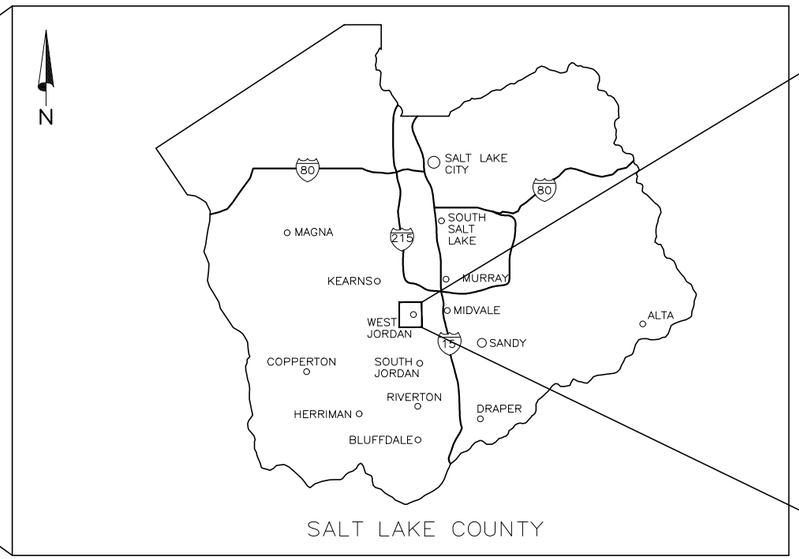
WEST JORDAN CITY

DAVID MURPHY, P.E.
UTILITY ENGINEERING MANAGER

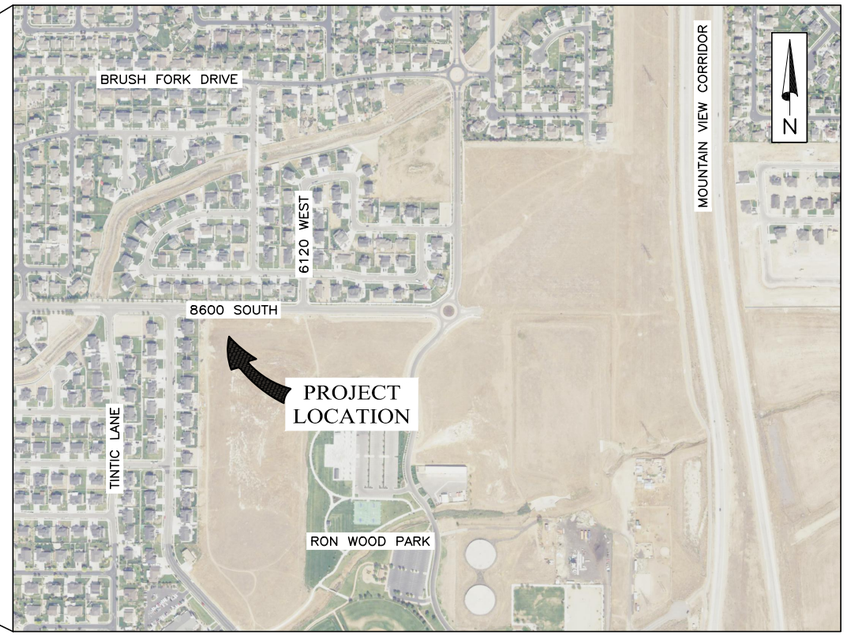
7960 SOUTH 4000 WEST
WEST JORDAN UTAH, 84088
(801) 569-5700



STATE OF UTAH



VICINITY MAP



PROJECT LOCATION
6183 WEST 8600 SOUTH

APPROVED BY PLANNING DEPARTMENT
BY: LARRY GARDNER – CITY PLANNER
01/19/2023

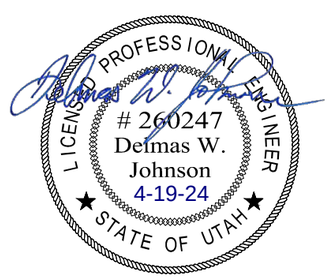
CONDITIONAL USE PERMIT APPROVED BY WJ
PLANNING COMMISSION
08/18/2020

WEST JORDAN CITY OFFICIALS

MAYOR
DIRK BURTON
CITY COUNCIL
PAMELA BLOOM
KELVIN GREEN
ZACH JACOB
CHAD LAMB
BOB BEDORE
KAYLEEN WHITELOCK
KENT SHELTON

HANSEN, ALLEN & LUCE DESIGN TEAM

MARVIN E. ALLEN, P.E. – PRINCIPAL
DELMAS W. JOHNSON, P.E. – PROJECT MANAGER
JACOB K. NIELSEN, P.E. – PROJECT ENGINEER
ROBERT C. CONDER, S.E. – STRUCTURAL ENGINEER
(CONDER ENGINEERING)
KEITH B. HEGERHORST, P.E. – ELECTRICAL ENGINEER
(HPE, INC. ELECTRICAL ENGINEERS)
TAYLOR E. GROBERG, P.E.
(BLUEFIELD ENGINEERING)
ERIC LYMAN – LANDSCAPE ARCHITECT
(E.A. LYMAN LANDSCAPE ARCHITECTS)
JAY R. MCQUIVEY – GEOTECHNICAL
(AGEC, INC.)



HANSEN ALLEN & LUCE inc
ENGINEERS

859 W. SOUTH JORDAN PKWY STE. 200
SOUTH JORDAN UTAH, 84095
(801) 566-5599

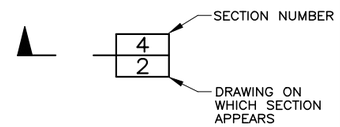
FILE NAME: PROJECTS\089 - WEST JORDAN\29.100 - WELL NO. 8 PUMP BUILDING\CAD\G-1 COVER.DWG
FILE DATE: 4.15.2024 11:11:43 (DCL)

1/93

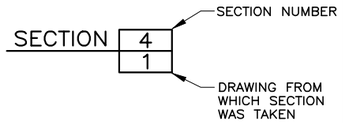
SECTION & DETAIL IDENTIFICATION

SECTION IDENTIFICATION

SECTION CUT ON DRAWING NO. 1:

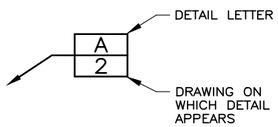


ON DRAWING NO. 2, THIS SECTION IS IDENTIFIED AS:



DETAIL IDENTIFICATION

DETAIL CALL-OUT ON DRAWING NO. 1:



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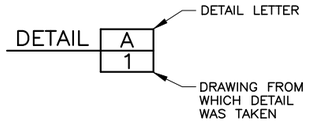


NOTES:

1. IF SECTION CUT AND SECTION OR DETAIL CALL-OUT AND DETAIL ARE SHOWN ON SAME DRAWING, DRAWING NUMBER IS REPLACED BY A LINE.
2. DETAIL LETTERS "I" AND "O" NOT USED.

ABBREVIATIONS

@	=	AT	MJ	=	MECHANICAL JOINT
CC	=	CENTER TO CENTER	MM	=	MILLIMETER
CIP	=	CAST IRON PIPE	N.T.S.	=	NOT TO SCALE
℄	=	CENTER LINE	O.C.	=	ON CENTER
CLR.	=	CLEARANCE	OHP	=	OVERHEAD POWER LINE
CMP	=	CORRUGATED METAL PIPE	POLY	=	POLYETHYLENE
ø	=	DIAMETER	PE	=	PLAIN END
DIA.	=	DIAMETER	ℙ	=	PROPERTY LINE
DIP	=	DUCTILE IRON PIPE	PRV	=	PRESSURE REDUCING VALVE
DWG	=	DRAWING	PSF	=	POUNDS PER SQUARE FOOT
EF	=	EACH FACE	PSI	=	POUNDS PER SQUARE INCH
EL.	=	ELEVATION	PVC	=	POLYVINYL CHLORIDE
E.O.	=	EDGE OF OIL	R.O.W.	=	RIGHT OF WAY
E.W.	=	EACH WAY	SCR	=	SCREWED
ES	=	EACH SIDE	SF	=	SQUARE FEET
FL	=	FLOW LINE	HP	=	HIGH PRESSURE
FLG	=	FLANGE	SQ.	=	SQUARE
FPS	=	FEET PER SECOND	SS	=	STAINLESS STEEL
FTG	=	FOOTING	STA.	=	STATION
GIP	=	GALVANIZED IRON PIPE	TBC	=	TOP BACK OF CURB
GPM	=	GALLONS PER MINUTE	THD.	=	THREAD
G.V.	=	GATE VALVE	TYP.	=	TYPICAL
ID	=	INSIDE DIAMETER	UBC	=	UNTREATED BASE COURSE
MAX.	=	MAXIMUM	UGP	=	UNDERGROUND POWER LINE
MG	=	MILLION GALLON(S)	YD.	=	YARD
MIN.	=	MINIMUM			

LEGEND

4-G	EXISTING GAS LINE W/ SIZE
GS GS GS	EXISTING GAS SERVICE
10-W	EXISTING WATER LINE W/ SIZE
WS WS WS	EXISTING WATER SERVICE
15-SS	EXISTING SANITARY SEWER W/ SIZE
SL SL SL	EXISTING SANITARY SEWER LATERAL
24-SD	EXISTING STORM DRAIN W/ SIZE
FO-UG	EXISTING FIBER OPTIC LINE
T-UG	EXISTING UNDERGROUND TELEPHONE
P-UG	EXISTING UNDERGROUND POWER LINE
P-OH	EXISTING OVERHEAD POWER LINE
X	EXISTING FENCE LINE
	12' DEEP EXCAVATION LIMITS
	4' DEEP EXCAVATION LIMITS

EXISTING FIRE HYDRANT	EXISTING SANITARY SEWER MANHOLE
EXISTING POWER POLE	EXISTING STORM DRAIN MANHOLE
EXISTING LIGHT POLE	EXISTING WATER MANHOLE
EXISTING ELECTRICAL BOX	EXISTING GUY WIRE
EXISTING WATER METER	EXISTING VALVES

DRAWING INDEX

	SHEET NO.	TITLE
GENERAL	G-1	COVER SHEET
	G-2	INDEX OF DRAWINGS
	G-3	SURVEY CONTROL
	G-4	GENERAL NOTES
ARCHITECTURAL	A-1	ELEVATIONS
	A-2	SCHEDULES
	A-3	DETAILS
CIVIL	C-1A	PUMP HOUSE SITE PLAN
	C-1B	PUMP HOUSE UTILITIES SITE PLAN
	C-2	PUMP HOUSE SITE GRADING PLAN
	C-3	PUMP HOUSE FENCE SITE PLAN
	C-4	PUMP HOUSE PIPING
	C-5	PUMP ROOM PIPING SECTIONS & DETAILS
	C-6	PIPE FITTING AND EQUIPMENT SCHEDULE
	C-7	PUMP DETAILS
	C-8	PIPING DETAILS
	C-9	CIVIL DETAILS
	C-10	CITY STANDARD DETAILS SHEET 1
	C-11	CITY STANDARD DETAILS SHEET 2
	C-12	CITY STANDARD DETAILS SHEET 3
	C-13	CITY STANDARD DETAILS SHEET 4
	C-13A	CITY STANDARD DETAILS SHEET 5
	C-14	FENCING DETAILS
	C-15	FENCING SECTIONS
CHEMICAL FEED	CF-1	CHLORINE ROOM PLAN
	CF-2	CHLORINE ROOM DETAILS
PLAN & PROFILE	PP-1	DISCHARGE PRESSURE PIPELINE
	PP-2	DRAIN TO SEWER GRAVITY LINE
	PP-3	PUMP TO WASTE GRAVITY PIPELINE

DRAWING INDEX cont.

	SHEET NO.	TITLE
LANDSCAPE	L1.1	PLANTING PLAN
	L2.1	IRRIGATION PLAN
	L5.1	IRRIGATION DETAILS
	L5.2	IRRIGATION DETAILS
	L5.3	PLANTING AND IRRIGATION DETAILS
STRUCTURAL	S-1A	NOTES
	S-1B	NOTES
	S-1C	SPECIAL INSPECTIONS
	S-2	FOOTING & FOUNDATION PLAN
	S-3	ROOF PLAN
	S-4	FOUNDATION DETAILS
	S-5	TYPICAL ROOFING DETAILS
	S-6	DETAILS 1
	S-7	TYPICAL MASONRY DETAILS
MECHANICAL	H-1	HVAC DESIGN
	H-2	HVAC SCHEDULES
	H-3	HVAC SPECIFICATIONS
	H-4	HVAC SPECIFICATIONS
	H-5	HVAC SPECIFICATIONS
ELECTRICAL	E-001	LEGEND
	E-002	TABLES AND TAG LIST
	E-101	OVERALL SITE PLAN
	E-102	PUMP HOUSE POWER PLAN
	E-103	PUMP HOUSE INSTR. & CONTROL PLAN
	E-104	PUMP HOUSE LIGHTING PLAN
	E-501	DETAILS, SHT. 1
	E-502	DETAILS, SHT. 2
	E-503	DETAILS, SHT. 3
	E-504	DETAILS, SHT. 4
	E-505	DETAILS, SHT. 5
	E-601	POWER ONE-LINE DIAGRAM
	E-602	INST. & CONTROL ONE-LINE DIAG.
	E-603	TYPICAL VFD CONTROL DIAGRAM, SHT. 1
	E-604	TYPICAL VFD CONTROL DIAGRAM, SHT. 2
	E-605	SCHEDULES
	E-606	CP-1 MAIN CONTROL PANEL
	E-607	CP-1 CONTROL DIAGRAM SHT. 1
	E-608	CP-1 CONTROL DIAGRAM SHT. 2
	E-609	CP-2 EXHAUST FAN CONTROL PANEL

FILE NAME: PROJECTS\089 - WEST JORDAN\29.100 - WELL NO. 8 PUMP BUILDING\CAD\G-2 INDEX.DWG
FILE DATE: 4.19.2024 10:13:22 (DCL)

LICENSED PROFESSIONAL ENGINEER
Delmar W. Johnson
4-19-24
STATE OF UTAH
PROJECT ENGINEER

HANSEN ALLEN & LUCE, Inc. ENGINEERS

DESIGNED	MGA	3					
DRAFTED	BKC	2					
CHECKED	MEA	1					
DATE	APRIL 2024	NO.	DATE	REVISIONS		BY	APVD.

SCALE: NOT TO SCALE

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
GENERAL
DRAWING INDEX

SHEET G-2

089.29.100

7/04

ALL COORDINATES SHOWN ARE IN UTAH STATE PLANE 83. CENTRAL ZONE, US SURVEY FEET, MODIFIED TO GROUND USING BASE POINT OF:
NORTHING 7,385,985.111
EASTING 1,492,189.396
ELEVATION 4889.879
SCALE FACTOR 1.000244269

N

SURVEY CONTROL TABLE

CONTROL POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
100	7,385,985.11	1,492,189.40	4,889.88	SLCO MON 2S2W3502
101	7,386,012.88	1,489,539.73	4,968.97	SLCO MON 2S2W3401
102	7,383,368.14	1,489,521.08	4,967.99	SLCO MON 3S2W0306
103	7,383,351.68	1,491,305.79	4,939.79	SLCO MON 26021016

FILE NAME: PROJECTS\089 - WEST JORDAN\29.100 - WELL NO. 8 PUMP BUILDING\CAD\G-3 SURVEY CONTROL.DWG
FILE DATE: 4.4.2024 16:26:11 (DCL)

HANSEN ALLEN & LUCE, Inc. ENGINEERS

LICENSED PROFESSIONAL ENGINEER — 246247 — Delmas W. Johnson — 4-19-24 — STATE OF UTAH
PROJECT ENGINEER

DESIGNED	MGA	3			
DRAFTED	JKN	2			
CHECKED	MEA	1			
DATE	APRIL 2024	NO.	DATE	REVISIONS	BY / APVD.

SCALE: NOT TO SCALE

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
GENERAL
SURVEY CONTROL

SHEET G-3
089.29.100

7/04

GENERAL NOTES

GENERAL NOTES

1. THESE DRAWINGS MAY REFERENCE THE APWA STANDARD 2017 SPECIFICATIONS AND PLANS AS PUBLISHED BY UTAH T2 CENTER (435) 797-2931.
2. THE CONTRACTOR SHALL MEET ALL UTAH STATE DEPARTMENT OF ENVIRONMENTAL QUALITY AND U.S. EPA REQUIREMENTS WITH RESPECT TO THEIR MINIMUM RULES AND REGULATIONS. ALL MATERIALS THAT MAY CONTACT DRINKING WATER, INCLUDING PIPES, GASKETS, LUBRICANTS, O-RINGS, SHALL BE ANSI/NSF 61, DRINKING WATER SYSTEM COMPONENTS - HEALTH EFFECTS AND BE APPROPRIATELY STAMPED WITH THE NSF LOGO.
3. UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES, INCLUDING WATER LINES, IRRIGATION DRAIN LINES, TELEPHONE CABLES, AND ANY OTHER OBSTRUCTION DURING THE COURSE OF CONSTRUCTION AND INSTALLATION OF THE PIPELINES. CALL BLUE STAKES @ 811 (1-800-662-4111).
4. CONTRACTOR SHALL POTHOLE UTILITIES A MINIMUM OF 300 FEET AHEAD OF PIPELINE CONSTRUCTION TO VERIFY THAT THE DESIGN ALIGNMENT AND GRADE IS FEASIBLE AND TO PLAN ANY UTILITY RELOCATION'S THAT MAY BE NECESSARY. FAILURE TO POTHOLE IN ADVANCE WILL NOT RELIEVE THE CONTRACTOR FROM LOCATING THE PIPELINE IN AN ACCEPTABLE MANNER TO THE OWNER. ANY RELAYING OF THE PIPELINE THAT MAY BECOME NECESSARY IN THIS REGARD SHALL BE DONE AT THE CONTRACTORS EXPENSE.
5. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN RIGHT OF INGRESS AND EGRESS SHOULD HE VENTURE ONTO PRIVATE PROPERTY WHICH IS NOT WITHIN DISTRICT EASEMENTS OR ACQUIRED RIGHTS-OF-WAY AND EASEMENTS.
6. UNLESS DETAILED, SPECIFIED OR INDICATED OTHERWISE, CONSTRUCTION SHALL BE AS INDICATED IN THE APPLICABLE TYPICAL DETAILS AND GENERAL NOTES. TYPICAL DETAILS ARE MEANT TO APPLY EVEN THOUGH NOT REFERENCED AT SPECIFIC LOCATIONS OR IN SPECIFIC DRAWINGS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT ALL EXISTING IMPROVEMENTS DURING CONSTRUCTION AND SHALL REPLACE OR RESTORE ANY IMPROVEMENTS DAMAGED AS A RESULT OF THE CONSTRUCTION ACTIVITY, AS DIRECTED BY THE ENGINEER.
8. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK AND SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
9. THIS PROJECT IS LOCATED IN WEST JORDAN CITY LIMITS. THE CONTRACTOR SHALL OBTAIN ALL APPLICABLE PERMITS AND APPROVALS FROM WEST JORDAN CITY AND SHALL COMPLY WITH WEST JORDAN CITY REGULATIONS FOR TRAFFIC CONTROL, SAFETY, EXCAVATION IN CITY OWNED RIGHTS OF WAY, ETC.
10. THE CONTRACTOR SHALL PREPARE AND IMPLEMENT THE STORM WATER POLLUTION PLAN AND OBTAIN NOTICE OF INTENT, AND COMPLY WITH STORM WATER POLLUTION PREVENTION PLAN, AND ALL UPDES REQUIREMENTS.

GEOTECHNICAL NOTES

1. SEE SHEET S-1 AND GEOTECHNICAL REPORT FOR REQUIREMENTS.

CONSTRUCTION NOTES

1. EXCAVATION, BEDDING AND BACKFILL FOR BURIED PIPELINES SHALL CONFORM TO WEST JORDAN CITY STANDARDS AND GEOTECHNICAL REPORT.
2. ASPHALT CUTTING AND PATCHING SHALL CONFORM TO WEST JORDAN CITY STANDARD DRAWINGS.
3. CONTRACTOR SHALL REPLACE ANY EXISTING PAVEMENT, SIDEWALK OR CURB & GUTTER ALONG THE FRONTAGE OF THIS PROJECT, THAT IS DAMAGED OR REMOVED BY THE CONTRACTOR, AS DIRECTED BY THE CITY INSPECTOR.
4. ALL PUBLIC IMPROVEMENTS WITHIN WEST JORDAN CITY JURISDICTION SHALL BE CONSTRUCTED ACCORDING TO THE WEST JORDAN CITY DEVELOPMENT MANUAL - LAND DEVELOPMENT POLICIES, STANDARD SPECIFICATIONS AND DRAWINGS.
5. CONTRACTOR SHALL SECURE AN EXCAVATION PERMIT FROM WEST JORDAN CITY PUBLIC WORKS DEPARTMENT PRIOR TO DOING ANY WORK IN THE WEST JORDAN CITY RIGHT-OF-WAY. TRAFFIC PLAN, BONDING & INSURANCE WILL BE REQUIRED.
6. ANY PROPOSED CHANGES TO THE APPROVED DESIGN SHALL BE REVIEWED AND APPROVED BY THE ENGINEER OR ARCHITECT OF RECORD AND THE CITY ENGINEER.
7. NOTIFY HANSEN, ALLEN & LUCE AND WEST JORDAN CITY PUBLIC WORKS INSPECTION DEPARTMENT, 48 HOURS PRIOR TO BEGINNING CONSTRUCTION OF ANY ROADWAYS OR PUBLIC IMPROVEMENTS. ALL INSPECTIONS MUST BE DONE PRIOR TO OR CONCURRENT WITH CONSTRUCTION. FAILURE TO MAKE THIS NOTIFICATION MAY RESULT IN THE UNCOVERING AND/OR REMOVAL OF ALL CONSTRUCTION DONE WITHOUT NOTIFICATION AT THE DISCRETION OF THE CITY ENGINEER.
8. PROVIDE A PROCTOR TEST FOR ROADBASE MATERIAL, TO THE WEST JORDAN CITY PUBLIC WORKS INSPECTOR, WHEN DELIVERED OR PLACED ON SITE.
9. DUST, MUD AND EROSION SHALL BE ADEQUATELY CONTROLLED BY WHATEVER MEANS NECESSARY, AND THE ROADWAY SHALL BE KEPT FREE OF MUD AND DEBRIS, AT ALL TIMES.
10. 4H:1V MAXIMUM SLOPE IN LANDSCAPED AREAS.
11. FOLLOW ALL RECOMMENDATION OF THE APPROVED GEOTECHNICAL REPORT. WEST JORDAN CITY STANDARD SPECIFICATIONS AND DETAILS SHALL GOVERN, HOWEVER, UNLESS GEOTECHNICAL REPORT RECOMMENDATIONS ARE MORE STRINGENT.
12. THE USE OF MOTOR OILS AND OTHER PETROLEUM-BASED OR TOXIC LIQUIDS, FOR DUST SUPPRESSION, IS ABSOLUTELY PROHIBITED.

WATER NOTES

1. ALL CONSTRUCTION SHALL CONFORM WITH THE CURRENT WEST JORDAN CITY SPECIFICATIONS AND DETAILS FOR MUNICIPAL CONSTRUCTION.
2. WATER LINE TRENCHES IN PRIVATE ROADWAYS OR TRAFFIC AREAS TO BE THOROUGHLY COMPACTED TO A MINIMUM OF 96% OF MAXIMUM DENSITY PER ASTM D1557. DENSITY CHECKS MAY BE REQUIRED BY THE CITY AT ANY TIME.
3. A MINIMUM OF 48" OF COVER FROM THE TOP OF THE PIPE TO THE FINISH GRADE IS REQUIRED.
4. ALL DUCTILE FITTINGS INCLUDING TEES, WYES, ELBOWS, PLUGS, ETC. EXPOSED TO SOIL SHALL BE DOUBLE WRAPPED WITH 8 MIL THICK POLYETHYLENE FILM TUBE. ALL FITTINGS, VALVES AND EXPOSED NUTS & BOLTS SHALL BE LIBERALLY COATED WITH FM GREASE PRIOR TO WRAPPING. THE FILM SHALL BE HELD IN PLACE BY 2-INCH WIDE PVC ADHESIVE TAPE EQUAL TO POLYKEN 900 OR SCOTCHRAP NO. 50. THE TAPE SHALL BE INSTALLED TO TIGHTLY SECURE THE FILM TO THE PIPE. ENOUGH FILM SHALL BE USED TO OVERLAP ADJOINING SECTIONS OF FILM A MINIMUM OF ONE (1) FOOT.
5. VALVES SHALL BE WRAPPED BY BRINGING THE WRAP ON THE ADJACENT PIPE OVER THE BELLS OR FLANGES OF THE VALVE AND SEALING WITH THE ADHESIVE TAPE. THE VALVE BODIES ARE THEN WRAPPED WITH A FLAT SHEET OF THE FILM PASSED UNDER THE VALVE BOTTOM AND BROUGHT UP AROUND THE BODY TO THE STEM AND FASTENED IN PLACE WITH THE ADHESIVE TAPE.
6. ALL FITTINGS THAT REQUIRE CONCRETE BLOCKING SHOULD BE COMPLETELY DOUBLE WRAPPED PRIOR TO THE POURING OF THE CONCRETE THRUSTING BLOCK.
7. POLYETHYLENE WRAP SHALL BE PROTECTED FROM THE SUN AND WEATHERING PRIOR TO USE. CARE SHALL BE EXERCISED DURING BACK FILLING OF THE PROTECTED AREAS TO PREVENT PUNCTURING OF THE FILM.
8. UNLESS OTHERWISE NOTED, ALL FITTINGS FOR PRESSURIZED WATER PIPING SHALL BE PROPERLY RESTRAINED BY THRUST BLOCKING, AND JOINT RESTRAINT.

LICENSED PROFESSIONAL ENGINEER
Delmas W. Johnson
4-19-24
STATE OF UTAH
PROJECT ENGINEER

DESIGNED	MGA	3				
DRAFTED	BKC	2				
CHECKED	MEA	1				
DATE	APRIL 2024	NO.	DATE	REVISIONS	BY	APVD.

SCALE: NOT TO SCALE

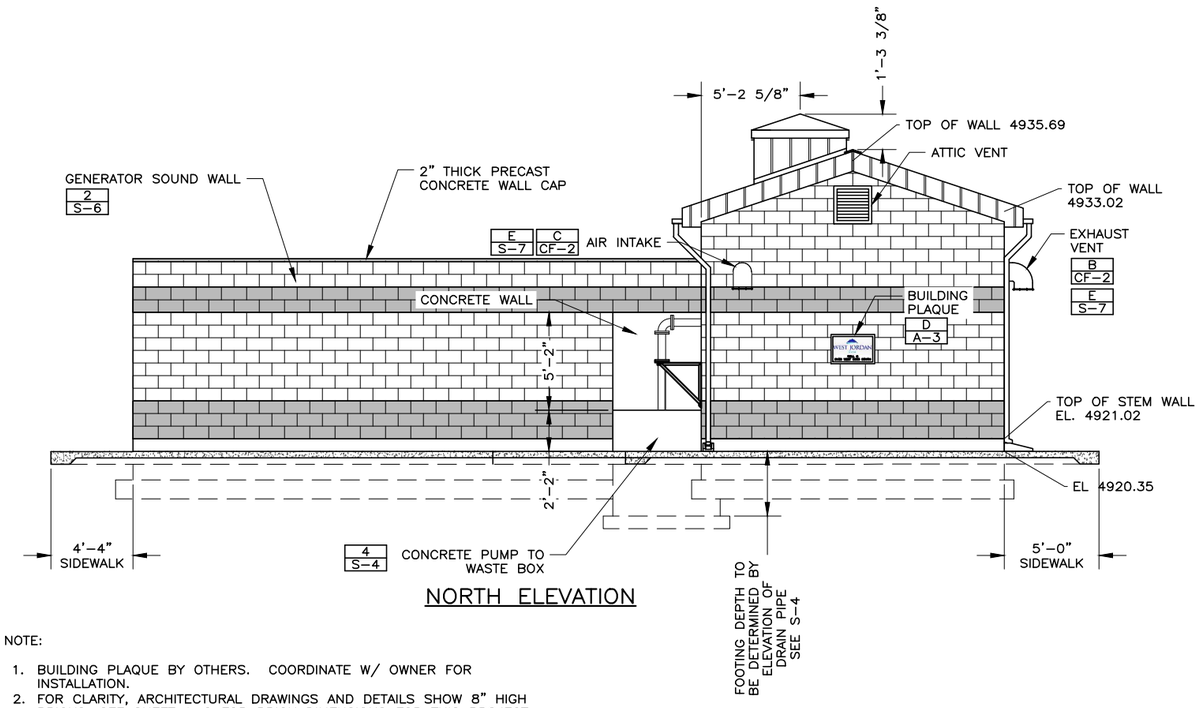
WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
GENERAL
GENERAL NOTES

SHEET G-4

089.29.100

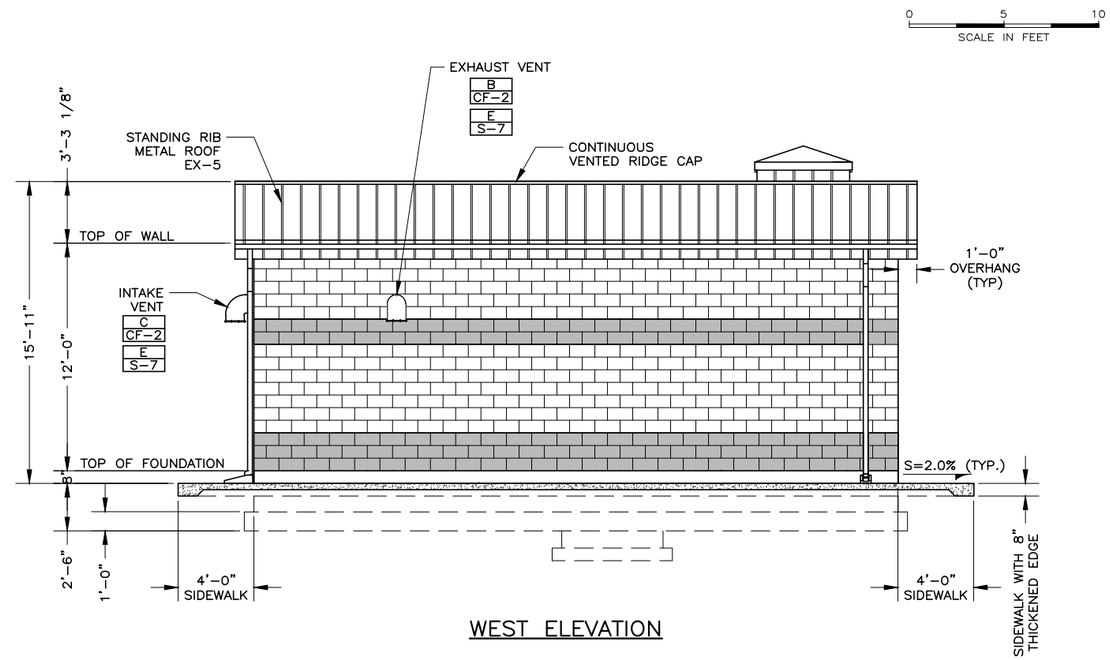
7/04



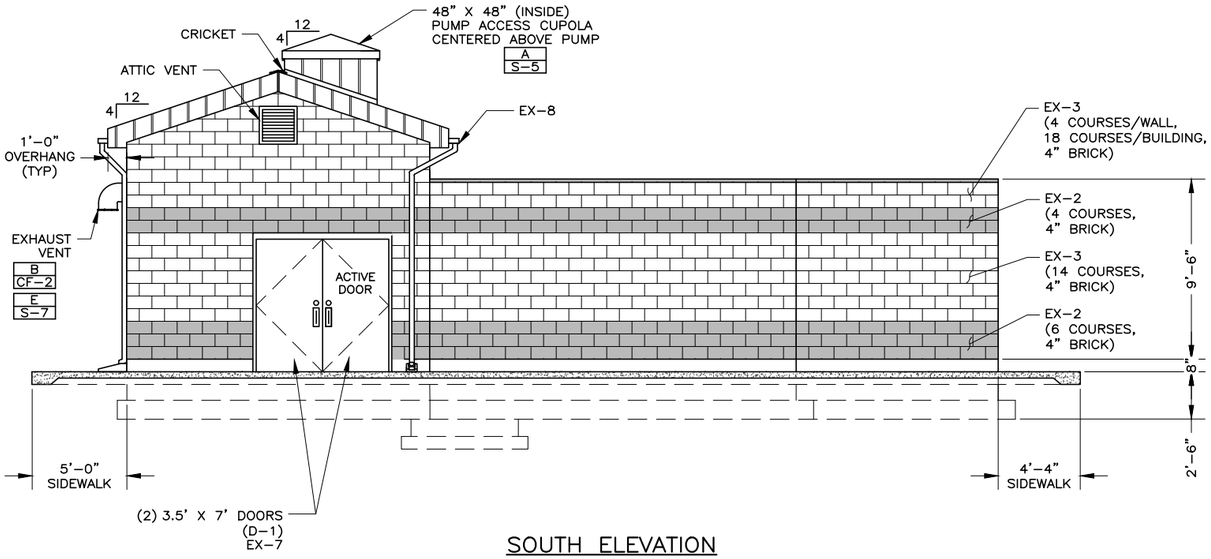
NORTH ELEVATION

NOTE:

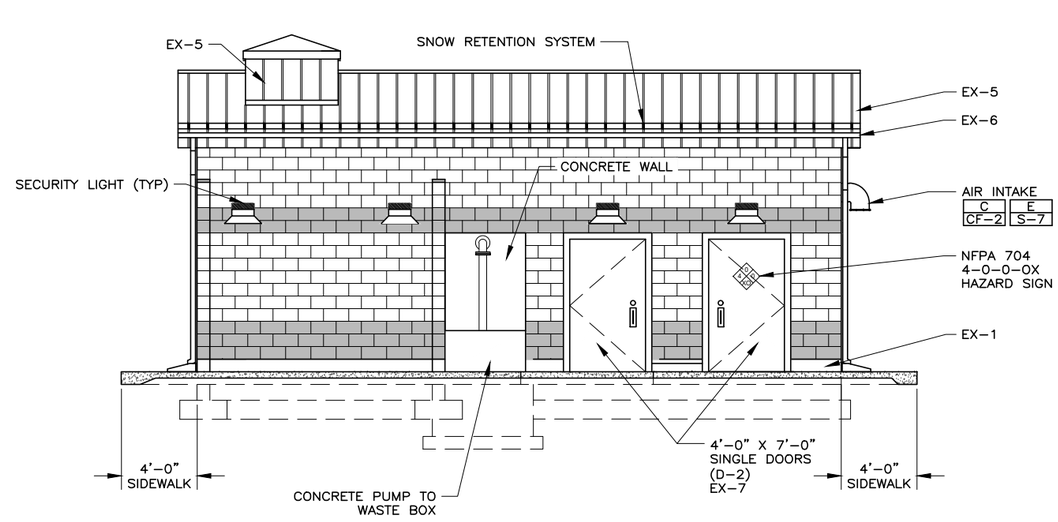
1. BUILDING PLAQUE BY OTHERS. COORDINATE W/ OWNER FOR INSTALLATION.
2. FOR CLARITY, ARCHITECTURAL DRAWINGS AND DETAILS SHOW 8" HIGH BRICKS. SEE SHEET A-2 FOR BRICK DIMENSIONS FOR THIS PROJECT.



WEST ELEVATION



SOUTH ELEVATION



EAST ELEVATION

FILE NAME: PROJECTS\089 - WEST JORDAN\29.100 - WELL NO. 8 PUMP BUILDING\CAD\A-1 PUMP HOUSE ELEVATIONS.DWG
FILE DATE: 4.4.2024 16:29:41 (DCL)

7/04

HANSEN ALLEN & LUCE inc ENGINEERS

LICENSED PROFESSIONAL ENGINEER Delmar W. Johnson 4-19-24 STATE OF UTAH
PROJECT ENGINEER

DESIGNED	MGA	3					
DRAFTED	BKC & DCL	2					
CHECKED	MEA	1					
DATE	APRIL 2024	NO.	DATE	REVISIONS		BY	APVD.

SCALE: AS SHOWN

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING ARCHITECTURAL ELEVATIONS

SHEET: A-1

089.29.100

EXTERIOR COLOR SCHEDULE

MARK	MATERIAL	MANUFACTURER	FINISH	COLOR	REMARKS
EX–1	CONCRETE	GEN. CONTR.	STONE RUB	NATURAL	
EX–2	ATLAS BRICK	INTERSTATE	SMOOTH	OCHRE BUFF	8"W X 4"H X 16"L
EX–3	ATLAS BRICK	INTERSTATE	SMOOTH	CANYON ROSE	8"W X 4"H X 16"L
EX–4	NOT USED				
EX–5	STANDING SEAM METAL ROOF	MBCI	FACTORY	TERRA COTTA	
EX–6	ALUMINUM	ALCOA	PRE–FINISHED	OWNER	FASCIA/SOFFIT ALCOA ALUMAX (OR APPROVED EQUAL)
EX–7	EXT. PAINT	SHERWIN WILLIAMS	SEMI–GLOSS	SW 6046 SWING BROWN	DOORS AND FRAMES
EX–8	ALUMINUM	–	PRE–FINISHED	MATCH FACIA	PRE–FINISHED METAL GUTTER & DOWNSPOUT W/PRE–CAST CONCRETE SPLASH BLOCK

DOOR SCHEDULE

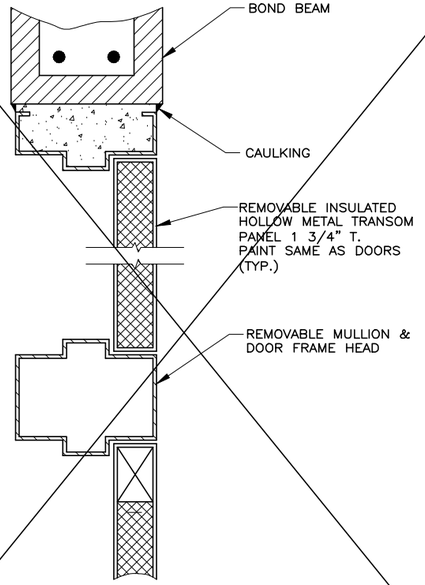
DOOR SIZE			DOOR TYPE	MAT.	FINISH	FRAME MAT.	FRAME FINISH	SWING	REMARKS
WIDTH	HEIGHT	THICK							
7'–0"	7'–0"	1–3/4"	D–1	HOL. MTL.	SW 6046 SWING BROWN	HOL. MTL. (INSULATED)	EX–7	LHR, RHR	PANEL DOUBLE DOORS (6 PANELS)
(2) 4'–0"	7'–0"	1–3/4"	D–2	HOL. MTL.	SW 6046 SWING BROWN	HOL. MTL. (INSULATED)	EX–7	LHR, RHR	PANEL SINGLE DOOR (6 PANELS) WITH SECURITY CARD ACCESS HARDWARE PER SECTION 08 10 00 PART 2.2 O

INTERIOR PAINTING SCHEDULE

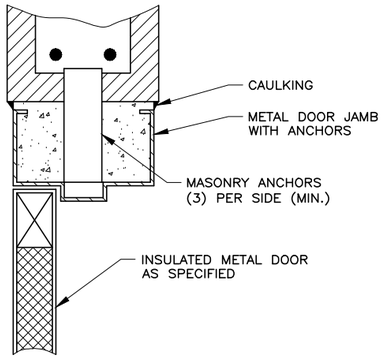
LOCATION	MATERIAL	COLOR	FINISH	REMARKS
FLOOR	CONCRETE	GREY	SEMI–GLOSS	EPOXY COATING SEE 09 99 00 SYSTEM 9
WALLS	DRY WALL W/ FRP PANEL	WHITE	SEMI–GLOSS	RUBBER BASE TO COORDINATE WITH PAINT FRP PANEL HEIGHT TO BE 8'–0"
CEILING	DRY WALL	WHITE	SEMI–GLOSS	
PIPING	METAL	WASSER WISCONSIN BLUE	SEMI–GLOSS	EXPOSED PIPE, VALVES & FITTINGS TO BE PAINTED

NOTES

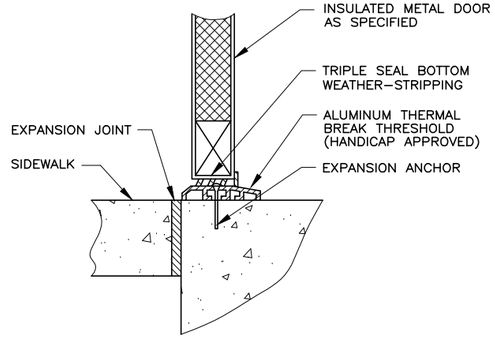
1. SEE TECHNICAL SPECIFICATION SECTION 08 10 00 FOR HARDWARE & SECURITY REQUIREMENTS.
2.. SEE TECHNICAL SPECIFICATION SECTION 09 90 00 FOR PAINTING AND FINISHES.



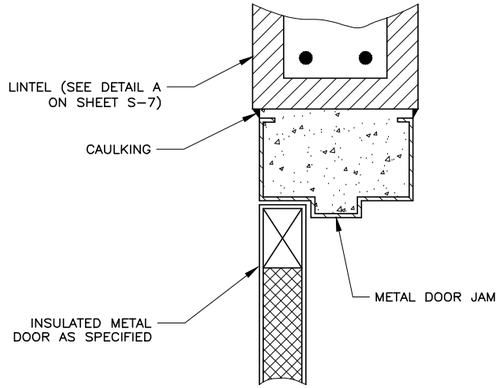
TRANSOM DETAIL — N.T.S. — A / A–1



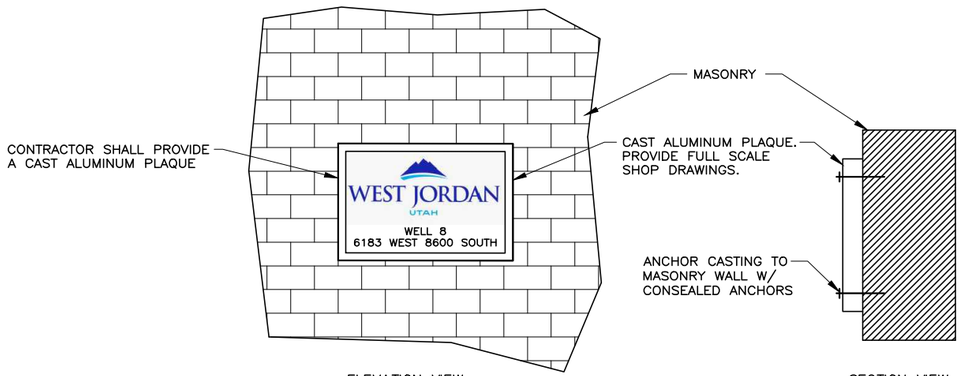
TYPICAL DOOR JAMB DETAIL — N.T.S. — B / B–C–5



TYPICAL DOOR SILL DETAIL — N.T.S. — C / C–C–5



TYPICAL DOOR HEAD — N.T.S. — D / D–C–5



PRE–CAST ALUMINUM SIGN DETAIL — N.T.S. — D / A–1

FILE NAME: PROJECTS\089 – WEST JORDAN\29.100 – WELL NO. 8 PUMP BUILDING\CAD\A–3 ARCHITECTURAL DETAILS.DWG
FILE DATE:

HANSEN ALLEN & LUCE inc ENGINEERS

LICENSED PROFESSIONAL ENGINEER — 260734 — Delmas W. Johnson — 4-19-24 — STATE OF UTAH
PROJECT ENGINEER

DESIGNED	MGA	3				
DRAFTED	BKC	2				
CHECKED	MEA	1				
DATE	APRIL 2024	NO.	DATE	REVISIONS	BY	APVD.

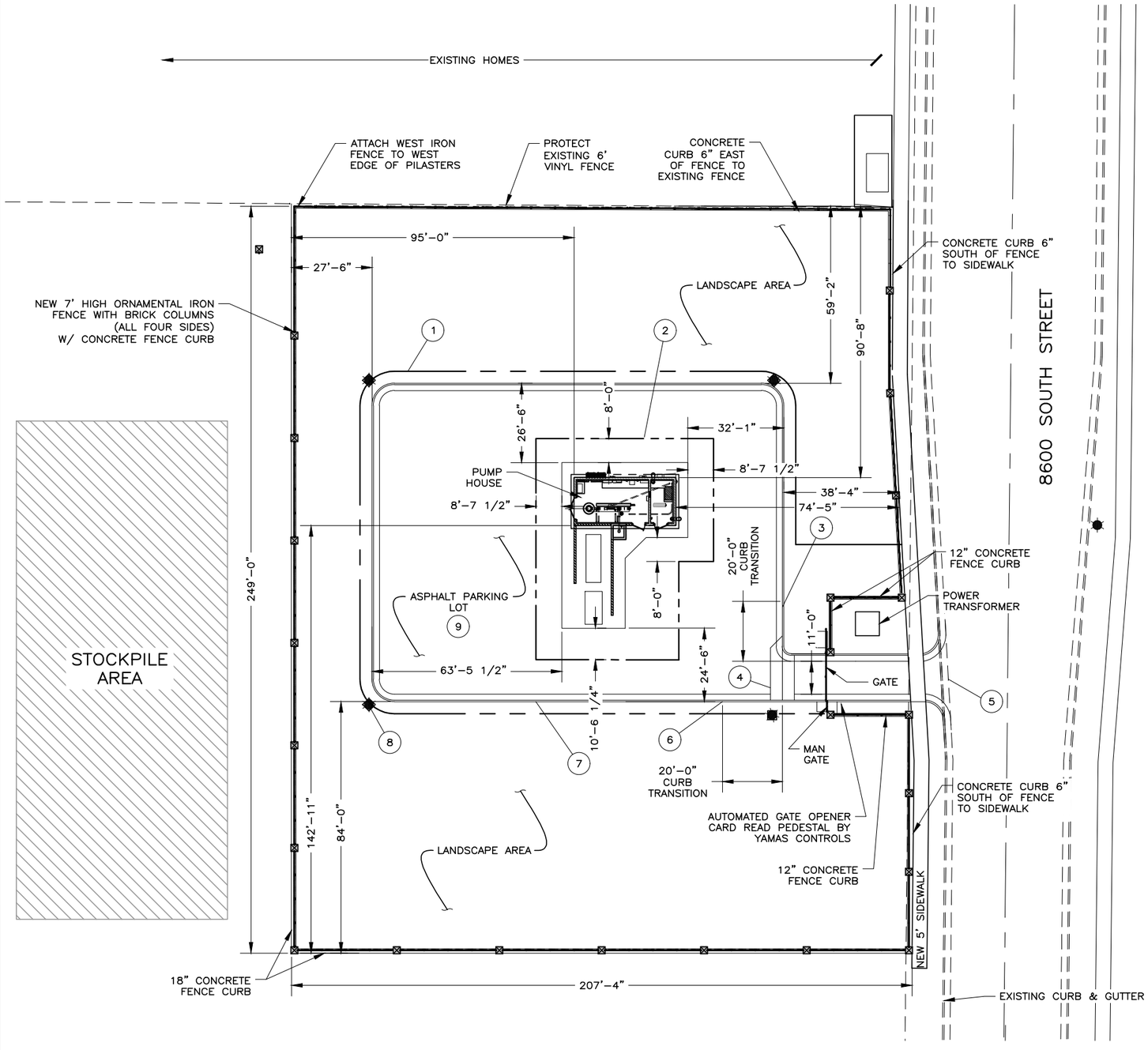
SCALE

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
ARCHITECTURAL
DETAILS

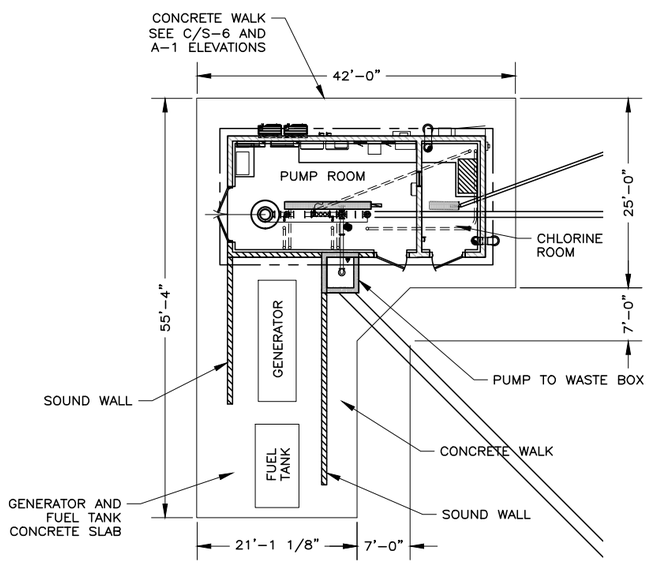
SHEET A–3
089.29.100

7/04



N

0 10 20
SCALE IN FEET



NOTE: MAINTAIN 3' MINIMUM CLEARANCE AROUND GENERATOR AND FUEL TANK

PUMP HOUSE PLAN VIEW

SCALE: 1:10

1. LIMITS OF SHALLOW SITE OVER-EXCAVATION AND FILL REQUIREMENTS 4'-0" BEYOND CURB LINE AND OTHER MARKED AREAS (SEE GEOTECHNICAL REQUIREMENTS ON SHEET S-1B)
2. LIMITS OF DEEP SITE OVER-EXCAVATION AND FILL REQUIREMENTS (SEE GEOTECHNICAL REQUIREMENTS ON SHEET S-1B)
3. TRANSITION TO APWA PLAN 205. TYPE E TO NORTH
4. APWA PLAN 211 8' WATERWAY
5. REMOVE EXISTING CURB AND GUTTER AND REPLACE TO MATCH SURROUNDING PER WJ CITY STD DRAWING RD100 & RD200
6. TRANSITION TO APWA PLAN 205.2 TYPE E TO NORTH
7. APWA PLAN 205.2 TYPE H CURB & GUTTER
8. PARKING LOT LIGHT MOUNTED ON CONCRETE PEDESTAL (TYP OF 4)
9. 3" OF AC PAVEMENT OVER 6" OF UBC

FILE NAME: PROJECTS\089 - WEST JORDAN\29.100 - WELL NO. 8 PUMP BUILDING\CAD\C-1A SITE PLAN.DWG
FILE DATE: 4.4.2024 16:34:51 (DCL)

HANSEN ALLEN & LUCE inc ENGINEERS

LICENSED PROFESSIONAL ENGINEER 260234 Delmas W. Johnson 4-19-24 STATE OF UTAH
PROJECT ENGINEER

DESIGNED	MGA	3				
DRAFTED	BKC & DCL	2				
CHECKED	MEA	1				
DATE	APRIL 2024	NO.	DATE	REVISIONS	BY	APVD.

SCALE: AS SHOWN

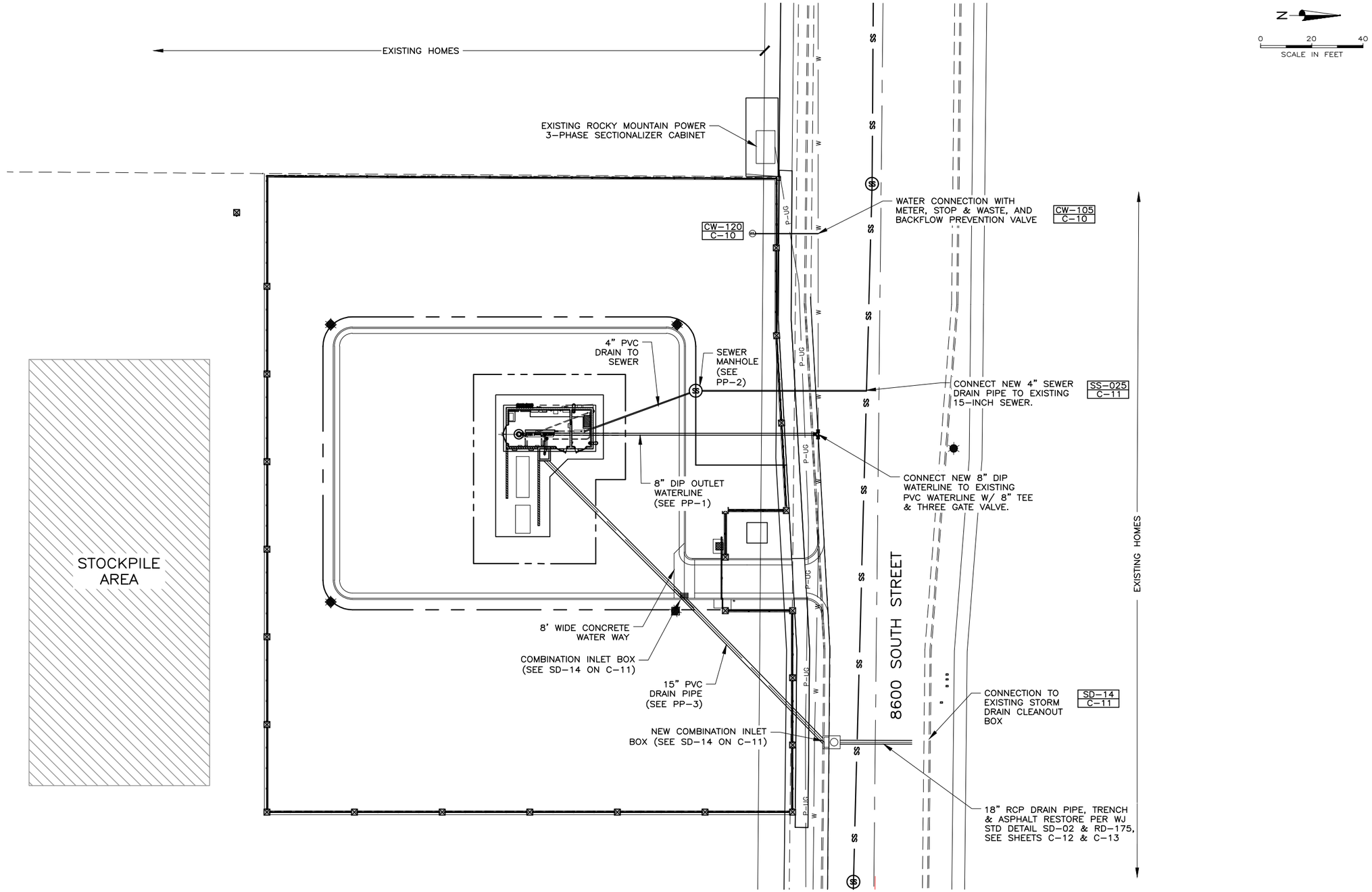
WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
CIVIL
PUMP HOUSE SITE PLAN

SHEET C-1A

089.29.100

7/04



FILE NAME: PROJECTS\089 - WEST JORDAN\29.100 - WELL NO. 8 PUMP BUILDING\CAD\C-1B SITE PLAN UTILITIES.DWG
FILE DATE: 4.4.2024 16:36:38 (DCL)

HANSEN ALLEN & LUCE inc ENGINEERS

LICENSED PROFESSIONAL ENGINEER
4-4-2024
Delmas W. Johnson
4-19-24
STATE OF UTAH
PROJECT ENGINEER

DESIGNED	MGA	3				
DRAFTED	BKC & DCL	2				
CHECKED	MEA	1				
DATE	APRIL 2024	NO.	DATE	REVISIONS	BY	APVD.

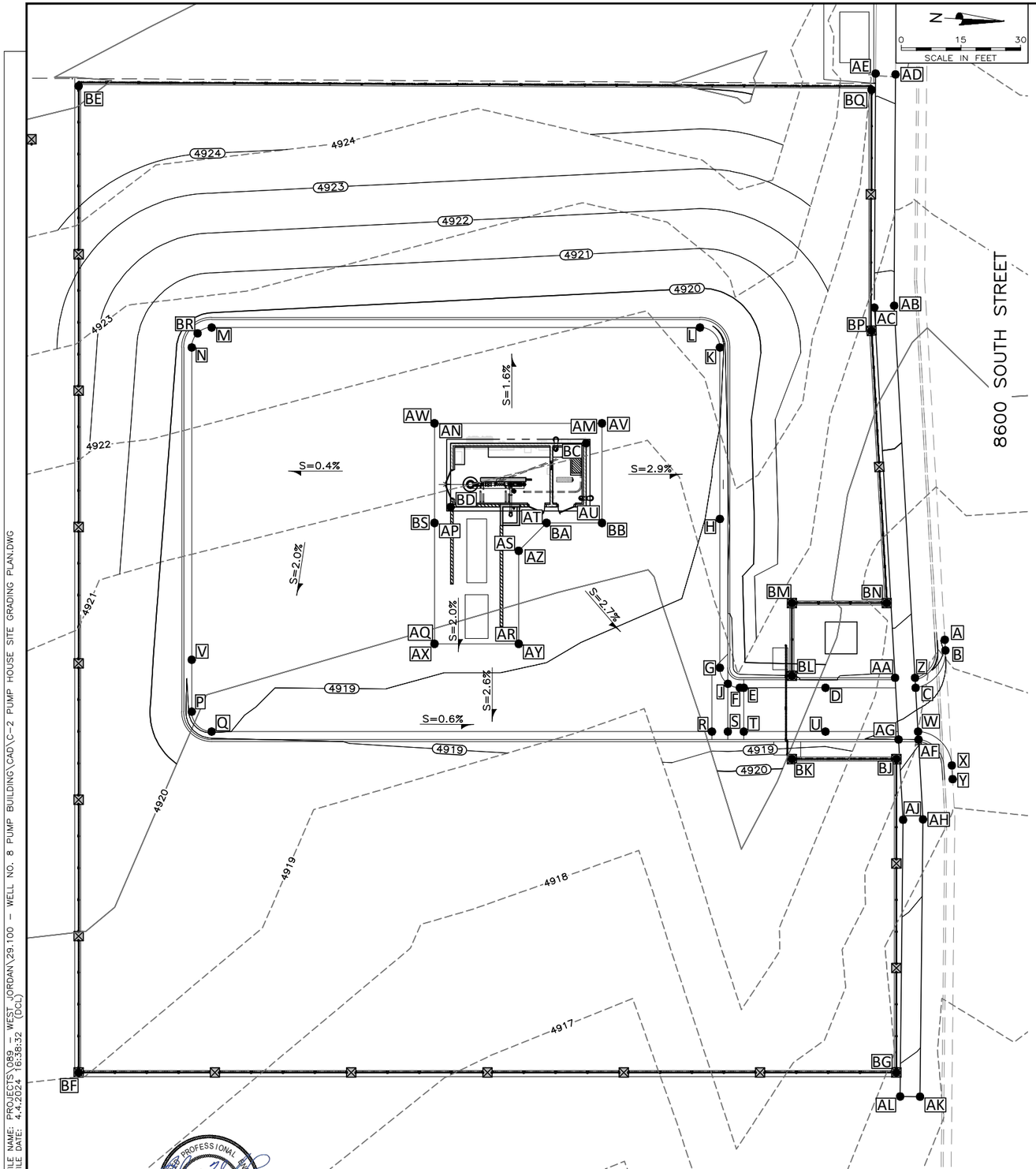
SCALE: AS SHOWN

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
CIVIL
PUMP HOUSE UTILITIES SITE PLAN

SHEET C-1B
089.29.100

7/04



POINT ID	NORTHING	EASTING	ELEVATION	DESCRIPTION
A	7,385,976.19	1,491,020.16	4918.10	LIP
B	7,385,976.34	1,491,022.83	4918.04	LIP PC (RADIUS = 9')
C	7,385,968.85	1,491,032.21	4918.29	LIP PT
D	7,385,946.22	1,491,032.19	4918.73	LIP GRADE BREAK
E	7,385,925.72	1,491,032.19	4918.54	LIP/WATERWAY
F	7,385,924.72	1,491,032.19	4918.53	LIP PC (RADIUS = 5')
G	7,385,919.72	1,491,027.19	4918.54	LIP PT
H	7,385,919.72	1,490,989.83	4918.88	LIP GRADE BREAK
J	7,385,921.72	1,491,031.19	4918.50	LIP GRADE BREAK
K	7,385,919.72	1,490,946.81	4919.10	LIP PC (RADIUS = 5')
L	7,385,914.72	1,490,941.81	4919.14	LIP PT
M	7,385,792.13	1,490,941.81	4919.75	LIP PC (RADIUS = 5')
N	7,385,787.13	1,490,946.81	4919.74	LIP PT
P	7,385,787.13	1,491,038.19	4919.08	LIP PC (RADIUS = 5')
Q	7,385,792.13	1,491,043.19	4919.03	LIP PT
R	7,385,917.72	1,491,043.19	4918.28	LIP/WATERWAY
S	7,385,921.72	1,491,043.19	4918.26	LIP GRADE BREAK
T	7,385,925.72	1,491,043.19	4918.30	LIP/WATERWAY
U	7,385,946.22	1,491,043.19	4918.51	LIP GRADE BREAK
V	7,385,787.13	1,491,025.16	4919.16	GRADE BREAK
W	7,385,969.47	1,491,043.19	4917.71	LIP PC (RADIUS = 9')
X	7,385,977.96	1,491,051.68	4917.26	LIP PT
Y	7,385,978.15	1,491,055.12	4917.18	EXISTING LIP
Z	7,385,968.71	1,491,029.68	4918.63	FW
AA	7,385,963.70	1,491,029.69	4918.72	BW
AB	7,385,963.47	1,490,936.33	4920.80	FW
AC	7,385,958.49	1,490,936.80	4920.80	BW
AD	7,385,963.81	1,490,878.30	4922.17	FW–EXISTING
AE	7,385,958.82	1,490,878.09	4922.13	BW–EXISTING
AF	7,385,969.58	1,491,045.21	4918.04	FW
AG	7,385,964.57	1,491,045.19	4918.21	BW
AH	7,385,970.70	1,491,065.20	4917.51	FW
AJ	7,385,965.70	1,491,065.32	4917.66	BW
AK	7,385,969.97	1,491,134.79	4915.67	FW
AL	7,385,964.97	1,491,134.74	4915.77	BW
AM	7,385,890.11	1,490,965.83	4920.27	CONCRETE
AN	7,385,848.06	1,490,965.83	4920.27	CONCRETE
AP	7,385,848.06	1,490,990.83	4920.27	CONCRETE GRADE BREAK
AQ	7,385,848.06	1,491,021.16	4919.64	CONCRETE
AR	7,385,869.21	1,491,021.16	4919.64	CONCRETE
AS	7,385,869.21	1,490,997.82	4920.13	CONCRETE
AT	7,385,876.21	1,490,990.83	4920.27	CONCRETE
AU	7,385,890.13	1,490,990.83	4920.27	CONCRETE
AV	7,385,890.13	1,490,965.83	4919.77	ASPHALT
AW	7,385,848.06	1,490,965.83	4919.77	ASPHALT
AX	7,385,848.06	1,491,021.16	4923.02	ASPHALT
AY	7,385,869.21	1,491,021.16	4919.16	ASPHALT
AZ	7,385,869.21	1,490,997.82	4919.63	ASPHALT
BA	7,385,876.21	1,490,990.83	4919.77	ASPHALT
BB	7,385,890.13	1,490,990.83	4919.77	ASPHALT

POINT ID	NORTHING	EASTING	ELEVATION	DESCRIPTION
BC	7,385,886.13	1,490,970.83	4920.35	NW BLD CNR
BD	7,385,852.13	1,490,986.83	4920.35	SE BLD CRN
BE	7,385,758.72	1,490,881.21	4925.17	CENTER OF COLUMN
BF	7,385,758.72	1,491,128.74	4919.03	CENTER OF COLUMN
BG	7,385,964.03	1,491,128.74	4915.94	CENTER OF COLUMN
BJ	7,385,964.03	1,491,050.08	4918.25	CENTER OF COLUMN
BK	7,385,937.81	1,491,050.08	4919.54	CENTER OF COLUMN
BL	7,385,937.81	1,491,029.17	4919.00	CENTER OF COLUMN
BM	7,385,937.81	1,491,010.95	4922.73	CENTER OF COLUMN
BN	7,385,961.61	1,491,010.95	4919.16	CENTER OF COLUMN
BP	7,385,957.80	1,490,942.62	4920.70	CENTER OF COLUMN
BQ	7,385,957.79	1,490,882.17	4918.98	CENTER OF COLUMN
BR	7,385,788.59	1,490,943.27	4919.77	LIP GRADE BREAK
BS	7,385,848.06	1,490,990.83	4919.77	ASPHALT GRADE BREAK

FILE NAME: PROJECTS\089 – WEST JORDAN\29.100 – WELL NO. 8 PUMP BUILDING\CAD\C-2 PUMP HOUSE SITE GRADING PLAN.DWG
FILE DATE: 4.4.2024 - 16:38:32 (DCL)

HANSEN ALLEN & LUCE Inc ENGINEERS

LICENSED PROFESSIONAL ENGINEER 7606247 Delmas W. Johnson 4-19-24 STATE OF UTAH
PROJECT ENGINEER

DESIGNED	MGA	3			
DRAFTED	GDS	2			
CHECKED	MEA	1			
DATE	APRIL 2024	NO.	DATE	REVISIONS	BY APVD.

