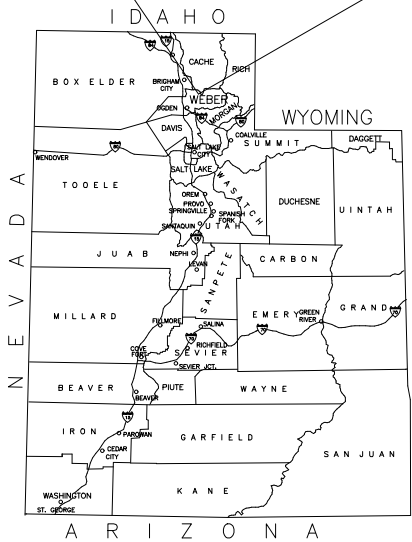


RA-2319 - WOLF CREEK WATER AND SEWER 2104- EAST WELL DESIGN.DWG, WCWSID - EAST WELL DESIGN.DWG



GEOTECHNICAL INVESTIGATION
CG PROJECT NO.:110-009 W/ ADDENDUM
PREPARED BY: MARK CHRISTENSEN



PROJECT CONTACTS

OWNER: Wolf Creek Water and Sewer I.D.
Rob Thomas
801-745-3435
2580 N Hwy 162 Sutie A
Eden, UT 84310

PROJECT ENGINEER: MIKE DURTSCHI, P.E. 801-476-0202
GARDNER ENGINEERING
1580 W 2100 S
WEST HAVEN, UT 84401
476-0202
MIKED@GECIVIL.COM



WCWSID - EAST WELL 5650 E ELKHORN DR

2024
EDEN, WEBER, UTAH

GENERAL NOTES

- ALL MATERIALS, WORKMANSHIP AND CONSTRUCTION OF SITE IMPROVEMENTS SHALL MEET OR EXCEED THE STANDARDS AND SPECIFICATIONS SET FORTH BY THE ENGINEER, PLANNING, CODES AND SPECIFICATIONS AND APPLICABLE COUNTY, STATE AND FEDERAL REGULATIONS. WHERE THERE IS CONFLICT BETWEEN THESE PLANS AND SPECIFICATIONS, OR ANY APPLICABLE STANDARDS, THE HIGHER QUALITY STANDARD SHALL APPLY.
- THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND OR ELEVATION OF EXISTING UTILITIES, AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY PERTINENT LOCATIONS AND ELEVATIONS, ESPECIALLY AT THE CONNECTION POINTS AND AT POTENTIAL UTILITY CONFLICTS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES THAT CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THESE PLANS.
- THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM ALL APPLICABLE AGENCIES. THE CONTRACTOR SHALL NOTIFY THE DESIGNATED PUBLIC WORKS INSPECTOR AT LEAST 48 HOURS PRIOR TO THE START OF ANY EARTH DISTURBING ACTIVITY, OR CONSTRUCTION ON ANY AND ALL PUBLIC IMPROVEMENTS.
- THE CONTRACTOR SHALL COORDINATE AND COOPERATE WITH THE CITY AND ALL UTILITY COMPANIES INVOLVED WITH REGARD TO RELOCATIONS OR ADJUSTMENTS OF EXISTING UTILITIES DURING CONSTRUCTION AND TO ASSURE THAT THE WORK IS ACCOMPLISHED IN A TIMELY FASHION AND WITH A MINIMUM DISRUPTION OF SERVICE.
- THE CONTRACTOR SHALL HAVE ONE (1) COPY OF APPROVED PLANS, AND ONE (1) COPY OF THE APPROPRIATE STANDARDS AND SPECIFICATIONS AND A COPY OF ANY PERMITS AND EXTENSION AGREEMENTS NEEDED FOR THE JOB, ON SITE AT ALL TIMES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ASPECTS OF SAFETY INCLUDING BUT NOT LIMITED TO, EXCAVATION, TRENCHING, SHORING, TRAFFIC CONTROL, AND SECURITY.
- IF DURING THE CONSTRUCTION PROCESS CONDITIONS ARE ENCOUNTERED BY THE CONTRACTOR, HIS SUBCONTRACTORS, OR OTHER AFFECTED PARTIES, WHICH COULD INDICATE A SITUATION THAT IS NOT IDENTIFIED IN THE PLANS OR SPECIFICATIONS, THE CONTRACTOR SHALL CONTACT THE ENGINEER IMMEDIATELY.
- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL LABOR AND MATERIALS NECESSARY FOR THE COMPLETION OF THE INTENDED IMPROVEMENTS SHOWN ON THESE DRAWINGS OR DESIGNATED TO BE PROVIDED, INSTALLED, CONSTRUCTED, REMOVED AND RELOCATED UNLESS SPECIFICALLY NOTED OTHERWISE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING ROADWAYS FREE AND CLEAR OF ALL CONSTRUCTION DEBRIS AND DIRT TRACKED FROM THE SITE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECORDING AS-BUILT DRAWINGS ON A SET OF RECORD DRAWINGS KEPT AT THE CONSTRUCTION SITE, AND AVAILABLE TO THE COUNTY INSPECTOR AT ALL TIMES.
- THE CONTRACTOR SHALL SEQUENCE INSTALLATION OF UTILITIES IN SUCH A MANNER AS TO MINIMIZE POTENTIAL UTILITY CONFLICTS. IN GENERAL, STORM SEWER AND SANITARY SEWER SHOULD BE CONSTRUCTED PRIOR TO INSTALLATION OF WATER LINES AND DRY UTILITIES.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE ALL UTILITY RELOCATIONS CONSISTENT WITH THE CONTRACTORS SCHEDULE FOR THIS PROJECT, WHETHER SHOWN OR NOT SHOWN AS IT RELATES TO THE CONSTRUCTION ACTIVITIES CONTEMPLATED IN THESE PLANS.

UTILITY DISCLAIMER

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT EXISTING UNDERGROUND UTILITIES AND IMPROVEMENTS ARE SHOWN IN THEIR APPROXIMATE LOCATIONS BASED UPON RECORD INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF PLANS. LOCATIONS MAY NOT HAVE BEEN VERIFIED IN THE FIELD AND NO GUARANTEE IS MADE AS TO ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. IT SHALL BE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXISTENCE AND LOCATION OF THOSE UTILITIES SHOWN ON THESE PLANS OR INDICATED IN THE FIELD BY LOCATING SERVICES. ANY ADDITIONAL COSTS INCURRED AS A RESULT OF CONTRACTOR'S FAILURE TO VERIFY LOCATIONS OF EXISTING UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION IN THEIR VICINITY SHALL BE BORNE BY THE CONTRACTOR AND ASSUMED INCLUDED IN THE CONTRACT.

NOTICE TO CONTRACTOR

ALL CONTRACTORS AND SUBCONTRACTORS PERFORMING WORK SHOWN ON OR RELATED TO THESE PLANS SHALL CONDUCT THEIR OPERATIONS SO THAT ALL EMPLOYEES ARE PROVIDED A SAFE PLACE TO WORK AND THE PUBLIC IS PROTECTED. ALL CONTRACTORS AND SUBCONTRACTORS SHALL COMPLY WITH THE "OCCUPATIONAL SAFETY AND HEALTH REGULATIONS: OF THE U.S. DEPARTMENT OF LABOR AND THE STATE OF UTAH DEPARTMENT OF INDUSTRIAL RELATIONS CONSTRUCTION SAFETY ORDERS". THE CIVIL ENGINEER SHALL NOT BE RESPONSIBLE IN ANY WAY FOR CONTRACTORS AND SUBCONTRACTORS COMPLIANCE WITH SAID REGULATIONS AND ORDERS.

CONTRACTOR FURTHER AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB-SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY, THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND THE CIVIL ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.

SWPPP GENERAL NOTES

- CONTRACTOR SHALL OBTAIN ALL NECESSARY UPDES PERMITS AS REQUIRED BY THE COUNTY ENGINEERING DEPARTMENT AND UTAH STATE DEPT. OF ENV. QUALITY.
- ALL STRUCTURAL EROSION MEASURES SHALL BE INSTALLED AS SHOWN ON THE SWPP PLAN, PRIOR TO ANY OTHER GROUND-DISTURBING ACTIVITY. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED IN GOOD REPAIR BY THE CONTRACTOR, UNTIL SUCH TIME AS THE ENTIRE DISTURBED AREAS ARE STABILIZED WITH HARD SURFACE OR LANDSCAPING.
- INSPECTION TO BE PREFORMED WEEKLY BY A RSI OR OTHER CERTIFIED INSPECTOR.

2018 International Codes, 2017 NEC, and the ICC A117.1-09

WELL HOUSE OCCUPANCY & BUILDING SUMMARY						
TYPE OF CONSTRUCTION	USE GROUP	OCCUPANT LOAD	RISK CATEGORY	SQUARE FOOTAGE	BUILDING HEIGHT	SPRINKLERS
V-B	U	2	II	550.00 SQ. FT.	1-STORY, 16-FEET	NO

*Per IBC Table 1004.5, Accessory storage areas, mechanical equipment room (550 s.f. / 300)

GENERAL GRADING NOTES

- ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST APWA STANDARDS AND SPECIFICATION FOR PUBLIC WORKS AND THE COMPANY STANDARDS. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE AWAY FROM BUILDING FOUNDATIONS AND ENTRIES. FINISHED GRADE AT FOUNDATION FOR WOOD FRAMED STRUCTURES SHALL BE 8 INCHES BELOW TOP OF FOUNDATION AND DRAINAGE SHALL BE A MINIMUM OF 5% WITHIN 10 FEET FROM THE BUILDING.
- MAXIMUM SLOPES SHALL BE 3:1 FOR CUT AND FILL UNLESS OTHERWISE NOTED.
- COMPACTION REQUIREMENTS AND TESTING SHALL BE PERFORMED TO MEET THE MANUAL OF STD. SPECIFICATIONS (ORANGE BOOK, LATEST EDITION).
- NO FILL SHALL BE PLACED UNTIL VEGETATION HAS BEEN REMOVED AND SUB-GRADE PREPARED PER THE SOILS REPORT.
- DUST SHALL BE CONTROLLED BY WATERING OR OTHER APPROVED METHODS.
- CONTRACTOR SHALL COMPLY WITH STORM WATER POLLUTION PREVENTION PLAN BY INSTALLING BMP'S PRIOR TO COMMENCEMENT OF EXCAVATION ACTIVITIES. CONTACT THE COUNTY INSPECTOR FOR INSPECTION.
- ALL RECOMMENDATIONS OF THE GEOTECHNICAL REPORT AND ALL SUBSEQUENT REPORTS, ADDENDUM ETC. SHALL BE CONSIDERED A PART OF THE GRADING PLAN CONTAINED HEREIN AND SHALL BE COMPLIED WITH.
- THE CONTRACTOR SHALL CONTACT BLUE STAKES FOR LOCATION MARKING PRIOR TO COMMENCING EXCAVATION ACTIVITIES.
- COUNTY MAY REQUIRE A PRE-CONSTRUCTION MEETING BEFORE A PERMIT IS ISSUED.
- STREETS ADJACENT TO THE PROJECT SHALL BE CLEAN AT ALL TIMES.
- CONTRACTOR IS RESPONSIBLE FOR ARRANGING FOR ALL REQUIRED INSPECTIONS.
- PRIOR TO TAKING WATER FROM A FIRE HYDRANT, THE CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE WATER UTILITY TO OBTAIN A WATER METER.

CULINARY WATER GENERAL NOTES

- ALL INSTALLATION AND MATERIALS INSTALLED SHALL BE NEW AND CONFORM TO WOLF CREEK WATER AND SEWER IMPROVEMENT DISTRICT STANDARDS, SPECIFICATIONS AND PLANS.
- ALL INTERIOR SURFACES AND COATINGS SHALL COMPLY WITH ANSINSF STANDARD 61 OR OTHER STANDARDS APPROVED BY THE DIRECTOR. THIS REQUIREMENT APPLIES TO ANY PIPES AND FITTINGS, PROTECTIVE MATERIALS (E.G., PAINTS, COATINGS, CONCRETE ADMIXTURES, CONCRETE RELEASE AGENTS, OR CONCRETE SEALERS), JOINING AND SEALING MATERIALS (E.G., ADHESIVES, CAULKS, GASKETS, PRIMERS AND SEALANTS) AND MECHANICAL DEVICES (E.G., ELECTRICAL WIRE, SWITCHES, SENSORS, VALVES, OR SUBMERSIBLE PUMPS) THAT MAY COME INTO CONTACT WITH THE DRINKING WATER.
- THE CURRENT REQUIREMENTS OF THE UTAH DIVISION OF DRINKING WATER, GOVERNING THE MATERIALS AND INSTALLATION USED IN THE PROJECT SHALL BE MET.
- THRUST BLOCKING AND MECHANICAL RESTRAINTS ARE REQUIRED AT ALL BENDS AND FITTINGS.
- ALL WATERLINES AT SEWER CROSSINGS SHALL BE LOCATED ABOVE AND HAVE AN 18-INCH VERTICAL SEPARATION FROM THE SEWER PIPE. IF THIS IS NOT PROVIDED, CARE SHALL BE TAKEN TO ENSURE, THERE ARE NO JOINTS IN EITHER PIPE WITHIN 20' OF THE POINT AT WHICH THE PIPES CROSS EACH OTHER, EITHER THROUGH INSTALLING THE PIPES IN CASINGS OR BY PLACEMENT OF JOINTS.
- DISINFECTION TESTS SHALL BE PERFORMED BY THE WATER UTILITY WITH COOPERATION FROM THE CONTRACTOR IN PERFORMING ANY NECESSARY EXCAVATION AND SUBSEQUENT BACKFILLING AT NO COST TO THE COUNTY.
- CHLORINATION OF COMPLETED WATER LINE. THE NEW WATER LINES SHALL BE DISINFECTED BY CHLORINATION IN ACCORDANCE WITH AWWA STANDARD C651-14. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL RELATED COSTS AND FEES RELATED TO THE CHLORINATION OF THE COMPLETED WATER LINE. THIS TEST SHALL BE PERFORMED PRIOR TO CONNECTION OF THE NEW WATER LINES TO THE EXISTING WATER SYSTEM. THE CONTRACTOR SHALL NOTIFY THE WATER UTILITY AT LEAST 24 HOURS BEFORE THE CHLORINATION IS DESIRED.
- A MINIMUM HORIZONTAL CLEARANCE OF 10 FEET SHALL BE MAINTAINED BETWEEN CULINARY WATER AND SANITARY SEWER FACILITIES.
- UNLESS OTHERWISE SPECIFIED, ALL WATERLINES SHALL BE AWWA DUCTILE IRON MINIMUM PC 250 AND SHALL BE PRESSURE TESTED AT 200 PSI FOR AT LEAST 2 HOUR.
- CONTRACTOR SHALL LOCATE VALVES PRIOR TO CONNECTION WITH EXISTING SYSTEM, BUT SHALL NOT OPERATE ANY VALVE WITHOUT PERMISSION FROM THE WATER UTILITY.
- THE WATER UTILITY REQUIRES THE USE OF CORROSION RESISTANT MATERIALS FOR ALL CULINARY WATER IMPROVEMENTS. SPECIFICALLY, TRIPAC BLUE BOLTS OR STAINLESS STEEL BOLTS MUST BE USED ON ALL FITTINGS. FURTHER, ALL METAL FITTINGS SHALL BE POLY WRAPPED.

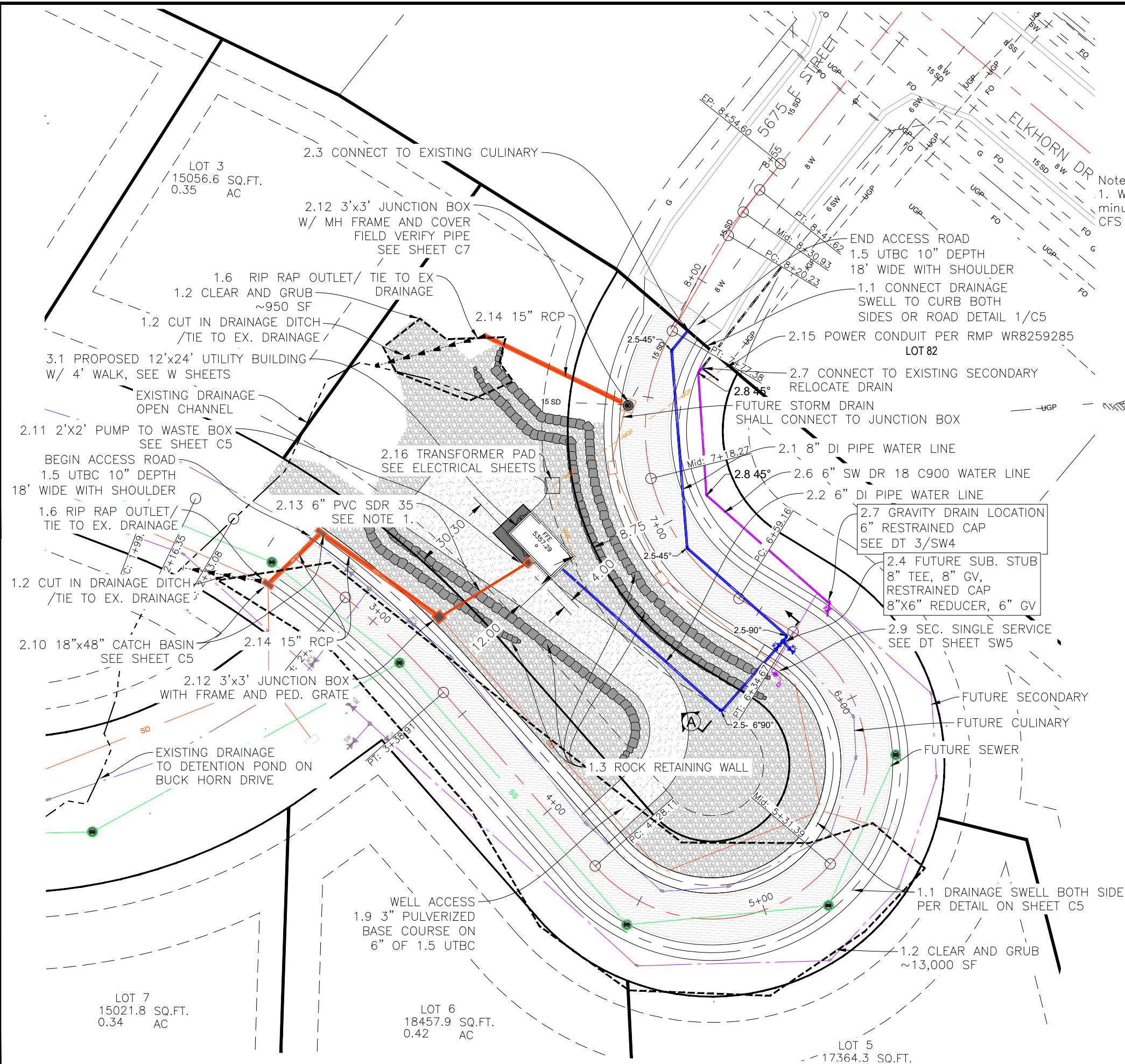
SHEET INDEX

SHEET C0	COVER
SHEET C1	SITE PLAN
SHEET C2	GRADING PLAN
SHEET C3	GRADING PLAN ENLARGED
SHEET C4	LANDSCAPE PLAN
SHEET C5	ACCESS ROAD
SHEET C6	ACCESS ROAD
SHEET C7	ACCESS ROAD
SHEETS W1 - W2	WELL HOUSE ELEVATIONS
SHEET W3	WELL HOUSE PLAN
SHEETS W4	WELL HOUSE MATERIALS
SHEET SW	SWPPP
SHEETS D SERIES	DETAILS
SHEETS E-SERIES	ELECTRICAL DRAWINGS
SHEETS S-SERIES	STRUCTURAL DRAWINGS

ALL IMPROVEMENTS TO CONFORM TO CURRENT COUNTY STANDARDS AND SPECIFICATIONS
CULINARY WATER IMPROVEMENTS TO CONFORM TO THE WCWSID WATER UTILITY'S STANDARDS AND SPECIFICATIONS
SECONDARY WATER IMPROVEMENTS TO CONFORM TO THE WCWSID SECONDARY WATER UTILITY'S STANDARDS AND SPECIFICATIONS

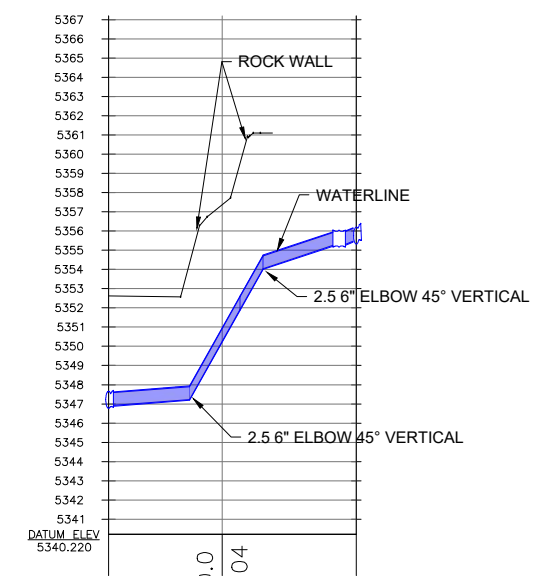
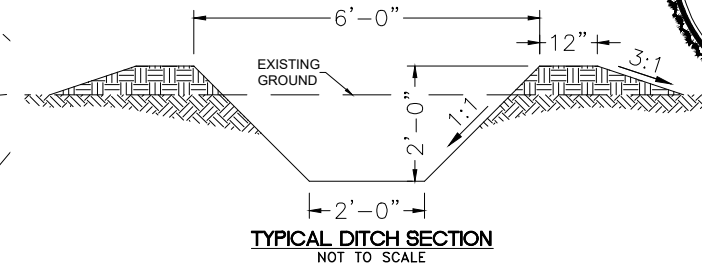
5650 E ELKHORN DR
WCWSID - EAST WELL
PRELIMINARY DRAWINGS

R:\2319 - WOLF CREEK WATER AND SEWER\2104- EAST WELL\DESIGN\DWG\WCWSID EAST WELL DESIGN.DWG



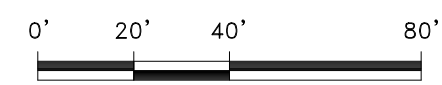
- 1.7 LANDSCAPE ROCK
- 1.8 WEED BARRIER FABRIC
- ACCESS ROAD - SEE DETAIL ON SHEET C5
- 1.5 UTBC 10" DEPTH
- WELL ACCESS 1.9
- 3" PULVERIZED PAVEMENT BASE COURSE ON 1.5 6" UTBC

Notes
1. Well pump operation requires pumping for 5 minutes each time pump runs. Flow rate of 0.635 CFS will be pumped to waste.

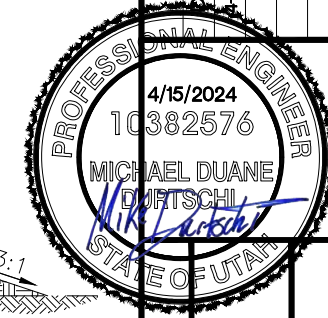


A WATER LINE SECTION
Scale: 1:30 vert 3:1

ZONE RE-15
SEC 108-10-2 SITE DEVELOPMENT
STANDARDS FOR PUBLIC UTILITY



Scale in Feet
1" = 40'



Date: 4-11-2024		Scale: 1" = 40'		Designed: JKH		Drafted: JKH		Checked: MDD	
Revisions		Description		Date		11-2024 REV 1 CUP			
SITE PLAN WCWSID - EAST WELL 5650 E ELKHORN DR EDEN, WEBER, UTAH									
GARDNER ENGINEERING CIVIL - LAND PLANNING MUNICIPAL - LAND SURVEYING 1580 W 2100S, WEST HAVEN, UT 84403 P 801.476.0202 F 801.476.0066									
C1 15									

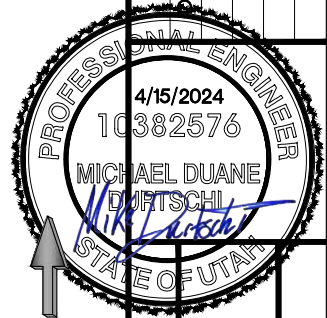
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ABBREVIATIONS
TG = TOP OF GRAVEL
TC = TOP OF CONCRETE
TRW = TOP OF ROCK WALL
BRW = BOTTOM ROCK WALL
FG = FINISH GRADE
EG = EXISTING GRADE
FL = FLOW LINE
CL = CENTER LINE

LOT 6
18457.9 SQ.FT.
0.42 AC.