SCALE: AS SHOWN

WEST JORDAN UTAH

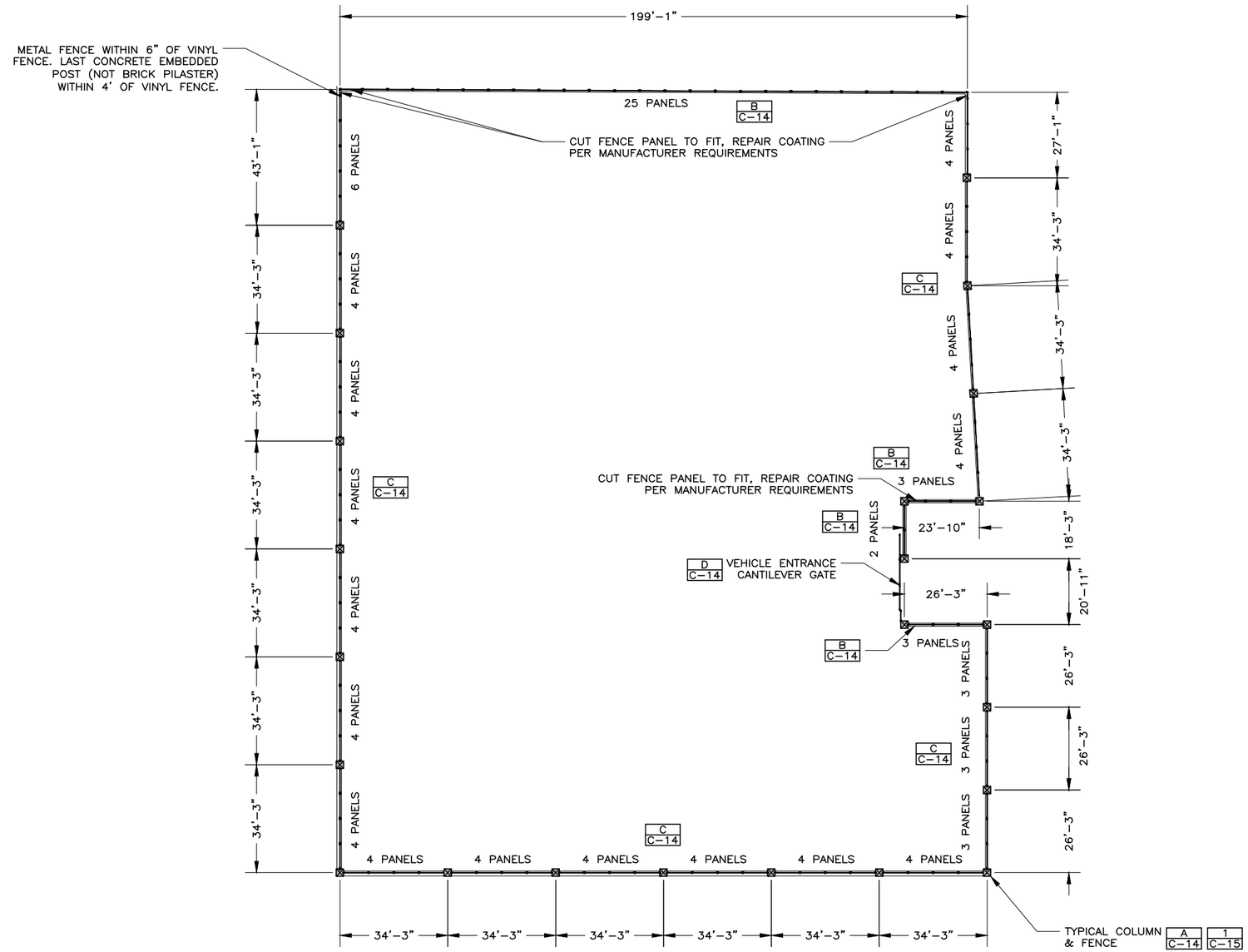
WELL NUMBER 8 PUMP BUILDING
CIVIL
PUMP HOUSE SITE GRADING PLAN

SHEET C–2
089.29.100

7/04

N

0 15 30
SCALE IN FEET



FILE NAME: PROJECTS\089 – WEST JORDAN\29.100 – WELL NO. 8 PUMP BUILDING\CAD\C–3 SITE PLAN FENCE.DWG
FILE DATE: 4.4.2024 16:41:11 (DCL)

7/04

HANSEN ALLEN & LUCE inc ENGINEERS

LICENSED PROFESSIONAL ENGINEER
Delmas A. Johnson
4-19-24
STATE OF UTAH
PROJECT ENGINEER

DESIGNED	MGA	3			
DRAFTED	DCL	2			
CHECKED	MEA	1			
DATE	APRIL 2024	NO.	DATE	REVISIONS	BY APVD.

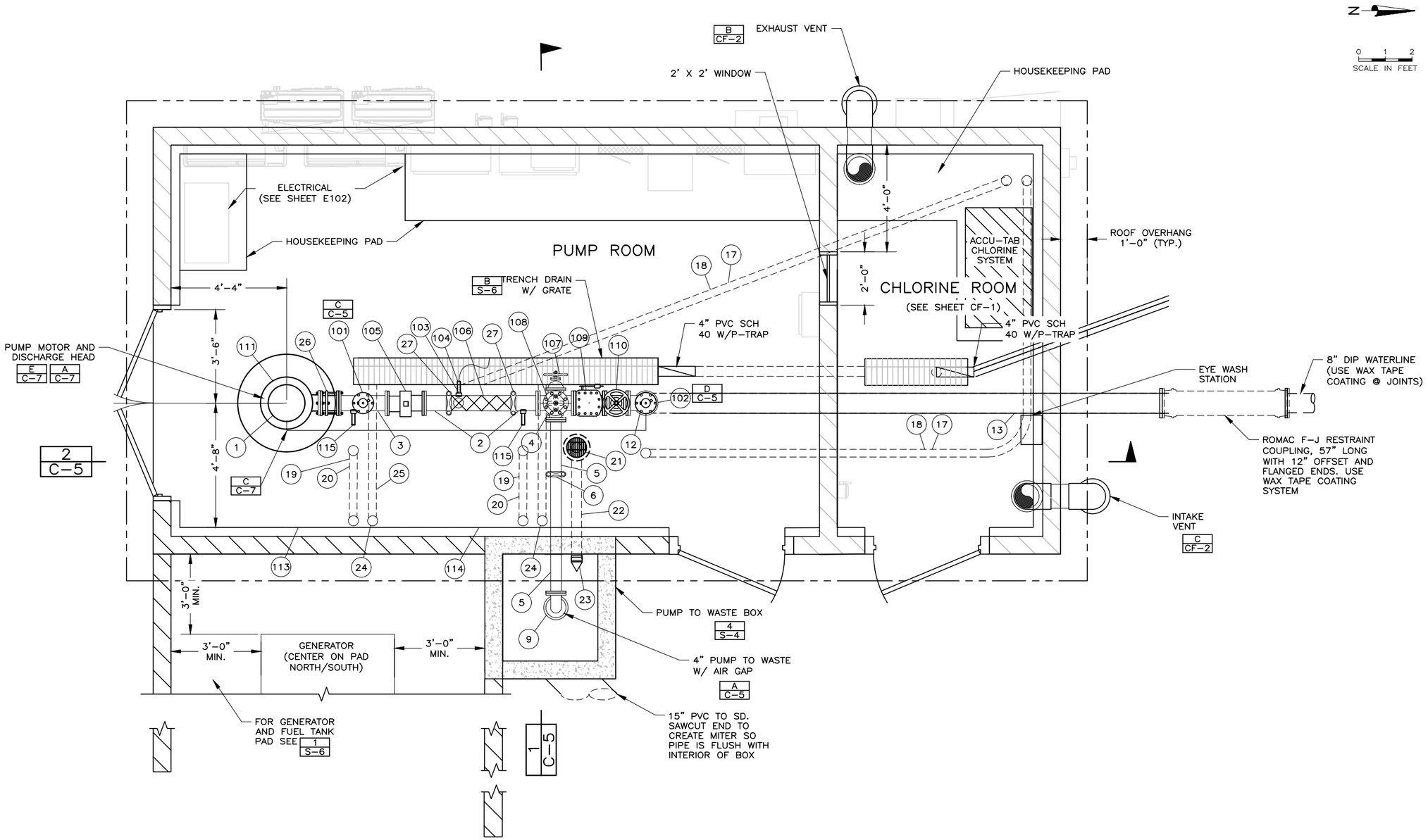
SCALE: AS SHOWN

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
CIVIL
PUMP HOUSE FENCE SITE PLAN

SHEET C–3

089.29.100



PUMP HOUSE PIPING PLAN

NOTES:

1. SEE SHEET C-6 FOR PIPE & FITTING SCHEDULE.
2. SEE SHEET S-2 FOR FOOTING AND FOUNDATION PLAN.
3. CUT HOLES IN TRENCH DRAIN AS REQUIRED TO FACILITATE CHLORINE INJECTION, SAMPLE LINES AND DRAIN LINES.

FILE NAME: PROJECTS\089 - WEST JORDAN\29.100 - WELL NO. 8 PUMP BUILDING\CAD\C-4 PUMP HOUSE PLAN.DWG
FILE DATE: 4.4.2024 16:42:23 (DCL)

7/04

HANSEN ALLEN & LUCE inc ENGINEERS

LICENSED PROFESSIONAL ENGINEER 260234 Delmas W. Johnson 4-19-24 STATE OF UTAH
PROJECT ENGINEER

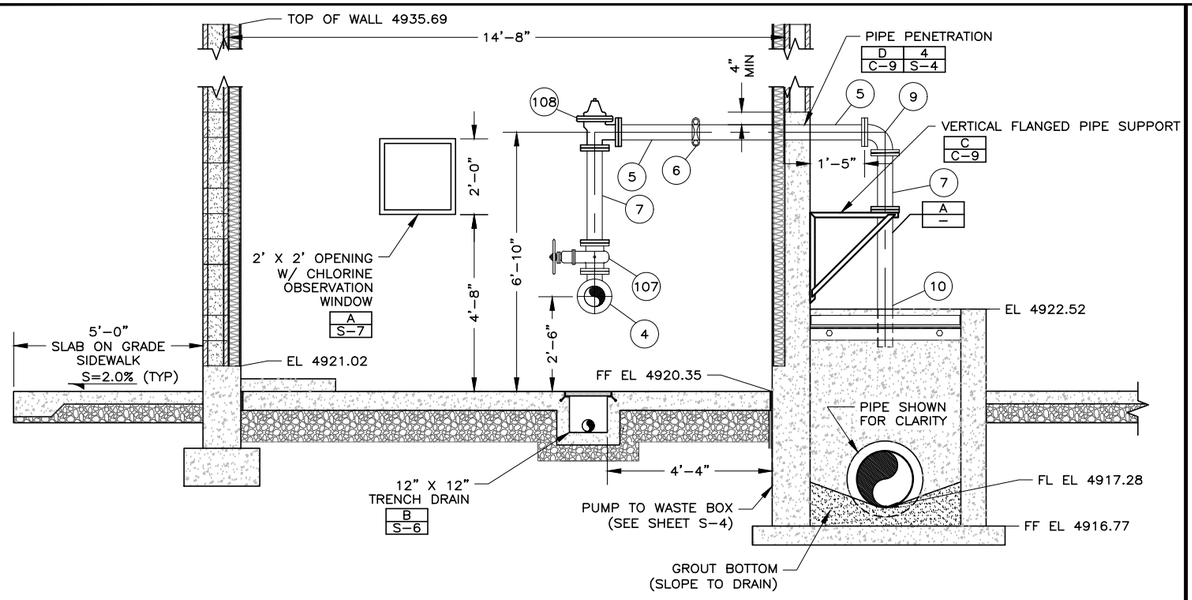
DESIGNED	MGA	3				
DRAFTED	BKC & DCL	2				
CHECKED	MEA	1				
DATE	APRIL 2024	NO.	DATE	REVISIONS	BY	APVD.

SCALE: AS SHOWN

WEST JORDAN UTAH

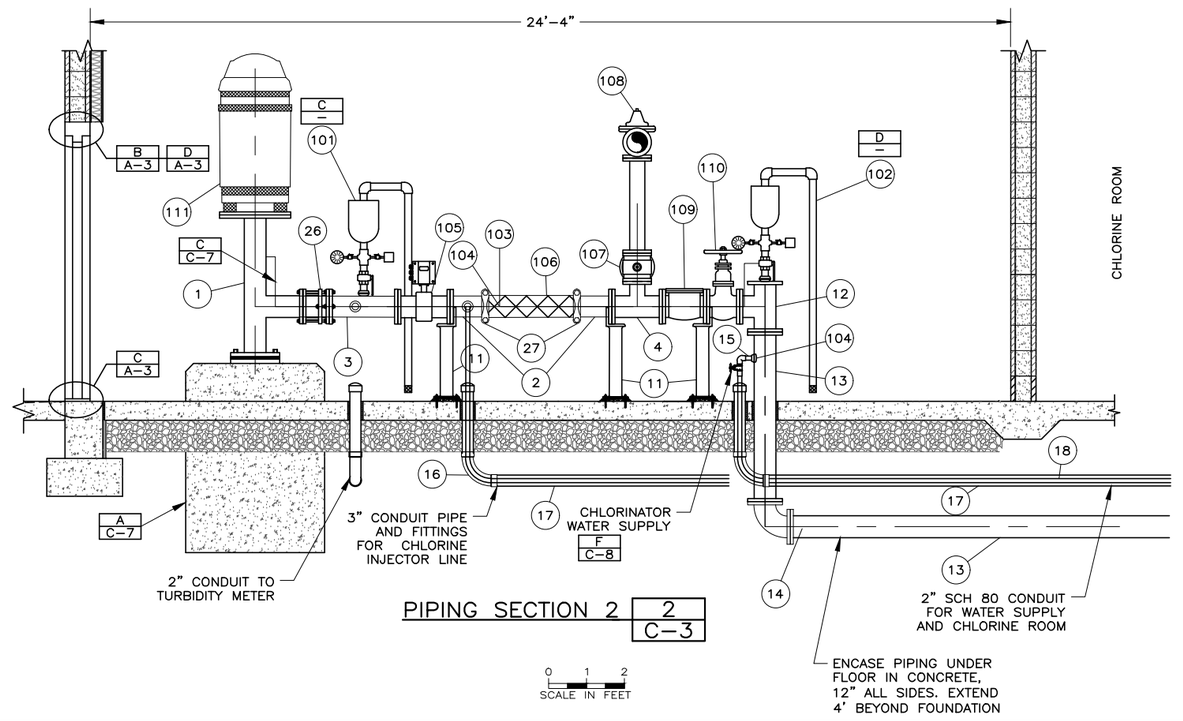
WELL NUMBER 8 PUMP BUILDING
CIVIL
PUMP HOUSE PIPING

SHEET C-4
089.29.100



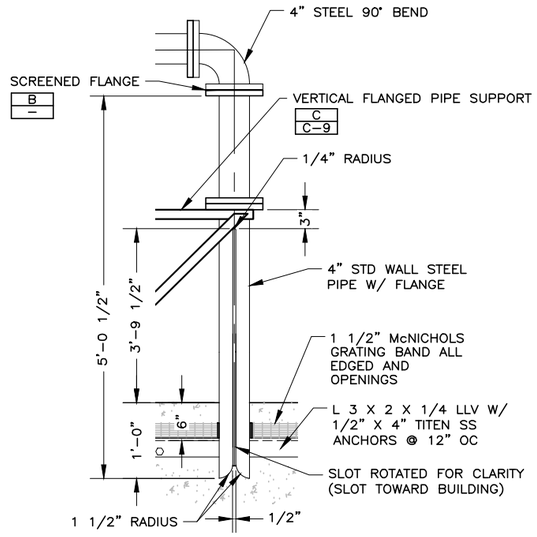
PIPING SECTION 1 — 1 / C-3

SCALE IN FEET 0 1 2

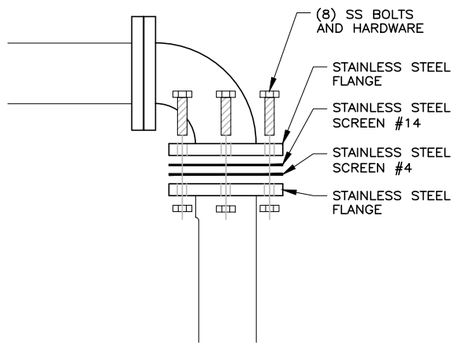


PIPING SECTION 2 — 2 / C-3

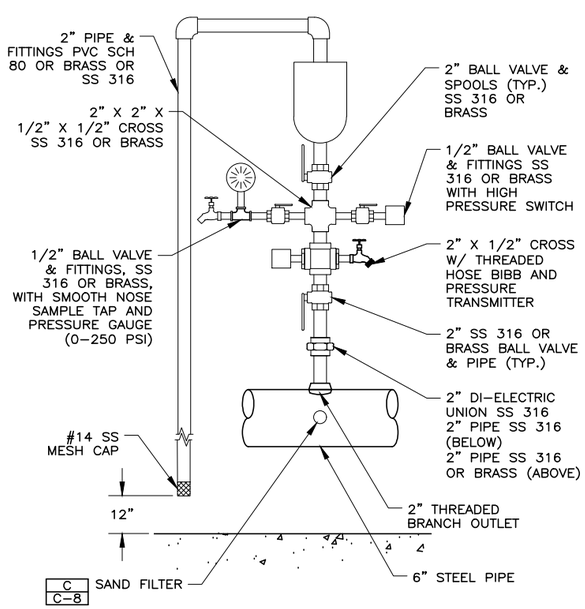
SCALE IN FEET 0 1 2



AIR GAP PIPE DETAIL — NTS — A / C-4 — A / —

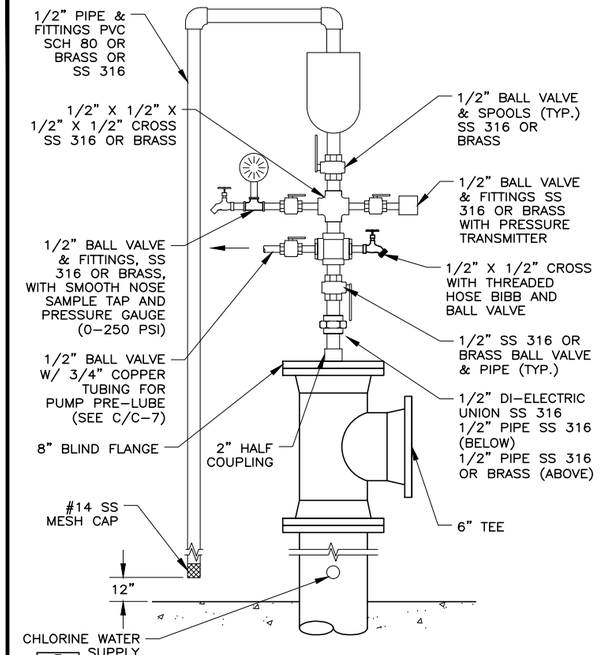


SCREENED FLANGE DETAIL — NTS — B / —



DEEP-WELL AIR-VAC TREE DETAIL — NTS — C / C-4 — C / —

NOTE:
SEE SHEET C-6 FOR PIPE FITTING AND EQUIPMENT SCHEDULE.



AIR-VAC TREE DETAIL — NTS — D / C-4 — D / —

NOTE:
SEE SHEET C-6 FOR PIPE FITTING AND EQUIPMENT SCHEDULE.

FILE NAME: PROJECTS\089 — WEST JORDAN\29.100 — WELL NO. 8 PUMP BUILDING\CAD\C-5 PUMP ROOM AND DETAILS.DWG
FILE DATE: 4.4.2024 16:44:16 (DCL)

7/04

HANSEN ALLEN & LUCE inc ENGINEERS

LICENSED PROFESSIONAL ENGINEER — 176021 — Delmas W. Johnson — 4-19-24 — STATE OF UTAH

PROJECT ENGINEER

DESIGNED	MGA	3			
DRAFTED	DCL	2			
CHECKED	MEA	1			
DATE	APRIL 2024	NO.	DATE	REVISIONS	BY / APVD.

SCALE: AS SHOWN

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
CIVIL
PUMP ROOM PIPING SECTIONS & DETAILS

SHEET C-5

089.29.100

FITTING SCHEDULE

ITEM NO.	DESCRIPTION	SIZE	MATERIAL	WALL THICKNESS	CONNECTION	FLANGE TYPE	COATING/LINING	NOTES
1	PUMP DISCHARGE HEAD	6"	STEEL	STD	FLG	CLASS D	SYSTEM NO. 1 / SYSTEM NO. 2	
2	PIPE, STRAIGHT NIPPLE	6"	STEEL	SCH 40	FLG x GRV			LENGTH VARIES, MIN. 10"
3	PIPE, STRAIGHT SPOOL	6"	STEEL	SCH 40	FLG	--		
4	TEE, REDUCING	6" x 6" x 4"	STEEL	SCH 40	FLG	WELD NECK	SYSTEM NO. 1 / SYSTEM NO. 1	
5	PIPE, STRAIGHT NIPPLE	4"	STEEL	SCH 40	FLG x GRV			WALL SPOOL WITH THRUST RING
6	COUPLING, FLEXIBLE, GROOVED	4"	DUCTILE IRON	--	GRV	--		VICTUALIC STYLE 177
7	PIPE, STRAIGHT SPOOL	4"	STEEL	SCH 40	FLG x FLG			
8	WELDOLET	1/2"	STEEL		WELD			
9	ELBOW, 90-DEG	4"	STEEL	SCH 40	FLG			
10	PIPE, STRAIGHT SPOOL	4"	STEEL	SCH 40	FLG x PE			
11	SUPPORT, ADJUSTABLE, FLANGE SUPPORT	6"	STEEL	-	-	-		B-LINE B3094, W/ B3089 & B3088T. DETAIL B ON C-9
12	TEE, REDUCING	8" x 8" x 6"	STEEL	SCH 40	FLG	WELD NECK	SYSTEM NO. 1 / SYSTEM NO. 1	
13	PIPE, STRAIGHT SPOOL	8"	DUCTILE IRON	CLASS 52	FLG			USE WAX TAPE COATING SYSTEM FOR BURIED FLANGES
14	ELBOW, 90-DEG	8"	DUCTILE IRON	CLASS 52	FLG			
15	WELDOLET	1"	STEEL	-	WELD			
16	HEAVY WALL PVC HOSE	1"	PVC					KURI TEC K3130 SERIES BF
17	SLEEVE FOR CHLORINE SOLUTIONS	3"	PVC	SCH 80	WELD			
18	HEAVY WALL PVC HOSE	1"	REINFORCED PVC					KURI TEC K3130 SERIES BF
19	SLEEVE FOR SAMPLE LINES	2"	PVC	SCH 80	WELD			
20	HEAVY WALL PVC HOSE	1/2"	REINFORCED PVC					KURI TEC K3130 SERIES BF
21	FLOOR DRAIN	9"	CAST IRON					ZURN - Z508 EXTRA HEAVY DUTY DRAIN W 6" OUTLET PIPE
22	FLOOR DRAIN	6"	PVC	SCH 80	WELD			DETAIL C ON C-10
23	CHECK VALVE	6"	RUBBER		SLIP ON			TIDEFLEX TF-1 W STAINLESS CLAMPS
24	AIR GAP DRAIN	2"	PVC	SCH 80	WELD			DETAIL G ON C-8
25	DRAIN	2"	PVC	SCH 80	WELD			CONNECT TO TRENCH DRAIN
26	COUPLING, DISMANTLING JOINT	6"	STEEL/DUCTILE IRON	STD	FLG	AWWA C207 CLASS D	FBE	ROMAC DJ400
27	COUPLING, FLEXIBLE, GROOVED	6"	DUCTILE IRON	--	GRV	--		VICTUALIC STYLE 177

VALVE & EQUIPMENT SCHEDULE

ITEM NO.	DESCRIPTION	SIZE	MATERIAL	CLASS	CONNECTION	OPERATOR	MANUFACTURER	MODEL	NOTES
101.	DEEP WELL AIR VALVE ASSEMBLY	2"			THD		APCO DEZURIK	144DAT	W/ AIR RELEASE VALVE
102.	AIR VALVE ASSEMBLY	1"			THD		APCO DEZURIK	140C	
103.	CHLORINE INJECTION QUILL	1/2"	316 STAINLESS				KOFLO	QS-.5-3	ROUTE HOSE THROUGH TRENCH
104.	CHLORINE INJECTION WELDOLET CONNECTION	1/2"	316 STAINLESS		HOSE X THD				1 1/2" x 1/2" REDUCER
105.	MAGNETIC FLOW METER	6"	STAINLESS STEEL	STD (150 PSI)	FLG		ENDRESS & HAUSER	PRO MAG W 400	
106.	STATIC MIXER	6"	STAINLESS STEEL		GRV		STATIFLOW	SERIES 600	2 ELEMENTS (1.5:1 PITCH RATIO) CONFIRM LAY LENGTH
107.	GATE VALVE	4"	DUCTILE IRON	STD (350 PSI)	FLG	HANDWHEEL	MUELLER	A-2361	W/ POSITION INDICATOR
108.	PUMP CONTROL VALVE	4"					CLAVAL	61-02	ANGLE STYLE
109.	CHECK VALVE, SHORT STROKE	6"	DUCTILE IRON	STD (250 PSI)	FLG		VAL-MATIC	SURGEBUSTER	W/ POSITION INDICATOR
110.	GATE VALVE	6"	DUCTILE IRON	STD (350 PSI)	FLG	HANDWHEEL	MUELLER	A-2361	W/ POSITION INDICATOR
111.	PUMP, SUBMERSIBLE, 500 GPM	16"							
112.	TABLET CHLORINATOR	N/A							
113.	TURBIDIMETER	N/A		150 PSI			ATI	Q46/76	TO PROVIDE PIPING PER DETAILS B & E ON C-8
114.	CHLORINE ANALYZER	N/A		150 PSI			ATI	Q46/62-63	WITH pH SENSOR
115.	SAMPLE POINT OUTLET	1-1/2"	WELDED STEEL		WELD X THD				LOCATION PER PLAN PER DETAIL D ON C-8

SHEET NOTES:

1. ALL FLANGES SHALL BE CLASS 125/150.

FILE NAME: PROJECTS\089 — WEST JORDAN\29.100 — WELL NO. 8 PUMP BUILDING\CAD\C-6 FITTINGS AND SCHEDULES.DWG
FILE DATE: 4.4.2024 16:45:56 (DCL)

7/04

HANSEN ALLEN & LUCE Inc ENGINEERS

LICENSED PROFESSIONAL ENGINEER — Delmas W. Johnson — 4-19-24 — STATE OF UTAH
PROJECT ENGINEER

DESIGNED MGA
DRAFTED BKC
CHECKED MEA
DATE APRIL 2024

NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1				

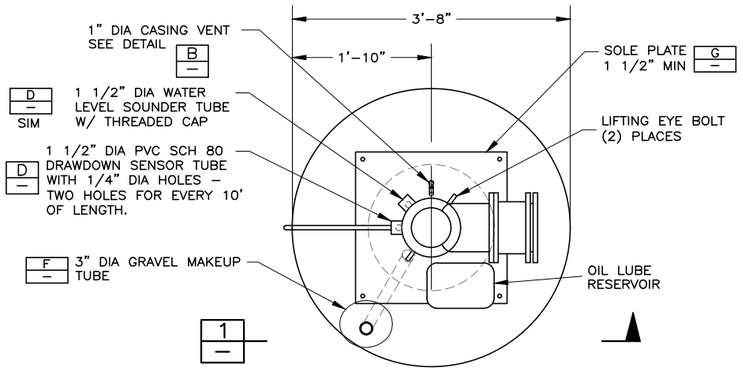
SCALE: AS SHOWN

WEST JORDAN UTAH

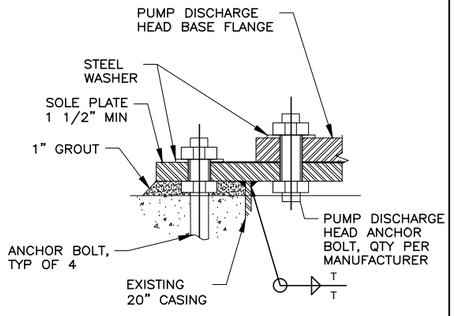
WELL NUMBER 8 PUMP BUILDING
CIVIL
PIPE FITTING AND EQUIPMENT SCHEDULE

SHEET C-6

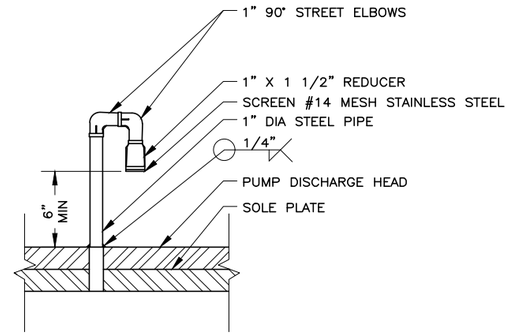
089.29.100



DETAIL A — NTS

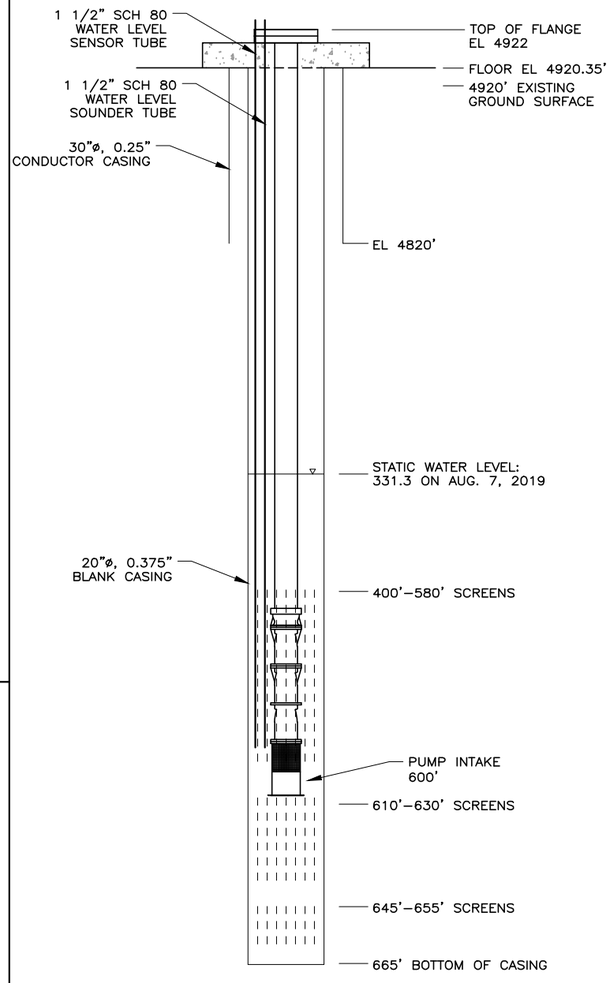


SOLE PLATE DETAIL G — NTS



WELL CASING VENT DETAIL B — NTS

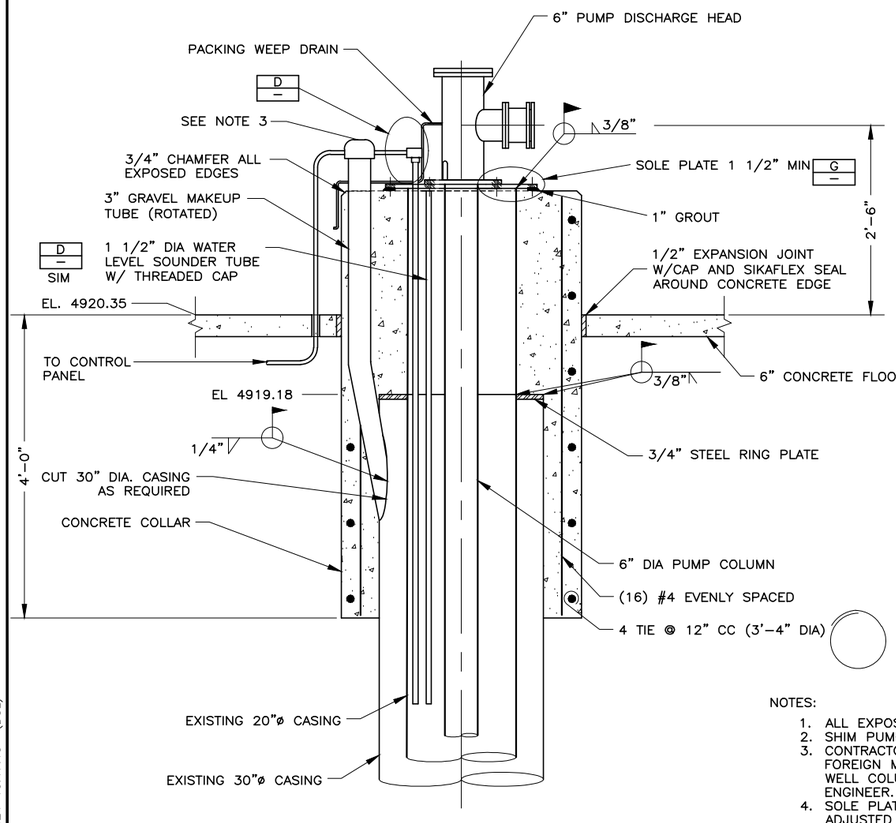
NOTE:
USE 316 STAINLESS STEEL PIPE AND FITTINGS FOR THE AIR VENT.



WELL PUMP DETAIL E — A/C-4 — NTS

NOTE:

1. DEPTHS SHOWN ARE ESTIMATED BELOW EXISTING GRADE.

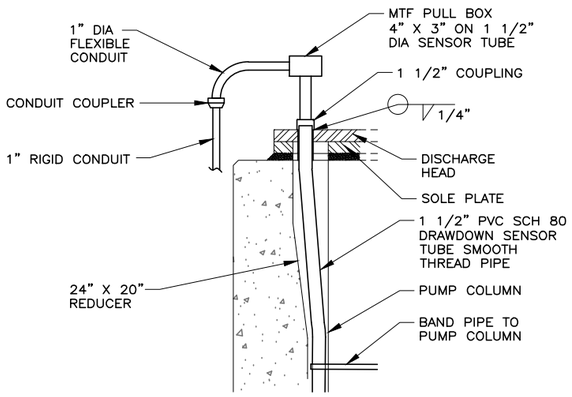


SECTION 1 — —

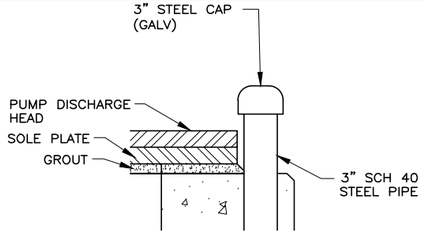
WELLHEAD DETAIL A — A/C-4 — NTS

NOTES:

1. ALL EXPOSED STEEL TO BE PAINTED.
2. SHIM PUMP FOR PROPER ALIGNMENT.
3. CONTRACTOR SHALL NOT INTRODUCE ANY FOREIGN MATERIAL OR CHEMICAL INTO WELL COLUMN WITHOUT APPROVAL OF ENGINEER.
4. SOLE PLATE ELEVATION SHALL BE ADJUSTED TO MATCH DIMENSIONS OF SUPPLIED DISCHARGE HEAD.
5. PUMP DISCHARGE HEAD & SOLE PLATE SHALL BE DESIGNED BY CONTRACTOR FOR ALL LOADS AND PENETRATIONS.
6. BAND DRAWDOWN SENSOR TUBE TO PUMP COLUMN USING STAINLESS STEEL BANDS AT 10' CENTER TO CENTER.



WELL LEVEL TRANSDUCER DETAIL D — NTS



GRAVEL MAKEUP TUBE DETAIL F — NTS

FILE NAME: PROJECTS\089 - WEST JORDAN\29.100 - WELL NO. 8 PUMP BUILDING\CAD\C-7 PUMP DETAILS.DWG
FILE DATE: 4.4.2024 16:47:19 (DCL)

HANSEN ALLEN & LUCE inc ENGINEERS

LICENSED PROFESSIONAL ENGINEER — Delmar W. Johnson — 260234 — 4-19-24 — STATE OF UTAH
PROJECT ENGINEER

DESIGNED	MGA	3				
DRAFTED	DCL	2				
CHECKED	MEA	1				
DATE	APRIL 2024	NO.	DATE	REVISIONS	BY	APVD.

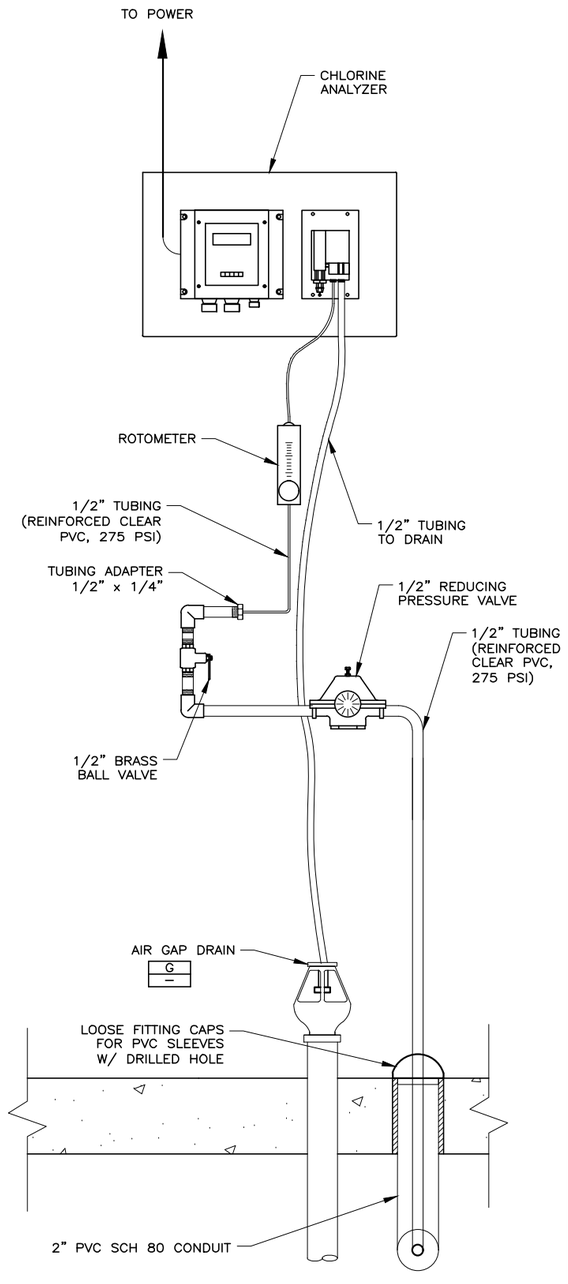
SCALE

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
CIVIL
PUMP DETAILS

SHEET C-7
089.29.100

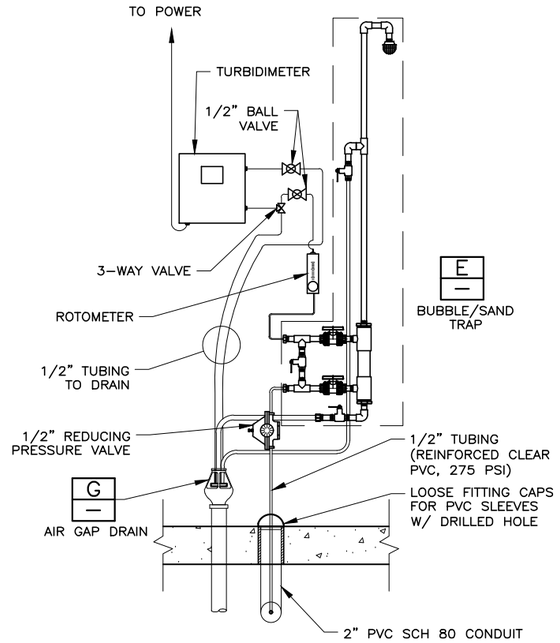
7/04



CHLORINE ANALYSIS ASSEMBLY DETAIL

NTS

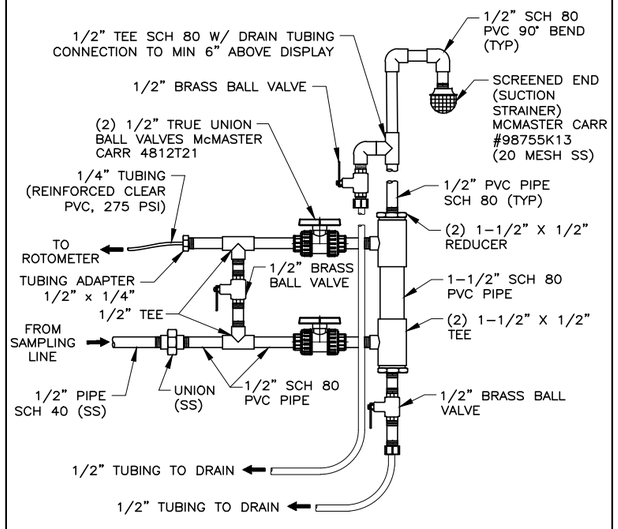
A / —



TURBIDIMETER ASSEMBLY DETAIL

NTS

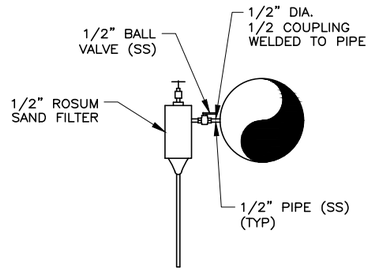
B / —



BUBBLE/SAND TRAP DETAIL

NTS

E / —



TO TRENCH DRAIN WITH AIR GAP

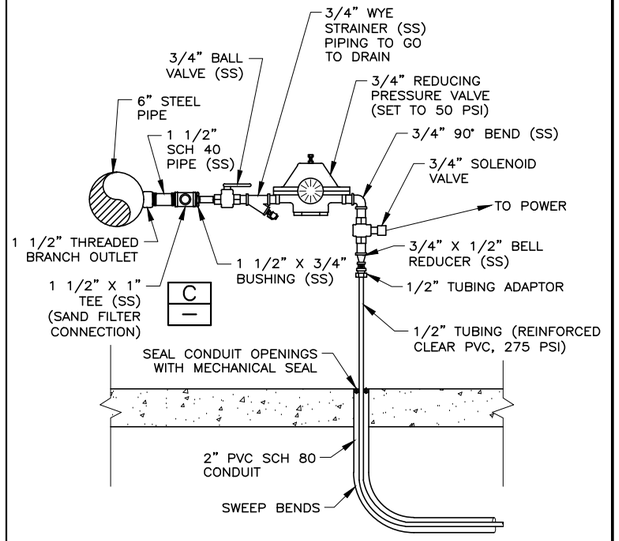
ROSSUM SAND TESTER

NTS

C / — | C / C-5

NOTE:

1. ALL FITTINGS TO BE STAINLESS STEEL 316 UNLESS OTHERWISE NOTED.



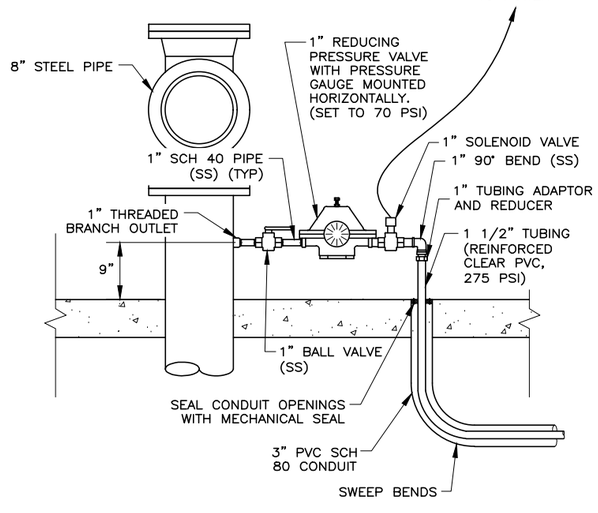
TURBIDIMETER FEED DETAIL

NTS

D / — | D / C-4

NOTE:

1. ALL PIPE TO BE STAINLESS STEEL 316.



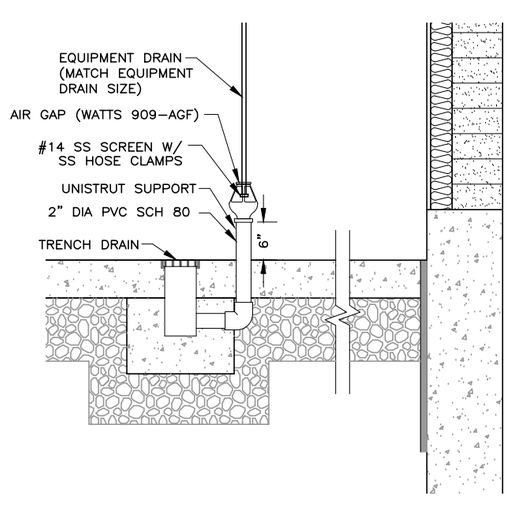
CHLORINE ROOM WATER SUPPLY DETAIL

NTS

F / — | E / C-5

NOTE:

1. ALL 1" PIPING TO BE STAINLESS STEEL 316.



AIR GAP DRAIN DETAIL

NTS

G / —

FILE NAME: PROJECTS\089 - WEST JORDAN\29.100 - WELL NO. 8 PUMP BUILDING\CAD\C-8 PIPING DETAILS.DWG
FILE DATE: 4.4.2024 16:48:24 (DCL)

7/04

HANSEN ALLEN & LUCE, inc. ENGINEERS

LICENSED PROFESSIONAL ENGINEER — Delmar W. Johnson — 4-19-24 — STATE OF UTAH

PROJECT ENGINEER

DESIGNED	MGA	3		
DRAFTED	DCL	2		
CHECKED	MEA	1		
DATE	APRIL 2024	NO.	DATE	REVISIONS

BY | APVD.

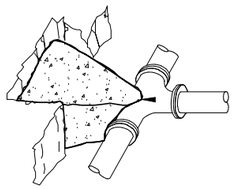
SCALE

WEST JORDAN UTAH

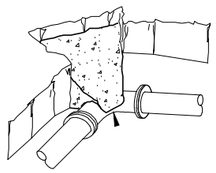
WELL NUMBER 8 PUMP BUILDING
CIVIL
PIPING DETAILS

SHEET C-8

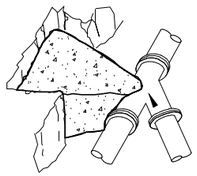
089.29.100



CONDITION I



CONDITION II



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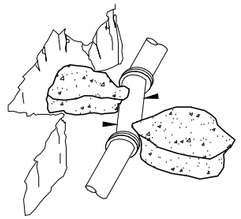
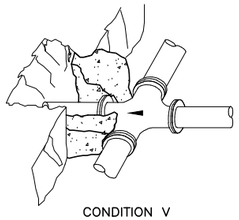
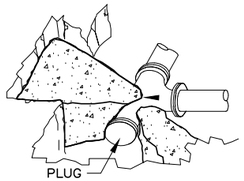


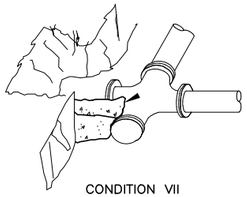
CONDITION IV



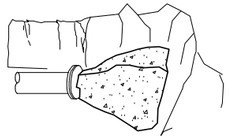
CONDITION V



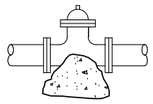
CONDITION VI



CONDITION VII



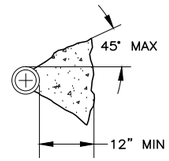
CONDITION VIII



VALVE ANCHOR REQUIRED FOR VALVES 12" OR LARGER

TYPICAL THRUST BLOCK DETAILS — A

NTS

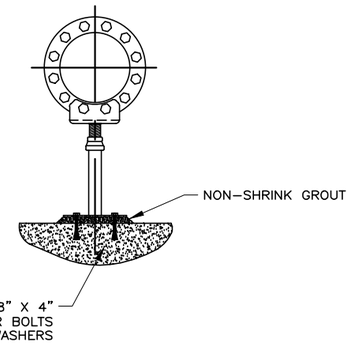


TYPICAL SECTION THROUGH THRUST BLOCKS

THRUST BLOCK BEARING AREA IN SQ FEET								
PIPE SIZE (IN)	CONDITION							
	I	II	III	IV	V	VI	VII	VIII
4	4	5	3	3	2	4	5	4
6	8	11	6	6	4	8	11	8
8	14	20	10	11	7	14	20	14
10	21	30	15	16	11	21	30	21
12	30	42	21	22	15	30	42	30
14	40	57	29	31	20	40	57	40
16	52	74	37	40	26	52	74	52
18	66	93	47	51	33	66	93	66
20	81	114	57	62	41	81	114	81
24	115	163	82	89	58	116	163	116

NOTES:

1. ALL THRUST BLOCK BEARING FACES SHALL BE POURED AGAINST UNDISTURBED SOIL OR APPROVED COMPACTED BACKFILL.
2. CONCRETE SHALL BE CLASS 3000.
3. ALL THRUST BLOCK SIDES SHALL BE FORMED.
4. TABLE VALUES WERE CALCULATED USING 350 LB. TEST PRESSURE AND ALLOWABLE BEARING PRESSURE OF 1,500 LBS. PER SQUARE FOOT.
5. IN POORER SOILS SPECIAL DESIGN IS REQUIRED.
6. USE MJ DUCTILE IRON RESTRAINER GLANDS AND CONCRETE THRUST BLOCKS.

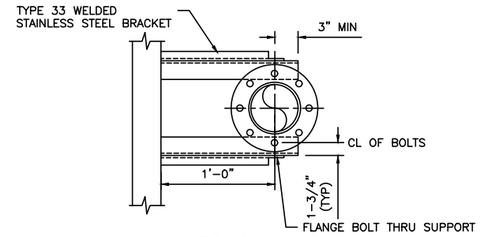


NOTES:

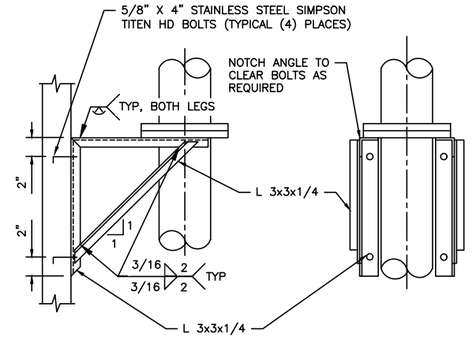
1. FLANGE SUPPORT SHALL BE B-LINE B3094 W/ B3089 AND B3088T.
2. ALL PIPE SUPPORTS SHALL BE HOT DIPPED GALVANIZED AFTER MANUFACTURE.

PIPE FLANGE SUPPORT DETAIL — B

NTS



PLAN

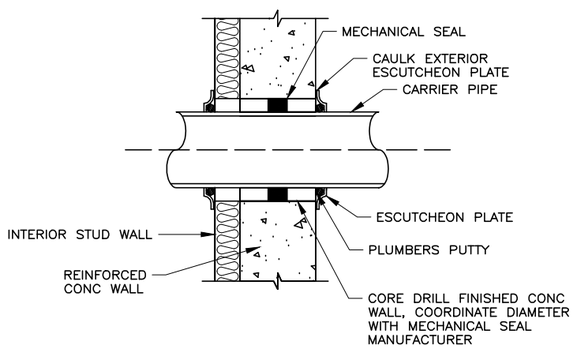


DETAIL NOTE:

1. MAXIMUM VERTICAL LOAD EQUALS 900 POUNDS

VERTICAL FLANGED PIPE SUPPORT — C — C-5 / C — S-4

NTS



PIPE PENETRATION — D — C-5 / D — S-4

NTS

FILE NAME: PROJECTS\089 - WEST JORDAN\29.100 - WELL NO. 8 PUMP BUILDING\CAD\C-9 CIVIL DETAILS.DWG
FILE DATE: 4.4.2024 16:49:25 (DCL)

7/04

HANSEN ALLEN & LUCE inc ENGINEERS

LICENSED PROFESSIONAL ENGINEER — 260247 — Delmas W. Johnson — 4-19-24 — STATE OF UTAH

PROJECT ENGINEER

DESIGNED	MGA	3				
DRAFTED	DCL	2				
CHECKED	MEA	1				
DATE	APRIL 2024	NO.	DATE	REVISIONS	BY	APVD.

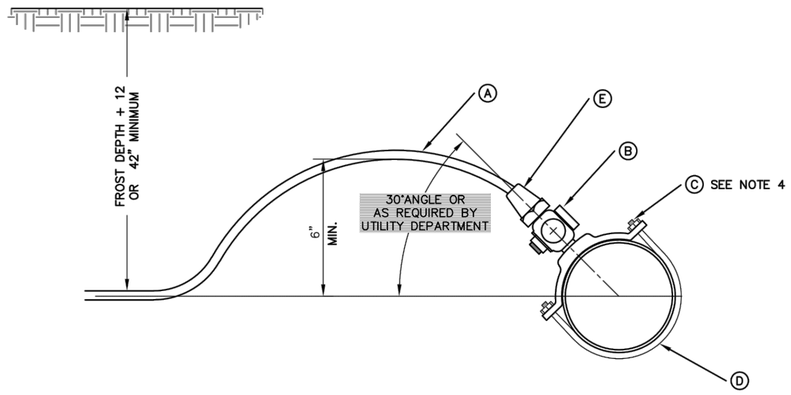
SCALE

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
CIVIL
CIVIL DETAILS

SHEET C-9

089.29.100



TYPE A – SADDLE CLAMP TAP

		LEGEND	
No.	ITEM	DESCRIPTION 3/4"	DESCRIPTION 1"
(A)	SERVICE PIPE	POLYETHYLENE IPS–ID 200 PSI SIDR–7 "BLUE" NSF APPROVED	POLYETHYLENE IPS–ID 200 PSI SIDR–7 "BLUE" NSF APPROVED
(B)	CORPORATION STOP	BRASS	BRASS
		FORD FB 500–3	FORD FB 500–4
(C)	SERVICE SADDLE CLAMP	BRASS DOUBLE STRAP	
		MUELLER: H 16109 FOR 8" FORD: 202B–962–IP3	MUELLER: H 16109 FOR 8" FORD: 202B–962–IP4
		MUELLER: H 16113 FOR 10" FORD: 202B–1212–IP3	MUELLER: H 16113 FOR 10" FORD: 202B–1212–IP4
		MUELLER: H 16116 FOR 12" FORD: 202B–1438–IP3	MUELLER: H 16116 FOR 12" FORD: 202B–1438–IP4
(D)	WATER MAIN PIPE	PVC or D I PIPE	
(E)	CONNECTIN FITTING FROM PIPE TO CORPORATION STOP	MUELLER INSTA–TITE H–15456 FIPS NON–FLARED x INSTA–TITE	MUELLER INSTA–TITE H–15456 FIPS NON–FLARED x INSTA–TITE

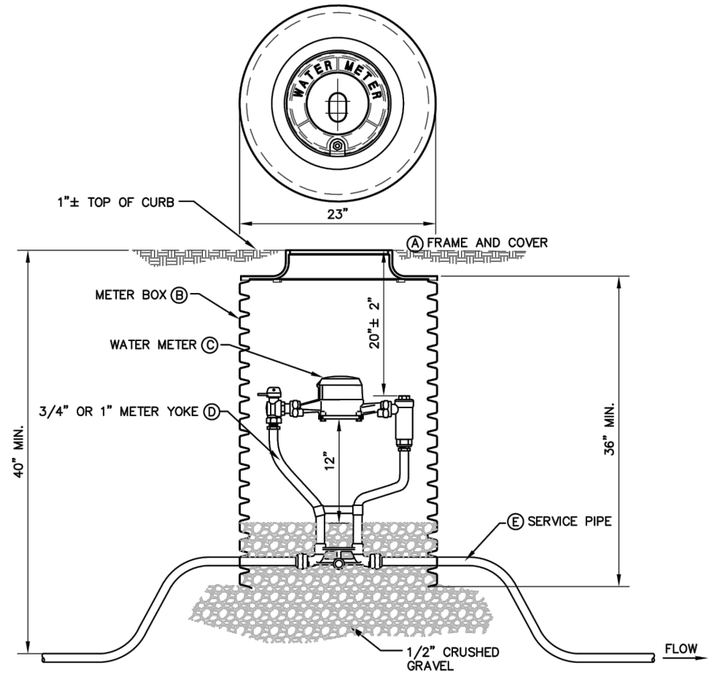
NOTES:

1. INSPECTION: PRIOR TO BACKFILLING AROUND TAPS, SECURE INSPECTION OF INSTALLATION BY ENGINEER.
2. BACKFILL: INSTALL AND COMPACT ALL BACKFILL MATERIAL PER APWA SECTION 33–05–20.
3. TAPPING: PLACE TAPS A MINIMUM OF 24 INCHES APART. USE A TAPPING TOOL WHICH IS SIZED CORRESPONDING TO THE SIZE OF THE SERVICE LINE TO BE INSTALLED. NO TAPS WITHIN 24 INCHES OF THE END OF THE PIPE.
4. SERVICE SADDLE: A SERVICE SADDLE CLAMP IS REQUIRED ON ALL PIPE TAPS.
5. TEFLON TAPE: TEFLON TAPE IS REQUIRED ON ALL TAPS.

DRAWING UPDATED JANUARY 2019 — City of West Jordan, Utah

SERVICE TAPS FOR 3/4 " AND 1" LATERALS

PLAN CW-105



NO.	ITEM	DESCRIPTION 3/4" METER	DESCRIPTION 1" METER
(A)	FRAME AND COVER LABELED "WATER METER"	D&L SUPPLY L–2240–UNVI, L–2244 OLYMPIC MTU–9000–9021	D&L SUPPLY L–2240–UNVI, L–2244 OLYMPIC MTU–9000–9021
(B)	METER BOX	21" DIA. HANCOR METER PIT	21" DIA. HANCOR METER PIT
(C)	WATER METER FURNISHED & INSTALLED BY CITY	3/4" RESIDENTIAL MASTER METER BOTTOM LOAD MULTI–JET METERS	1" RESIDENTIAL MASTER METER BOTTOM LOAD MULTI–JET METERS
(D)	3/4" OR 1" METER YOKE	70 SERIES 3/4" COPPERSETTER VBHC72–21W–11–33–NL	1" COPPERSETTER 70 SERIES VBHC72–21W–11–44–NL
(E)	SERVICE PIPE	3/4" POLYETHYLENE IPS–ID–200 PSI SIDR–7 "BLUE" NSF APPROVED	1" POLYETHYLENE IPS–ID–200 PSI SIDR–7 "BLUE" NSF APPROVED

NOTES:

1. INSPECTION: PRIOR TO BACK FILLING AROUND METER BOX, SECURE APPROVAL OF INSTALLATION BY INSPECTOR.
2. BACK FILL: INSTALL AND COMPACT ALL BACKFILL MATERIAL PER APWA SECTION 33–05–20.
3. ALL METER SETTERS MUST HAVE BACK FLOW PREVENTERS.
4. PIPE: INSTALL SERVICE PIPE TO PROPERTY LINE.
5. PLACEMENT: ALL METERS ARE TO BE INSTALLED IN THE PARK STRIP, (ALL EXCEPTIONS REQUIRE INSPECTOR APPROVAL), AND MUST BE PLACED IN THE CENTER OF THE LOT AND MUST BE LOCATED 1' AWAY FROM DRIVEWAY.
6. METER BOX SHALL BE CLEANED AND FREE OF DIRT, TRASH, AND DEBRIS PRIOR TO FINAL INSPECTION.

DRAWING UPDATED AUGUST 2020 — City of West Jordan, Utah

3/4" - 1" METER DETAIL

PLAN CW-120

FILE NAME: PROJECTS\089 – WEST JORDAN\29.100 – WELL NO. 8 PUMP BUILDING\CAD\C–10 CONNECTION DETAILS SHEET 1.DWG
FILE DATE: 4.4.2024 16:50:48 (DCL)

HANSEN ALLEN & LUCE Inc ENGINEERS

LICENSED PROFESSIONAL ENGINEER — Delmar W. Johnson — 4-19-24 — STATE OF UTAH — PROJECT ENGINEER

DESIGNED	MGA	3				
DRAFTED	DCL	2				
CHECKED	MEA	1				
DATE	APRIL 2024	NO.	DATE	REVISIONS	BY	APVD.

SCALE

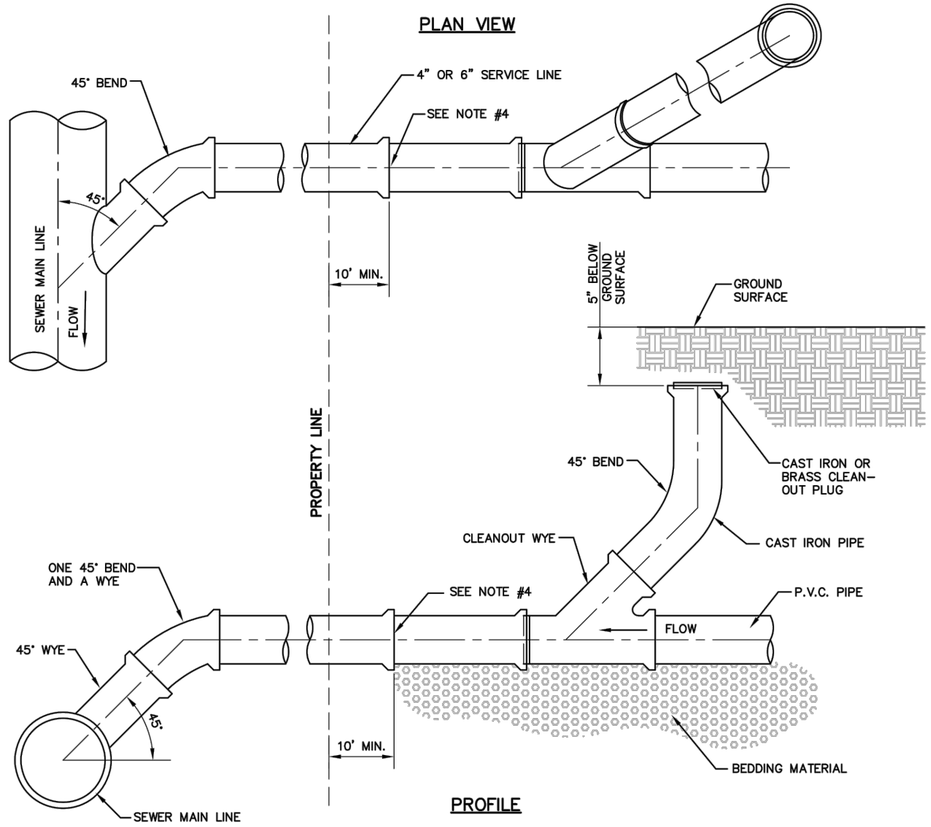
WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
CIVIL
CITY STANDARD DETAILS SHEET 1

SHEET C–10

089.29.100

7/04



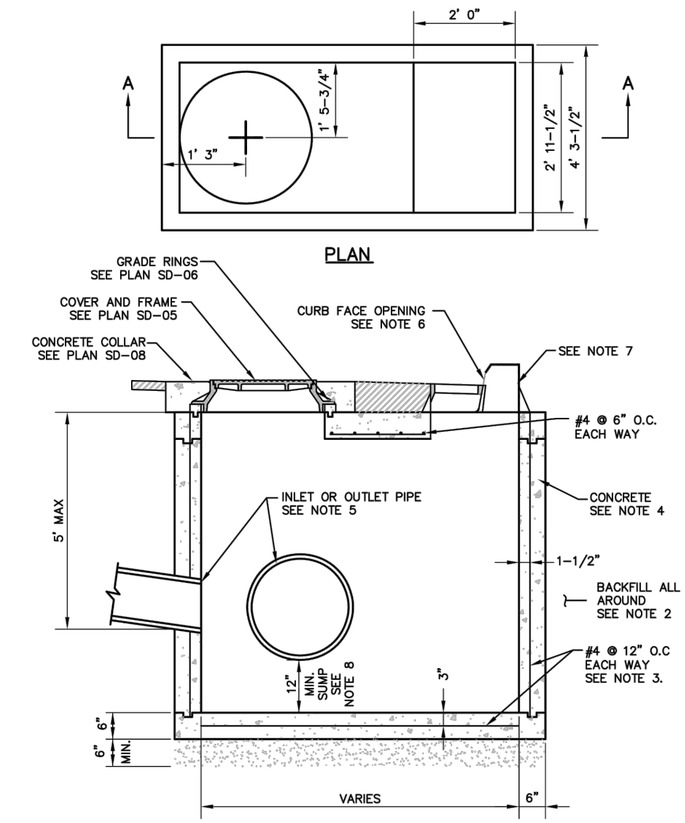
NOTES:

1. INSPECTION:
   A. PRIOR TO INSTALLATION, SECURE ACCEPTANCE BY ENGINEER FOR ALL PIPE, FITTINGS, AND COUPLINGS.
   B. PRIOR TO BACKFILLING SEWER LATERAL, SECURE INSPECTION OF INSTALLATION BY ENGINEER.
2. INSTALLATION:
   A. PROVIDE WEST JORDAN CITY UTILITIES DEPARTMENT APPROVED WYE OR TEE WITH APPROPRIATE DONUT.
   B. TAPE WRAP PIPE AS REQUIRED BY SOIL CONDITIONS.
   C. CORE OUT PLUG IN SEWER MAIN. DO NOT BREAK INTO SEWER MAIN TO MAKE CONNECTION.
   D. CONSTRUCT 4 INCH LATERALS WITH MINIMUM 2% SLOPE.
   E. CONSTRUCT 6 INCH LATERALS WITH MINIMUM 1% SLOPE.
3. BACKFILL: INSTALL AND COMPACT ALL BACKFILL MATERIAL PER APWA SECTION 33 05 20.
4. LOCATION: CONTRACTOR TO MARK LATERAL WITH A PIN IN THE CURB AND RECORD LOCATION.