EARTH WORK TABLE	2d Area	Cut	Fill	Net
	(Sq. Ft.)	(Cu. Yd.)	(Cu. Yd.)	(Cu. Yd.)
EARTH WORKS	TOTAL	2098.46	1999.52	98. CUT

0' 15' 30' 60'
Scale in Feet
1" = 30'



GRADING PLAN
WCWSID - EAST WELL
5650 E ELKHORN DR
EDEN, WEBER, UTAH

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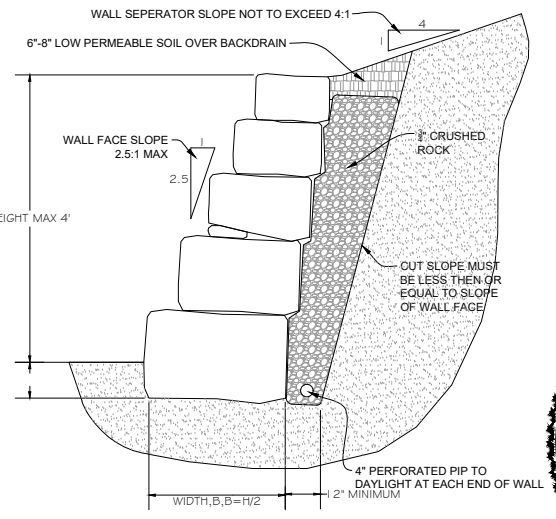
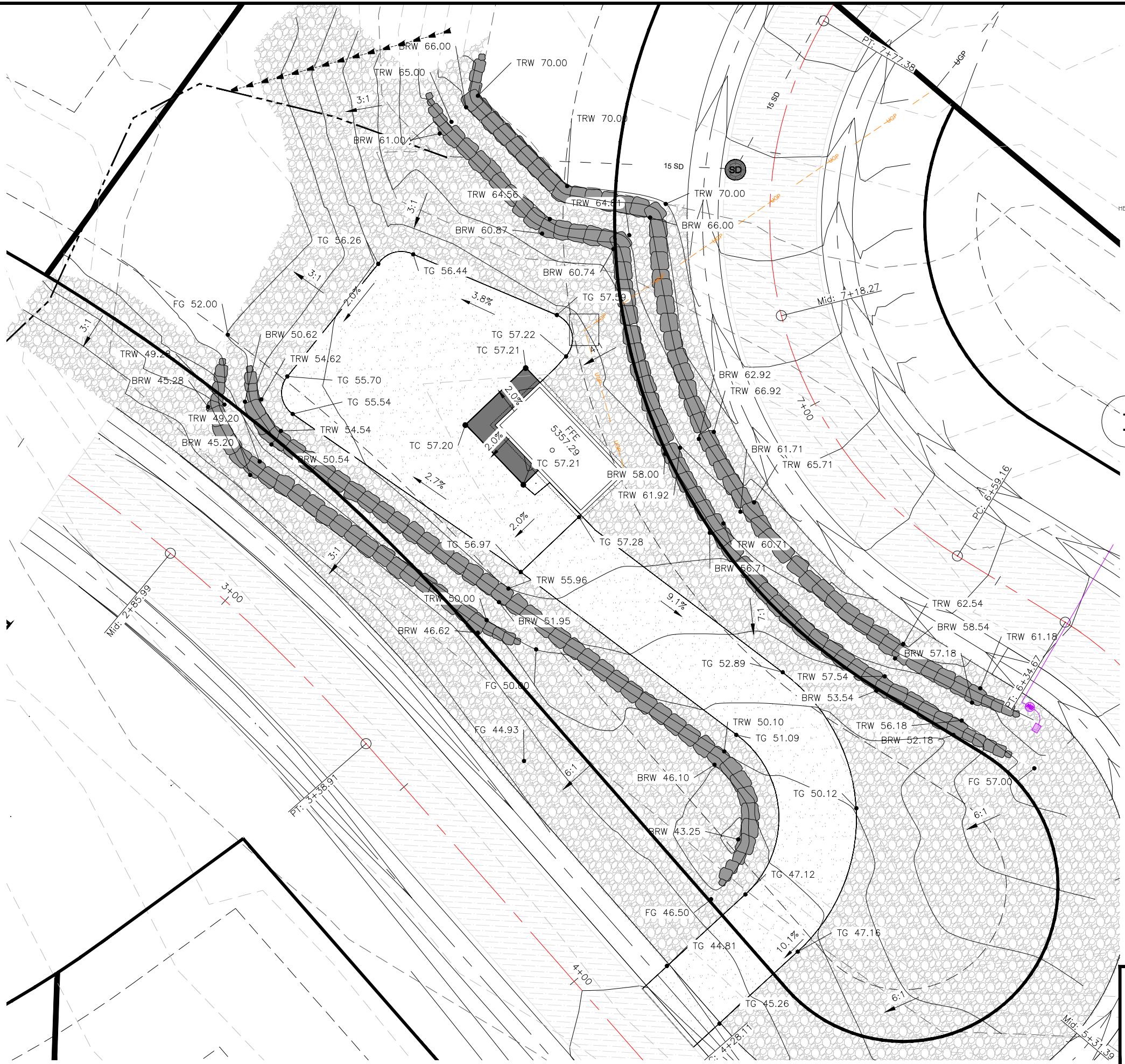
C2

15

SEE SHEET G5-C7
FOR ACCESS ROAD PROFILE
AND UTILITY INFORMATION



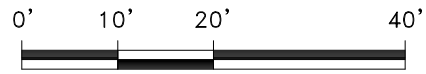
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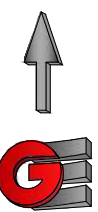
1 TYP. ROCK WALL

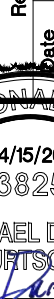
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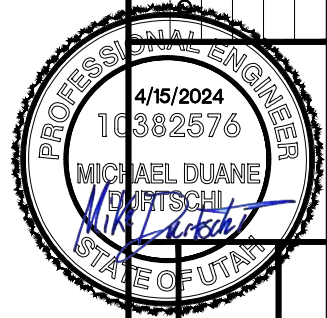
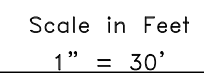
Scale in Feet
1" = 20'



C3	15	GRADING PLAN (ENLARGED)	Revisions			Date: 4-11-2024
			Date	Description	Scale: 1" = 20'	
					Designed: JKH	
					Drafted: JKH	
					Checked: MDD	
WCWSID - EAST WELL						
5650 E ELKHORN DR						
EDEN, WEBER, UTAH						



SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QTY
<div> <div>SHRUBS</div>  </div>	CARYOPTERIS X CLANDONENSIS 'BLUE MIST'	BLUE MIST BLUEBEARD	5 GAL	40
<div> <div>PERENNIALS</div>  </div>	LAVENDULA X INTERMEDIA 'PHENOMENAL'	PHENOMENAL LAVENDER	1 GAL	42
<div>  </div>	CALAMAGROSTIS ACUTIFLORA 'KARL FOERSTER'	FEATHER REED GRASS	1 GAL	42
<div>  </div>	2" PERMA BARK OR APPR EQUAL - 4" DEPTH		CYDS	140



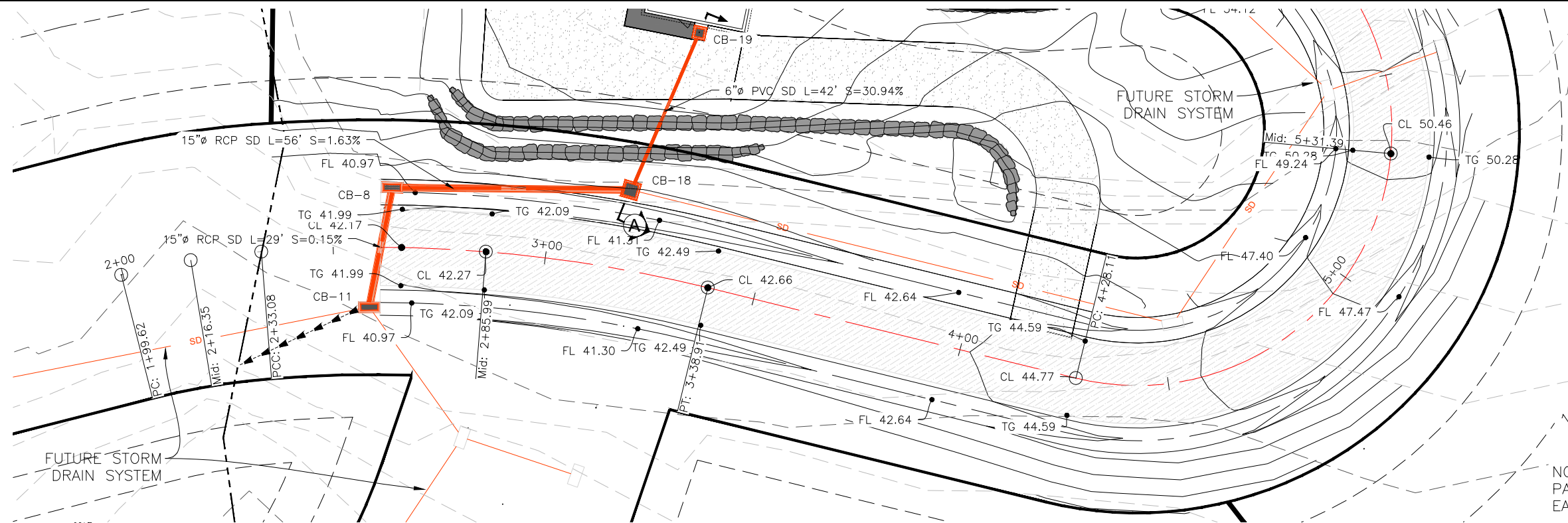
Date:	4-11-2024
Scale:	1" = 30'
Designed:	JKH
Drafted:	JKH
Checked:	MDD

Revisions	
Date	Description

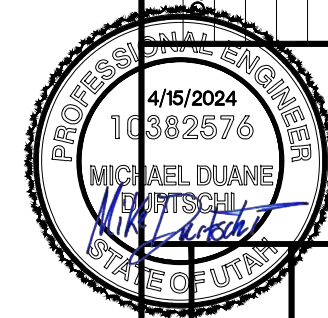
LANDSCAPING PLAN
WCWSID - EAST WELL
5650 E ELKHORN DR
EDEN, WEBER, UTAH

C4

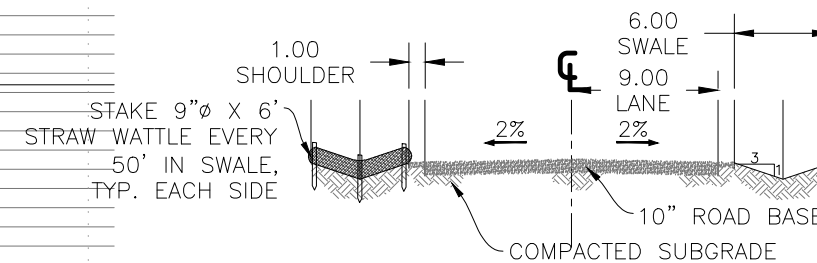
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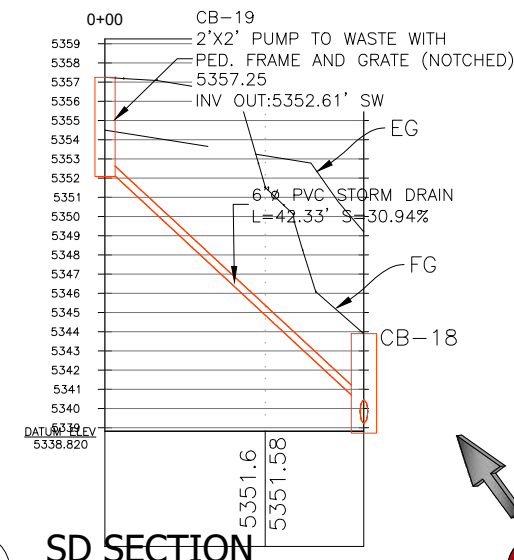


NOTE: SHAPE SWALES AS
PART OF BID ITEM 1.1
EARTHWORKS

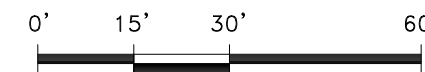


1 ACCESS ROAD

Scale: NTS



Scale: NTS



Scale in Feet
1" = 30'

NOTE: CL PROFILE ELEVATION
ARE TO TOP OF ASPHALT(FUTURE).
GRADE TAGS ON PLAN VIEW ARE TO
TOP OF UTBC SURFACE.
TOP ASPHALT(FUTURE) IS 3" ABOVE
TOP OF UTBC SURFACE.

ACCESS ROAD
WCWSID - EAST WELL
5650 E ELKHORN DR
EDEN, WEBER, UTAH

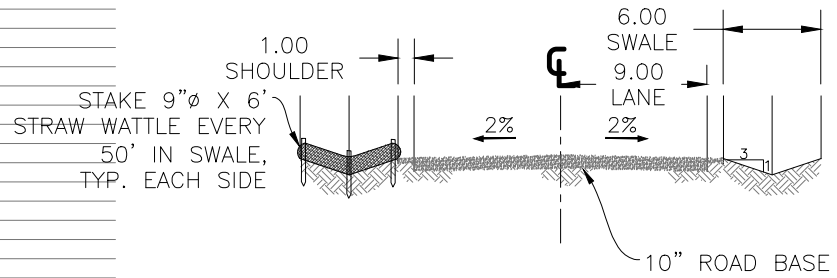
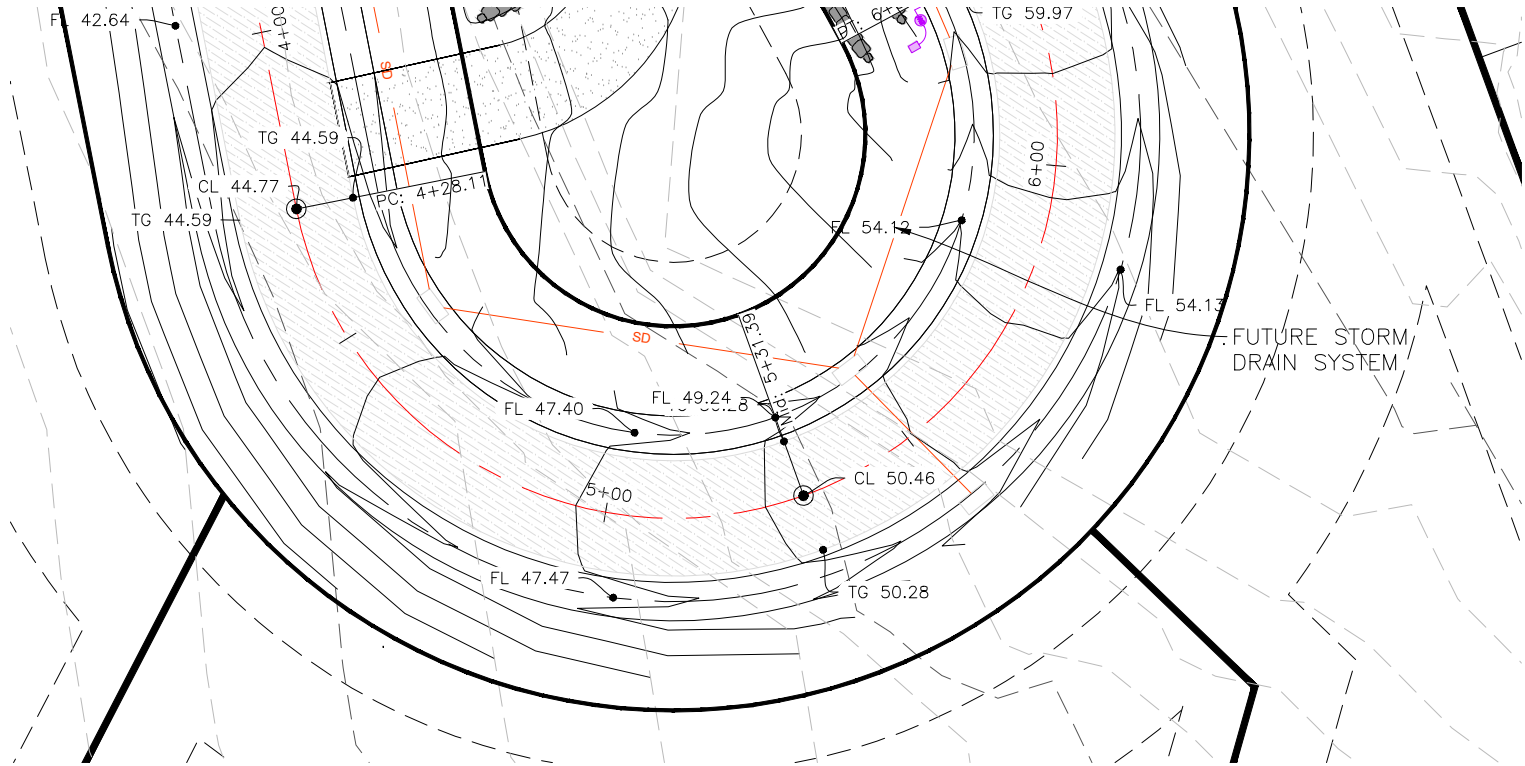
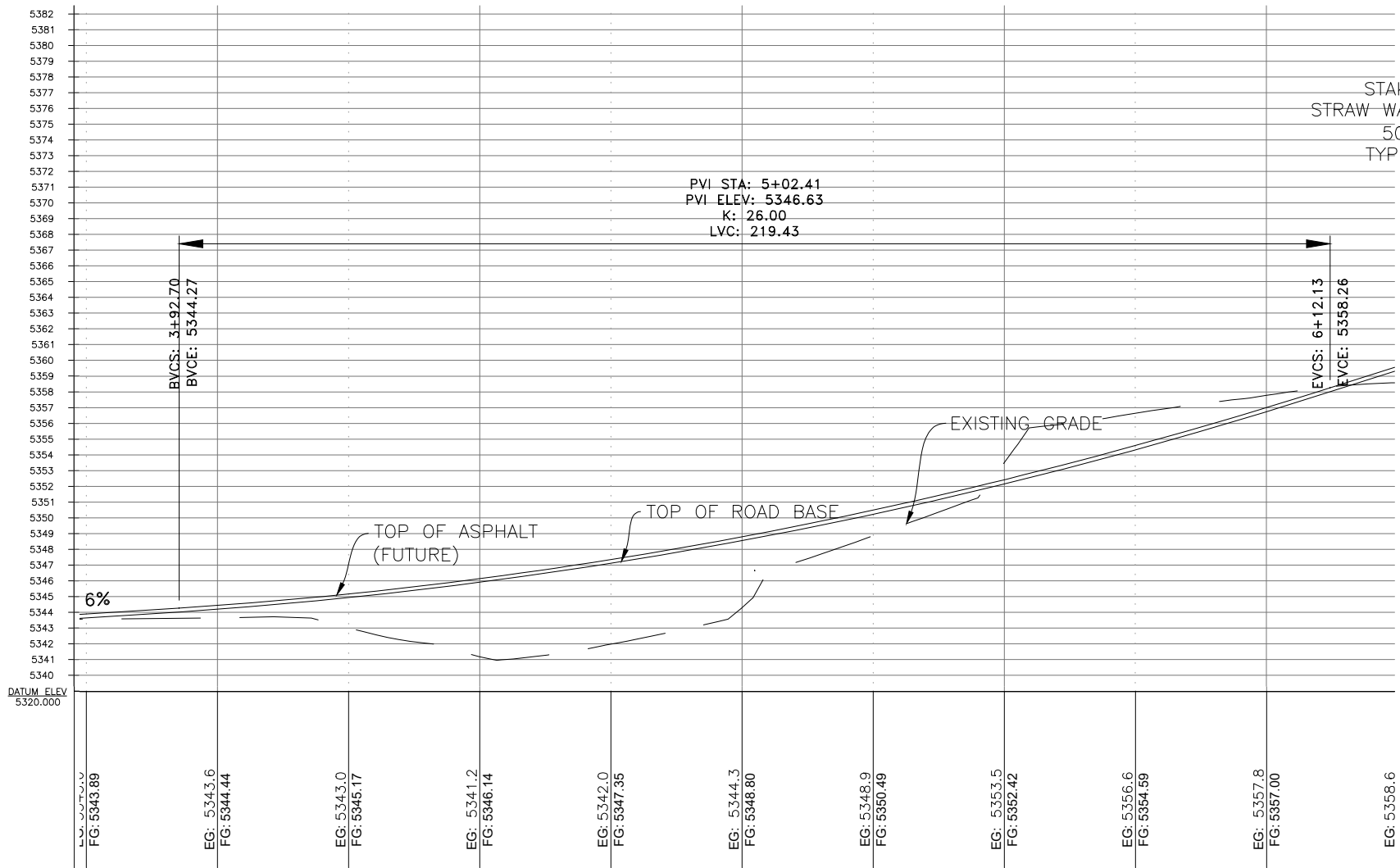
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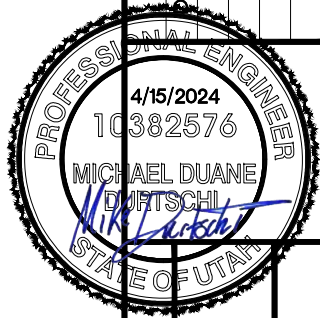
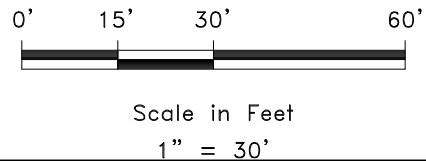
C5

15

R:\2319 - WOLF CREEK WATER AND SEWER\2104- EAST WELL\DESIGN\DWG\WCWSID EAST WELL DESIGN.DWG



1 TEMP. ACCESS ROAD
Scale: NTS



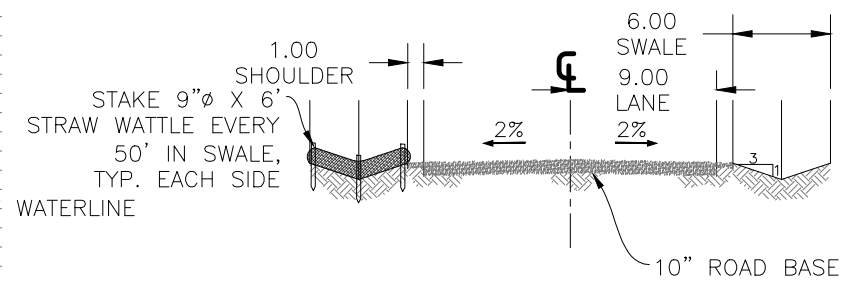
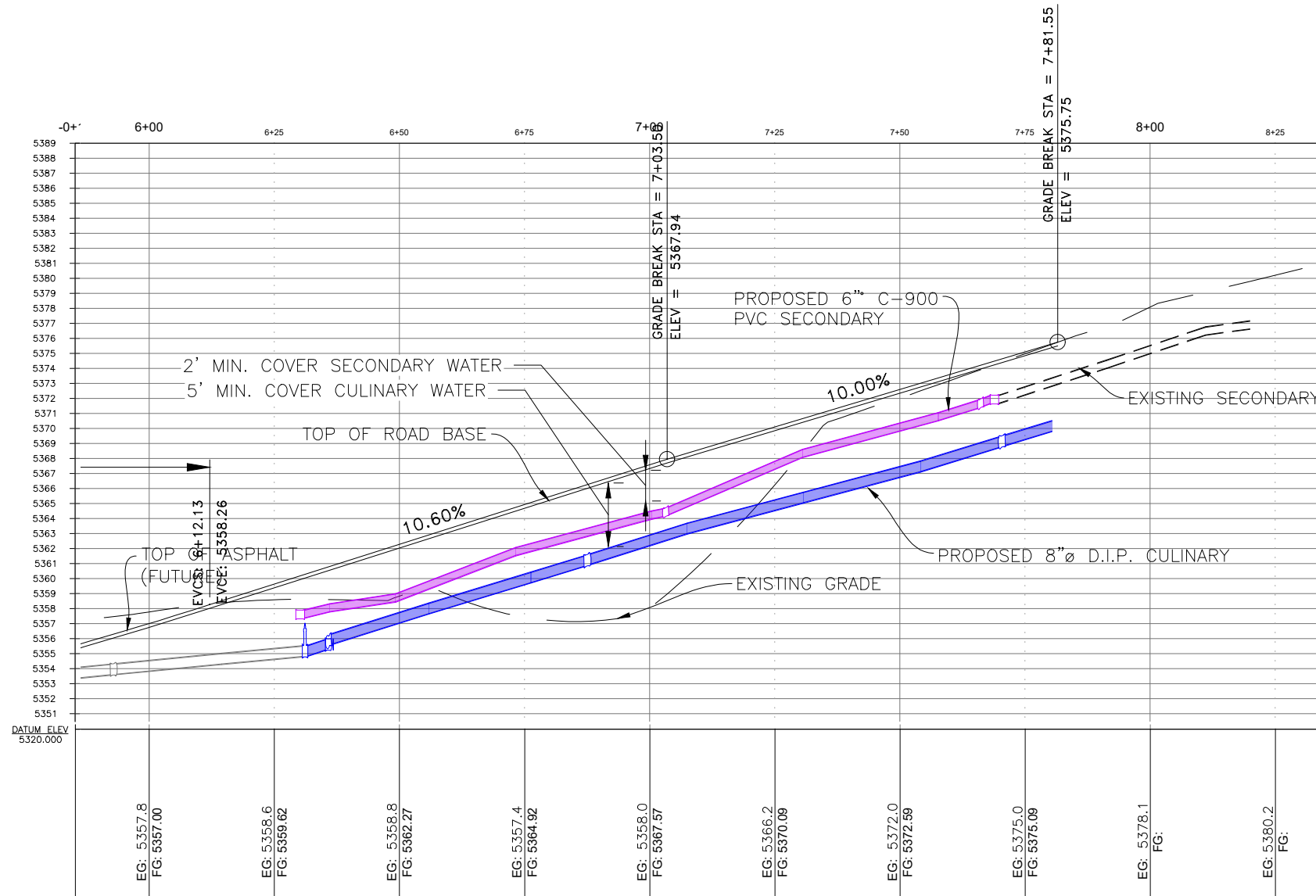
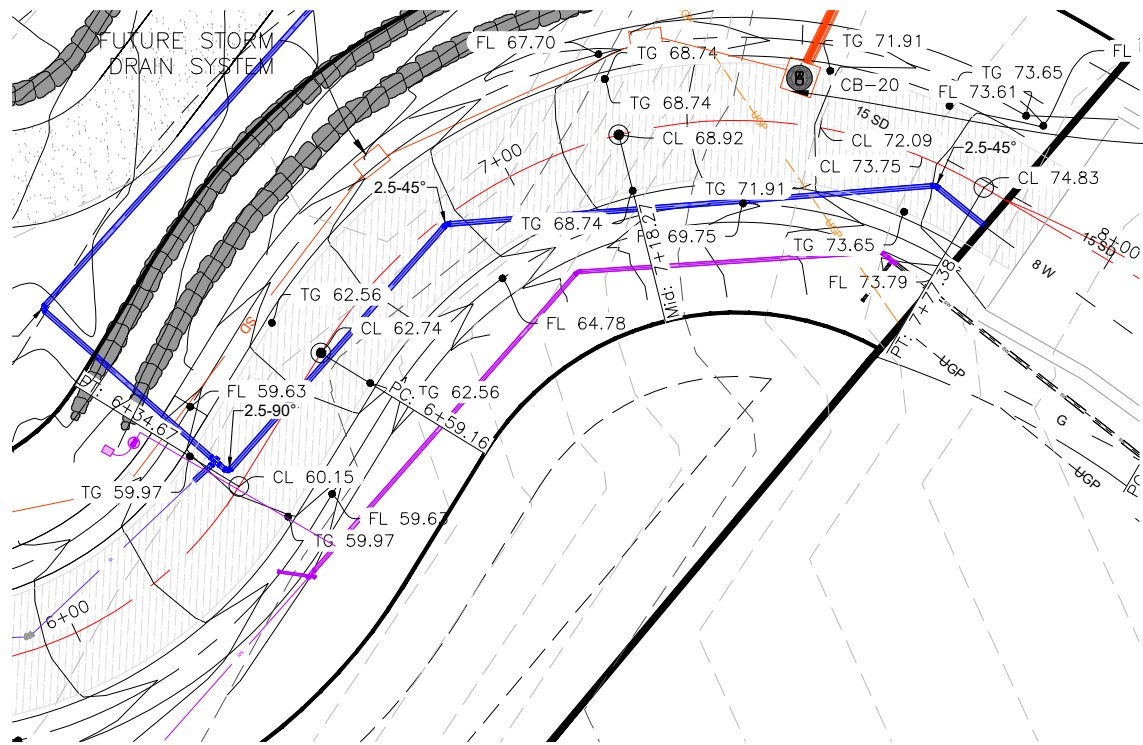
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P 801.476.0202 F 801.476.0066

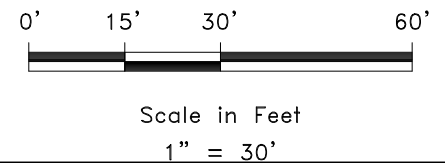
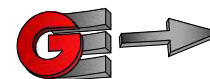
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15

Revisions	Date	Description

Date: 4-11-2024	Scale: 1" = 30'
Designed: JKH	Drafted: JKH
Checked: MDD	



1 TEMP. ACCESS ROAD
Scale: NTS



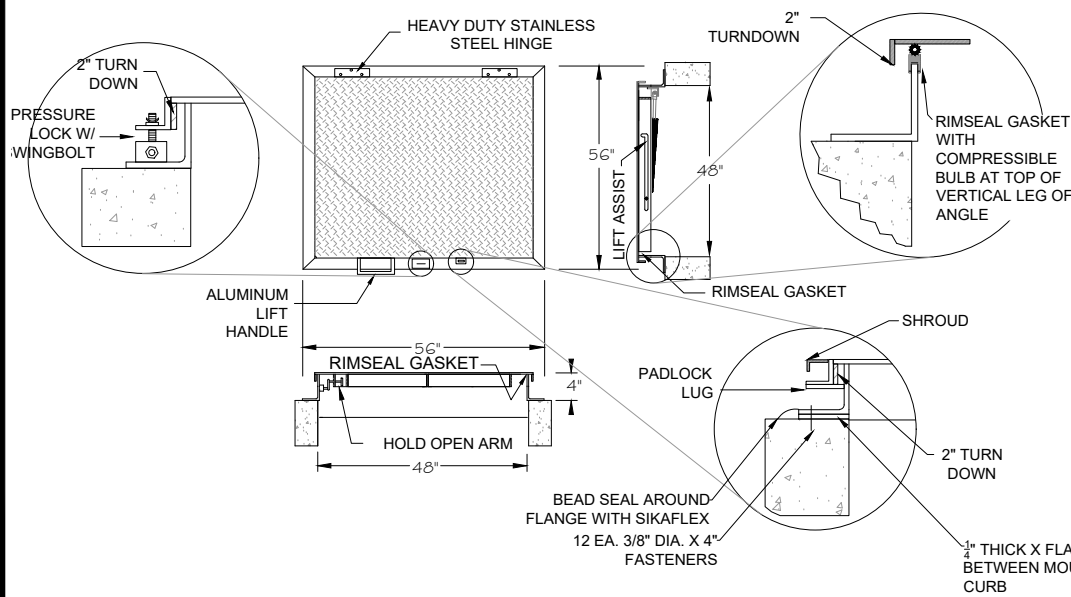
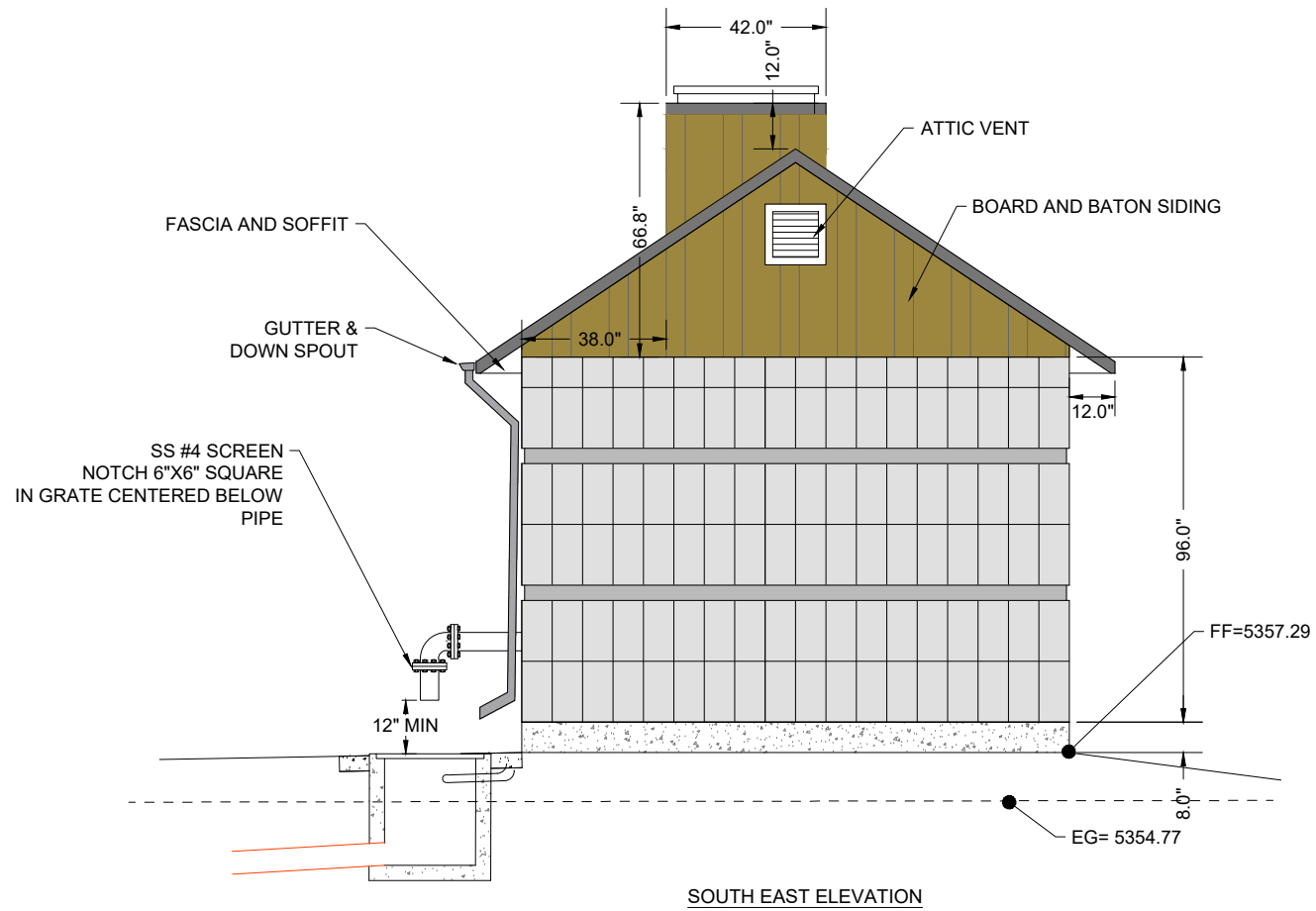
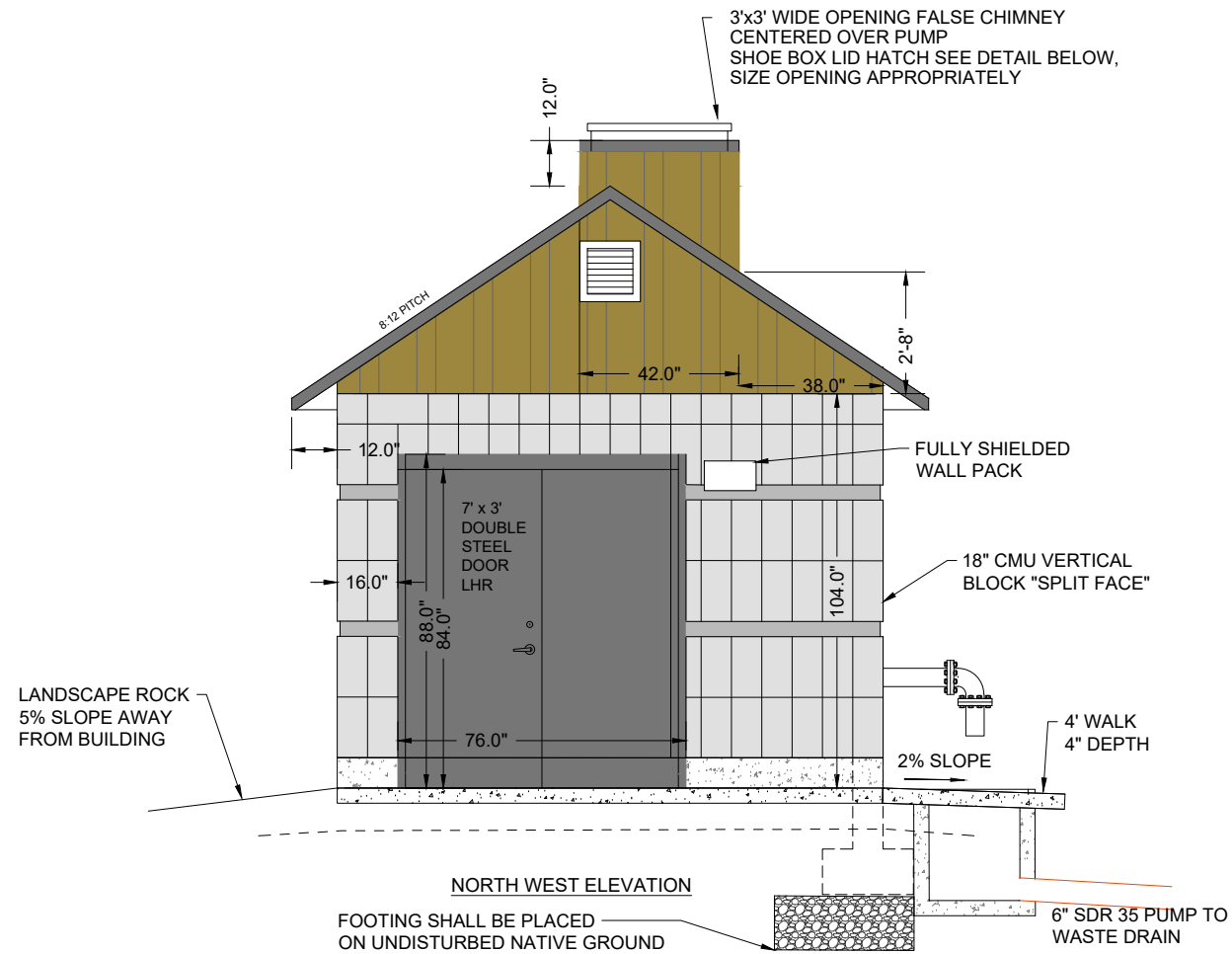
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Designed:	JKH
Drafted:	JKH
Checked:	MDD

Revisions	Date	Description

ACCESS ROAD
WCWSID - EAST WELL
5650 E ELKHORN DR
EDEN, WEBER, UTAH



RA\2319 - WOLF CREEK WATER AND SEWER\2104- EAST WELL\DESIGN\DWG\EAST WELL PIPING.DWG 2/9/23



SHOE BOX LID TYPICAL DETAIL
NOT TO SCALE

- 1.) MODEL "H48484701" AS MANUFACTURED BY EJ OR APPROVED EQUAL. WESTERN REGIONAL OFFICE IN TOOELE, UT. TEL: 801-544-5728. FAX: 801-544-9571.
- 2.) UNIT DESIGNED FLOODTIGHT RATED FOR (150 PSF).
- 3.) COVER SHALL BE EQUIPPED WITH A HOLD OPEN ARM. DOOR SHALL LOCK OPEN IN THE 90 DEGREE POSITION.
- 4.) COVER SHALL BE SUPPLIED WITH SHROUDED PADLOCK LUG AND PRESSURE LOCKS.
- 5.) UNIT SUPPLIED WITH A RIMSEAL GASKET ON INSIDE VERTICAL LEG OF ANGLE.



ELEVATION

WCWSID - EAST WELL

5665 EAST ELK HORN DRIVE

EDEN, WEBER, UTAH



W1

Date: 2/16/2024

Scale:

Designed: MDD

Drafted: MDD

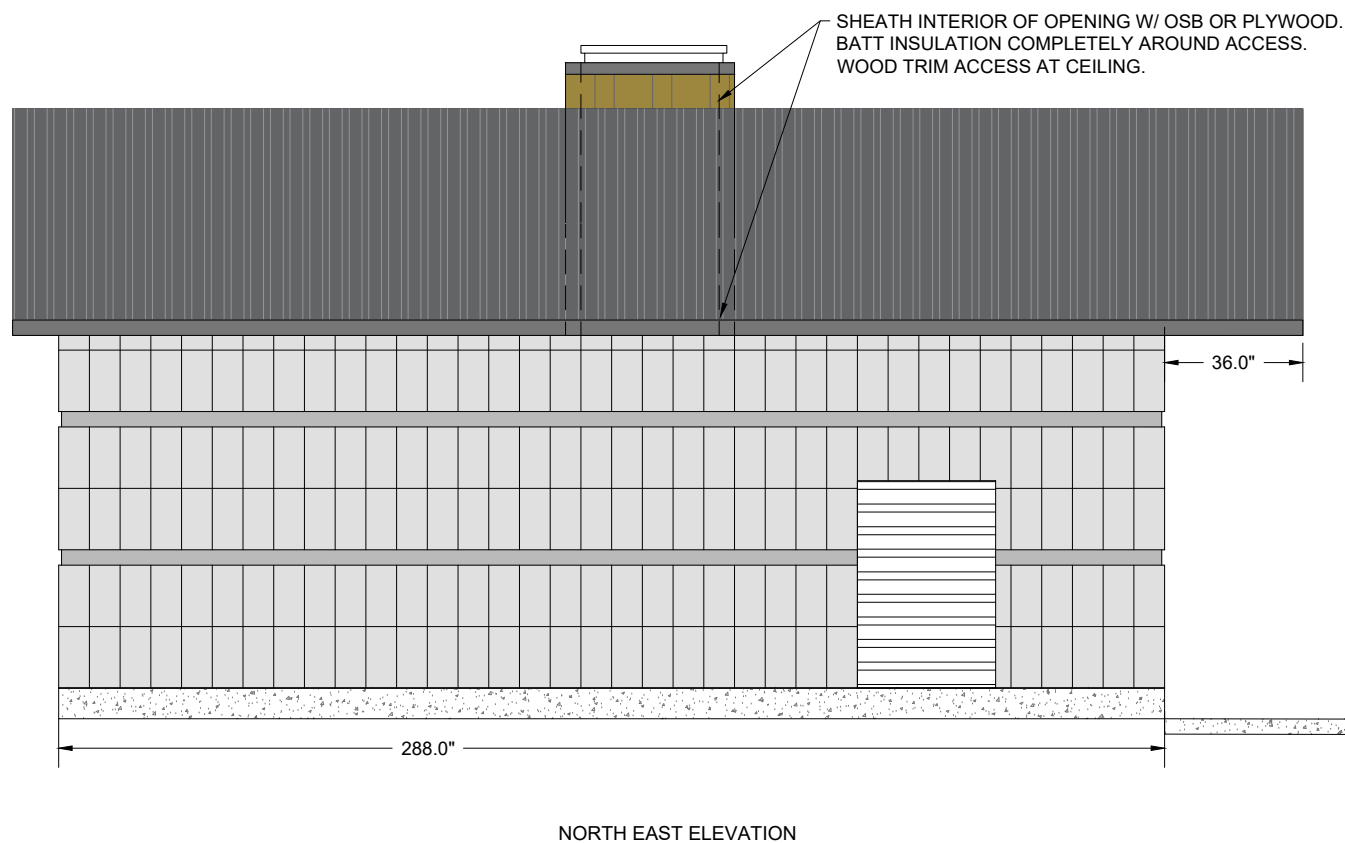
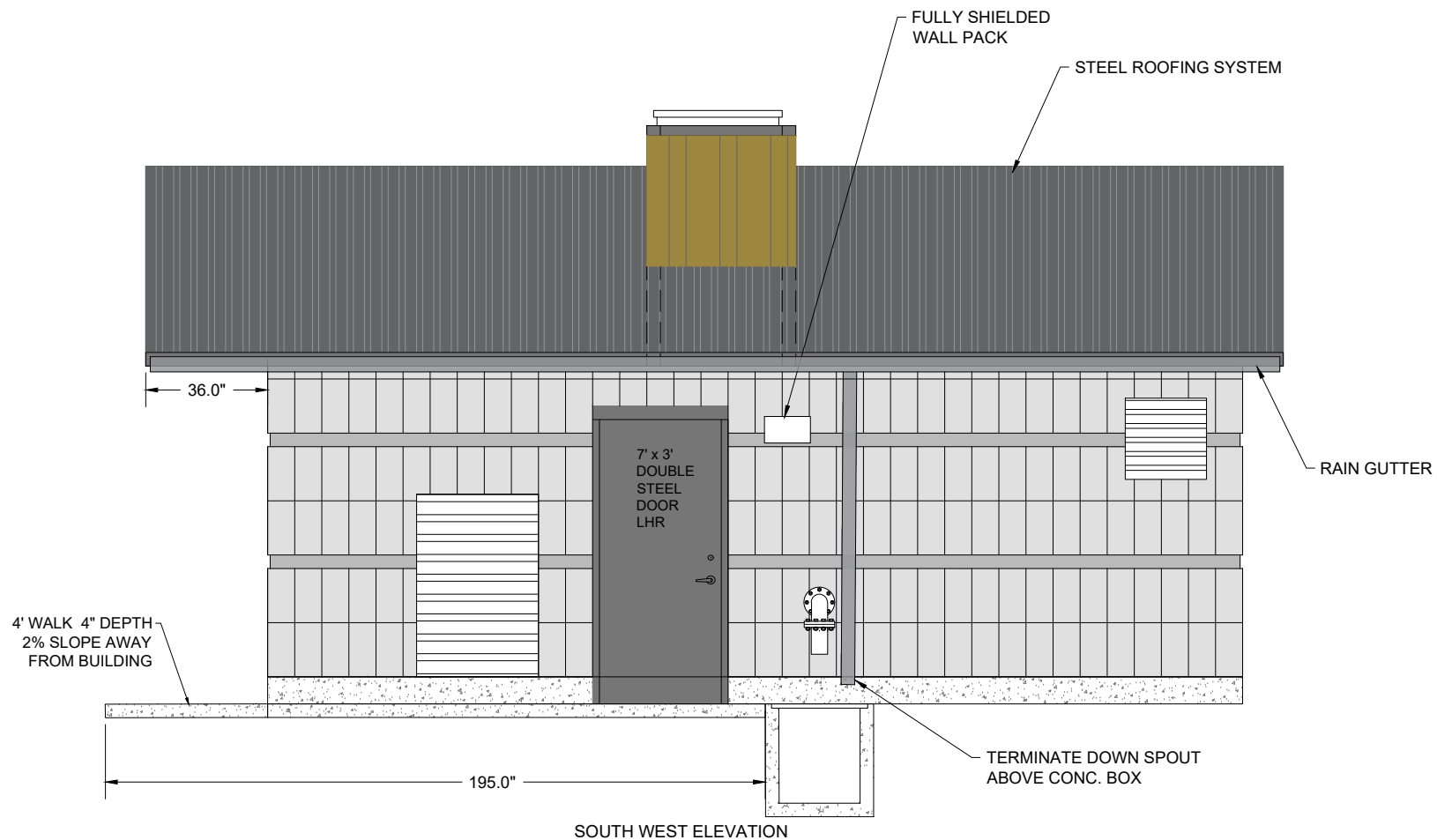
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Revisions

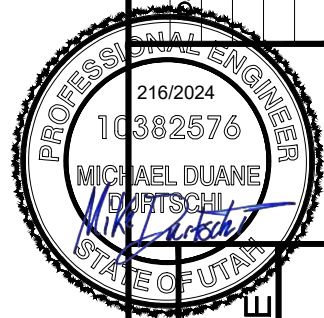
Description

Date

R:\2319 - WOLF CREEK WATER AND SEWER\2104- EAST WELL\DESIGN\DWG\EAST WELL PIPING.DWG



- NOTES: SEE SPECIFICATIONS
1. ALL VENTS AND LOUVERS SHALL HAVE NO.16 STAINLESS STEEL SCREENING AND ALL VENTS SHALL HAVE INSULATED LOUVERS RATED FOR THE SITE CONDITIONS.
 2. WELL HEAD ROOM SHALL HAVE A FAN AND EXHAUST VENT WITH INSULATED LOUVER, VENTILATION SHALL BE CONTROLLED BY SWITCH OR TEMPERATURE SETTING.
 3. OUTDOOR LIGHTING SHALL CONFORM TO OGDEN VALLEY OUTDOOR LIGHTING STANDARDS. LIGHT COLOR 3000K OR LESS, LIGHT SHALL BE FULLY SHIELDED FROM PROJECTING INTO SKY AND ADJACENT LOTS. LIGHTS SHALL BE OPERATED BY SENSORS, WITH A TWO MINUTE TIME SHUT OFF SETTING.
 4. MATERIAL COLORS OF THE OUTER WELL HOUSE SHALL BE OF EARTHEN COLORS AND APPROVED BY ENGINEER.
 5. HANG 1/2" SAG-AND MOISTURE-RESISTANT DRY WALL ON CEILING, PRIME + PAINT W/ 2 COATS SEMI- GLOSS ENAMEL.
 6. INSTALL R-38 BATTING IN ATTIC AND INSTALL FOAM INSULATION IN CMU WALLS WITH INSULATION RATING PER CODE.
 7. INSTALL WOOD (NO PRESS BOARD) AROUND WALL/CEILING INTERFACE, W/ PRIMER AND 2 COATS SEMI GLOSS ENAMEL PAINT.
 8. INSTALL MOISTURE BARRIER AND STEEL ROOFING SYSTEM. ATTIC VENTING AS PER WEBER COUNTY BUILDING CODE.
 9. PROVIDE ATTIC ACCESS PER CODE, TRIM OPENINGS.
 10. PROVIDE APPROPRIATELY LOCATED AND SIZED OPENING IN CEILING W/ REMOVABLE CEILING PANEL FOR ATTIC ACCESS. PANELS SHALL BE INSULATED, TRIM CEILING AROUND OPENING.
 11. PUMP ACCESS THROUGH ROOF/CEILING SHALL BE FULLY ENCLOSED WITH PLYWOOD, INSULATED WITH R38 BATT INSULATION ON THE ATTIC SIDE. COVER OPENING AT CEILING LEVEL WITH PLYWOOD, SEE CALL OUT ON NORTH EAST ELEVATION.
 12. STEEL ENTRANCE DOORS SHALL BE INSTALLED WITH PERIMETER WEATHER STRIPPING, A DOOR BOTTOM AND THRESHOLD.
 13. SEAL CMU BLOCKING.
 14. EXTERIOR BUILDING MATERIALS SHALL BE "EARTHEN COLORS" AND APPROVED BY OWNER



ELEVATION (2)

WCWSID - EAST WELL

5665 EAST ELK HORN DRIVE

EDEN, WEBER, UTAH



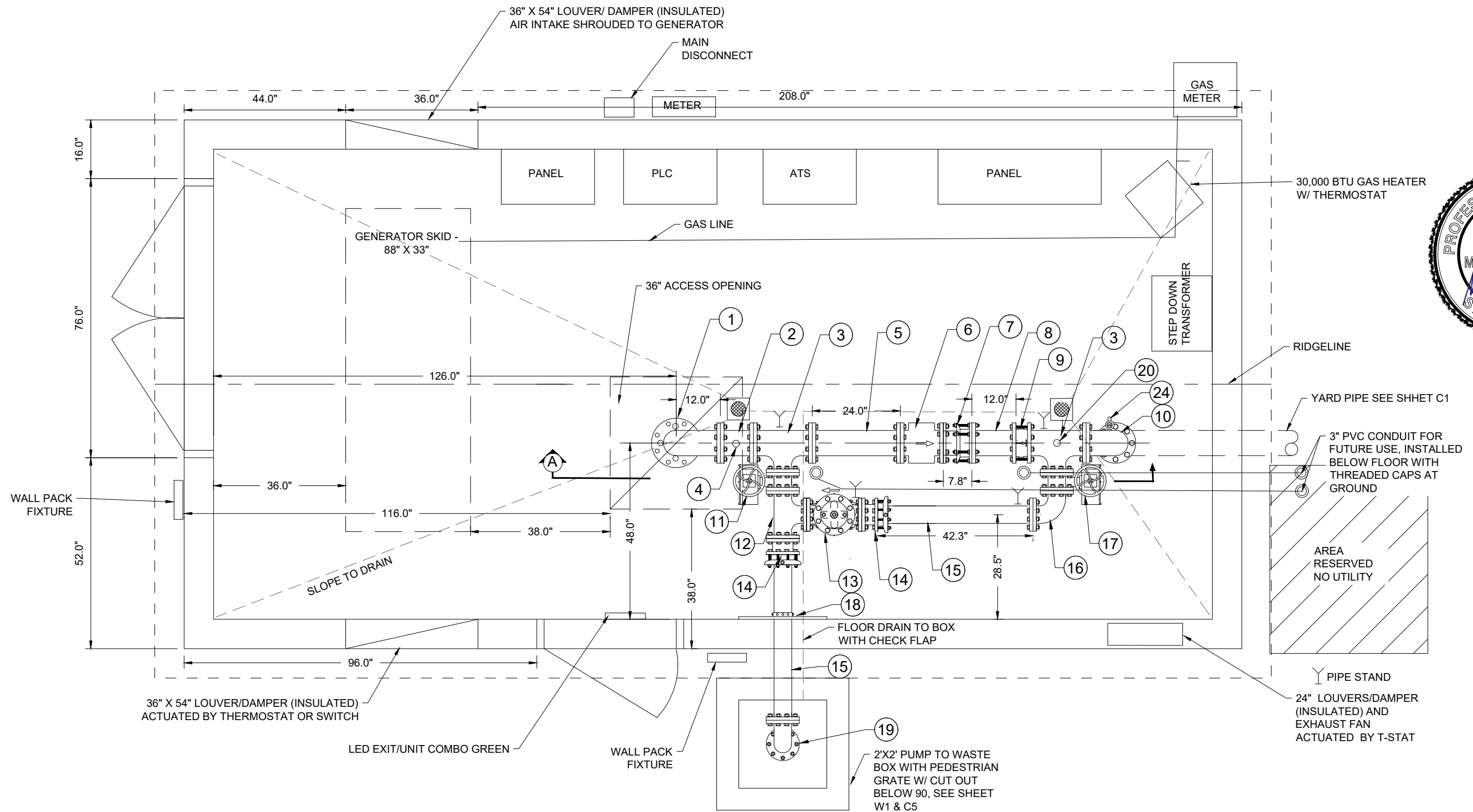
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15

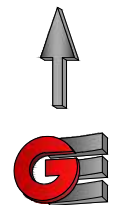
Date:	2/16/2024
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Designed:	MDD
Drafted:	MDD
Checked:	DLW

Revisions	Description
Date	

R:\2319 - WOLF CREEK WATER AND SEWER\2104- EAST WELL\DESIGN\DWG\WELL PIPING.DWG



NOTE:
CONTRACTOR SHALL COORDINATE NATURAL GAS AND POWER WITH CONTRACTOR
GAS, ELECTRICAL, CONTROLS SHALL BE INSTALLED BELOW THE FLOOR SLAB.
CONTRACTOR SHALL COORDINATE WITH OTHER TRADES AND BID ITEMS FOR LOCATIONS, QUANTITIES AND SIZING.
ALL INTERIOR PIPING SHALL BE PREPARED FOR AND COATED WITH A SUITABLE PRIMER AND AT LEAST 2 COATS OF
LIQUID EPOXY TO A DFT OF AT LEAST 10 MIL. TNEMEC N140 OR EQUAL. COLOR AS DETERMINED BY OWNER.
FACTORY COATINGS ARE ACCEPTABLE.



WELL PLAN

WCWSID - EAST WELL

5665 EAST ELK HORN DRIVE

EDEN, WEBER, UTAH

GARDNER
ENGINEERING
CIVIL • LAND PLANNING
MUNICIPAL • LAND SURVEYING
1880 W 2100S, WEST HAVEN, UT 84405
P 801.476.0202 F 801.476.0066

W3

15

Date: 2/16/2024

Scale:

Designed: MDD

Drafted: MDD

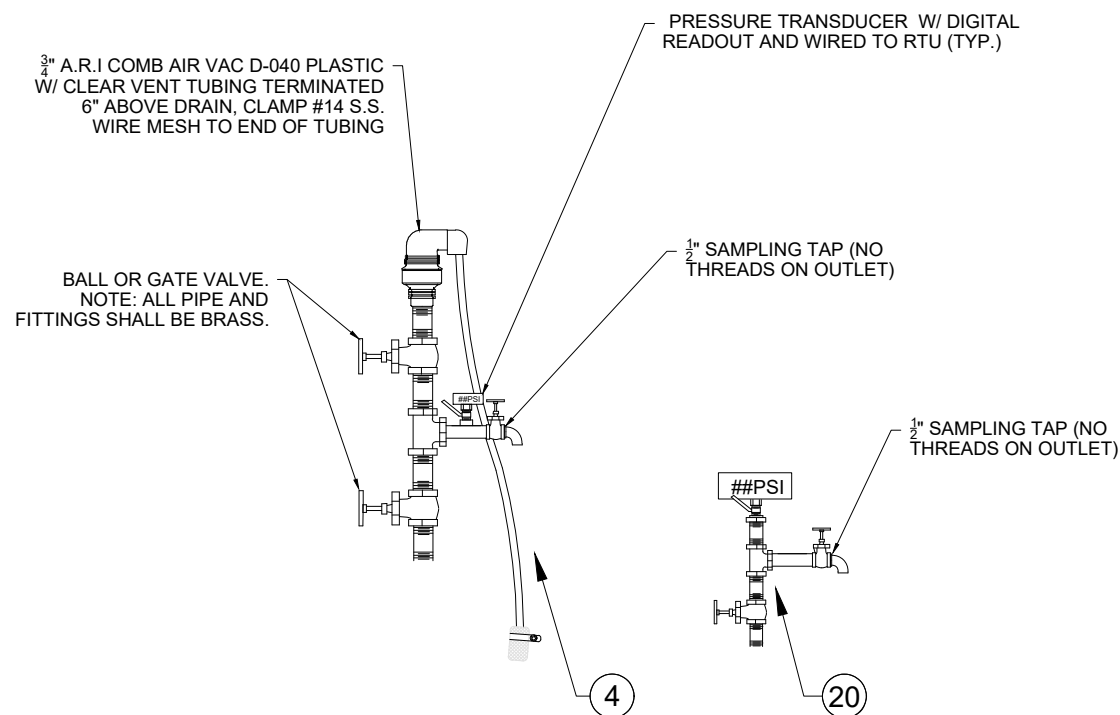
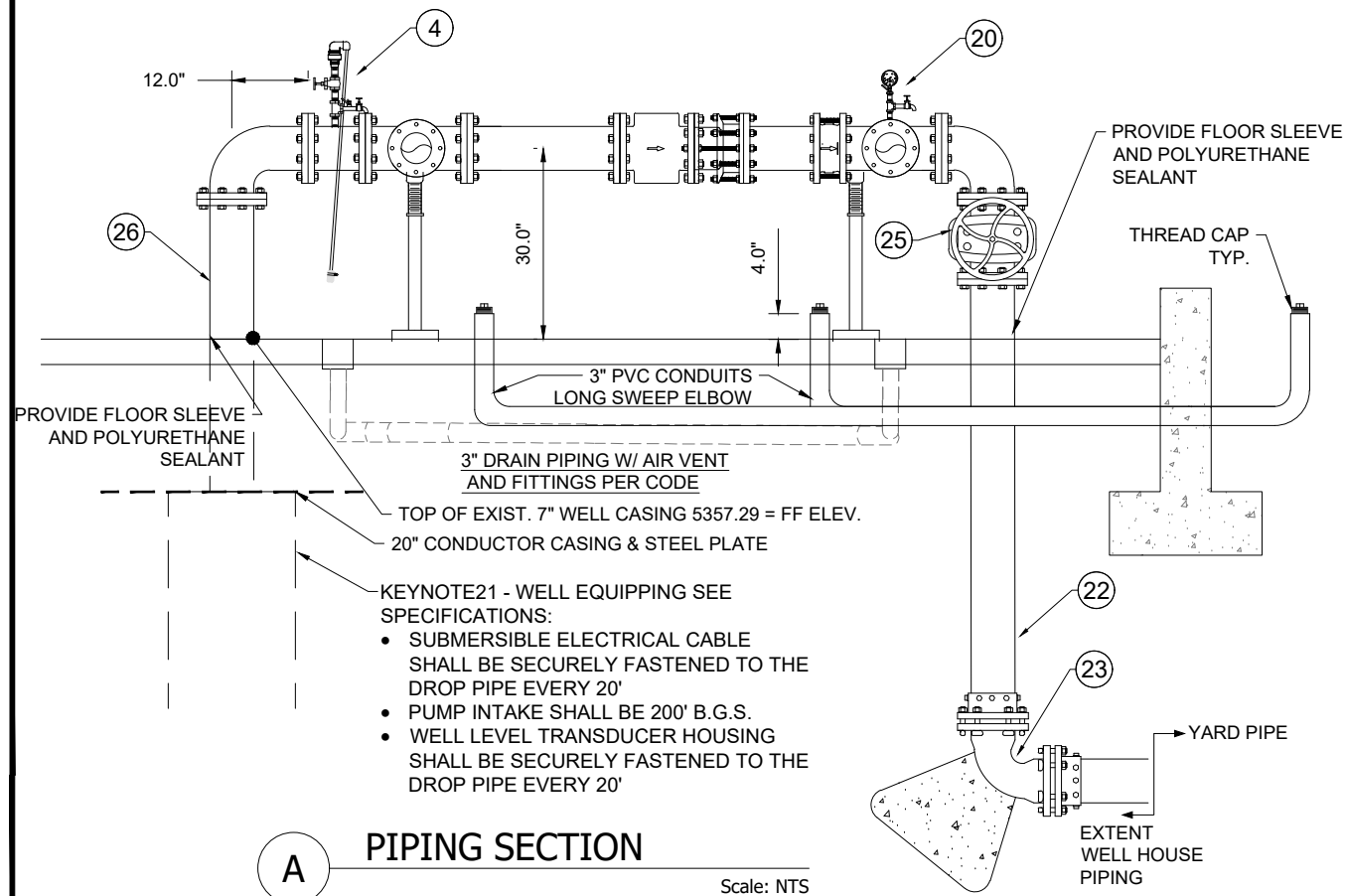
Checked: DLW