DRAWING UPDATED JANUARY 2020 — City of West Jordan, Utah

SANITARY SEWER LATERAL

PLAN SS-25



1. SELECT FILL: USE UNTREATED BASE COARSE GRADE 1 OR GRADE 3/4 PER APWA SECTION 32 11 23. USE OF SEWER ROCK OR RECYCLE AGGREGATE REQUIRES ENGINEER'S WRITTEN APPROVAL.
2. BACKFILL: INSTALL AND COMPACT ALL BACKFILL MATERIAL PER APWA SECTION 33 05 20.
3. REINFORCEMENT: USE ASTM A 615, GRADE 60, DEFORMED STEEL REBAR. SEE APWA SECTION 03 20 00 REQUIREMENTS.
4. CONCRETE: CLASS 4,000 PER APWA SECTION 03 30 04. PLACE PER APWA SECTION 03 20 00. APPLY SEALING / CURING COMPOUND PER APWA SECTION 03 39 00.
5. PIPE LATERALS: THE DRAWING SHOWS ALTERNATE CONNECTIONS TO THE CATCH BASIN. REFER TO CONSTRUCTION DRAWINGS FOR CONNECTION LOCATIONS.
6. CURB FACE OPENING: MAKE OPENING 4 INCHES HIGH. PROVIDE AT LEAST A TWO INCH DROP FROM THE GUTTER FLOWLINE TO THE INVERT OF THE CURB FACE OPENING.
7. D&L SUPPLY I-3517 FOR <2% GRADE, TO BE STAMPED "DUMP NO WASTE DRAINS TO WATERWAY" D&L SUPPLY I-3518 >2% GRADE, TO BE STAMPED "DUMP NO WASTE DRAINS TO WATERWAY". EQUIVALENT ONLY BY WRITTEN APPROVAL FROM CITY ENGINEER.
8. SUMP SHALL BE GRADED SO THAT LOW POINT IS ADJACENT TO DISCHARGE PIPE.
9. COVER AND FRAME SHALL LOCATED DIRECTLY ABOVE DISCHARGE PIPE.

DRAWING UPDATED JANUARY 2020 — City of West Jordan, Utah

COMBINATION BOX

PLAN SD-14

FILE NAME: PROJECTS\089 - WEST JORDAN\29.100 - WELL NO. 8 PUMP BUILDING\CAD\C-11 CONNECTION DETAILS SHEET 2.DWG
FILE DATE: 4.4.2024 16:51:57 (DCL)

HANSEN ALLEN & LUCE inc ENGINEERS

LICENSED PROFESSIONAL ENGINEER — Delmar W. Johnson — 4-19-24 — STATE OF UTAH
PROJECT ENGINEER

DESIGNED	MGA	3				
DRAFTED	DCL	2				
CHECKED	MEA	1				
DATE	APRIL 2024	NO.	DATE	REVISIONS	BY	APVD.

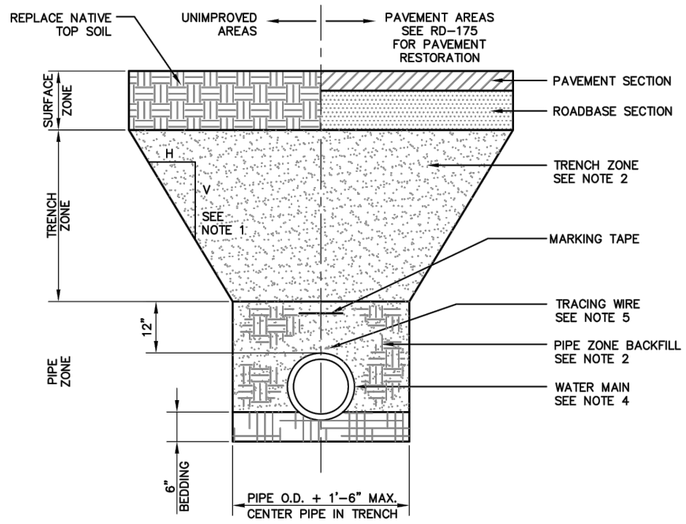
SCALE

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
CIVIL
CITY STANDARD DETAILS SHEET 2

SHEET C-11
089.29.100

7/04



1. EXCAVATION: TRENCH EXCAVATION AND SIDE SLOPES SHALL BE ACCORDANCE WITH OSHA AND UOSH SAFETY STANDARDS AND WITH APWA 31-23-16 AND ALL STATE AND FEDERAL LAWS FOR TRENCH SAFETY.

2. BACKFILL: BACKFILL OPERATIONS SHALL COMPLY WITH APWA 33-05-20 "BACKFILLING TRENCHES". BACKFILL MATERIALS SHALL COMPLY WITH APWA 31-05-13 "COMMON FILL" AND 32-11-23 "AGGREGATE BASE" WITH MATERIAL SELECTION AS FOLLOWS:

	UNIMPROVED AREAS	PAVEMENT AREAS
BEDDING	SAND	SAND
PIPE ZONE	SAND	SAND
TRENCH ZONE	GRANULAR BACKFILL BORROW SAND NATIVE (FREE OF ROCK OVER 2")	UNTREATED BASE COURSE
SURFACE ZONE	NATIVE TOP SOIL	UNTREATED BASE

SEWER ROCK, PEA GRAVEL, RECYCLED AGGREGATE NOT ALLOWED AS BACKFILL

3. COMPACTION: COMPACTION OF BACKFILL MATERIALS SHALL COMPLY WITH APWA 31-23-26 "COMPACTION" AND THE FOLLOWING:

	UNIMPROVED AREAS	PAVEMENT AREAS
PIPE ZONE	PER PIPE MANUFACTURE RECOMMENDATION	PER PIPE MANUFACTURE RECOMMENDATION
TRENCH ZONE	92 % OF ASTM D 698	95 % OF ASTM D 1557
SURFACE ZONE	80 % OF ASTM D 698	95 % OF ASTM D 1557

WATER SETTLING OR "JETTING" OF TRENCHES BACKFILL NOT ALLOWED

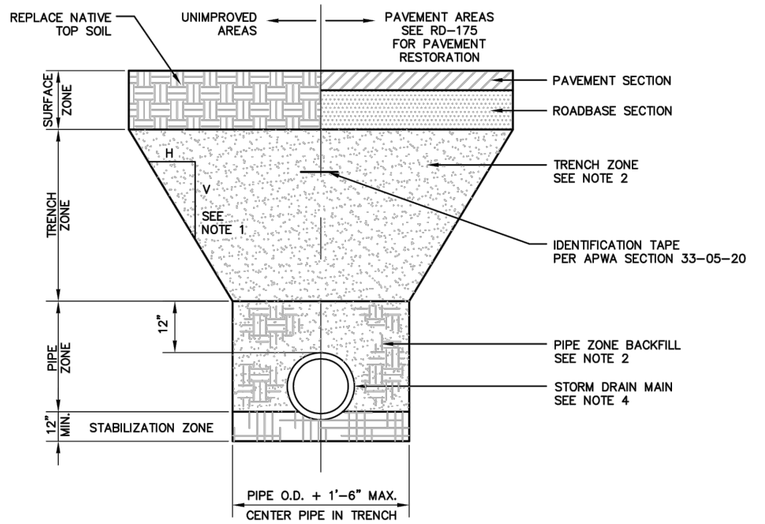
4. INSTALLATION OF PIPE: INSTALL PIPE PER APWA 33-11-00 "WATER DISTRIBUTION AND TRANSMISSION SYSTEMS". INSTALL PIPE ON STABLE FOUNDATION WITH UNIFORM BEARING. SHAPE TRENCH BY HAND TO FIT BOTTOM QUADRANT OF PIPE ALLOWING SPACE FOR PIPE BELLS.

5 TRACING WIRE: ALL PIPES SHALL HAVE 12 GA. INSULATED TRACING WIRE INSTALLED W/ THE PIPE.WIRES TERMINATE INSIDE ALL VALVE BOXES.

DRAWING UPDATED JANUARY 2019 — City of West Jordan, Utah

PIPE TRENCH

PLAN CW-035



1. EXCAVATION: TRENCH EXCAVATION PER APWA SECTION 31-23-16 AND SIDE SLOPES SHALL BE ACCORDANCE WITH OSHA AND UOSH SAFETY STANDARDS AND WITH APWA SECTION 31-41-00 AND ALL STATE AND FEDERAL LAWS FOR TRENCH SAFETY.

2. BACKFILL: MAX LIFT THICKNESS BEFORE COMPACTION IS EIGHT (8) INCHES. BACKFILL OPERATIONS SHALL COMPLY WITH APWA SECTION 33-05-20 "BACKFILLING TRENCHES". BACKFILL MATERIALS SHALL COMPLY WITH APWA SECTION 31-05-13 "COMMON FILL" AND APWA SECTION 32-11-23. "AGGREGATE BASE COURSES" WITH MATERIAL SELECTION AS FOLLOWS:

	UNIMPROVED AREAS	PAVEMENT AREAS
STABILIZATION ZONE	1" MINUS CRUSHED ROCK	1" MINUS CRUSHED ROCK
PIPE ZONE	UNTREATED BASE COURSE GRADE 3/4" MINUS ROCK	UNTREATED BASE COURSE GRADE 3/4" MINUS ROCK
TRENCH ZONE	CLASSIFIED AS A-1a W/15% MAX FINES	CLASSIFIED AS A-1a W/15% MAX FINES
SURFACE ZONE	NATIVE TOP SOIL REPLACE VEGETATION TO PRE-CONSTRUCTION CONDITION	UNTREATED BASE COURSE GRADE 3\4 PAVEMENT RESTORATION PER WJ ROAD AND BRIDGE STANDARDS RD-175

3. COMPACTION: COMPACTION OF BACKFILL MATERIALS SHALL COMPLY WITH APWA 31-23-26 "COMPACTION" AND THE FOLLOWING: SUBMISSION OF QUALITY ASSURANCE COMPACTION TEST RESULT DATA MAY BE REQUESTED BY ENGINEER AT ANY TIME. CONTRACTOR IS TO PROVIDE RESULTS WITHIN 24 HOURS OF PLACEMENT OF 200 LINEAR FEET OR 25 SQUARE FEET.

4. INSTALLATION OF PIPE: INSTALL PIPE PER APWA SECTION 33-41-00 "DRAINAGE SYSTEMS". INSTALL PIPE ON STABLE FOUNDATION WITH UNIFORM BEARING. SHAPE TRENCH BY HAND TO FIT BOTTOM QUADRANT OF PIPE ALLOWING SPACE FOR PIPE BELLS.

5 PAVEMENT RESTORATION: DO NOT INSTALL ASPHALT OR CONCRETE SURFACING UNTIL TRENCH COMPACTION IS ACCEPTED "IN WRITING" BY ENGINEER.

DRAWING UPDATED FEBRUARY 2020 — City of West Jordan, Utah

STORM DRAIN PIPE TRENCH

PLAN SD-02

HANSEN ALLEN & LUCE inc ENGINEERS

LICENSED PROFESSIONAL ENGINEER — 260234 — Delmas W. Johnson — 4-19-24 — STATE OF UTAH — PROJECT ENGINEER

DESIGNED	MGA	3			
DRAFTED	DCL	2			
CHECKED	MEA	1			
DATE	APRIL 2024	NO.	DATE	REVISIONS	BY / APVD.

SCALE: NOT TO SCALE

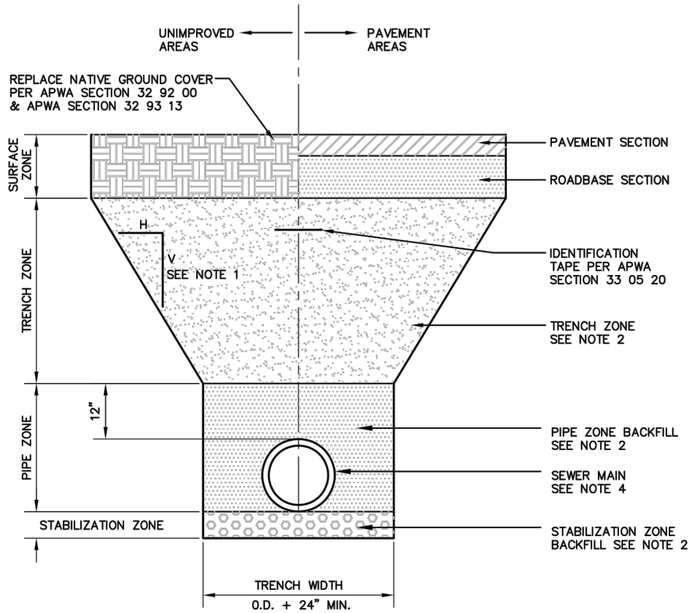
WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
CIVIL
CITY STANDARD DETAILS SHEET 3

SHEET C-12

089.29.100

7/04



NOTES:

1. EXCAVATION: TRENCH EXCAVATION PER APWA SECTION 31 23 16. EXCAVATION PROTECTION SHALL BE PROVIDED IN ACCORDANCE WITH OSHA AND UOSH SAFETY STANDARDS AND WITH APWA 31 41 00.
2. BACKFILL: BACKFILL OPERATIONS SHALL COMPLY WITH APWA 33 05 20 "BACKFILLING TRENCHES". BACKFILL MATERIALS SHALL COMPLY WITH APWA 31 05 13 "COMMON FILL" AND 32 11 23 "AGGREGATE BASE COURSE" WITH MATERIAL SELECTION AS FOLLOWS:

	UNIMPROVED AREAS	PAVEMENT AREAS
STABILIZATION ZONE	1" MINUS SEWER ROCK	1" MINUS SEWER ROCK
PIPE ZONE	1" MINUS SEWER ROCK	1" MINUS SEWER ROCK
TRENCH ZONE	GRANULAR BACKFILL BORROW	GRANULAR BACKFILL BORROW
SURFACE ZONE	NATIVE TOP SOIL REPLACE VEGETATION TO PRECONSTRUCTION CONDITION	UNTREATED BASE COURSE PAVEMENT RESTORATION PER ROAD SPECIFICATIONS

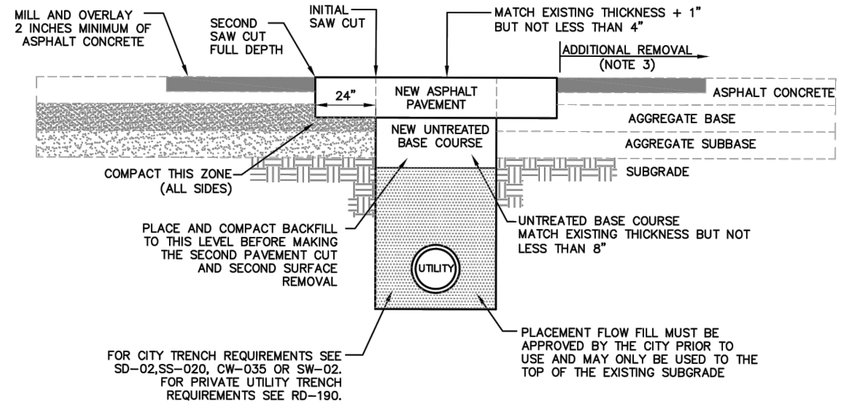
3. COMPACTION OF BACKFILL MATERIALS SHALL COMPLY WITH APWA 31 23 26. SUBMISSION OF QUALITY ASSURANCE TEST DATA MAY BE REQUESTED BY ENGINEER AT ANY TIME. CONTRACTOR IS TO PROVIDE RESULTS OF TESTS IMMEDIATELY UPON REQUEST.
4. INSTALLATION OF PIPE: INSTALL PIPE PER APWA 33 31 00 "SANITARY SEWERAGE SYSTEMS". INSTALL PIPE ON STABLE FOUNDATION WITH UNIFORM BEARING.
5. PAVEMENT RESTORATION: DO NOT INSTALL PAVEMENT OR ROAD BASE SECTION UNTIL TRENCH COMPACTION IS ACCEPTED BY ENGINEER.

DRAWING UPDATED JANUARY 2020 — City of West Jordan, Utah

SEWER PIPE TRENCH

PLAN SS-20

ASPHALT TRENCH RESTORATION



ASPHALT TRENCH RESTORATION CONSTRUCTION NOTES

1. ENCROACHMENT PERMIT: ALL WORK INSIDE WEST JORDAN RIGHT OF WAY REQUIRES AN APPROVED ENCROACHMENT PERMIT. COPY OF PERMIT SHALL BE HELD ON-SITE.
2. INSPECTION REQUIREMENTS: CITY MUST BE NOTIFIED FOR THE FOLLOWING INSPECTION APPOINTMENTS 48 HOURS IN ADVANCE:
   A. NOSE-ON OR TAP.
   B. BACKFILL AND COMPACTION.
   C. ROAD BASE COMPACTION.
   D. PREPARATION OF SURFACE FOR ASPHALT.
   E. ASPHALT PLACEMENT AND COMPACTION.

   SURFACE RESTORATION SHALL BE DONE WITHIN 48 HOURS OF EXCAVATION. UNLESS OTHERWISE APPROVED BY THE CITY. TRAFFIC SHALL NOT BE PLACED ON UNTREATED BASE UNLESS APPROVED BY THE CITY. CONTRACTOR SHALL COVER ALL UNATTENDED EXCAVATIONS WITH STEEL PLATES.

   CONTRACTOR SHALL PROVIDE THE CITY WITH A COPY OF THE DENSITY TESTING RESULTS PRIOR TO ASPHALT PLACEMENT.
3. ADDITIONAL PAVEMENT REMOVAL:
   A. PARALLEL TRENCH : COLLECTOR OR ARTERIAL STREETS – REMOVE ADDITIONAL PAVEMENT TO A PAINTED LANE STRIPE, A LIP OF GUTTER OR AN EDGE OF THE PAVEMENT. RESIDENTIAL STREETS – REMOVE ADDITIONAL PAVEMENT FROM THE LIP OF GUTTER TO THE CENTER OF THE STREET. THE CITY RESERVES THE RIGHT TO REQUIRE ADDITIONAL PAVEMENT RESTORATION IF DEEMED APPROPRIATE TO RESTORE THE ROADWAY TO THE ORIGINAL CONDITION.
   B. PERPENDICULAR TRENCH: REPAIR TRENCH AS DESCRIBED IN THE STANDARD PLAN. MILL AND OVERLAY PAVEMENT 10 FEET EACH WAY FROM THE EDGE OF THE SECOND SAW CUT. CONTRACTOR SHALL COMBINE MULTIPLE TRENCH CUTS INTO ONE RESTORATION PATCH. THE CITY RESERVES THE RIGHT TO REQUIRE ADDITIONAL PAVEMENT RESTORATION GREATER THAN 10 FEET IF DEEMED APPROPRIATE TO RESTORE THE ROADWAY TO THE ORIGINAL CONDITION.
4. NEW UNTREATED BASE COURSE: PROVIDE AGGREGATE CLASS "A" UNTREATED BASE COURSE MATERIAL SPECIFIED IN APWA SECTION 32 11 23. DO NOT USE GRAVEL OR SEWER ROCK. PLACE NEW MATERIAL PER APWA 32 05 10. COMPACT PER APWA SECTION 31 23 26 TO A MODIFIED PROCTOR DENSITY OF 95 PERCENT IN LIFTS NOT EXCEEDING 6 INCHES THICK AFTER COMPACTION.
5. TACK COAT: PLACE AS SPECIFIED IN APWA SECTION 32 12 13.13. PROVIDE FULL TACK COAT COVERAGE ON ALL VERTICAL SURFACES.
6. ASPHALT PAVEMENT: USE PG-64-34 DM 1/2 HOT MIX ASPHALT CONCRETE AS SPECIFIED IN APWA SECTION 33 12 05. RAP SHALL BE NO MORE THAN 15 PERCENT OF THE MIX. INSTALL PER APWA SECTION 32 12 16.13 IN MAXIMUM 3 INCH LIFTS. COMPACT TO 94 PERCENT OF ASTM D2041 (RICE METHOD) PLUS OR MINUS TWO PERCENT. ASPHALT PLACED AFTER APRIL 15 AND PRIOR TO MARCH 1 WILL BE CONSIDERED TEMPORARY AND MUST BE REPLACED AFTER MARCH 1.
7. PATCH REPAIRS: REPAIR THE FOLLOWING CONDITIONS DURING THE CORRECTION PERIOD.
   A. PAVEMENT SURFACE DISTORTION EXCEEDS 1/4 INCH DEVIATION IN 10 FEET. REPAIR OPTION: PLANE OFF SURFACE DISTORTIONS. COAT WITH AN EMULSION THAT COMPLIES WITH APWA 32 12 03 AND PROVIDE SAND BLOTTER.
   B. CRACKS 1/4 WIDE AND 1 FOOT LONG OCCUR MORE OFTEN THAN 1 IN 10 SQUARE FEET. REPAIR OPTION: CRACK SEAL PER APWA 32 01 17.
   C. ASPHALT RAVELING IS GREATER THAN 1 SQUARE FOOT IN 10 SQUARE FEET. REPAIR OPTION: MILL AND INLAY.

DRAWING UPDATED JUNE, 2019 — City of West Jordan, Utah

STANDARD TRENCH EXCAVATION RESTORATION

PLAN RD175

FILE NAME: PROJECTS\089 - WEST JORDAN\29.100 - WELL NO. 8 PUMP BUILDING\CAD\C-13 PIPE TRENCH DETAILS SHEET 4.DWG
FILE DATE: 4.4.2024 16:58:03 (DCL)

HANSEN ALLEN & LUCE inc ENGINEERS

LICENSED PROFESSIONAL ENGINEER — Delmas W. Johnson — 4-19-24 — STATE OF UTAH — PROJECT ENGINEER

DESIGNED	MGA	3			
DRAFTED	DCL & BKC	2			
CHECKED	MEA	1			
DATE	APRIL 2024	NO.	DATE	REVISIONS	BY / APVD.

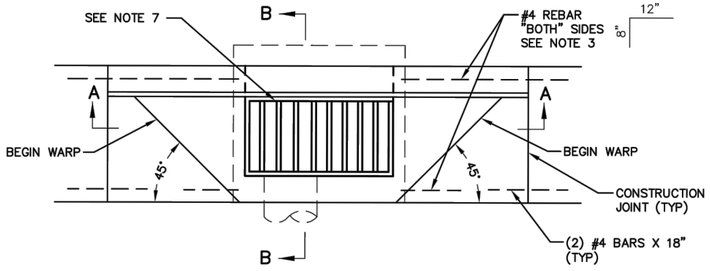
SCALE: NOT TO SCALE

WEST JORDAN UTAH

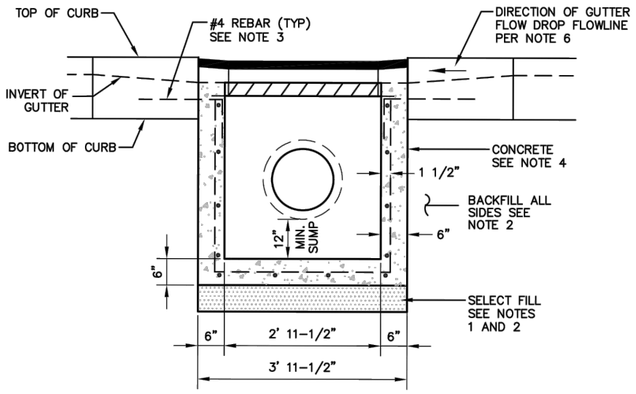
WELL NUMBER 8 PUMP BUILDING
CIVIL
CITY STANDARD DETAILS SHEET 4

SHEET C-13
089.29.100

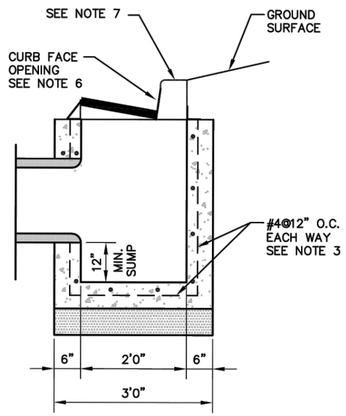
7/04



TYPE A – CURB INLET WITH SINGLE GRATE



SECTION A–A



SECTION B–B

1. SELECT FILL:
   USE UNTREATED BASE COARSE GRADE 1 OR GRADE 3/4 PER APWA SECTION 32 11 23. USE OF SEWER ROCK OR RECYCLED AGGREGATE REQUIRES ENGINEER'S WRITTEN APPROVAL.
2. BACKFILL:
   INSTALL AND COMPACT ALL BACKFILL MATERIAL PER APWA SECTION 31 23 23.
3. REINFORCEMENT:
   USE ASTM A 615, GRADE 60, DEFORMED STEEL REBAR PER APWA SECTION 03 20 00.
4. CONCRETE:
   CLASS 4,000 PER APWA SECTION 03 30 04. PLACE PER APWA SECTION 03 30 10. APPLY SEALING/CURING COMPOUND PER APWA SECTION 03 39 00.
5. PIPE LATERALS:
   THE DRAWING SHOWS ALTERNATE CONNECTIONS TO THE INLET BOX. REFER TO CONSTRUCTION DRAWINGS FOR CONNECTION LOCATIONS.
6. CURB FACE OPENING:
   MAKE OPENING 4 INCHES HIGH. PROVIDE AT LEAST A 2 INCH DROP FROM THE GUTTER FLOWLINE TO THE INVERT OF THE CURB FACE OPENING.
7. D&L SUPPLY I–3517 FOR <2% GRADE, TO BE STAMPED "DUMP NO WASTE DRAINS TO WATERWAY" D&L SUPPLY I–3518 >2% GRADE, TO BE STAMPED "DUMP NO WASTE DRAINS TO WATERWAY". EQUIVALENT ONLY BY WRITTEN APPROVAL FROM CITY ENGINEER.

DRAWING UPDATED JANUARY 2020

City of West Jordan, Utah

CURB INLET WITH SINGLE GRATE

PLAN SD-10

DESIGNED	MGA	3					
DRAFTED	DCL & BKC	2					
CHECKED	MEA	1					
DATE	APRIL 2024	NO.	DATE	REVISIONS		BY	APVD.

HANSEN ALLEN & LUCE inc ENGINEERS

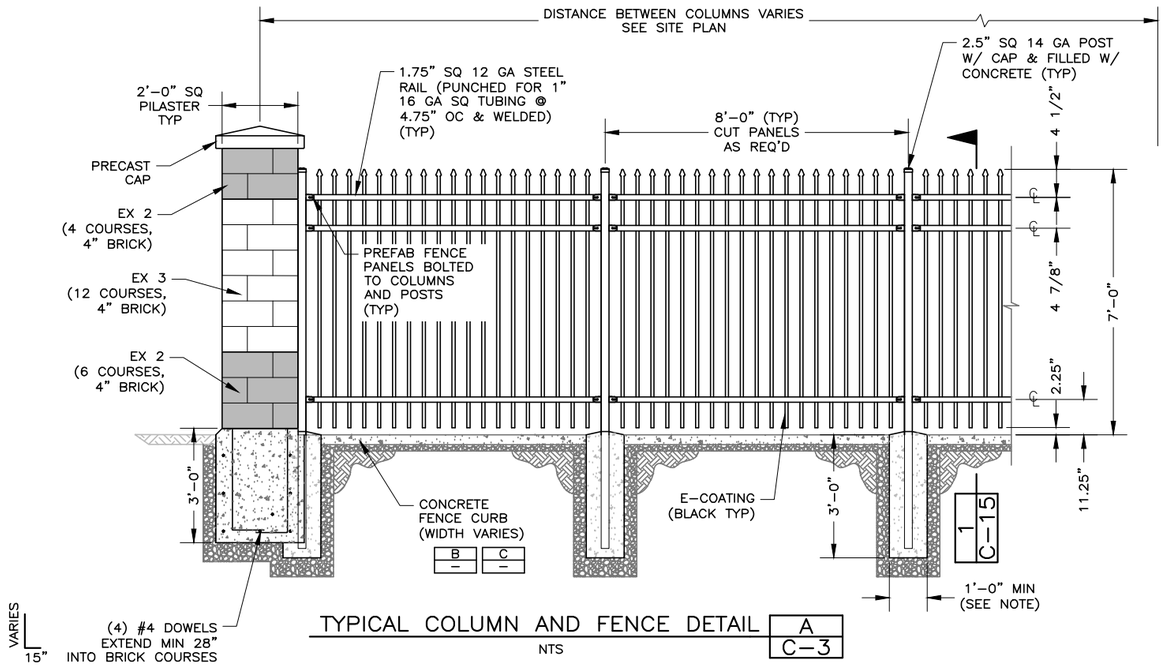
SCALE: NOT TO SCALE

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
CIVIL
CITY STANDARD DETAILS SHEET 5

SHEET C–13A

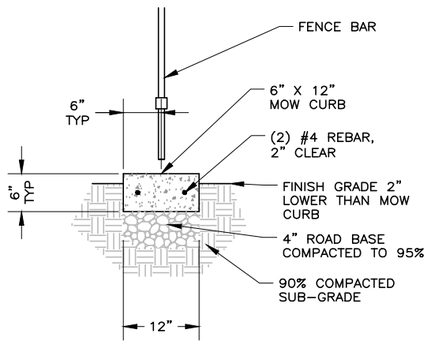
089.29.100



TYPICAL COLUMN AND FENCE DETAIL — A / C-3

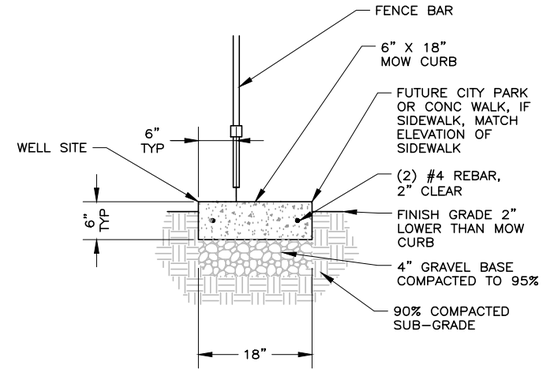
NTS

NOTE:
SONA-TUBES OR FORMWORK SHALL BE USED FOR SUBGRADE BASES FOR POSTS AND PILASTERS.



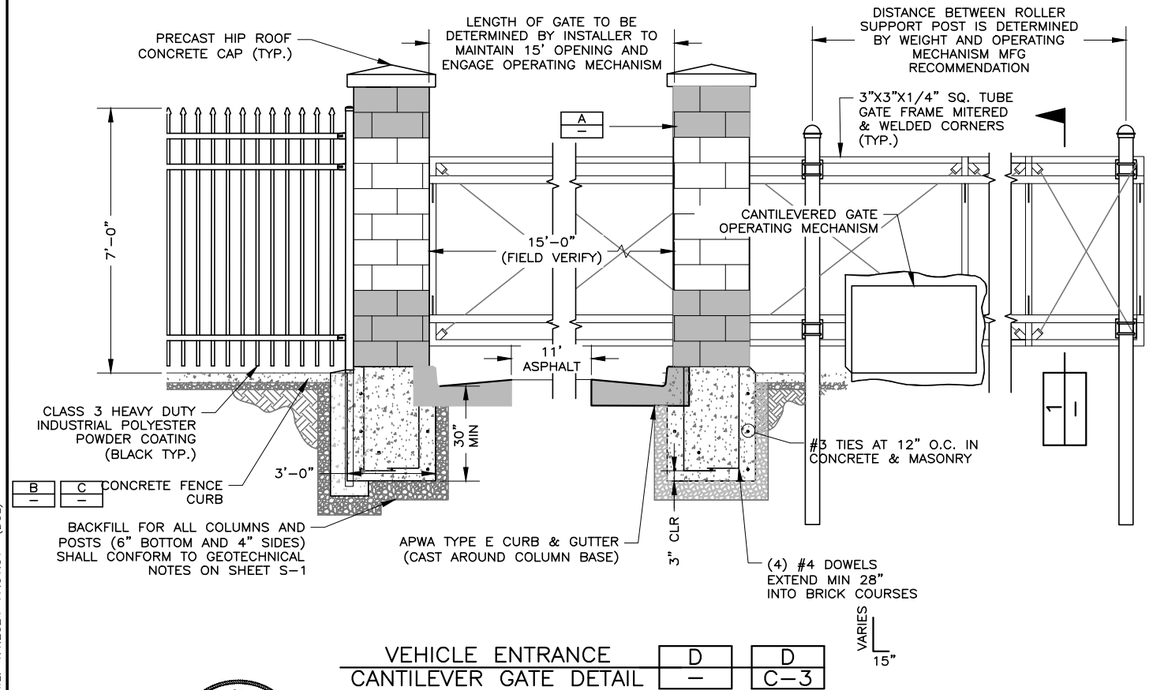
CONCRETE FENCE CURB DETAIL — B / C-3

NTS

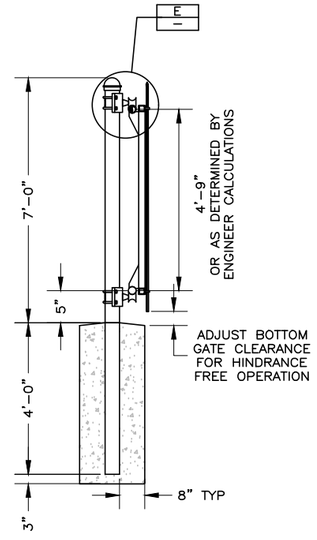


CONCRETE FENCE CURB DETAIL — C / C-3

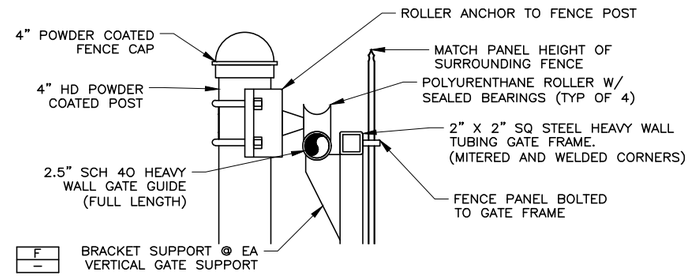
NTS



VEHICLE ENTRANCE CANTILEVER GATE DETAIL — D / –, D / C-3



SECTION — 1 / –



POST AND ROLLER DETAIL — E / –

NTS

NOTE:
POST AND ROLLER TO BE PROVIDED BY AMERISTAR.

FILE NAME: PROJECTS\089 - WEST JORDAN\29.100 - WELL NO. 8 PUMP BUILDING\CAD\C-14 FENCING DETAILS.DWG
FILE DATE: 4.4.2024 17:01:01 (DCL)

HANSEN ALLEN & LUCE INC ENGINEERS

LICENSED PROFESSIONAL ENGINEER — 260247 — Delmas W. Johnson — 4-19-24 — STATE OF UTAH
PROJECT ENGINEER

DESIGNED	MGA	3			
DRAFTED	DCL & BKC	2			
CHECKED	MEA	1			
DATE	APRIL 2024	NO.	DATE	REVISIONS	BY / APVD.

SCALE: NOT TO SCALE

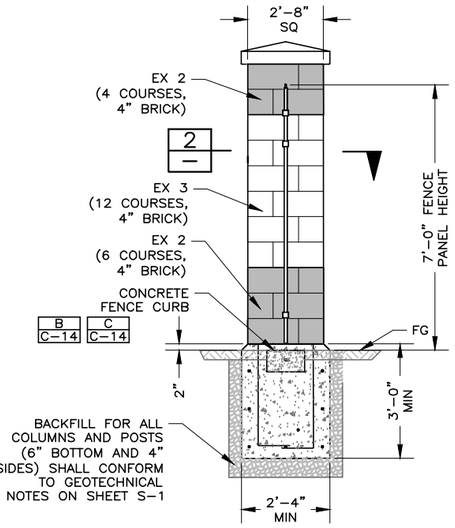
WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
CIVIL
FENCING DETAILS

SHEET C-14

089.29.100

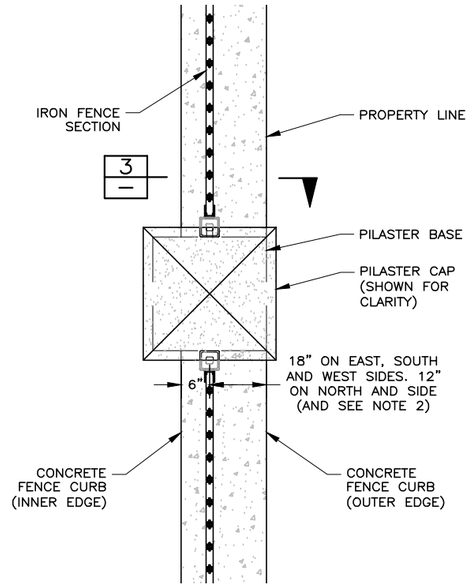
7/04



BRICK COLUMN SECTION 1 / C-14

NTS

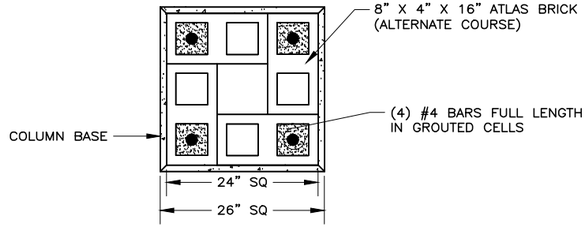
NOTE:
1. SONA-TUBES OR FORMWORK SHALL BE USED FOR SUBGRADE BASES FOR POSTS AND PILASTERS.
2. B OR C ON C-12 DEPENDING ON LOCATION.



CONCRETE FENCE CURB PLAN VIEW SECTION 2 / —

NTS

NOTE:
1. ALIGN OUTER EDGE OF CONCRETE FENCE CURB WITH OUTER EDGE OF PILASTER BASE ALONG PROPERTY LINE (WEST, EAST, AND SOUTH SIDES).
2. ON NORTH SIDE: IF ANY GAP REMAINS BETWEEN FENCE AND SIDEWALK, PLACE CONCRETE SIDEWALK IN THIS SPACE. PLACE EXPANSION JOINT MATERIAL BETWEEN CURB OR FENCE (NORTH AND WEST SIDES).



TYPICAL COLUMN SECTION 3 / —

NTS

FILE NAME: PROJECTS\089 - WEST JORDAN\29.100 - WELL NO. 8 PUMP BUILDING\CAD\C-15 FENCING SECTIONS.DWG
FILE DATE: 4.4.2024 17:02:22 (DCL)

7/04

HANSEN ALLEN & LUCE INC ENGINEERS

LICENSED PROFESSIONAL ENGINEER — Delmas W. Johnson — 4-19-24 — STATE OF UTAH

PROJECT ENGINEER

DESIGNED	MGA	3				
DRAFTED	DCL & BKC	2				
CHECKED	MEA	1				
DATE	APRIL 2024	NO.	DATE	REVISIONS	BY	APVD.

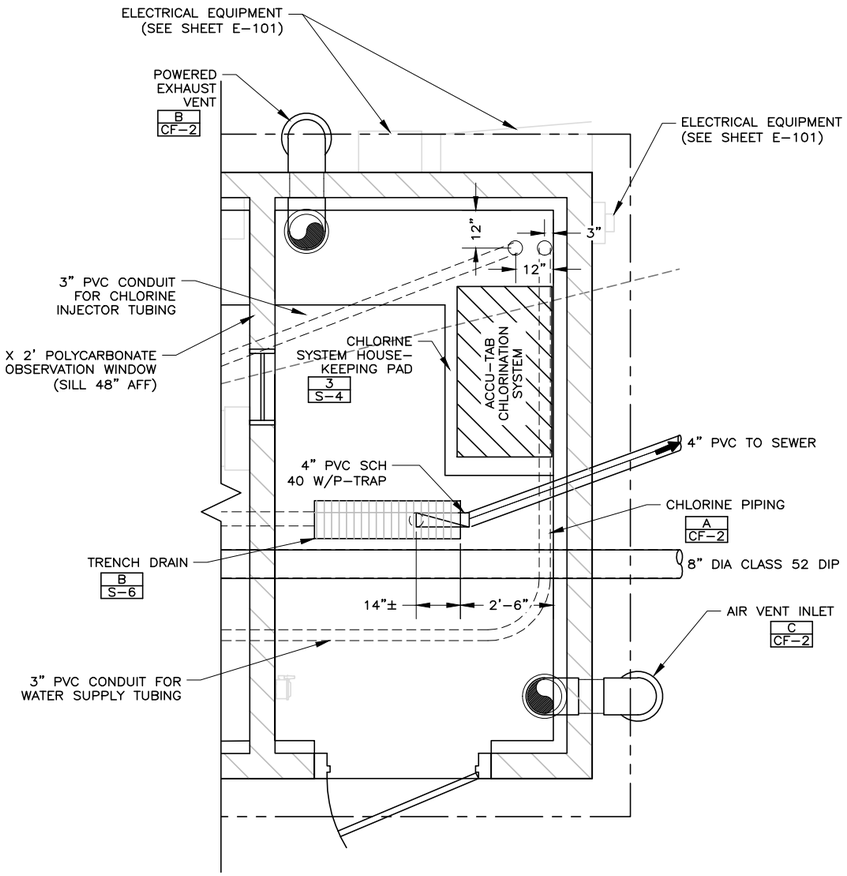
SCALE: NOT TO SCALE

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
CIVIL
FENCING SECTIONS

SHEET C-15

089.29.100



CHLORINE ROOM PLAN

N

0 1 2
SCALE IN FEET

FILE NAME: PROJECTS\089 – WEST JORDAN\29.100 – WELL NO. 8 PUMP BUILDING\CAD\CF–1 CHLORINE ROOM PLAN.DWG
FILE DATE: 4.4.2024 17:04:53 (DCL)

7/04

HANSEN ALLEN & LUCE inc ENGINEERS

LICENSED PROFESSIONAL ENGINEER
Delmas W. Johnson
4-19-24
STATE OF UTAH
PROJECT ENGINEER

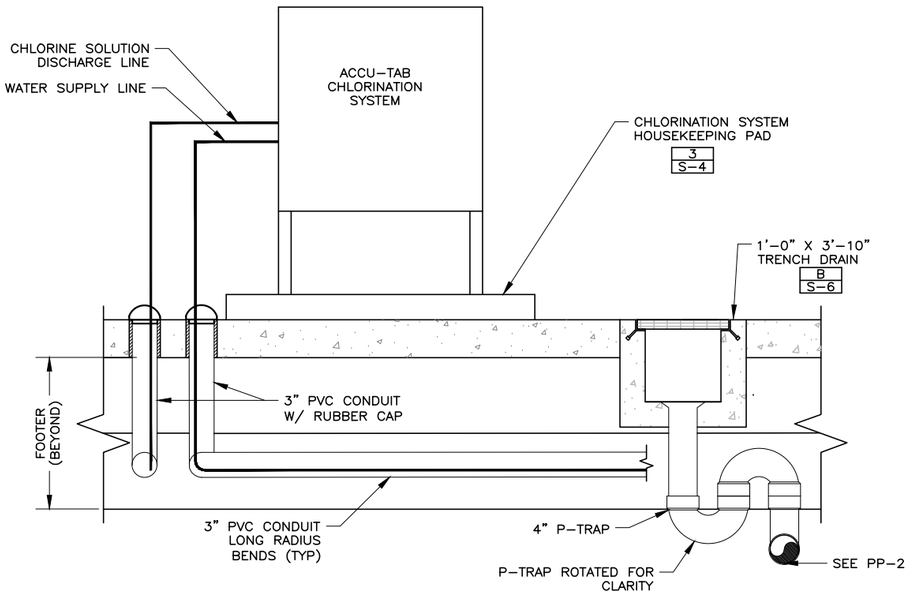
DESIGNED	MGA	3				
DRAFTED	BKC	2				
CHECKED	MEA	1				
DATE	APRIL 2024	NO.	DATE	REVISIONS	BY	APVD.

SCALE
AS SHOWN

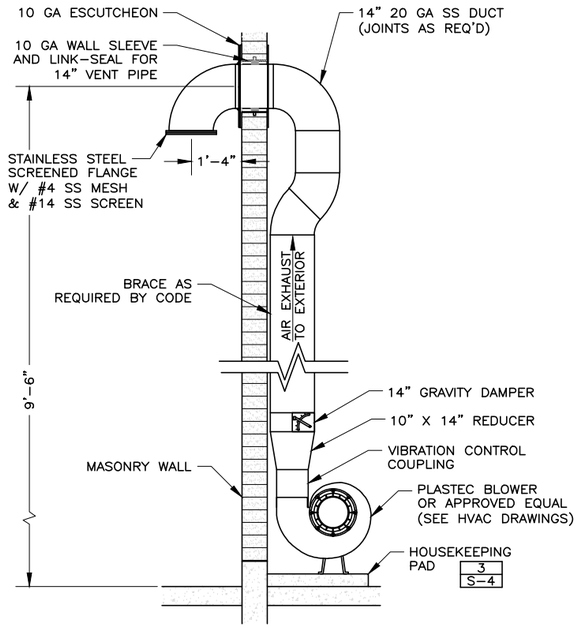
WEST JORDAN
UTAH

WELL NUMBER 8 PUMP BUILDING
CIVIL
CHLORINE ROOM PLAN

SHEET
CF–1
089.29.100

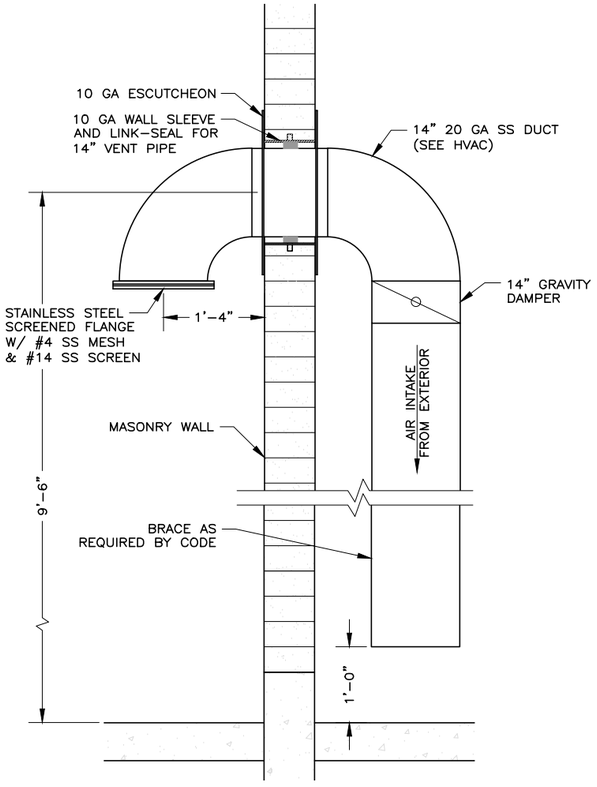


TABLET CHLORINATOR DETAIL A / CF–1



NOTE: EXHAUST AND INLET VENT SHALL BE MADE FROM STAINLESS STEEL DUCT.

EXHAUST FAN DETAIL (NTS) B / A–1 | B / C–4 | B / CF–1



INTAKE VENT DETAIL (NTS) C / A–1 | C / C–4 | C / CF–1

FILE NAME: PROJECTS\089 - WEST JORDAN\29.100 - WELL NO. 8 PUMP BUILDING\CAD\CF-2 CHLORINE ROOM DETAILS.DWG
FILE DATE: 4.4.2024 17:05:59 (DCL)

7/04

HANSEN ALLEN & LUCE INC ENGINEERS

LICENSED PROFESSIONAL ENGINEER — Delmar W. Johnson — 4-19-24 — STATE OF UTAH
PROJECT ENGINEER

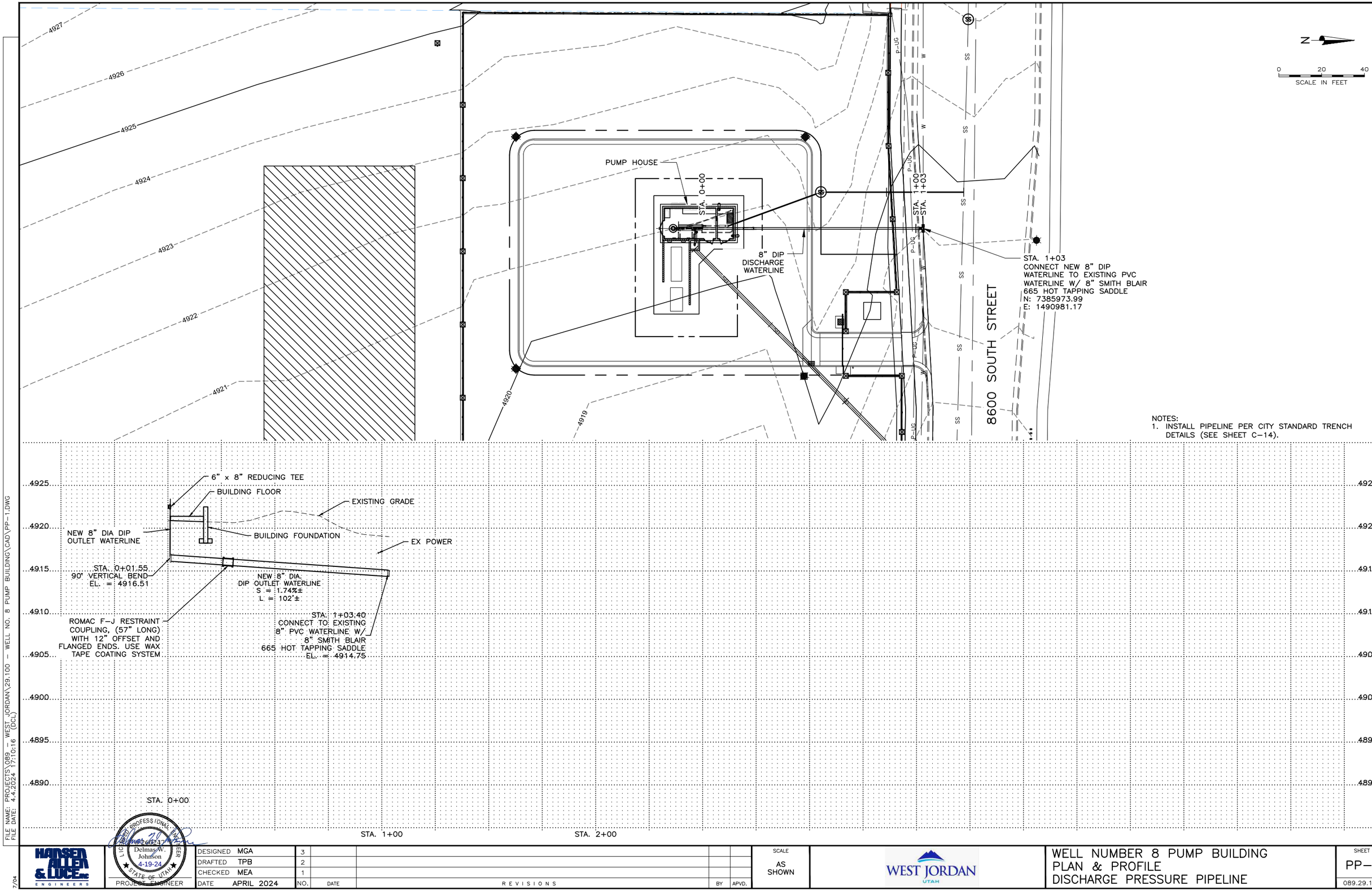
DESIGNED	MGA	3			
DRAFTED	BKC & DCL	2			
CHECKED	MEA	1			
DATE	APRIL 2024	NO.	DATE	REVISIONS	BY / APVD.

SCALE: AS SHOWN

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
CIVIL
CHLORINE ROOM DETAILS

SHEET CF–2
089.29.100



NOTES:
1. INSTALL PIPELINE PER CITY STANDARD TRENCH DETAILS (SEE SHEET C-14).

FILE NAME: PROJECTS\089 - WEST JORDAN\29.100 - WELL NO. 8 PUMP BUILDING\CAD\PP-1.DWG
FILE DATE: 4.4.2024 17:10:16 (DCL)

7/04

HANSEN ALLEN & LUCE, INC. ENGINEERS

LICENSED PROFESSIONAL ENGINEER
Delmas W. Johnson
4-19-24
STATE OF UTAH
PROJECT ENGINEER

DESIGNED	MGA	3			
DRAFTED	TPB	2			
CHECKED	MEA	1			
DATE	APRIL 2024	NO.	DATE	REVISIONS	BY APVD.

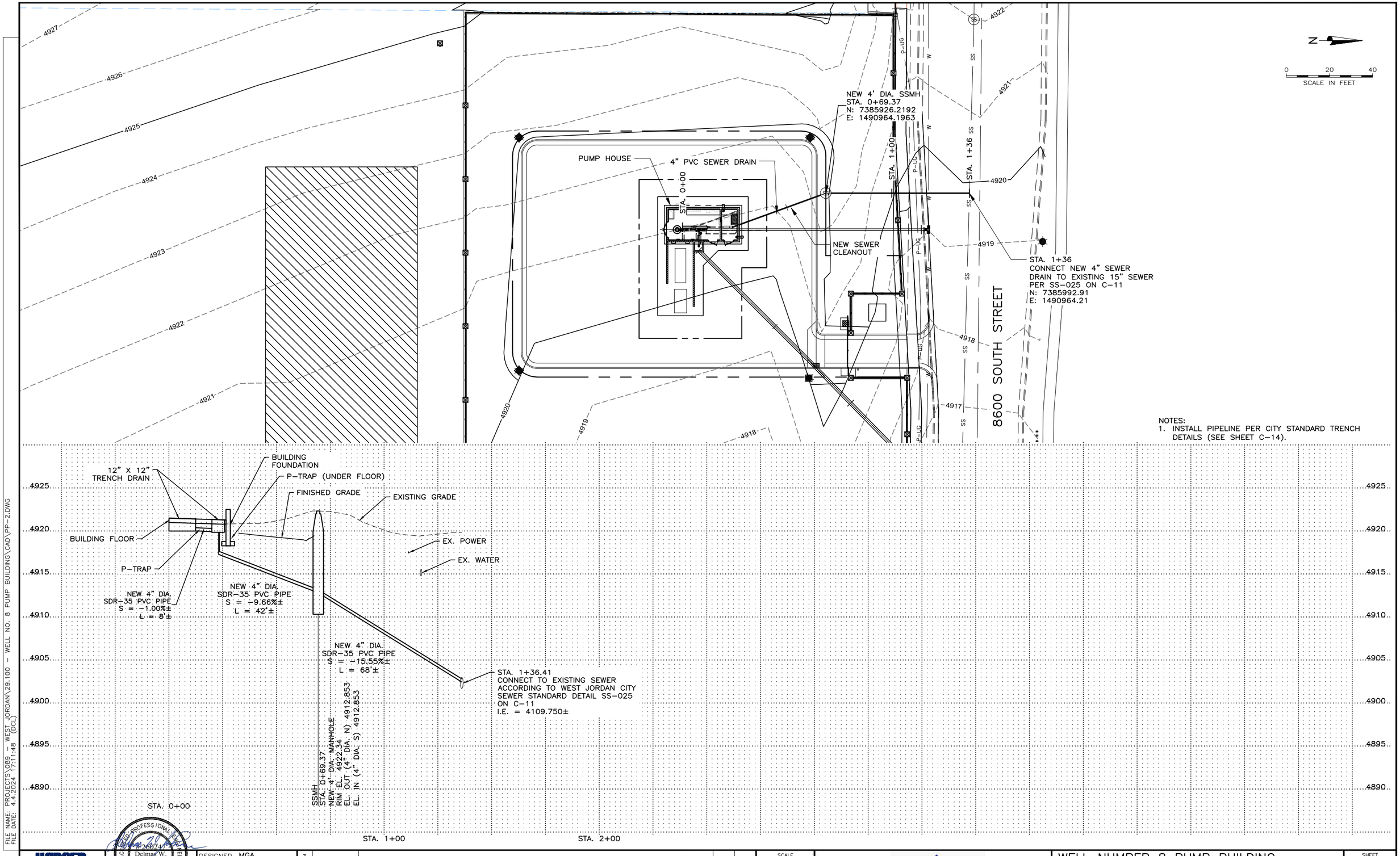
SCALE: AS SHOWN

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING PLAN & PROFILE DISCHARGE PRESSURE PIPELINE

SHEET: PP-1

089.29.100



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FILE DATE: 4.4.2024 17:11:48 (DCL)

7/04

HANSEN ALLEN & LUCE, INC. ENGINEERS

LICENSED PROFESSIONAL ENGINEER
Delmas W. Johnson
4-19-24
STATE OF UTAH
PROJECT ENGINEER

DESIGNED MGA
DRAFTED TPB
CHECKED MEA
DATE APRIL 2024

NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1				

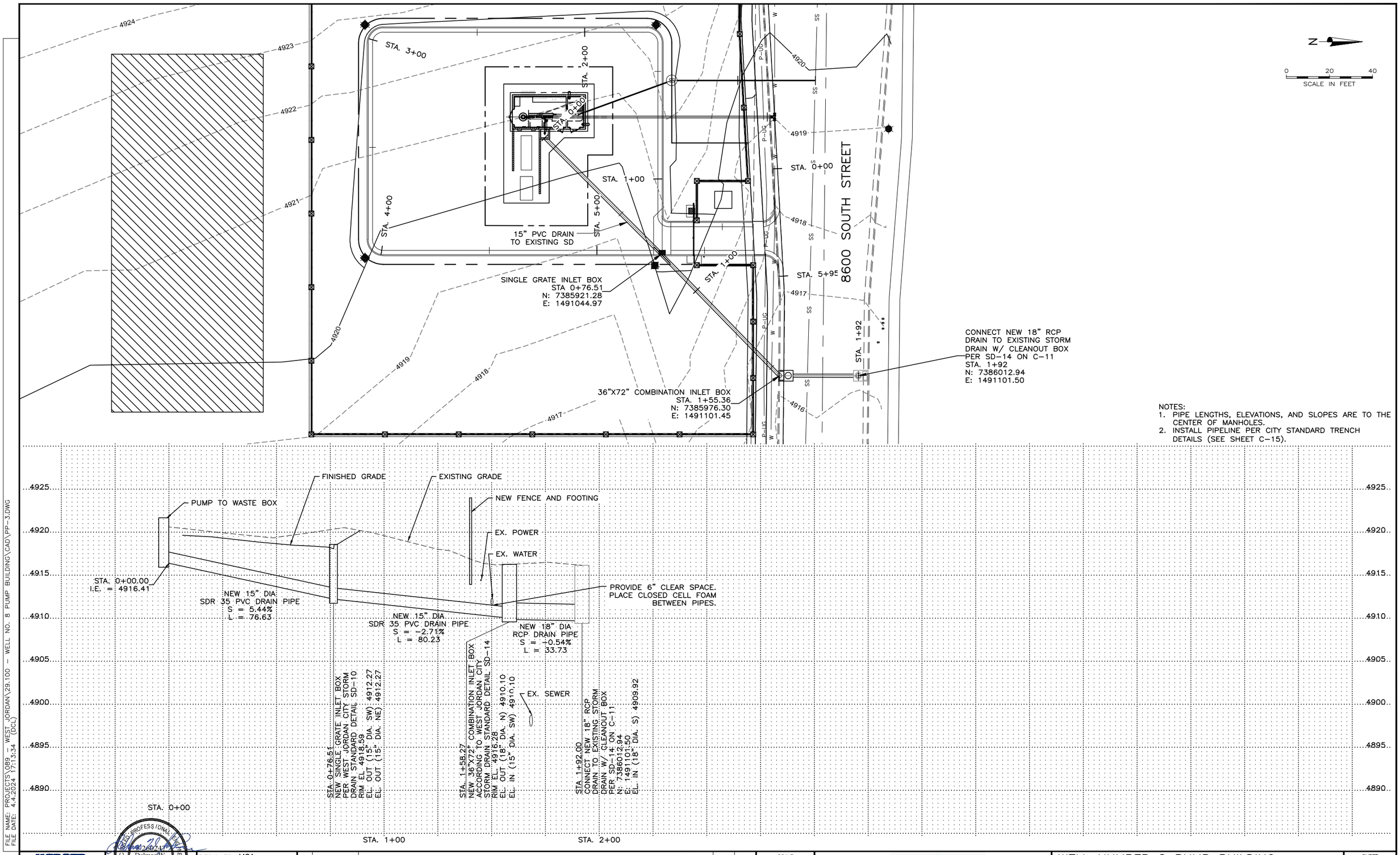
SCALE AS SHOWN

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING PLAN & PROFILE DRAIN TO SEWER GRAVITY LINE

SHEET PP-2

089.29.100



NOTES:
1. PIPE LENGTHS, ELEVATIONS, AND SLOPES ARE TO THE CENTER OF MANHOLES.
2. INSTALL PIPELINE PER CITY STANDARD TRENCH DETAILS (SEE SHEET C-15).

FILE NAME: PROJECTS\089 - WEST JORDAN\29.100 - WELL NO. 8 PUMP BUILDING\CAD\PP-3.DWG
FILE DATE: 4.4.2024 17:13:34 (DCL)

HANSEN ALLEN & LUCE, INC. ENGINEERS

LICENSED PROFESSIONAL ENGINEER
Delmas W. Johnson
4-19-24
STATE OF UTAH
PROJECT ENGINEER

DESIGNED	MGA
DRAFTED	TPB
CHECKED	MEA
DATE	APRIL 2024

NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1				

SCALE: AS SHOWN

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
PLAN & PROFILE
PUMP TO WASTE GRAVITY PIPELINE

SHEET: PP-3
089.29.100

7/04

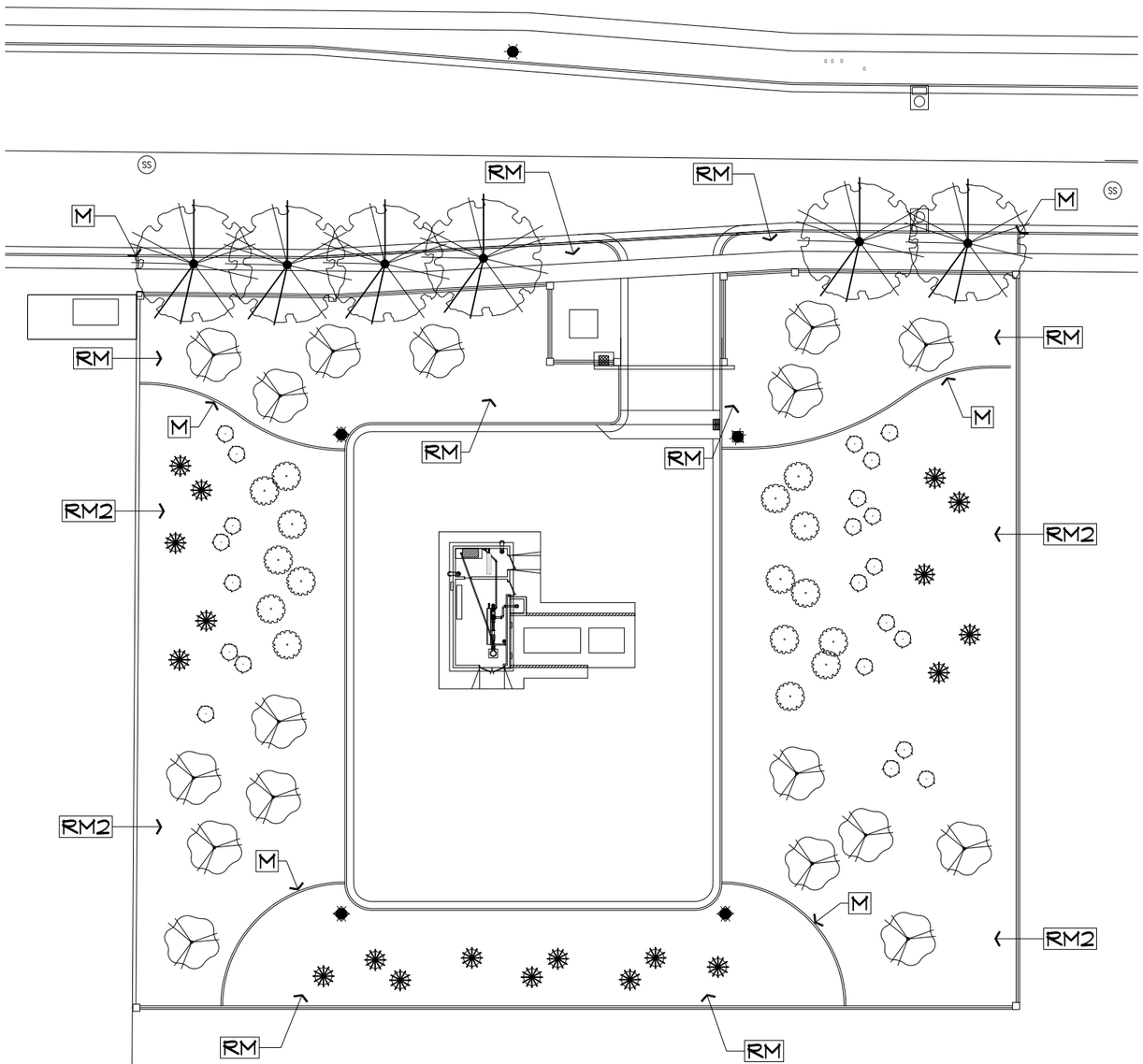
E. A. Lyman
Landscape Architecture
Land Planning
Urban Design

8188 South Highland Dr. - Suite D7
Sandy, Utah 84093
Telephone: 801.943.6564
E-mail: eric@ealyman.com

PLANT_SCHEDULE

TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
	17	Acer glabrum	Rocky Mountain Maple	25 gal.	25 Gal. Multi-Trunk
	6	Acer miyabei `State Street`	Miyabei Maple	2" Cal.	B&B
EVERGREEN TREES	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**	**CONTAINER**
	19	Juniperus scopulorum `Gray Gleam`	Gray Gleam Juniper	5` Ht.	B&B
SHRUBS	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**	**CONTAINER**
	22	Amelanchier alnifolia `Regent`	Saskatoon Serviceberry	Container	5 gal
	16	Rhus trilobata `Autumn Amber`	Autumn Amber Sumac	5 gal.	Container

MISC	
M	6"WX6"D Cast-in-place Concrete Mowstrip
RM	Install 3" depth 3/4" - 1 1/4" washed Southtown Cobble (Utah Landscape Products) OR 3" depth 3/4" - 1 1/4" washed Nebo Cobble (Staker Parson) . Install over DeWitt Pro-5 Weed Barrier.
RM2	Install 3" depth 1 1/2" washed Island Storm (Bolinder Resources). Install over DeWitt Pro-5 Weed Barrier.
NOTES:	1. See details and specifications for additional information.