Revisions

Description

Date

R:\2319 - WOLF CREEK WATER AND SEWER\2104- EAST WELL\DESIGN\DWG\EAST WELL PIPING.DWG



Bill of Materials - Well House Equipin+A1:D28g			
Keynote #	Qty	Description	Notes
1	1	7x6 Discharge Head/Elbow	3 taps in flange for: power, transducer housing, casing vent
2	1	6" spool FLGxFLG	9" long, with direct tap for airvac
3	2	6" x 4" tee FLGxFLG	
4	2	3/4" Combination air vac assembly	3/4" tap, 3/4" fittings and brass piping, pressure transducer, see detail for components
5	1	6" spool FLGxFLG	24" long
6	1	6" magnetic flow meter	Direct mount readout, 4-20mA and pulse output connected to PLC, Seimens 5100W or approved equal
7	1	6" Restrained flanged coupling adapter	Romac, or approved equal
8	1	6" spool FLG x PE	24" length, field cut as needed
9	1	6" wafer style silent check valve	Val-Matic, or approved equal, drip tight
10	1	6" 90 degree elbow FLGxFLG	3/4" tap in "M" position
11	1	4" resilient seated butterfly valve FLGxFLG w/ manual and powered actuator	Valve: Keystone F221 Actuator: Keystone EPI2 with adjustable stroking times, 120V. or approved equal
12	1	4" tee FLGxFLG	
13	2	4" Pressure relief valve	Singer 106-RPS, set at pressure 20 #'s above static, atmospheric discharge
14	1	4" Restrained flange coupling adapter	Romac, or approved equal
15	2	4" spool FLG x PE	48" length, field cut as needed
16	1	4" 90 degree elbow	
17	1	4" butterfly valve FLGxFLG w/ manual actuator	Valve: Keystone F221 or approved equal
18	1	1/4" thick steel thrust plate	slotted around 4" pipe with restrained to wall and pipe with set-screw retainer gland
19	1	4" 90 degree elbow/ with screening	As shown on plans with downturn 90 elbow and # 4 mesh 316 SS screen, secured to elbow with flange adapter and length of pipe cut 13" above pump to waste box rim
20	1	pressure transducer and hose bib	3/4" tap. Pressure transducer with readout, thd w/ ball valve. 1/2" smooth nose sampling tap with ball valve, brass piping
21	1 Lot	Well equipping	Seal plate on 7" casing, 7" x 6" flanged discharge head (Keyed item #1, above), transducer, transducer housing, submersible pump, drop pipe with check valve, submersible cable, casing vent
22	1	6" spool FLGxPE	8' length
23	1	6" 90 degree elbow MJxMJ	w/ thrust block
24	1	3/4" hose bib	3/4" tap with valve and bib, on elbow
25	1	6" Gate Valve FLG x FLG	
26	1	7" Well Casing Extender	0.375 thick, welded to existing casing

SUBMERSIBLE PUMP AND MOTOR: MULTI-STAGE STAINLESS STEEL SUBMERSIBLE PUMP AND MOTOR.

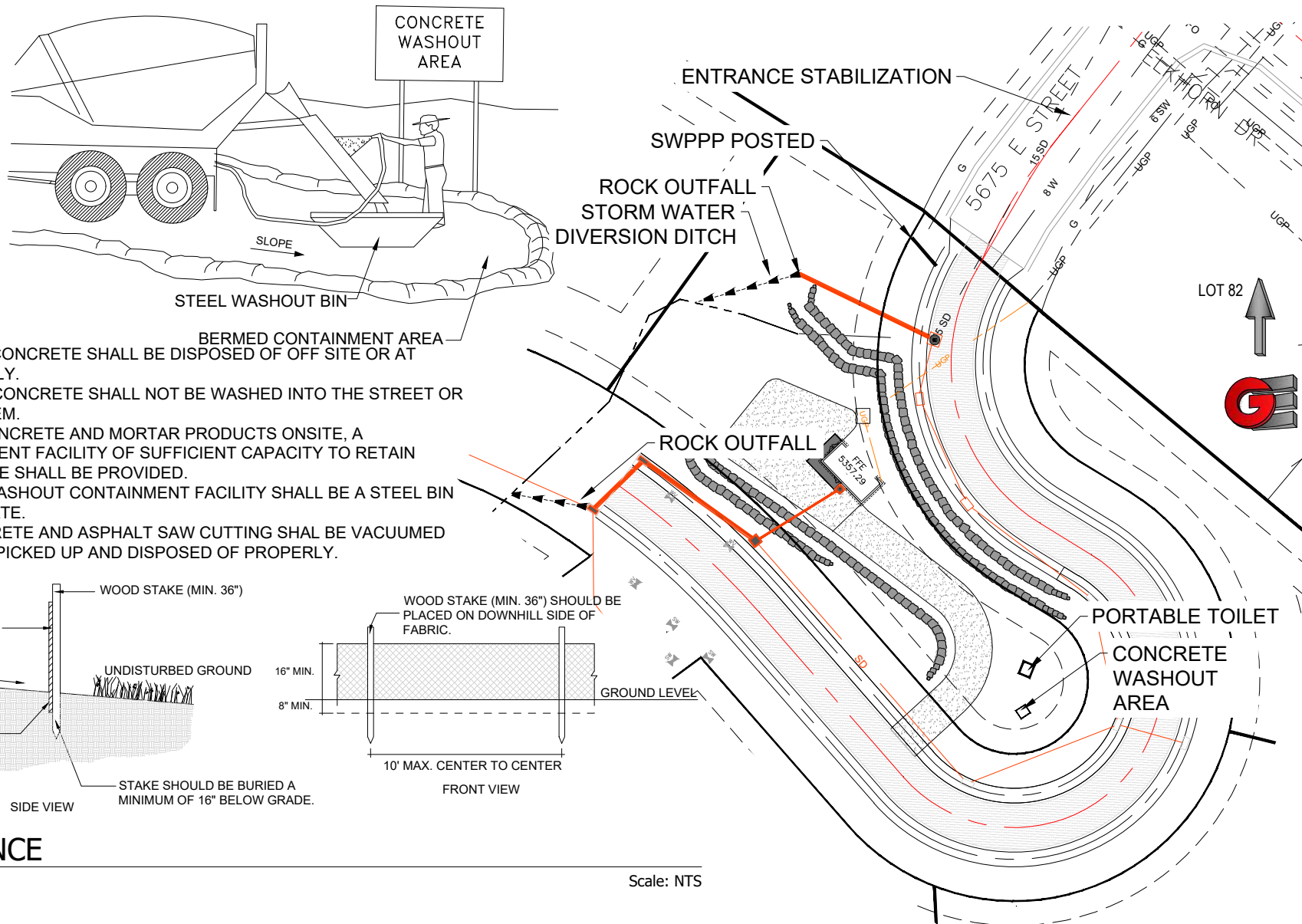
- DESIGN CAPACITY: 285 GPM;
- DESIGN TDH – 285 FEET;
- NOMINAL PUMP RPM: 3450;
- MINIMUM ACCEPTABLE BOWL EFFICIENCY AT DESIGN POINT: 75%;
- MOTOR DIAMETER: 6"
- PUMP OUTLET: 4" NPT

PUMP AND MOTOR SHALL BE EQUAL TO GRUNDFOS WITH TYPE MS6000 MOTOR OR FRANKLIN WITH SANDFIGHTER MOTOR. MOTOR SHALL BE CAPABLE OF SAFELY RUNNING ON A VFD.

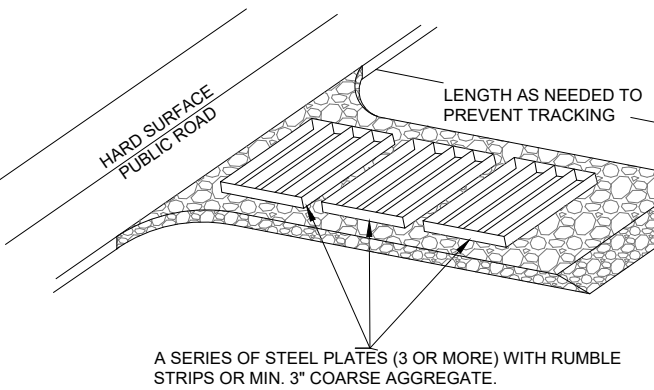


WELL MATERIALS
WCWSID - EAST WELL
5665 EAST ELK HORN DRIVE
EDEN, WEBER, UTAH





- EROSION CONTROL NOTES:**
1. SANDBAGS WILL BE PLACED AT DISCHARGE LOCATIONS TO CONTAIN AND DIVERT STORM WATER THROUGH THE INLET PROTECTION.
 2. AN EARTHEN BERM 6" HIGH WILL BE CONSTRUCTED TO CONTAIN THE STORM WATER AND DIVERT IT TO DISCHARGE AREAS.
 3. STORM WATER WILL BE DISCHARGED INTO AN EXISTING DRAINAGE SYSTEM. EXISTING LINES SHALL BE INSPECTED PRIOR TO CERTIFICATE OF OCCUPANCY AND CLEANED IF NECESSARY.
 4. THE STORM WATER POLLUTION PREVENTION PLAN SHALL CONFORM TO ALL STATE DIVISION OF ENVIRONMENTAL PROTECTION REGULATIONS.

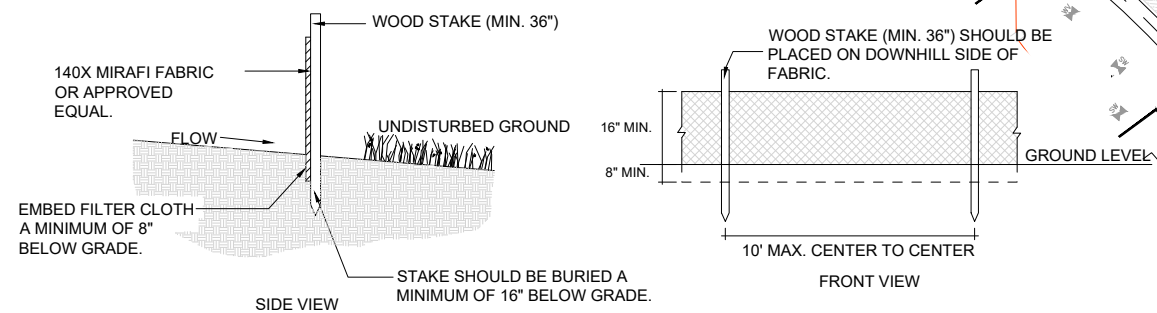


- ENTRANCE STABILIZATION NOTES:**
1. SEDIMENTS AND OTHER MATERIALS SHALL NOT BE TRACKED FROM THE SITE BY VEHICLE TRAFFIC. THE CONSTRUCTION ENTRANCE ROADWAYS SHALL BE STABILIZED SO AS TO PREVENT SEDIMENTS FROM BEING DEPOSITED INTO THE STORM DRAIN SYSTEMS. DEPOSITIONS MUST BE SWEEPED UP IMMEDIATELY AND MAY NOT BE WASHED DOWN BY RAIN OR OTHER MEANS INTO THE STORM DRAIN SYSTEM.
 2. STABILIZED CONSTRUCTION ENTRANCE SHALL BE:
 - a. LOCATED AT ANY POINT WHERE TRAFFIC WILL BE ENTERING OR LEAVING A CONSTRUCTION SITE TO OR FROM A PUBLIC RIGHT-OF-WAY, STREET, ALLEY AND SIDEWALK OR PARKING AREA.
 - b. A SERIES OF STEEL PLATES WITH "RUMBLE STRIPS", AND/OR MIN. 3" COARSE AGGREGATE WITH LENGTH, WIDTH AND THICKNESS AS NEEDED TO ADEQUATELY PREVENT ANY TRACKING ONTO PAVED SURFACES.
 3. ADDING A WASH RACK WITH A SEDIMENT TRAP LARGE ENOUGH TO COLLECT ALL WASH WATER CAN GREATLY IMPROVE EFFICIENCY.
 4. ALL VEHICLES ACCESSING THE CONSTRUCTION SITE SHALL UTILIZE THE STABILIZED CONSTRUCTION ENTRANCE SITES.

- STREET MAINTENANCE NOTES:**
1. REMOVE ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS IMMEDIATELY.
 2. SWEEP PAVED AREAS THAT RECEIVE CONSTRUCTION TRAFFIC WHENEVER SEDIMENT BECOMES VISIBLE.
 3. PAVEMENT WASHING WITH WATER IS PROHIBITED IF IT RESULTS IN A DISCHARGE TO THE STORM DRAIN SYSTEM.

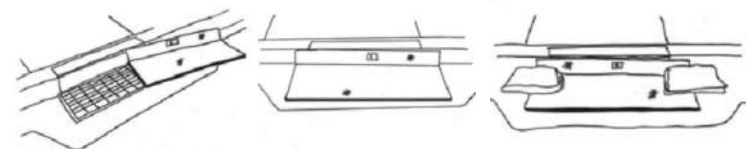
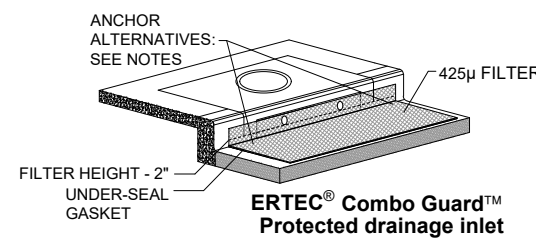
NOTES:

1. EXCESS AND WASTE CONCRETE SHALL BE DISPOSED OF OFF SITE OR AT DESIGNATED AREAS ONLY.
2. EXCESS AND WASTE CONCRETE SHALL NOT BE WASHED INTO THE STREET OR INTO A DRAINAGE SYSTEM.
3. FOR WASHOUT OF CONCRETE AND MORTAR PRODUCTS ONSITE, A DESIGNATED CONTAINMENT FACILITY OF SUFFICIENT CAPACITY TO RETAIN LIQUID AND SOLID WASTE SHALL BE PROVIDED.
4. ONSITE CONCRETE WASHOUT CONTAINMENT FACILITY SHALL BE A STEEL BIN OR APPROVED ALTERNATE.
5. SLURRY FROM CONCRETE AND ASPHALT SAW CUTTING SHALL BE VACUUMED OR CONTAINED, DRIED, PICKED UP AND DISPOSED OF PROPERLY.



2 SILT FENCE

Scale: NTS

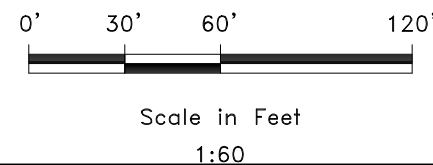
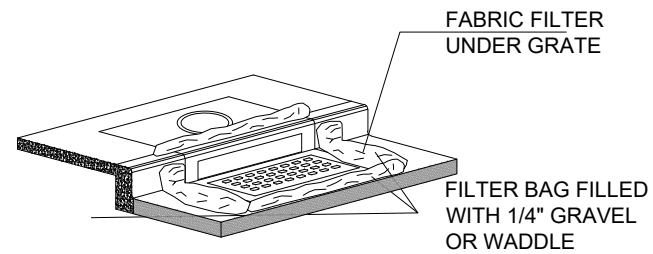


INSTALLATION NOTES

1. PLACEMENT: PLACE CG TIGHTLY AGAINST CURB OPENING AND COVER ENTIRE GRATE. CG SHOULD EXTEND AT LEAST 2 INCHES PAST GRATE TOWARDS STREET.
2. OVERLAP FOR LONG OPENINGS: OVERLAP CG UNITS AT LONGER OPENINGS.
3. ANCHOR: ANCHOR CG SO THAT WATER CANNOT FLOW BEHIND IT.
4. ALTERNATE ANCHOR METHODS: A) INSTALL GRAVEL BAGS AT EACH SIDE OF CG - HALF-ON AND HALF-OFF THE EDGES. USE HALF-FILLED GRAVEL BAGS (15 OR 20 LBS). ROUND ROCK IS RECOMMENDED. OR B) ATTACH WITH 16 GAUGE TIE-WIRE. CUT WIRE TO 18" LENGTH. AT EACH CORNER OF CG, FEED ONE END OF WIRE DOWN THROUGH CG, AROUND GRATE BAR, AND BACK UP THRU CG. ABOVE GROUND, TWIST WIRES SEVERAL TIMES, CUT-OFF EXCESS. OR C) FASTEN WITH CONCRETE ANCHORS/NAILS AT THE OUTSIDE EDGES OF CG.

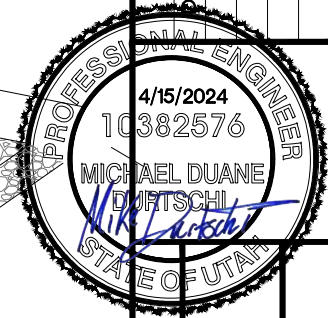
1B INLET PROTECTION - OPTION 2

Scale: NTS



1A INLET PROTECTION - OPTION 1

Scale: NTS



SWPP		Date:	4-11-2024
WCWSID - EAST WELL 5650 E ELKHORN DR EDEN, WEBER, UTAH	Revisions		
	Date	Description	
		Scale:	1:60
		Designed:	JKH
		Drafted:	JKH
		Checked:	MDD



SIZE	BENDS				TEES*	GATE VALVES	DEAD ENDS	CROSSW/1 BRANCH PLUGGED	CROSSW/2 BRANCH PLUGGED
	90°	45°	22 1/2°	11 1/4°					
3	1.0	0.0	0.3	0	0.7	0.5	0.7	0.7	0.7
4	1.8	1.0	0.5	0	1.3	0.5	1.3	1.3	1.3
6	4.0	2.2	1.1	0	2.8	0.7	2.8	2.8	2.8
8	7.1	3.8	2.0	1.0	5.0	2.4	5.0	5.0	5.0
10	11.1	6.0	3.0	1.5	7.8	4.5	7.8	7.8	7.8
12	16.0	8.6	4.4	2.2	11.3	7.3	11.3	11.3	11.3
14	21.7	11.8	6.0	3.0	15.4	11.0	15.4	15.4	15.4
15	25.0	13.5	7.0	3.5	17.6		17.6	17.6	17.6
16	28.4	15.3	8.0	4.0	20.0		20.0	20.0	20.0
18	36.0	19.4	10.0	5.0	25.4		25.4	25.4	25.4
20	44.2	24.0	12.2	6.1	31.4		31.4	31.4	31.4
21	49.0	26.5	13.5	6.8	34.6		34.6	34.6	34.6
22	54.0	29.0	14.8	7.4	38.0		38.0	38.0	38.0
24	64.0	34.5	17.7	8.8	45.0		45.0	45.0	45.0
30	100.0	54.0	27.6	13.8	71.0		71.0	71.0	71.0
36	144.0	78.0	40.0	20.0	102.0		102.0	102.0	102.0

*SIZE IS BRANCH SIZE.
FOR 100 P.S.I. INTERNAL STATIC PRESSURE AND 1000 LBS.PER SQ. FT. SOIL BEARING CAPACITY.

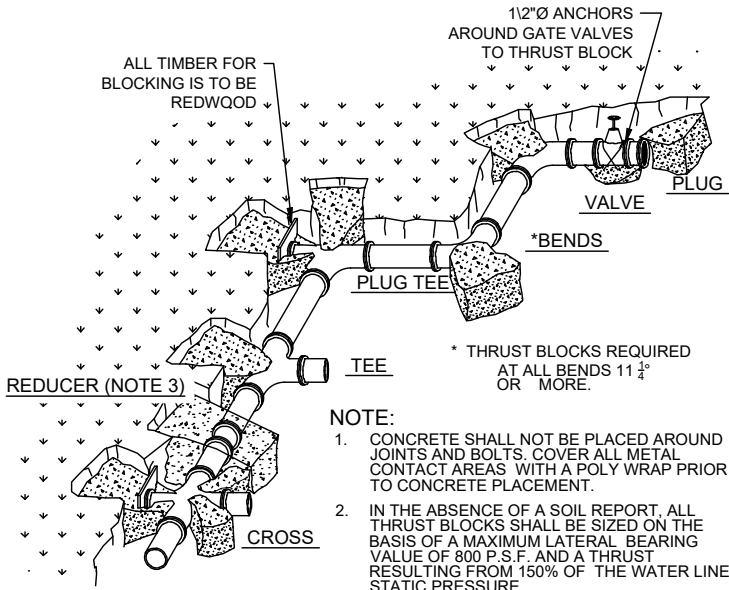
*ALL VALVES, TEES, CROSSES AND BENDS SHALL ALSO BE FITTED WITH MECHANICAL RESTRAINTS, SUCH AS MEGA LUG OR ROMA GRIP WITH FLUOROPOLYMER COATED BOLTS AND NUTS.

AREAS GIVEN IN TABLE ARE BASED UPON AN INTERNAL STATIC PRESSURE OF 100 P.S.I AND A SOIL BEARING CAPACITY OF 1000 LBS PER SQ. FT. BEARING AREAS FOR ANY PRESSURE AND SOIL BEARING CAPACITY MAY BE OBTAINED BY MULTIPLYING THE TABULATED VALUES BY A CORRECTION FACTOR "F".

$F = \frac{\text{ACTUAL SPECIFIED TEST PRESSURE IN HUNDREDS OF LBS/SQ. IN.}}{\text{ACTUAL SOIL BEARING CAPACITY IN THOUSANDS OF LBS.}}$

EXAMPLE: TO FIND BEARING AREA FOR 8"-90° BEND WITH A STATIC INTERNAL PRESSURE OF 150 P.S.I AND WITH A SOIL BEARING CAPACITY OF 3000 LBS. PER SQ. FT.

$F = 1.5 / 3 = 0.5$ TABULATED VALUE = 7.1 SQ. FT.
 $0.5 \times 7.1 = 3.56 \sim 4$ SQ. FT. (~OR 2FT. LONG BY 2FT. HIGH.)



NOTE:

- CONCRETE SHALL NOT BE PLACED AROUND JOINTS AND BOLTS. COVER ALL METAL CONTACT AREAS WITH A POLY WRAP PRIOR TO CONCRETE PLACEMENT.
- IN THE ABSENCE OF A SOIL REPORT, ALL THRUST BLOCKS SHALL BE SIZED ON THE BASIS OF A MAXIMUM LATERAL BEARING VALUE OF 800 P.S.F. AND A THRUST RESULTING FROM 150% OF THE WATER LINE STATIC PRESSURE.
- THRUST BLOCK AT REDUCER SHALL BE KEYED INTO UNDISTURBED TRENCH WALL AND BOTTOM, AND REINFORCED WITH #4 BARS 3" OFF SMALL SIDE FACE. KEY DEPTH = 12" FOR 4"-12" MAINS, AND 18" FOR > 12" MAINS

1

THRUST BLOCK DETAIL

APPLIES TO ALL PRESSURE PIPE

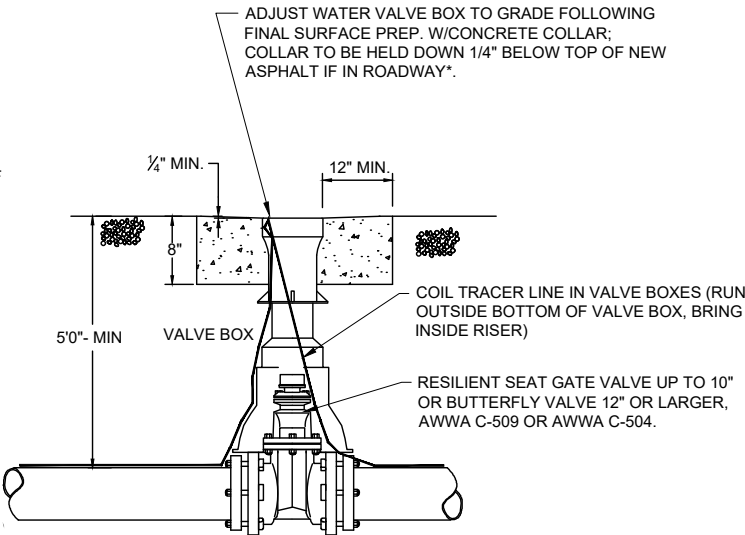
NTS

VALVE LOCATION STANDARD:

AT TEES AND CROSSES, A VALVE SHALL BE INSTALLED IN EACH MAIN LINE, OUT OF THE INTERSECTION, AT THE EXTENSION OF PROPERTY LINES.

AN EXCEPTION TO THE NUMBER OF VALVES MAY BE MADE BY THE DISTRICT WHEN FOLLOWING THE STANDARD WILL PUT MAIN LINE VALVES WITHIN 250' OF EACH OTHER.

AN ISOLATION VALVE SHALL BE INSTALLED IN MAIN LINES ON EACH END OF AN EASEMENT THROUGH PRIVATE PROPERTY.



2

TYPICAL VALVE DETAIL

NTS

DRAFTED: JKH	DEVIATIONS FROM STANDARDS MUST BE
DESIGNED: DW	APPROVED BY WOLF CREEK WATER AND
CHECKED: DW	SEWER IMPROVEMENT DISTRICT.
DATE: 02/2023	



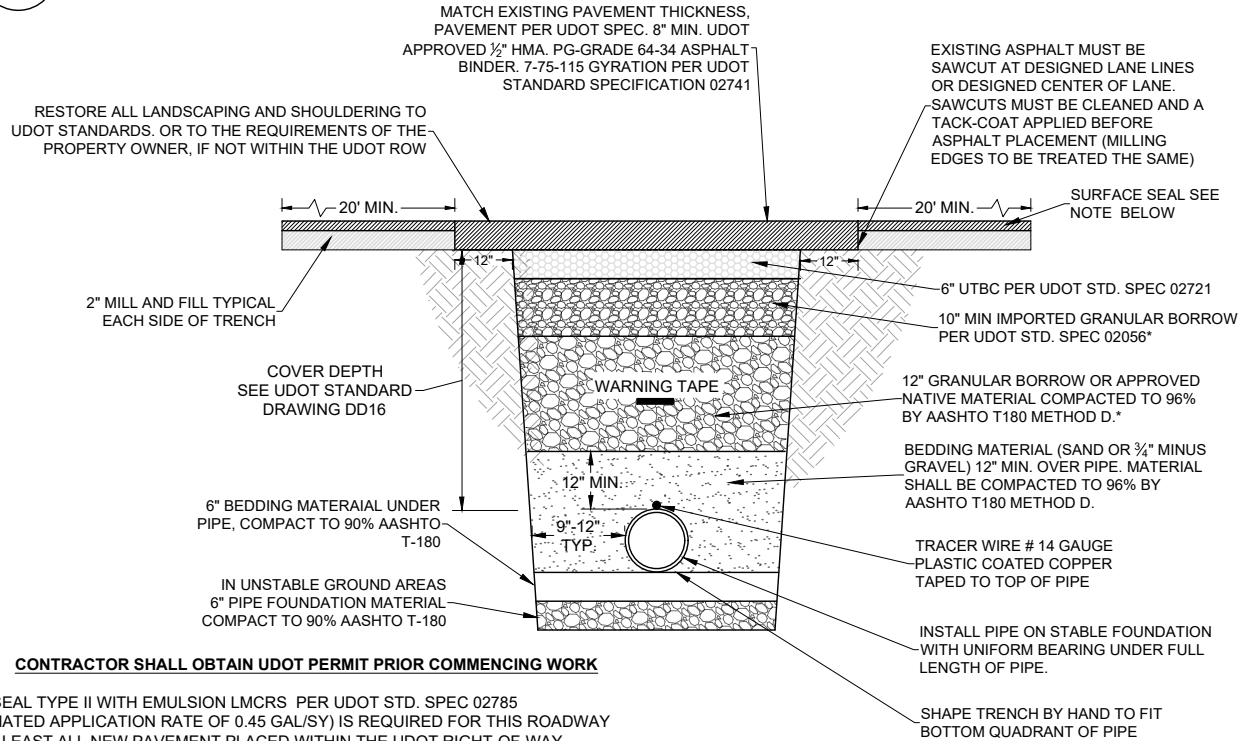
STANDARD WATER DETAILS	
WOLF CREEK SEWER AND WATER IMPROVEMENT DISTRICT	
THRUST BLOCK TYPICAL VALVE	SHEET 1



3A

TYPICAL TRENCH SECTION

NTS



NOTE: CONTRACTOR SHALL OBTAIN UDOT PERMIT PRIOR COMMENCING WORK

CHIP SEAL TYPE II WITH EMULSION LMCRS PER UDOT STD. SPEC 02785 (ESTIMATED APPLICATION RATE OF 0.45 GAL/SY) IS REQUIRED FOR THIS ROADWAY ON AT LEAST ALL NEW PAVEMENT PLACED WITHIN THE UDOT RIGHT-OF-WAY.

ALL CONSTRUCTION WITHIN THE UDOT RIGHT-OF-WAY SHALL CONFORM TO THE MOST CURRENT UDOT STANDARD DRAWING AND SPECIFICATIONS, FOUND AT UDOT.UTAH.GOV/CONNECT/BUSINESS/STANDARDS/2023 STANDARDS

* FLOWABLE FILL MAY BE REQUIRED BY UDOT PERMIT.

3B

UDOT CROSSING TRENCH DETAIL

NTS

DRAFTED: JKH	DEVIATIONS FROM STANDARDS MUST BE
DESIGNED: DW	APPROVED BY WOLF CREEK WATER AND
CHECKED: DW	SEWER IMPROVEMENT DISTRICT.
DATE: 02/2023	



STANDARD WATER DETAILS	
WOLF CREEK SEWER AND WATER IMPROVEMENT DISTRICT	
TYPICAL TRENCH SECTION UDOT CROSSING TRENCH DETAIL	SHEET 2



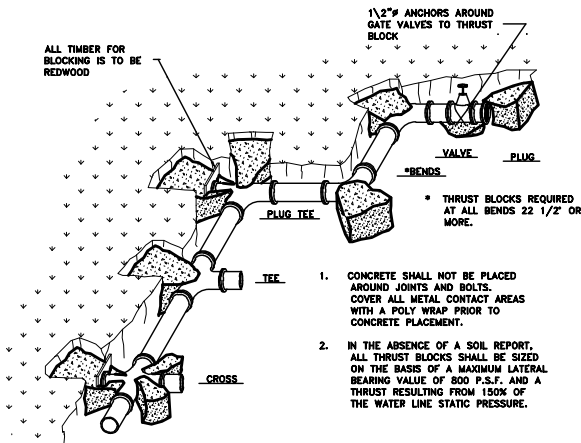


TABLE OF BEARING AREAS IN SQ. FT FOR CONCRETE THRUST BLOCKING

NOTE: FOR 100 P.S.I. INTERNAL STATIC PRESSURE AND 1000 LBS. PER SQ. FT. SOIL BEARING CAPACITY.

SIZE	BENDS				TEES*	GATE VALVES	DEAD ENDS	CROSSW/ BRANCH PLUGGED	CROSSW/ 2 BRANCH PLUGGED
	90°	45°	22 1/2°	11 1/4°					
3	1.0	0.0	0.3	0	0.7	0.5	0.7	0.7	0.7
4	1.8	1.0	0.5	0	1.3	0.5	1.3	1.3	1.3
6	4.0	2.2	1.1	0	2.8	0.7	2.8	2.8	2.8
8	7.1	3.8	2.0	1.0	5.0	2.4	5.0	5.0	5.0
10	11.1	6.0	3.0	1.5	7.8	4.5	7.8	7.8	7.8
12	16.0	8.6	4.4	2.2	11.3	7.3	11.3	11.3	11.3
14	21.7	11.8	6.0	3.0	15.4	11.0	15.4	15.4	15.4
15	25.0	13.5	7.0	3.5	17.6		17.6	17.6	17.6
16	28.4	15.3	8.0	4.0	20.0		20.0	20.0	20.0
18	36.0	19.4	10.0	5.0	25.4		25.4	25.4	25.4
20	44.2	24.0	12.2	6.1	31.4		31.4	31.4	31.4
21	49.0	26.5	13.5	6.8	34.6		34.6	34.6	34.6
22	54.0	29.0	14.8	7.4	38.0		38.0	38.0	38.0
24	64.0	34.5	17.7	8.8	45.0		45.0	45.0	45.0
30	100.0	54.0	27.6	13.8	71.0		71.0	71.0	71.0
36	144.0	78.0	40.0	20.0	102.0		102.0	102.0	102.0

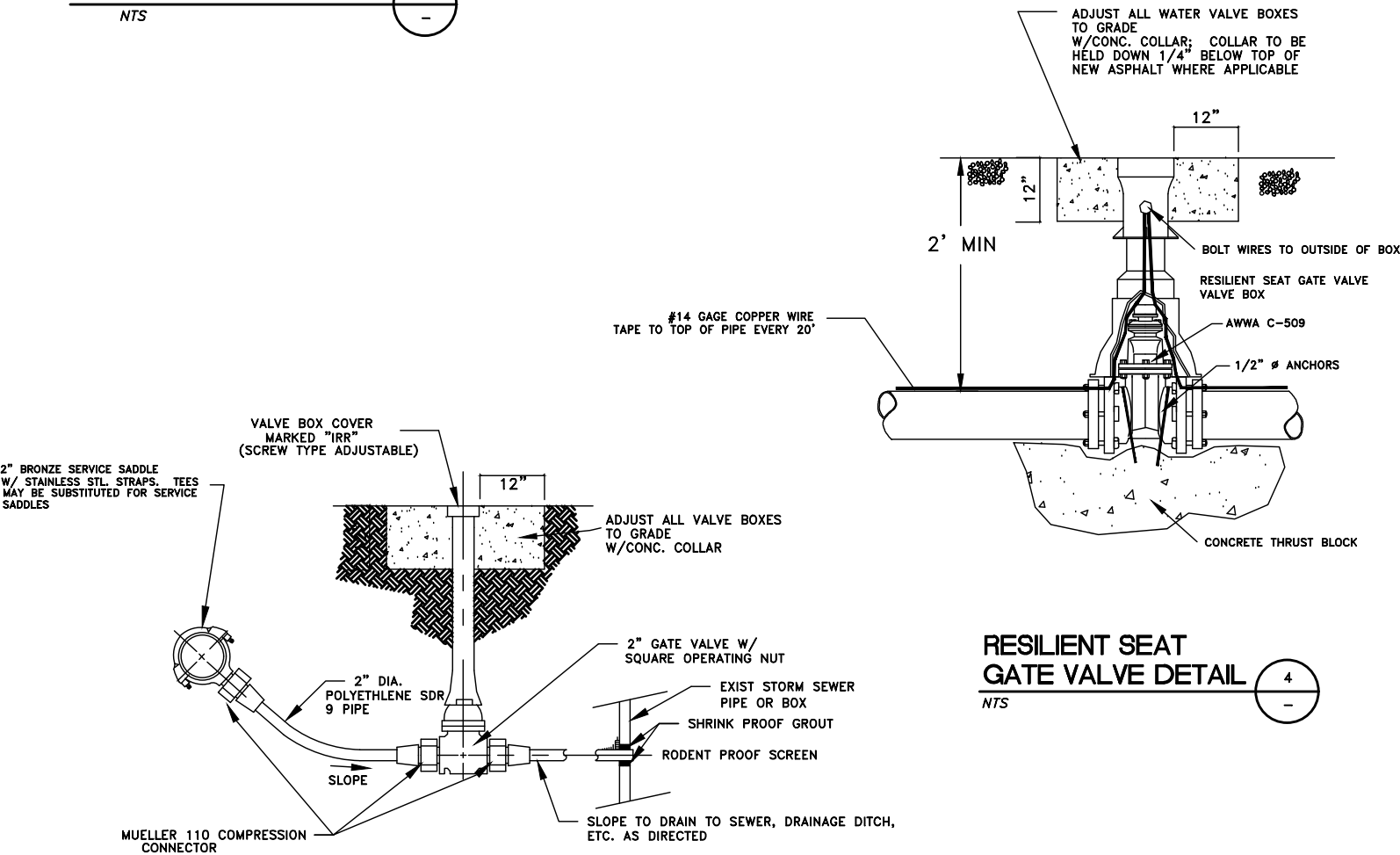
*SIZE IS BRANCH SIZE.

AREAS GIVEN IN TABLE ARE BASED UPON AN INTERNAL STATIC PRESSURE OF 100 P.S.I AND A SOIL BEARING CAPACITY OF 1000 LBS PER SQ. FT. BEARING AREAS FOR ANY PRESSURE AND SOIL BEARING CAPACITY MAY BE OBTAINED BY MULTIPLYING THE TABULATED VALUES BY A CORRECTION FACTOR "F".

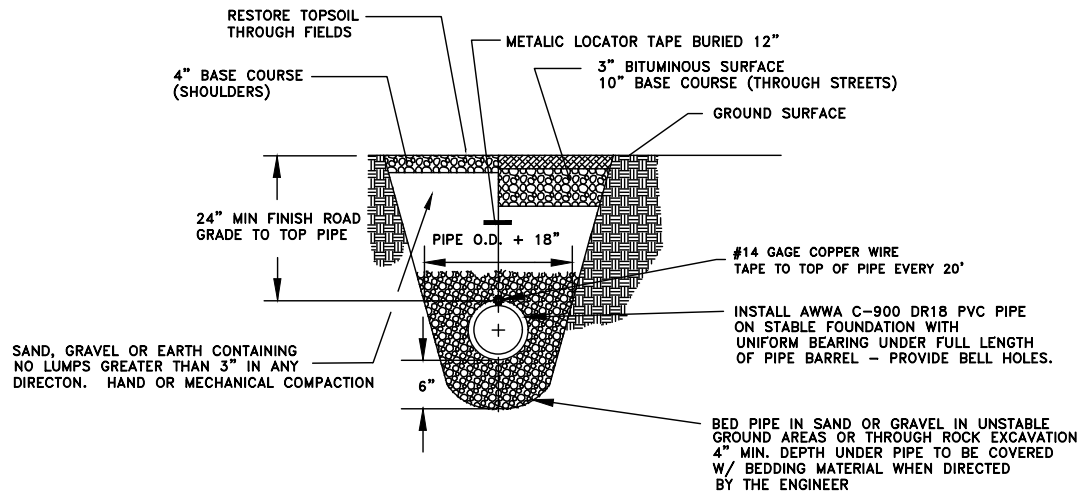
$$F = \frac{\text{ACTUAL SPECIFIED TEST PRESSURE IN HUNDREDS OF LBS./SQ. IN.}}{\text{ACTUAL SOIL BEARING CAPACITY IN THOUSANDS OF LBS.}}$$

EXAMPLE: TO FIND BEARING AREA FOR 8"-90° BEND WITH A STATIC INTERNAL PRESSURE OF 150 P.S.I AND WITH A SOIL BEARING CAPACITY OF 3000 LBS. PER SQ. FT.
 $F = 1.5 \div 3 = 0.5$ TABULATED VALUE = 7.1 SQ. FT.
 $0.5 \times 7.1 = 3.56$ SAU 4 SQ. FT. OR 2FT. LONG BY 2FT. HIGH.

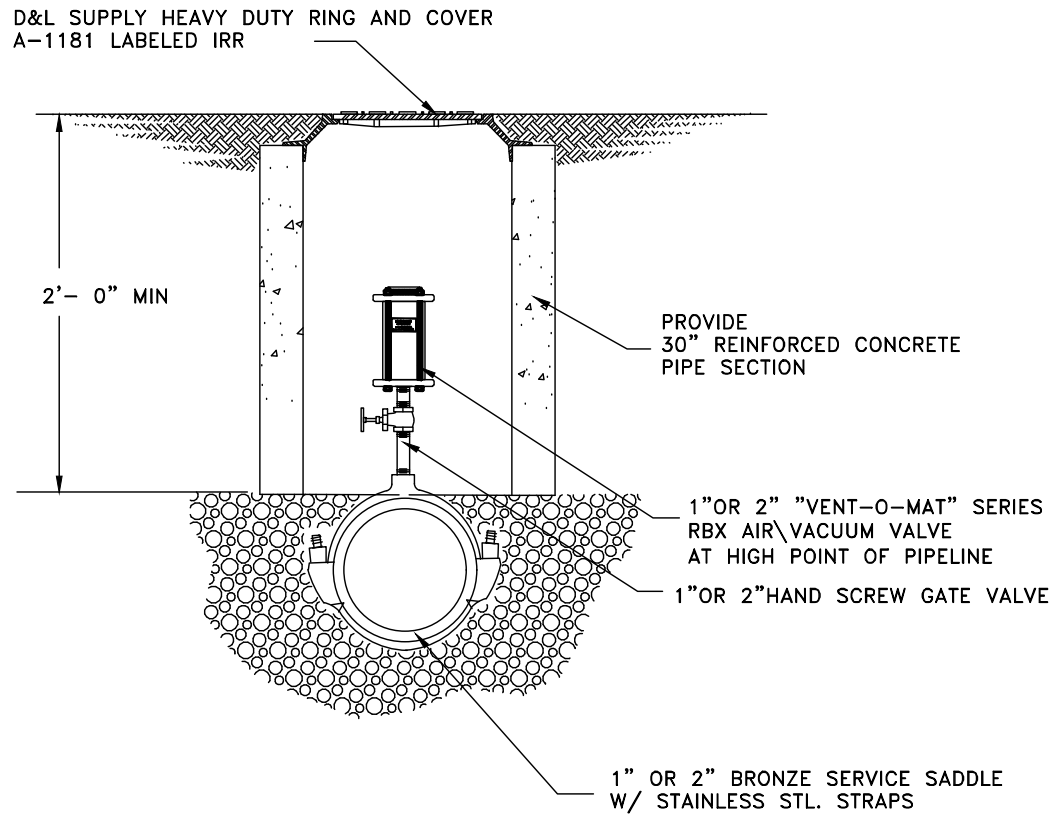
THRUST BLOCK DETAIL 1
NTS



RESILIENT SEAT GATE VALVE DETAIL 4
NTS



TRENCH DETAIL 2
NTS



1" AIR/VAC VALVE DETAIL 5
NTS

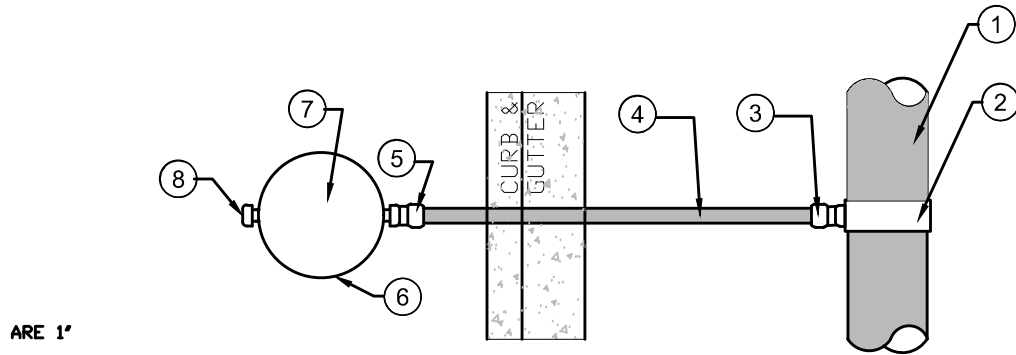
Date: 11-3-17	Scale: NTS	Designed: TN	Drafted: TN	Checked: DW
Revisions	Description	Date		

PRESSURIZED SECONDARY WATER SYSTEM
 WOLF CREEK WATER AND SEWER
 IMPROVEMENT DISTRICT
 OGDEN VALLEY, WEBER, UTAH

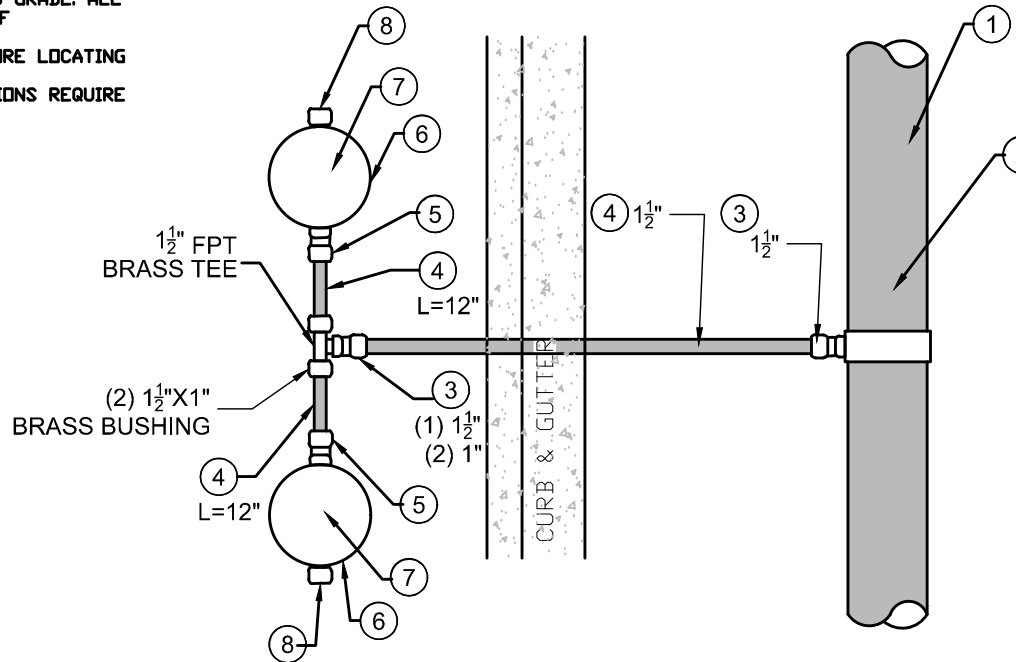
GARDNER ENGINEERING
 CIVIL • LAND PLANNING
 MUNICIPAL • LAND SURVEYING
 5150 SOUTH 375 EAST OGDEN, UT
 OFFICE: 801.476.0202 FAX: 801.476.0066

SW4

6



SINGLE SERVICE



DOUBLE SERVICE

NOTES:

1. ALL SERVICE LINE AND FITTINGS ARE 1' UNLESS NOTED OTHERWISE.
2. INSTALL PLASTIC COATED #14 SOLID COPPER TRACING WIRE ON ALL MAINLINE PIPE. RUN WIRE UP THE OUTSIDE OF BOTTOM OF VALVE BOX THEN THROUGH THE INSIDE OF THE TOP PORTION OF THE BOX WITH TWO FEET OF WIRE EXTENDING ABOVE FINISHED GRADE. ALL SPLICES MADE WITH WATER PROOF CONNECTIONS.
3. OBTAIN DISTRICT APPROVAL BEFORE LOCATING METER IN ROADWAY.
4. ALL COMPRESSION-TYPE CONNECTIONS REQUIRE S.S. INSERT STIFFENERS.

- 1 MAIN LINE (PURPLE IN COLOR) 4-12" C-900 DR-18 - ANYTHING ABOVE 12" TO BE APPROVED BY SWWID IN WRITING.
- 2 SERVICE SADDLE MUELLER DR2S OR FORD FC202, HOT TAPPING WITHOUT A SADDLE IS NOT ALLOWED.
- 3 COMPRESSION FITTING - MUELLER H-15428 OR FORD C8444QNL.
- 4 SDR 9 CTS POLY (PURPLE IN COLOR) NOTE SLOPE MIN 2% FROM SERVICE BACK TO MAIN. INSTALL 2" WIDE METALLIC WARNING TAPE 6" ABOVE SERVICE LINE BETWEEN MAIN AND METER.
- 5 COMPRESSION FITTING MUELLER H 15451 N OR FORD C1444 QNL
- 6 METER BOX ASSEMBLY FORD PK 488-18-95059-015 OR MUELLER 3310I51818FAAS00507N SEE DETAILS AT LEFT. PURPLE POLYMER COVER STAMPED 'IRRIGATION'
- 7 WATER METER: NEPTUNE MACH 10 ULTRASONIC FURNISHED AND INSTALLED BY WCWSID PAID BY CUSTOMER.
- 8 1" BRASS CAP
- 9 14"x19"x12" PURPLE CARSON DR EQUIV. CONTROL VALVE BOX AND LID. PURPLE LID COVER STAMPED 'IRRIGATION'
- 10 2"x2"x12" VALVE BOX MARKERS MUST BE SET ADJACENT TO EVERY VALVE & METER.

Date: 6-28-18
Scale: NTS
Designed: DW
Drafted: KAN
Checked: DW

Revisions	Description
Date	























SERVICE CONNECTION
WOLF CREEK WATER AND SEWER
IMPROVEMENT DISTRICT
OGDEN VALLEY, WEBER, UTAH



SW5
6

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ELECTRICAL SYMBOLS	
SYMBOL	EXPLANATION
	THERMOSTAT OUTLET
	PHOTOCELL
	DOOR ACCESS CONTROL DOOR STRIKE
	DOOR ACCESS CONTROL DOOR SENSOR
	CONTROL SWITCH (LETTERS INDICATES CONTROL OF CORRESPONDING FIXTURES CONTROLLED)
	SWITCH (SUBSCRIPT AS INDICATED BELOW)
2	TWO POLE OR TWO RELAY SWITCH
3	3-WAY SWITCH
D	DIMMER SWITCH
T	TIME SWITCH
M	MANUAL STARTER WITH THERMAL OVERLOAD
F	PADDLE FAN SPEED CONTROL. (CANARM "CN" SERIES)
OC	OCCUPANCY SENSOR SWITCH
F1	FIXTURE TYPE SYMBOL
	WALL PACK
	STRIP
	EMERGENCY LIGHTING UNIT
	BRANCH CIRCUIT CONCEALED IN CEILING OR WALL
	BRANCH CIRCUIT CONCEALED IN GROUND OR FLOOR
	BRANCH CIRCUIT HOMERUNS TO PANEL
	LIGHTING AND POWER PANELBOARD
	NON-FUSED DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
	VARIABLE FREQUENCY DRIVE
	CONDUIT STUB
	JUNCTION BOX
	DUPLEX RECEPTACLE OUTLET
	+44" MODIFIER A-3 PANEL SPACE ASSIGNMENT WP MODIFIER
WP	WEATHERPROOF COVER & LISTED WEATHER RESISTANT DEVICE
GFCI	PROTECTED BY FAULT CIRCUIT INTERRUPTER
+44	MOUNTING HEIGHT ABOVE FLOOR OR GRADE IN INCHES
NOTE: ALL SYMBOLS MAY NOT BE USED.	

ELECTRICAL GENERAL NOTES:

- WHERE REFERENCED, POWER UTILITY IS ROCKY MOUNTAIN POWER. COORDINATE WITH JUAN GOMEZ WRN 8825985.
- REVIEW AND COORDINATE WITH ARCHITECTURAL, CIVIL, STRUCTURAL, MECHANICAL, PLUMBING, AND OTHER DRAWINGS PRIOR TO BID.
- NOTIFY AND COOPERATE WITH THE MECHANICAL CONTRACTOR SUCH THAT NO DUCTS, 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 OTHER AREAS.
- VERIFY EXACT LOCATION(S) OF ALL EQUIPMENT TO BE FURNISHED BY OTHERS PRIOR TO ROUGH-IN.
- PERFORM ALL WORK IN A WORKMANLIKE MANNER, PER INDUSTRY STANDARD, AND TO THE SATISFACTION OF THE ARCHITECT AND ENGINEER. WORK, MATERIALS, AND EQUIPMENT SHALL CONFORM TO THE LATEST EDITIONS OF LOCAL, STATE AND NATIONAL CODES, STANDARDS AND ORDINANCES.
- FINAL CONNECTIONS TO EQUIPMENT SHALL BE MADE AS PER MANUFACTURERS WRITTEN INSTRUCTIONS AND APPROVED WIRING DIAGRAMS AND DETAILS. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO PROVIDE ALL MATERIALS AND EQUIPMENT COMPATIBLE WITH EQUIPMENT ACTUALLY SUPPLIED. THE ELECTRICAL CONTRACTOR SHALL VERIFY ALL ELECTRICAL LOADS (VOLTAGE, PHASE, CONNECTION REQUIREMENTS, ETC,) OF EQUIPMENT FURNISHED UNDER OTHER DIVISIONS WITH APPROVED SHOP DRAWINGS PRIOR TO BEGINNING ROUGH-IN.
- ALL MATERIALS USED IN THIS INSTALLATION SHALL BE U.L. APPROVED AND NEW.
- VISIT THE PROJECT SITE DURING THE BIDDING PROCESS TO DETERMINE THE TOTAL SCOPE OF THE PROJECT.
- DO NOT PENETRATE STRUCTURAL ELEMENTS OF FLOORS, WALLS, CEILINGS, ROOF, ETC.

Sheet List Table

Sheet Number	Sheet Title
E01	ELECTRICAL COVER SHEET
E02	ELECTRICAL SPECIFICATIONS
E03	ELECTRICAL SPECIFICATIONS
E04	ELECTRICAL SPECIFICATIONS
E11	ELECTRICAL PLAN
E51	ONE-LINE DIAGRAM
E52	SERVICE GROUNDING DETAIL
E53	PLC WIRING DIAGRAMS
E54	WIRING DIAGRAMS
E55	DETAILS
E56	DETAILS
E57	DETAILS
E61	EQUIPMENT SCHEDULES
E62	PANEL SCHEDULES



ELECTRICAL COVER SHEET
WCWSID - EAST WELL
5665 EAST ELK HORN DRIVE
EDEN, WEBER, UTAH



E01

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ELECTRICAL SPECIFICATIONS

GENERAL PROVISION

- A. REFERENCE
- THE GENERAL CONDITIONS AND OTHER CONTRACT DRAWINGS AS SET FORTH IN THE FOREGOING PAGES ARE HEREBY INCORPORATED INTO AND BECOME A PART OF THE SPECIFICATIONS FOR WORK UNDER THIS TITLE, INsofar AS THEY APPLY HERETO.
 - ALL SPECIFICATIONS UNDER THIS DIVISION TITLE ARE DIRECTED TO AND ARE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR, UNLESS OTHER TRADES OR PERSONS ARE SPECIFICALLY MENTIONED, "ELECTRICAL CONTRACTOR" IS INFERRED AND INTENDED.
- B. CONTRACT DRAWINGS
- THE DRAWINGS ACCOMPANYING THESE SPECIFICATIONS ARE COMPLEMENTARY EACH TO THE OTHER AND WHAT IS CALLED FOR BY ONE SHALL BE AS IF CALLED FOR BY BOTH.
 - CONSULT ALL CONTRACT DRAWINGS WHICH MAY AFFECT THE LOCATION OF EQUIPMENT, CONDUIT AND WIRING AND MAKE MINOR ADJUSTMENTS IN LOCATION TO SECURE COORDINATION.
 - WIRING LAYOUT IS SCHEMATIC AND EXACT LOCATIONS SHALL BE DETERMINED BY FIELD CONDITIONS.
 - OTHER THAN MINOR ADJUSTMENTS SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR APPROVAL BEFORE PROCEEDING WITH THE WORK.
- C. JOB-SITE COPY OF DOCUMENTS
- MAINTAIN AT THE SITE, ONE COPY OF ALL DRAWINGS, SPECIFICATIONS, ADDENDA APPROVED SHOP DRAWINGS, CHANGE ORDERS AND OTHER MODIFICATIONS, IN GOOD ORDER AND MARKED TO RECORD ALL CHANGES MADE DURING CONSTRUCTION. THESE SHALL BE AVAILABLE TO THE OWNER'S REPRESENTATIVE. THE DRAWINGS MARKED TO RECORD ALL CHANGES MADE DURING CONSTRUCTION SHALL BE DELIVERED TO THE OWNER'S REPRESENTATIVE FOR THE OWNER UPON COMPLETION OF THE WORK. AN ADDITIONAL SET OF DRAWINGS WILL BE FURNISHED BY THE OWNER'S REPRESENTATIVE FOR THIS PURPOSE UPON REQUEST.
- D. MANUFACTURER'S DRAWINGS
- THE CONTRACTOR SHALL SUBMIT TO THE ARCHITECT FOR REVIEW, (6) COPIES OF MANUFACTURER'S DRAWINGS AND WIRING DIAGRAMS. THE ENGINEER WILL REVIEW CONTRACTOR'S SHOP DRAWINGS AND RELATED SUBMITTALS (AS INDICATED BELOW) WITH RESPECT TO THE ABILITY OF THE DETAILED WORK, WHEN COMPLETE, TO BE A PROPERLY FUNCTIONING INTEGRAL ELEMENT OF THE OVERALL SYSTEM DESIGNED BY THE ENGINEER. BEFORE SUBMITTING A SHOP DRAWING OR ANY RELATED MATERIAL TO THE ENGINEER, CONTRACTOR SHALL: REVIEW EACH SUCH SUBMISSION FOR CONFORMANCE WITH THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND OPERATIONS OF CONSTRUCTION, AND SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL THERETO, ALL OF WHICH ARE THE SOLE RESPONSIBILITY OF CONTRACTOR; APPROVE EACH SUCH SUBMISSION BEFORE SUBMITTING IT; AND SO STAMP EACH SUCH SUBMISSION BEFORE SUBMITTING IT. THE ENGINEER SHALL ASSUME THAT NO SHOP DRAWING OR RELATED SUBMITTAL COMPRISES A VARIATION UNLESS CONTRACTOR ADVISES ENGINEER OTHERWISE VIA A WRITTEN INSTRUMENT WHICH IS ACKNOWLEDGED BY ENGINEER IN WRITING. THE ITEMS, TYPES OF SUBMITTALS AND RELATED MATERIAL (IF ANY) CALLED FOR ARE INDICATED BELOW:
- | ITEMS | TYPE SUBMITTALS REQUESTED |
|---------------------------|---------------------------|
| LIGHTING AND POWER PANELS | SHOP DRAWINGS |
| LIGHTING FIXTURES | CATALOG CUTS |
- E. GUARANTEES
- THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEFECTS, REPAIRS AND REPLACEMENTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR AFTER DATE OF SUBSTANTIAL COMPLETION AS DETERMINED BY THE OWNER'S REPRESENTATIVE. PRODUCT GUARANTEES GREATER THAN ONE (1) YEAR SHALL BE PASSED ALONG TO THE OWNER FOR FULL BENEFIT OF THE MANUFACTURER'S WARRANTY.