30' 0' 15' 30' 60' 120'

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

DESIGNED	EAL	3			
DRAFTED		2			
CHECKED	EAL	1			
DATE	JAN. 2017	NO.	DATE	REVISIONS	BY APVD.

SCALE

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
LANDSCAPE PLAN

SHEET L1.1
089.29.100

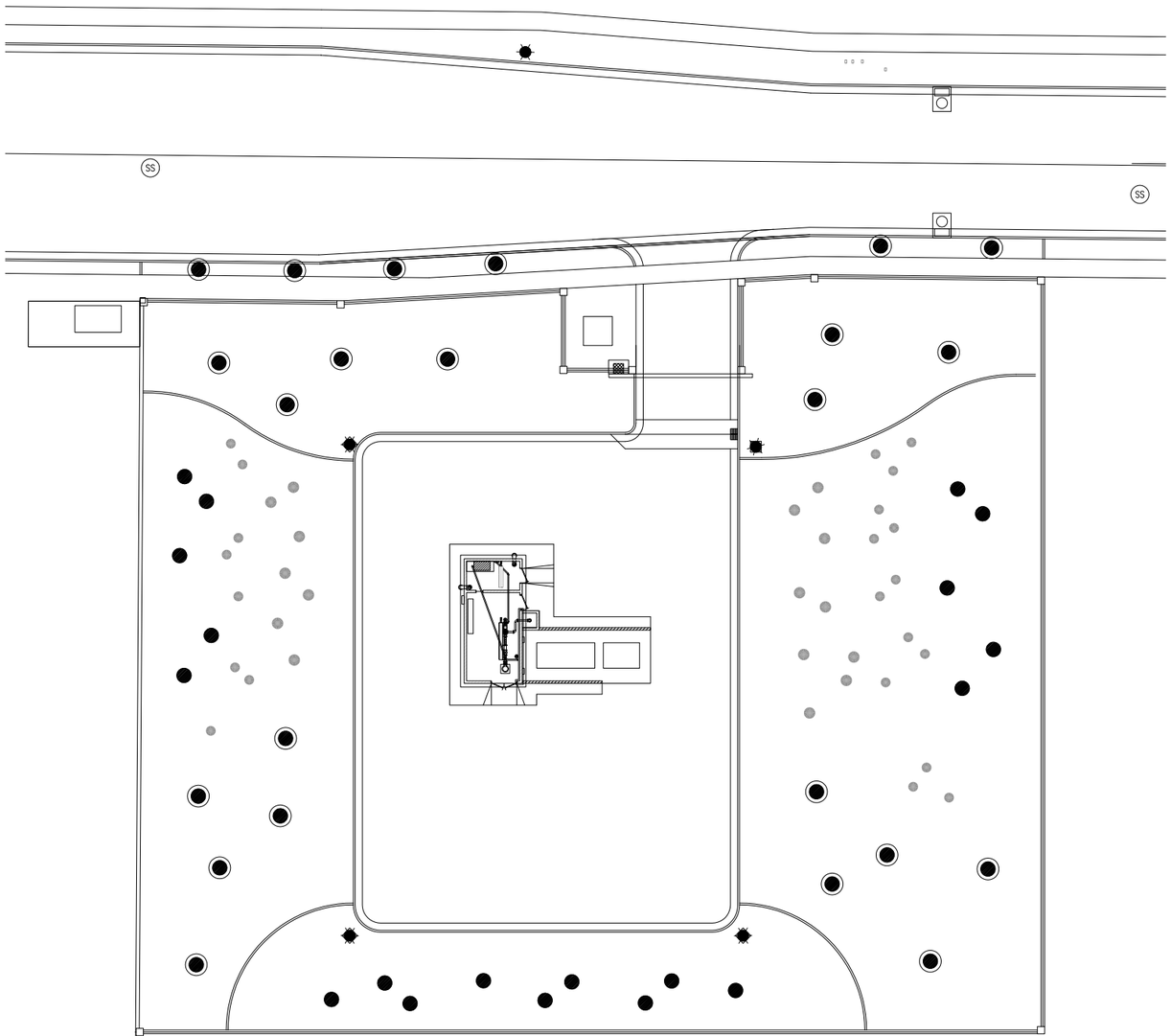
10/07

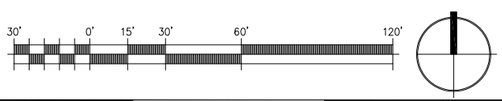
E. A. Lyman
Landscape Architecture
Land Planning
Urban Design

8188 South Highland Dr. - Suite D7
Sandy, Utah 84093
Telephone: 801.943.6564
E-mail: eric@ealyman.com

IRRIGATION NARRATIVE
PREPARED BY E. A. LYMAN, LANDSCAPE ARCHITECT

1 A single 1 1/2" Point of Connection will be made to the Drinking Water Mainline. A stop and waste valve, backflow preventer and hydrometer will be installed at the point of connection.
2 Point source drip will be installed in the shrub beds. In-line drip tree rings will be used around the trees.
3 Trees and shrub beds will be set up on different valves.
4 All PVC pipe and fittings will be sch 40 with sch 80 fittings being used at the mainline.
5 After the point of connection install an isolation valve.
6 PVC lateral linesPipe will be 1"
7 Point source drip will be installed with a single emitter to each shrub.
8 Inline drip tubing with 2 rings around each deciduous tree and 1 ring around each juniper
9 Drip zone valves to include a filter and pressure reducing valve.
10 Install drain valve at low point of all drip zones
11 Use a Schedule 40 isolation ball valve at each valve manifold.
12 Use wall mount controller inside of building in a utility room.
13 Use a smart controller that utilizes local historic or actual weather reports.
14 All valves to be 1" size plastic commercial grade.
15 All wire connection to the valves to be made using 3M DBY waterproof wire connectors.
16 Only 1 valve per standard size valve box.





FILE NAME:
FILE DATE:

10/07

HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

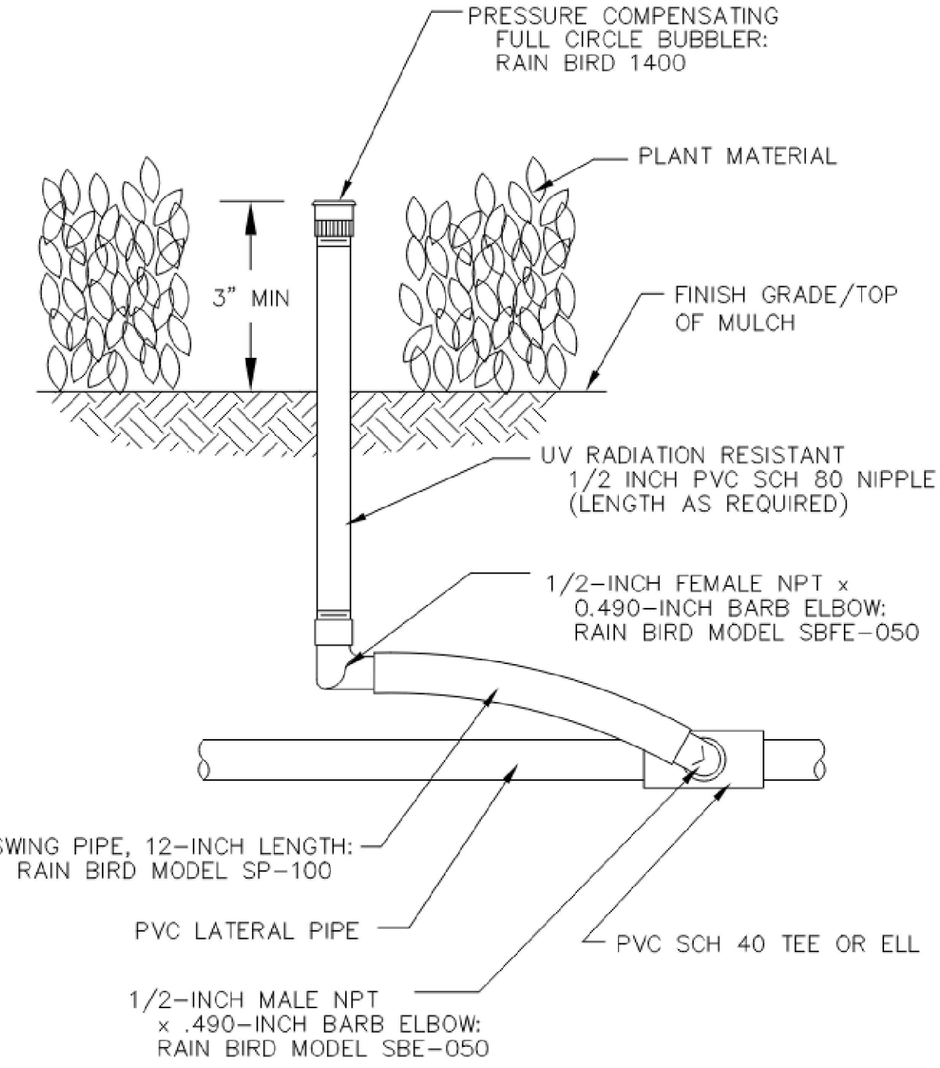
DESIGNED EAL	3				
DRAFTED	2				
CHECKED EAL	1				
DATE JAN. 2017	NO.	DATE	REVISIONS	BY	APVD.

SCALE

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
IRRIGATION PLAN

SHEET L2.1
089.29.100

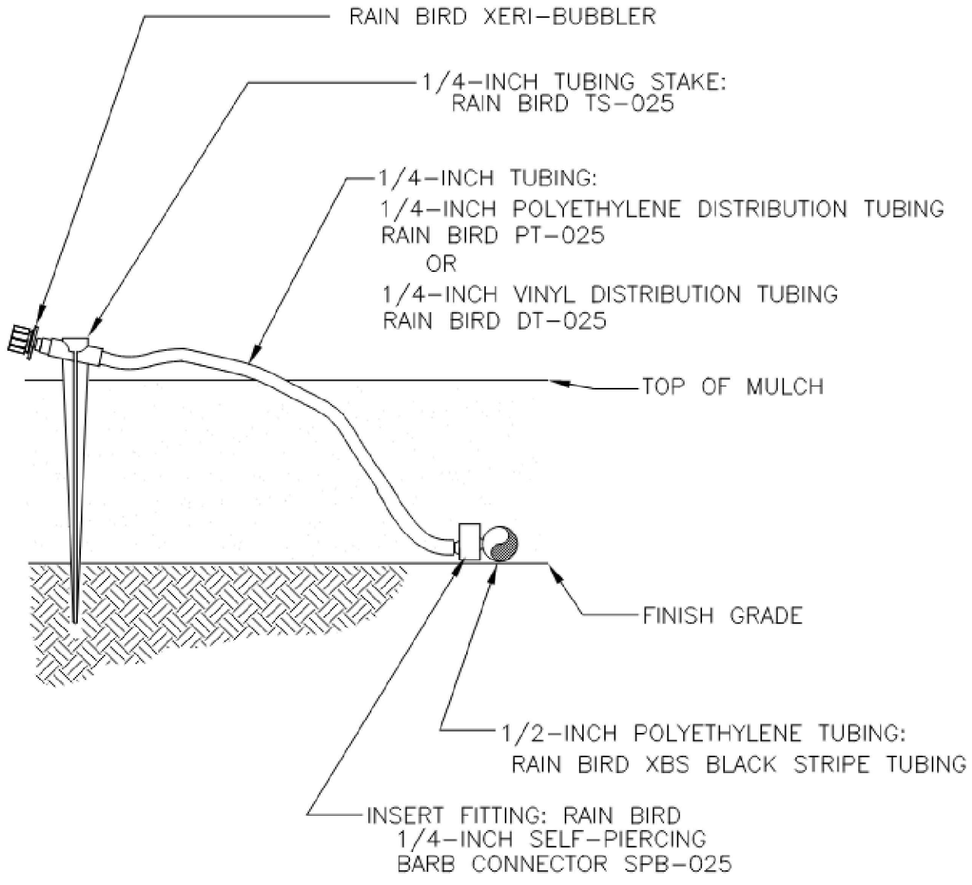


DRAWING DATE MARCH 25, 2009

City of West Jordan, Utah

PRESSURE COMPENSATING FULL-CIRCLE BUBBLER

PLAN PK-085



NOTE:

USE XERIMAN TOOL XM-TOOL TO INSERT CONNECTOR DIRECTLY INTO 1/2-INCH POLYETHYLENE TUBING.

DRAWING DATE MARCH 25, 2009

City of West Jordan, Utah

XERI-BUBBLER ON 1/4" TUBING

PLAN PK-090

FILE NAME: PROJECTS\089_-_WEST JORDAN\29.100 - WELL NO. 8 PUMP BUILDING\CAD\L5.1 IRRIGATION DETAILS.DWG
FILE DATE: 3/29/2024 20:47:27 (DCL)

HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

DESIGNED	MGA	3			
DRAFTED	BKC	2			
CHECKED	MEA	1			
DATE	APRIL 2024	NO.	DATE	REVISIONS	BY APVD.

SCALE NOT TO SCALE

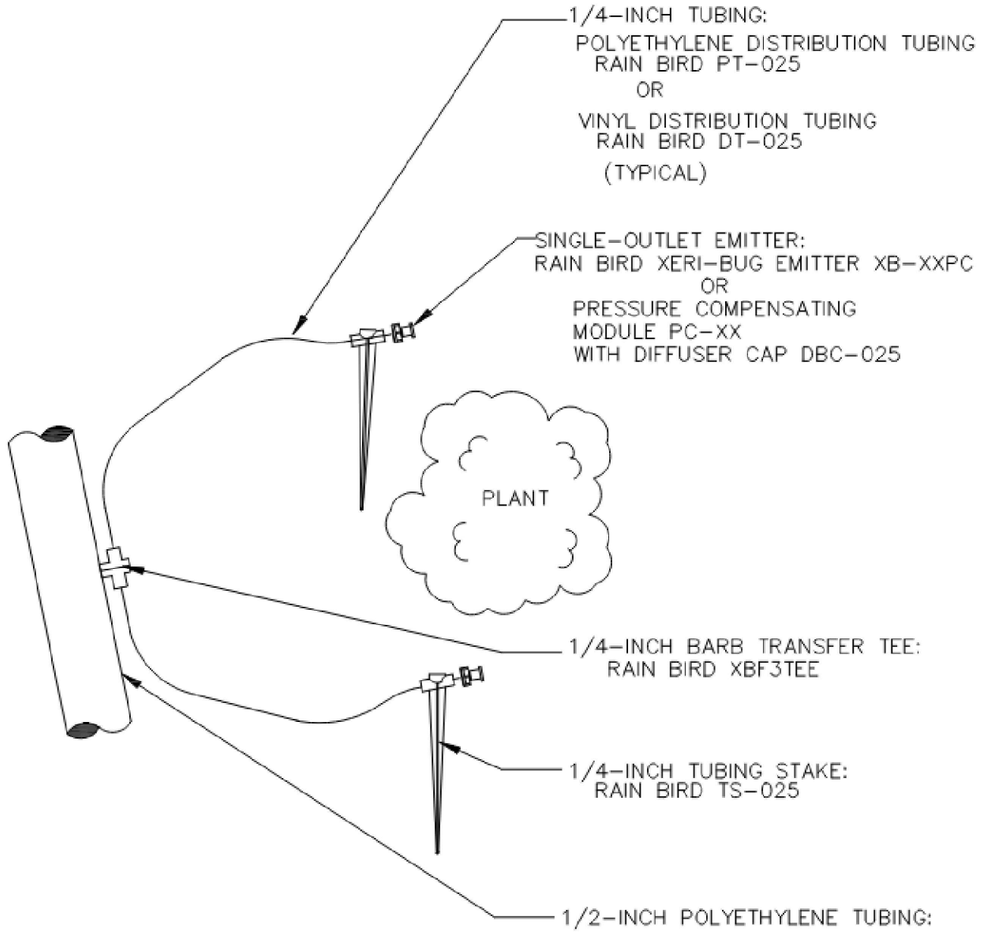
WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
LANDSCAPE
IRRIGATION DETAILS, SHT. 1

SHEET L5.1

089.29.100

7/04



NOTE:

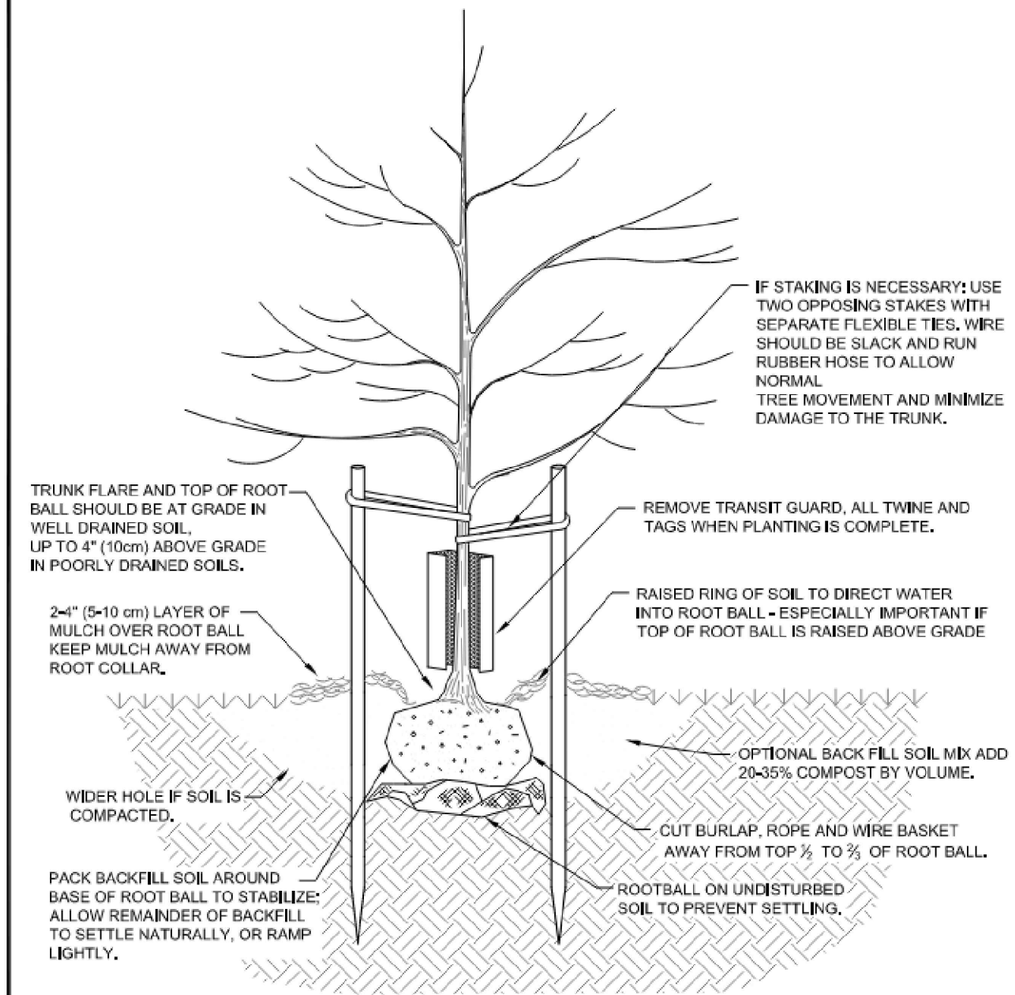
USE XERIMAN TOOL XM–TOOL TO INSERT CONNECTOR DIRECTLY INTO 1/2–INCH POLYETHYLENE TUBING.

DRAWING DATE MARCH 25, 2009

City of West Jordan, Utah

EMITTERS AROUND PLANT
ON 1/4 INCH TUBING

PLAN
PK-095



DRAWING DATE MARCH 25, 2009

City of West Jordan, Utah

TREE PLANTING & STAKING

PLAN
PK-105

FILE NAME: PROJECTS\089 – WEST JORDAN\29.100 – WELL NO. 8 PUMP BUILDING\CAD\L5.2 IRRIGATION DETAILS.DWG
FILE DATE: 3.29.2024 20:48:38 (DCL)

HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

DESIGNED	MGA	3			
DRAFTED	BKC	2			
CHECKED	MEA	1			
DATE	APRIL 2024	NO.	DATE	REVISIONS	BY / APVD.

SCALE: NOT TO SCALE

WEST JORDAN UTAH

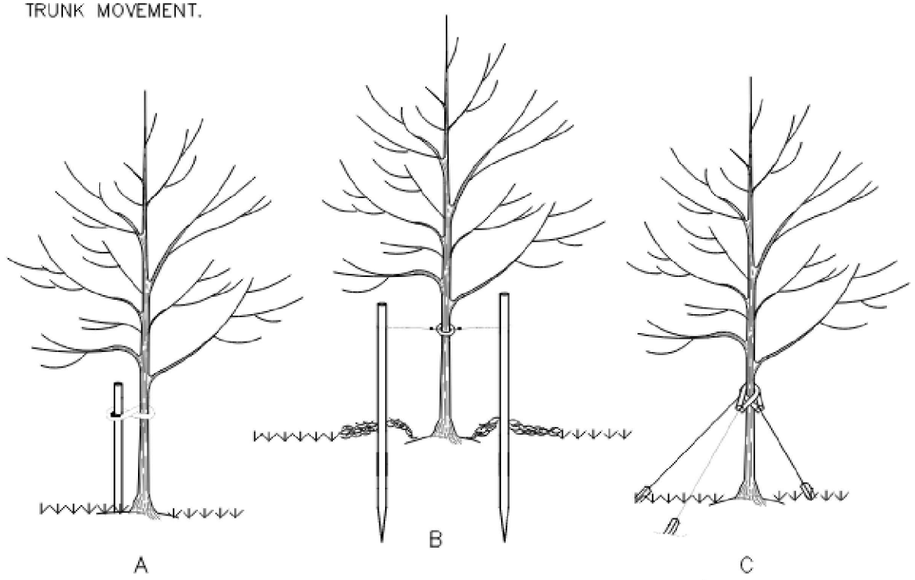
WELL NUMBER 8 PUMP BUILDING
LANDSCAPE
IRRIGATION DETAILS, SHT. 2

SHEET L5.2

089.29.100

7/04

A SINGLE STAKE IS OFTEN USED ON SMALL TREES. A SINGLE STAKE SHOULD BE PLACED ON THE SIDE OF THE TREE TOWARD THE PREVAILING WINDS SO THE TREE IS BLOWN AWAY FROM THE STAKE. TWO STAKES, WITH SEPARATE FLEXIBLE TIES IS USUALLY RECOMMENDED. IT IS OFTEN EASIER TO INSTALL STAKES BEFORE THE HOLE IS BACKFILLED. GUY WIRES ARE USED ON LARGER TREES. THE GUYS ARE BEST SECURED BY SPECIALLY DESIGNED LAND ANCHORS OR DEADMEN BURIED IN THE SOIL, AND THEY SHOULD BE AT A 45–DEGREE ANGLE WITH THE TRUNK. GALVANIZED STEEL CABLE IS BEST. TURNBUCKLES CAN BE INSTALLED TO ADJUST THE LENGTH. COMPRESSION SPRINGS CAN PROVIDE FLEXIBLITY FOR TRUNK MOVEMENT.



THREE METHODS OF STAKING AND GUYING TREES. A SINGLE STAKE USED FOR TREES UP TO 2IN (5CM) IN DIAMETER. THE TREE IS ATTACHED TO THE STAKE BY MEANS OF A WIRE RUN THROUGH A PIECE OF HOSE (D), B TREES 2 TO 4IN (5 TO 10CM) IN DIAMETER ARE SUPPORTED BY TWO OR THREE STAKES. ATTACHMENT IS THE SAME AS IN A, AND THE STAKES SHOULD BE PLACED SO THE BRANCHES DO NOT RUB AGAINST THEM. C TREES OVER 4IN (10CM) IN DIAMETER SHOULD BE GUYED WITH AT LEAST THREE GUYS. GABLE OR WIRE IS ATTACHED TO THE TREE BY RUNNING WIRES THROUGH A PIECE OF HOSE OR BY USING LAG HOOKS ON LARGE TREES, THE GUYS SHOULD BE SECURED TO ARROWHEAD SHAPED LAND ANCHORES (E), WOODEN STAKES (F), OR DEADMEN BURIED IN THE SOIL (G).

DRAWING DATE MARCH 25, 2009

City of West Jordan, Utah

1 OF 2

PLAN
PK-110

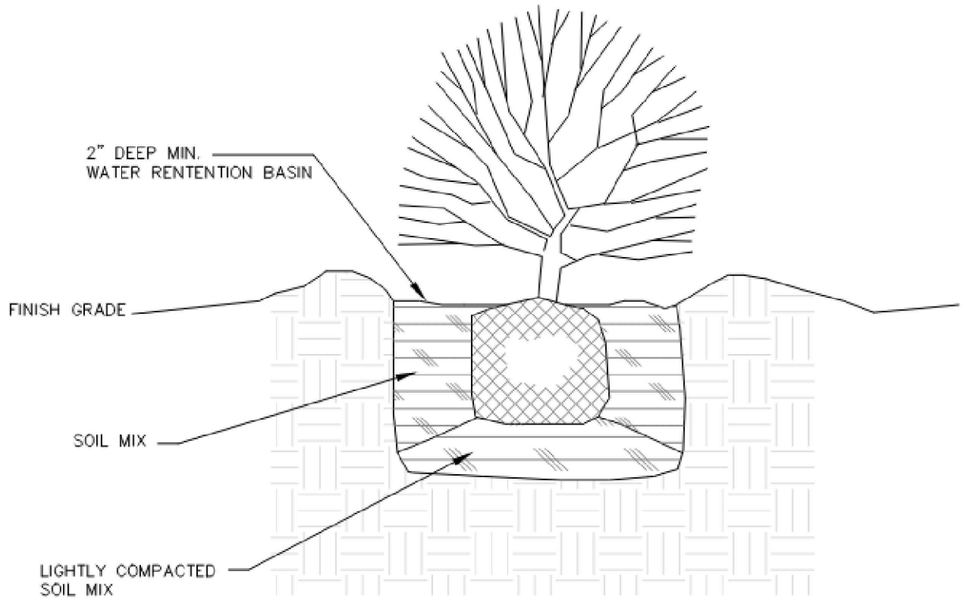
TREE PLANTING & STAKING

SOIL MIX: for all trees, shrubs and ground cover shall be 30% existing soil excavated from plant hole, 30% imported loamy topsoil, 20% clean coarse sand and 20% peat moss.

PLACE AGRIFORM TABS: in each planting pit, buried 1/3 depth of ball.

PLACE TABS AS FOLLOWS:
#1 & #2 size – 1 tab
#5 size – 2 tabs
1 1/2" cal. & up – 3 tabs

PLACE TABS: no closer than 18" apart.



TYPICAL SHRUB PLANING DEBTH:
Depth of ball plus 3"

TYPICAL SHRUB PLANING WIDTH:
Width of ball plus 6"

DRAWING DATE MARCH 25, 2009

City of West Jordan, Utah

PLAN
PK-115

SHRUB PLANTING DETAIL

HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

DESIGNED MGA
DRAFTED BKC
CHECKED MEA
DATE APRIL 2024

NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1				

SCALE
NOT TO SCALE

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
LANDSCAPE
PLANTING AND IRRIGATION DETAILS

SHEET
L5.3
089.29.100

7/04

STRUCTURAL NOTES

GENERAL NOTES:

1. THE GENERAL CONTRACTOR AND SUB-CONTRACTORS SHALL PROVIDE SUFFICIENT SKILLED WORKMEN AND SUPERVISORS WHO SHALL BE PRESENT AT ALL TIMES DURING EXECUTION OF THE WORK. A PROJECT MANAGER, SHALL BE ASSIGNED BY THE GENERAL CONTRACTOR, AND SHALL BE RESPONSIBLE FOR THE DAILY COORDINATION OF THE PROJECT AND SHALL MAINTAIN ALL REQUIRED DRAWINGS, SPECIFICATIONS, REPORTS, AND OTHER ITEMS FOR REVIEW AT THE SITE.
2. ALL CONSTRUCTION SHALL BE ACCORDING TO THE 2018 EDITION OF THE INTERNATIONAL BUILDING CODE (IBC). AS AMENDED BY THE STATE OF UTAH.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF AND SAFETY IN AND AROUND THE JOB SITE AND/OR ADJACENT PROPERTIES.
4. THE CONTRACTOR AND/OR OWNER SHALL KEEP LOADS ON THE STRUCTURE WITHIN THE LIMITS OF THE DESIGN LOADS BOTH DURING AND AFTER CONSTRUCTION.

DESIGN CRITERIA

1. RISK CATEGORY: IV
2. WIND SPEED (3-SECOND GUST) 115 MPH
3. WIND EXPOSURE: B
4. SEISMIC DESIGN CATEGORY: D
5. SITE CLASS: D
6. Ss: 0.94g
7. S1: 0.33g
8. Fa: 1.13
9. Fv: 1.97
10. R: 5
11. OMEGA: 2.5
12. Cd: 3.5
13. ROOF DESIGN DEAD LOAD: 20 PSF
14. ROOF DESIGN SNOW LOAD: 35 PSF
15. ROOF DESIGN UNBALANCED SNOW LOAD: 40 PSF
16. ALLOWABLE SOIL BEARING PRESSURE: 2000 PSF (PER AGEC REPORT #1200102)

STRUCTURAL NOTES:

REINFORCED CONCRETE:

1. ALL CONCRETE CONSTRUCTION, INCLUDING BENDING OF BARS, SHALL COMPLY WITH ACI "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318).
2. UNLESS CALLED OUT OTHERWISE ON THE PLANS, MINIMUM REINFORCEMENT OF CONCRETE WORK SHALL BE:
   WALLS:
   8" THICK OR LESS – USE #5 @ 16" E.W.
   9" OR THICKER
   SLABS:
   8" THICK OR LESS – USE #5 @ 12" E.W., E.F.
   8" THICK OR LESS – USE #4 @ 16" E.W.
3. ALL WALL REINFORCEMENT AT CORNERS OR JUNCTIONS OF WALLS SHALL BE CONTINUOUS, LAPPED, OR TERMINATED IN A STANDARD 90 DEGREE HOOK. LAP SPLICES SHALL CONFORM WITH NOTE 6.
4. UNLESS SHOWN OTHERWISE ALL BARS SHALL BE DOWELED. DOWELS SHALL BE THE SAME SIZE AND SPACING AS THE REINFORCEMENT WHICH IS TO BE SPLICED TO THE DOWELS.
5. ALL REINFORCING BARS SHALL BE GRADE 60 AND SHALL CONFORM TO ASTM A-615, CURRENT REVISION. REINFORCING STEEL SHALL BE NEW AND FREE FROM RUST, OIL OR OTHER BOND INHIBITOR.
6. ALL CONTINUOUS REINFORCING BARS SHALL LAP AT LEAST 40 BAR DIAMETERS. SPLICES SHALL BE MADE AWAY FROM POINTS OF MAXIMUM STRESS. MINIMUM LAP SHALL BE 18 IN.
7. CONCRETE COVER OVER REINFORCEMENT SHALL BE AS FOLLOWS:
   A. SURFACE NOT EXPOSED DIRECTLY TO THE GROUND, WATER OR WEATHER AFTER FORM REMOVAL:
      CONCRETE SLABS IN BUILDINGS – – – – – – – – 3/4"
   B. CONCRETE SLABS IN WATER BEARING SURFACES EXPOSED DIRECTLY TO THE GROUND, WATER, OR WEATHER AFTER FORM REMOVAL:
      FOR #5 BARS OR SMALLER – – – – – – – – – 1-1/2"
      FOR #6 BARS OR LARGER – – – – – – – – – – – 2"
   C. CONCRETE PLACED DIRECTLY AGAINST THE GROUND – – 3"
   D. REINFORCEMENT SHALL BE PLACED WITHIN A TOLERANCE OF ±1/4" OF POSITION SPECIFIED.

REINFORCED CONCRETE CONT.

8. CONCRETE CURING SHALL BE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. SOME CONCRETE WORK REQUIRES WATER CURING, AS MEMBRANE CURING IS NOT ALLOWED. THE CONTRACTOR IS WARNED THAT WATER CURING IS DIFFICULT AT TIMES DUE TO WIND AND DRY CONDITIONS. THE CONTRACTOR SHALL STUDY REQUIREMENTS AND SHALL FURNISH ADEQUATE SYSTEMS TO PROVIDE WATER CURING WHERE REQUIRED. TOP OF WALLS SHALL BE KEPT VISIBLY MOIST AT ALL TIMES AND SHALL BE FLOODED NOT LESS THAN THREE TIMES DAILY.
   A. FOR POURING CONCRETE DURING COLD WEATHER:
      1. FOLLOW RECOMMENDATIONS CONTAINED IN PUBLICATION ACI 306R "COLD-WEATHER CONCRETING," CURRENT REVISION.
      2. PROTECT CONCRETE WORK FROM PHYSICAL DAMAGE OR REDUCED STRENGTH WHICH COULD BE CAUSED BY FROST, FREEZING ACTIONS OR LOW TEMPERATURES.
      3. WHEN AIR TEMPERATURE HAS FALLEN TO OR IS EXPECTED TO FALL BELOW 40°F OR 4°C, UNIFORMLY HEAT WATER AND AGGREGATES BEFORE MIXING TO OBTAIN A CONCRETE MIXTURE TEMPERATURE OF NOT LESS THAN 50°F OR 10°C, AND NOT MORE THAN 80°F OR 27°C AT TIME OF PLACEMENT.
      4. CONCRETE SHALL BE AIR ENTRAINED WITH AIR CONTENT OF 6% +/- 1% BY VOLUME.
      5. DO NOT USE FROZEN MATERIALS OR MATERIALS CONTAINING ICE OR SNOW. DO NOT PLACE CONCRETE ON FROZEN SUBGRADE OR ON SUBGRADE CONTAINING FROZEN MATERIALS.
      6. DO NOT USE CALCIUM CHLORIDE, SALT OR OTHER MATERIALS CONTAINING ANTIFREEZE AGENTS OR CHEMICAL ACCELERATORS, UNLESS OTHERWISE APPROVED IN THE MIX DESIGN.
      7. COVER AND HEAT CONCRETE FOR A MINIMUM OF 7 DAYS AS RECOMMENDED BY ACI 306R, CURRENT REVISION.
   B. FOR POURING CONCRETE DURING HOT WEATHER:
      1. FOLLOW RECOMMENDATIONS CONTAINED IN PUBLICATION ACI 305R "HOT-WEATHER CONCRETING," CURRENT REVISION.
      2. PROTECT CONCRETE FROM FLASH CURING BY PROVIDING A WATER/MOISTURE CURE FOR 3 DAYS.
      3. A 4500 PSI (WITH A 6-1/2 BAG MIX) IS RECOMMENDED FOR THESE CONDITIONS.
9. NO BACKFILL SHALL BE PLACED AGAINST WALLS UNTIL CONCRETE HAS REACHED 85 PERCENT OF THE SPECIFIED STRENGTH AND THE CONNECTING SLABS AND BEAMS HAVE BEEN CAST AND HAVE REACHED 85 PERCENT OF THE SPECIFIED STRENGTH.
10. CONCRETE TO HAVE A MIN. 28 DAY STRENGTH AND THE CONNECTING SLABS AND BEAMS HAVE BEEN CAST AND HAVE REACHED 85 PERCENT OF THE SPECIFIED STRENGTH.
11. CONCRETE EXPOSURE CATEGORIES AND CLASSES
    SLABS: F1, S0, W0 & C1
    FOOTINGS AND FOUNDATIONS: F1, S0, W0 & C1
12. SLOPE INTERIOR FLOORS TO DRAINS
13. CONCRETE FLOORS INSIDE BUILDINGS SHALL BE COATED WITH SYSTEM 10 PER SPECIFICATION SECTION 09 90 00.

MASONRY WALL REINFORCING NOTES:

1. WALL REINFORCEMENT SHALL BE PLACED AND GROUTED AS DESCRIBED IN THE SPECIFICATIONS AND SHALL CONFORM TO IBC REQUIREMENTS.
2. ALL WALLS SHALL BE REINFORCED WITH A MINIMUM OF #5 VERTICAL REINFORCING GROUTED AT 32" O.C. AND (1) #5 @ 48" O.C. HORIZONTAL BOND BEAM. SEE WALL ELEVATION OR NOTE 5 FOR ADDITIONAL VERTICAL REINFORCEMENT ADJACENT TO WALL OPENINGS. WALLS TO SOLID GROUTED.
3. ALL VERTICAL REINFORCING SHALL EXTEND TO ROOF LEVEL AND SHALL BE DOWELED TO THE FOOTING WITH MATCHING DOWELS.
4. ALL DOWELS SHALL LAP WALL REINFORCING 48 DIA. AND EXTEND INTO FOUNDATION A MINIMUM OF 40 DIA. OR EXTEND 12 DIA. PLUS HAVE A STANDARD HOOK.
5. A #5 VERTICAL BAR SHALL BE PLACED AND GROUTED AT WALL CORNERS AND WALL INTERSECTIONS AND TWO #5 VERTICAL BARS SHALL BE PLACED AT JAMBS OF WALL OPENINGS AND SUCH BARS SHALL EXTEND THE FULL HEIGHT OF WALL AND BE ANCHORED IN THE ROOF BOND BEAM AND FOOTING AS SPECIFIED IN PARAGRAPH ABOVE.
6. LINTELS FOR ALL OPENINGS SHALL BE AS SHOWN ON SHEET S-7. "TYPICAL WALL DETAILS", UNLESS OTHERWISE NOTED.
7. ALL HORIZONTAL AND VERTICAL JOINTS ON MASONRY UNITS SHALL BE CONCAVE ON BOTH FACES UNLESS SHOWN OR SPECIFIED OTHERWISE.
8. MASONRY CONTROL JOINTS IN WALLS SHALL BE INSTALLED AT 24'-0"± SPACING UNLESS SHOWN OTHERWISE.
9. EXTERIOR WALL CELLS SHALL BE SOLID GROUTED.
10. ALL REINFORCING BARS SHALL BE GRADE 60, AND SHALL CONFORM WITH: "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", ASTM A-615. REINFORCING BARS SHALL BE NEW, FREE FROM RUST, OIL OR OTHER BOND INHIBITOR. WELDABLE REBAR TO BE ASTM A-706.
11. COLD WEATHER PLACEMENT OF MASONRY: IF THE LOW TEMPERATURE FOR ANY 24-HOUR PERIOD FOR THE FIRST SEVEN DAYS AFTER THE MASONRY IS PLACED OR GROUTED DROPS BELOW 40°F BUT REMAINS ABOVE 28°F, COVER MASONRY WITH INSULATED BLANKETS. IF THE TEMPERATURE DROPS BELOW 28°F FOR ANY PERIOD AS DESCRIBED ABOVE, APPLY HEAT AND INSULATED BLANKETS AND MAINTAIN A TEMPERATURE AT OR ABOVE 34°F FOR SEVEN DAYS.
12. PROVIDE (2) #5 @ TOP OF WALLS (TYP.)
13. ALL MASONRY TO HAVE SPECIAL INSPECTION PER TABLE 1704.5.1 OF IBC.
14. ALL TERMINAL BARS TO HAVE HOOK @ END.

WOOD FRAMING NOTES

1. FRAMING LUMBER: DOUGLAS FIR LARCH (SURFACED DRY NOT TO EXCEED 19% MAXIMUM MOISTURE CONTENT), CONFORMING TO NATIONAL DESIGN SPECIFICATIONS (NDS) SUPPLEMENTS FOR WOOD DESIGN VALUES AND APPLICABLE STANDARDS IN THE FOLLOWING GRADES:

A.	SILLS:	REDWOOD, OR PRESSURE TREATED FOUNDATION GRADE.
B.	PLATES @ TOP OF MASONRY WALLS:	DOUGLAS FIR-LARCH, NO. 1, FB=1000 PSI MIN.
C.	STUDS:	DOUGLAS FIR-LARCH, OR HEMLOCK-FIR, STUD GRADE.
D.	BEAMS, JOISTS, LEDGERS, POSTS & HEADERS:	DOUGLAS FIR-LARCH, NO. 2 MIN., 900 PSI MIN.
E.	ALL OTHER HORIZONTAL FRAMING MEMBERS:	DOUGLAS FIR-LARCH, CONSTRUCTION GRADE.
F.	ALL OTHER VERTICAL FRAMING MEMBERS:	DOUGLAS FIR-LARCH, STANDARD OR BETTER GRADE.
G.	SHEATHING:	STANDARD EXTERIOR GRADE WITH EXTERIOR GLUE. APA RATED.
H.	GLU-LAM BEAMS:	DOUGLAS FIR-LARCH, 2400 PSI WITH AITC STAMP FOR QUALITY.

2. PROVIDE SOLID BLOCKING AT LEAST 1-1/2" THICK AT ENDS AND AT EACH SUPPORT OF JOIST. PROVIDE APPROVED BRIDGING AT A MAXIMUM 8'-0" O.C. BETWEEN SUPPORTS.
3. NAILING SHALL CONFORM TO STANDARD NAILING SCHEDULE 2304.10.1 OF INTERNATIONAL BUILDING CODE UNLESS NOTED OTHERWISE ON PLANS OR SCHEDULES. ALL NAILS SHALL BE COMMON NAILS.
4. USE SIMPSON STRONG TIE (SST) HANGERS FOR ALL FLUSH CONNECTIONS. USE STRONGEST HANGAR COMPATIBLE WITH MEMBER SIZE AND NAIL PER MANUFACTURERS SPECIFICATION TO OBTAIN MAXIUMUM LOAD CARRYING CAPACITY.
5. ALL METAL HANGERS AND CONNECTORS SHALL BE "SIMPSON" OR EQUAL.
6. SECURE SILL PLATE TO CONCRETE WITH 5/8" DIA. X 12" A.B. @ 8" O.C. UNLESS NOTED OTHERWISE ON PLAN.
7. DOUBLE TOP AND BOTTOM PLATES TO BE LAPPED 4'-0" AT SPLICE AND CONNECT WITH 16D COMMON NAILS @ 3" O.C., STAGGERED.
8. NOTCHING OR DRILLING THROUGH ANY LUMBER MEMBER WILL NOT BE ALLOWED WITHOUT SPECIFIC APPROVAL OF STRUCTURAL ENGINEERS.
9. ROOF SHEATHING:
   A. (5/8)" A.P.A. RATED STRUCTURAL II, EXTERIOR, PANEL INDEX #32/16, UNLESS NOTED OTHERWISE
   B. NAIL WITH: 10D @ 6" O.C. – PANEL EDGES, UNLESS NOTED OTHERWISE
      10D @ 12" O.C. – ALL ELSE, UNLESS NOTED OTHERWISE
   C. INSTALL ROOF SHEATHING WITH "H" CLIPS.
10. KEEP ALL MATERIAL CLEARLY IDENTIFIED WITH ALL GRADE MARKS LEGIBLE. KEEP ALL DAMAGED MATERIAL CLEARLY IDENTIFIED AS DAMAGED AND SEPARATELY STORED TO PREVENT ITS INADVERTENT USE. IN THE EVENT OF DAMAGE, IMMEDIATELY MAKE ALL REPAIRS AND REPLACEMENTS NECESSARY TO THE APPROVAL OF THE ENGINEER AND AT NO ADDITIONAL COST TO THE OWNER.
11. PROVIDE 3"X3"X1/4" SLOTTED PLATE WASHERS AT ALL BOLTS IN PLATES, AND 2" DIAMETER PLATE WASHERS AT ALL BOLTS IN LEDGERS, BEAMS, AND COLUMNS. UNLESS OTHERWISE SPECIFIED, USE A307 BOLTS.
12. PROVIDE SOLID BLOCKING UNDER ALL LOCATIONS WHERE CONCENTRATED LOADS ARE LOCATED, SUCH AS COLUMNS, POSTS, BEAMS, ETC. FULL SUPPORT MUST BE PROVIDED TO THE FOUNDATION.

WOOD TRUSSES NOTES

1. DESIGN TRUSSES FOR FOLLOWING CRITERIA:
   LIVE LOAD = 35 PSF (SNOW) LIVE LOAD DEFLECTION = L/360 MAXIMUM
   DEAD LOAD = 20 PSF
   NOTE: ALL TRUSSES TO BE DESIGNED FOR DRIFT LOADS PER ASCE-7. TRUSSES IN STORAGE AREA TO BE DESIGNED TO MEET ALL EQUIPMENT LOADS AND RISK CATEGORY IV.
2. PROVIDE BRIDGING AT TOP AND BOTTOM CHORDS AND STRUT BRACING, PER MANUFACTURER'S RECOMMENDATIONS.
3. NO STRESS INCREASE ALLOWED FOR TRUSS DESIGN.
4. DESIGN AND FABRICATION OF ALL TRUSSES SHALL COMPLY WITH REQUIREMENTS OF DESIGN SPECIFICATIONS FOR LIGHT METAL PLATE CONNECTED WOOD TRUSSES BY THE TRUSS PLATE INSTITUTE.
5. TRUSS MANUFACTURER SHALL DESIGN AND FABRICATE TRUSSES TO SUPPORT LOADS SHOWN ON DRAWINGS. COORDINATE DESIGN WITH ALL MECHANICAL EQUIPMENT AND SUSPENDED LOADS. SUBMIT DESIGN CALCULATIONS BEARING STAMP OF A REGISTERED PROFESSIONAL ENGINEER LICENSES BY THE STATE OF UTAH.
6. SUBMIT SHOP DRAWINGS FOR REVIEW PRIOR TO FABRICATION INDICATING FRAMING PLAN, BRIDGING AND BRACING,, DIAGRAM OF THE TRUSSES WITH DIMENSIONS, SIZE AND GRADE OF MEMBERS, SIZE AND LOCATION OF METAL PLATES, BEARING DETAILS AND INSTRUCTION FOR INSTALLATION.
7. MOMENT COEFFICIENTS SHALL BE 1/8 FOR ONE AND TWO CONTINUOUS SPAN CONDITIONS AND 1/10 FOR THREE OR MORE CONTINUOUS SPAN CONDITIONS. LENGTH FACTOR FOR WEB DESIGN SHALL BE ONE. METAL PLATES AT COMPRESSION JOINTS SHALL BE DESIGNED FOR THE FULL LOAD WITHOUT CONSIDERING WOOD TO WOOD BEARING.
8. ALL METAL PLATE DIMENSIONS SHALL BE INCREASED BY 10% ABOVE THAT REQUIRED BY THE ANALYSIS. ALLOWABLE STRESS FOR METAL PLATE SHALL NOT BE INCREASED FOR THE LOAD DURATION. METAL PLATES SHALL BE PRESSED OR ROLLED INTO MEMBERS TO OBTAIN FULL PENETRATION WITHOUT CRUSHING THE WOOD SURFACE.
9. ALL METAL PLATES SHALL BE GALVANIZED STEEL AND SHALL BE ON BOTH SIDES OF EACH CONNECTION. SUBMIT A COPY OF THE I.C.B.O. APPROVAL, INCLUDING ALLOWABLE STRESSES ESTABLISHED BY THIS COMMITTEE, FOR METAL PLATES USED.
10. ALL LUMBER SHALL BE DOUGLAS FIR OR YELLOW PINE #1 GRADE. MOISTURE CONTENT SHALL NOT EXCEED 19% NOR SHALL BE LESS THAN 7%. HANDLING, STORAGE AND INSTALLATION OF ALL TRUSSES SHALL BE DONE SUCH THAT THE SPECIFIED MINIMUM AND MAXIUMUM MOISTURE CONTENT LIMITS ARE NOT EXCEEDED. GRADE STAMPS SHALL APPEAR ON ALL MEMBERS.

PROFESSIONAL STRUCTURAL ENGINEER No. 2774619 ROBERT C. CONDER 9/14/2023 STATE OF UTAH

PROFESSIONAL ENGINEER 7260247 LICENSED Delmar W. Johnson 4-19-24 STATE OF UTAH

HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

DESIGNED	MGA	3			
DRAFTED	DCL	2			
CHECKED	MEA	1			
DATE	APRIL 2024	NO.	DATE	REVISIONS	BY / APVD.

SCALE

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
STRUCTURAL
NOTES

SHEET S-1A

089.29.100

FILE NAME: PROJECTS\089 - WEST JORDAN\29.100 - WELL NO. 8 PUMP BUILDING\CAD\S-1A STRUCTURAL NOTES.DWG
FILE DATE: 4.16.2024 09:13:38 (DCL)

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STRUCTURAL NOTES

WOOD TRUSSES NOTES CONT.

11. PRIOR TO FABRICATION, CONTRACTOR SHALL SUBMIT IN WRITING PROOF OF COMPLIANCE OF IN-PLANT INSPECTION BY AN I.C.B.O. APPROVED INDEPENDENT INSPECTION AGENCY. SUBMIT SHOP DRAWINGS FOR TRUSS LAYOUT & DESIGN.

12. A HURRICANE TIE IS TO BE INSTALLED AT EACH TRUSS TO DOUBLE TOP PLATE LOCATION OR AS REQUIRED ON PLANS.

13. TRUSS MANUFACTURER IS RESPONSIBLE FOR ALL TRUSS HANGARS

SUBMITTALS:

1. THE FOLLOWING INFORMATION AND SUBMITTALS SHALL BE PROVIDED TO THE CONSTRUCTION MANAGER (CM) BEFORE FABRICATION AND/OR DELIVERY TO THE JOBSITE, NOT ALL MAY APPLY.

   A. CONCRETE MIX DESIGNS.
   B. CONCRETE REINFORCEMENT SHOP DRAWINGS.
   C. MASONRY SPECIFICATIONS.
   D. MASONRY MORTAR MIX DESIGNS.
   E. MASONRY REINFORCEMENT SHOP DRAWINGS.
   F. STRUCTURAL BACKFILL PIT LOCATION AND MATERIAL SPECIFICATION, IF USED ON SITE.
   G. STRUCTURAL STEEL SHOP DRAWINGS.
   H. OPEN WEB ROOF TRUSSES, SHOP DRAWINGS FROM MANUFACTURER.
   I. OTHER SHOP DRAWINGS & SUBMITTALS AS DEEMED NECESSARY BY THE CONSTRUCTION MANAGER.

GEOTECHNICAL NOTES

1. WITHIN THE LIMITS OF THE SHALLOW OVER-EXCAVATION AREA SHOWN ON C-1A: REMOVE TOP FOUR FEET OF NATIVE SOIL AND REPLACE WITH IMPORTED STRUCTURAL FILL PER DRAWINGS, SPECIFICATIONS, AND THE GEOTECHNICAL REPORT.

2. WITHIN THE LIMITS OF THE DEEP OVER-EXCAVATION SHOWN ON C-1A: REMOVE 8 ADDITIONAL FEET, FOR A TOTAL OF 12 FEET, OF NATIVE CLAY SOILS. REPLACE WITH STRUCTURAL BACKFILL PLACED IN LIFTS PER SPECIFICATIONS, AND THE GEOTECHNICAL REPORT.

3. A 4-INCH LAYER OF SAND OR GRAVEL SHALL BE PLACED ABOVE THE STRUCTURAL FILL DIRECTLY UNDER ALL CONCRETE. A GEOFABRIC IS REQUIRED BETWEEN THE STRUCTURAL FILL AND THE SAND/GRAVEL LAYER.

4. THE UNTREATED BASE COURSE MATERIAL SHALL NOT BE CONTAMINATED WITH OTHER SOILS. CONTAMINATED BASE COURSE SHALL BE REMOVED AND REPLACED PRIOR TO THE INSTALLATION OF PAVEMENT.

5. ALL WORK SHALL BE PERFORMED PER THE GEOTECHNICAL REPORT IN THE APPENDIX.

STEEL NOTES:

1. ALL STRUCTURAL STEEL AND STRUCTURAL STEEL WORK SHALL COMPLY WITH "SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS OF THE AISC" AND THE "AISC CODE OF STANDARD PRACTICE."

2. ALL STRUCTURAL STEEL SHALL BE ASTM A36, UNLESS NOTED OTHERWISE. SEE PLAN.

3. ALL WELDS AND WELDING SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS OF "THE AMERICAN WELDING SOCIETY, USING ELECTRODES AS SPECIFIED THEREIN." WELDS TO BE MADE WITH E - 70xx ELECTRODES U.N.O.

4. USE A307 BOLTS WITH PLATE WASHERS, UNLESS OTHERWISE SPECIFIED, FOR TYPICAL CONNECTIONS AND CONNECTIONS TO CONCRETE.

5. USE A325 BOLTS WITH PLATE WASHERS, UNLESS OTHERWISE SPECIFIED, FOR STEEL TO STEEL CONNECTIONS.

6. METAL FLASHING SHALL BE HOT DIP GALVANIZED, OR HAVE OTHER APPROVED EQUAL CORROSION RESISTANCE.

7. MATERIAL SHALL COMPLY WITH THE FOLLOWING STANDARDS EXCEPT WHERE NOTED OTHERWISE.

TYPICAL BOLTS	ASTM A-307 GRADE A
HIGH STRENGTH BOLTS	ASTM A-325
ANCHOR BOLTS	ASTM A-307 GRADE A
NUTS FOR ANCHOR BOLTS	ASTM A-563 GRADE A
STEEL TUBES	ASTM A-500 GRADE B WITH YIELD STRENGTH EQUAL TO 46 KSI
STEEL PIPES	ASTM A-53 GRADE B TYPE E OR S
DEFORMED BAR ANCHORS	MANUFACTURED BY NELSON STUD CO. OR EQUAL
HEADED STUD ANCHORS	ASTM A-108 MANUFACTURED BY NELSON STUD CO. OR EQUAL
ALL OTHER STEEL SHAPES	ASTM A-36 WITH YIELD STRENGTH EQUAL TO 36 KSI.

ANCHOR NOTES:

1. ALL ANCHORS TO BE INSTALLED PER THE MANUFACTURER'S REQUIREMENTS. FOR BOTH MECHANICAL AND EPOXY TYPE ANCHORS THESE REQUIREMENTS INCLUDE, BUT IS NOT LIMITED TO:
   A. PROPER HOLE DIAMETER, DEPTH, EDGE DISTANCES, AND SPACING.
   B. PROPER HOLE PREPARATION AND CLEANOUT
   C. WEATHER REQUIREMENTS TO BE FOLLOWED, ESPECIALLY FOR COLD WEATHER APPLICATIONS.
   D. ALL STRUCTURAL ANCHORS TO COMPLY WITH THE CRACKED CONCRETE REQUIREMENTS OF THE CURRENT EDITION OF THE ACI 318.

2. ANY EPOXY TYPE ANCHOR IS TO MEET THE CURRENT ANSI/NSF 61 REQUIREMENTS FOR DRINKING WATER SYSTEM COMPONENTS, WHERE APPLICABLE.

SEISMIC BRACKETS:

1. CONTRACTOR SHALL DESIGN SEISMIC ATTACHMENTS, BRACES, AND ANCHORS TO THE STRUCTURE FOR ELEMENTS.

2. CONTRACTOR TO SUBMIT FOR REVIEW AND APPROVAL SEISMIC BRACKETS FOR HVAC, MECHANICAL AND ELECTRICAL EQUIPMENT TO MEET LOCAL CODES.

PROFESSIONAL STRUCTURAL ENGINEER
No. 2774619
ROBERT C. CONDER
STATE OF UTAH
4/4/2023

LICENSED PROFESSIONAL ENGINEER
Delmar W. Johnson
4-19-24
STATE OF UTAH

HANSEN ALLEN & LUCE Inc
ENGINEERS

PROJECT ENGINEER

DESIGNED	MGA	3			
DRAFTED	DCL	2			
CHECKED	MEA	1			
DATE	APRIL 2024	NO.	DATE	REVISIONS	BY APVD.

SCALE

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
STRUCTURAL
NOTES

SHEET
S-1B
089.29.100

FILE NAME: PROJECTS\089 - WEST JORDAN\29.100 - WELL NO. 8 PUMP BUILDING\CAD\S-1B STRUCTURAL NOTES.DWG
FILE DATE: 4.16.2024 09:19:06 (DCL)

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SCHEDULE OF SPECIAL INSPECTIONS APPLICABLE TO THIS PROJECT

MATERIAL/ACTIVITY	TYPE OF INSPECTION	C/P *	EXTENT/REFERENCE	INSP INITIALS	INSP DATE
GENERAL					
Pre-construction conference	Meeting with Owner, Contractor and Registered Design Professional to discuss Special Inspection procedures	P	Scheduled by DCRA with the Contractor prior to commencement of work		
EARTHWORK					
Site preparation (building)	Field testing and inspection	P	Field Review; IBC 1705.6		
Fill material (building)	Review submittals, field testing and inspection	P	Field Review; IBC 1705.6		
Fill compaction (building)	In-place density tests, lift thickness	C	Field Review; IBC 1705.6		
Excavation	Field inspection and verification of proper depth	P	Field Review; IBC 1705.6		
Foundation sub-grade	Field inspection of foundation subgrade prior to placement of concrete	P	Field Review; IBC 1705.6		
MASONRY (Level__; Building Risk Category) TYPICAL FOR LEVEL B AND RISK CATEGORY I,II,III					
Materials	Review of products supplied versus certificate of compliance and material submitted	P	Submittal & Field Review; ACI 530/ASCE 5; ACI 530.1/ASCE 6; IBC 1705.4, 1708		
Strength	Testing/review of strength	C	Submittal & Field Review; ACI 530/ASCE 5; ACI 530.1/ASCE 6; IBC 1705.4, 2105.2.2, 2105.3		
Mortar and Grout	Inspection of proportioning and mixing. Placement of mortar only.	C	Field Review; IBC 1705.4; ACI 530/ASCE 5; ACI 530.1/ASCE 6		
Grout placement, including pre-stressing grout	Verification to ensure compliance	C	Field Review; IBC 1705.4; ACI 530/ASCE 5; ACI 530.1/ASCE 6		
Grout space	Verification to ensure compliance	P	Field Review; IBC 1705.4; ACI 530/ASCE 5;ACI 530.1/ASCE 6; TMS 602		
Mortar, grout, and prism specimens	Observe Preparation	C	Field Review; IBC 1704.5, ACI 530.1; ASCE 6;		
Reinforcement, pre-stressing tendons, and connections	Inspect condition, size, location, and spacing	P	Field Review; IBC 1704.5; ACI 530/ASCE 5; ACI 530.1/ASCE 6		
Welding of reinforcing bars	Inspection and testing of welds	C	Field Review; IBC 1705.4; ACI 530/ASCE 5;ACI 530.1/ ASCE 6		
Pre-stressing force	Verify application and measurement	C	Field Review; IBC 1705.4; ACI 530/ASCE 5; ACI 530.1/ASCE 6		
Protection	Inspect procedures for protection during cold and hot weather	P	Field Review; IBC 1705.4,; ACI 530/ASCE 5; ACI 530.1/ASCE 6		
Anchorage	Inspection of anchorages	P	Field Review; ACI 530.1/ASCE 6, ASCE 6; IBC 1705.4; ACI 530/ASCE 5		
Masonry installation	Inspection of placement of masonry and joints (Periodic after the first 5000sq.ft)	C	Field Review; ACI 530/ASCE 5; ACI 530.1/ASCE 6; IBC 1705.4		
Grouting of pre-stressed tendons	Field inspection	C	Field Review; ACI 318: 18.18.4; IBC 1705.3		
Application of forces for pre-stressed concrete	Field inspection	C	Field Review; ACI 318: 18.20; IBC 1705.3		
CONCRETE					
Materials	Review product supplied versus certificates of compliance and mix design	P	Submittal & Field Review; IBC 1705.3; ACI 318: Ch. 4 and 5; IBC 1904.2, 1910.2, 1903.3		
Installation of reinforcing steel, including Pre-stressed tendons and anchor bolts as well as welding	Field inspection of placement	P	Submittal and Field Review; ACI 318:3.5, 3.5.2 3.8.6 & Ch. 7 8.1.3 and 21.2.8; AWS D1.4; IBC 1705.3, 1908.5, 1909.1, 1910.4		
Formwork installation	Field inspection	P	Field Review; ACI 318: 6.1.1; IBC 1705.3		
Concreting operations and placement	Field inspection of placement/sampling	C	Field Review; ACI 318: 5.6, 5.8, 5.9-10; ASTM C 172, C 31; IBC 1705.3, 1910.6, 1910.7, 1910.8, 1910.10		
Concrete curing	Field inspection of curing process	P	Field Review; ACI 318: 5.11-13; IBC 1705.3, 1910.9		
Concrete strength	Evaluation of concrete strength		Laboratory Testing; ACI 318: 6.2; IBC 1705.3		

SCHEDULE OF SPECIAL INSPECTIONS APPLICABLE TO THIS PROJECT

MATERIAL/ACTIVITY	TYPE OF INSPECTION	C/P *	EXTENT/REFERENCE	INSP INITIALS	INSP DATE
STRUCTURAL STEEL					
Verify fabrication/QC procedures	In-plant inspection of fabrication/quality control procedures or submit Certificate of Compliance	P	IBC 1704.2.5, IBC 1704.2.5.1, 1704.2.5.2, 1705.2		
Bolts, nuts, and washers – materials	Material identification markings Review of Certificate of Compliance	P	Submittal & Field Review; IBC 1705.2.1; IBC 1705.2.2; IBC 1706; ASTM; AISC 360, Section A3.3		
Bolts, nuts, washers – installation	Inspection of insitu high-strength bolts, snug-tight joints, pre-tensioned and bearing type, and slip connections	C	Submittal & Field Review; IBC 1705.2.1, 1705.2.2;, AISC 360 Section M2.5		
Structural steel – materials	Material identification markings and review of Certificate of Compliance	P	Submittal & Field Review; IBC 1705.2.1, 1705.2.2, 1706; ASTM A6, A568		
Structural steel details – installation	Inspection of member locations, structural details for bracing, connections, stiffening	P	Submittal & Field Review; IBC 1705.2.1, 1705.2.2, AISC 360		
Weld filler materials and welder certs	Review of identification markings, certificate of compliance, and welder certifications	P	Submittal & Field Review; ASTM AISC 360 A3.5		
Welds	Inspection and testing of welds	C	Field Review; IBC 1705.2.2.1; AWS D1.1, D1.3		
Cold-formed metal deck – materials	Review of identification marking manufacturer's certified test results	P	Submittal and Field Review; IBC 1705.2.2; ASTM		
Cold-formed metal deck – installation	Review laps and welds	P	Submittal and Field Review; IBC 1705.2.2, AWS D1.3		
Cold-formed light frame construction – welds	Review welding operation	P	IBC 1705.10, 1705.10.2, 1705.10.3		
Cold form light frame construction wind resistance – screws	Review screw attachment bolting, anchoring hold downs, bracing, diaphragms, struts	P	Field Review; IBC 1705.10, 1705.10.2, 1705.10.3		
Cold-formed steel trusses spanning 60' or greater	Inspection of temporary and permanent restraints/bracing	C	Field review IBC 1705.2.2.2		
WOOD					
Verify fabrication/QC procedures	In-plant inspection of fabrication/quality control procedures** or submit Certificate of Compliance	P	Submittal or Field Review; IBC 1704.2.5, 1705.5, 1705.5.2		
Metal plate connected wood/metal trusses spanning 60' or more	Review approved submittal and installation of restraint/bracing	P	Field Review; IBC 1704.2.5, 1705.5, 1705.2		
Joist Hangers – Materials/Installation	Review manufacturer's material and test standards	P	Field Review; IBC 1711, ASTM D 1761		
High-Load Diaphragms – Installation	Review submittal and as-built assemblies; inspection of sheathing, framing size, nail and staple diameter and length, number of fastener lines, and fastener spacing.	C	IBC 1705.5, 1705.5.1		
Wood Shear Walls–installation	Review nailing, bolting, anchoring, fastening, Diaphragms, struts, braces, and hold downs when fasteners are < 4" on center.	P	Field Review; IBC1705.10.1		

NOTES:

1. THE SPECIAL INSPECTOR IS RESPONSIBLE FOR ENSURING THE PUBLICATIONS USED FOR INSPECTION CRITERIA ARE THE MOST CURRENT AND UP TO DATE.
2. FAILURE OF INSPECTABLE AREAS ARE TO BE NOTED AND SUBMITTED TO THE OWNER, ENGINEER OF RECORD, AND GENERAL CONTRACTOR IF CORRETIONS REQUIRE A FOLLOW UP INSPECTION AND CANNOT BE MADE COMPLETED "ON THE SPOT".
3. DOCUMENTATION FOR INSPECTIONS MUST BE COMPLETED AND SUBMITTED IN ACCORDANCE WITH CONTRACT REQUIREMENTS, INTERNATIONAL BUILDING CODE (LATEST EDITION), AND "MANUAL FOR SPECIAL INSPECTIONS" (LATEST EDITION), OR AS AGREED UPON WITH THE OWNER, ENGINEER OF RECORD, AND CONTRACTOR.
4. SPECIAL INSPECTION DOES NOT INCLUDE OR WAIVE THE RESPONSBILITY FOR ANY REQUIRED INSPECTIONS BY THE BUILDING OFFICIAL. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING BOTH INSPECTIONS.
5. SPECIFIED CONCRETE AND MASONRY TESTING DURING CONSTRUCTION WILL BE CONTRACTOR FURNISHED. SPECIFIED LAB TEST, MIXES, AND SIMILAR TESTING TO VERIFY MATERIAL QUALITY AND CONFORMANCE TO THE SPECIFICATIONS, REQUIRING SUBMITTAL FOR REVIEW AND ACCEPTANCE, SHALL BE THE RESPONSIBLITY OF THE CONTRACTOR.
6. STRUCTURAL OBSERVATIONS (CONTRACTOR FURNISHED) IS REQUIRED IN ACCORDANCE WITH IBC SECTION 110 AND CHAPTER 17 AS INDICATED IN THE STATEMENT OF SPECIAL INSPECTION.