WORK INCLUDED

- A. INSTALLATION, MATERIALS, AND WORKMANSHIP
- FURNISH AND INSTALL ALL NECESSARY ANCHORS, SUPPORTS, STRAPS, BOXES, FITTINGS AND OTHER SIMILAR APPURTENANCES NOT INDICATED ON THE DRAWINGS BUT WHICH ARE REQUIRED FOR A COMPLETE AND PROPERLY INSTALLED SYSTEM CONSISTENT WITH THE ARCHITECTURAL TREATMENT OF THE BUILDING.
 - THE ELECTRICAL CONTRACTOR, INsofar AS THE WORK IS CONCERNED, SHALL AT ALL TIMES KEEP THE PREMISES IN A NEAT AND ORDERLY CONDITION. AND AT THE COMPLETION OF THE WORK, SHALL PROPERLY CLEAN UP AND CART AWAY DEBRIS AND EXCESS MATERIALS. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF DUMPSTER & REFUSED DISPOSAL AS REQUIRED FOR ELECTRICAL WORK.
 - ALL MATERIALS SHALL BE NEW AND UNDETERIORATED AND OF A QUALITY NOT LESS THAN THE MINIMUM SPECIFIED.
- B. COORDINATION OF PLANS AND SPECIFICATIONS
- CONTACT THE OWNER'S REPRESENTATIVE IMMEDIATELY IF THERE IS ANY QUESTIONS REGARDING THE MEANING OR INTENT OF EITHER PLANS OR SPECIFICATIONS, OR UPON NOTICING ANY DISCREPANCIES OR OMISSIONS IN EITHER PLANS OR SPECIFICATIONS.
- C. CUTTING AND PATCHING
- ALL ELECTRICAL EQUIPMENT SHALL BE KEPT DRY AND CLEAN DURING THE CONSTRUCTION PERIOD. INTERIOR OF ALL ENCLOSURES SHALL BE CLEANED OF DIRT AND DEBRIS BEFORE INSTALLING TRIM OR COVERS.
 - ALL FINISHED SURFACES OF EQUIPMENT FURNISHED UNDER THIS CONTRACT SHALL BE THOROUGHLY CLEANED OF DIRT AND ALL SCRATCHED OR DAMAGED SURFACES SHALL BE TOUCHED UP WITH MATCHING MATERIALS BEFORE FINAL ACCEPTANCE OF THE WORK.
 - WHEN ALL WORK IS COMPLETED AND ALL WORK HAS BEEN SATISFACTORILY TESTED AND ACCEPTED BY THE OWNER'S REPRESENTATIVE, ALL CONDUIT AND OTHER EXPOSED SURFACES SHALL BE THOROUGHLY CLEANED.

CODES AND FEES

- A. CODES:
- ALL WORK PERFORMED UNDER THIS SPECIFICATION SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AS PREPARED AND PUBLISHED BY THE NATIONAL FIRE PROTECTION ASSOCIATION AND ANY APPLICABLE STATE OR LOCAL CODES.
- B. FEES:
- OBTAIN AND PAY FOR ANY AND ALL PERMITS REQUIRED BY ALL LAWS AND REGULATIONS AND PUBLIC AUTHORITY HAVING SUCH JURISDICTION.

TESTS AND INSPECTIONS

- A. OBTAIN ALL INSPECTIONS REQUIRED BY ALL LAWS, ORDINANCES, RULES, REGULATIONS OR PUBLIC AUTHORITY HAVING JURISDICTION AND OBTAIN CERTIFICATES OF SUCH INSPECTIONS AND SUBMIT SAME TO THE OWNER'S REPRESENTATIVE. PAY ALL FEES, CHARGES AND OTHER EXPENSES IN CONNECTION THEREIN. OBTAIN OCCUPANCY PERMIT AS REQUIRED BY OWNER. FINAL PAYMENT SHALL NOT BE MADE UNTIL OCCUPANCY PERMIT IS OBTAINED.
- B. WORK SHALL BE UNACCEPTABLE WHEN FOUND TO BE DEFECTIVE OR CONTRARY TO THE PLANS SPECIFICATIONS, CODES SPECIFIED OR ACCEPTED STANDARDS OF GOOD WORKMANSHIP.
- C. THE CONTRACTOR SHALL PROMPTLY CORRECT ALL WORK FOUND UNACCEPTABLE BY THE OWNER'S REPRESENTATIVE WHETHER OBSERVED BEFORE OR AFTER SUBSTANTIAL COMPLETION AND WHETHER OR NOT FABRICATED, INSTALLED OR COMPLETED. THE CONTRACTOR SHALL BEAR ALL COSTS OF CORRECTING SUCH UNACCEPTABLE WORK, INCLUDING COMPENSATION FOR THE OWNERS REPRESENTATIVE ADDITIONAL SERVICES MADE NECESSARY THEREBY.

CONDUIT

- A. FURNISH AND INSTALL ALL CONDUITS, BOXES, FITTINGS, ETC., FOR A COMPLETE RACEMAY SYSTEM.
- B. ALL WIRING SHALL BE RUN IN EMT CONDUIT OR MC CABLE WITH GROUND CONDUCTOR UNLESS OTHERWISE NOTED.
- C. ALL CONDUIT SIZES STATED HEREIN OR MARKED ON THE DRAWINGS ARE MINIMUM SIZE AND SHALL BE NO LESS THAN 1/2" UNLESS OTHERWISE NOTED.
- D. ALL CONDUIT SHALL BE SUBSTANTIALLY SUPPORTED BY PIPE STRAPS OR SUITABLE CLAMPS OR HANGERS ATTACHED TO THE ELEMENTS OF THE BUILDING STRUCTURE TO PROVIDE RIGID INSTALLATION; IN NO CASE SHALL CONDUIT BE ATTACHED OR SUPPORTED FROM ADJOINING PIPE OR INSTALLED IN SUCH A MANNER AS TO PREVENT THE READY REMOVAL OF OTHER PIPE FOR REPAIRS.

WIRE AND CABLE

- A. ALL CONDUCTORS SHALL BE COPPER AND OF THE AWG SIZE AND TYPE SHOWN ON THE DRAWINGS. WHERE NO SIZE OR TYPE IS SHOWN. CONDUCTORS SHALL NOT BE LESS THAN #12 TYPE XHHW, THHN, OR THWN. CONDUCTORS #8 AWG AND LARGER SHALL BE STRANDED COPPER AND HAVE 600 VOLT INSULATION; BE UL LABELED AND OF AMERICAN MANUFACTURER.
- B. ALL BRANCH CIRCUITS IN PATIENT CARE AREAS SHALL BE MEDICAL GRADE MC CABLE.
- C. ALL BRANCH CIRCUITS IN OFFICE AND COMMON AREAS SHALL BE TYPE NM OR MC CABLE.
- D. ALL CONNECTIONS ARE TO BE MADE USING PRESSURE TYPE TERMINALS.
- E. THE FOLLOWING COLOR CODE SHALL BE USED:
- | | 120/240 VOLT | 120/208 VOLT | 277/480 VOLT |
|---------|--------------|--------------|--------------|
| PHASE A | BLACK | BLACK | BROWN |
| PHASE B | RED | RED | ORANGE |
| PHASE C | | BLUE | YELLOW |
| NEUTRAL | WHITE | WHITE | WHITE |
| GROUND | GREEN | GREEN | GREEN |
- F. CONDUCTORS NO. 10 AWG OR SMALLER SHALL HAVE INSULATION COLORED AS NOTED ABOVE.
- G. CONDUCTORS NO. 8 AWG OR LARGER SHALL HAVE INSULATION COLORED AS NOTED ABOVE OR COLORED TAPE, MINIMUM SIZE 1/2", WRAPPED TWICE AROUND AT THE FOLLOWING POINTS:
- AT EACH TERMINAL
 - AT EACH CONDUIT ENTRANCE
 - AT INTERVALS NOT MORE THAN 12 INCHES APART IN ALL BOXES, PANEL TUBS, SWITCHBOARDS, ETC
- H. ALL BRANCH CIRCUITS SHALL BE MARKED IN THE PANEL BOARD GUTTERS. MARKERS SHALL INDICATE CORRESPONDING BRANCH—CIRCUIT NUMBERS.
- I. EACH BRANCH CIRCUIT REQUIRING A NEUTRAL SHALL BE FURNISHED WITH A SEPARATE INDIVIDUAL NEUTRAL CONDUCTOR.

BOXES AND PLATES

- A. FURNISH AND INSTALL ALL OUTLET, JUNCTION, AND PULL BOXES AS INDICATED ON THE DRAWINGS AND AS NECESSARY TO INSTALL THE REQUIRED CONDUIT AND WIRING IN A NEAT AND WORKMANLIKE MANNER.
- B. PULL BOXES AND JUNCTION BOXES SHALL BE GALVANIZED AND OF THE CORRECT SIZE AND GAUGE, SIZED IN ACCORDANCE WITH CODE REQUIREMENTS AND SHALL BE U.L. LABELED.
- C. BOXES AT EXTERIOR AREAS TO BE WATERTIGHT AND DUST-TIGHT WITH GASKETED COVERS.
- D. ALL BOXES FOR EXPOSED WORK IN FINISHED SPACES SHALL BE "FS" TYPE WITH THREADED HUBS WITH RIGID CONDUIT RISER (DEEP WIRE MOLD BOXES)
- E. ALL BOXES SHALL BE RIGIDLY SUPPORTED INDEPENDENT OF THE CONDUIT SYSTEM. BOXES CAST INTO MASONRY OR CONCRETE ARE CONSIDERED TO BE RIGIDLY SUPPORTED.
- F. UNDERGROUND BOXES/ENCLOSURES:
- DESCRIPTION: IN-GROUND, OPEN BOTTOM BOXES FURNISHED WITH FLUSH, NON-SKID COVERS WITH LEGEND INDICATING TYPE OF SERVICE AND STAINLESS STEEL TAMPER RESISTANT COVER BOLTS.
 - SIZE: AS INDICATED ON DRAWINGS.
 - DEPTH: AS REQUIRED TO EXTEND BELOW FROST LINE TO PREVENT FROST UPHEAVAL, BUT NOT LESS THAN 12 INCHES.
 - APPLICATIONS:
 - SIDEWALKS AND LANDSCAPED AREAS SUBJECT ONLY TO OCCASIONAL NONDELIBERATE VEHICULAR TRAFFIC: USE POLYMER CONCRETE OR COMPOSITE ENCLOSURE WITH MINIMUM SCTE 77, TIER 8 LOAD RATING.
 - PARKING LOTS, IN AREAS SUBJECT ONLY TO OCCASIONAL NONDELIBERATE VEHICULAR TRAFFIC: USE POLYMER CONCRETE OR COMPOSITE ENCLOSURE WITH MINIMUM SCTE 77, TIER 15 LOAD RATING.
 - DO NOT USE POLYMER CONCRETE ENCLOSURES IN AREAS SUBJECT TO DELIBERATE VEHICULAR TRAFFIC.
- G. COMPOSITE UNDERGROUND BOXES/CONCLOSURES: COMPLY WITH SCTE 77.

WIRING DEVICES

- A. WIRING DEVICES SHALL BE SIMILAR TO THOSE LISTED BELOW AND OF SPECIFIED AMPERAGE. OTHER SPECIAL PURPOSE DEVICES SHALL BE AS SPECIFIED ON THE DRAWINGS.
- B. DUPLEX GROUNDING TYPE RECEPTACLE—20 AMP, 125 VOLT—
- HUBBELL—5352
 - ARROW HART—5352
- C. SINGLE POLE SWITCHES – 20 AMP, 120 VOLT
- D. WEATHERPROOF RECEPTACLES – 20 AMP, 125 VOLT—NEMA 5—20R
- HUBBELL—5352 WITH 5205 COVER INTERMATIC GUARDIAN
 - I SERIES, NEMA 3R COVER
 - ARROW HART—5352 WITH 4500 COVER
- E. G.F.C.I. RECEPTACLE— 20 AMP, 125 VOLT—NEMA 5-20 R
- HUBBELL— GF 5262 WITH MATCHING NYLON COVER PLATE OR WO-26 W.P. COVER
- F. GROUND ALL RECEPTACLES IN ACCORDANCE WITH ARTICLE 250-146 OF NEC AND AS INDICATED IN THE GROUNDING SECTION OF THIS SPECIFICATION.
- G. PROVIDE TAMPER RESISTANT RECEPTACLES PER NEC 406.12.

IDENTIFICATION

- A. EACH PIECE OF SERVICE EQUIPMENT AND INDIVIDUAL SWITCHES, ALL DISCONNECTS, STARTERS, ALL EXHAUST FAN MANUAL STARTING SWITCHES.
- B. IDENTIFICATION SHALL BE IN THE FORM OF LAMINATED PLASTIC NAMEPLATES, BLACK RACE, WITH THE LETTERS ENGRAVED INTO THE WHITE BACKGROUND, MINIMUM 1/4" HIGH. PLATES SHALL BE DRILLED ON EACH END FOR SHEET METAL SCREW ATTACHMENT. NO "DYMO" OR SIMILAR TYPE LABELS WILL BE ALLOWED.
- C. PANEL BOARD DIRECTORY: A TYPED CIRCUIT DIRECTORY SHALL BE PROVIDED INDICATING LOCAL AREA SERVED AND LOCATION FOR EACH BRANCH CIRCUIT.

GROUNDING

- A. ALL FEEDERS AND BRANCH CIRCUITS OVER 100 VOLTS SHALL INCLUDE A GROUNDING CONDUCTOR SIZED IN ACCORDANCE WITH NEC TABLE 250-122, EXCEPT NOT BE SMALLER THAN #12 FOR POWER AND LIGHTING CIRCUITS AND #14 FOR CONTROL CIRCUITS. ALL GROUND CONDUCTORS SHALL BE GREEN, OR AS SPECIFIED UNDER "WIRE AND CABLE".
- B. ALL GROUND CLAMPS SHALL BE PENN-UNION "GPL" TYPE OR SIMILAR BY O.Z. OR BURNDY.
- C. CONDUIT FOR SOLITARY GROUND CONDUCTORS SHALL BE RIGID SCHEDULE 40 PVC NON- METALLIC ELECTRICAL CONDUIT WITH U.L. LABEL SOLITARY GROUND CONDUCTORS SHALL NOT BE PLACED THROUGH METALLIC SLEEVES OR CONDUITS AND SHALL NOT BE COMPLETELY ENCLOSED BY METALLIC HANGERS OR SUPPORTS.
- D. THE GROUND CONDUCTOR SHALL BE CONNECTED TO THE NEUTRAL IN ONLY TWO LOCATIONS —ON THE SUPPLY SIDE OF THE SERVICE DISCONNECT MEANS PER NEC—250—24 AND ON SEPARATELY DERIVED SYSTEMS PER NEC 250-30.
- E. AT EACH RECEPTACLE BOX, THE GROUND CONDUCTOR SHALL ENTER AND CONNECT, WITH NORMAL WIRING CONNECTOR, TO: 1) THE GROUND PIGTAIL TO RECEPTACLE; 2) THE GROUND PIGTAIL TO THE BOX GROUND SCREW; AND 3) THE OUTGOING GROUND CONDUCTOR TO NEXT DEVICE, IF NOT AT END OF RUN. METAL TO METAL CONTACT BETWEEN THE DEVICE YOKE AND THE OUTLET BOX IS NOT ACCEPTABLE AS A BOND FOR EITHER SURFACE. MOUNTED BOXES OR FLUSH TYPE BOXES.
- F. CONDUIT SYSTEM SHALL BE ELECTRICALLY CONTINUOUS. ALL LOCK NUTS SHALL CUT THROUGH ENAMELED OR PAINTED SURFACES ON ENCLOSURES. WHERE ENCLOSURES AND NON-CURRENT CARRYING METALS ARE ISOLATED FROM THE CONDUIT SYSTEM, USE BONDING JUMPERS WITH APPROVED CLAMPS. WHERE REDUCING WASHERS ARE USED AND WHERE CONCENTRIC OR ECCENTRIC KNOCKOUTS ARE NOT COMPLETELY REMOVED BONDING BUSHINGS SHALL BE REQUIRED.

POWER AND LIGHTING PANELS

- A. FURNISH AND INSTALL, AS SCHEDULED AND SHOWN ON THE DRAWINGS, POWER PANELS FOR OPERATION ON VOLTAGES INDICATED.
- B. ALL TERMINATIONS SHALL BE MARKED "75° C ONLY", "60/75° C" OR LISTED FOR USE OF 75° C INSULATED CONDUCTORS AT FULL 75° C AMPACITY.
- C. ALL BUS BARS SHALL BE SILVER OR TIN PLATED COPPER.
- D. CABINETS SHALL BE OF COMMERCIAL GALVANIZED SHEET STEEL, CODE GAUGE AND SIZE, SURFACE OR RECESSED MOUNTED AS CALLED FOR IN THE DRAWINGS.
- E. NEUTRAL ASSEMBLY SHALL HAVE INDIVIDUAL ANTI-TURN SOLDERLESS TERMINALS, SIMILAR TO SQUARE D TYPE PK, FOR CONNECTION OF ULTIMATE NUMBER OF NEUTRAL WIRES. SHEET METAL TERMINAL STRIPS AND CONNECTIONS WILL BE REJECTED.
- F. PANEL SHALL HAVE A COPPER GROUND BAR SIMILAR TO NEUTRAL BAR IN NUMBER, SIZE, AND TYPE OF ANTI-TURN SOLDERLESS LUGS. THIS GROUND BAR SHALL BE FACTORY BONDED TO THE PANEL TUB IN THE GUTTER SPACE OPPOSITE THE MAINS AND THE NEUTRAL ASSEMBLY AND SHALL HAVE THE SCREWDRIWER SLOTS FACING THE FRONT OF THE PANEL.
- G. QUALITY STANDARD: SQUARE D TYPE NQ00

LIGHTING FIXTURES

- A. CONTRACTOR SHALL FURNISH AND INSTALL LIGHTING FIXTURES AND LAMPS AS INDICATED IN FIXTURE SCHEDULE SHOWN ON DRAWINGS, AND SPECIFIED HEREIN.
- B. NEUTRAL ASSEMBLY SHALL HAVE INDIVIDUAL ANTI-TURN SOLDERLESS TERMINALS, SIMILAR TO SQUARE D TYPE PK, FOR CONNECTION OF ULTIMATE NUMBER OF NEUTRAL WIRES. SHEET METAL TERMINAL STRIPS AND CONNECTIONS WILL BE REJECTED.
- C. ALL LAMP HOLDERS INSTALLED BY THE ELECTRICAL CONTRACTOR SHALL BE FURNISHED COMPLETE WITH NEW LAMPS OF THE SIZE INDICATING ON THE FIXTURE SCHEDULE.
- D. LAMP CURRENT CREST FACTOR SHALL NOT EXCEED 1.8 AND SHALL BE COMPATIBLE WITH BALLAST BEING UTILIZED (PROGRAM START ELECTRONIC BALLAST SHALL BE USED).
- E. ANY FIXTURES SCRATCHED, BENT, CRACKED OR IN ANY WAY DAMAGED BEFORE ACCEPTANCE BY OWNER SHALL BE REPLACED AT THIS CONTRACTOR'S EXPENSE.
- F. ALL LAMPS SHALL BE IN WORKING ORDER AT THE TIME OF FINAL ACCEPTANCE OF THE WORK BY THE OWNER.
- G. ALL LIGHTING FIXTURES ARE TO BE GROUNDED ON THE INTERIOR OF THE FIXTURE HOUSING, ON CLEAN BARE METAL (FREE OF PAINT). BY USE OF PIGTAIL AND FASTENED BY A SCREW USED FOR NO OTHER PURPOSE.
- H. COMMISSIONING
- C408.3 LIGHTING SYSTEM FUNCTIONAL TESTING. CONTROLS FOR AUTOMATIC LIGHTING SYSTEMS SHALL COMPLY WITH SECTION C408.3.
 - C408.3.1 FUNCTIONAL TESTING. TESTING SHALL ENSURE THAT CONTROL HARDWARE AND SOFTWARE ARE CALIBRATED, ADJUSTED, PROGRAMMED AND IN PROPER WORKING CONDITION IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND MANUFACTURER'S INSTALLATION INSTRUCTIONS. THE CONTRACTOR SHALL CONDUCT THE REQUIRED FUNCTIONAL TESTING. WHERE REQUIRED BY THE CODE OFFICIAL, AN APPROVED PARTY INDEPENDENT FROM THE DESIGN OR CONSTRUCTION OF THE PROJECT SHALL BE RESPONSIBLE FOR THE FUNCTIONAL TESTING AND SHALL PROVIDE DOCUMENTATION TO THE CODE OFFICIAL CERTIFYING THAT THE INSTALLED LIGHTING CONTROLS MEET THE PROVISIONS OF SECTION C405. WHERE OCCUPANT SENSORS, TIME SWITCHES, PROGRAMMABLE SCHEDULE CONTROLS, PHOTOSENSORS OR DAYLIGHTING CONTROLS ARE INSTALLED, THE FOLLOWING PROCEDURES SHALL BE PERFORMED:
 - CONFIRM THAT THE PLACEMENT, SENSITIVITY AND TIME-OUT ADJUSTMENTS FOR OCCUPANT SENSORS YIELD ACCEPTABLE PERFORMANCE.
 - CONFIRM THAT THE TIME SWITCHES AND PROGRAMMABLE SCHEDULE CONTROLS ARE PROGRAMMED TO TURN THE LIGHTS OFF.
 - CONFIRM THAT THE PLACEMENT AND SENSITIVITY ADJUSTMENTS FOR PHOTOSENSOR CONTROLS REDUCE ELECTRIC LIGHT BASED ON THE AMOUNT OF USABLE DAYLIGHT IN THE SPACE AS SPECIFIED.

VARIABLE-FREQUENCY MOTOR CONTROLLERS

- A. GENERAL
- SECTION INCLUDES
 - VARIABLE FREQUENCY CONTROLLERS.
 - SUBMITTALS
 - PRODUCT DATA: PROVIDE CATALOG SHEETS SHOWING VOLTAGE, CONTROLLER SIZE, RATINGS AND SIZE OF SWITCHING AND OVERCURRENT PROTECTIVE DEVICES, SHORT CIRCUIT RATINGS, DIMENSIONS, AND ENCLOSURE DETAILS.
 - SHOP DRAWINGS: INDICATE FRONT AND SIDE VIEWS OF ENCLOSURES WITH OVERALL DIMENSIONS AND WEIGHTS SHOWN; CONDUIT ENTRANCE LOCATIONS AND REQUIREMENTS; AND NAMEPLATE LEGENDS.
 - OPERATION DATA: NEMA ICS 7.1. INCLUDE INSTRUCTIONS FOR STARTING AND OPERATING CONTROLLERS, AND DESCRIBE OPERATING LIMITS THAT MAY RESULT IN HAZARDOUS OR UNSAFE CONDITIONS.
 - QUALITY ASSURANCE
 - CONFORM TO REQUIREMENTS OF NFPA 70.
- B. PRODUCTS
- MANUFACTURERS

Date: 11/14/22		Scale:	
Revisions	Description		
Date			



ELECTRICAL SPECIFICATIONS
WCWSID - EAST WELL
5665 EAST ELK HORN DRIVE
EDEN, WEBER, UTAH



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- a. RELIANCE ELECTRIC/ROCKWELL AUTOMATION: WWW.RELIANCE.COM.
b. SIEMENS ENERGY & AUTOMATION: WWW.SEASIEMENS.COM.
c. SCHNEIDER ELECTRIC; SQUARE D PRODUCTS: WWW.SCHNEIDER-ELECTRIC.US.
2. DESCRIPTION
- a. VARIABLE FREQUENCY CONTROLLERS: ENCLOSED CONTROLLERS SUITABLE FOR OPERATING THE INDICATED LOADS, IN CONFORMANCE WITH REQUIREMENTS OF NEMA ICS 7. SELECT UNSPECIFIED FEATURES AND OPTIONS IN ACCORDANCE WITH NEMA ICS 3.1.
- 1) EMPLOY MICROPROCESSOR-BASED INVERTER LOGIC ISOLATED FROM POWER CIRCUITS.
2) EMPLOY PULSE-WIDTH-MODULATED INVERTER SYSTEM.
3) DESIGN FOR ABILITY TO OPERATE CONTROLLER WITH MOTOR DISCONNECTED FROM OUTPUT.
4) DESIGN TO ATTEMPT FIVE AUTOMATIC RESTARTS FOLLOWING FAULT CONDITION BEFORE LOCKING OUT AND REQUIRING MANUAL RESTART.
- b. ENCLOSURES: NEMA 250, TYPE 1, SUITABLE FOR EQUIPMENT APPLICATION IN PLACES REGULARLY OPEN TO THE PUBLIC.
3. OPERATING REQUIREMENTS
- a. RATED INPUT VOLTAGE: 480 VOLTS, THREE PHASE, 60 HERTZ.
b. MOTOR NAMEPLATE VOLTAGE: 480 VOLTS, THREE PHASE, 60 HERTZ.
c. DISPLACEMENT POWER FACTOR: BETWEEN 1.0 AND 0.95, LAGGING, OVER ENTIRE RANGE OF OPERATING SPEED AND LOAD.
d. OPERATING AMBIENT: 0 DEGREES C TO 40 DEGREES C.
e. VOLTS PER HERTZ ADJUSTMENT: PLUS OR MINUS 10 PERCENT.
f. CURRENT LIMIT ADJUSTMENT: 60 TO 110 PERCENT OF RATED.
g. ACCELERATION RATE ADJUSTMENT: 0.5 TO 30 SECONDS.
h. DECELERATION RATE ADJUSTMENT: 1 TO 30 SECONDS.
4. COMPONENTS
- a. DISPLAY: PROVIDE INTEGRAL DIGITAL DISPLAY TO INDICATE OUTPUT VOLTAGE, OUTPUT FREQUENCY, AND OUTPUT CURRENT.
b. STATUS INDICATORS: SEPARATE INDICATORS FOR OVERCURRENT, OVERVOLTAGE, GROUND FAULT, OVERTEMPERATURE, AND INPUT POWER ON.
c. FURNISH HAND-OFF-AUTOMATIC SELECTOR SWITCH AND MANUAL SPEED CONTROL.
d. INCLUDE UNDERVOLTAGE RELEASE.
e. CONTROL POWER SOURCE: SEPARATE CIRCUIT.
f. DOOR INTERLOCKS: FURNISH MECHANICAL MEANS TO PREVENT OPENING OF EQUIPMENT WITH POWER CONNECTED, OR TO DISCONNECT POWER IF DOOR IS OPENED; INCLUDE MEANS FOR DEFEATING INTERLOCK BY QUALIFIED PERSONS.
g. SAFETY INTERLOCKS: FURNISH TERMINALS FOR REMOTE CONTACT TO INHIBIT STARTING UNDER BOTH MANUAL AND AUTOMATIC MODE.
h. CONTROL INTERLOCKS: FURNISH TERMINALS FOR REMOTE CONTACT TO ALLOW STARTING IN AUTOMATIC MODE.
i. EMERGENCY STOP: USE DYNAMIC BRAKES FOR EMERGENCY STOP FUNCTION.
j. DISCONNECTING MEANS: INCLUDE INTEGRAL FUSED DISCONNECT SWITCH ON THE LINE SIDE OF EACH CONTROLLER.
k. WIRING TERMINATIONS: MATCH CONDUCTOR MATERIALS AND SIZES INDICATED.
- C. EXECUTION
1. EXAMINATION
- a. VERIFY THAT SURFACE IS SUITABLE FOR CONTROLLER INSTALLATION.
b. DO NOT INSTALL CONTROLLER UNTIL BUILDING ENVIRONMENT CAN BE MAINTAINED WITHIN THE SERVICE CONDITIONS REQUIRED BY THE MANUFACTURER.
2. INSTALLATION
- a. INSTALL IN ACCORDANCE WITH NEMA ICS 7.1 AND MANUFACTURER'S INSTRUCTIONS.
b. TIGHTEN ACCESSIBLE CONNECTIONS AND MECHANICAL FASTENERS AFTER PLACING CONTROLLER.
3. FIELD QUALITY CONTROL
- a. PROVIDE THE SERVICE OF THE MANUFACTURER'S FIELD REPRESENTATIVE TO PREPARE AND START CONTROLLERS.
b. INSPECT AND TEST IN ACCORDANCE WITH NETA ATS, EXCEPT SECTION 4.
c. PERFORM INSPECTIONS AND TESTS LISTED IN NETA ATS, SECTION 7.17.
4. ADJUSTING
- a. MAKE FINAL ADJUSTMENTS TO INSTALLED CONTROLLER TO ASSURE PROPER OPERATION OF LOAD SYSTEM. OBTAIN PERFORMANCE REQUIREMENTS FROM INSTALLER OF DRIVEN LOADS.
5. CLOSEOUT ACTIVITIES
- a. DEMONSTRATE OPERATION OF CONTROLLERS IN AUTOMATIC AND MANUAL MODES.
6. MAINTENANCE
- a. PROVIDE SERVICE AND MAINTENANCE OF CONTROLLERS FOR ONE YEAR FROM DATE OF SUBSTANTIAL COMPLETION.