P = PERIODIC INSPECTION
C = CONTINUOUS INSPECTION

PROFESSIONAL STRUCTURAL ENGINEER No. 2774619 ROBERT C. CONDER 8/14/2023 STATE OF UTAH

LICENSED PROFESSIONAL ENGINEER Delmar W. Johnson 4-19-24 STATE OF UTAH

4/19/2024

PROJECT ENGINEER

HANSEN ALLEN & LUCE inc ENGINEERS

DESIGNED	MGA	3			
DRAFTED	ABO	2			
CHECKED	MEA	1			
DATE	APRIL 2024	NO.	DATE	REVISIONS	BY APVD.

SCALE

WEST JORDAN UTAH

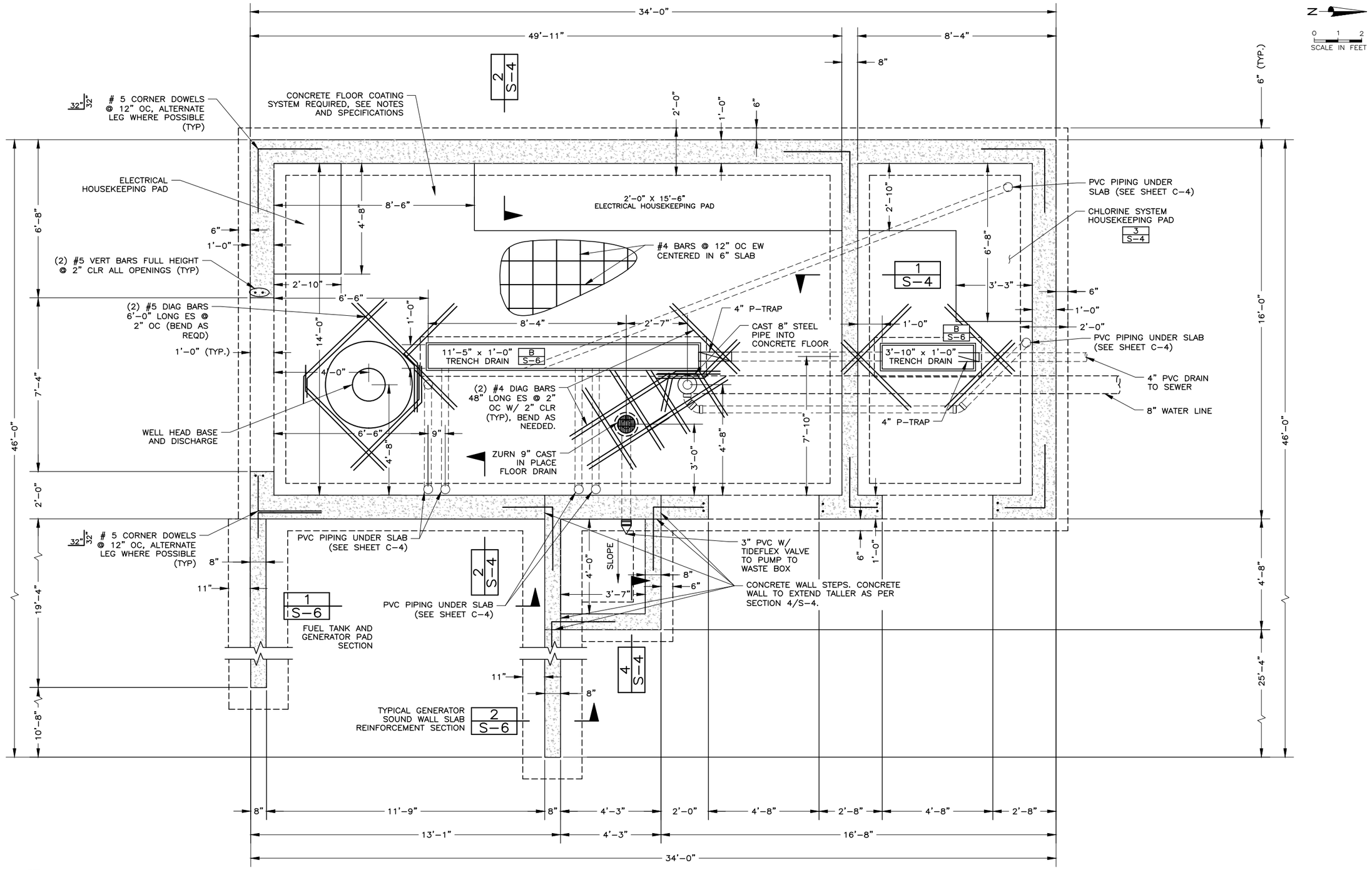
WELL NUMBER 8 PUMP BUILDING
STRUCTURAL
SPECIAL INSPECTIONS

SHEET S–1C

089.29.100

FILE NAME: PROJECTS\089 - WEST JORDAN\29.100 - WELL NO. 8 PUMP BUILDING\CAD\S-1C SPECIAL INSPECTIONS.DWG
FILE DATE: 4.16.2024 09:20:39 (DCL)

7/04



FOOTING & FOUNDATION PLAN

FILE NAME: PROJECTS\089 - WEST JORDAN\29.100 - WELL NO. 8 PUMP BUILDING\CAD\S-2 FOOTING & FOUNDATION PLAN.DWG
FILE DATE: 4.16.2024 09:21:44 (DCL)

PROFESSIONAL STRUCTURAL ENGINEER No. 2774619 ROBERT C. CONDER 4/14/2024 STATE OF UTAH

LICENSED PROFESSIONAL ENGINEER Delmas W. Johnson 4-19-24 STATE OF UTAH
PROJECT ENGINEER

HANSEN ALLEN & LUCE inc ENGINEERS

DESIGNED	MGA	3			
DRAFTED	BKC & DCL	2			
CHECKED	MEA	1			
DATE	APRIL 2024	NO.	DATE	REVISIONS	BY APVD.

SCALE: AS SHOWN

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
STRUCTURAL
FOOTING AND FOUNDATION PLAN

SHEET S-2
089.29.100

7/04

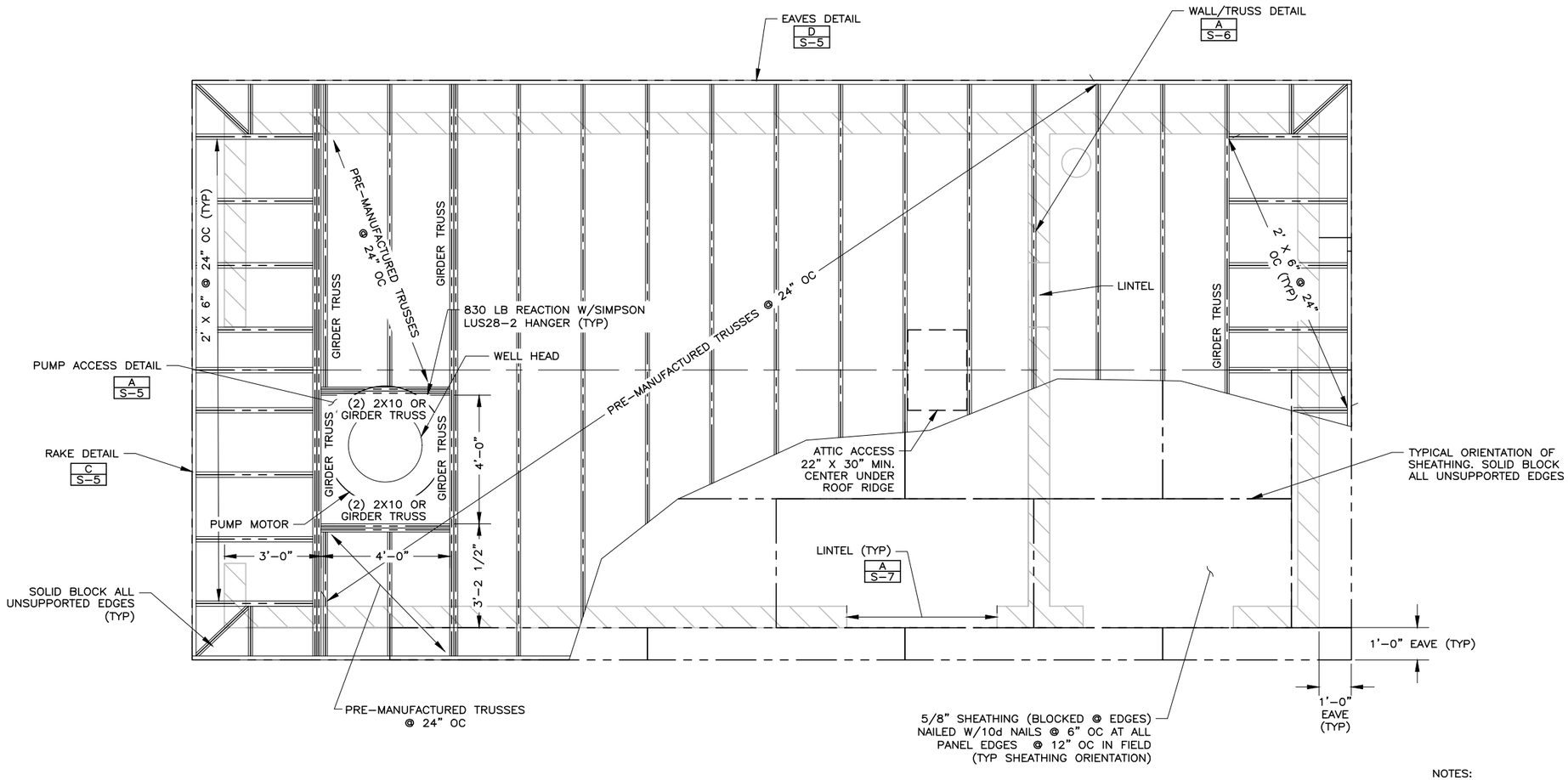
TRUSS LOADS

TOP CHORD LIVE SNOW LOAD: 35 PSF

TOP CHORD DEAD LOAD: 10 PSF

BOTTOM CHORD LIVE LOAD: 10 PSF

BOTTOM CHORD DEAD LOAD: 10 PSF



PUMP HOUSE ROOFING PLAN

0 1 2 3 4

SCALE IN FEET

NOTES:

1. ALL NAILING PER IBC TABLE 2304.10.1, UNLESS NOTED OTHERWISE.
2. PROVIDE SIMPSON H3 @ EACH TRUSS TO TOP PLATE OR AS REQUIRED BY THE DETAILS.
3. TRUSS MANUFACTURER TO PROVIDE ALL TRUSS TO TRUSS CONNECTIONS.
4. ALL STEEL IN CONTACT WITH TREATED PLATES OR MASONRY/CONCRETE TO BE GALVANIZED OR STAINLESS STEEL.
5. CENTER ACCESS OPENING NORTH & SOUTH OVER EXISTING WELL.

PROFESSIONAL STRUCTURAL ENGINEER
No. 2774619
ROBERT C. CONDER
4/14/2023
STATE OF UTAH

LICENSED PROFESSIONAL ENGINEER
Delmar W. Johnson
4-19-24
STATE OF UTAH

HANSEN ALLEN & LUCE inc
ENGINEERS

PROJECT ENGINEER

DESIGNED	MGA	3			
DRAFTED	BKC	2			
CHECKED	MEA	1			
DATE	APRIL 2024	NO.	DATE	REVISIONS	BY / APVD.

SCALE: AS SHOWN

WEST JORDAN UTAH

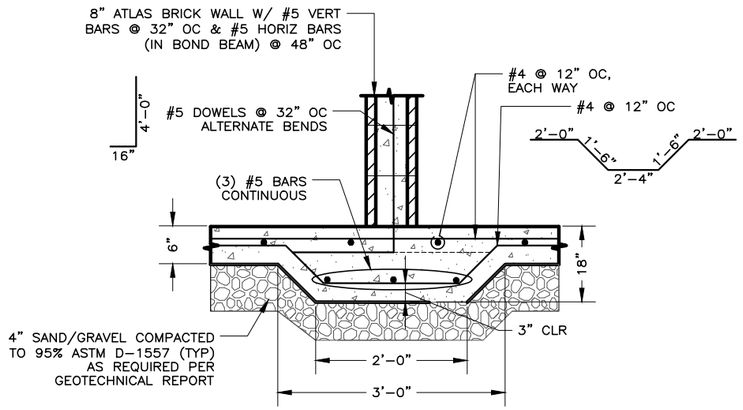
WELL NUMBER 8 PUMP BUILDING
STRUCTURAL
ROOF PLAN

SHEET S-3

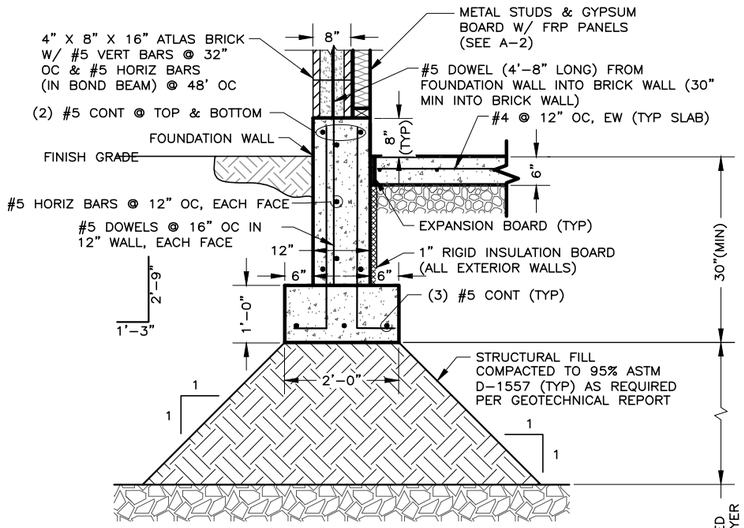
089.29.100

FILE NAME: PROJECTS\089 - WEST JORDAN\29.100 - WELL NO. 8 PUMP BUILDING\CAD\S-3 ROOFING PLAN.DWG
FILE DATE: 4.16.2024 09:23:28 (DCL)

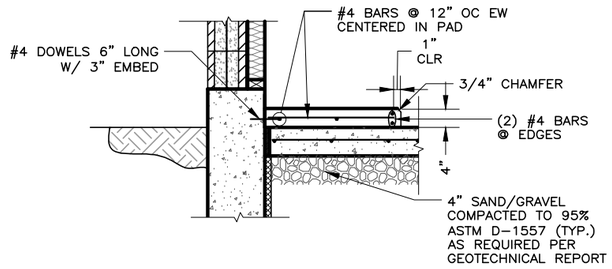
7/04



INTERIOR CMU WALL FOUNDATION SECTION 1 / S-2
NTS

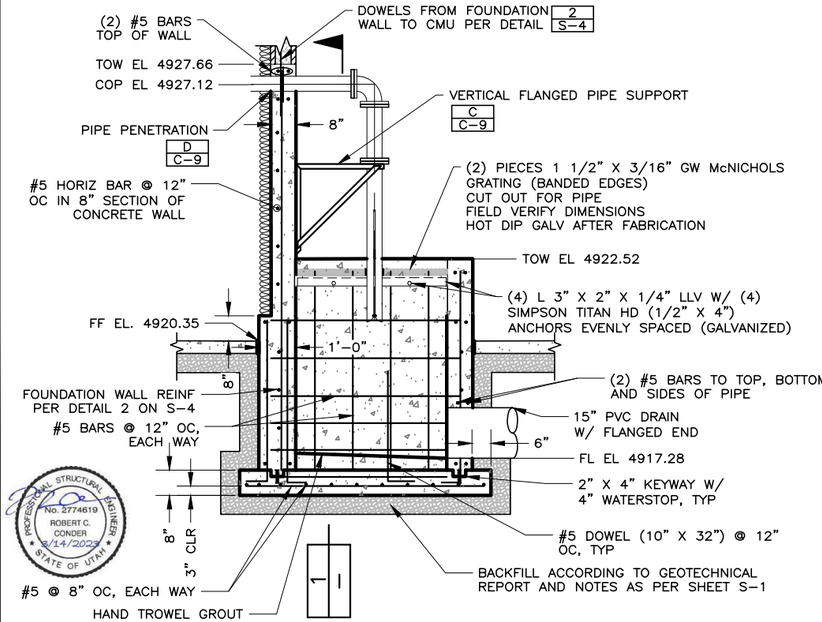


TYPICAL FOUNDATION DETAIL SECTION 2 / S-2
NTS

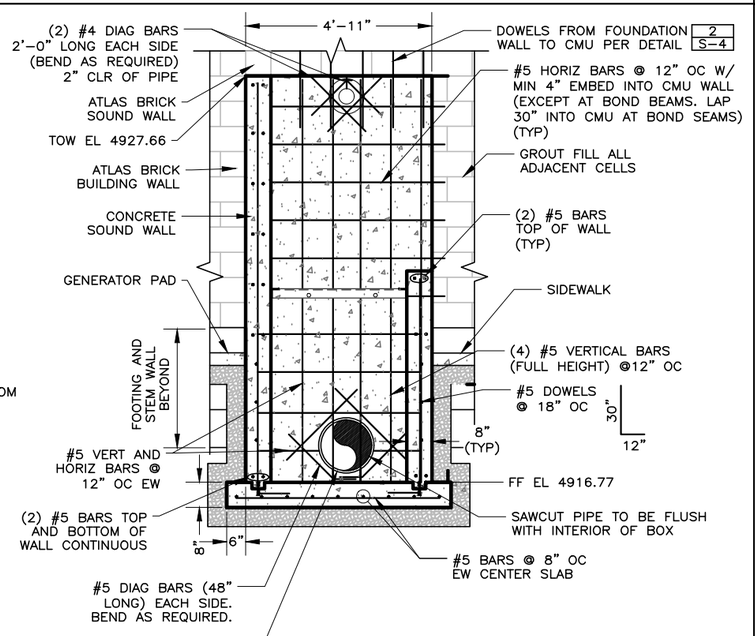


NOTE:
SEE SHEET S-2 FOR PAD DIMENSIONS

HOUSEKEEPING PAD SECTION 3 / S-2 | 3 / CF-2
NTS



PUMP TO WASTE BOX SECTION 4 / A-1 | 4 / C-5 | 4 / S-2
NTS



SECTION 1 / —
NTS

PROFESSIONAL STRUCTURAL ENGINEER No. 2774619 ROBERT C. CONDER 8/14/2023 STATE OF UTAH

LICENSED PROFESSIONAL ENGINEER 8246274 Delmar W. Johnson 4-19-24 STATE OF UTAH

FILE NAME: PROJECTS\089 - WEST JORDAN\29.100 - WELL NO. 8 PUMP BUILDING\CAD\S-4 FOUNDATION DETAILS.DWG
FILE DATE: 4.16.2024 09:27:18 (DCL)

HANSEN ALLEN & LUCE Inc ENGINEERS

PROJECT ENGINEER

DESIGNED	MGA	3				
DRAFTED	BKC & DCL	2				
CHECKED	MEA	1				
DATE	APRIL 2024	NO.	DATE	REVISIONS	BY	APVD.

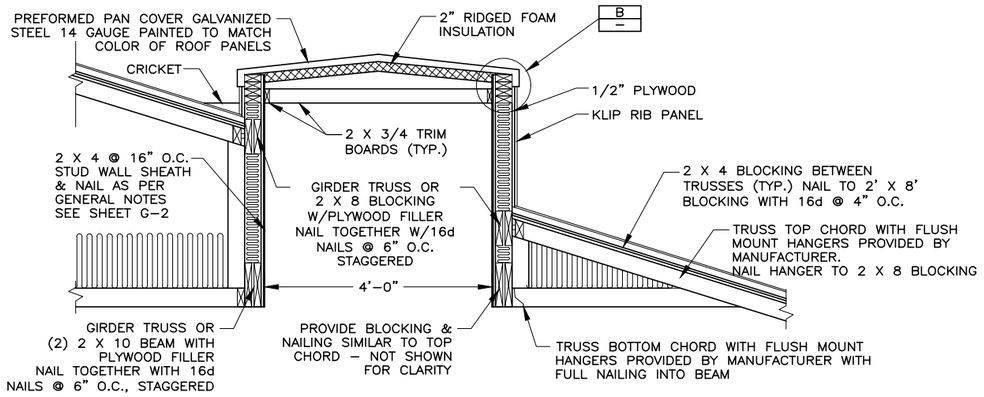
SCALE: AS SHOWN

WEST JORDAN UTAH

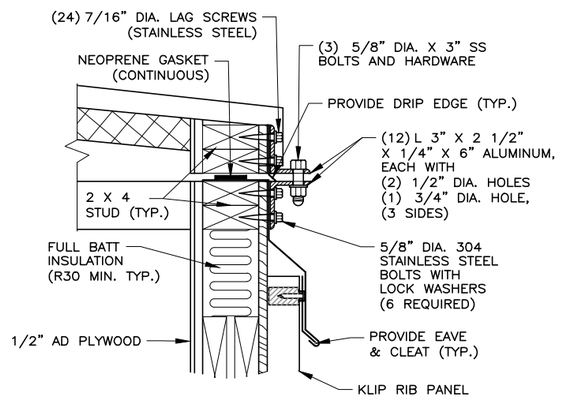
WELL NUMBER 8 PUMP BUILDING STRUCTURAL FOUNDATION DETAILS

SHEET S-4
089.29.100

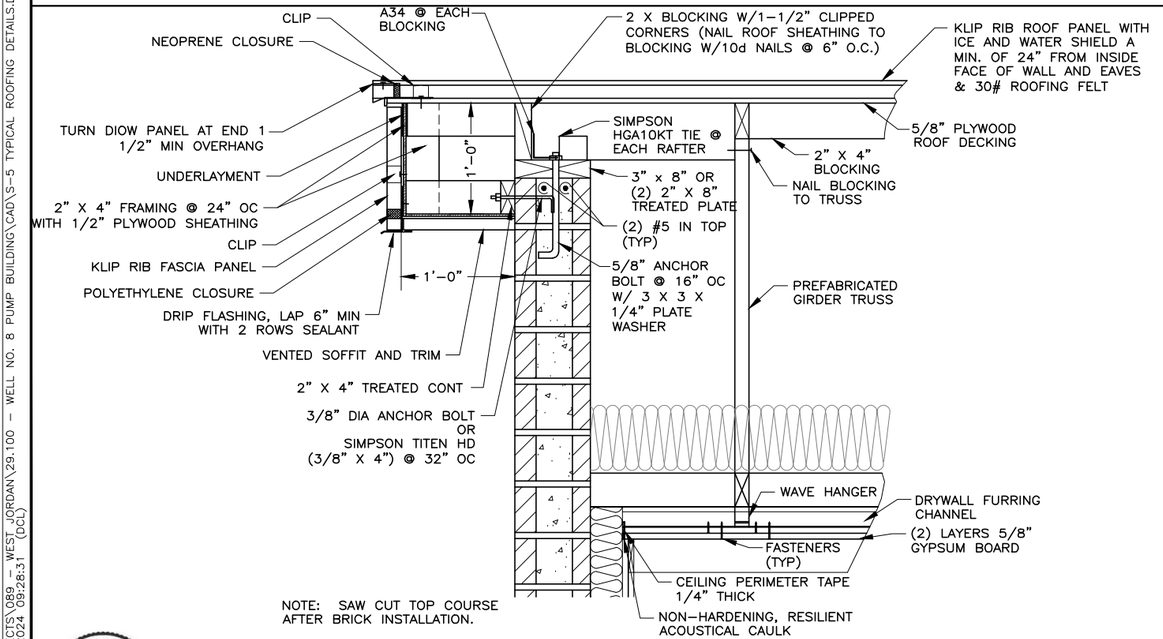
7/04



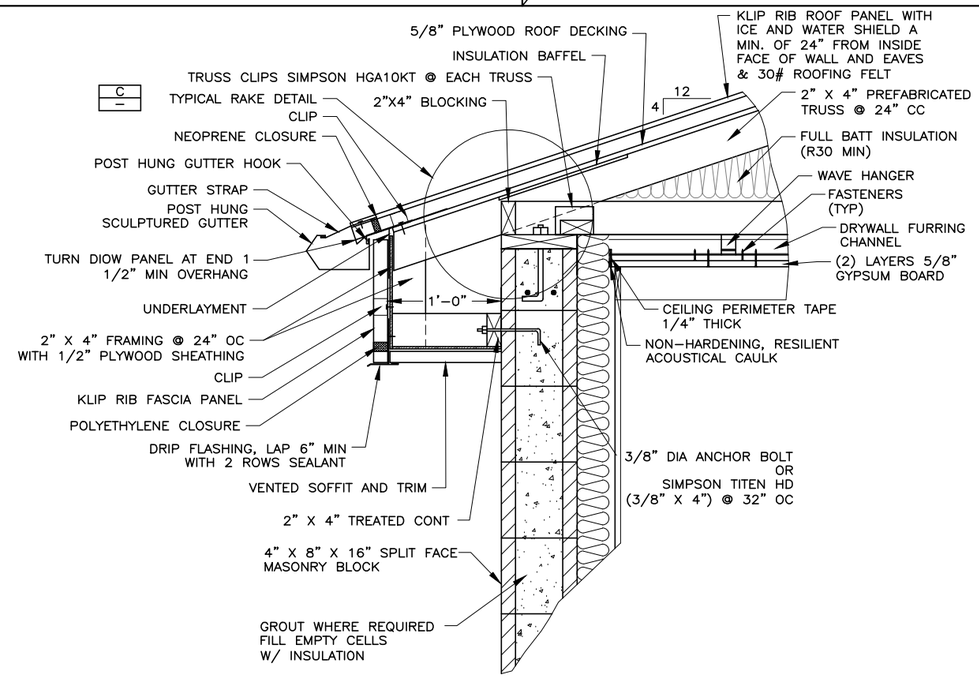
PUMP ACCESS DETAIL — A — S-3
NTS



PUMP ACCESS FASTENER DETAIL — B — —
NTS



TYPICAL RAKE DETAIL — C — S-3
NTS



TYPICAL EAVE DETAIL — D — S-3
NTS

PROFESSIONAL STRUCTURAL ENGINEER — No. 2774619 — ROBERT C. CONDER — 4/4/2024 — STATE OF UTAH

LICENSED PROFESSIONAL ENGINEER — 20024 — Delmas W. Johnson — 4-19-24 — STATE OF UTAH

HANSEN ALLEN & LUCE inc — ENGINEERS

DESIGNED	MGA	3					
DRAFTED	BKC	2					
CHECKED	MEA	1					
DATE	APRIL 2024	NO.	DATE	REVISIONS		BY	APVD.

PROJECT ENGINEER

SCALE

WEST JORDAN UTAH

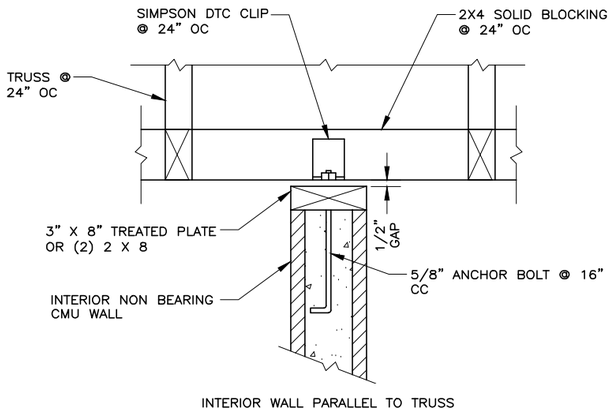
WELL NUMBER 8 PUMP BUILDING STRUCTURAL TYPICAL ROOFING DETAILS

SHEET S-5

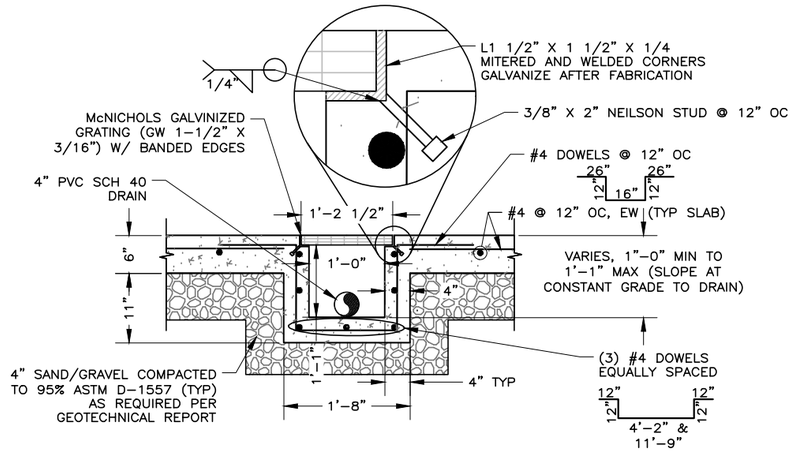
089.29.100

FILE NAME: PROJECTS\089 - WEST JORDAN\29.100 - WELL NO. 8 PUMP BUILDING\CAD\S-5 TYPICAL ROOFING DETAILS.DWG
FILE DATE: 4.16.2024 09:28:31 (DCL)

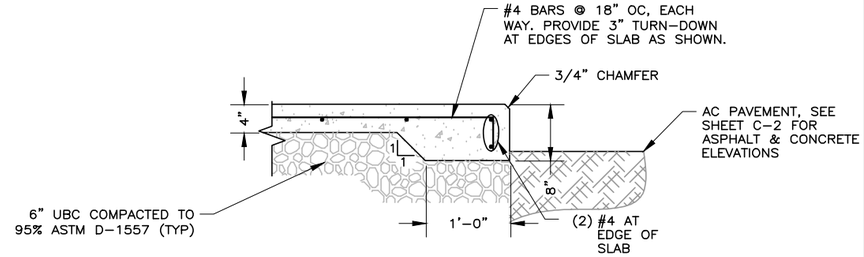
7/04



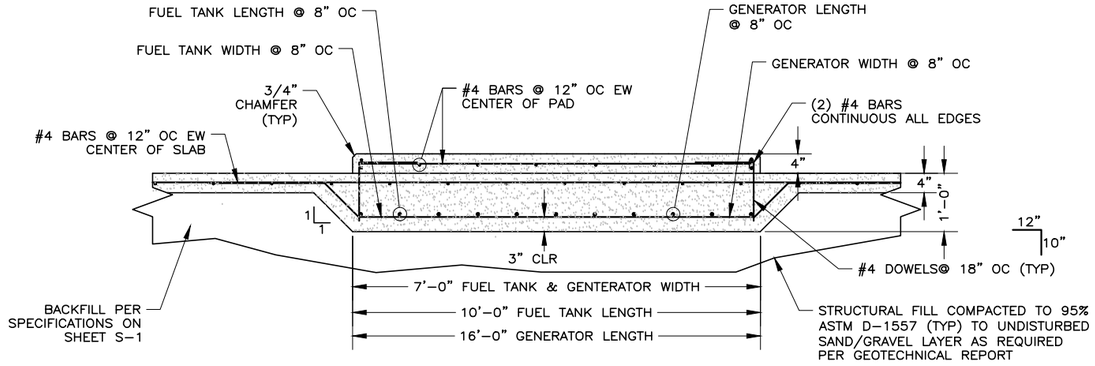
WALL / TRUSS DETAIL — NTS — A / S-3



TRENCH DRAIN DETAIL — NTS — B / S-2 | B / CF-1 | B / C-4 | B / C-5 | A / CF-2



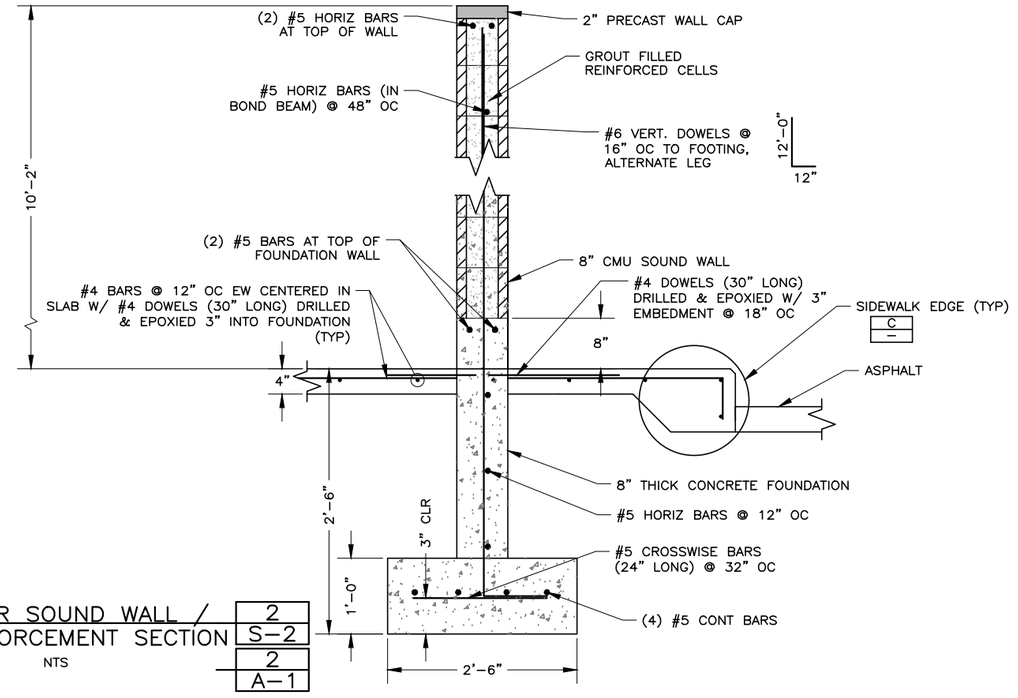
TYPICAL SIDEWALK EDGE DETAIL — NTS — C / — | C / C-1A



TANK & GENERATOR PAD STRUCTURAL REINFORCEMENT		
GENERATOR	24" 10" WIDTH 10" 24" 6'-10"	24" 10" LENGTH 10" 24" 15'-10"
FUEL TANK	24" 10" WIDTH 10" 24" 6'-10"	24" 10" LENGTH 10" 24" 9'-10"

FUEL TANK AND GENERATOR PAD SECTION — NTS — 1 / S-2 | 1 / C-4

DETAIL NOTES:
1. GENERATOR PAD DIMENSIONS AND THICKNESS TO BE VERIFIED AND DESIGNED BY OTHERS AND PER THE GENERATOR MANUFACTUREER. THICKNESSES AND EDGE DISTANCES FROM ANCHOR BOLTS TO BOTTOM AND EDGE OF FOOTING TO BE PER THE CRACKED CONCRETE REQUIREMENTS IN THE ACI-318. DIMENSIONS AND REBAR SHOWN ARE FOR BIDDING PURPOSES ONLY AND NOT FOR CONSTRUCTION.



GENERATOR SOUND WALL / SLAB REINFORCEMENT SECTION — NTS — 2 / S-2 | 2 / A-1

PROFESSIONAL STRUCTURAL ENGINEER — No. 2774619 — ROBERT C. CONDER — 4/4/2024 — STATE OF UTAH

PROFESSIONAL ENGINEER — Delmas W. Johnson — 4-19-24 — STATE OF UTAH

HANSEN ALLEN & LUCE inc ENGINEERS

PROJECT ENGINEER

DESIGNED	MGA
DRAFTED	BKC
CHECKED	MEA
DATE	APRIL 2024

NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1				

SCALE

WEST JORDAN UTAH

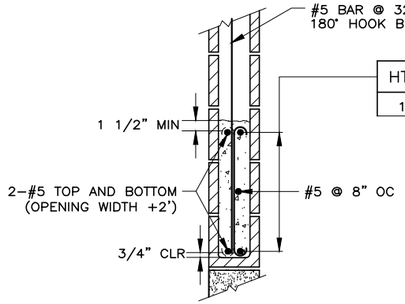
WELL NUMBER 8 PUMP BUILDING STRUCTURAL DETAILS

SHEET S-6

089.29.100

FILE NAME: PROJECTS\089 - WEST JORDAN\29.100 - WELL NO. 8 PUMP BUILDING\CAD\S-6 DETAILS.DWG
FILE DATE: 4.16.2024 09:32:34 (DCL)

7/04



HT	CLEAR OPENING
16"	1'–0" – 7'–6"

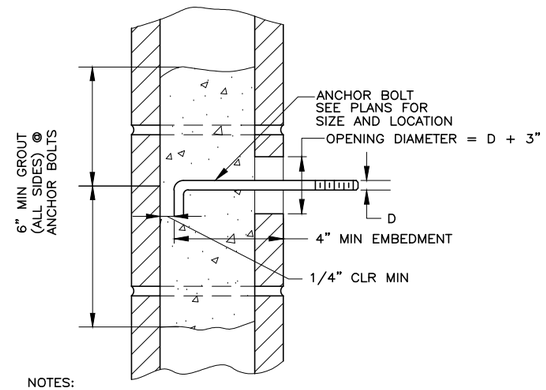
DETAIL NOTES:

1. EXTEND REINF & BOND BEAM MIN 48 DIA EACH END OF OPENING.
2. FILL HEAD JOINTS & GROUT SOLID.
3. USE #4 C @ 8" OC WHEN HT IS 20" OR MORE.
4. ADD #5 HORIZ BAR AT BOTTOM OF ALL OPENINGS. EXTEND THIS BAR MIN 48 DIA EACH END OF OPENING.
5. FULL HEIGHT TRIM BARS TO EACH SIDE OF OPENING PER DETAIL C/S–7.

MASONRY LINTEL DETAIL AT WALL OPENINGS

A C–5 | A S–3

NTS



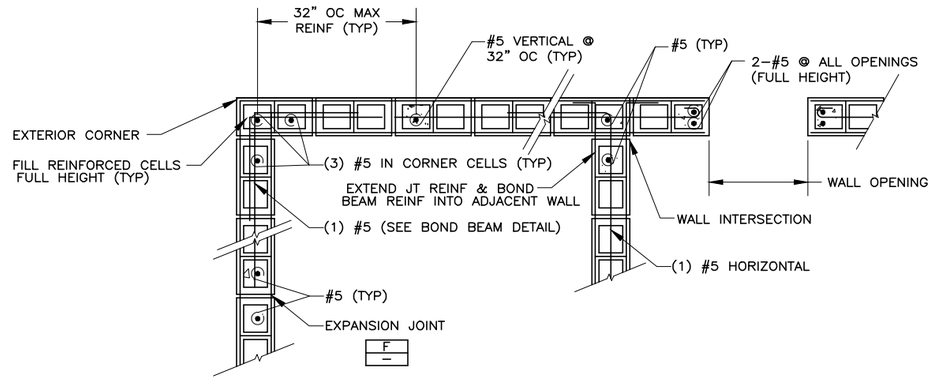
NOTES:

1. SET ANCHOR BOLTS WITH TEMPLATE.
2. CUT BLOCK WEB AS REQUIRED TO ALLOW MINIMUM OF GROUT BETWEEN ANCHOR BOLT AND BLOCK.
3. STAINLESS STEEL WEDGE ANCHORS MAY BE USED IN LIEU OF ANCHOR BOLTS.

ANCHOR BOLTS IN MASONRY DETAIL

B –

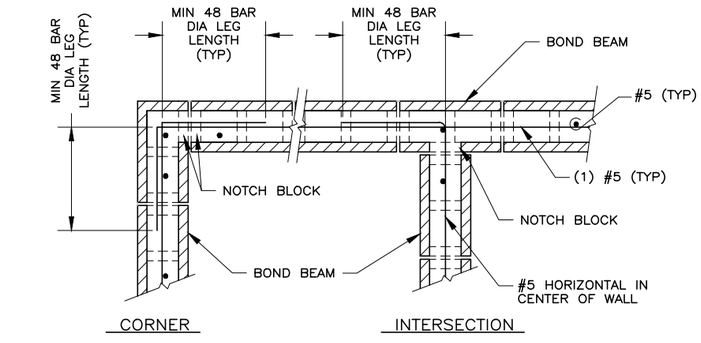
NTS



TYPICAL MASONRY WALL REINFORCING DETAIL

C –

NTS

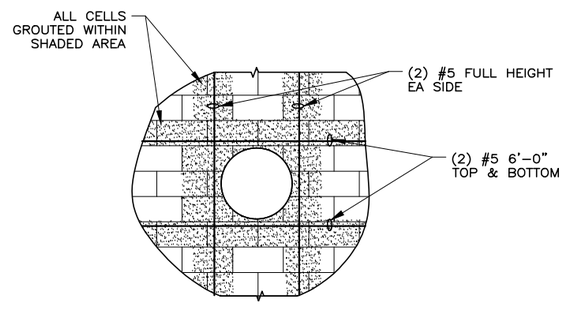


SEE MASONRY NOTES ON SHEET S–1

MASONRY WALL REINFORCING AT TYPICAL BOND BEAM DETAIL

D –

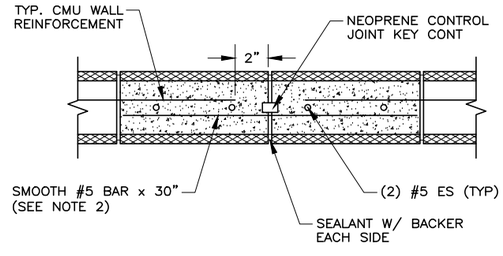
NTS



PENETRATION THROUGH MASONRY WALLS DETAIL

E – | E A–1

NTS



NOTES:

1. EXACT LOCATIONS OF JOINTS TO BE DETERMINED BY THE CONTRACTOR & APPROVED BY THE ENGINEER. SPACING OF JOINTS TO NOT EXCEED 24' MAX.
2. SMOOTH BARS ACROSS JOINT SHALL MATCH HORIZONTAL BAR SPACING. PREVENT BOND BETWEEN BAR AND GROUT ON ONE SIDE OF JOINT WITH GREASE FILLED PVC SLEEVE. CAP AND SIZE SLEEVES TO ALLOW ONE INCH OF MOVEMENT BEYOND END OF PANELS.
3. ROOF LEVEL CHORD REINF. SHALL BE CONTINUOUS THROUGH CONTROL JOINT.
4. CONTROL JOINTS SHALL NOT INTERSECT LINTELS.

CMU EXPANSION JOINT DETAIL

F –

NTS

PROFESSIONAL STRUCTURAL ENGINEER
No. 2774619
ROBERT C. CONDER
4/4/2024
STATE OF UTAH

LICENSED PROFESSIONAL ENGINEER
No. 260244
Delmar W. Johnson
4-19-24
STATE OF UTAH

HANSEN ALLEN & LUCE inc
ENGINEERS

PROJECT ENGINEER

DESIGNED	MGA	3			
DRAFTED	BKC	2			
CHECKED	MEA	1			
DATE	APRIL 2024	NO.	DATE	REVISIONS	BY / APVD.

SCALE

WEST JORDAN UTAH

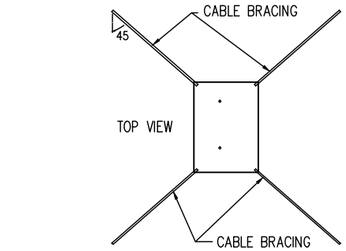
WELL NUMBER 8 PUMP BUILDING
STRUCTURAL
TYPICAL MASONRY DETAILS

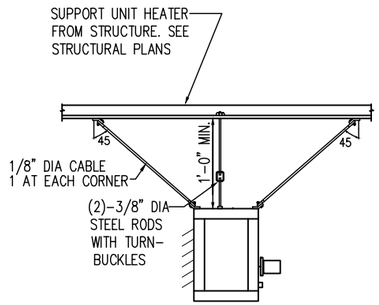
SHEET S–7

089.29.100

FILE NAME: PROJECTS\089_-_WEST_JORDAN\29.100_-_WELL_NO._8_PUMP_BUILDING\CAD\S-7_TYPICAL_MASONRY_DETAILS.DWG
FILE DATE: 4.16.2024 09:33:54 (DCL)

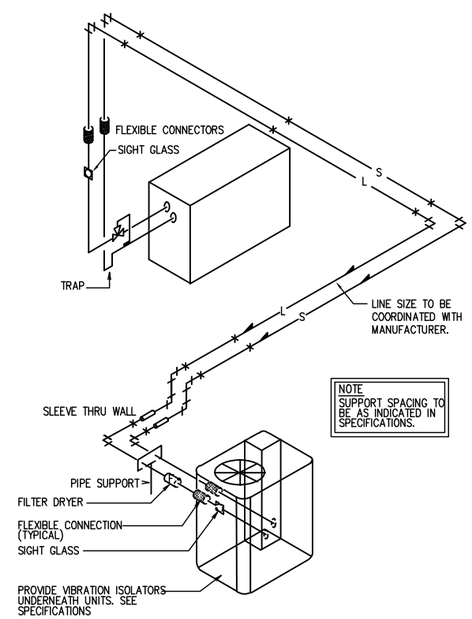
7/04





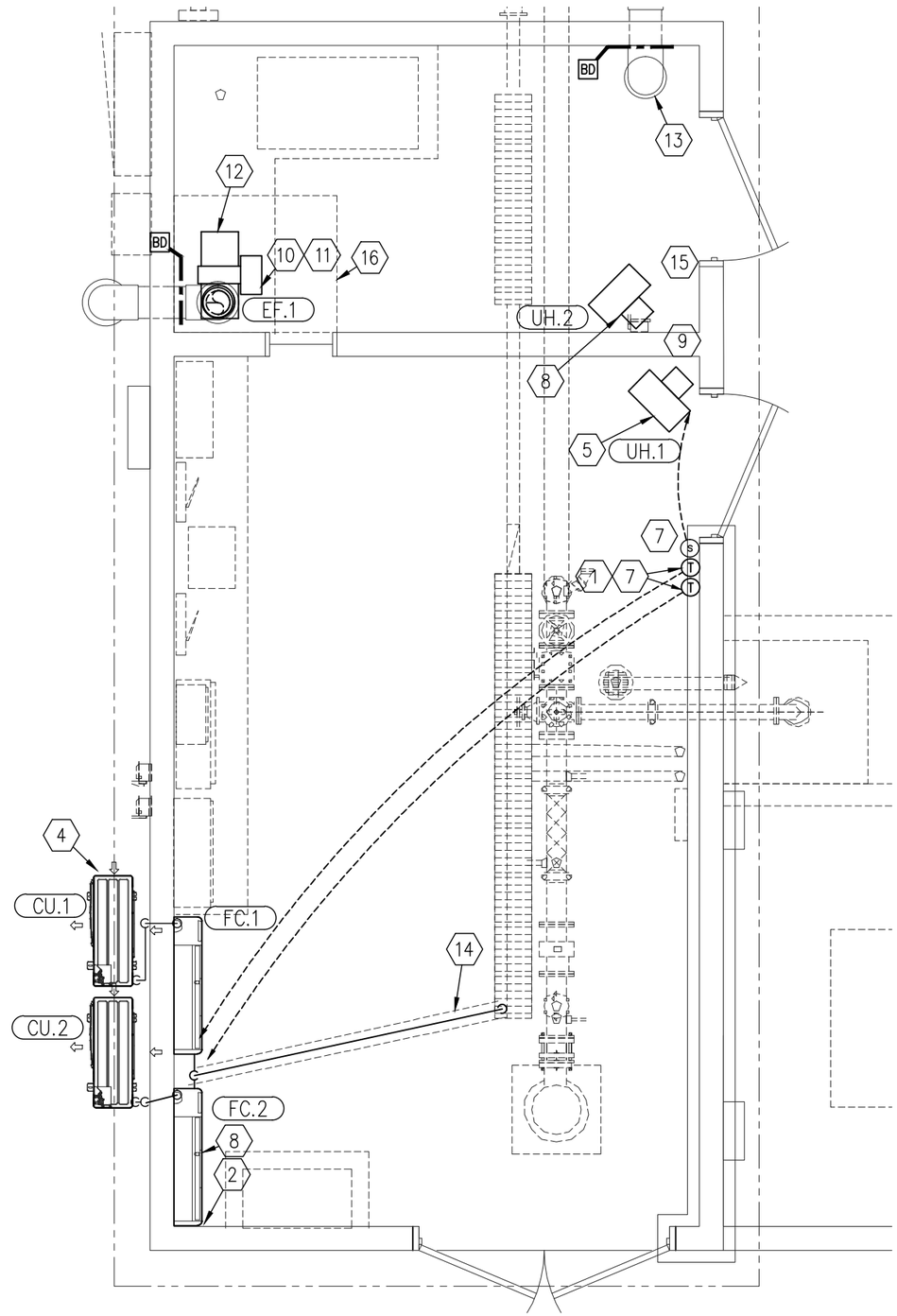
ELECTRIC HEATER DETAIL
NO SCALE

2
H-1



TYPICAL REFRIGERANT SCHEME
NO SCALE

3
H-1



1 H-1 HVAC PLAN
SCALE: 1/4" = 1'-0"

N

MECHANICAL KEYED NOTES

1. WIRELESS MITSUBISHI CONTROLLER.
2. PIPE CONDENSATE FROM COOLING COIL PAN TO TRENCH DRAIN.
3. INSTALL WITH PROPER MAINTENANCE ACCESS AS PER MANUFACTURER.
4. 4" HOUSEKEEPING PAD.
5. PROVIDE WITH FACTORY WALL MOUNTING BRACKETS. PROVIDE WITH WALL MOUNTED THERMOSTAT. TYPICAL.
6. PROVIDE ADDITIONAL SET OF FILTERS UPON COMPLETION.
7. COORDINATE CONTROLS WITH ELECTRICAL. TYPICAL.
8. COORDINATE EXACT LOCATION WITH OWNER. TYPICAL.
9. TEMPERATURE CONTROL FOR CHLORINE ROOM TO BE BY ELECTRICAL.
10. PROVIDE WITH OPTIONAL STAINLESS STEEL STAND.
11. CORROSION RESISTANT FAN.
12. PROVIDE BACKDRAFT DAMPER.
13. RUN INTAKE TO 12" ABOVE FINISHED FLOOR. COORDINATE WITH HANSEN ALLEN AND LUCE.
14. INSTALL 1-1/2 PVC IN FLOOR SLAB TO TRENCH DRAIN. VERIFY WITH DRAIN CONSTRUCTION FOR PENETRATION LOCATION.
15. HOA CONTROLLER LOCATION TO BE BY ELECTRICAL.
16. SERVICE CLEARANCE.

COMMISSIONING CHECKLIST

THE FOLLOWING CHECKLIST IS TO BE COMPLETED BY THE CONTRACTOR AND RETURNED TO THE ENGINEER AT JOB COMPLETION WITH AS-BUILT RED LINES.

[INITIAL- DATE]	ITEM
GENERAL	
[-]	THE DESIGN INTENT, NOTES, DETAILS, AND CHECKLISTS ARE UNDERSTOOD.
START-UP	
[-]	ALL START-UP CHECK LISTS ARE COMPLETE AND PREPARED TO SUBMIT TO THE OWNER.
SEQUENCE	
[-]	THE SEQUENCE HAS BEEN VERIFIED TO OPERATE CORRECTLY:

PUMP ROOM SEQUENCE
COOLING: MAINTAIN 80 DEG. MAX WITH 5 DEGREE DEAD-BAND.

WHEN THE PUMP MOTORS ARE RUNNING:
FC.1 - ON/AUTO;
FC.2 - ON/AUTO;
UH.1 - OFF.

WHEN THE PUMP MOTORS ARE OFF (MANUAL OPERATION ONLY):
FC.1 - ON/AUTO;
FC.2 - ON/AUTO;
UH.1 - OFF.

HEATING: MAINTAIN 55 DEGREES WITH 5 DEGREE DEAD-BAND.
FC.1 - ON/AUTO;
FC.2 - ON/AUTO;
UH.1 - ON.

CHLORINE ROOM SEQUENCE
VENTILATION:
EF.1 - ON/AUTO;

HEATING: MAINTAIN 60 DEGREES WITH 5 DEGREE DEAD-BAND.
UH.1 - ON/AUTO.

THESE DOCUMENTS ARE INCOMPLETE WITHOUT FULL COORDINATION WITH BLUEFIELD ENGINEERING.

LICENSED PROFESSIONAL ENGINEER
LIC. 260219
E. TAYLOR GROBERG
08/01/20
STATE OF UTAH

HANSEN ALLEN & LUCE inc ENGINEERS

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DESIGNED	TG	3					
DRAFTED	BLUEFIELD	2					
CHECKED	BLUEFIELD	1	-	-	TG		
DATE	JUNE 2020	NO.	DATE	REVISIONS	BY	APVD.	

SCALE: AS SHOWN

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
HVAC
HVAC DESIGN

SHEET H-1

089-29-100

MITSUBISHI OUTDOOR UNIT SCHEDULE

ID	APPROVED MANUFACTURER AND NOMINAL TONAGE	LOCATION	AMBIENT AIR HTG / CLG (DEG F)	COOLING CAPACITY NOMINAL (MBH)	HEATING CAPACITY NOMINAL (MBH)	REFRIG. TYPE	COP (47F / 17F)	ELECTRICAL					PHYSICAL DATA			NOTES
								FUSE (AMPS)	FAN OUTPUT (W)	CONNECTION #1			SOUND IN ANECHOIC (dB)	WEIGHT (LBS)	DIMENSIONS LN / WD / HT (IN)	
										VOLT / PH	MCA (AMPS)	MOCP (AMPS)				
CU.1	MITSUBISHI PUZ-A30N	GROUND	0 / 98	30	32	R-410	3.8 / 2.7	25	86	208 / 1	19	26	48	153	38 / 14 / 37	1,2
CU.2	MITSUBISHI PUZ-A30N	GROUND	0 / 98	30	32	R-410	3.8 / 2.7	25	86	208 / 1	19	26	48	153	38 / 14 / 37	1,2

1. INCLUDE LOW AMBIENT HOOD KIT WITH ACCOCIATED WIND BAFFLES FOR 100% LOW AMBIENT COOLING TO -10F
2. PROVIDE WITH DRAIN PAN AND BASE PAN HEATER.

MITSUBISHI INDOOR UNIT SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	TYPE	USE TYPE	AIR				FAN	REFRIGERANT			ELECTRICAL		PHYSICAL	NOTES
				MAXIMUM AIRFLOW RATE (CFM)	OUTSIDE AIRFLOW RATE (CFM)	CAP 97 F ODB 75 F IDB (BTU/H)	CAP 5 F ODB 70 F IDB (BTU/H)	EXT. STATIC PRESS. (IN. H2O)	TYPE	GAS PRESS. SIZE (IN)	LIQUID PRESS. SIZE (IN)	UNIT ONLY MCA (AMPS)	VOLT/PH/HZ	LENGTH/ WIDTH/ HEIGHT - WEIGHT (IN) - (LBS)	
FC.1	MITSUBISHI PKA - A30K	WALL MOUNTED	HTG	700	-	-.-	32	-	R410A	5/8	3/8	1	208 / 1 / 60	46 / 12 / 15 46	1
			CLG	700	-	30	-.-								
FC.2	MITSUBISHI PKA - A30K	WALL MOUNTED	HTG	700	-	-.-	32	-	R410A	5/8	3/8	1	208 / 1 / 60	46 / 12 / 15 46	1
			CLG	700	-	30	-.-								

1. POWERED FROM OUTDOOR UNIT.

FAN SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	AIR		FAN		ELECTRICAL		PHYSICAL	NOTES
				MAXIMUM AIRFLOW RATE (CFM)	STATIC PRESSURE (IN. WATER)	FAN WHEEL DIAMETER (IN)	STATIC EFFICIENCY (%)	MOTOR SIZE HP	VOLT/PH/HZ	LENGTH/ WIDTH/ HEIGHT (IN)	
EF.1	PLASTEC MODEL 30	CHLORINE AREA	INTERIOR VENT SET	1,100	0.5	22	70	3/4	120 / 1 / 60	28 / 22 / 30	1,2,3

1. TIE TO LIGHT SWITCH.
2. TIED TO LINE VOLTAGE THERMOSTAT AND TO CHLORINE SENSOR FOR EMERGENY USE.
3. PROVIDE WITH BACKDRAFT DAMPER.

ELECTRIC HEATER SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPIE	AIR			ELECTRICAL		PHYSICAL	NOTES
				AIRFLOW RATE (CFM)	LOAD (BTU/H)	TEMP. RISE DB (°F)	HEAT CAPACITY (KW)	VOLT/PH/HZ	LENGTH/ HEIGHT/ WIDTH (INCH)	
UH.1	Q-MARK MUH 0541 5KW	CONTROL ROOM	ELECTRIC	350	17,050	85	5	480 / 3 / 60	14 / 16 / 8	1,2,3
UH.2	Q-MARK MUH 0341 3KW	CONTROL ROOM	ELECTRIC	250	17,050	85	3	480 / 3 / 60	14 / 16 / 8	1,2,3

1. PROVIDE WITH FACTORY WALL MOUNT BRACKET.
2. PROVIDE WITH FINGER PROOF FAN GUARD.
3. COORDINATE WITH ARCHITECTURAL.

THESE DOCUMENTS ARE INCOMPLETE WITHOUT FULL COORDINATION WITH BLUEFIELD ENGINEERING.

LICENSED PROFESSIONAL ENGINEER
NO. 260219
E. TAYLOR GROBERG
08/01/20
STATE OF UTAH

HANSEN ALLEN & LUCE, INC. ENGINEERS

bluefield engineering.com

DESIGNED	TG	3				
DRAFTED	BLUEFIELD	2				
CHECKED	BLUEFIELD	1	–	–	TG	
DATE	JUNE 2020	NO.	DATE	REVISIONS	BY	APVD.

SCALE: AS SHOWN

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
HVAC
HVAC SCHEDULES

SHEET H–2

089–29–100

DIVISION 22/23 – PLUMBING/HVAC

SECTION 22 0500/23 0500
COMMON WORK RESULTS FOR PLUMBING/HVAC

GENERAL CONDITIONS:

The General Conditions of the Contract, with the amendments, supplements, forms and requirements in Division 1, and herewith made a part of this Division.

All sections of Division 15 shall comply with the Mechanical General Requirements. The standards established in this section as to quality of materials and equipment, the type and quality of workmanship, mode of operations, safety rules, code requirements, etc., shall apply to all sections of this Division as though they were repeated in each Division.

SCOPE OF WORK:

The project described herein is West Jordan Well #8. This work shall include all labor, materials, equipment, fixtures, and devices for the entire mechanical work and a complete operating, tested and commissioned installation.

Section 23 Index:

SYSTEM DESCRIPTION:

CODES & ORDINANCES:

All work shall be executed in accordance with all underwriters, public utilities, local and state rules and regulations applicable to the trade affected. Should any change in the plans and Specifications be required to comply with these regulations, the Contractor shall notify the Engineer before the time of submitting his bid. After entering into contract, the Contractor will be held to complete all work necessary to meet these requirements without extra expense to the Owner. Where work required by drawings or specifications is above the standard required, it shall be done as shown or specified.

Applicable codes are as follows:
2018 International Mechanical Code
2018 International Building Code
2018 International Plumbing Code
Utah State Boiler Code

SUBMITTALS AND SHOP DRAWINGS:

Submittals:

As soon as possible after the contract is awarded, but in no case more than 5 calendar days thereafter, the Contractor shall submit to the Engineer four (4) copies of the descriptive literature covering products and materials to be used in the installation of mechanical systems for this project. The review of the submitted data will require a minimum of [7] days. If the Contractors schedule requires return of submitted literature in less than the allotted time, the Contractor shall accelerate his submittal delivery date. The Contractor shall resubmit all items requiring re-review within 7 days of returned submittals. Refer to each specification section for items requiring submittal review. Written approval of the Owner's Representative shall be obtained before installing any such equipment or materials for the project. The submittals shall be prepared in an orderly manner, contained in a 3-ring loose-leaf binder with index and identification tabs each item or group of items and for each specification section. All items shall be submitted at one time except automatic temperature control drawings and seismic restraint drawings which may be submitted separately within 60 days of the contract award date. Partial submittals will not be reviewed until the complete submittal is received.

Submitted literature shall bear the Contractor's stamp, indicating that he has checked all equipment being submitted; that each item will fit into the available space with the accesses shown on the drawings; and, further, that each item conforms to the capacity and quality standards given in the contract documents.

Coordination Drawings: Detail major elements, components, and systems of plumbing and HVAC equipment and materials in relationship with other systems, installations, and building components. Show space requirements for installation and access. Indicate if sequence and coordination of installations are important to efficient flow of the Work. Include the following:

a. Planned piping and duct layout, including specialty locations and access areas.
b. Clearances for installing and maintaining insulation.
c. Clearances for servicing and maintaining equipment, accessories, and specialties, including space for disassembly required for periodic maintenance.
d. Equipment and accessory service connections and support details.
e. Exterior wall and foundation penetrations.
f. Fire-rated wall and floor penetrations.
g. Sizes and location of required concrete pads and bases.
h. Scheduling, sequencing, movement, and positioning of large equipment into building during construction.
i. Floor plans, elevations, and details to indicate penetrations in floors, walls, and ceilings and their relationship to other penetrations and installations.

Submitted literature shall clearly indicate performance, quality, and utility requirements; shall show dimension and size of connection points; and shall include derating factors that were applied for each item of equipment to provide capacity at job site elevation. Temperature control submittals shall include piping and wiring diagrams, sequence of operation and equipment. Equipment must fit into the available space with allowance for operation, maintenance, etc. Factory piped and wired equipment shall include shop drawings for all internal wiring and piping furnished with the unit.

Submitted literature shall clearly show all required field install wiring, piping, and accessory installations required by the Contractor to provide a complete operating system.

Review by the Owner's Representative is for general conformance of the submitted equipment to the project specification. In no way does such review relieve this Contractor of his obligation to furnish equipment and materials that comply in detail to the specification nor does it relieve the Contractor of his obligation to determine actual field dimensions and conditions that may affect his work. Regardless of any items overlooked by the submittal review, the requirements of the contract drawings and specifications must be followed and are not waived or superseded in any way by the review.

The contractor is to review equipment by description, catalog number, and manufacturer's names. Standards of quality have been established by the Engineer for certain manufactured equipment items and specialties that are to be furnished by this Division. Alternate products and equipment may be proposed for use only if specifically named in the specifications or if given written prior approval in published addenda. Design equipment is the equipment listed on the drawings or if not listed on the drawings is the equipment first named in the specifications.

Alternate Equipment:

The Contractor should protect himself with the supplier of alternate named equipment. Alternate named equipment will be reviewed only one time.

Should alternate equipment be submitted and be rejected, it shall not be resubmitted for review and it shall be the responsibility of this contractor. The contractor shall only submit on design equipment on future submittals. Incomplete submittal data will be rejected.

If the Engineer is required to do additional design work to incorporate changes caused by submitting equipment or products, different than the design equipment specified, as defined above, the contractor shall reimburse the engineer for additional time and expenses at the engineers current, recognized, hourly rates.

DRAWINGS AND MEASUREMENTS:

Drawings:

The contract document drawings show the general design, arrangements, and extent of the system. In certain cases, the drawings may include details that show more nearly exact locations and arrangements; however, the locations, as shown diagrammatically, are to be regarded as general.

It shall be the work of this Section to make such slight alterations as may be necessary to make adjustable parts fit to fixed parts, leaving all complete and in proper shape when done. All dimensions given on the drawings shall be verified as related to this work and with the Engineer's office before work is started.

This Section shall carefully study building sections, space, clearances, etc., and then provide offsets in piping or ductwork as required to accommodate the building structure without additional cost to the Owner. In any case and at any time, a change in location required by obstacles or the installation of other trades not shown on the mechanical plans shall be made without charge.

The drawings shall not be scaled for roughing in measurements nor shall they be used as shop drawings. Where drawings are required for these purposes or where drawings must be made from field measurements, the Contractor shall take the necessary measurements and prepare the drawings. Shop drawings of the various subcontractors shall be coordinated to eliminate all interferences and to provide sufficient space for the installation of all equipment, piping, ductwork, etc.

The drawings and specifications have been prepared to supplement each other and they shall be interpreted as an integral unit with items shown on one and not the other being furnished and installed as though shown and called out on both.

Record Drawings:

Record drawings for all systems and sections of this Division shall be furnished as work of this Section. Blue-line white prints of floor plans shall be furnished by the Engineer's office. These prints shall be accurately and neatly marked in colored pencil, showing all changes from schematics. Installation and commissioning checklists that are provided on the drawings are to be initialed and dated upon completion.

These drawings shall be reviewed with the Engineer's at least once each month, shall be submitted at time of final inspection, and shall be checked for accuracy. Failure to keep record drawings up-to-date shall be cause for withholding monthly payments.

CONTRACTOR'S USE OF BUILDING EQUIPMENT:

The Contractor may use equipment such as electric motors, fans, heat exchangers, filters, etc., with the written permission of the Owner. As each piece of equipment is used (such as electric motors and fans), maintenance procedures approved by the manufacturer are to be followed. A careful record is to be kept of the length of the time the equipment is used, maintenance procedures followed, and any difficulty encountered. The record is to be submitted to the Owner upon acceptance. All fan belts and filter media (such as bearings) shall be carefully inspected just prior to acceptance. Any excessive wear noted shall require replacement. Any damage by Contractor to be replaced by Contractor.

EXISTING CONDITIONS:

The Contractor shall carefully examine all existing conditions that might affect the mechanical system and shall compare these conditions with all drawings and specifications for work included under this contract. He shall, at such time, ascertain and check all conditions that may affect his work. No allowance shall subsequently be made in his behalf for an extra expense incurred as a result of his failure or neglect to make such examination. This Contractor shall include in his bid proposal all necessary allowances to repair or replace any item that will remain or will be removed, and any item that will be damaged or destroyed by new construction.

The Contractor shall remove all abandoned piping, etc., required by new construction and cap or plug openings. No capping, etc., shall be exposed in occupied areas. All openings of items removed shall be sealed to match adjacent surfaces.

The Contractor shall verify the exact location of all existing services, utilities, piping, etc., and make connections to existing systems as required or as shown on the drawings. The exact location of each utility line, together with size and elevation, shall be established before any on-site lines are installed. Should elevation or size of existing main utility lines make connections to them impossible as shown on drawings, then notification of such shall immediately be given to the Owners Representative for a decision.

EQUIPMENT CAPACITIES:

Capacities shown for equipment in the specifications and on the drawings are the minimum acceptable. No equipment shall be considered as an alternate without prior approval of the design Engineer.

All equipment shall give the specified capacity and performance at the job-site elevation of [4200] feet above sea level. Manufacturers' standard ratings shall be adjusted accordingly. All capacities and performances listed on drawings or in specifications are for job-site conditions.

SEISMIC REQUIREMENTS FOR EQUIPMENT:

All equipment must be furnished structurally adequate to withstand seismic forces as outlined in the Uniform Building Code for seismic Zone 3. Equipment bases shall be designed for direct attachment of seismic snubbers and/or seismic anchors. Coordinate with structural.

COOPERATION WITH OTHER TRADES:

The general contractor shall be responsible for job site coordination. The Contractor shall refer to other drawings and parts of this specification that cover work of other trades that is carried on in conjunction with the mechanical work such that all work can proceed without interference resulting from lack of coordination.

The Contractor shall properly size and locate all openings, chases, sleeves, equipment bases, and accesses. He shall provide accurate wiring diagrams to the Electrical Contractor for all equipment furnished under this Division.

The ceiling cavity must be carefully reviewed and coordinated with all trades. In the event of conflict, the installation of the mechanical equipment and piping shall be in the following order: plumbing, waste, and soil lines; supply, return, and exhaust ductwork; water piping; medical gases; fire protection piping; and pneumatic control piping.

The mechanical Contractor shall insure that the installation of all piping, ducts and equipment is in compliance with Articles 110-16 and 384-4 of the National Electrical Code relative to proper clearances in front of and over all electrical panels and equipment. No piping or ductwork will be allowed to run over an electrical panel.

RESPONSIBILITY OF CONTRACTOR:

The Contractor is responsible for the installation of a satisfactory piece of work in accordance with the true intent of the drawings and specifications. He shall provide, as a part of his work and without expense, all incidental items required even though these items are not particularly specified or indicated. The installation shall be made so that its several component parts will function together as a workable system and shall be left with all equipment properly adjusted and in working order. (The Contractor shall familiarize the Owner's Representative with maintenance and lubrication instructions as prepared by the Contractor and shall explain and fully instruct him relative to operating, servicing, and maintenance of them.) Part of training package and P.M. program.

UNFIT OR DAMAGED WORK:

Any part of this installation that fails, is unfit, or becomes damaged during construction, shall be replaced or otherwise made good. The cost of such remedy shall be the responsibility of this Division and general contractor.

WORKMANSHIP:

Workmanship shall be the best quality of its kind for the respective industries, trades, crafts, and practices, and shall be acceptable in every respect to the Owner's representative. Nothing contained herein shall relieve the Contractor from making good and perfect work in all details in construction. All work shall be performed under the directories of any licensed journeyman. Contractor shall maintain a licensed journeyman on site at all times during construction.

SAFETY REGULATION:

The Contractor shall comply with all local and OSHA safety requirements in performance with this work. (See General Conditions). This Contractor shall be required to provide equipment, supervision, construction, procedures, and all other necessary items to assure safety to life and property.

ELECTRICAL SERVICES:

Motors:

All motors required under this Division shall be furnished and installed as work of this Division. All motor-starting equipment, unless otherwise specified in Division 15 shall be furnished as work of Division 16, Electrical. Motors shall be name plated with Class F insulation as manufactured by Lincoln Electric, US Motors, General Electric, Allis Chalmers, Century, or Reliance, designed for quiet continuous operations with maximum (Class B) 90oC resistance heating rise with 40oC ambient temperature at full load and rated speed and voltage individually specified with minimum 1.15 service factor. Motors shall be all of the same make except those incorporated in packaged units. All motors shall be provided with ball bearings and conduit connection boxes. Lifting eyes shall be provided on motors 1-1/2 horsepower and larger.

Unless otherwise specified, motors 3/4 horsepower and larger shall be 3 phase, 60 cycle, and motors 1/2 horsepower and smaller shall be single phase, 60 cycle. Contractor is to coordinate with available power voltage and phase. Refer to fan and equipment schedules on drawings for voltage characteristics, horsepower, size, etc. All single-phase motors shall have thermal overload protection. If motor-starting equipment is included in packaged units, all three phases shall have overload protection. All motors shall have a power factor of 85 percent or better. All motors 20 horsepower and larger shall be manufacturers Premium Efficiency grade and shall meet the NEMA MG 1-12.54" efficiency ratings for energy efficient motors. All two speed motors, unless otherwise specified, shall be 1800/1200 rpm dual winding type. All 3 phase motors shall be designed and manufactured to be capable of speed control through a variable frequency drive controller.

Motors and other electrical control equipment installed in damp or moist areas or in areas of other special conditions shall be designed and approved for the installation. Motors and electrical equipment in explosive locations shall be approved for those locations. Motors located outside buildings shall be totally enclosed.

Electric Wiring:

All equipment control wiring and all boiler control wiring, water heater control wiring, pump interlocks, automatic temperature control wiring including all necessary contacts, relays, and interlocks, whether low or line voltage, except power wiring, shall be furnished and installed as work of this Division.

All equipment that requires an electrical connection shall be furnished so that it will operate properly and deliver full capacity on the electrical service available and also satisfy the requirements under "Motors," as specified above.

The Mechanical Contractor must refer to the electrical control equipment and wiring shown on the diagrams. Any changes or additions required by specific equipment furnished shall be the complete responsibility of the Contractor furnishing the equipment.

The Mechanical Contractor must coordinate with the Electrical Contractor to insure that all required components of control work are included and fully understood. No additional cost shall accrue to the Owner as a result of lack of such coordination.

WORK, MATERIALS, AND QUALITY OF EQUIPMENT:

Unless otherwise specified, all materials shall be new and of the best quality of their respective kinds and all labor shall be done in a most thorough and workmanlike manner. Work shall be performed by a licensed electrician.

Products or equipment of any of the manufacturers cited herein or any of the products approved by the Addenda may be used. However, where lists of products are cited herein, the one first listed in the design equipment used in drawings and schedules to establish size, quality, function, and capacity standards. If other than design equipment is used, it shall be carefully checked for access to equipment, electrical and control requirements, valving, and piping. Should changes or additions occur in piping, valving, electrical work, etc., or if the work of other Contractors would be revised by the alternate equipment, the cost of all changes shall be borne as work of this Division.

Pipe of foreign manufacture will not be acceptable.

The access to equipment shown on the drawings are the minimum acceptable space requirements. No equipment that reduces or restricts accessibility to this or any other equipment will be considered.

END OF SECTION 22 0500/23 0500

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LICENSED PROFESSIONAL ENGINEER
NO. 260219
E. TAYLOR GROBERG
08/01/20
STATE OF UTAH

HANSEN ALLEN & LUCE inc ENGINEERS

bluefield engineering.com

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DATE	JUNE 2020	NO.	DATE	REVISIONS	BY	APVD.

SCALE: AS SHOWN

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
HVAC
HVAC SPECIFICATIONS

SHEET H-3

089-29-100

DIVISION 22/23 – PLUMBING/HVAC

SECTION 22 0500/23 0500
COMMON WORK RESULTS FOR PLUMBING/HVAC PIPING

PRODUCTS

SUBMITTALS
Product Data: For each type of pipe hanger, channel support system component, and thermal–hanger shield insert indicated.
Shop Drawings: Signed and sealed by a qualified professional engineer for multiple piping supports and trapeze hangers. Include design calculations and indicate size and characteristics of components and fabrication details.
Welding Certificates: Copies of certificates for welding procedures and operators.

QUALITY ASSURANCE
Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX, "Welding and Brazing Qualifications."
Engineering Responsibility: Design and preparation of Shop Drawings and calculations for multiple pipe supports, trapeze, equipment anchorage, and seismic restraint by a qualified professional engineer.
Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of hangers and supports that are similar to those indicated for this Project in material, design, and extent.

SUPPORTING DEVICES
Hanger and Pipe Attachments: Factory fabricated with galvanized coatings; nonmetallic coated for hangers in direct contact with copper tubing.
Building Attachments: Powder–actuated–type, drive–pin attachments with pullout and shear capacities appropriate for supported loads and building materials; UL listing and FM approval for fire–protection systems.
Mechanical–Anchor Fasteners: Insert–type attachments with pullout and shear capacities appropriate for supported loads and building materials; UL listing and FM approval for fire–protection systems.
EXECUTION
Install piping free of sags and bends.
Install fittings for changes in direction and branch connections.
Install sleeves for pipes passing through concrete walls, gypsum–board partitions, and concrete floor and roof slabs.
Exterior Wall, Pipe Penetrations: Mechanical sleeve seals installed in steel or cast–iron pipes for wall sleeves.
Fire–Barrier Penetrations: Seal pipe penetrations with through–penetration firestop systems specified in Division 7.
Install unions adjacent to each valve and at final connection to each piece of equipment.
Install dielectric coupling and nipple fittings to connect piping materials of dissimilar metals in water and steam piping.
Install building attachments within concrete or to structural steel. Install additional attachments at concentrated loads, including valves, flanges, guides, strainers, expansion joints, and at changes in direction of piping.
Install powder–actuated drive–pin fasteners in concrete after concrete is cured. Do not use in lightweight concrete or in slabs less than 4 inches thick.
Install mechanical–anchor fasteners in concrete after concrete is cured. Do not use in lightweight concrete or in slabs less than 4 inches thick.
Support fire–protection system piping independent of other piping.
Load Distribution: Install hangers and supports so piping live and dead loading and stresses from movement will not be transmitted to connected equipment.
Pipe Hanger and Support Installation: Comply with MSS SP–69 and MSS SP–89. Install hangers, supports, clamps, and attachments as required to properly support piping from building structure.
Channel Support System Installation: Arrange for grouping of parallel runs of piping and support together on field–assembled channel systems.
1. Field assemble and install according to manufacturer's written instructions.
Install building attachments within concrete slabs or attach to structural steel. Space attachments within maximum piping span length indicated in MSS SP–69. Install additional attachments at concentrated loads, including valves, flanges, guides, strainers, and expansion joints, and at changes in direction of piping. Install concrete inserts before concrete is placed; fasten inserts to forms and install reinforcing bars through openings at top of inserts.
Install mechanical–anchor fasteners in concrete after concrete is placed and completely cured. Install fasteners according to manufacturer's written instructions.
Install hangers and supports complete with necessary inserts, bolts, rods, nuts, washers, and other accessories.
Install hangers and supports to allow controlled thermal and seismic movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.
Load Distribution: Install hangers and supports so that piping live and dead loads and stresses from movement will not be transmitted to connected equipment.
Pipe Slopes: Install hangers and supports to provide indicated pipe slopes and so maximum pipe deflections allowed by ASME B31.9, "Building Services Piping," is not exceeded.
PAINTING
Touching Up: Where cleaning and touch up painting is not specified in Division 9, Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC–PA 1 requirements for touching up field–painted surfaces.
Apply paint by brush or spray to provide a minimum dry film thickness of 2.0 mils.
Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing–repair paint to comply with ASTM A 780.

END OF SECTION 22 0500/23 0500

DIVISION 22/23 – PLUMBING/HVAC

SECTION 22 0553/23 0553
IDENTIFICATION FOR PLUMBING/HVAC PIPING & EQUIPMENT

SUBMITTALS
Product Data: For identification materials and devices.
Samples: Of color, lettering style, and graphic representation required for each identification material and device.

QUALITY ASSURANCE
Comply with ASME A13.1, "Scheme for the Identification of Piping Systems" for lettering size, length of color field, colors, and viewing angles of identification devices.

PRODUCTS

Products specified are for applications referenced in other Division 15 Sections. If more than single type is specified for listed applications, selection is Installer's option.
Equipment Nameplates: Metal permanently fastened to equipment with data engraved or stamped.
Data: Manufacturer, product name, model number, serial number, capacity, operating and power characteristics, labels of tested compliances, and essential data
Location: Accessible and visible.
Stencils: Standard stencils, prepared with letter sizes conforming to recommendations of ASME A13.1. Minimum letter height is 1–1/4 inches for ducts, and 3/4 inch for access door signs and similar operational instructions.
Stencil Paint: Exterior, oil–based, alkyd gloss black enamel, unless otherwise indicated. Paint may be in pressurized spray–can form.
Identification Paint: Exterior, oil–based, alkyd enamel in colors according to ASME A13.1, unless otherwise indicated.
Snap–On Plastic Pipe Markers: Manufacturer's standard preprinted, semi–rigid, snap–on type. Include color–coding according to ASME A13.1, unless otherwise indicated.
Pipes with OD, Including Insulation, Less Than 6 Inches: Full–band pipe markers, extending 360 degrees around pipe at each location.
Pipes with OD, Including Insulation, 6 Inches and Larger: Either full–band or strip–type pipe markers, at least 3 times letter height and of length required for label.

Lettering: Manufacturer's standard preprinted captions as selected by Engineer.
Lettering: Use piping system terms indicated and abbreviate only as necessary for each application length.
Arrows: Either integrally with piping system service lettering, to accommodate both directions, or as separate unit, on each pipe marker to indicate direction of flow.
Plastic Duct Markers: Manufacturer's standard laminated plastic, in the following color codes:
Green: Cold–air supply.
Yellow: Hot–air supply.
Blue: Exhaust, outside, return, and mixed air.
Hazardous Material Exhausts: Use colors and designs recommended by ASME A13.1.
Terminology: Include direction of airflow; duct service such as supply, return, and exhaust; duct origin, duct destination, and design flow.
Plastic Tape: Manufacturer's standard color–coded, pressure–sensitive, self–adhesive, vinyl tape, at least 3 mils thick.
Width: 1–1/2 inches on pipes with OD, including insulation, less than 6 inches; 2–1/2 inches for larger pipes.
Color: Comply with ASME A13.1, unless otherwise indicated.
Valve Tags: Stamped or engraved with 1/4–inch letters for piping system abbreviation and 1/2–inch sequenced numbers. Include 5/32–inch hole for fastener.
Material: 0.032–inch– thick, polished brass..
Size: 1–1/2–inches diameter, unless otherwise required.
Indicate valve service and normal position on valve. Example Cold water, N.O.
Valve Tag Fasteners: Brass, wire–link or beaded chain; or brass S–hooks.
Valve Tag Fasteners: Brass, wire–link chain; beaded chain; or S–hooks.
Access Panel Markers: 1/16–inch– thick, engraved plastic–laminate markers, with abbreviated terms and numbers corresponding to concealed valve. Provide 1/8–inch center hole for attachment.
Plastic Equipment Markers: Manufacturer's standard laminated plastic, in the following color codes:
Green: Cooling equipment and components.
Yellow: Heating equipment and components.
Brown: Energy reclamation equipment and components.
Blue: Equipment and components that do not meet criteria above.
Hazardous Equipment: Use colors and designs recommended by ASME A13.1.
Terminology: Match schedules as closely as possible. Include the following:
(a) Name and plan number.
(b) Equipment service.
(c) Design capacity.
(d) Other design parameters such as pressure drop, entering and leaving conditions, and speed.
Size: 2–1/2 by 4 inches for control devices, dampers, and valves; 4–1/2 by 6 inches for equipment.
Lettering and Graphics: Coordinate names, abbreviations, and other designations used in mechanical identification with corresponding designations indicated. Use numbers, letters, and terms indicated for proper identification, operation, and maintenance of mechanical systems and equipment.
Multiple Systems: Identify individual system number and service if multiple systems of same name are indicated.

EXECUTION

Install pipe markers on each system. Include arrows showing normal direction of flow.
Marker Type: Stenciled markers with painted, color–coded bands complying with ASME A13.1.
Marker Type: Plastic markers, with application systems. Install on pipe insulation segment where required for hot, non–insulated pipes.
Fasten markers on pipes and insulated pipes by one of following methods:
Snap–on application of pre–tensioned, semi–rigid plastic pipe marker.
Adhesive lap joint in pipe marker overlap.
Laminated or bonded application of pipe marker to pipe or insulation.
Taped to pipe or insulation with color–coded plastic adhesive tape, not less than 3/4 inch wide, lapped a minimum of 1–1/2 inches at both ends of pipe marker, and covering full circumference of pipe.
Taped to pipe or insulation with color–coded plastic adhesive tape, not less than 1–1/2 inches wide, lapped a minimum of 3 inches at both ends of pipe marker, and covering full circumference of pipe.
Locate pipe markers and color bands where piping is exposed in finished spaces; machine rooms; accessible maintenance spaces such as shafts, tunnels, and plenums; and exterior nonconcealed locations according to the following:
Near each valve and control device.
Near each branch connection, excluding short takeoffs for fixtures and terminal units. Mark each pipe at branch, where flow pattern is not obvious.
Near penetrations through walls, floors, ceilings, or nonaccessible enclosures.
At access doors, manholes, and similar access points that permit view of concealed piping.
Near major equipment items and other points of origination and termination.
Spaced at a maximum of 50–foot intervals along each run. Reduce intervals to 25 feet in areas of congested piping and equipment.
On piping above removable acoustical ceilings, except omit intermediately spaced markers.

VALVE TAGS
Install on valves and control devices in piping systems, except check valves, valves within factory–fabricated equipment units, plumbing fixture supply stops, shutoff valves, faucets, convenience and lawn–watering hose connections, and HVAC terminal devices and similar roughing–in connections of end–use fixtures and units. Indicate service and normal position of all tagged valve and control devices. List tagged valves in valve schedule.
Tag Material: Brass.

3.3 EQUIPMENT SIGNS AND MARKERS

Install engraved plastic–laminate signs or equipment markers on or near each major item of mechanical equipment. Include signs for the following general categories of equipment:
Main control and operating valves, including safety devices and hazardous units such as gas outlets.
Fire department hose valves and hose stations.
Meters, gages, thermometers, and similar units.
Fuel–burning units, including furnaces and heaters.
Fans, blowers, primary balancing dampers, and mixing boxes.
Packaged HVAC central–station and zone–type units.
Tanks and pressure vessels.
Strainers, filters, water–treatment systems, and similar equipment.

Optional Sign Types: Stenciled signs may be provided instead of engraved plastic, at Installer's option, where lettering larger than 1–inch high is needed for proper identification because of distance from normal location of required identification.
Lettering Size: Minimum 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two–thirds to three–fourths the size of principal lettering.
Terms on Signs: Distinguish between multiple units, indicate operational requirements, indicate safety and emergency precautions, warn of hazards and improper operations, and identify units.

Duct Systems: Identify air supply, return, exhaust, intake, and relief ducts with duct markers; or provide stenciled signs and arrows showing service and direction of flow.

Location: Locate signs near points where ducts enter into concealed spaces and at maximum intervals of 50 feet in each space where ducts are exposed or concealed by removable ceiling system.

ADJUSTING AND CLEANING

Relocate mechanical identification materials and devices that have become visually blocked by work of this or other Divisions.
Clean faces of identification devices and glass frames of valve charts.

END OF SECTION 22 0553/23 0553

DIVISION 23 – HVAC

SECTION 23 3113
METAL DUCTS

GENERAL

1. Duct system design, as indicated, has been used to select and size air–moving and –distribution equipment and other components of air system. Changes to layout or configuration of duct system must be specifically approved in writing by Architect. Accompany requests for layout modifications with calculations showing that proposed layout will provide original design results without increasing system total pressure.

2. Duct material: galvanized, sheet steel, lock–forming quality; ASTM A 653/A 653M, coating designation; mill–phosphatized finish for surfaces of ducts exposed to view.

3. Underground duct shall be PVC pipe or PVC coated galvanized steel encased in concrete.

4. Duct liner: Comply with NFPA 90A or NFPA 90B and NAIMA's "Fibrous Glass Duct Liner Standard." ASTM C 1071 with coated surface exposed to airstream to prevent erosion of glass fibers.
a. Thickness: 1".
b. Thermal Conductivity (k–Value): .26 at 75 deg Fmean temperature.
c. Fire–Hazard Classification: Maximum flame–spread rating of 25 and smoke–developed rating of 50, when tested according to ASTM C 411.
d. Liner Adhesive: Comply with NFPA 90A or NFPA 90B and ASTM C 916.

5. Round duct: Diameter as applied to flat–oval ducts in this Article is the diameter of the size of round duct that has a circumference equal to perimeter of a given size of flat–oval duct.
a. Round Ducts: Fabricate supply ducts of galvanized steel according to SMACNA's "HVAC Duct Construction Standards––Metal and Flexible."
b. Branch supply ducts are to be Unico system low temperature insulated round duct supply kits.
c. Fittings are to be Unico system fittings.

6. Rectangular duct: Fabricate ducts, elbows, transitions, offsets, branch connections, and other construction with galvanized, sheet steel, according to SMACNA's "HVAC Duct Construction Standards––Metal and Flexible." Comply with requirements for metal thickness, reinforcing types and intervals, tie–rod applications, and joint types and intervals.
a. Lengths: Fabricate rectangular ducts in lengths appropriate to reinforcement and rigidity class required for pressure classification.
b. Materials: Free from visual imperfections such as pitting, seam marks, roller marks, stains, and discolorations.

7. Static–Pressure Classifications: Unless otherwise indicated, construct ducts to the following:
a. Supply Ducts: 3" wg.
b. Return Ducts: 2" wg, negative pressure.
c. Exhaust Ducts: 2" wg, negative pressure.
8. Cross Breaking or Cross Beading: Cross break or cross bead duct sides 19" and larger and .0359" thick or less, with more than 10ø of unbraced panel area, unless ducts are lined.

END OF SECTION 23 3113

DIVISION 23 – HVAC

SECTION 23 3300
AIR DUCT ACCESSORIES

GENERAL

1. Volume dampers: Factory fabricated with required hardware and accessories. Stiffen damper blades for stability. Include locking device to hold single–blade dampers in a fixed position without vibration. Close duct penetrations for damper components to seal duct consistent with pressure class.

2. Pressure Classifications of or Higher: End bearings or other seals for ducts with axles full length of damper blades and bearings at both ends of operating shaft.

3. Fire Dampers: Labeled to UL 555.
a. Fire Rating: One and one–half and three hours.
b. Frame: SMACNA Type B with blades out of airstream; fabricated with roll–formed, thick galvanized steel; with mitered and interlocking corners.
c. Provide access door though ductwork and other systems for damper access.
d. Fusible Link: Replaceable, 165° rated as indicated.
4. Manufactured Turning Vanes: Fabricate of 1.5" wide, curved blades set 3/4" o.c.; support with bars perpendicular to blades set 2" o.c.; and set into side strips suitable for mounting in ducts.

5. Flexible Ducts, Insulated: Factory–fabricated, insulated, round duct, with an outer jacket enclosing 1.5" thick, glass–fiber insulation around a continuous inner liner.

END OF SECTION 23 3300

DIVISION 23 – HVAC

SECTION 23 3423
HVAC POWER VENTILATORS

GENERAL
1. Fan description: Coordiante with Electrical Engineering Plans. Corrosion resistant as requried. Centrifugal fans designed for installing in ceiling or wall, or for concealed in–line applications.
2. Housing: Galvanized steel lined with acoustical insulation. Plastic for corrosion resistant areas.
3. Fan Wheel: Centrifugal wheels directly mounted on motor shaft. Fan shrouds, motor, and fan wheel shall be removable for service.
4. Grille: Stainless–steel, louvered grille with flange on intake and thumbscrew attachment to fan housing.
5. Electrical Requirements: Junction box for electrical connection on housing and receptacle for motor plug–in.
6. Variable–Speed Controller: Solid–state control to reduce speed from 100 percent to less than 50 percent.
7. Accessories: Manufacturer's standard roof jack or wall cap, and transition fittings.
8. Provide wall cap and room grille with each fan.

END OF SECTION 23 3423

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E. TAYLOR GROBERG
08/07/20
STATE OF UTAH

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bluefield engineering.com

DESIGNED	TG	3				
DRAFTED	BLUEFIELD	2				
CHECKED	BLUEFIELD	1	–	–	TG	
DATE	JUNE 2020	NO.	DATE	REVISIONS	BY	APVD.

SCALE: AS SHOWN

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
HVAC
HVAC SPECIFICATIONS

SHEET
H–4
089–29–100

DIVISION 23 – HVAC

SECTION 23 80 00
DECENTRALIZED HVAC EQUIPMENT

PART 1 – GENERAL

1.01 System Description

The variable capacity, heat pump heat recovery air conditioning system shall be a Mitsubishi Electric CITY MULTI VRFZ (Variable Refrigerant Flow Zoning).

1.02 Quality Assurance

A. The units shall be listed by Electrical Testing Laboratories (ETL) and bear the ETL label.

B. All wiring shall be in accordance with the National Electrical Code (N.E.C.).

C. The units shall be manufactured in a facility registered to ISO 9001 and ISO14001 which is a set of standards applying to environmental protection set by the International Standard Organization (ISO).

D. All units must meet or exceed the 2010 Federal minimum efficiency requirements and the proposed ASHRAE 90.1 efficiency requirements for VRF systems. Efficiency shall be published in accordance with the DOE alternative test procedure, which is based on the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) Standards 340/360, 1230 and ISO Standard 13256-1.

E. A full charge of R-410A for the condensing unit only shall be provided in the condensing unit.

1.03 Delivery, Storage and Handling

A. Unit shall be stored and handled according to the manufacturer's recommendation.

1.04 Controls

A. The control system shall consist of a low voltage communication network of unitary built-in controllers with on-board communications and a web-based operator interface. A web controller with a network interface card shall gather data from this system and generate web pages accessible through a conventional web browser on each PC connected to the network. Operators shall be able to perform all normal operator functions through the web browser interface.

B. System controls and control components shall be installed in accordance with the manufacturer's written installation instructions.

C. Furnish energy conservation features such as optimal start, night setback, request-based logic, and demand level adjustment of overall system capacity as specified in the sequence.

D. System shall provide direct and reverse-acting on and off algorithms based on an input condition or group conditions to cycle a binary output or multiple binary outputs.

E. Provide capability for future system expansion to include monitoring and use of occupant card access, lighting control and general equipment control.

F. System shall be capable of email generation for remote alarm annunciation.

G. Control system start-up shall be a required service to be completed by the manufacturer or a duly authorized, competent representative that has been factory trained in Mitsubishi controls system configuration and operation. The representative shall provide proof of certification for Mitsubishi CMCN Essentials Training and/or CMCN Hands-On Training indicating successful completion of no more than two (2) years prior to system installation. This certification shall be included as part of the equipment and/or controls submittals. This service shall be equipment and system count dependent and shall be a minimum of one (1) eight (8) hour period to be completed during normal working hours.

PART 2 – WARRANTY

2.01 The units shall be covered by the manufacturer's limited warranty for a period of one (1) year from date of installation. If the systems are:

1) designed by a certified CITY MULTI Diamond Designer,

2) installed by a contractor that has successfully completed the Mitsubishi Electric three day service course, AND

3) verified with a completed commissioning report submitted to and approved by the Mitsubishi Electric Service Department,

then the units shall be covered by an extended manufacturer's limited warranty for a period of five (5) years from date of installation.

In addition the compressor shall have a manufacturer's limited warranty for a period of seven (7) years from date of installation.

If, during this period, any part should fail to function properly due to defects in workmanship or material, it shall be replaced or repaired at the discretion of the manufacturer.

This warranty shall not include labor.

2.02 Manufacturer shall have a minimum of twenty-nine years of HVAC experience in the U.S. market.

2.03 All manufacturer technical and service manuals must be readily available for download by any local contractor should emergency service be required. Registering and sign-in requirements which may delay emergency service reference are not allowed.

2.04 The CITY MULTI VRFZ system shall be installed by a contractor with extensive CITY MULTI install and service training. The mandatory contractor service and install training should be performed by the manufacturer.

Part 3 – Products

3.01 R2-SERIES Outdoor Unit

A. General:
The R2-Series PURY outdoor unit shall be used specifically with CITY MULTI VRFZ components. The PURY outdoor units shall be equipped with multiple circuit boards that interface to the M-NET controls system and shall perform all functions necessary for operation. Each outdoor unit module shall be completely factory assembled, piped and wired and run tested at the factory.
1. The model nomenclature and unit requirements are shown below. All units requiring a factory supplied twinning kits shall be piped together in the field, without the need for equalizing line(s). If an alternate manufacturer is selected, any additional material, cost, and labor to install additional lines shall be incurred by the contractor.
2. Outdoor unit shall have a sound rating no higher than 60 dB(A) individually or 64 dB(A) twinned. Units shall have a sound rating no higher than 50 dB(A) individually or 53 dB(A) twinned while in night mode operation. If an alternate manufacturer is selected, any additional material, cost, and labor to meet published sound levels shall be incurred by the contractor.
3. Both refrigerant lines from the outdoor unit to the BC (Branch Circuit) Controller (Single or Main) shall be insulated.
4. There shall be no more than 3 branch circuit controllers connected to any one outdoor unit.
5. Outdoor unit shall be able to connect to up to 50 indoor units depending upon model.
6. The outdoor unit shall have an accumulator with refrigerant level sensors and controls.
7. The outdoor unit shall have a high pressure safety switch, over-current protection, crankcase heater and DC bus protection.
8. The outdoor unit shall have the ability to operate with a maximum height difference of 164 feet and have total refrigerant tubing length of 1804-2625 feet. The greatest length is not to exceed 541 feet between outdoor unit and the indoor units without the need for line size changes or traps.
9. The outdoor unit shall be capable of operating in heating mode down to -4F ambient temperatures or cooling mode down to 23F ambient temperatures, without additional low ambient controls. If an alternate manufacturer is selected, any additional material, cost, and labor to meet low ambient operating condition and performance shall be incurred by the contractor.
10. The outdoor unit shall be capable of operating in cooling mode down to -10F with optional manufacturer supplied low ambient kit.
11. Manufacturer supplied low ambient kit shall be provided with predesigned control box rated for outdoor installation and capable of controlling kit operation automatically in all outdoor unit operation modes.
12. Manufacturer supplied low ambient kit shall be listed by Electrical Laboratories (ETL) and bear the ETL label.
13. Manufacturer supplied low ambient kit shall be factory tested in low ambient temperature chamber to ensure operation. Factory performance testing data shall be available when requested.
14. The outdoor unit shall have a high efficiency oil separator plus additional logic controls to ensure adequate oil volume in the compressor is maintained.
15. Most defrost all circuits simultaneously in order to resume full heating more quickly. Partial defrost which may extend 'no or reduced heating' periods shall not be allowed.

A. Unit Cabinet:
1. The casing(s) shall be fabricated of galvanized steel, bonderized and finished. Units cabinets shall be able to withstand 960 hours per ASTM B117 criteria for seacoast protected models (-BS models)

B. Fan:
1. Each outdoor unit module shall be furnished with one direct drive, variable speed propeller type fan. The fan shall be factory set for operation under 0 in. WG external static pressure, but capable of normal operation under a maximum of 0.24 in. WG external static pressure via dipswitch.
2. All fan motors shall have inherent protection, have permanently lubricated bearings, and be completely variable speed.
3. All fan motors shall be mounted for quiet operation.
4. All fans shall be provided with a raised guard to prevent contact with moving parts.
5. The outdoor unit shall have vertical discharge airflow.

C. Refrigerant
1. R410A refrigerant shall be required for PURY-P-T/Y(S)JMU-A outdoor unit systems.
2. Polyolester (POE) oil shall be required. Prior to bidding, manufacturers using alternate oil types shall submit material safety data sheets (MSDS) and comparison of hygroscopic properties for alternate oil with list of local suppliers stocking alternate oil for approval at least two weeks prior to bidding.

D. Coil:
1. The outdoor coil shall be of nonferrous construction with lanced or corrugated plate fins on copper tubing.
2. The coil fins shall have a factory applied corrosion resistant blue-fin finish.
3. The coil shall be protected with an integral metal guard.
4. Refrigerant flow from the outdoor unit shall be controlled by means of an inverter driven compressor.
5. The outdoor coil shall include 4 circuits with two position valves for each circuit, except for the last stage.

E. Compressor:
1. Each outdoor unit module shall be equipped with one inverter driven scroll hermetic compressor. Non inverter-driven compressors, which cause inrush current (demand charges) and require larger wire sizing, shall not be allowed.
2. A crankcase heater(s) shall be factory mounted on the compressor(s).
3. The outdoor unit compressor shall have an inverter to modulate capacity. The capacity shall be completely variable with a turndown of 19%-5% of rated capacity, depending upon unit size.
4. The compressor will be equipped with an internal thermal overload.
5. The compressor shall be mounted to avoid the transmission of vibration.
6. Field-installed oil equalization lines between modules are not allowed. Prior to bidding, manufacturers requiring equalization must submit oil line sizing calculations specific to each system and module placement for this project.

F. Electrical:
1. The outdoor unit electrical power shall be 208/230 volts, 3-phase, 60 hertz.
2. The outdoor unit shall be capable of satisfactory operation within voltage limits of 187-228 volts (208V/60Hz), 207-253V (230V/60Hz).
3. The outdoor unit shall be controlled by integral microprocessors.
4. The control circuit between the indoor units, BC Controller and the outdoor unit shall be 24VDC completed using a 2-conductor, twisted pair shielded cable to provide total integration of the system.

G. Controls:
1. The outdoor unit shall have the capability of up to 8 levels of demand control for each
2. refrigerant system.

3.01 PKFY (Wall Mounted) INDOOR UNIT

A. General:
The PKFY shall be a wall-mounted indoor unit section and shall have a modulating linear expansion device
and a flat front. The PKFY shall be used with the R2-Series outdoor unit and BC Controller, Y-Series
outdoor unit, or S-Series outdoor unit. The PKFY shall support individual control using M-NET DDC controllers.

B. Indoor Unit
The indoor unit shall be factory assembled, wired and run tested. Contained within the unit shall be all
factory wiring, piping, electronic modulating linear expansion device, control circuit board and fan motor. The
unit shall have a self-diagnostic function, 3-minute time delay mechanism, an auto restart function, and a
test run switch. Indoor unit and refrigerant pipes shall be charged with dehydrated air before shipment from
the factory.

C. Unit Cabinet:
1. All casings, regardless of model size, shall have the same white finish
2. Multi directional drain and refrigerant piping offering four (4) directions for refrigerant piping and two (2) directions fo rdraining shall be standard.
3. There shall be a separate back plate which secures the unit firmly to the wall.

D. Fan:
1. The indoor fan shall be an assembly with one or two line-flow fan(s) direct driven by a single motor.
2. The indoor fan shall be statically and dynamically balanced to run on a motor with permanently lubricated bearings.
3. A manual adjustable guide vane shall be provided with the ability to change the airflow from side to side (left to right).
4. A motorized air sweep louver shall provide an automatic change in airflow by directing the air up and down to provide uniform air distribution.

E. Filter:
1. Return air shall be filtered by means of an easily removable, washable filter.

F. Coil:
1. The indoor coil shall be of nonferrous construction with smooth plate fins on copper tubing.
2. The tubing shall have inner grooves for high efficiency heat exchange.
3. All tube joints shall be brazed with phos-copper or silver alloy.
4. The coils shall be pressure tested at the factory.
5. A condensate pan and drain shall be provided under the coil.
6. Both refrigerant lines to the PKFY indoor units shall be insulated.

G. Electrical:
1. The unit electrical power shall be 208/230 volts, 1-phase, 60 hertz.
2. The system shall be capable of satisfactory operation within voltage limits of 187-228 volts (208V/60Hz) or 207-253 volts (230V/60Hz)

H. Controls:
1. This unit shall use controls provided by Mitsubishi Electric to perform functions necessary to operate the system. Please refer to Part 4 of this guide specification for details on controllers and other control options.
2. The unit shall be able to control external backup heat.
3. The unit shall have a factory built in receiver for wireless remote control
4. Indoor unit shall compensate for the higher temperature sensed by the return air sensor compared to the temperature at level of the occupant when in HEAT mode. Disabling of compensation shall be possible for individual units to accommodate instances when compensation is not required.
5. Control board shall include contacts for control of external heat source. External heat may be energized as second stage with 1.8F – 9.0F adjustable deadband from set point.
6. Indoor unit shall include no less than four (4) digital inputs capable of being used for customizable control strategies.
7. Indoor unit shall include no less than three (3) digital outputs capable of being used for customizable control strategies.

DIVISION 23 – HVAC

SECTION 23 0900
TEMPERATURE CONTROLS

GENERAL
1. A programmable temperature contoller shall be located in each zone and shall control the air handler, exhaust fan and unit heaters according to documented sequence to maintain the space temperature setpoint.

2. Exhaust fans shall also operate based on hand-off-auto wall switch.

END OF SECTION 23 0900

DIVISION 23 – HVAC

SECTION 23 0593
TESTING, ADJUSTING, BALANCING AND MAINTENANCE MANUALS

GENERAL

1. All air and water systems to be tested and balanced by an independent testing and balancing firm approved by the engineer. All systems shall be adjusted to perform within 5% of the design document requirements. A complete report shall be provided at the completion of the work.
2. Each system shall be commissioned to insure correct operation. A complete report shall be provided at the completion of the work.
3. Complete maintenance and operations manuals shall be provided for all equipment in the building.

END OF SECTION 23 0593

DIVISION 23 – HVAC

SECTION 23 0822
LOUVERS

GENERAL
1. EXAMINATION
1.1 Examine substrates and openings for compliance with requirements for installation tolerances and other conditions affecting performance.
1.2 Proceed with installation only after unsatisfactory conditions have been corrected.
2. PREPARATION
2.1 Clean Opening thoroughly prior to installation.
2.2 Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
3 INSTALLATION
3.1 Install louvers at locations as indicated on the drawings and in accordance with manufacturer's instructions.
3.2 Install louvers plumb, level, in plane of wall, and in alignment with adjacent work.
3.3 Install joint sealants as specified in Section 079000.
4 CLEANING
4.1 Clean exposed surfaces of louvers with water and mild soap or detergent not harmful to finish taking care to remove fingerprints and soil. Thoroughly rinse surfaces and dry. Do not let soil accumulate during construction period.
4.2 Touch-up, repair, or replace louvers damaged during installation and construction so that no evidence remains of the corrective work.
END OF SECTION 23 0822

DIVISION 23 – HVAC

SECTION 23 9900
CONTROLS SEQUENCE

1. PUMP ROOM:
1.1. Heating: existing UH to be provided with integral stat at set to 55 deg. F.
1.2. Cooling: AH.1 fan, pump control by RTU to maintain space temperature setpoint. Space temp sensor by others, wired to RTU.
1.3. Heat:
1.3.1. Heating existing unit heater Start<50 deg. F.
1.3.2. existing unit heater Stop > 55 deg. F. Space temperature.
1.4. Cool:
1.5. Control panel will provide dry contact status of L.1. Closed upon open louver status.

END OF SECTION 23 9900

THESE DOCUMENTS ARE INCOMPLETE WITHOUT FULL COORDINATION WITH BLUEFIELD ENGINEERING.

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E. TAYLOR GROBERG
06/01/20
STATE OF UTAH

HANSEN ALLEN & LUCE inc ENGINEERS

bluefield engineering.com

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DATE	JUNE 2020	NO.	DATE	REVISIONS	BY	APVD.

SCALE: AS SHOWN

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
HVAC
HVAC SPECIFICATIONS

SHEET
H-5
089-29-100

POWER ONE-LINE SYMBOLS

THIS IS A STANDARD LEGEND NOT ALL SYMBOLS MAY BE USED ON THIS PROJECT

- ANTENNA
- EQUIPMENT GROUND CONNECTION
- TRANSFER SWITCH
  ATS: AUTOMATIC TRANSFER SWITCH
  MTS: MANUAL TRANSFER SWITCH
- VFD — VARIABLE FREQUENCY DRIVE MOTOR CONTROLLER
- F — FUSED DISCONNECT SWITCH
- NON-FUSED DISCONNECT SWITCH
- COMBINATION STARTER
- MAGNETIC CONTROLLER
- HP — MOTOR (HP SHOWN)
- GENERATOR
- WIRE — CONDUCTOR WITH CALLOUT REFERENCE (SEE CONDUIT/CONDUCTOR SCHEDULE)
- POWER FACTOR CAPACITOR
- CIRCUIT BREAKER
- POWER FEED
- CONNECTION POINT
- LUG
- DELTA WYE
- M — UTILITY METERING SOCKET WITH CIRCUIT BREAKER
- M — EXISTING UTILITY METERING SOCKET
- M — UTILITY METERING SOCKET
- M — FUTURE UTILITY METERING SOCKET
- UTILITY METERING CURRENT TRANSFORMER
- MOTOR STARTER
- SURGE PROTECTOR
- TRANSFORMER
- FUSED SWITCH
- FUSE IN HOLDER
- PNL — EXISTING POWER DISTRIBUTION PANEL
- PNL — POWER DISTRIBUTION PANEL
- PNL — FUTURE POWER DISTRIBUTION PANEL

GROUNDING SYMBOLS

THIS IS A STANDARD LEGEND NOT ALL SYMBOLS MAY BE USED ON THIS PROJECT

- GROUND ROD (3/4" x 10' COPPER COATED STEEL) IN WELL
- BOLTED GROUND CONNECTION (ABOVE GROUND)
- WELDED GROUND CONNECTION (BELOW GRADE)
- GROUND CONDUCTOR

MOTOR AND EQUIPMENT

THIS IS A STANDARD LEGEND NOT ALL SYMBOLS MAY BE USED ON THIS PROJECT

- HP — MOTOR (HP SHOWN)
- F — FRACTIONAL HORSEPOWER MOTOR
- MOTOR STARTER, INDIVIDUAL, NOT LOCATED IN A MOTOR CONTROL CENTER (MCC) OR SIMILAR GROUP ASSEMBLY
- COMBINATION MOTOR STARTER ASSEMBLY, NOT LOCATED IN AN MCC OR SIMILAR ASSEMBLY
- MAGNETIC CONTACTOR ASSEMBLY, NOT LOCATED IN AN MCC OR SIMILAR ASSEMBLY
- XXXA — DISCONNECT, NON-FUSED, 3 POLE, 100A RATED
- F — FUSED DISCONNECT SWITCH
- FIELD CONNECTION OR ELECTRICAL TERMINATION AT A FIELD DEVICE
- XXXXX — EQUIPMENT DESIGNATION

PLAN SYMBOLS

THIS IS A STANDARD LEGEND NOT ALL SYMBOLS MAY BE USED ON THIS PROJECT

EQUIPMENT

- CIRCUIT DISTRIBUTION PANELBOARD SURFACE MOUNTED
- CIRCUIT DISTRIBUTION PANELBOARD RECESSED
- POWER DISTRIBUTION PANELBOARD SURFACE OR FLOOR MOUNTED DOORS DESIGNATE FRONT OF PANEL MDP DESIGNATES MAIN DISTRIBUTION PANEL
- CONTROL PANEL ENCLOSURE
- LIGHTING CONTROL PANEL
- DISCONNECT
- COMBO STARTER/DISCONNECT

HVAC EQUIPMENT

- UNIT HEATER, WALL MOUNTED
- UNIT HEATER, CEILING MOUNTED
- CONDENSING UNIT, PAD MOUNTED, SIDE DISCHARGE
- CONDENSING UNIT, PAD MOUNTED, UP FLOW
- ROOFTOP MOUNTED EQUIPMENT

GENERAL DRAWING SYMBOLS

THIS IS A STANDARD LEGEND NOT ALL SYMBOLS MAY BE USED ON THIS PROJECT

- ① — REFERENCE NOTE
- 1 — DEMOLITION NOTE
- /1 — REVISION NOTE
- 1 — IDENTIFICATION NOTE
- NO — PHOTO REFERENCE
- ## — EQUIPMENT REFERENCE
- XXX — WIRE SIZE REFERENCE
- PHOTO XXX XXXX — PHOTO REFERENCE
- # SHEET — SECTION/ELEVATION REFERENCE

LIGHT SWITCHES

THIS IS A STANDARD LEGEND NOT ALL SYMBOLS MAY BE USED ON THIS PROJECT

- $ — SINGLE POLE SWITCH
- $$ — GANGED SWITCHES IN COMMON BOX WITH COMMON COVER PLATE
- $a — SWITCH SUPERSCRIPT MODIFIER, LOWER CASE LETTER INDICATES CIRCUIT CONTROLLER -- a,b,c ETC. MAY BE COMBINED WITH CIRCUIT NUMBER. EXAMPLE: 1a, 3b
- $3 — SWITCH SUBSCRIPT MODIFIER, UPPER CASE LETTER OR NUMBER:
  - 2 = DOUBLE POLE
  - 3 = THREE WAY
  - 4 = FOUR WAY
  - K = KEY OPERATED
  - M = HORSEPOWER RATED MANUAL STARTER
  - MC = MOMENTARY CONTACT, THREE POSITION
  - MS = MANUAL (STARTER) OR SWITCH
  - D = DIMMER
  - S = SURFACE
  - F = FLUSH

LIGHTING SYMBOLS

THIS IS A STANDARD LEGEND NOT ALL SYMBOLS MAY BE USED ON THIS PROJECT

- F1 — DESIGNATES FIXTURE NUMBER – REFER TO FIXTURE SCHEDULE
- P — PHOTOCELL

LED FIXTURES

- SURFACE OR RECESSED 1X4 FIXTURE

EXTERIOR LIGHTS

- WALL PAK FIXTURE

CONDUIT AND RACEWAYS

THIS IS A STANDARD LEGEND NOT ALL SYMBOLS MAY BE USED ON THIS PROJECT

- RACEWAY OR WIRING SYSTEM IN OR UNDER FLOOR OR CONCEALED IN WALL OR BEHIND STRUCTURE OR EQUIPMENT OR CONDUIT ROUTED BELOW GRADE IN CONCRETE ENCASEMENT
- FLEX CONDUIT
- RACEWAY OR WIRING SYSTEM ABOVE FLOOR LEVEL BELOW CEILING, EXPOSED
- HOMERUN: DESIGNATIONS INDICATE A ONE-LINE DIAGRAM OR PANELBOARD SCHEDULE REFERENCE
- J — JUNCTION BOX
- RACEWAY OR WIRING SYSTEM TURNED TOWARD THE VIEWER (UP ON PLAN DRAWINGS)
- RACEWAY OR WIRING SYSTEM TURNED AWAY FROM THE VIEWER (DOWN ON PLAN DRAWINGS)
- RACEWAY OR WIRING SYSTEM CHANGE IN ELEVATION OR DISTANCE FROM VIEWER
- CONDUIT STUB AND CAP

WIRING DEVICES

THIS IS A STANDARD LEGEND NOT ALL SYMBOLS MAY BE USED ON THIS PROJECT

- 20 AMP RATED RECEPTACLE
  SINGLE STROKE = SINGLE
  DOUBLE STROKE = DUPLEX
  RECEPTACLE MODIFIERS:
  X-X = CIRCUIT NUMBER
  AF = ARK FAULT CIRCUIT INTERRUPTER
  S = SURFACE MOUNTED
  IG = ISOLATED GROUND
  WP = WEATHER PROOF
- EXISTING RECEPTACLE
- 220V RECEPTACLE
- GFCI RECEPTACLE
- ELECTRICAL CONNECTION
- J — JUNCTION BOX
- P — PHOTOELECTRIC CONTROL UNIT
- T — THERMOSTAT LOCATION
- CARD READER (ENTRY KEY PAD)

POWER ONE-LINE SYMBOLS

THIS IS A STANDARD LEGEND NOT ALL SYMBOLS MAY BE USED ON THIS PROJECT

- EXISTING POWER FEED
- M — EXISTING UTILITY METERING SOCKET
- EQUIPMENT GROUND CONNECTION
- XXX — CONDUCTOR WITH CALLOUT REFERENCE (SEE CONDUIT/CONDUCTOR SCHEDULE)
- PNL — POWER DISTRIBUTION PANEL
  GROUND ROD (3/4" x 10' COPPER COATED STEEL)
- CIRCUIT BREAKER
- CONNECTION POINT

CONTROL ONE-LINE SYMBOLS

THIS IS A STANDARD LEGEND NOT ALL SYMBOLS MAY BE USED ON THIS PROJECT

- ENCLOSURE OR CONTROL PANEL
- A-XX — HOME RUN TO POWER PANEL "A" CIRCUIT "XX"
- R — LIGHT
  A: AMBER LENS
  G: GREEN LENS
  R: RED LENS
  W: WHITE LENS
- COMBINATION MOTOR STARTER
  F: FUSED
  BLANK: CIRCUIT BREAKER
- NUMBER — EQUIPMENT IDENTIFICATION TAG
- ELECTRICAL CONNECTION POINT
- SINGLE RECEPTACLE

H.P.E. INC. ELECTRICAL ENGINEERS
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HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT 20.025

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES

1. VERIFY ALL EQUIPMENT DIMENSIONS AND LOCATIONS BEFORE BEGINNING ROUGH-IN. CONSULT ALL APPLICABLE CONTRACT DRAWINGS AND SHOP DRAWINGS TO ENSURE NEC CODE CLEARANCE REQUIRED AROUND ALL ELECTRICAL EQUIPMENT.
2. CONTRACTOR SHALL VERIFY ALL ELECTRICAL LOADS (VOLTAGE, PHASE, CONNECTION REQUIREMENTS, ETC.) OF EQUIPMENT FURNISHED BEFORE BEGINNING ROUGH-IN.
3. SEE APPLICABLE SHOP DRAWINGS FOR ROUGH-IN LOCATION OF ALL EQUIPMENT, WIRING DEVICES, ETC.
4. THE ELECTRICAL CONTRACTOR SHALL NOTIFY AND COOPERATE WITH THE MECHANICAL CONTRACTOR SUCH THAT NO PIPING, OR EQUIPMENT FOREIGN TO THE OPERATION OF THE ELECTRICAL EQUIPMENT SHALL BE PERMITTED TO BE INSTALLED IN, ENTER OR PASS THROUGH ELECTRICAL ROOMS OR SPACES; OR ABOVE OR BELOW ELECTRICAL EQUIPMENT IN THE OTHER AREAS.
5. ALL PENETRATIONS OF FLOORS, WALLS AND CEILINGS SHALL BE SEALED WITH APPROVED MATERIAL.
6. FOR PACKAGE EQUIPMENT PROVIDED ON THE PROJECT, SOME CONDUITS AND WIRES ARE SHOWN ON THE DRAWINGS, BUT IT IS EXPECTED THAT SOME ADDITIONAL CONDUITS AND WIRES MAY BE REQUIRED BY EQUIPMENT MANUFACTURERS TO COMPLETE INSTALLATION. IT IS INCUMBENT UPON THE GENERAL CONTRACTOR TO COORDINATE THIS REQUIREMENT WITH HIS SUBCONTRACTORS TO MAKE SURE THAT EQUIPMENT SUPPLIER PROVIDED ALL NECESSARY ELECTRICAL INFORMATION TO ELECTRICAL SUBCONTRACTOR FOR INCLUSION WHETHER SHOWN OR NOT SHOWN ON THE DRAWINGS.
7. IF OTHER THAN FIRST NAMED EQUIPMENT IS USED, IT SHALL BE CAREFULLY CHECKED FOR ELECTRICAL REQUIREMENTS AND CONTROL REQUIREMENTS OF ALTERNATE EQUIPMENT. SHOULD CHANGES OR ADDITIONS OCCUR IN ELECTRICAL WORK, OR THE WORK OF OTHER CONTRACTORS BE REVISED BY THE ALTERNATE EQUIPMENT, THE COST OF ALL CHANGES SHALL BE BORNE BY THE ELECTRICAL CONTRACTOR.

Sheet List Table

FILE NAME:
FILE DATE:

STATE OF UTAH — REGISTERED PROFESSIONAL ENGINEER — No. 86-171214-2202 — KEITH B. HEGERHORST — 08/07/2023

HANSEN ALLEN & LUCE INC. ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	DAS
CHECKED	KBH
DATE	OCTOBER 2023

NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1				

SCALE: NONE

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
ELECTRICAL
LEGEND

SHEET E001

089.29.100

7/04

CONDUIT/CONDUCTOR SCHEDULE
THHN, THWN, THWN-2

AMP RATING	DRAWING ID TAG.	CONDUCTOR QTY.*	CONDUCTOR SIZE	MIN. CONDUIT SIZE	EXCEPTIONS
20	212	2	#12	3/4"	
	312	3		3/4"	
	412	4		3/4"	
30	20	2	#10	3/4"	
	30	3		3/4"	
	40	4		3/4"	
50	28	2	#8	3/4"	
	38	3		3/4"	
	48	4		3/4"	
65	26	2	#6	3/4"	
	36	3		3/4"	
	46	4		3/4"	1"(C9)
85	24	2	#4	3/4"	1"(C2,C9)
	34	3		1"	3/4"(C4),1-1/4"(C9)
	44	4		1"	1-1/4"(C9)
115	22	2	#2	1"	
	32	3		1"	1-1/4"(C9)
	42	4		1-1/4"	
130	21	2	#1	1-1/4"	1"(C3,C4)
	31	3		1-1/4"	1"(C3)
	41	4		1-1/4"	1-1/2"(C2,C9,C10)
150	210	2	1/0	1-1/4"	
	310	3		1-1/4"	1-1/2"(C3,C9)
	410	4		1-1/2"	2"(C9)
175	220	2	2/0	1-1/4"	1-1/2"(C3,C4,C9)
	320	3		1-1/2"	
	420	4		2"	
200	230	2	3/0	1-1/2"	1-1/4(C4)
	330	3		1-1/2"	2"(C3,C9)
	430	4		2"	
230	240	2	4/0	1-1/2"	2"(C3)
	340	3		2"	
	440	4		2"	2-1/2"(C9)
255	225	2	250 KCMIL	2"	1-1/2"(C4)
	325	3		2"	2-1/2"(C1,C8)
	425	4		2-1/2"	2"(C4)
310	235	2	350 KCMIL	2"	2-1/2"(C9)
	335	3		2-1/2"	2"(C4)
	435	4		3"	2-1/2"(C1,C4)
380	250	2	500 KCMIL	2-1/2"	2"(C4)
	350	3		3"	2-1/2"(C1,C4)
	450	4		3"	3-1/2"(C9)
475	275	2	750 KCMIL	3"	
	375	3		3-1/2"	3"(C1,C7,C8)
	475	4		4"	3-1/2"(C1,C4,C8)

* CONDUCTOR QUANTITY DOES NOT INCLUDE GROUNDING CONDUCTORS. SEE EQUIPMENT GROUNDING CONDUCTORS FOR WIRE SIZES.

WHERE: C1 = ELECTRICAL METALLIC TUBING
C2 = ELECTRICAL NON-METALLIC TUBING
C3 = FLEXIBLE STEEL CONDUIT
C4 = INTERMEDIATE METALLIC CONDUIT
C7 = LIQUIDTIGHT FLEXIBLE METAL CONDUIT
C8 = RIGID METALLIC CONDUIT
C9 = PVC SCHEDULE 80 CONDUIT
C10 = PVC SCHEDULE 40 CONDUIT

GROUNDING ELECTRODE CONDUCTOR SERVICE ENTRANCE OR SEPARATELY DERIVED SYSTEM

COPPER CONDUCTOR	WIRE SIZE
#2 OR SMALLER	#8
1 OR 1/0	#6
2/0 OR 3/0	#4
>3/0 THRU 350 KCMIL	#2
>350 KCMIL THRU 600 KCMIL	1/0

EQUIPMENT GROUNDING CONDUCTORS

FUSE OR CB SIZE	SIZE (COPPER)
15	14
20	12
30	10
40	10
60	10
100	8
200	6
300	4
400	3
500	2
600	1
800	1/0
1000	2/0
1200	3/0
1600	4/0
2000	250
2500	350

WEST JORDAN WELL TAG LIST

HVAC EQUIPMENT

TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
CU-1	CONDENSING UNIT 1	OUTSIDE	CONTRACTOR	CONTRACTOR
CU-2	CONDENSING UNIT 2	OUTSIDE	CONTRACTOR	CONTRACTOR
EF-1	EXHAUST FAN	CHLORINE ROOM	CONTRACTOR	CONTRACTOR
FC-1	FAN COIL 1	WELL ROOM	CONTRACTOR	CONTRACTOR
FC-2	FAN COIL 2	WELL ROOM	CONTRACTOR	CONTRACTOR
LA-1	EXHAUST FAN INTAKE LOUVER ACTUATOR	CHLORINE ROOM	CONTRACTOR	CONTRACTOR
LA-2	EXHAUST FAN LOUVER ACTUATOR	CHLORINE ROOM	CONTRACTOR	CONTRACTOR
UH-1	UNIT HEATER	WELL ROOM	CONTRACTOR	CONTRACTOR
UH-2	UNIT HEATER	CHLORINE ROOM	CONTRACTOR	CONTRACTOR

PUMP AND EQUIPMENT

TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
ATS	AUTOMATIC TRANSFER SWITCH	WELL ROOM	CONTRACTOR	CONTRACTOR
CP-1	MAIN CONTROL PANEL	WELL ROOM	CONTRACTOR	CONTRACTOR
CP-2	EXHAUST FAN CONTROL PANEL	WELL ROOM	CONTRACTOR	CONTRACTOR
CTE	CURRENT TRANSFORMER ENCLOSURE	OUTSIDE	CONTRACTOR	CONTRACTOR
GA-1	GATE ACTUATOR	OUTSIDE	CONTRACTOR	CONTRACTOR
GEN	BACKUP POWER GENERATOR	OUTSIDE	CONTRACTOR	CONTRACTOR
MSD	MAIN SERVICE DISCONNECT	OUTSIDE	CONTRACTOR	CONTRACTOR
P-1	WELL PUMP	WELL ROOM	CONTRACTOR	CONTRACTOR
TC-1	TABLET CHLORINATOR	CHLORINE ROOM	CONTRACTOR	CONTRACTOR
RTU	REMOTE TELEMETRY UNIT	WELL ROOM	OWNER	CONTRACTOR
VFD	WELL VARIABLE FREQUENCY DRIVE	WELL ROOM	CONTRACTOR	CONTRACTOR

SWITCHES

TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
LSH-1	PUMP ROOM FLOOR HIGH WATER SWITCH	WELL ROOM	CONTRACTOR	CONTRACTOR
PSH-1	WELL PUMP DISCHARGE PRESSURE SWITCH	WELL ROOM	CONTRACTOR	CONTRACTOR
ZS-1	MAN-DOOR POSITION SWITCH	WELL ROOM	CONTRACTOR	CONTRACTOR
ZS-2A	SERVICE DOOR POSITION SWITCH	WELL ROOM	CONTRACTOR	CONTRACTOR
ZS-2B	SERVICE DOOR POSITION SWITCH	WELL ROOM	CONTRACTOR	CONTRACTOR
ZS-3	WELL ROOF HATCH POSITION SWITCH	WELL ROOM	CONTRACTOR	CONTRACTOR
ZS-4	MAN-DOOR POSITION SWITCH	CHLORINE ROOM	CONTRACTOR	CONTRACTOR
ZS-5B	WV-1 IN FULL WASTE POSITION	WELL ROOM	CONTRACTOR	CONTRACTOR
ZS-5A	WV-1 IN FULL SYSTEM POSITION	WELL ROOM	CONTRACTOR	CONTRACTOR
VS-1	MOTOR VIBRATION SWITCH	WELL ROOM	CONTRACTOR	CONTRACTOR

INSTRUMENTS

TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
AE-3	CHLORINE ANALYZER	CHLORINE ROOM	CONTRACTOR	CONTRACTOR
AE-2	TURBIDITY ANALYZER	WELL ROOM	CONTRACTOR	CONTRACTOR
AIT-3	CHLORINE INDICATOR/TRANSMTTER	WELL ROOM	CONTRACTOR	CONTRACTOR
AIT-2	TURBIDITY INDICATOR/TRANSMITTER	WELL ROOM	CONTRACTOR	CONTRACTOR
FE-1	WELL DISCHARGE FLOW ELEMENT	WELL ROOM	CONTRACTOR	CONTRACTOR
FIT-1	WELL DISCHARGE FLOW INDICATOR/TRANSMITTER	WELL ROOM	CONTRACTOR	CONTRACTOR
LT-1	WELL LEVEL TRANSMITTER	WELL ROOM	CONTRACTOR	CONTRACTOR
PT-1	STATION DISCHARGE PRESSURE TRANSMITTER	WELL ROOM	CONTRACTOR	CONTRACTOR
PT-2	WELL DISCHARGE PRESSURE TRANSMITTER	WELL ROOM	CONTRACTOR	CONTRACTOR
TT-1	ROOM TEMPERATURE TRANSMITTER	WELL ROOM	CONTRACTOR	CONTRACTOR
TT-2	ROOM TEMPERATURE TRANSMITTER	CHLORINE ROOM	CONTRACTOR	CONTRACTOR

VALVES

TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
V-1	WASTE VALVE	WELL ROOM	CONTRACTOR	CONTRACTOR
SV-1	WELL PRE-LUBE SOLENOID VALVE	WELL ROOM	CONTRACTOR	CONTRACTOR
SV-2	TURBIDITY ANALYZER VALVE	WELL ROOM	CONTRACTOR	CONTRACTOR
SV-3	CHLORINE ANALYZER VALVE	WELL ROOM	CONTRACTOR	CONTRACTOR
V-2	SYSTEM VALVE	WELL ROOM	CONTRACTOR	CONTRACTOR

H.P.E. INC. ELECTRICAL ENGINEERS
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AMERICAN FORK, UT 84003

HPE PROJECT **20.025**

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**

GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. NOT USED.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
08/07/2023
STATE OF UTAH
PROJECT ENGINEER

HANSEN ALLEN & LUCE inc ENGINEERS

DESIGNED	KBH	3				
DRAFTED	DAS	2				
CHECKED	KBH	1				
DATE	OCTOBER 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: NONE

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
ELECTRICAL
TABLES AND TAG LIST

SHEET E002
089.29.100

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
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708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT **20.025**

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**

GENERAL NOTES:

1. REFER TO PANEL SCHEDULE FOR CIRCUIT ID, THEN REFER TO THE CONDUIT/CONDUCTOR TABLE FOR THE WIRE AND CONDUIT REQUIREMENTS.
2. REFER TO E602 FOR POLES, SOUND WALL AND BUILDING CCTV CONDUIT REQUIREMENTS.
3. LIGHT POLE J–BOXES NOT SHOWN ON THIS PLAN.