LOW-VOLTAGE TRANSFORMERS

- A. GENERAL
1. REFERENCE STANDARDS
- a. 10 CFR 431, SUBPART K - ENERGY EFFICIENCY PROGRAM FOR CERTAIN COMMERCIAL AND INDUSTRIAL EQUIPMENT - DISTRIBUTION TRANSFORMERS; CURRENT EDITION.
b. IEEE C57.94 - RECOMMENDED PRACTICE FOR INSTALLATION, APPLICATION, OPERATION, AND MAINTENANCE OF DRY-TYPE GENERAL PURPOSE DISTRIBUTION AND POWER TRANSFORMERS; INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS; 1982 (R2006).
c. IEEE C57.96 - GUIDE FOR LOADING DRY-TYPE DISTRIBUTION AND POWER TRANSFORMERS; INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS; 1999 (R2004).
d. NECA 1 - STANDARD FOR GOOD WORKMANSHIP IN ELECTRICAL CONSTRUCTION; NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION; 2010.
e. NECA 409 - STANDARD FOR INSTALLING AND MAINTAINING DRY-TYPE TRANSFORMERS; NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION; 2009.
f. NEMA ST 20 - DRY-TYPE TRANSFORMERS FOR GENERAL APPLICATIONS; NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION; 2014.
g. NEMA 250 - ENCLOSURES FOR ELECTRICAL EQUIPMENT (1000 VOLTS MAXIMUM); NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION; 2014
h. NFPA 70 - NATIONAL ELECTRICAL CODE; NATIONAL FIRE PROTECTION ASSOCIATION; MOST RECENT EDITION ADOPTED BY AUTHORITY HAVING JURISDICTION, INCLUDING ALL APPLICABLE AMENDMENTS AND SUPPLEMENTS.
i. UL 506 - STANDARD FOR SPECIALTY TRANSFORMERS; CURRENT EDITION, INCLUDING ALL REVISIONS.
j. UL 1561 - STANDARD FOR DRY-TYPE GENERAL PURPOSE AND POWER TRANSFORMERS; CURRENT EDITION, INCLUDING ALL REVISIONS.
- B. PRODUCTS
1. TRANSFORMERS - GENERAL REQUIREMENTS
- a. DESCRIPTION: FACTORY-ASSEMBLED, DRY TYPE TRANSFORMERS FOR 60 HZ OPERATION DESIGNED AND MANUFACTURED IN ACCORDANCE WITH NEMA ST 20 AND LISTED, CLASSIFIED, AND LABELED AS SUITABLE FOR THE PURPOSE INTENDED.
b. UNLESS NOTED OTHERWISE, TRANSFORMER RATINGS INDICATED ARE FOR CONTINUOUS LOADING ACCORDING TO IEEE C57.96 UNDER THE FOLLOWING SERVICE CONDITIONS:
- 1) ALTITUDE: LESS THAN 3,300 FEET (1,000 M).
2) AMBIENT TEMPERATURE:
a) GREATER THAN 10 KVA: NOT EXCEEDING 104 DEGREES F (40 DEGREES C).
b) LESS THAN 10 KVA: NOT EXCEEDING 77 DEGREES F (25 DEGREES C).
- c. CORE: HIGH GRADE, NON-AGING SILICON STEEL WITH HIGH MAGNETIC PERMEABILITY AND LOW HYSTERESIS AND EDDY CURRENT LOSSES. KEEP MAGNETIC FLUX DENSITIES SUBSTANTIALLY BELOW SATURATION POINT, EVEN AT 10 PERCENT PRIMARY OVERVOLTAGE. TIGHTLY CLAMP CORE LAMINATIONS TO PREVENT PLATE MOVEMENT AND MAINTAIN CONSISTENT PRESSURE THROUGHOUT CORE LENGTH.
d. IMPREGNATE CORE AND COIL ASSEMBLY WITH NON-HYDROSCOPIC THERMO-SETTING VARNISH TO EFFECTIVELY SEAL OUT MOISTURE AND OTHER CONTAMINANTS.
e. BASIC IMPULSE LEVEL: 10 KV.
f. GROUND CORE AND COIL ASSEMBLY TO ENCLOSURE BY MEANS OF A VISIBLE FLEXIBLE COPPER GROUNDING STRAP.
g. ISOLATE CORE AND COIL FROM ENCLOSURE USING VIBRATION-ABSORBING MOUNTS.
h. NAMEPLATE: INCLUDE TRANSFORMER CONNECTION DATA, RATINGS, WIRING DIAGRAMS, AND OVERLOAD CAPACITY BASED ON RATED WINDING TEMPERATURE RISE.
2. GENERAL PURPOSE TRANSFORMERS
- a. DESCRIPTION: SELF-COOLED, TWO WINDING TRANSFORMERS LISTED AND LABELED AS COMPLYING WITH UL 506 OR UL 1561; RATINGS AS INDICATED ON THE DRAWINGS.
b. INSULATION SYSTEM AND ALLOWABLE AVERAGE WINDING TEMPERATURE RISE:
- 1) LESS THAN 15 KVA: CLASS 180 DEGREES C INSULATION SYSTEM WITH 115 DEGREES C AVERAGE WINDING TEMPERATURE RISE.
2) 15 KVA AND LARGER: CLASS 220 DEGREES C INSULATION SYSTEM WITH 150 DEGREES C AVERAGE WINDING TEMPERATURE RISE.
- c. COIL CONDUCTORS: CONTINUOUS ALUMINUM WINDINGS WITH TERMINATIONS BRAZED OR WELDED.
d. WINDING TAPS:
- 1) LESS THAN 3 KVA: NONE.
2) 3 KVA THROUGH 15 KVA: TWO 5 PERCENT FULL CAPACITY PRIMARY TAPS BELOW RATED VOLTAGE.
3) 15 KVA THROUGH 300 KVA: TWO 2.5 PERCENT FULL CAPACITY PRIMARY TAPS ABOVE AND FOUR 2.5 PERCENT FULL CAPACITY PRIMARY TAPS BELOW RATED VOLTAGE.
4) 500 KVA AND LARGER: TWO 2.5 PERCENT FULL CAPACITY PRIMARY TAPS ABOVE AND TWO 2.5 PERCENT FULL CAPACITY PRIMARY TAPS BELOW RATED VOLTAGE.
- e. ENERGY EFFICIENCY: COMPLY WITH 10 CFR 431, SUBPART K.
f. SOUND LEVELS: STANDARD SOUND LEVELS COMPLYING WITH NEMA ST 20.
g. MOUNTING PROVISIONS:
- 1) LESS THAN 15 KVA: SUITABLE FOR WALL MOUNTING.
2) 15 KVA THROUGH 75 KVA: SUITABLE FOR WALL, FLOOR, OR TRAPEZE MOUNTING.

- 3) LARGER THAN 75 KVA: SUITABLE FOR FLOOR MOUNTING.
- h. TRANSFORMER ENCLOSURE: COMPLY WITH NEMA ST 20.
- 1) ENVIRONMENT TYPE PER NEMA 250: UNLESS OTHERWISE INDICATED, AS SPECIFIED FOR THE FOLLOWING INSTALLATION LOCATIONS:
2) CONSTRUCTION: STEEL
- a) LESS THAN 15 KVA: TOTALLY ENCLOSED, NON-VENTILATED.
b) 15 KVA AND LARGER: VENTILATED.
- 3) FINISH: MANUFACTURER'S STANDARD GREY, SUITABLE FOR OUTDOOR INSTALLATIONS.
4) PROVIDE LIFTING EYES OR BRACKETS.
- i. ACCESSORIES:
- 1) MOUNTING BRACKETS: PROVIDE MANUFACTURER'S STANDARD BRACKETS.
2) WEATHERSHIELD KITS: PROVIDE FOR VENTILATED TRANSFORMERS INSTALLED OUTDOORS TO PROVIDE A LISTED NEMA 250, TYPE 3R ASSEMBLY.
3) LUG KITS: SIZED AS REQUIRED FOR TERMINATION OF CONDUCTORS AS INDICATED ON THE DRAWINGS.
- C. EXECUTION
1. INSTALLATION
- a. PERFORM WORK IN A NEAT AND WORKMANLIKE MANNER IN ACCORDANCE WITH NECA 1.
b. INSTALL TRANSFORMERS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
c. INSTALL TRANSFORMERS IN ACCORDANCE WITH NECA 409 AND IEEE C57.94.
d. USE FLEXIBLE CONDUIT, UNDER THE PROVISIONS OF SECTION 26 0534, 2 FEET (600 MM) MINIMUM LENGTH, FOR CONNECTIONS TO TRANSFORMER CASE. MAKE CONDUIT CONNECTIONS TO SIDE PANEL OF ENCLOSURE.
e. ARRANGE EQUIPMENT TO PROVIDE MINIMUM CLEARANCES AS SPECIFIED ON TRANSFORMER NAMEPLATE AND IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND NFPA 70.
f. MOUNT WALL-MOUNTED TRANSFORMERS USING INTEGRAL FLANGES OR ACCESSORY BRACKETS FURNISHED BY THE MANUFACTURER.
g. MOUNT FLOOR-MOUNTED TRANSFORMERS ON PROPERLY SIZED 3 INCH (80 MM) HIGH CONCRETE PAD CONSTRUCTED IN ACCORDANCE WITH SECTION 03 3000.
h. MOUNT FLOOR-MOUNTED, TRAPEZE-MOUNTED, WALL-MOUNTED, AND CEILING-MOUNTED TRANSFORMERS USING VIBRATION ISOLATORS SUITABLE FOR ISOLATING THE TRANSFORMER NOISE FROM THE BUILDING STRUCTURE.
i. MOUNT TRAPEZE-MOUNTED TRANSFORMERS AS INDICATED.
j. PROVIDE SEISMIC RESTRAINTS.
k. PROVIDE GROUNDING AND BONDING IN ACCORDANCE WITH SECTION 26 0526.
l. REMOVE SHIPPING BRACES AND ADJUST BOLTS THAT ATTACH THE CORE AND COIL MOUNTING BRACKET TO THE ENCLOSURE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS IN ORDER TO REDUCE AUDIBLE NOISE TRANSMISSION.
m. WHERE NOT FACTORY-INSTALLED, INSTALL LUGS SIZED AS REQUIRED FOR TERMINATION OF CONDUCTORS AS SHOWN ON THE DRAWINGS.
n. WHERE FURNISHED AS A SEPARATE ACCESSORY, INSTALL TRANSFORMER WEATHERSHIELD PER MANUFACTURER'S INSTRUCTIONS.
2. ADJUSTING
- a. MEASURE PRIMARY AND SECONDARY VOLTAGES AND MAKE APPROPRIATE TAP ADJUSTMENTS.
b. ADJUST TIGHTNESS OF MECHANICAL AND ELECTRICAL CONNECTIONS TO MANUFACTURER'S RECOMMENDED TORQUE SETTINGS.
3. CLEANING
- a. CLEAN DIRT AND DEBRIS FROM TRANSFORMER COMPONENTS ACCORDING TO MANUFACTURER'S INSTRUCTIONS.
b. REPAIR SCRATCHED OR MARRED EXTERIOR SURFACES TO MATCH ORIGINAL FACTORY FINISH.

INSTRUMENTATION

- A. CONTROL PANEL ASSEMBLE AND PROGRAMMED BY CONTRACTOR UNDER DIRECTION OF DELCO WESTERN (801-972-0900) AND WOLF CREEK WATER AND SEWER IMPROVEMENT DISTRICT. CONTRACTOR MAY OPT TO ENGAGE DELCO WESTERN TO CONSTRUCT CONTROL PANEL.
- B. WELL LEVEL
1. PSS81 TRANSMITTER 4-20MA
2. INSTALL IN SOUNDER TUBE JUST ABOVE THE PUMP DISCHARGE.
3. LENGTH OF CABLE AND RANGE DETERMINED BY CONTRACTOR PER WELL DEPTH & FIELD CONDITIONS
- B. FLOW METER
1. SIEMENS 5100W FLOW METER WITH 6000 DISPLAY.
2. 4-20MA OUTPUT & PULSE OUTPUT
- C. DOOR INTRUSION
1. MAGNETIC REED SWITCH
2. CONNECT DIRECTLY INTO MISSION REMOTE TELEMETRY UNIT.
3. LOCAL SUPPLIER, NO SPECIFIC BRAND OR MODEL.
4. COORDINATE NORMALLY OPEN OR NORMALLY CLOSED CONTACT WITH TELEMETRY PROGRAMMING
- D. LINE PRESSURE MONITORING
1. LOCAL SUPPLIER, NO SPECIFIC BRAND OR MODEL.
2. TRANSMITTER ONLY, NO DISPLAY REQUIRED. (MISSION RTU WILL DISPLAY PRESSURE ON LOCAL SCREEN)
- E. VFD
1. DANFOSS VLT FC202
2. NO SUBSTITUTIONS, INDICATED MODEL HAS OWNER'S DESIRED THE PARAMETERS AND RAMP TIME.
3. PROVIDE LOAD SIDE WAVE FILTER AS REQUIRED FOR MOTOR PROTECTION AND TO MAINTAIN MOTOR WARRANTY.
4. PROGRAM AS DIRECTED BY OWNER.
- F. TELEMETRY UNIT
1. DELCO WESTERN IS THE MISSION COMMUNICATION DISTRIBUTOR FOR UTAH, IDAHO AND EASTERN NEVADA .
2. COORDINATE MATERIALS AND INSTALLATION WITH WOLF CREEK WATER ID SCADA PRIOR TO BEGINNING WORK.
- a. MYDRO 850 RTU
- 1) OP653 DIGITAL INPUT MODULE
2) OP485 ANALOG INPUT MODULE
3) OP461 ANALOG OUTPUT MODULE
4) OP464-30 PULSE INPUT MODULE
- b. OMNI DIRECTIONAL ANTENNA WITH RG-58 CABLE SMA-F
- G. PUMP PROTECTION UNIT
1. PROVIDE PUMP PROTECTION AS REQUIRED TO MAINTAIN MANUFACTURER'S WARRANTY. (I.E. SEAL FAIL ALARM, VIBRATION ALARM, THERMAL ALARM, LOW INTAKE PRESSURE, HIGH DISCHARGE PRESSURE, ETC.)
2. CONNECT ALARM SIGNAL(S) TO RTU FOR PUMP SHUTDOWN/FAIL SIGNAL
- H. EXECUTION
1. INSTALLATION AND TERMINATION FOR MISSION RTU/SCADA BY CONTRACTOR PER OWNER'S DIRECTIVES.
2. TEST AND SETUP OF UNIT/INPUTS AND OUTPUTS BY CONTRACTOR PER OWNER'S DIRECTIVES.
3. I/O SHALL INCLUDE BUT NOT LIMITED TO:
- i. PUMP MOTOR START/STOP
j. PUMP MOTOR SPEED
k. PUMP TROUBLE (FAIL)
l. MOTOR PROTECTION SEAL SENSOR ALARM
m. MOTOR PROTECTION VIBRATION SENSOR ALARM
n. WELL LEVEL
o. PRESSURE
p. FLOW
q. INTRUSION MONITOR
r. INTRUSION ALARM CLEAR
s. WELL CONTROL VALVE (WASTE VALVE) OPEN/CLOSE

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Scale	
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ELECTRICAL SPECIFICATIONS
WCWSID - EAST WELL
5665 EAST ELK HORN DRIVE
EDEN, WEBER, UTAH




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ENGINE GENERATORS

- A. SECTION INCLUDES
1. PACKAGED ENGINE GENERATOR SYSTEM AND ASSOCIATED COMPONENTS AND ACCESSORIES:
 - a. ENGINE AND ENGINE ACCESSORY EQUIPMENT.
 - b. ALTERNATOR (GENERATOR).
 - c. GENERATOR SET CONTROL SYSTEM.
 - d. GENERATOR SET ENCLOSURE.
 - e. TRANSFER SWITCH
 - B. MANUFACTURERS
 1. PACKAGED ENGINE GENERATOR SET:
 - a. CATERPILLAR INC: WWW.CAT.COM/POWER-GENERATION.
 - b. CUMMINS POWER GENERATION INC: WWW.CUMMINSPOWER.COM.
 - c. GENERAC POWER SYSTEMS: WWW.GENERAC.COM/INDUSTRIAL.
 - d. KOHLER CO: WWW.KOHLERPOWER.COM.
 - C. PACKAGED ENGINE GENERATOR SYSTEM
 1. PROVIDE NEW ENGINE GENERATOR SYSTEM CONSISTING OF ALL REQUIRED EQUIPMENT, SENSORS, CONDUIT, BOXES, WIRING, PIPING, SUPPORTS, ACCESSORIES, SYSTEM PROGRAMMING, ETC. AS NECESSARY FOR A COMPLETE OPERATING SYSTEM THAT PROVIDES THE FUNCTIONAL INTENT INDICATED.
 2. SYSTEM DESCRIPTION:
 - a. APPLICATION: EMERGENCY/STANDBY.
 - b. CONFIGURATION: SINGLE PACKAGED ENGINE GENERATOR SET OPERATED INDEPENDENTLY (NOT IN PARALLEL).
 3. PACKAGED ENGINE GENERATOR SET:
 - a. TYPE: NATURAL GAS
 - b. POWER RATING: AS INDICATED ON DRAWINGS, STANDBY.
 - c. VOLTAGE: AS INDICATED ON DRAWINGS.
 - d. MAIN LINE CIRCUIT BREAKER:
 - 1) TYPE: THERMAL MAGNETIC.
 - 2) TRIP RATING: SELECT ACCORDING TO GENERATOR SET RATING.
 4. GENERATOR SET GENERAL REQUIREMENTS:
 - a. PROTOTYPE TESTED IN ACCORDANCE WITH NFPA 110 FOR LEVEL 1 SYSTEMS.
 - b. FACTORY-ASSEMBLED, WITH COMPONENTS MOUNTED ON SUITABLE BASE.
 - c. LIST AND LABEL ENGINE GENERATOR ASSEMBLY AS COMPLYING WITH UL 2200.
 - d. POWER FACTOR: UNLESS OTHERWISE INDICATED, SPECIFIED POWER RATINGS ARE AT 0.8 POWER FACTOR FOR THREE PHASE VOLTAGES AND 1.0 POWER FACTOR FOR SINGLE PHASE VOLTAGES.
 - e. PROVIDE SUITABLE GUARDS TO PROTECT PERSONNEL FROM ACCIDENTAL CONTACT WITH ROTATING PARTS, HOT PIPING, AND OTHER POTENTIAL SOURCES OF INJURY.
 - f. MAIN LINE CIRCUIT BREAKERS: PROVIDE FACTORY-INSTALLED LINE SIDE CONNECTIONS WITH SUITABLE LUGS FOR LOAD SIDE CONNECTIONS.
 5. SERVICE CONDITIONS: PROVIDE ENGINE GENERATOR SYSTEM AND ASSOCIATED COMPONENTS SUITABLE FOR OPERATION UNDER THE SERVICE CONDITIONS AT THE INSTALLED LOCATION.
 - a. ALTITUDE: 5500 FEET.
 6. STARTING AND LOAD ACCEPTANCE REQUIREMENTS:
 - a. CRANKING METHOD: CYCLE CRANKING COMPLYING WITH NFPA 110 (15 SECOND CRANK PERIOD, FOLLOWED BY 15 SECOND REST PERIOD, WITH CRANKING LIMITER TIME-OUT AFTER 3 CYCLES), UNLESS OTHERWISE REQUIRED.
 - b. CRANKING LIMITER TIME-OUT: IF GENERATOR SET FAILS TO START AFTER SPECIFIED CRANKING PERIOD, INDICATE OVERCRANK ALARM CONDITION AND LOCK-OUT GENERATOR SET FROM FURTHER CRANKING UNTIL MANUALLY RESET.
 - c. START TIME: CAPABLE OF STARTING AND ACHIEVING CONDITIONS NECESSARY FOR LOAD ACCEPTANCE WITHIN 10 SECONDS (NFPA 110, TYPE 10).
 - d. MAXIMUM LOAD STEP: SUPPORTS 100 PERCENT OF RATED LOAD IN ONE STEP.
 7. EXHAUST EMISSIONS REQUIREMENTS:
 - a. COMPLY WITH FEDERAL (EPA), STATE, AND LOCAL REGULATIONS APPLICABLE AT THE TIME OF COMMISSIONING; INCLUDE FACTORY EMISSIONS CERTIFICATION WITH SUBMITTALS.
 - b. DO NOT MAKE MODIFICATIONS AFFECTING GENERATOR SET FACTORY EMISSIONS CERTIFICATION WITHOUT APPROVAL OF MANUFACTURER AND ENGINEER. WHERE SUCH MODIFICATIONS ARE MADE, PROVIDE FIELD EMISSIONS TESTING AS NECESSARY FOR CERTIFICATION.
 - D. ENGINE AND ENGINE ACCESSORY EQUIPMENT
 1. PROVIDE ENGINE WITH ADEQUATE HORSEPOWER TO ACHIEVE SPECIFIED POWER OUTPUT AT RATED SPEED, ACCOUNTING FOR ALTERNATOR EFFICIENCY AND PARASITIC LOADS.
 2. ENGINE STARTING SYSTEM:
 - a. SYSTEM TYPE: ELECTRIC, WITH DC SOLENOID-ACTIVATED STARTING MOTOR(S).
 - b. BATTERY(S):
 - 1) BATTERY TYPE: LEAD-ACID.
 - 2) BATTERY CAPACITY: SIZE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS FOR ACHIEVING STARTING AND LOAD ACCEPTANCE REQUIREMENTS UNDER WORST CASE AMBIENT TEMPERATURE; CAPABLE OF PROVIDING CRANKING THROUGH TWO COMPLETE PERIODS OF CRANKING LIMITER TIME-OUTS WITHOUT RECHARGING.
 - 3) PROVIDE BATTERY RACK, CABLES, AND CONNECTORS SUITABLE FOR THE SUPPLIED BATTERY(S); SIZE BATTERY CABLES ACCORDING TO MANUFACTURER'S RECOMMENDATIONS FOR CABLE LENGTH TO BE INSTALLED.
 - c. BATTERY-CHARGING ALTERNATOR: ENGINE-DRIVEN, WITH INTEGRAL SOLID-STATE VOLTAGE REGULATION.
 - d. BATTERY CHARGER:
 - 1) PROVIDE DUAL RATE BATTERY CHARGER WITH AUTOMATIC FLOAT AND EQUALIZE CHARGING MODES AND MINIMUM RATING OF 10 AMPS; SUITABLE FOR MAINTAINING THE SUPPLIED BATTERY(S) AT FULL CHARGE WITHOUT MANUAL INTERVENTION.
 - 2) CAPABLE OF RETURNING SUPPLIED BATTERY(S) FROM FULLY DISCHARGED TO FULLY CHARGED CONDITION WITHIN 24 HOURS, AS REQUIRED BY NFPA 110 FOR LEVEL 1 APPLICATIONS WHILE CARRYING NORMAL LOADS.
 - 3) RECOGNIZED AS COMPLYING WITH UL 1236.
 - 4) FURNISHED WITH INTEGRAL OVERCURRENT PROTECTION; CURRENT LIMITED TO PROTECT CHARGER DURING ENGINE CRANKING; REVERSE POLARITY PROTECTION.
 - 5) PROVIDE INTEGRAL DC OUTPUT AMMETER AND VOLTMETER WITH FIVE PERCENT ACCURACY.
 - 6) PROVIDE ALARM OUTPUT CONTACTS AS NECESSARY FOR ALARM INDICATIONS.
 4. ENGINE SPEED CONTROL SYSTEM (GOVERNOR):
 - a. SINGLE ENGINE GENERATOR SETS (NOT OPERATED IN PARALLEL): PROVIDE ELECTRONIC ISOSYNCHRONOUS GOVERNOR FOR CONTROLLING ENGINE SPEED/ALTERNATOR FREQUENCY.
 - b. FREQUENCY REGULATION, ELECTRONIC ISOSYNCHRONOUS GOVERNORS: NO CHANGE IN FREQUENCY FROM NO LOAD TO FULL LOAD; PLUS/MINUS 0.25 PERCENT AT STEADY STATE.
 5. ENGINE LUBRICATION SYSTEM:
 - a. SYSTEM TYPE: FULL PRESSURE, WITH ENGINE-DRIVEN, POSITIVE DISPLACEMENT LUBRICATION OIL PUMP, REPLACEABLE FULL-FLOW OIL FILTER(S), AND DIP-STICK FOR OIL LEVEL INDICATION. PROVIDE OIL COOLER WHERE RECOMMENDED BY MANUFACTURER.
 6. ENGINE COOLING SYSTEM:
 - a. SYSTEM TYPE: CLOSED-LOOP, LIQUID-COOLED, WITH UNIT-MOUNTED RADIATOR/FAN AND ENGINE-DRIVEN COOLANT PUMP; SUITABLE FOR PROVIDING ADEQUATE COOLING WHILE OPERATING AT FULL LOAD UNDER WORST CASE AMBIENT TEMPERATURE.
 - b. FAN GUARD: PROVIDE SUITABLE GUARD TO PROTECT PERSONNEL FROM ACCIDENTAL CONTACT WITH FAN.
 - c. COOLANT HEATER: PROVIDE THERMOSTATICALLY CONTROLLED COOLANT HEATER TO IMPROVE STARTING UNDER COLD AMBIENT CONDITIONS; SIZE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS FOR ACHIEVING STARTING AND LOAD ACCEPTANCE REQUIREMENTS UNDER WORST CASE AMBIENT TEMPERATURE.
 7. ENGINE AIR INTAKE AND EXHAUST SYSTEM:
 - a. AIR INTAKE FILTRATION: PROVIDE ENGINE-MOUNTED, REPLACEABLE, DRY ELEMENT FILTER.
 - b. ENGINE EXHAUST CONNECTION: PROVIDE SUITABLE, APPROVED FLEXIBLE CONNECTOR FOR COUPLING ENGINE TO EXHAUST SYSTEM.
 8. ENGINE ACCESSORIES: LUBE OIL FILTER, INTAKE AIR FILTER, LUBE OIL COOLER, GEAR-DRIVEN WATER PUMP. WATER TEMPERATURE GAGE, AND LUBE OIL PRESSURE GAGE ON ENGINE/GENERATOR CONTROL PANEL.
 - E. ALTERNATOR (GENERATOR)
 1. ALTERNATOR: 4-POLE, 1800 RPM (60 HZ OUTPUT) REVOLVING FIELD, SYNCHRONOUS GENERATOR COMPLYING WITH NEMA MG 1; CONNECTED TO ENGINE WITH FLEXIBLE COUPLING; VOLTAGE OUTPUT CONFIGURATION AS INDICATED, WITH RECONNECTABLE LEADS FOR 3 PHASE ALTERNATORS.
 2. EXCITER:
 - a. EXCITER TYPE: BRUSHLESS; PROVIDE PERMANENT MAGNET GENERATOR (PMG) EXCITATION SYSTEM; SELF-EXCITED (SHUNT) SYSTEMS ARE NOT PERMITTED.
 - b. PMG EXCITATION SHORT-CIRCUIT CURRENT SUPPORT: CAPABLE OF SUSTAINING 300 PERCENT OF RATED OUTPUT CURRENT FOR 10 SECONDS.
 - c. VOLTAGE REGULATION (WITH PMG EXCITATION): PLUS/MINUS 0.5 PERCENT FOR ANY CONSTANT LOAD FROM NO LOAD TO FULL LOAD.
 3. TEMPERATURE RISE: COMPLY WITH UL 2200.
 4. INSULATION SYSTEM: NEMA MG 1, CLASS H; SUITABLE FOR ALTERNATOR TEMPERATURE RISE.
 5. ENCLOSURE: NEMA MG 1, DRIP-PROOF.
 6. TOTAL HARMONIC DISTORTION: NOT GREATER THAN FIVE PERCENT.
 - F. GENERATOR SET CONTROL SYSTEM
 1. PROVIDE MICROPROCESSOR-BASED CONTROL SYSTEM FOR AUTOMATIC CONTROL, MONITORING, AND PROTECTION OF GENERATOR SET. INCLUDE SENSORS, WIRING, AND CONNECTIONS NECESSARY FOR FUNCTIONS/INDICATIONS SPECIFIED.