SHEET KEYNOTES:

1. TRENCHING, CONDUIT AND BACKFILL BY CONTRACTOR. COORDINATE CONDUIT LOCATION WITH UTILITY COMPANY PRIOR TO TRENCHING.
2. WIRE GENERATOR POWER CIRCUIT TO AUTOMATIC TRANSFER SWITCH. INSTALL JACKET WATER HEATER TO CIRCUIT L–6,8 AND BATTERY CHARGER TO CIRCUIT L–10. STUB UP CONDUIT AS REQUIRED BY GENERATOR MANUFACTURER. CIRCUITS NOT SHOWN ON THIS PLAN.
3. AUTOMATIC GATE OPENER, CARD READER PEDESTAL AND CONTROLS PROVIDED BY YAMAS CONTROLS. NOT SHOWN ON THESE PLANS ARE THE GATE PRESSURE SWITCH AND SENSING LOOPS. CONTRACTOR SHALL INSTALL ALL COMPONENTS SUPPLIED WITH GATE ACTUATOR AS REQUIRED BY SUPPLIER. COORDINATE WITH YAMAS CONTROLS FOR INSTALLATION LITERATURE DURING CONSTRUCTION AS REQUIRED.
4. 2"C W/PULL STRING FOR SITE IRRIGATION VALVE WIRING BY ELECTRICAL CONTRACTOR. VALVE WIRING PROVIDED AND INSTALLED BY LANDSCAPE CONTRACTOR.
5. RECESS CCTV J–BOX 8–IN BELOW TOP OF AND 12–IN FROM END OF WALL. CCTV PROVIDED AND INSTALLED BY OWNER.
6. PROVIDE A 1" CONDUIT FOR FUTURE CCTV CAMERA. WITH PULL STRING AND LABEL.

POLE SCHEDULE

DESIGNATION	POLE	FIXTURE	CCTV MOUNTING
POLE-1	F4B	F4A	
POLE-2	F4B	F4A	BY OWNER
POLE-3	F4B	F4A	
POLE-4	F4B	F4A	BY OWNER

EXISTING RMP PAD MOUNTED SWITCH
5 E501 TYP.
POLE–2
POLE–1
POLE–3
POLE–4
L–23
CT ENCLOSURE
TO CT ENCLOSURE
IRRIGATION TIME SWITCH
3 E503
2 E503
1 E503
GEN
2 BACKUP POWER GENERATOR
GENERATOR SOUND WALL
CON–VAULT FUEL TANK
5 FOR CCTV
JB–1
TYP. 4 E503
UTILITY TRANSFORMER PAD
FRONT
J–BOX
L–13,15
TO CP–1
GA–1
3
ENTRY GATE
6
MAN GATE
AUTOMATED GATE OPENER CARD READ PEDESTAL BY YAMAS CONTROLS
8600 SOUTH STREET
P–UG
SS
50'
0 5' 10' 20' 30'
1"=10'

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
08/07/2023
STATE OF UTAH

HANSEN ALLEN & LUCE INC ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	DAS
CHECKED	KBH
DATE	OCTOBER 2023

NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1				

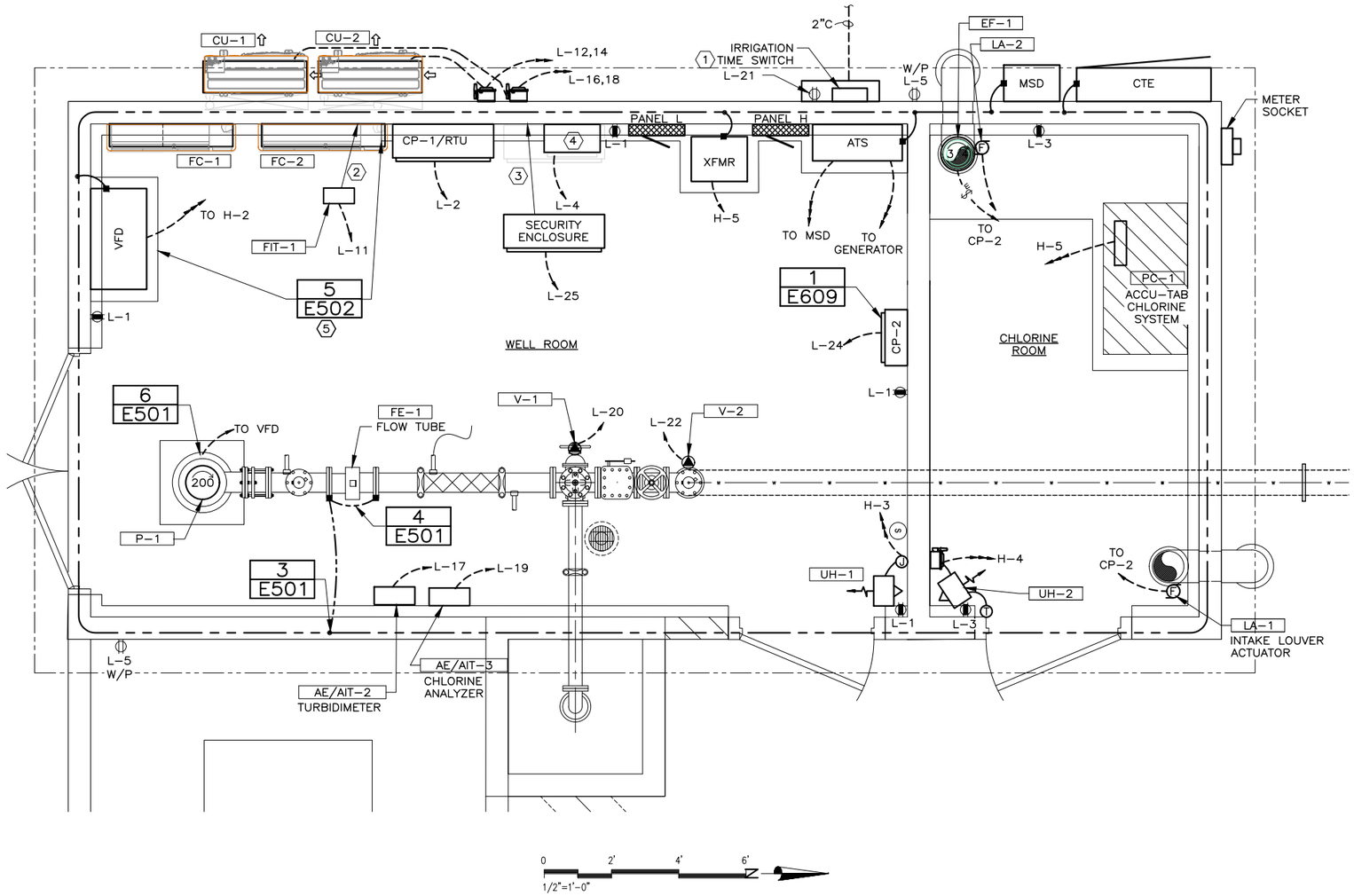
SCALE: AS SHOWN

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING ELECTRICAL OVERALL SITE PLAN

SHEET E101
089.29.100

7/04



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HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
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AMERICAN FORK, UT 84003
HPE PROJECT **20.025**

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**

GENERAL NOTES:

1. FOR CONDUIT AND CONDUCTOR REQUIREMENTS REFER TO ONE-LINE DIAGRAM AND/OR THE PANEL SCHEDULES FOR THE CIRCUIT ID. WIRE AND CONDUIT REQUIREMENTS ARE ON THE CONDUIT/CONDUCTOR TABLE ON E002.
2. EQUIPMENT ARRANGEMENT SHOWN IS APPROXIMATE. CONTRACTOR SHALL ADJUST LOCATION AS REQUIRED FOR THE DIMENSIONS OF THE ACTUAL EQUIPMENT. MAINTAIN NEC CLEARANCES AS REQUIRED.
3. SPECIFIED INDOOR UNITS RECEIVE POWER FROM OUTDOOR UNITS THROUGH FIELD-SUPPLIED INTERCONNECTED WIRING. IF UNITS ARE OTHER THAN SPECIFIED, MODIFY PROVIDE POWER AS REQUIRED.
4. HEATING CONTROLS BY MECHANICAL CONTRACTOR. CHLORINE ROOM EXHAUST FAN CONTROLS BY ELECTRICAL CONTRACTOR.
5. VERIFY LOCATIONS OF ALL ELECTRICAL CONNECTIONS PRIOR TO CONDUIT ROUGH-IN.

SHEET KEYNOTES:

1. CONTRACTOR SHALL PROVIDE AND INSTALL A 24"H x 20"W x 8"D LOCKABLE NEMA 12 ENCLOSURE FOR THE LANDSCAPE TIMER AND OUTLET. COORDINATE WITH LANDSCAPE CONTRACTOR DURING CONSTRUCTION AND MODIFY DIMENSIONS AS REQUIRED FOR IRRIGATION TIMER. INSTALL A 2"C FROM THE ENCLOSURE UNDER THE PAVING TO THE LANDSCAPE AREA FOR THE IRRIGATION VALVE CONTROL WIRES.
2. INSTALL FLOW METER INDICATOR/TRANSMITTER ON THE WALL BELOW THE FAN COIL UNIT.
3. INSTALL THE SECURITY ENCLOSURE BELOW THE RTU RADIO ENCLOSURE AND AT THE SAME HEIGHT AS CP-1.
4. SCADA RADIO ENCLOSURE: 24"H X 20"W X 8"D ENCLOSURE WITH INTERNAL PANEL. DATA RADIO AND ANTENNA SURGE DEVICE PROVIDED AND INSTALLED BY SCADA CONTRACTOR.
5. FLOOR MOUNTED EQUIPMENT: EXTEND HOUSEKEEPING PAD 4-IN IN FRONT AND SIDES. WALL MOUNTED EQUIPMENT: PAD SHALL EXTEND 6-IN (MAX.) FROM WALL

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE INC ENGINEERS

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
08/07/2023
STATE OF UTAH
PROJECT ENGINEER

DESIGNED KBH	3				
DRAFTED DAS	2				
CHECKED KBH	1				
DATE OCTOBER 2023	NO.	DATE	REVISIONS	BY	APVD.

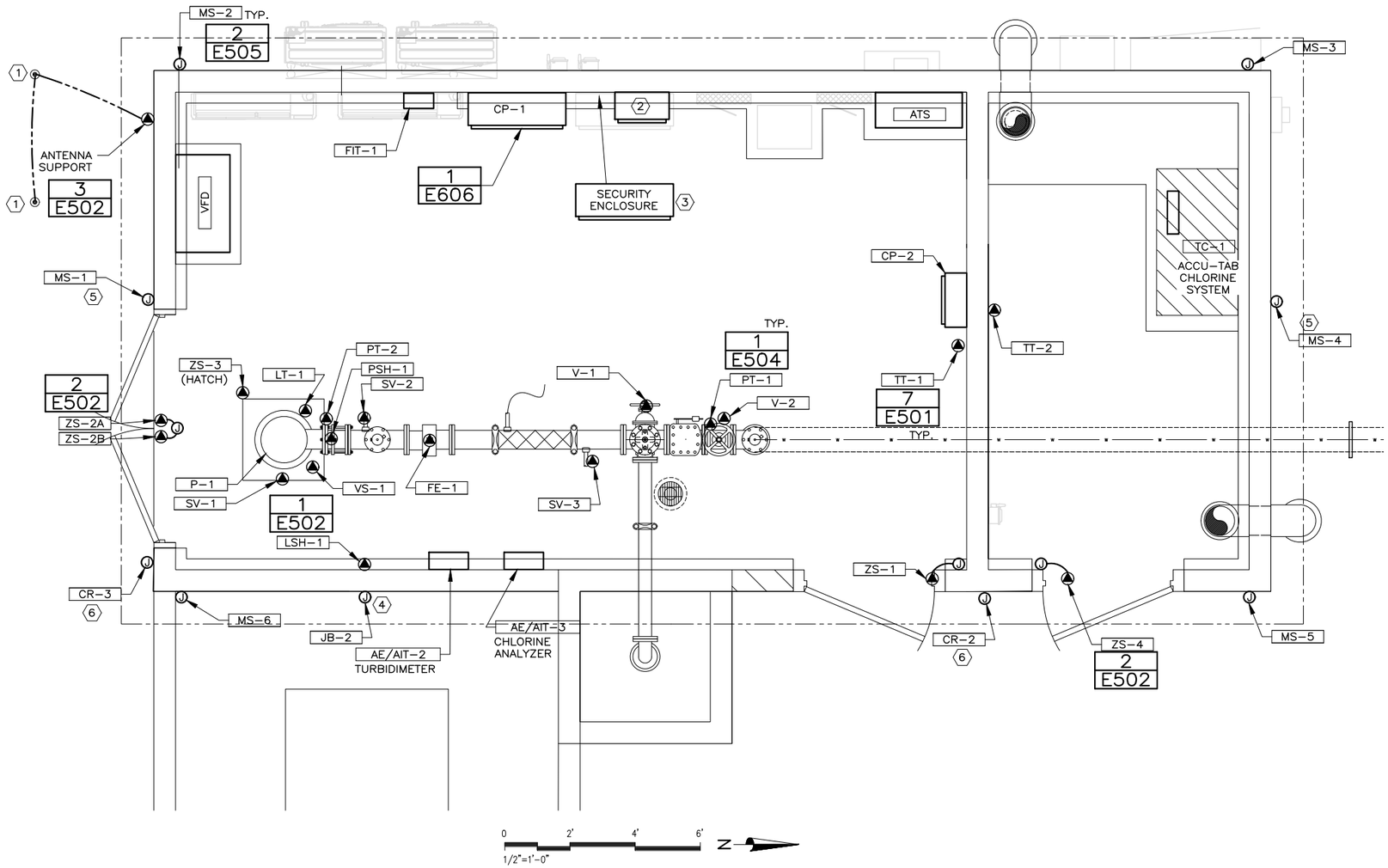
SCALE: AS SHOWN

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
ELECTRICAL
PUMP HOUSE POWER PLAN

SHEET: E102
089.29.100

7/04



H.P.E. INC. ELECTRICAL ENGINEERS
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(801) 642-2051
FAX (801) 642-2154

HPE PROJECT **20.025**

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**

GENERAL NOTES:

1. VERIFY LOCATIONS OF ALL DEVICES PRIOR TO CONDUIT ROUGH-IN.
2. FOR WIRE AND CONDUIT REQUIREMENTS, REFER TO INSTRUMENTATION AND CONTROL ONE-LINE DIAGRAM ON E602.

SHEET KEYNOTES:

1. GROUND ANTENNA SUPPORT WITH AWG NO 6 BC. INSTALL TWO 3/4"X10' GROUND RODS APPROXIMATELY 10' APART.
2. SUPPLY AND INSTALL A 20"W x 24"H x 10"D RTU RADIO ENCLOSURE WITH A SUB PANEL. PROVIDE PANEL TO SCADA CONTRACTOR FOR ASSEMBLY OF THE RTU. RTU COMPONENTS PROVIDED AND INSTALLED BY APCO.
3. SECURITY ENCLOSURE INSTALLED BELOW RTU ENCLOSURE.
4. FOR A FUTURE CAMERA, INSTALL A RECESSED CCTV J-BOX IN THE BUILDING WALL 6-IN BELOW SOFFIT CENTERED ABOVE THE GENERATOR.
5. INSTALL BUILDING END J-BOXES AT SAME HEIGHT AS THE SIDE J-BOXES.
6. RECESS 2X4 ELECTRICAL BOX IN MASONRY FOR CARD READER. VERIFY HEIGHT AND LOCATION WITH OWNER DURING CONSTRUCTION.

FILE NAME:
FILE DATE:

7/04

HANSEN ALLEN & LUCE INC ENGINEERS

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 08/07/2023 STATE OF UTAH

PROJECT ENGINEER

DESIGNED KBH	3					
DRAFTED DAS	2					
CHECKED KBH	1					
DATE OCTOBER 2023	NO.	DATE	REVISIONS	BY	APVD.	

SCALE: AS SHOWN

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
ELECTRICAL
PUMP HOUSE INSTR. & CONTROL PLAN

SHEET E103

089.29.100

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
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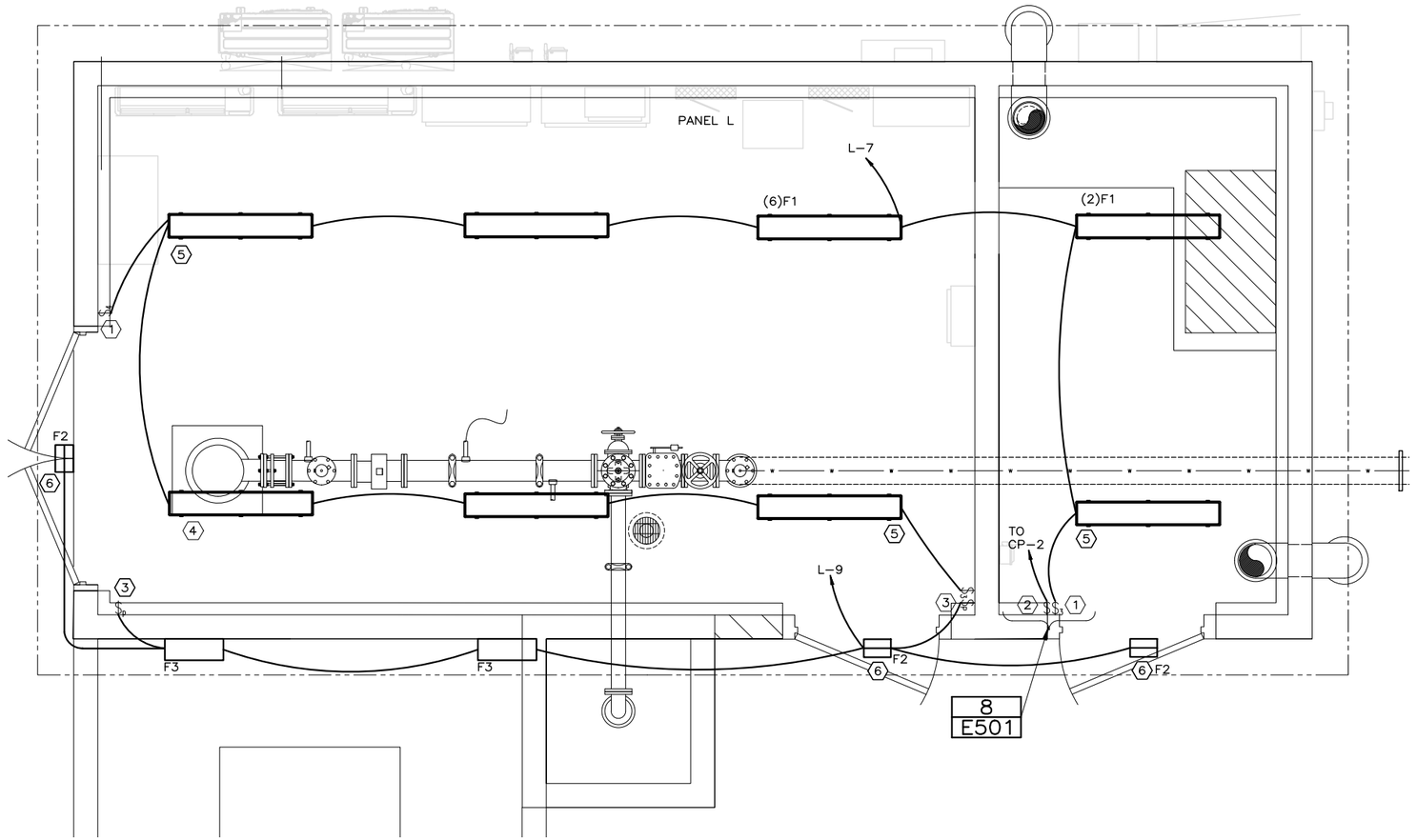
HPE PROJECT **20.025**

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**



GENERAL NOTES:

1. REFER TO PANEL SCHEDULE FOR WIRE AND CONDUIT SIZES.

SHEET KEYNOTES:

1. THREE-WAY SWITCHES AND FOUR-WAY SHALL CONTROL BOTH ROOM FIXTURES AT THE SAME TIME.
2. EXHAUST FAN MANUAL SWITCH (HS-1) LABEL AS CHLORINE ROOM EXHAUST FAN.
3. PROVIDE A PILOT LIGHT TOGGLE SWITCH TO CONTROL THE TWO GENERATOR FLOOD LIGHTS. LABEL "GENERATOR FLOOD LIGHTS".
4. RELOCATE FIXTURE AS REQUIRED FOR ROOF HATCH.
5. PROVIDE A 90-MINUTE BATTERY PACK IN THIS FIXTURE.
6. INSTALL FIXTURE 8-IN ABOVE DOOR.

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE inc ENGINEERS

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 08/07/2023 STATE OF UTAH

PROJECT ENGINEER

DESIGNED KBH	3					
DRAFTED DAS	2					
CHECKED KBH	1					
DATE OCTOBER 2023	NO.	DATE	REVISIONS	BY	APVD.	

SCALE: AS SHOWN

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
ELECTRICAL
PUMP HOUSE LIGHTING PLAN

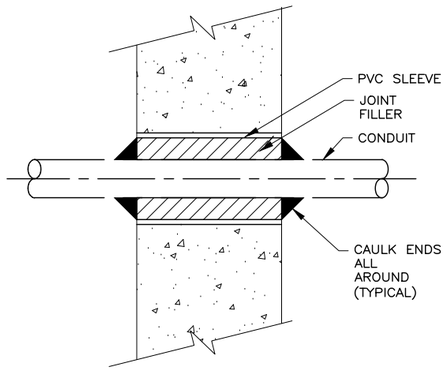
SHEET E104

089.29.100

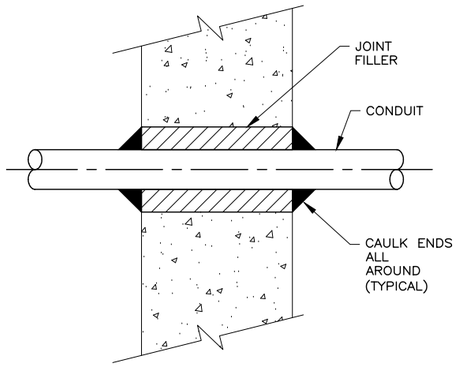
7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT **20.025**

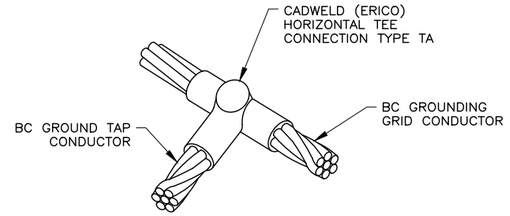
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**



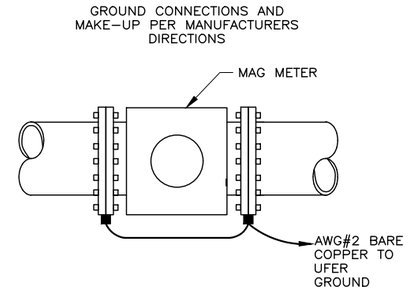
CONDUIT PENETRATION THRU NEW CONCRETE OR WALL



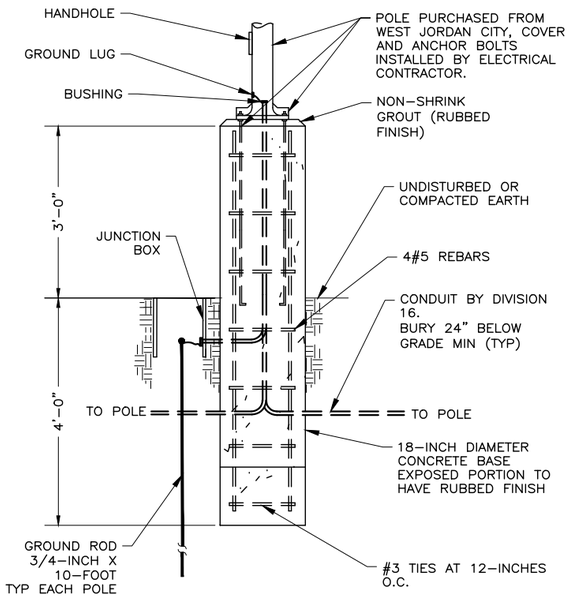
CONDUIT PENETRATION THRU EXISTING CONCRETE OR WALL



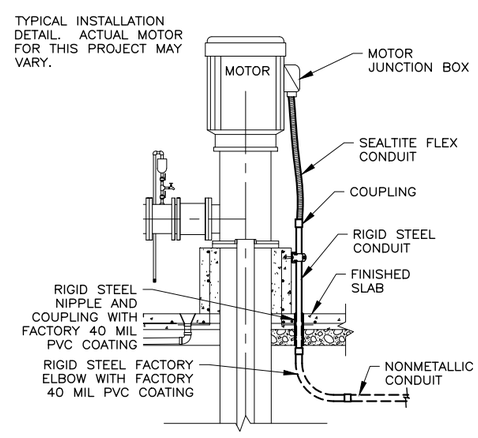
WELDED GROUND CONNECTION 3 / E102
1 1/2" = 1'-0"



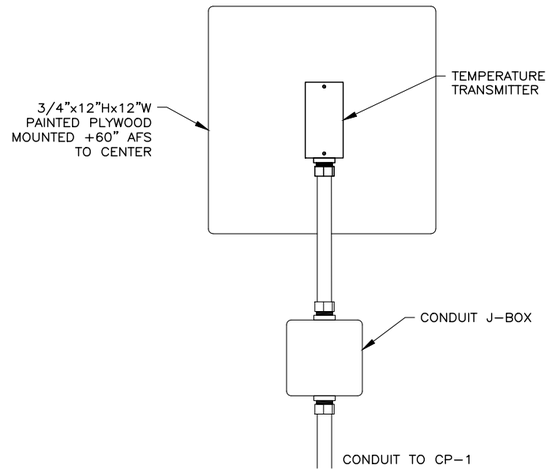
FLOW METER GROUNDING DETAIL 4 / E102
1' = 1'-0"



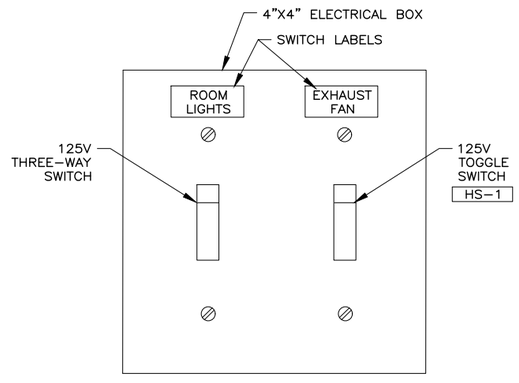
POLE BASE DETAIL 5 / E101
3/4" = 1'-0"



WELL MOTOR CONDUIT INSTALLATION 6 / E102
1/4" = 1'-0"



TEMPERATURE TRANSMITTER 7 / E103
3" = 1'-0"



CHLORINE ROOM SWITCHES 8 / E104
1' = 1'-0"

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 08/07/2023 STATE OF UTAH
PROJECT ENGINEER

DESIGNED KBH	3					
DRAFTED DAS	2					
CHECKED KBH	1					
DATE OCTOBER 2023	NO.	DATE	REVISIONS	BY	APVD.	

SCALE: AS SHOWN

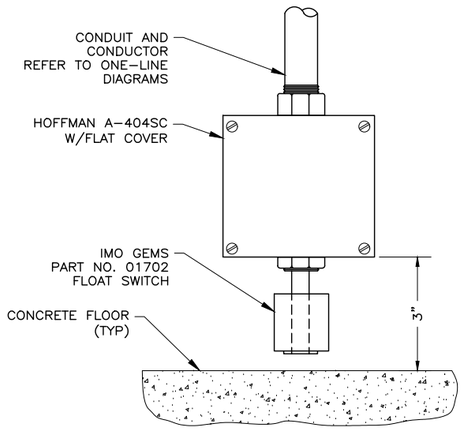
WELL NUMBER 8 PUMP BUILDING
ELECTRICAL
DETAILS, SHT. 1

SHEET E501
089.29.100

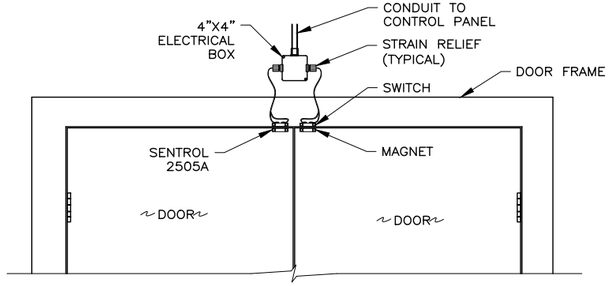
7/04

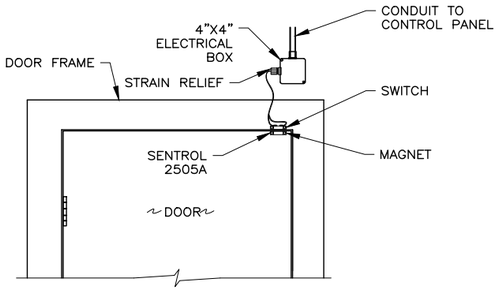
H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT 20.025

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

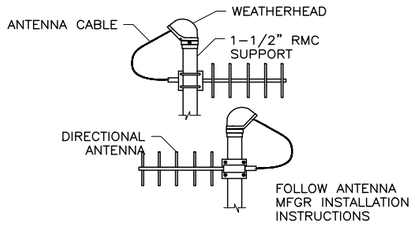


FLOOD LEVEL SWITCH INSTALLATION 1
6" = 1'-0" E103

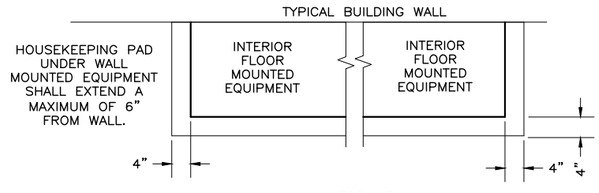




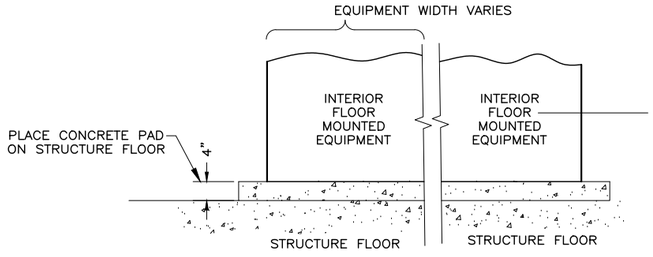
TYPICAL DOOR POSITION SWITCH 2
1" = 1'-0" E103



SUPPORT WEATHERHEAD 4
1 1/2" = 1'-0" —

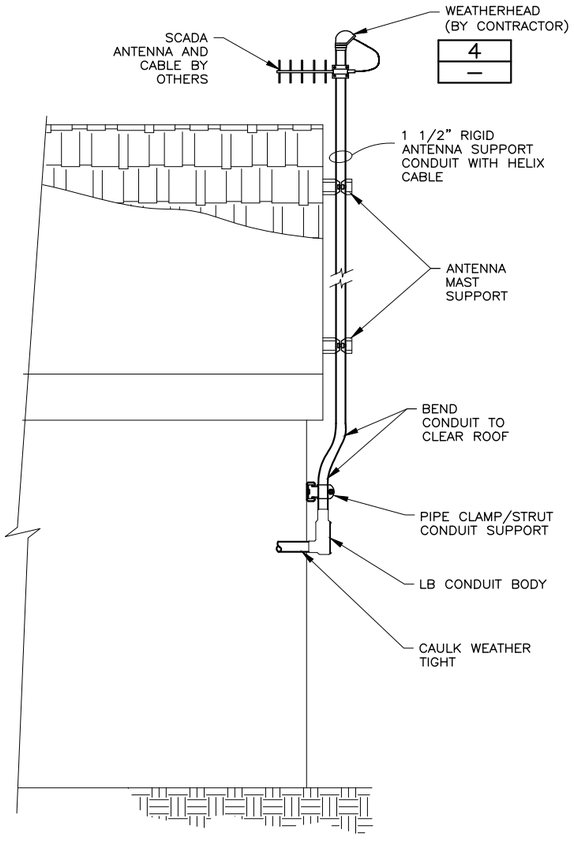


TOP VIEW



FRONT VIEW

EQUIPMENT INSTALLATION 5
3/4" = 1'-0" E102



SCADA ANTENNA SUPPORT 3
1" = 1'-0" E103

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
08/07/2023
STATE OF UTAH

HANSEN ALLEN & LUCE, INC. ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3				
DRAFTED	DAS	2				
CHECKED	KBH	1				
DATE	OCTOBER 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: AS SHOWN

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING ELECTRICAL DETAILS, SHT. 2

SHEET E502

089.29.100

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT **20.025**

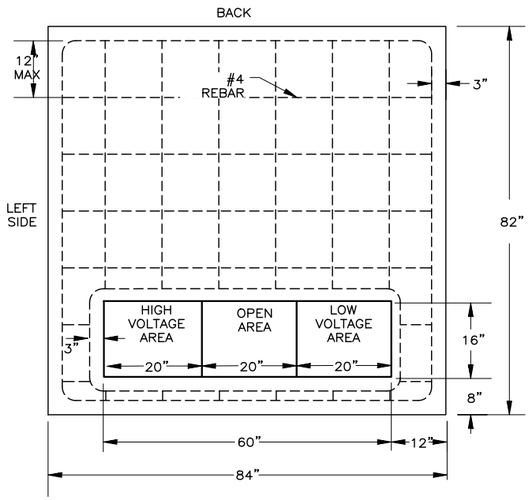
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**

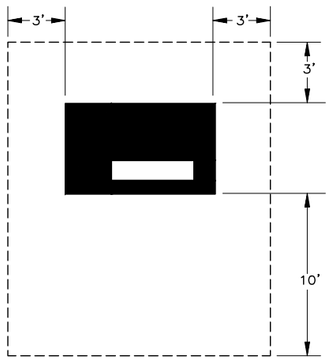
GENERAL NOTES:

1. REFER TO UTILITY STANDARD DETAILS ON-LINE FOR THE LATEST PAD AND TRENCH REQUIREMENTS.
2. NOT USED.

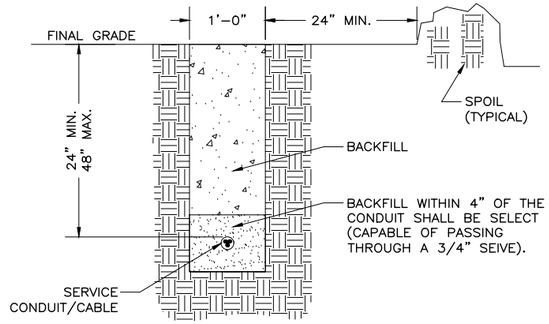
SHEET KEYNOTES:

1. NOT USED.

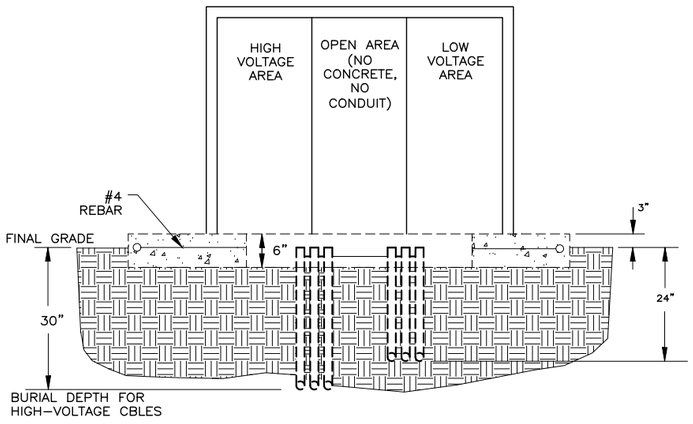


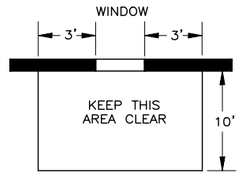


DETAIL "C"



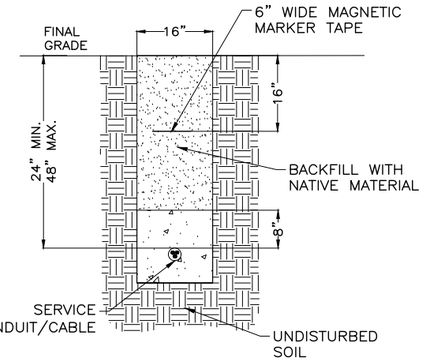
PRIMARY CONDUIT TRENCH 2
1" = 1'-0" E101





DETAIL "A"

DETAIL "B"

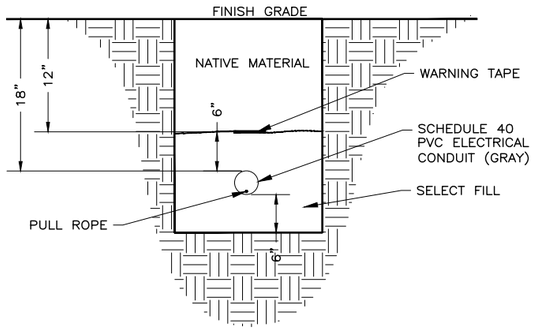


SECONDARY CONDUIT TRENCH 3
1" = 1'-0" E101

NOTES:

1. SITE PREPARATION: ALL DIRT BENEATH THE PAD SITE MUST BE COMPACTED AND LEVEL PRIOR TO SETTING OR POURING THE PAD TO PREVENT SETTLING.
2. CONCRETE: SHALL BE MADE USING A STANDARD BRAND OF PORTLAND CEMENT. STEEL REINFORCEMENT SHALL BE #4 REBAR PLACED ACCORDING TO THE DRAWINGS. THE PAD MUST BE POURED AT LEAST THREE FULL DAYS PRIOR TO SETTING THE UNIT. CONCRETE MUST BE KEPT ABOVE FREEZING AT LEAST 72 HOURS AFTER POURING. THE FINISHED SURFACE MUST BE COMPLETELY FLAT AND LEVEL. ALL WORK MUST BE DONE TO HIGH QUALITY STANDARDS.
3. PREFABRICATION: THE PAD MAY EITHER BE CONSTRUCTED ON THE SITE OR PREFABRICATED ACCORDING TO SPECIFICATIONS. PREFABRICATED PADS SHALL BE SET LEVEL AND PLUMB.
4. TRANSFORMER CONDUIT WINDOW LAYOUT: LOW VOLTAGE CONDUITS SHALL BE FORMED AS TIGHTLY AS POSSIBLE AGAINST RIGHT SIDE OF THE OPENING AND SHALL IN NO CASE EXTEND FURTHER THAN 16" FROM THE RIGHT SIDE OF CONDUIT WINDOW ON THE PAD. NO MORE THAN 4 CONDUITS WILL BE USED ON THE LOW VOLTAGE SIDE. DO NOT PUT ANY CONCRETE IN OR UNDER THE CONDUIT WINDOW. USE DIRT TO SEPARATE CONDUITS. BELL ENDS ARE REQUIRED FOR ALL METAL CONDUITS BUT NOT FOR PLASTIC CONDUIT.
5. CLEARANCE: THE FRONT OF THE PAD SHOULD ALWAYS FACE AWAY FROM ADJACENT STRUCTURES AND BE FREE OF OBSTRUCTIONS. AT LEAST THREE FEET MUST SEPARATE THE EDGES OF THE PAD FROM ANY ADJACENT STRUCTURES. THE EDGES OF THE PAD MUST BE AT LEAST TEN FEET FROM ANY COMBUSTIBLE STRUCTURE. THE AREA IN FRONT OF THE PAD MUST HAVE TEN FEET OF CLEAR LEVEL WORKING AREA FOR MAINTENANCE OF THE UNIT.

RMP UTILITY TRANSFORMER PAD 1
NTS E101



TRENCH DETAIL 4
1" = 1'-0" E101

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
08/07/2023
STATE OF UTAH
PROJECT ENGINEER

DESIGNED KBH	3					
DRAFTED DAS	2					
CHECKED KBH	1					
DATE OCTOBER 2023	NO.	DATE	REVISIONS	BY	APVD.	

SCALE: AS SHOWN

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING ELECTRICAL DETAILS, SHT. 3

SHEET E503

089.29.100

FILE NAME:
FILE DATE:

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT **20.025**

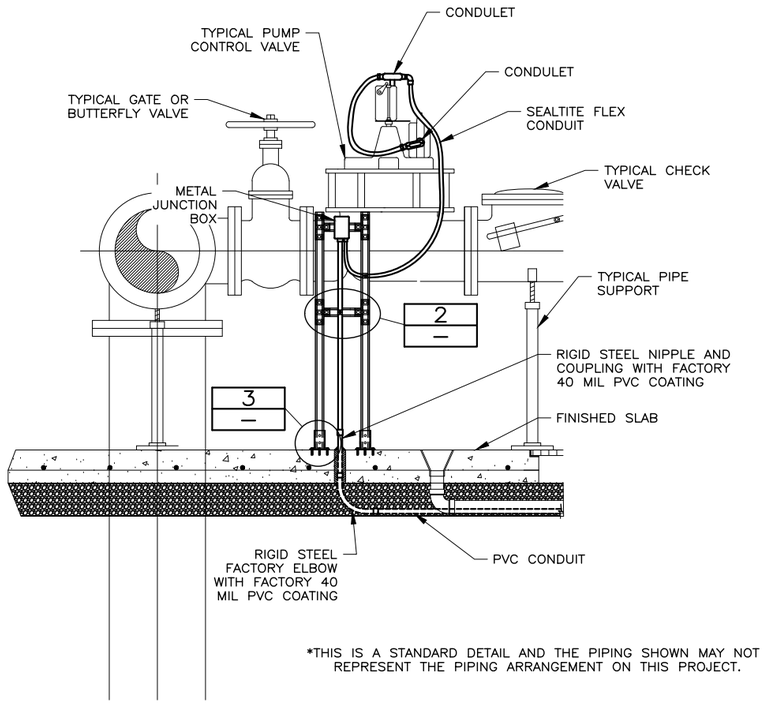
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**

GENERAL NOTES:

1. NOT USED.

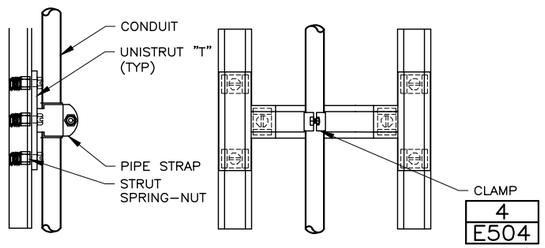
SHEET KEYNOTES:

1. NOT USED.

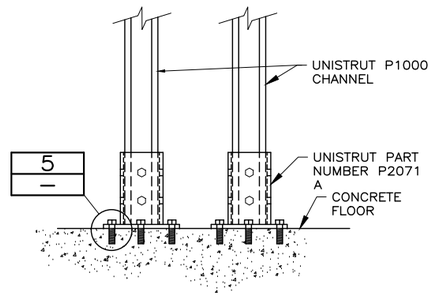


*THIS IS A STANDARD DETAIL AND THE PIPING SHOWN MAY NOT REPRESENT THE PIPING ARRANGEMENT ON THIS PROJECT.

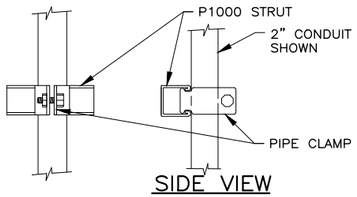
CONDUIT SUPPORT INSTALLATION 1
1" = 1'-0" E103



SUPPORT BRACE INSTALLATION 2
3" = 1'-0" —



SUPPORT BASE INSTALLATION 3
3" = 1'-0" —

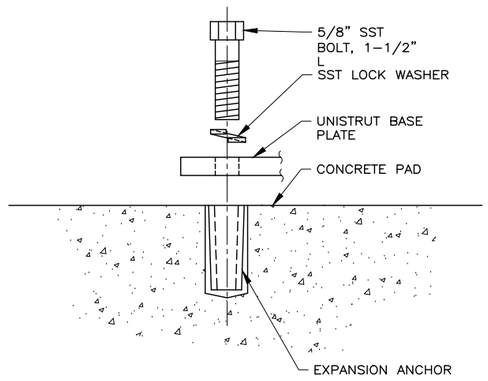


SIDE VIEW

CONDUIT PIPE CLAMPS*			
SIZE	EMT	RGS	EMT/RGS
1/2"	P1426	P1111	—
3/4"	P1427	P1112	P1212
1"	P1428	P1113	P1213
1-1/4"	P1429	P1114	P1214
1-1/2"	P1430	P1115	P1215
2"	P1431	P1117	P1217
2-1/2"	P1118	P1118	—
3"	P1119	P1119	—
3-1/2"	P1120	P1120	—
4"	P1121	P1121	—

* = SUPPLIED WITH SLOTTED HEAD SCREW AND NUT

TYPICAL CONDUIT SUPPORT



BASE ANCHOR INSTALLATION 5
6" = 1'-0" —

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE INC ENGINEERS

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
08/07/2023
STATE OF UTAH

PROJECT ENGINEER

DESIGNED KBH	3					
DRAFTED DAS	2					
CHECKED KBH	1					
DATE OCTOBER 2023	NO.	DATE	REVISIONS	BY	APVD.	

SCALE: AS SHOWN

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING ELECTRICAL DETAILS, SHT. 4

SHEET E504

089.29.100

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
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AMERICAN FORK, UT 84003
HPE PROJECT **20.025**

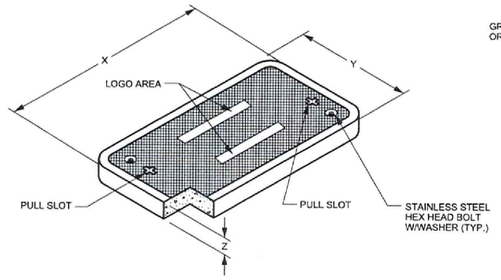
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**

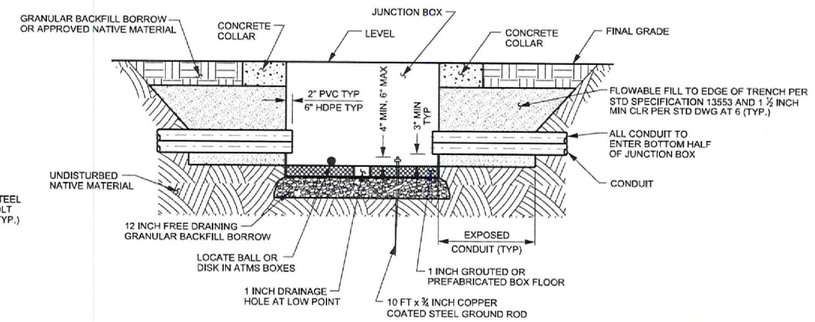
GENERAL NOTES:

1. NOT USED.

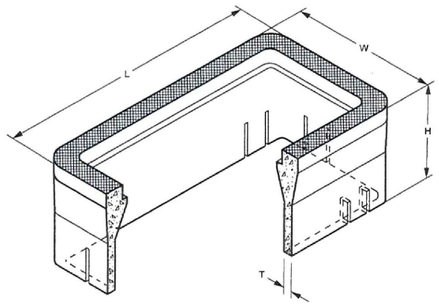
SHEET KEYNOTES:

1. NOT USED.



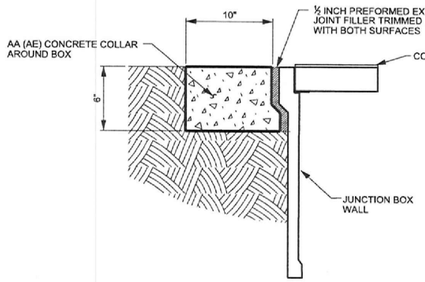


JUNCTION BOX CONDUIT PENETRATION DETAIL



BOX AND LID DIMENSIONS

BOX TYPE	"H" inch	"L" inch	"T" inch	"W" inch	"X" inch	"Y" inch	"Z" inch
I-PC	24	25	1 ½	16	23 ¼	13 ¾	2
II-PC	24	37 ⅜	1 ½	26	35 ⅜	24	3
III-PC	24	49 ⅜	2	32 ⅜	47 ⅜	30 ⅛	3

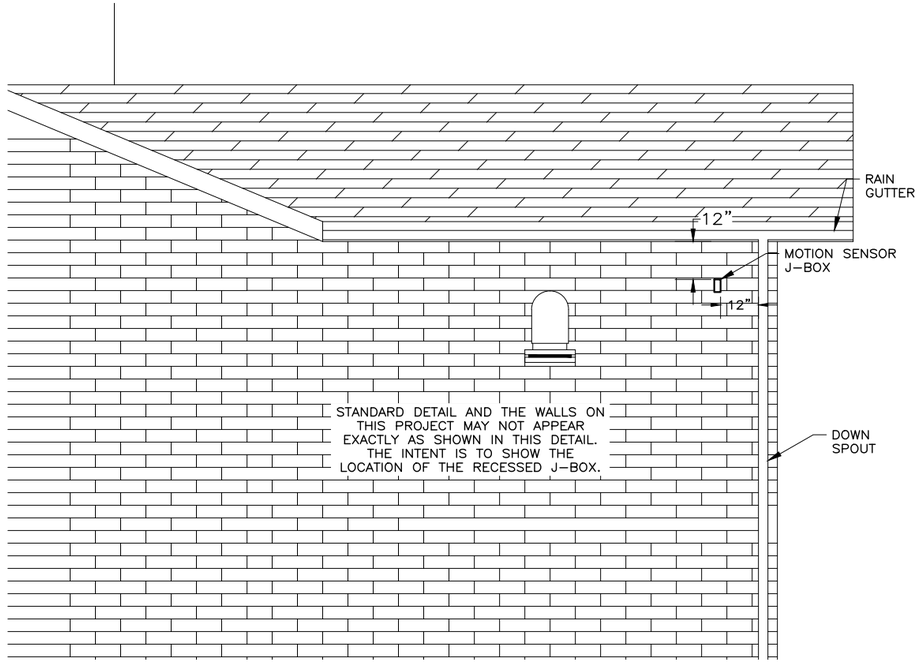


JUNCTION BOX CONCRETE COLLAR DETAIL

NOTES:

1. STAMP BOX LOGO INTO THE LID FROM THE FACTORY. (SEE STANDARD SPECIFICATION 13554).
2. DO NOT PLACE JUNCTION BOXES IN THE TRAVELED WAY OR ON FREEWAY SHOULDERS.
3. CONCRETE COLLAR WIDTH VARIES WHEN ADJACENT TO ATMS CABINETS. REFER TO AT AND SL SERIES STD DWGS.
4. PROVIDE CONCRETE COLLARS EXCEPT WITHIN CONCRETE PAVED AREAS.
5. INSTALL CONDUIT PLUG PER STANDARD SPECIFICATION 13554.
6. ALIGN ATMS CONDUIT BY COLOR ON EACH SIDE OF THE JUNCTION BOX.
7. PROVIDE TYPE III-PC JUNCTION BOXES WITH A SPLIT LID.
8. CONFORM TO ANSI/SCTE-77 2007 "SPECIFICATION FOR UNDERGROUND ENCLOSURE INTEGRITY" TIER 22 LOADING FOR ALL JUNCTION BOXES.
9. EXTEND GROUND ROD A MINIMUM OF 4 INCHES AND A MAXIMUM OF 6 INCHES ABOVE BOTTOM OF JUNCTION BOX.
10. USE A SPLIT BOLT TO ATTACH GROUND WIRES TO GROUND ROD. ATTACH NOT MORE THAN TWO WIRES PER BOLT.
11. DO NOT CUT GROUND RODS.

UG ELECTRICAL BOX 1
N/A E101



MOTION SENSOR J–BOX INSTALLATION 2
1/2" = 1'–0" E103

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
08/07/2023
STATE OF UTAH

PROJECT ENGINEER

DESIGNED KBH	3					
DRAFTED DAS	2					
CHECKED KBH	1					
DATE OCTOBER 2023	NO.	DATE	REVISIONS	BY	APVD.	

SCALE AS SHOWN

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING ELECTRICAL DETAILS, SHT. 5

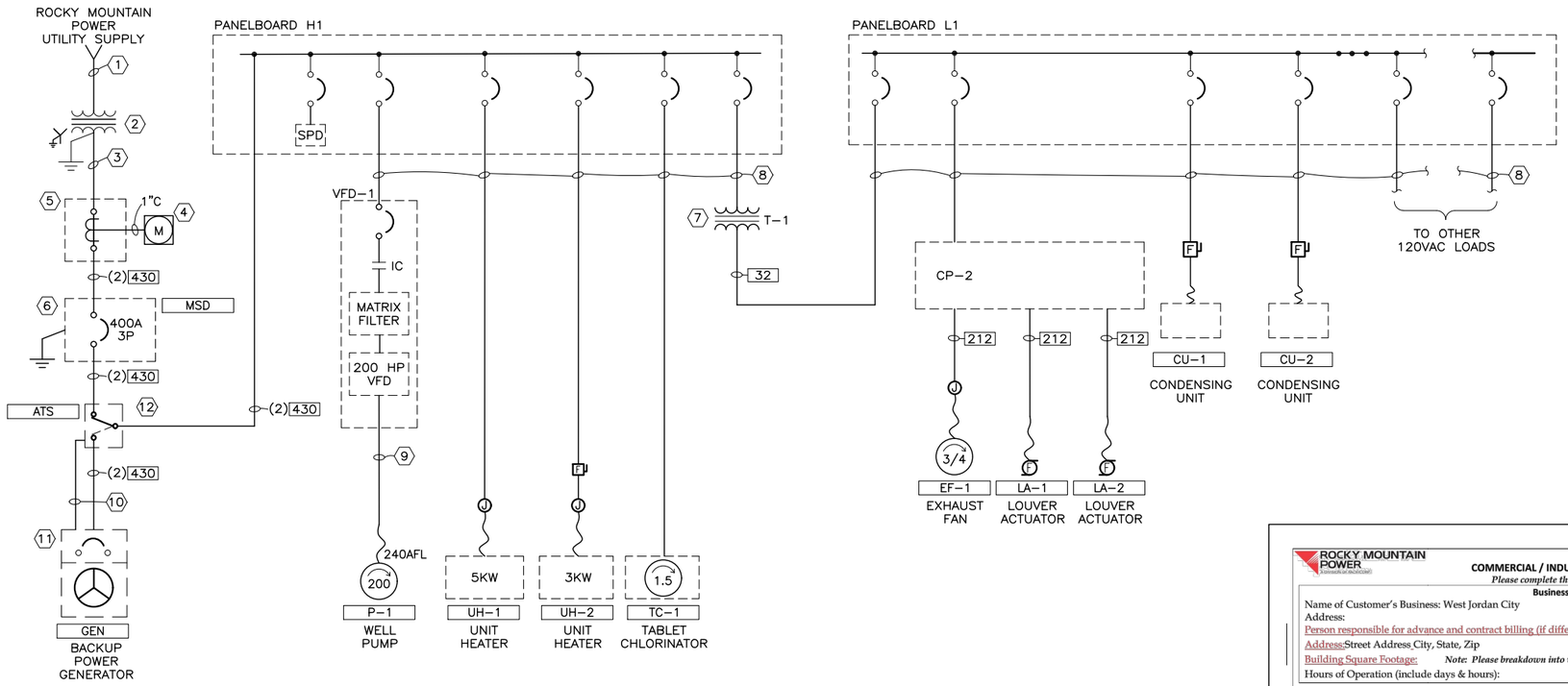
SHEET E505

089.29.100

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT **20.025**

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**



POWER ONE-LINE DIAGRAM

ELECTRICAL UTILITY INSTALLATION

UTILITY INFORMATION

UTILITY COMPANY:	ROCKY MOUNTAIN POWER
UTILITY COMPANY CONTACT:	AUBREY RASMUSSEN
CONTACT INFORMATION:	PHONE: 801-576-6247
WORK ORDER NUMBER:	6845352

	SUPPLIED BY:	INSTALLED BY:
SERVICE PRIMARY		
PRIMARY TRENCHING/BACKFILL	-	CONTRACTOR
PRIMARY CONDUIT	CONTRACTOR	CONTRACTOR
PRIMARY CONDUCTOR	UTILITY COMPANY	UTILITY COMPANY
SERVICE TRANSFORMER		
TRANSFORMER PAD	CONTRACTOR	CONTRACTOR
TRANSFORMER	UTILITY COMPANY	UTILITY COMPANY
SERVICE SECONDARY		
SECONDARY TRENCHING/BACKFILL	-	CONTRACTOR
SECONDARY CONDUIT	CONTRACTOR	CONTRACTOR
SECONDARY CONDUCTOR	UTILITY COMPANY	UTILITY COMPANY
METERING EQUIPMENT		
METER	UTILITY COMPANY	UTILITY COMPANY
METER SOCKET	CONTRACTOR	CONTRACTOR
COMBO METER/MAIN	-	-
CURRENT TRANSFORMER ENCL.	CONTRACTOR	CONTRACTOR
CT ENCL. TO METER SOCKET WIRING	UTILITY COMPANY	UTILITY COMPANY
CT ENCL. TO METER SOCKET CONDUIT	CONTRACTOR	CONTRACTOR
MAIN SERVICE DISCONNECT		
CIRCUIT BREAKER	CONTRACTOR	CONTRACTOR
FUSED DISCONNECT SWITCH	-	-

ROCKY MOUNTAIN POWER

COMMERCIAL / INDUSTRIAL CUSTOMER INFORMATION SHEET

Please complete this form and return to the Estimator assigned to your job

Business Information

Name of Customer's Business: West Jordan City Phone No.: Request Number:
Address: Fax No.:
Person responsible for advance and contract billing (if different than monthly billing customer):
Address: Street Address, City, State, Zip E-mail Address:
Building Square Footage: *Note: Please breakdown into warehouse, office and manufacturing if applicable*
Hours of Operation (include days & hours):

Service Description

Desired Secondary Voltage: 3 Phase 277/480 V If 'other' list here *Note: Not all voltages may be available*
Panel Size *(in Amps)*:400 Number of Meters: 1 *List addresses for each above*
Nearest Pole or Equipment number: Type of Service Desired: Underground
Electrical Contractor: Phone #:

Load List *(attach additional sheets if necessary)*

Description	Phase and Voltage	New Load to be added	Load to be removed	Total Connected Load after changes	Unit
HVAC (name plate rating)	1 Phase 120/240 V	1.8	-	1.8	Tons*
Refrigeration Equipment	1 Phase 120/240 V	-	-	-	Tons*
Total connected Tons				1.8 Tons	
Exhaust Fans	1 Phase 120/240 V	0.75	-	0.75	HP
Gas/Fuel/Sump Pump	1 Phase 120/240 V	-	-	-	HP
Small Motors (include motor codes)	1 Phase 120/240 V	1.5	-	1.5	HP
Air Compressor	1 Phase 120/240 V	-	-	-	HP
Swimming Pool	1 Phase 120/240 V	-	-	-	HP
Largest Motor (not included above) & code	3 Phase 277/480 V	200	-	200	HP
Total connected HP				202.25 HP	
Electric Heat	3 Phase 277/480 V	9.08	-	9.,08	kW
Water Heating	1 Phase 120/240 V	-	-	-	kW
Lighting	1 Phase 120/240 V	0.6	-	0.6	kW
Outlets	1 Phase 120/240 V	1.62	-	1.62	kW
Office Equipment	1 Phase 120/240 V	-	-	-	kW
Kitchen Equipment	1 Phase 120/240 V	-	-	-	kW
Computers, Magnetic Power Supplies	1 Phase 120/240 V	1.0	-	1.0	kW
Machinery	1 Phase 120/240 V	-	-	-	kW
Thermoplastic Injection Equipment	1 Phase 120/240 V	-	-	-	kW
Elevators	1 Phase 120/240 V	-	-	-	kW
Boiler	1 Phase 120/240 V	-	-	-	kW
Snow Melting	1 Phase 120/240 V	-	-	-	kW
Signs	1 Phase 120/240 V	-	-	-	kW
X-Ray Equipment	1 Phase 120/240 V	-	-	-	kW
Washer/Dryer	1 Phase 120/240 V	-	-	-	kW
Miscellaneous	1 Phase 120/240 V	1.0	-	1.0	kW
Heat Exchanger	1 Phase 120/240 V	-	-	-	kW
Humidifier	1 Phase 120/240 V	-	-	-	kW
Future	1 Phase 120/240 V		-	0	kW
Total connected kW				20.22 kW	

It is important to provide the most accurate information available, as it is used by the Estimator to design PacifiCorp's facilities and determine the customer's costs. Please sign and date this form before giving it to your estimator.

Customer Signature Date

Note:
- You may wish to consult a trained professional (electrician, engineer, etc.) prior to providing the information to your estimator.
- Commercial metering can have many restrictions that should be discussed with the estimator prior to the purchase and installation of your metering equipment. There are also restrictions regarding master metering. If your plans call for master metering, please discuss this with your estimator.
- Motors larger than 35hp three phase or 5hp single phase will require approval by our engineering department prior to installation in order to determine the acceptable starting current.

* Tons = BTUs/12,000

RMP LOAD SHEET

GENERAL NOTES:

1. REFER TO CONDUIT/CONDUCTOR TABLE FOR WIRE AND CONDUIT REQUIREMENTS.
2. REFER TO ELECTRICAL PLANS FOR ELECTRICAL EQUIPMENTS LOCATIONS.

SHEET KEYNOTES:

1. CONDUIT SIZE 4". COORDINATE WITH UTILITY COMPANY AS AS REQUIRED.
2. TRANSFORMER: PROVIDED AND INSTALLED BY UTILITY COMPANY. PAD BY CONTRACTOR.
3. 4"C, CONDUCTORS BY UTILITY COMPANY.
4. METER SOCKET: PROVIDED AND INSTALLED AS REQUIRED BY UTILITY COMPANY.
5. CT METERING ENCLOSURE: PROVIDED AND INSTALLED AS REQUIRED BY BY UTILITY COMPANY.
6. MAIN SERVICE DISCONNECT: 480VAC, 400A, 3-POLE CIRCUIT BREAKER IN NEMA 3R ENCLOSURE. LABEL AS "MAIN SERVICE DISCONNECT" AND AS REQUIRED BY NEC 110.24.
7. TRANSFORMER T-1: 30KVA, 480VAC PRIMARY, 208Y/120V SECONDARY.
8. REFER TO PANELBOARD SCHEDULE FOR WIRE IDENTIFICATION.
9. VFD CONDUCTORS: 1EA 3C-350, IN 3"C (BELDEN 29534 OR APPROVED EQUAL).
10. 1"C, CONDUCTORS AS REQUIRED FOR ATS TO START/STOP THE GENERATOR.
11. BACKUP POWER GENERATOR: 230KW, 480VAC, 3-PH, 4-W DIESEL GENERATOR.
12. AUTOMATIC TRANSFER SWITCH: 480VAC, 400A, 3-PH, 4-W.

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
08/07/2023
STATE OF UTAH

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE INC ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3				
DRAFTED	DAS	2				
CHECKED	KBH	1				
DATE	OCTOBER 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: NONE

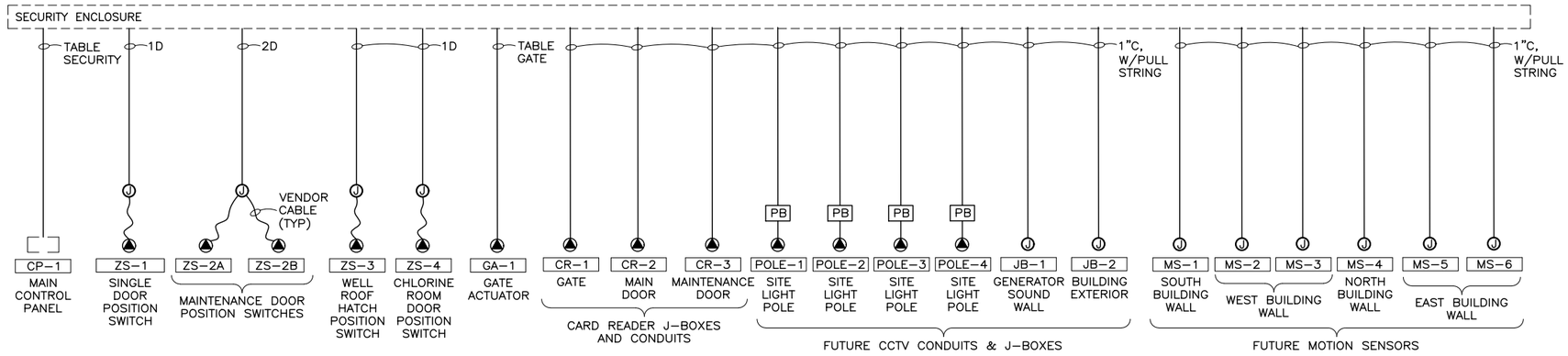
WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
ELECTRICAL
POWER ONE-LINE DIAGRAM

SHEET E601

089.29.100

7/04



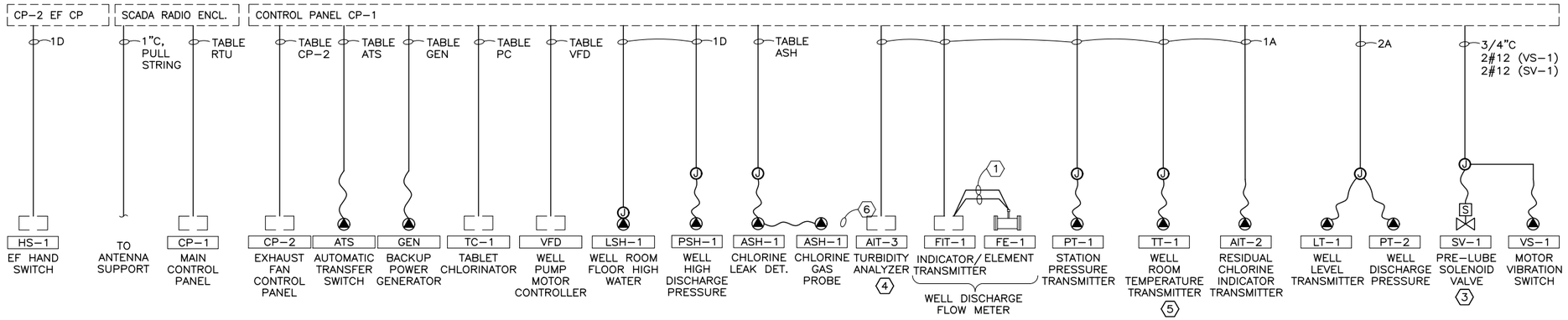


TABLE VFD

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	CP-1 TO VFD SIGNAL DESCRIPTION
1"	1	#14	COMMON INPUT
	1	#14	COMMON OUTPUT
	1	#14	120 VAC FUSED COMMON
	1	#14	120 VAC NEUTRAL
	1	#14	BACKSPIN TIME DELAY
	1	#14	SHUTDOWN RESET
	1	#14	VFD CALL RUN
	3	#14	VFD CP-1 START LIGHT
	2	#14	VFD CP-1 START PUSHBUTTON
	1	#14	VFD FAULT
	1	#14	VFD FILTER HIGH TEMP.
	1	#14	VFD HIGH PRESSURE SHUTDOWN
	1	#14	VFD HS IN AUTO MODE
	1	#14	VFD HS IN HAND MODE
	1	#14	VFD LOW LEVEL SHUTDOWN
	1	#14	VFD ON
	1	#14	VFD READY TO START
	1	#14	WASTE VALVE HS IN AUTO POS.
	1	#14	WASTE VALVE HS IN WASTE POS.
	1	#14	MOTOR HIGH VIBRATION SHDN
1"	1	CAT 6U	VFD ETHERNET
	1	CAT 6U	MOTOR RTD TEMPERATURES
	1	CAT 6U	POWER MONITOR
3/4"	1	#18TSP	VFD COMMAND SPEED
	1	#18TSP	VFD RUNNING SPEED
3/4"	-	P. STRING	SPARE CONDUIT

TABLE GATE

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	CP-1 TO GATE ACTUATOR SIGNAL DESCRIPTION
1"C	1	#14	COMMON INPUT
	1	#14	COMMON OUTPUT
	1	#14	CLOSE COMMAND
	1	#14	GATE OPEN STATUS
	1	#14	GATE CLOSED STATUS
	1	#14	OPEN COMMAND

TABLE CP-2

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	CP-1 TO CP-2 SIGNAL DESCRIPTION
3/4"C	1	#14	COMMON OUTPUT
	1	#14	COMMON INPUT
	1	#14	EXHAUST FAN ON
	1	#14	EXHAUST FAN RUN

TABLE RTU

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	CP-1 TO RTU
3/4"C	1	CAT 6U	ETHERNET

TABLE ASH

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	CP-1 TO ASH-1 SIGNAL DESCRIPTION
3/4"C	1	#14	COMMON OUTPUT
	1	#14	COMMON INPUT
	1	#14	CHLORINE LEAK ALARM
	1	#14	CHLORINE ALARM RESET

TABLE VA

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	CP-1 TO WASTE VALVE SIGNAL DESCRIPTION
3/4"C	1	#14	COMMON INPUT
	1	#14	COMMON OUTPUT
	3	#14	VALVE FULL CLOSED/NOT FULL CLOSED
	1	#14	VALVE FULL OPEN/NOT FULL OPEN
	1	#14	VALVE CLOSE COMMAND
	1	#14	VALVE OPEN COMMAND

NOT ALL POSITION CONTACTS MAY BE USED IN CP-1

TABLE GEN

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	CP-1 TO GENERATOR SIGNAL DESCRIPTION
3/4"C	1	#14	COMMON INPUT
	1	#14	GENERATOR RUNNING
	1	#14	GENERATOR FAULT

TABLE ATS

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	CP-1 TO ATS SIGNAL DESCRIPTION
3/4"C	1	#14	COMMON INPUT
	1	#14	ATS IN GENERATOR POSITION
	1	#14	ATS IN UTILITY POSITION

I&C WIRE/CONDUIT TABLE

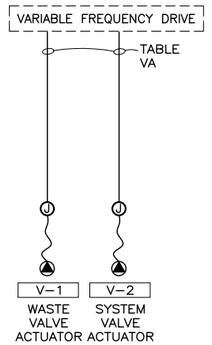
IDENT.	CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION
1A	3/4"	1	#18TSP	1 ANALOG SIGNAL
2A	3/4"	2	#18TSP	2 ANALOG SIGNALS
3A	3/4"	3	#18TSP	3 ANALOG SIGNALS
IDENT.	CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION
1D	3/4"	2	#14	1 SIGNAL
2D	3/4"	3	#14	1 COMMON, 2 DISCRETE SIG.
3D	3/4"	4	#14	VARIES
4D	3/4"	5	#14	VARIES

TABLE TC

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	CP-1 TO TABLET CHLORINATOR SIGNAL DESCRIPTION
3/4"C	1	#14	COMMON INPUT
	1	#14	COMMON OUTPUT
	1	#14	CHLORINATOR REMOTE RUN
	1	#14	PUMP RUNNING
	1	#14	SOLUTION TANK HIGH LEVEL
	1	#14	SOLUTION TANK LOW LEVEL
	1	#14	SPARE
	1	#14	WEIGHT SCALE ALARM
3/4"C	1	#18TSP	WELL FLOW

TABLE SECURITY

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	CP-1 TO SECURITY ENCLOSURE SIGNAL DESCRIPTION
1-1/2C	1	#14	COMMON INPUT
	1	#14	COMMON OUTPUT
	1	#14	CHLORINE ROOM DOOR POS.
	1	#14	CLOSE COMMAND
	1	#14	GATE CLOSED STATUS
	1	#14	GATE OPEN STATUS
	1	#14	OPEN COMMAND
	1	#14	SITE MOTION SENSOR ALARM
	2	#14	WELL ROOM MAINT. DOOR POS.
	1	#14	WELL ROOM MAN DOOR POS.
	1	#14	WELL ROOM ROOF HATCH POS.
1"C	-	-	FUTURE ETHERNET



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AMERICAN FORK, UT 84003
HPE PROJECT **20.025**

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**

GENERAL NOTES:

1. LOCATIONS OF INSTRUMENTS AND DEVICE SHOWN ON THE INSTRUMENTATION AND CONTROL PLAN. SEE E103.

SHEET KEYNOTES:

1. INSTALL SUPPLIED DATA AND SIGNAL WIRE IN CONDUIT AS REQUIRED BY THE METER MANUFACTURER. DO NOT COMBINE SIGNAL AND DATA CONDUCTORS IN THE SAME CONDUIT.
2. INSTALL A 4"X4" ELECTRICAL BOX IN THE CHLORINE ROOM. PROVIDE A THREE-WAY SWITCH FOR THE BUILDING LIGHTS AND A TOGGLE SWITCH FOR THE EXHAUST FAN.
3. SHOWN FOR PRE-LUBE SOLENOID VALVE SV-1. DUPLICATE FOR TURBIDITY ANALYZER VALVE SV-2 AND CHLORINE ANALYZER VALVE SV-3.
4. SHOWN FOR TURBIDITY AHALYZER AIT-1. DUPLICATE FOR RESIDUAL CHLORINE ANALYZER AIT-2
5. SHOWN FOR WELL ROOM TEMPERATURE TRANSMITTER TT-2. DUPLICATE FOR CHLORINE ROOM TEMPERATURE TRANSMITTER TT-2.
6. CABLE SUPPLIED BY PROBE MANUFACTURER.

FILE NAME:
FILE DATE:

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08/07/2023
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PROJECT ENGINEER

DESIGNED KBH	3					
DRAFTED DAS	2					
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DATE OCTOBER 2023	NO.	DATE	REVISIONS	BY	APVD.	

SCALE: NONE

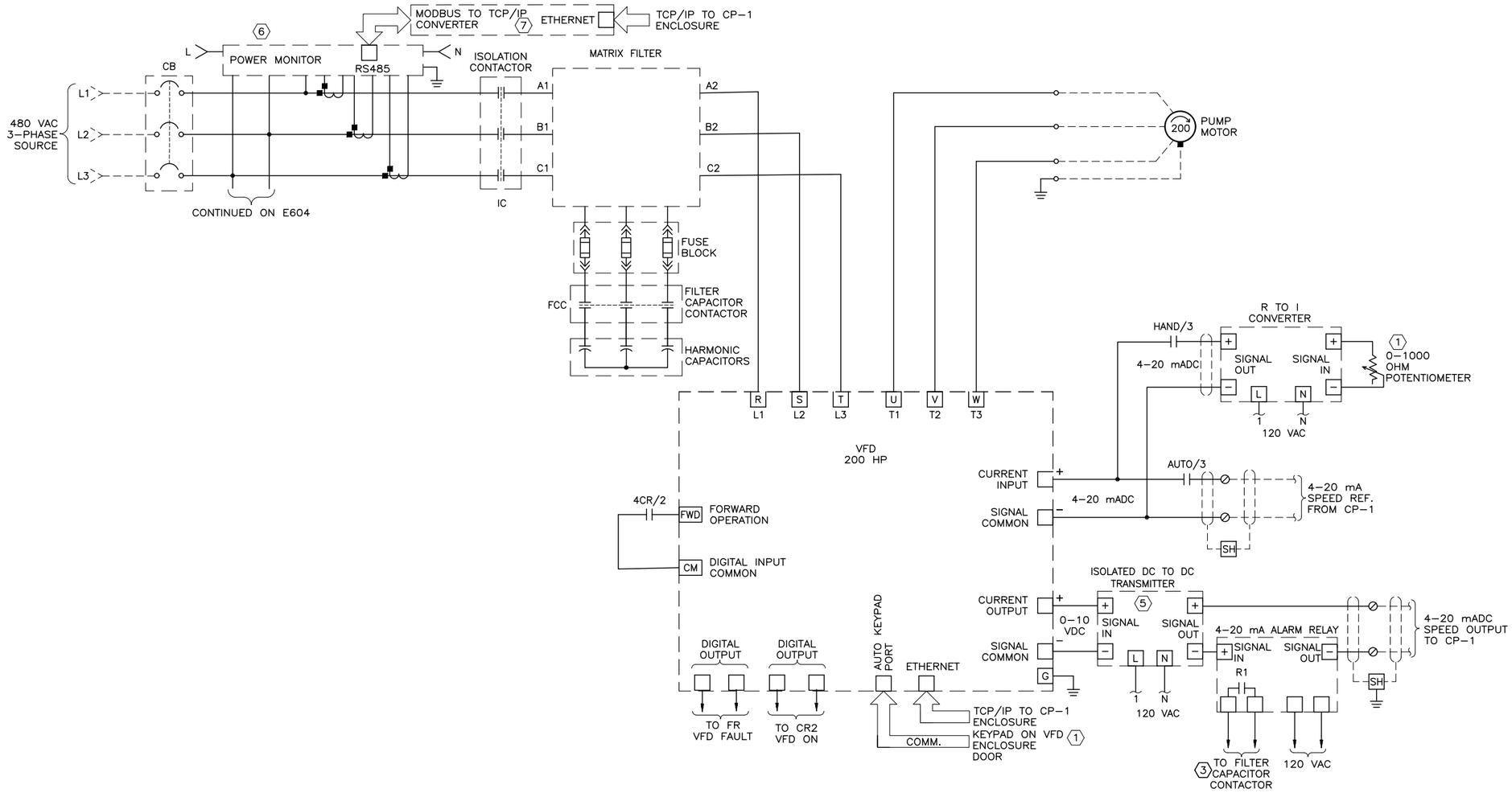
WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING ELECTRICAL INST. & CONTROL ONE-LINE DIAG.

SHEET E602

089.29.100

7/04



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FAX (801) 642-2154
HPE PROJECT **20.025**

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**

GENERAL NOTES:

1. THIS IS A TYPICAL WIRING DIAGRAM. CONTRACTOR SHALL MODIFY AS REQUIRED FOR THE VFD AND OTHER COMPONENTS PROVIDED.
2. CONTRACTOR SHALL PROVIDE TERMINAL NUMBERS AND WIRE NUMBERS AS REQUIRED.
3. COORDINATE WITH PROVIDER OF CP-1 FOR RELAY DESIGNATIONS IN CP-1.
4. VFD MANUFACTURER SHALL PROVIDE POWER FOR POWER MONITOR AND MODBUS TO TCP/IP CONVERTER AS REQUIRED.

SHEET KEYNOTES:

1. DEVICE SHALL BE LOCATED ON ENCLOSURE DOOR AVAILABLE TO THE OPERATOR.
2. FUSES SIZED BY EQUIPMENT MANUFACTURER.
3. CONTACT TO CONTROL FILTER CAPACITOR CONTACTOR. DE-ENERGIZE CAPACITORS WHEN VFD IS LESS THAN 30%.
4. T-STAT SHALL CONTROL ENCLOSURE FAN.
5. PROVIDE SIGNAL CONVERTER AS REQUIRED.
6. POWER MONITOR SHOWN WITHOUT FUSING. CONTRACTOR SHALL PROVIDE FUSING AS REQUIRED BY MANUFACTURER.
7. PROVIDE RS485 TO ETHERNET CONVERTER AND POWER SUPPLY AS REQUIRED.
8. PROVIDE A FLIP-FLOP TIMER, WITH CONTACTS ON FOR 0.5 SEC, OFF FOR 0.5 SECONDS.
9. FOR THE PUMP-TO-WASTE DELAY TIMER, PROVIDE A STANDARD TIME DELAY RELAY. CONTACTS TO CLOSE IN APPROXIMATELY 30 SEC, TO 600 SECONDS. ACTUAL TIME DELAY TO BE DETERMINED DURING WELL STARTUP.

FILE NAME:
FILE DATE:

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HANSEN ALLEN & LUCE INC
ENGINEERS

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DRAFTED	DAS	2			
CHECKED	KBH	1			
DATE	OCTOBER 2023	NO.	DATE	REVISIONS	BY / APVD.

SCALE: NONE

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
ELECTRICAL
TYPICAL VFD CONTROL DIAGRAM, SHT. 1

SHEET: E603
089.29.100

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
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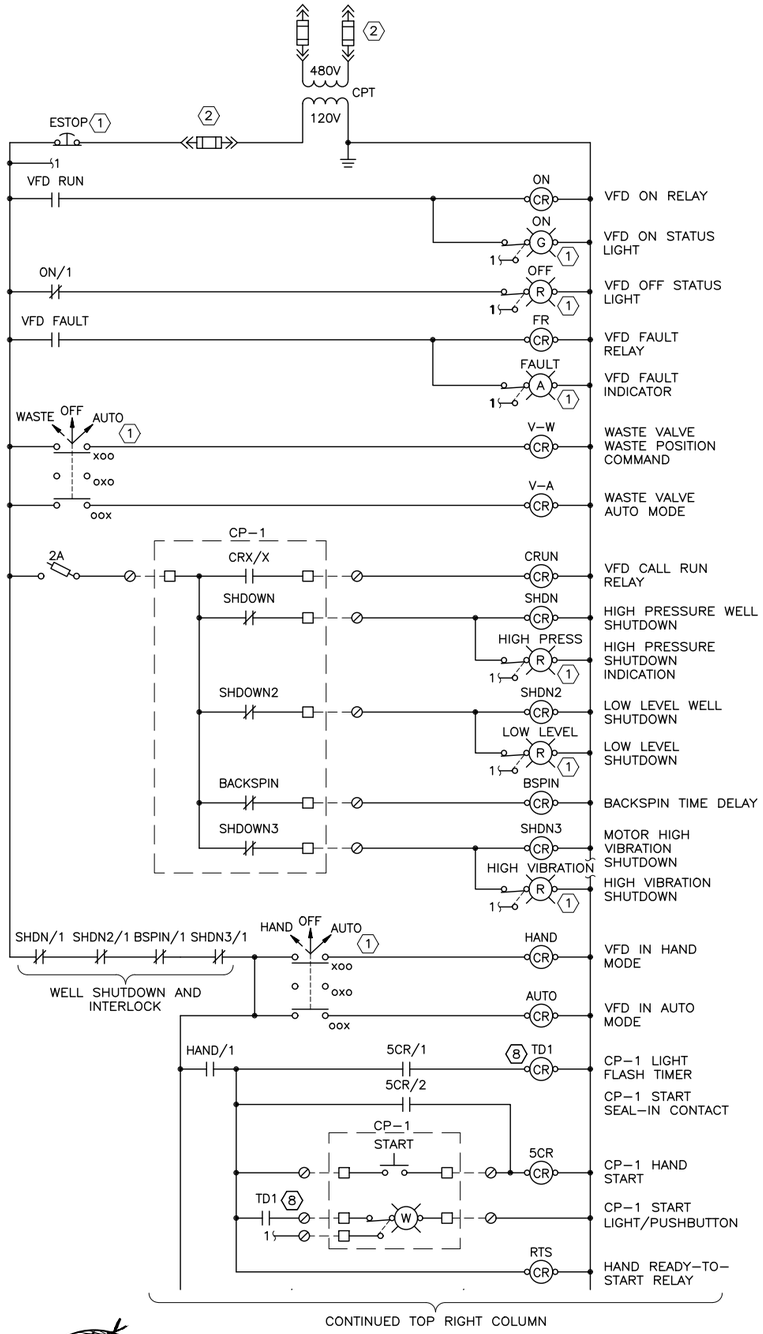
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT **20.025** © 2020
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**

GENERAL NOTES:

1. FOR GENERAL AND KEYNOTES, REFER TO E603.

CONTINUED FROM SHEET E603



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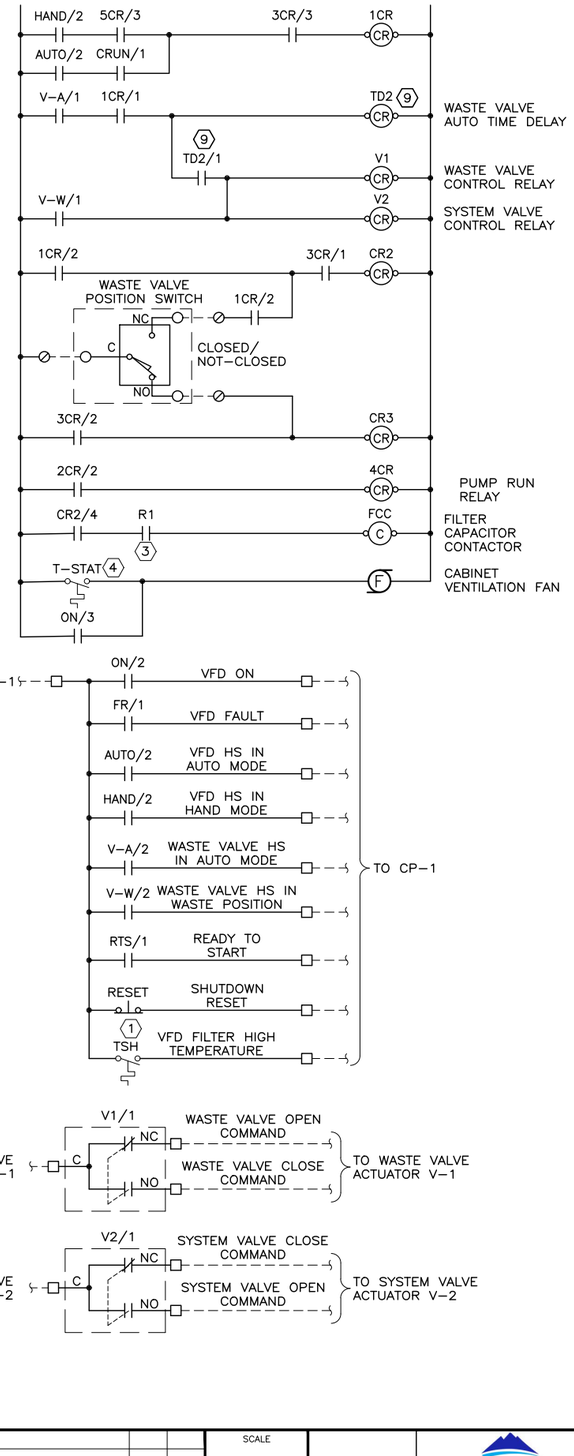

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SCALE: NONE

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
ELECTRICAL
TYPICAL VFD CONTROL DIAGRAM, SHT. 2

SHEET E604

089.29.100

7/04

EQUIPMENT SCHEDULE

ITEM	DESCRIPTION	EQUIPMENT RATING						DISCONNECT						STARTER		
		VOLTS	PH	HP	WATTS	FLA	MCA	AMPS	VOLTS	POLES	NEMA	FUSE	CONNECTION	TYPE	NEMA SIZE	NOTES
AIT-2	CHLORINE ANALYZER	120	1	-	10	0.08		-	-	-	-	-	HARD-WIRED	-	-	
AIT-3	TURBIDITY ANALIZER	120	1		150	1.25		-	-	-	-	-	HARD-WIRED	-	-	
ATS	AUTOMATIC TRANSFER SWITCH	480	3	-	-	400	-	-	-	-	-	-	HARD-WIRED	-	-	
CP-1	MAIN CONTROL PANEL	120	1	-	800	-	-	-	-	-	-	-	HARD-WIRED	-	-	
CP-2	EXHAUST FAN CONTROL PANEL	120	1	-	-	-	-	-	-	-	-	-	HARD-WIRED	-	-	
CTE	CURRENT TRANSFORMER ENCLOSURE	480	3	-	-	-	-	-	-	-	-	-	-	-	-	
FE-1	FLOW ELEMENT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
FIT-1	FLOW INDICATOR/TRANSMITTER	120	1	-	50	0.4										
GA-1	GATE ACTUATOR	240	1	1	1,920	8	-	-	-	-	-	-	-	-	-	
GEN	BACKUP POWER GENERATOR	480	3	-		-	-	-	-	-	-	-	HARD-WIRED	-	-	
LT-1	WELL LEVEL TRANSMITTER	24	-	-	-	-	-	-	-	-	-	-	-	-	-	
MSD	MAIN SERVICE DISCONNECT	480	3	-	-	-	-	-	-	-	-	-	-	-	-	
P-1	WELL PUMP	480	3	200	199,296	240	-	-	-	-	-	-	HARD-WIRED	VFD	200 HP	
PC-1	TABLET CHLORINATOR	120	1	-	1,656	-	-	-	-	-	-	-	-	-	-	
RTU	REMOTE TELEMETRY UNIT	120	1	-	-	-	-	-	-	-	-	-	HARD-WIRED	-	-	
SV-1	PRE-LUBE SOLENOID VALVE	120	1	-	5			-	-	-	-	-	HARD-WIRED	-	-	
SV-1	CHLORINE RESIDUAL SOLENOID VALVE	120	1	-	5			-	-	-	-	-	HARD-WIRED	-	-	
SV-3	TURBIDITY SOLENOID VALVE	120	1	-	5			-	-	-	-	-	HARD-WIRED	-	-	
TT-1	PUMP ROOM TEMPERATURE SENSOR	24	-	-	-	-	-	-	-	-	-	-	-	-	-	
TT-2	CHLORINE ROOM TEMPERATURE SENSOR	24	-	-	-	-	-	-	-	-	-	-	-	-	-	
V-1	WASTE VALVE ACTUATOR	120	1	1/6	528	4.4		-	-	-	-	-	-	-	-	
V-2	SYSTEM VALVE ACTUATOR	120	1	1/6	528	4.4		-	-	-	-	-	-	-	-	
VFD	WELL VARIABLE FREQUENCY DRIVE	480	3	200	-	-		-	-	-	-	-	HARD-WIRED	-	-	

NOTES: 1)

FIXTURE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER		FIX	LAMP	LUMENS	TEMPERATURE (KELVIN)	MOUNTING	NOTES:
		NAME	CATALOG NO.	VA					
F1	4' LED ENCLOSED INDUSTRIAL, FIBERGLASS HOUSING, DAMP LOCATION, MVOLT	METALUX	4VT2 LD5-4-DR-UNV-L840-CD1-WL-U	38	LED	4000	4000	SURFACE	
F2	LED WALL MOUNTED FULL CUTOFF MINI AREA WALL PACK FOR WET LOCATIONS	LUMARK	XTOR2B-W-PC1	18	LED	1,472	4000	WALL	1)
F3	FLOOD LIGHT, WIDE DISTRIBUTION, 120 VAC, 4000 DEG K LED	EATON	URLD-C25-E-U-66-Y-BZ	128	LED	15,530	4000	WALL	2)
F4A	WEST JORDAN STANDARD POLE LIGHT	-	-	129	LED	13,748	4999	POLE	3)
F4B	WEST JORDAN STANDARD LIGHT POLE	-	-	-	-	-	-	-	3)

NOTES:
1) FIXTURE SHALL BE MOTION SENSOR CONTROLLED.
2) AIM TOWARD GENERATOR SIDE AISLE.
3) POLE AND FIXTURE SHALL BE PURCHASED FROM WEST JORDAN CITY.

HVAC MECHANICAL EQUIPMENT SCHEDULE

ITEM	DESCRIPTION	EQUIPMENT RATING						DISCONNECT						STARTER		
		VOLTS	PH	HP	WATTS	FLA	MCA	AMPS	VOLTS	POLES	NEMA	FUSE	CONNECTION	TYPE	NEMA SIZE	NOTES
CU-1	CONDENSING UNIT	208	1	-	3,162	15.2	19	30	240	3	3R	25	HARD-WIRED	INCL.	N/A	
CU-2	CONDENSING UNIT	208	1	-	3,162	15.2	19	30	240	3	3R	25	HARD-WIRED	INCL.	N/A	
EF-1	EXHAUST FAN	120	1	F	150	1.25	-	-	125	1	-	-	HARD-WIRED	N/A	N/A	2)
FC-1	AIR HANDLER	208	1		-	-	-	-	-	-	-	-	-	-	-	1)
FC-2	AIR HANDLER	208	1		-	-	-	-	-	-	-	-	-	-	-	1)
LA-1	CHL. ROOM INTAKE LOUVER	120	1	F	50	0.4	-	-	-	-	-	-	-	-	-	
LA-2	CHL. ROOM EXHAUST LOUVER	120	1	F	50	0.4	-	-	-	-	-	-	-	-	-	
UH-1	UNIT HEATER	480	3	F	5,000	6.02	-	-	-	-	-	-	HARD-WIRED	INCL.	N/A	
UH-2	UNIT HEATER	480	3	F	3,300	3.97	-	30	600	3	4X	-	HARD-WIRED	N/A	N/A	

NOTES: 1) INDOOR UNIT RECEIVES POWER FROM OUTDOOR UNIT. REFER TO MANUFACTURER'S LITERATURE.
2) MANUAL STARTER AS DISCONNECT MEANS.

PANELBOARD H

LOCATION: WELL ROOM | MFGR: SQUARE D COMPANY | 400 AMPS | VOLTS: 480Y/277
DIMENSIONS: 20"Wx 6"Dx 26"H | TYPE: I-LINE | X M.L.O | PHASE: 3
MOUNTING: SURFACE | NEMA: 1 | 22,000 A.I.C. | WIRES: 4
FEED: TOP | X SURGE PROTECTION | FED FROM: UTILITY

BRKR A	BRKR P	DESCRIPTION	CIRCUIT ID	CONT. WATTS	N-CONT. WATTS	NO	PHASE LOADS A CONT.	A N-CONT.	B CONT.	B N-CONT.	C CONT.	C N-CONT.
20	3	CP-1 SURGE DEVICE	312			1	0	0	0	0	0	0
350	3	WELL PUMP (200 HP)	310	199,296		2	66,432	0	66,432	0	66,432	0
20	3	WELL ROOM HEATER	312	5,000		3	1,667		1,667		1,667	
20	3	CHLORINE ROOM HEATER	312	3,300		4	1,100		1,100		1,100	
20	3	TABLET CHLORINATOR	312	2,491		5	830		830		830	
50	3	TRANSFORMER L	38	5,182	14,718	6	1,754	5,099	860	4,429	2,568	5,191
		SPACE				7						
		TOTAL WATTS:		215,269	14,718		71,783	5,099	70,889	4,429	72,597	5,191
		CONTINUOUS LOAD:		215,269								
		CONTINUOUS LOAD * 125%:		269,087								
		NON-CONTINUOUS LOAD:		14,718								
		DESIGN WATTS:		283,805								
		MIN. RATING (AMPS):		342								

TRANSFORMER L

LOCATION: WELL ROOM | 25.5 PRIMARY AMPS | PRIMARY VOLTS: 480
DIMENSIONS: 14.75"W x 9.00"D x 14.75"H | 58.9 SECONDARY AMPS | SECONDARY VOLTS: 208Y/120
MOUNTING: WALL | KVA: 30
FEED: SIDE | FED FROM: PNL H

		CONT. WATTS	N-CONT. WATTS	PHASE LOADS A CONT.	A N-CONT.	B CONT.	B N-CONT.	C CONT.	C N-CONT.
	PANELBOARD L	5,182	14,718	1,754	5,099	860	4,429	2,568	5,191
	TOTAL WATTS:	5,182	14,718	1,754	5,099	860	4,429	2,568	5,191
	CONTINUOUS LOAD:	5,182							
	CONTINUOUS LOAD * 125%:	6,478							
	NON-CONTINUOUS LOAD:	14,718							
	DESIGN WATTS:	21,196							

PANELBOARD L

LOCATION: WELL ROOM | MFGR: SQUARE D | 225 AMPS | VOLTS: 208Y/120
DIMENSIONS: 20"W x 5.75"D x "H | TYPE: NQ | 90 M.C.B. | PHASE: 3
MOUNTING: SURFACE | NEMA: 1 | 10,000 A.I.C. | WIRES: 4
FEED: TOP | X SPD | FED FROM: XFMR L

BRKR A	BRKR P	DESCRIPTION	CIRCUIT ID	CONT. WATTS	N-CONT. WATTS	NO	PHASE LOADS A CONT.	A N-CONT.	B CONT.	B N-CONT.	C CONT.	C N-CONT.	NO	N-CONT. WATTS	CONT. WATTS	CIRCUIT ID	DESCRIPTION	BRKR A	BRKR P
20	1	CO, PUMP ROOM	212		1,080	1	800	1,080					2			800	212 CP-1/RTU	20	1
20	1	CO, CHLORINE ROOM	212		360	3			500	360			4			500	212 RTU RADIO ENCLOSURE	20	1
20**	1	CO, EXTERIOR	212		360	5					0	1,110	6	750		212	GENERATOR JACKET WATER HEATER	20	2
20**	1	LTS, INTERIOR	212	304		7	304	750					8	750		-	-	-	-
20	1	LTS, EXTERIOR	212	310		9			310	1,000			10	1,000		212	GENERATOR BATTERY CHARGER	20	1
20	1	FLOW METER	212	50		11					50	1,581	12	1,581		20	WELL ROOM EXTERIOR A/C UNIT-1	30	2
20	2	SITE GATE ACTUATOR	212		960	13	0	2,541					14	1,581		-	-	-	-
-	-	-	-		960	15			0	2,541			16	1,581		20	WELL ROOM EXTERIOR A/C UNIT-2	30	2
20	1	TURBIDIMETER	212	150		17					150	1,581	18	1,581		-	-	-	-
20	1	RESIDUAL CHLORINE ANALYZER	212	150		19	150	528					20	528		212	V-1 ACTUATOR	20	1
20**	1	CO, IRRIGATION CONTROLLER	212	50		21			50	528			22	528		212	V-2 ACTUATOR	20	1
20	1	LTS, POLES & CCTV CO	212	512	720	23					2,368	920	24	200	1,856	20	CP-2 CONTROL PANEL	30	1
20	1	SECURITY ENCLOSURE	212	500		25	500	200					26				SPARE	20	1
20	1	SPARE				27			0	0			28				SPARE	20	1
	1	AVAILABLE SPACE				29					0	0	30				SPARE	20	1
		TOTAL WATTS:		2,026	4,440		1,754	5,099	860	4,429	2,568	5,191		10,078	3,156				
		CONTINUOUS LOAD:		5,182															
		CONTINUOUS LOAD * 125%:		6,478															
		NON-CONTINUOUS LOAD:		14,518			** PROVIDE A GFC CIRCUIT BREAKER												
		DESIGN WATTS:		20,996															
		MIN. RATING (AMPS):		58															

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT **20.025**

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**

GENERAL NOTES:

1. NOT USED.

SHEET KEYNOTES:

1. GATE SUPPLIED 208V, 1-PHASE. IF GATE REQUIRES 240V 1-PHASE PROVIDE APPROPRIATE BUCK/BOOST TRANSFORMER IN WELL BUILDING AS REQUIRED. COORDINATE WITH GATE ACTUATOR SUPPLIER DURING CONSTRUCTION.

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE inc ENGINEERS

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 08/07/2023 STATE OF UTAH
PROJECT ENGINEER

DESIGNED	KBH	3			
DRAFTED	DAS	2			
CHECKED	KBH	1			
DATE	OCTOBER 2023	NO.	DATE	REVISIONS	BY APVD.

SCALE: NONE

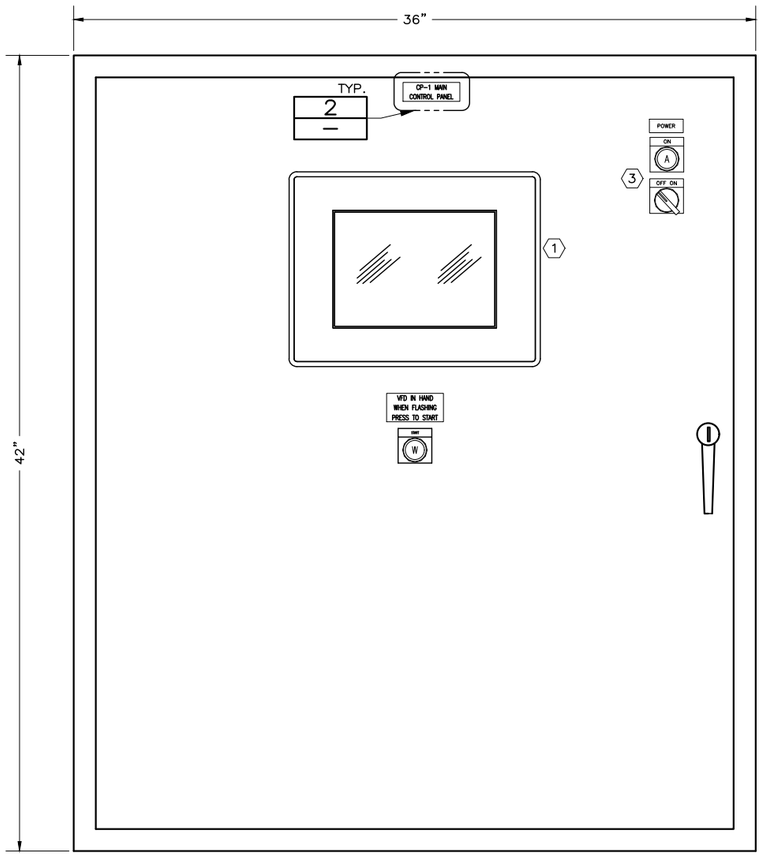
WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
ELECTRICAL
SCHEDULES

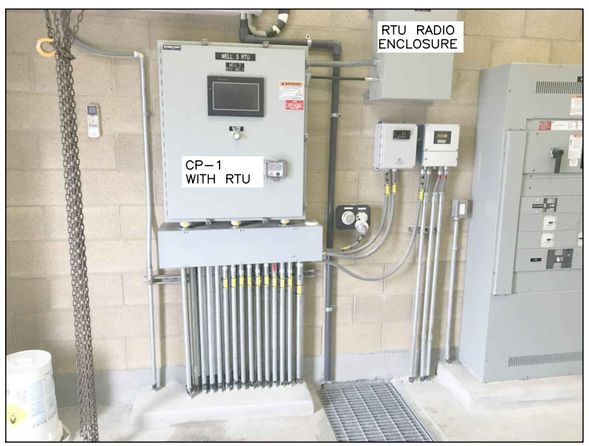
SHEET E605

089.29.100

7/04



CONTROL PANEL CP-1 WITH RTU 1
3" = 1'-0" E103



(TYPICAL CONTROL PANEL)

PHOTO 1 2
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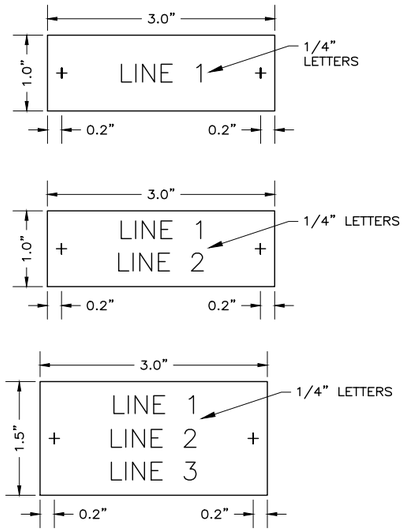

NAMEPLATE DETAIL 2
1' = 1'-0" —

SCADA COORDINATION

SCADA CONTRACTOR:	APCO, INC.
CONTACT INFORMATION:	(801) 519-9500

RTU ENCLOSURE	SUPPLIED BY:	INSTALLED BY:
ENCLOSURE	CONTRACTOR	CONTRACTOR
INTERNAL PANEL	CONTRACTOR	CONTRACTOR
INTERNAL COMPONENTS	SCADA CONTR.	SCADA CONTR.
INTERNAL COMPONENT WIRING	SCADA CONTR.	SCADA CONTR.
WIRING TO/FROM RTU ENCLOSURE	**SUPPLIED BY:**	**INSTALLED BY:**
POWER SOURCE	CONTRACTOR	CONTRACTOR
FIELD I/O TO ENCLOSURE TERMINALS	CONTRACTOR	CONTRACTOR
FIELD DEVICE TERMINATIONS	CONTRACTOR	CONTRACTOR
RTU COMPONENT	**SUPPLIED BY:**	**INSTALLED BY:**
PROGRAMMABLE LOGIC CONTROLLER	SCADA CONTR.	SCADA CONTR.
SEPARATE RTU CONTROLLER	-	-
	-	-
INTERNAL WIRING INSIDE RTU	**SUPPLIED BY:**	**INSTALLED BY:**
FIELD DEVICE WIRING TERMINATION	-	SCADA CONTR.
RTU SIGNAL	**SUPPLIED BY:**	**INSTALLED BY:**
1" CONDUIT FOR SCADA RADIO	CONTRACTOR	CONTRACTOR
DATA RADIO COAXIAL CABLE	SCADA CONTR.	SCADA CONTR.
ANTENNA SUPPORT (SEE PLANS)	CONTRACTOR	CONTRACTOR
DATA RADIO ANTENNA	SCADA CONTR.	SCADA CONTR.

CP-1 MAIN CONTROL PANEL I/O LIST

DISCRETE INPUTS

DESCRIPTION	FROM	TO	NOTES
ATS IN GENERATOR POSITION	ATS	CP-1	
ATS IN UTILITY POSITION	ATS	CP-1	
CHLORINE PUMP ON	PC-1	CP-1	
CHLORINE RM. EF RUNNING	CP-2	CP-1	
CHLORINE ROOM DOOR OPEN	SEC. PNL.	CP-1	
CHLORINE SOLUTION TANK HIGH LEVEL	PC-1	CP-1	
CHLORINE SOLUTION TANK LOW LEVEL	PC-1	CP-1	
CHLORINE SYSTEM FLOW	PC-1	CP-1	
CHLORINE WEIGHT SCALE ALARM	PC-1	CP-1	
CP-1 POWER LOSS	CP-1	CP-1	
GATE CLOSED STATUS	SEC. PNL.	CP-1	
GATE OPEN STATUS	SEC. PNL.	CP-1	
GENERATOR FAULT	GEN	CP-1	
GENERATOR ON	GEN	CP-1	
TABLET CHLORINATOR ALARM	TC-1	CP-1	
TABLET CHLORINATOR ON	TC-1	CP-1	
SYSTEM VALVE FULL CLOSED POSITION	V-2	CP-1	
SYSTEM VALVE FULL SYSTEM POSITION	V-2	CP-1	
VFD ALARM RESET	VFD	CP-1	
VFD FAULT	VFD	CP-1	
VFD FILTER HIGH TEMPERATURE	VFD	CP-1	
VFD HOA IN AUTO MODE	VFD	CP-1	
VFD HOA IN HAND MODE	VFD	CP-1	
VFD ON	VFD	CP-1	
VFD READY-TO-START	VFD	CP-1	
VFD SHUTDOWN RESET	VFD	CP-1	
WASTE VALVE FULL CLOSED POSITION	V-1	CP-1	
WASTE VALVE FULL WASTE POSITION	V-1	CP-1	
WELL HIGH DISCHARGE PRESSURE	PSH-1	CP-1	
WELL ROOM FLOOR HIGH WATER	LSH-3	CP-1	
WELL ROOM MAINTENANCE DOOR A OPEN	SEC. PNL.	CP-1	
WELL ROOM MAINTENANCE DOOR B OPEN	SEC. PNL.	CP-1	
WELL ROOM MAN DOOR OPEN	SEC. PNL.	CP-1	
WELL ROOM ROOF HATCH OPEN	SEC. PNL.	CP-1	
WELL STOP	RTU	CP-1	
MOTOR HIGH VIBRATION	VS-1	CP-1	

NOTES:
1)

DISCRETE OUTPUTS

DESCRIPTION	FROM	TO	NOTES
CHLORINE RM EXHAUST FAN RUN	CP-1	CP-2	
CHLORINE SOLENOID VALVE OPEN	CP-1	SV-3	
GATE CLOSE COMMAND	CP-1	SEC. PNL.	
GATE OPEN COMMAND	CP-1	SEC. PNL.	
PRE-LUBE SOLENOID VALVE OPEN	CP-1	SV-1	
SYSTEM VALVE OPEN COMMAND	CP-1	V-2	
TABLET CHLORINATOR REMOTE RUN	CP-1	TC-1	
TURBIDITY SOLENOID VALVE OPEN	CP-1	SV-2	
VFD BACKSPIN TIME DELAY	CP-1	VFD	
VFD HP SHUTDOWN & INDICATION LIGHT	CP-1	VFD	
VFD LOW LEVEL SHDN & INDICATION LIGHT	CP-1	VFD	
VFD RUN	CP-1	VFD	
VFD SHUTDOWN	CP-1	VFD	
WASTE VALVE CLOSE COMMAND	CP-1	V-1	
HIGH VIBRATION SHUTDOWN	CP-1	VFD	

NOTES: 1)

ANALOG INPUTS

DESCRIPTION	FROM	TO	NOTES
CHLORINE ROOM TEMPERATURE	TT-2	CP-1	1)
RESIDUAL CHLORINE	AIT-3	CP-1	1)
STATION DISCHARGE PRESSURE	PT-1	CP-1	1)
VFD RUNNING SPEED	VFD	CP-1	1)
WELL DISCHARGE FLOW	FIT-1	CP-1	1)
WELL LEVEL	LT-1	CP-1	1)
WELL DISCHARGE PRESSURE	PT-2	CP-1	1)
WELL ROOM TEMPERATURE	TT-1	CP-1	1)
WELL TURBIDITY	AIT-2	CP-1	1)

NOTES:
1) SIGNAL SHALL BE REPEATED AS PLC ANALOG OUTPUT TO RTU.

ANALOG OUTPUTS

DESCRIPTION	FROM	TO	NOTES
CHLORINE DOSE RATE (WELL FLOW)	CP-1	TC-1	
VFD COMMAND SPEED	CP-1	VFD	

NOTES: 1)

H.P.E. INC. ELECTRICAL ENGINEERS
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708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT **20.025**

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**

GENERAL NOTES:

1. INTERNAL COMPONENTS AND ARRANGEMENT NOT SHOWN ON THESE DRAWINGS AND SHALL BE PROVIDED BY APCO, THE CITY'S SCADA CONTRACTOR. APCO SHALL PROVIDE ALL INTERNAL COMPONENTS AND ALL PLC AND HMI PROGRAMMING.

SHEET KEYNOTES:

1. 10" OPERATOR TOUCH SCREEN SHOWN. PROVIDED AND INSTALLED BY SCADA CONTRACTOR.
2. TYPICAL MAIN CONTROL PANEL SHOWN. MODIFY AS REQUIRED BY OWNER.
3. CONTROL POWER INDICATION AND OFF/ON SELECTOR SWITCH.

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 08/07/2023 STATE OF UTAH
PROJECT ENGINEER

DESIGNED KBH
DRAFTED DAS
CHECKED KBH
DATE OCTOBER 2023

NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1				

SCALE AS SHOWN

WEST JORDAN UTAH

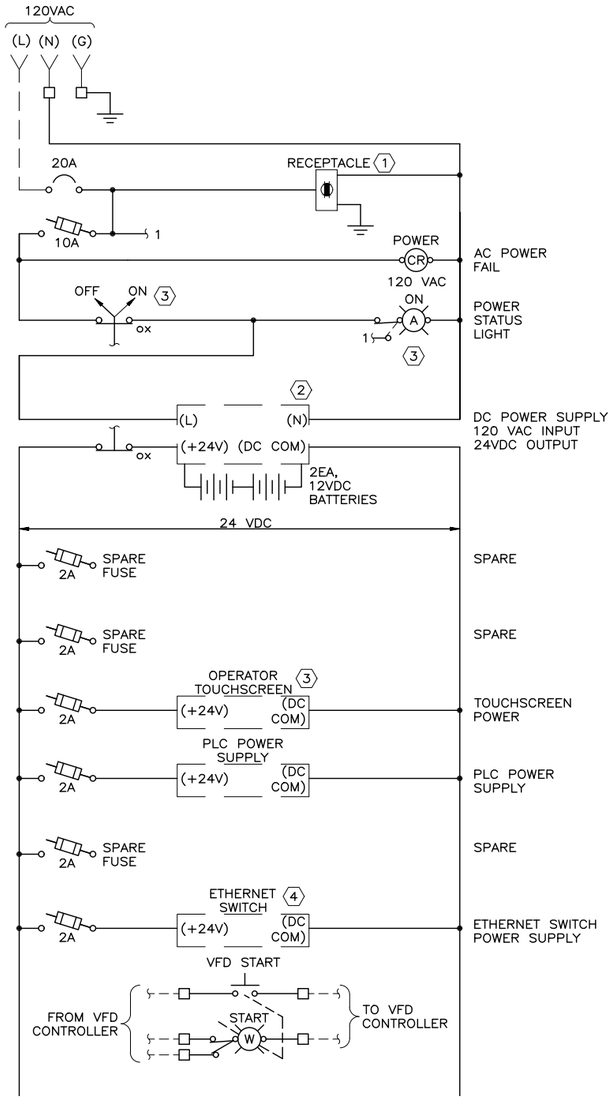
WELL NUMBER 8 PUMP BUILDING ELECTRICAL
CP-1 MAIN CONTROL PANEL

SHEET E606
089.29.100

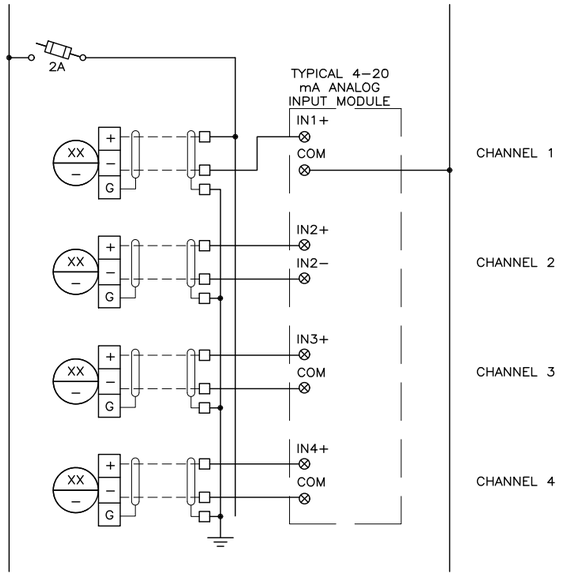
FILE NAME:
FILE DATE:
7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT **20.025**

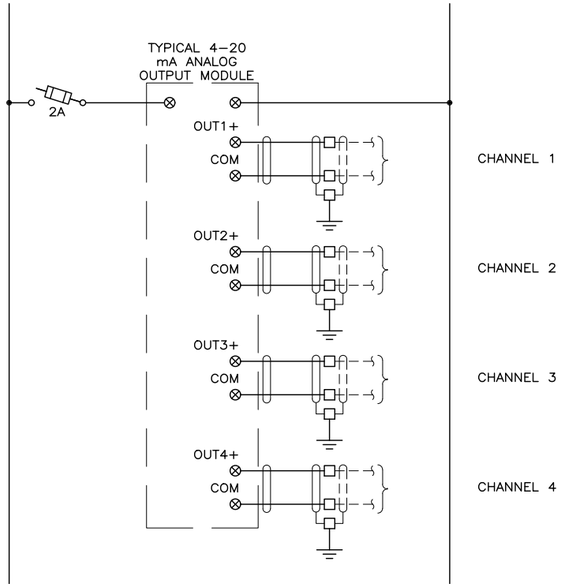
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**



TYPICAL POWER LOGIC WIRING



TYPICAL ANALOG INPUT MODULE WIRING



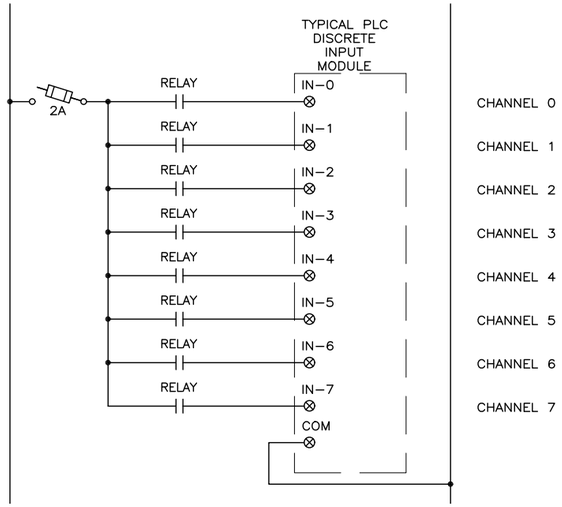
TYPICAL ANALOG OUTPUT MODULE WIRING

GENERAL NOTES:

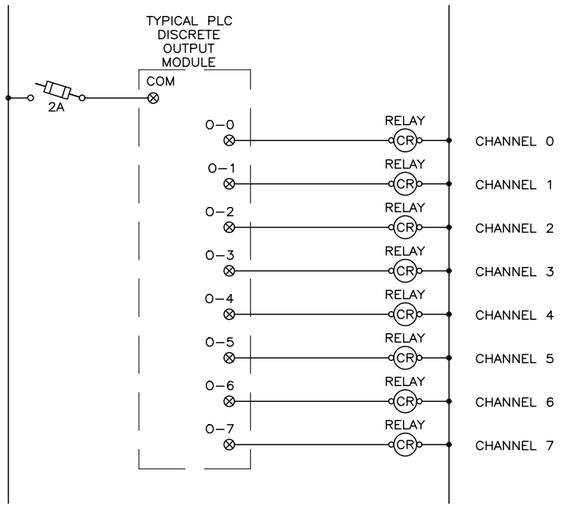
1. THIS DIAGRAM IS TYPICAL AND INDICATES THE BASIC CONTROL PANEL CONTROL DIAGRAM. THE CONTRACTOR SHALL MODIFY AS REQUIRED FOR THE DEVICES AND PLC MODULES USED.
2. CONTRACTOR SHALL PREPARE A CONTROL DIAGRAM BASED ON THE DEVICES SUPPLIED, INCLUDING WIRE, FUSE AND TERMINAL NUMBERS AS REQUIRED. THE PLC I/O SHOWN IS GENERIC.

SHEET KEYNOTES:

1. PROVIDE A DUPLEX GFCI RECEPTACLE IN THE ENCLOSURE.
2. PROVIDE A 120VAC:24VDC POWER SUPPLY/BATTERY CHARGER COMPLETE WITH BATTERY CAPACITY TO PROVIDE 2 HOURS OF PANEL OPERATION UPON THE LOSS OF UTILITY POWER OR PROVIDE 120VAC UNINTERRUPTIBLE POWER SUPPLY.
3. DEVICE SHALL BE INSTALLED IN THE ENCLOSURE DOOR AND AVAILABLE TO THE OPERATOR.
4. PROVIDE MIN. OF 8 ETHERNET PORTS.



TYPICAL DISCRETE INPUT MODULE WIRING



TYPICAL DISCRETE OUTPUT MODULE WIRING

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
08/07/2023
STATE OF UTAH

PROJECT ENGINEER

DESIGNED	KBH	3					
DRAFTED	DAS	2					
CHECKED	KBH	1					
DATE	OCTOBER 2023	NO.	DATE	REVISIONS		BY	APVD.

SCALE: AS NOTED SHOWN

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
ELECTRICAL
CP–1 CONTROL DIAGRAM SHT. 1

SHEET E607
089.29.100

7/04

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT **20.025**

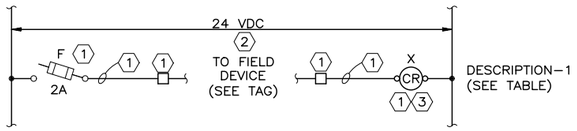
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**

GENERAL NOTES:

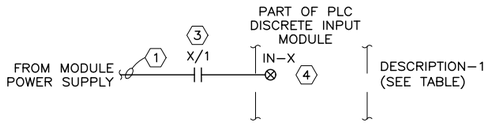
1. REFER TO E605 FOR TYPICAL CONTROL PANEL ARRANGEMENT.
2. KEYNOTES SHOWN AT EACH PLC MODULE DIAGRAM.

NOTES:

1. CONTRACTOR SHALL ASSIGN FUSE, RELAY, TERMINAL AND WIRE NUMBERS AS REQUIRED.
2. CONTRACTOR MAY COMBINE CONDUCTORS IN COMMON CONDUIT TO DEVICES IN SAME PROXIMITY.
3. PROVIDE AN INTERPOSING RELAY AND WIRE RELAY CONTACT TO PLC INPUT AS INDICATED.
4. CONTRACTOR SHALL ASSIGN PLC MODULE AND CHANNEL.



INTERPOSE RELAY LOGIC

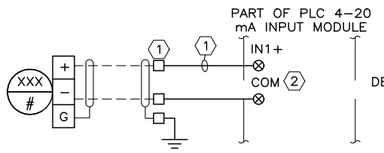


PLC DISCRETE INPUT LOGIC

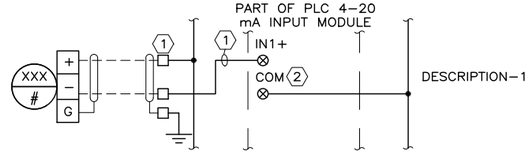
PLC DISCRETE INPUT WIRING

NOTES:

1. CONTRACTOR SHALL ASSIGN FUSE, RELAY, TERMINAL AND WIRE NUMBERS AS REQUIRED.
2. CONTRACTOR SHALL ASSIGN PLC MODULE AND CHANNEL.



PLC ANALOG INPUT TYPE 1

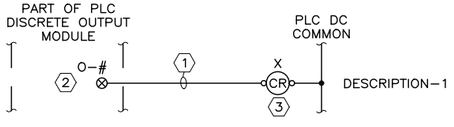


PLC ANALOG INPUT TYPE 2

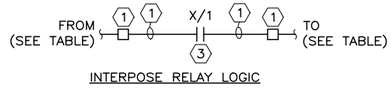
PLC ANALOG INPUT WIRING

NOTES:

1. CONTRACTOR SHALL ASSIGN FUSE, RELAY, TERMINAL AND WIRE NUMBERS AS REQUIRED.
2. CONTRACTOR SHALL ASSIGN PLC MODULE AND CHANNEL.
3. PROVIDE AN INTERPOSING RELAY AND WIRE RELAY CONTACT TO PLC INPUT AS INDICATED.



PLC DISCRETE OUTPUT LOGIC

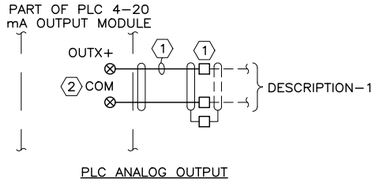


INTERPOSE RELAY LOGIC

PLC DISCRETE OUTPUT WIRING

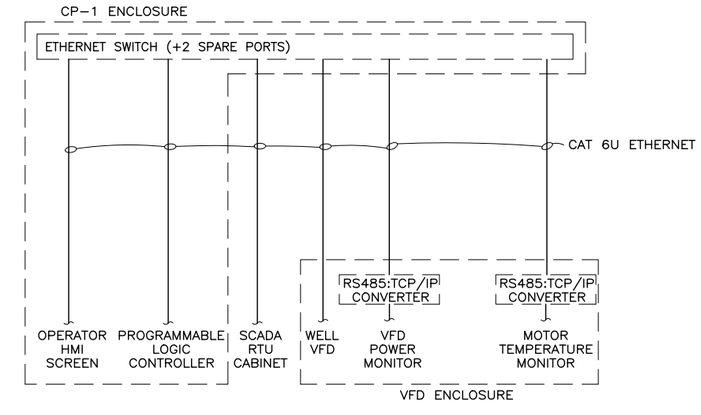
NOTES:

1. CONTRACTOR SHALL ASSIGN FUSE, RELAY, TERMINAL AND WIRE NUMBERS AS REQUIRED.
2. CONTRACTOR SHALL ASSIGN PLC MODULE AND CHANNEL.



PLC ANALOG OUTPUT

PLC ANALOG OUTPUT WIRING



ETHERNET SIGNAL WIRING

FILE NAME:
FILE DATE:

7/04

HANSEN ALLEN & LUCE, Inc. ENGINEERS

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 08/07/2023 STATE OF UTAH

PROJECT ENGINEER

DESIGNED	KBH	3				
DRAFTED	DAS	2				
CHECKED	KBH	1				
DATE	OCTOBER 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: NONE

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING ELECTRICAL
CP–1 CONTROL DIAGRAM SHT. 2

SHEET E608

089.29.100

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

HPE PROJECT **20.025**

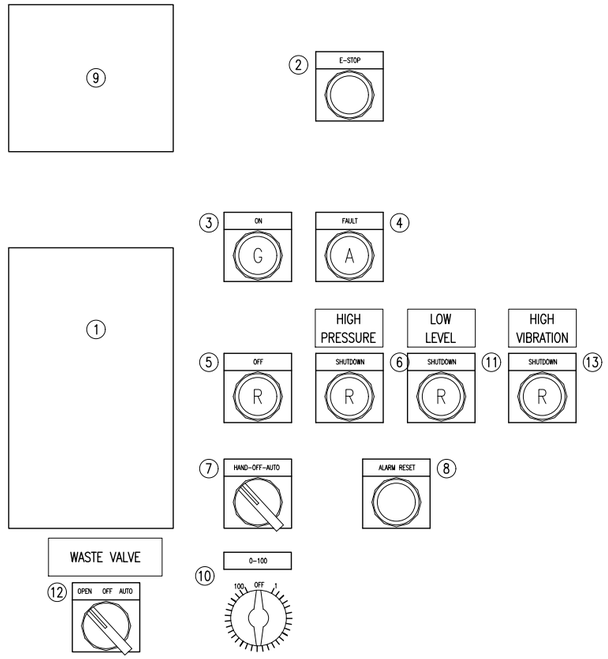
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: **KEITH HEGERHORST**

GENERAL NOTES:

1. ENCLOSURE DIMENSIONS SHOWN ARE TYPICAL AND SHALL BE MODIFIED BY THE CONTRACTOR AS REQUIRED FOR THE DEVICES USED.
2. WIRING DIAGRAM IN TYPICAL. MODIFY AS REQUIRED.

SHEET KEYNOTES:

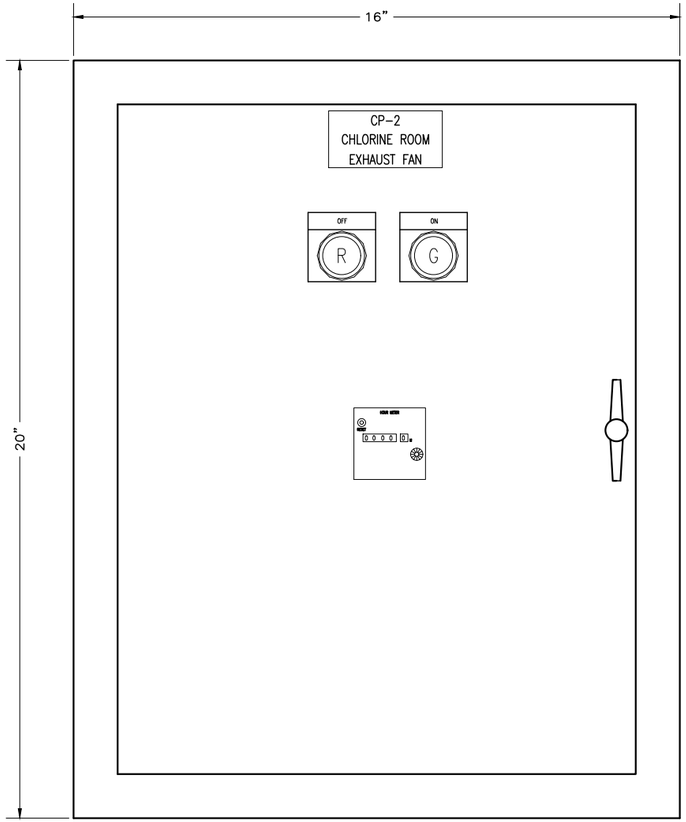
1. OFF–ON TOGGLE SWITCH ADJACENT TO ROOM LIGHT SWITCH.
2. INSTALL DEVICE IN ENCLOSURE DOOR AND AVAILABLE TO THE OPERATOR.



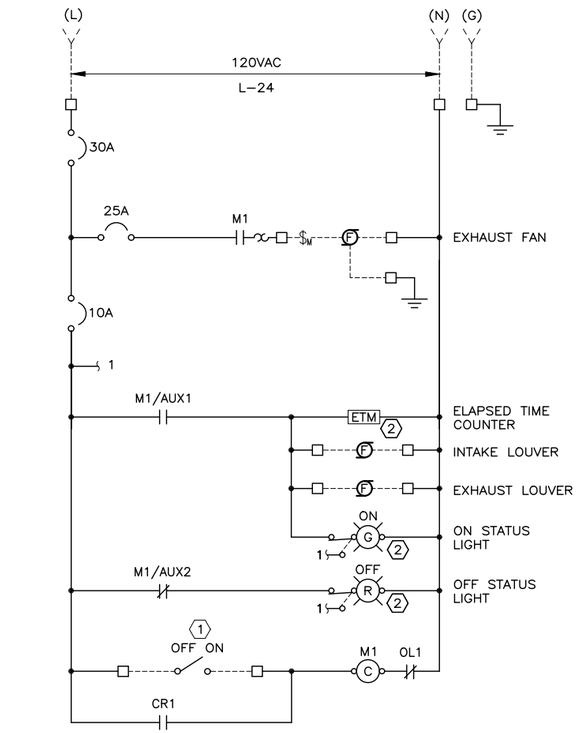
VFD CONTROL LEGEND

1. VFD MEMBRAIN KEYPAD
2. VFD E–STOP MUSHROOM HEAD LATCHING PUSHBUTTON
3. VFD STATUS INDICATION LIGHT
4. VFD FAULT INDICATION LIGHT
5. VFD OFF INDICATION LIGHT
6. HIGH DISCHARGE PRESSURE SHUTDOWN INDICATION LIGHT
7. HAND–OFF–AUTO SELECTOR SWITCH
8. ALARM RESET PUSHBUTTON
9. POWER AND ENERGY METER (COMPTON INTEGRA 1530)
10. VFD SPEED POTENTIOMETER
11. LOW LEVEL SHUTDOWN INDICATION LIGHT
12. WASTE VALVE POSITION SWITCH
13. HIGH VIBRATION SHUTDOWN INDICATION LIGHT

TYPICAL VFD CONTROLS ARRANGEMENT



CP–2 EXHAUST FAN CONTROL PANEL 1
6" = 1'–0" E102



CP–2 CONTROL DIAGRAM

FILE NAME:
FILE DATE:

PROJECT ENGINEER

DESIGNED	KBH	3					
DRAFTED	DAS	2					
CHECKED	KBH	1					
DATE	OCTOBER 2023	NO.	DATE	REVISIONS		BY	APVD.

SCALE: AS SHOWN

WEST JORDAN UTAH

WELL NUMBER 8 PUMP BUILDING
ELECTRICAL
CP–2 EXHAUST FAN CONTROL PANEL

SHEET E609
089.29.100

7/04