2. CONTROL PANEL:
 - a. CONTROL PANEL MOUNTING: UNIT-MOUNTED UNLESS OTHERWISE INDICATED; VIBRATION ISOLATED.
 - b. GENERATOR SET CONTROL FUNCTIONS:
 - 1) AUTOMATIC MODE: INITIATES GENERATOR SET START/SHUTDOWN UPON RECEIVING CORRESPONDING SIGNAL FROM REMOTE DEVICE (E.G. AUTOMATIC TRANSFER SWITCH).
 - 2) MANUAL MODE: INITIATES GENERATOR SET START/SHUTDOWN UPON DIRECTION FROM OPERATOR.
 - 3) RESET MODE: CLEARS ALL FAULTS, ALLOWING GENERATOR SET RESTART AFTER A SHUTDOWN.
 - 4) EMERGENCY STOP: IMMEDIATELY SHUTS DOWN GENERATOR SET (WITHOUT TIME DELAY) AND PREVENTS AUTOMATIC RESTARTING UNTIL MANUALLY RESET.
 - 5) CYCLE CRANKING: PROGRAMMABLE CRANK TIME, REST TIME, AND NUMBER OF CYCLES.
 - 6) TIME DELAY: PROGRAMMABLE FOR SHUTDOWN (ENGINE COOLDOWN) AND START (ENGINE WARMUP).
 - 7) VOLTAGE ADJUSTMENT: ADJUSTABLE THROUGH RANGE OF PLUS/MINUS 5 PERCENT.
 - c. GENERATOR SET STATUS INDICATIONS:
 - 1) VOLTAGE (VOLTS AC): LINE-TO-LINE, LINE-TO-NEUTRAL FOR EACH PHASE.
 - 2) CURRENT (AMPS): FOR EACH PHASE.
 - 3) FREQUENCY (HZ).
 - 4) REAL POWER (W/KW).
 - 5) REACTIVE POWER (VAR/KVAR).
 - 6) APPARENT POWER (VA/KVA).
 - 7) POWER FACTOR.
 - 8) DUTY LEVEL: ACTUAL LOAD AS PERCENTAGE OF RATED POWER.
 - 9) ENGINE SPEED (RPM).
 - 10) BATTERY VOLTAGE (VOLTS DC).
 - 11) ENGINE OIL PRESSURE.
 - 12) ENGINE COOLANT TEMPERATURE.
 - 13) ENGINE RUN TIME.
 - 14) GENERATOR POWERING LOAD (POSITION SIGNAL FROM TRANSFER SWITCH).
 - d. GENERATOR SET PROTECTION AND WARNING/SHUTDOWN INDICATIONS:
 - 1) COMPLY WITH NFPA 110; CONFIGURABLE FOR NFPA 110 LEVEL 1 OR LEVEL 2, OR NFPA 99 SYSTEMS IN ADDITION TO NFPA 110 REQUIREMENTS, PROVIDE THE FOLLOWING PROTECTIONS/INDICATIONS:
 - a) HIGH AC VOLTAGE (SHUTDOWN).
 - b) LOW AC VOLTAGE (SHUTDOWN).
 - c) HIGH FREQUENCY (SHUTDOWN).
 - d) LOW FREQUENCY (SHUTDOWN).
 - e) OVERCURRENT (SHUTDOWN).
 - 3) PROVIDE CONTACTS FOR LOCAL AND REMOTE COMMON ALARM.
 - 4) PROVIDE LAMP TEST FUNCTION THAT ILLUMINATES ALL INDICATOR LAMPS.
 - e. OTHER CONTROL PANEL FEATURES:
 - 1) EVENT LOG.
3. REMOTE ANNUNCIATOR:
 - a. REMOTE ANNUNCIATOR MOUNTING: WALL-MOUNTED; PROVIDE FLUSH-MOUNTED OR SURFACE-MOUNTED ANNUNCIATOR AS INDICATED.
 - b. GENERATOR SET STATUS INDICATIONS:
 - 1) GENERATOR POWERING LOAD (VIA POSITION SIGNAL FROM TRANSFER SWITCH).
 - 2) COMMUNICATION FUNCTIONAL.
 - c. GENERATOR SET WARNING/SHUTDOWN INDICATIONS:
 - 1) COMPLY WITH NFPA 110 FOR LEVEL 1 SYSTEMS
 - 2) PROVIDE AUDIBLE ALARM WITH SILENCE FUNCTION.
 - 3) PROVIDE LAMP TEST FUNCTION THAT ILLUMINATES ALL INDICATOR LAMPS.
- G. GENERATOR SET ENCLOSURE
 1. ENCLOSURE TYPE: NONE (INSTALLED INDOORS)
- H. INSTALLATION
 1. PERFORM WORK IN A NEAT AND WORKMANLIKE MANNER IN ACCORDANCE WITH NECA 1.
 2. INSTALL PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
 3. INSTALL GENERATOR SETS AND ASSOCIATED ACCESSORIES IN ACCORDANCE WITH NECA/EGSA 404.
 4. ARRANGE EQUIPMENT TO PROVIDE MINIMUM CLEARANCES AND REQUIRED MAINTENANCE ACCESS.
 5. UNLESS OTHERWISE INDICATED, MOUNT GENERATOR SET ON PROPERLY SIZED 6 INCH HIGH CONCRETE PAD. PROVIDE SUITABLE VIBRATION ISOLATORS, WHERE NOT FACTORY INSTALLED.
 6. PROVIDE REQUIRED SUPPORT AND ATTACHMENT.
 7. COORDINATE WALL PENETRATIONS AND PROVIDE EXHAUST THIMBLE AND ACCESSORIES REQUIRED FOR AN INDOOR INSTALLATION.
 8. USE MANUFACTURER'S RECOMMENDED OIL AND COOLANT, SUITABLE FOR THE WORST CASE AMBIENT TEMPERATURES.
 9. PROVIDE ENGINE EXHAUST PIPING, WHERE NOT FACTORY INSTALLED.
 - a. INCLUDE PIPING EXPANSION JOINTS, PIPING INSULATION, THIMBLE, CONDENSATION TRAP/DRAIN, RAIN CAP, HANGERS/SUPPORTS, ETC. AS INDICATED OR AS REQUIRED.
 - b. DO NOT EXCEED MANUFACTURER'S MAXIMUM BACK PRESSURE REQUIREMENTS.
 10. PROVIDE GROUNDING AND BONDING.
- I. FIELD QUALITY CONTROL
 1. NOTIFY AUTHORITIES HAVING JURISDICTION AND COMPLY WITH THEIR REQUIREMENTS FOR SCHEDULING INSPECTIONS AND TESTS AND FOR OBSERVATION BY THEIR PERSONNEL.
 2. PROVIDE ALL EQUIPMENT, TOOLS, AND SUPPLIES REQUIRED TO ACCOMPLISH INSPECTION AND TESTING, INCLUDING LOAD BANK AND FUEL.
 3. PRELIMINARY INSPECTION AND TESTING TO INCLUDE, AT A MINIMUM:
 - a. INSPECT EACH SYSTEM COMPONENT FOR DAMAGE AND DEFECTS.
 - b. VERIFY TIGHTNESS OF MECHANICAL AND ELECTRICAL CONNECTIONS ARE ACCORDING TO MANUFACTURER'S RECOMMENDED TORQUE SETTINGS.
 - c. CHECK FOR PROPER OIL AND COOLANT LEVELS.
 4. PREPARE AND START SYSTEM IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
 5. PERFORM ACCEPTANCE TEST IN ACCORDANCE WITH NFPA 110.
 6. PROVIDE FIELD EMISSIONS TESTING WHERE NECESSARY FOR CERTIFICATION.
 7. CORRECT DEFECTIVE WORK, ADJUST FOR PROPER OPERATION, AND RETEST UNTIL ENTIRE SYSTEM COMPLIES WITH CONTRACT DOCUMENTS.

Date: 11/14/22		Scale:	
Revisions	Description	 POWER ENGINEERING, PLLC 806 SOUTH 1430 WEST, LEHI UT 84043 (801) 367-5180 PROJECT BFE2202	
Date			



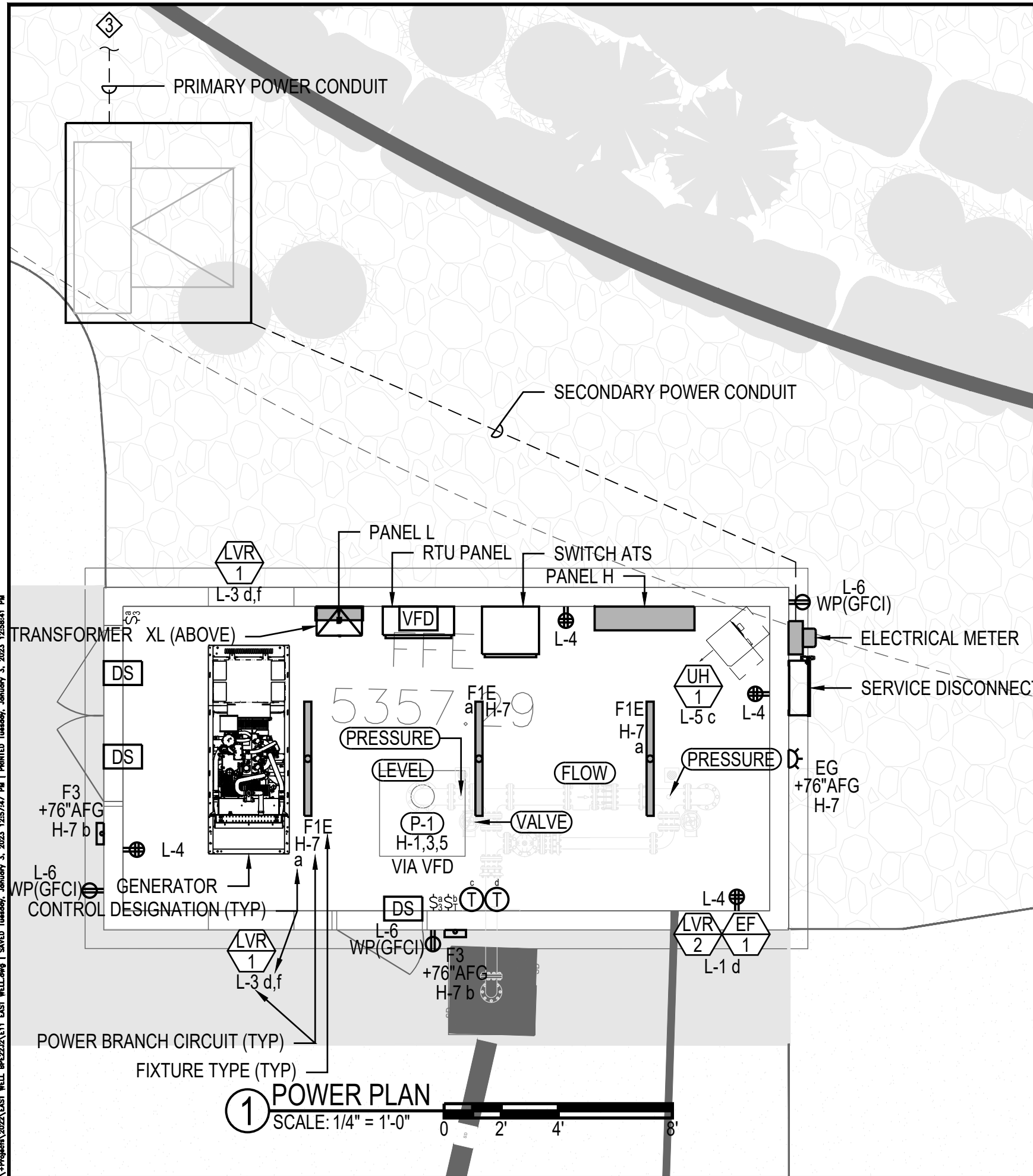
ELECTRICAL SPECIFICATIONS
WCWSID - EAST WELL
5665 EAST ELK HORN DRIVE
EDEN, WEBER, UTAH



GARDNER ENGINEERING
CIVIL • LAND PLANNING
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5150 SOUTH 375 EAST OGDEN, UT
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- NOTES:**
- LIGHT, LOUVER, HEATER & FAN SEQUENCE OF OPERATION**
LOWER CASE LETTER NEXT TO CONTROL DEVICE AND FIXTURE OR EQUIPMENT INDICATE THE FOLLOWING OPERATION:

a - TOGGLE SWITCH; MANUAL ON, MANUAL OFF; LIGHTING LOAD. (NEC 110.26 D)
b - PROGRAMMABLE ASTRONOMICAL TIME SWITCH; DUSK TO MIDNIGHT, 6 AM TO DAWN OPERATION WITH MANUAL OVERRIDE. LIGHTING LOAD.
c - THERMOSTAT; LOW TEMPERATURE ON, HIGH TEMPERATURE OFF. VERIFY DEAD-BAND WITH OWNER PRIOR TO ORDERING. UNIT HEATER LOAD.
d - THERMOSTAT; HIGH TEMPERATURE ON, LOW TEMPERATURE OFF. LOUVER & EXHAUST FAN LOAD.
f - ATS INTERLOCK; OPEN ON GENERATOR OPERATION. LOUVER LOAD.
 - INSTALLATION SHALL COMPLY WITH WEBER COUNTY/UPPER VALLEY DARK SKY ORDINANCE. SEE WWW.DARKSKY.ORG
- ③ TO LOCATION AS DIRECTED BY ROCKY MOUNTAIN POWER. PROVIDE PER-LINEAR FOOT COST FOR CONDUIT AND TRENCHING TO YET TO BE DETERMINED PRIMARY POWER TIE IN.

Date: 11/14/22		Scale:	
Revisions	Description		
Date			

BREINHOLT
POWER ENGINEERING, PLLC
806 SOUTH 1430 WEST, LEHI UT 84043
(801) 367-5180 PROJECT: BFE2202

**PRELIMINARY
NOT FOR
CONSTRUCTION**

ELECTRICAL PLAN
WCWSID - EAST WELL
5665 EAST ELK HORN DRIVE
EDEN, WEBER, UTAH

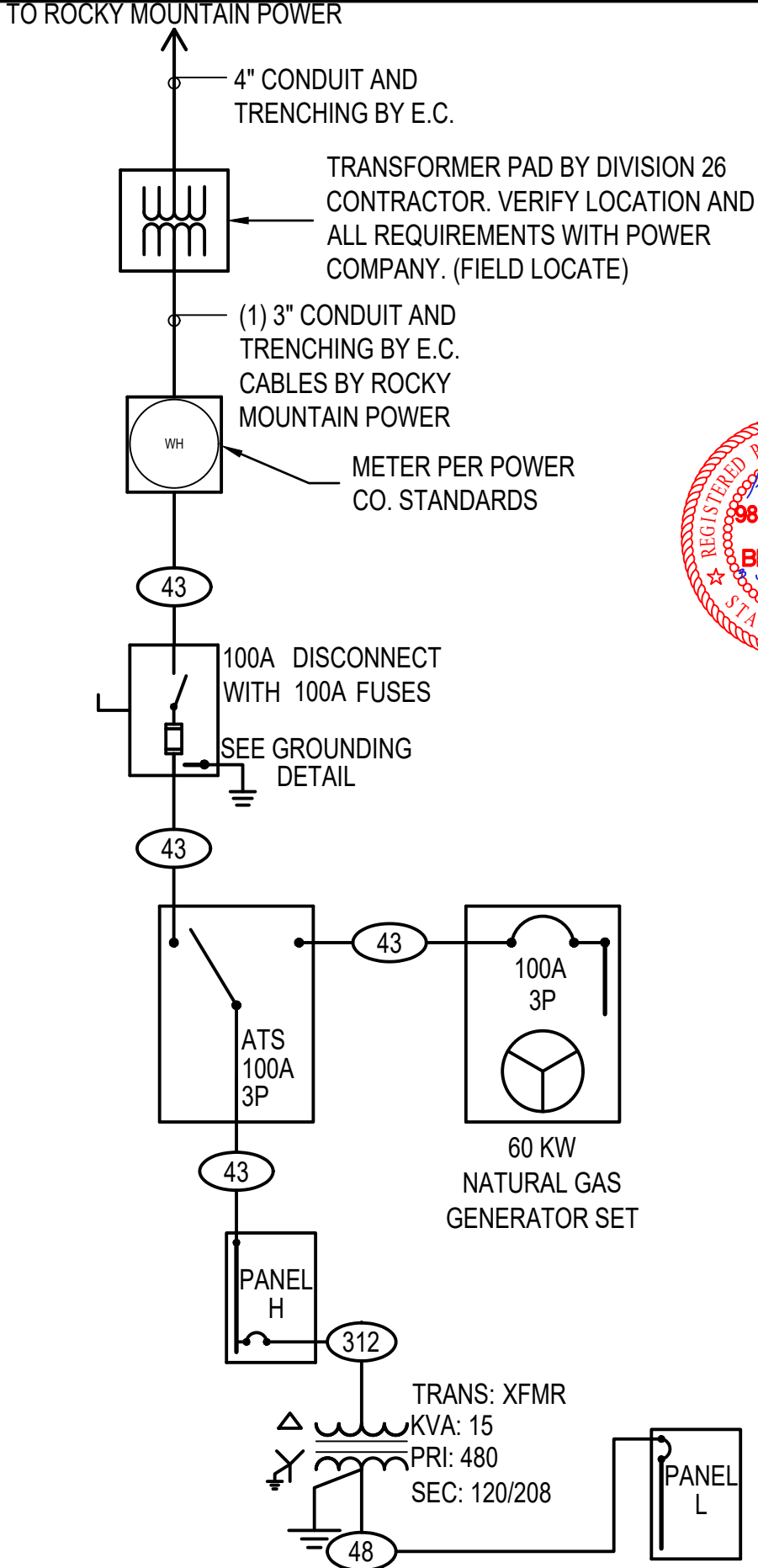
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TYPE	CONDUIT SIZE		CONDUCTORS		75°C AMP RATING
	PVC	EMT	QUAN.	SIZE	
312	3/4"	3/4"	3	#12	25
48	3/4"	3/4"	4	#8	50
43	1-1/4"	1-1/4"	4	#3	100
41X	1-1/2"	1-1/2"	4	1/0	150
43X	2"	2"	4	3/0	200
450	4"	3-1/2"	4	500 KCMIL	380
EQUIPMENT GROUNDING CONDUCTORS SCHEDULE					
OVERCURRENT DEVICE			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		

- NOTE:
1. SEE EQUIPMENT GROUND CONDUCTOR SCHEDULES OR SERVICE GROUNDING DETAIL FOR GROUND CONDUCTORS RATING.
 2. ALL INSULATION SHALL BE THHN (ABOVE GRADE) OR THWN (BELOW GRADE) UNLESS NOTED OTHERWISE.
 3. PVC CONDUIT SIZE IS BASED ON SCHEDULE 40 PVC. PVC & THWN ARE APPROVED FOR UNDERGROUND FEEDERS ONLY.

② COPPER FEEDER SCHEDULE



① POWER ONE-LINE DIAGRAM

Date: 11/14/22Scale:

Revisions

Description

Date

REGISTERED PROFESSIONAL ENGINEER

9857303-2202

KYLE L BREINHOLT

January 2023

STATE OF UTAH

ONE-LINE DIAGRAM

WCWSID - EAST WELL

5665 EAST ELK HORN DRIVE

EDEN, WEBER, UTAH

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NOTES:

- 1

T&B 3900 BU GROUND CLAMP WITH 3/4" CONDUIT HUB AND CABLE CLAMP.
- 2

FULL SIZE GROUNDING ELECTRODE CONDUCTOR IN PVC.
- 3

EXOTHERMICALLY WELDED (TYPICAL).
- 4

DRIVEN GROUND RODS 5/8"x8' COPPER/STEEL ON BUILDING EXTERIOR.
- 5

TABLE TAKEN FROM NEC 250.66. UNGROUNDED PHASE CONDUCTOR REFERS TO THE SIZE OF THE LARGEST UNGROUNDED SERVICE-ENTRANCE CONDUCTOR OR EQUIVALENT AREA FOR PARALLEL CONDUCTORS. SEE NEC 250.66.
- 6

BOND METAL PIPING PER NEC 250.104.
- 7

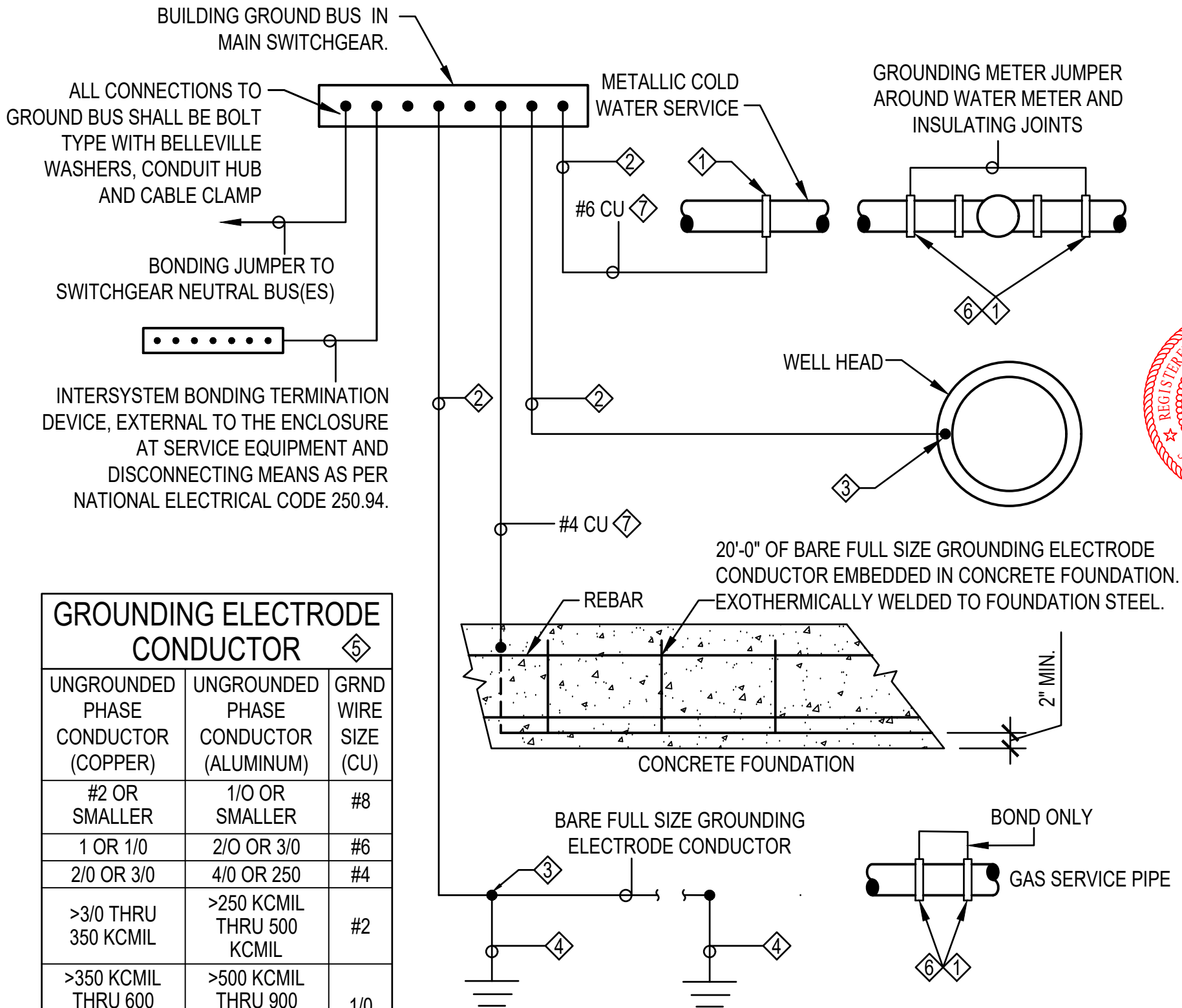
REDUCED SIZE GROUNDING ELECTRODE CONDUCTOR OR BONDING JUMPER PER NEC 250.66 (A) THROUGH (C). PROVIDE FULL SIZE CONDUCTOR IF CONDITIONS OF NEC 250.66 (A) THROUGH (C) ARE NOT MET.
8.

WHEN PRESENT CONTRACTOR SHALL PROVIDE ALL GROUNDING MEANS INDICATED. CONTRACTOR SHALL REFER TO ELECTRICAL ONE-LINE DIAGRAM AND GROUNDING ELECTRODE CONDUCTOR SCHEDULE (THIS DETAIL) FOR GROUNDING ELECTRODE CONDUCTOR SIZE. CONTRACTOR SHALL REFER TO ELECTRICAL SPECIFICATIONS FOR SPECIFICS OF GROUNDING SYSTEM INSTALLATION AND MATERIALS.
9.

GROUNDING ROD SHALL BE MIN. 9FT. AWAY FROM IRRIGATION CONTROLLER.
10.

NFPA 10 6.5 PROHIBITS UNDERGROUND FIRE SPRINKLER PIPE FROM BEING USED AS GROUNDING ELECTRODE.
11.

ONLY BOND SPLINKLER PIPE AND GAS PIPE TO GROUND BUS WHEN REQUIRED BY NFPA 780 FOR LIGHTNING PROTECTION OR WHEN LIKELY TO BECOME ENERGIZED PER SEE NEC 250.104 (B).



GROUNDING ELECTRODE CONDUCTOR 5		
UNGROUND PHASE CONDUCTOR (COPPER)	UNGROUND PHASE CONDUCTOR (ALUMINUM)	GRND WIRE SIZE (CU)
#2 OR SMALLER	1/0 OR SMALLER	#8
1 OR 1/0	2/0 OR 3/0	#6
2/0 OR 3/0	4/0 OR 250	#4
>3/0 THRU 350 KCMIL	>250 KCMIL THRU 500 KCMIL	#2
>350 KCMIL THRU 600 KCMIL	>500 KCMIL THRU 900 KCMIL	1/0
>600 KCMIL THRU 1100 KCMIL	>900 KCMIL THRU 1750 KCMIL	2/0
>1100 KCMIL	>1750 KCMIL	3/0

Date: 11/14/22

Scale:

BREINHOLT

POWER ENGINEERING, PLLC

806 SOUTH 1430 WEST, LEHI, UT 84043

(801) 367-5180 PROJECT: BFE2212

Revisions

Description

Date

REGISTERED PROFESSIONAL ENGINEER

9857303-2202

KYLE L BREINHOLT

January 12/23

STATE OF UTAH

SERVICE GROUNDING DETAIL

WCWSID - EAST WELL

5665 EAST ELK HORN DRIVE

EDEN, WEBER, UTAH

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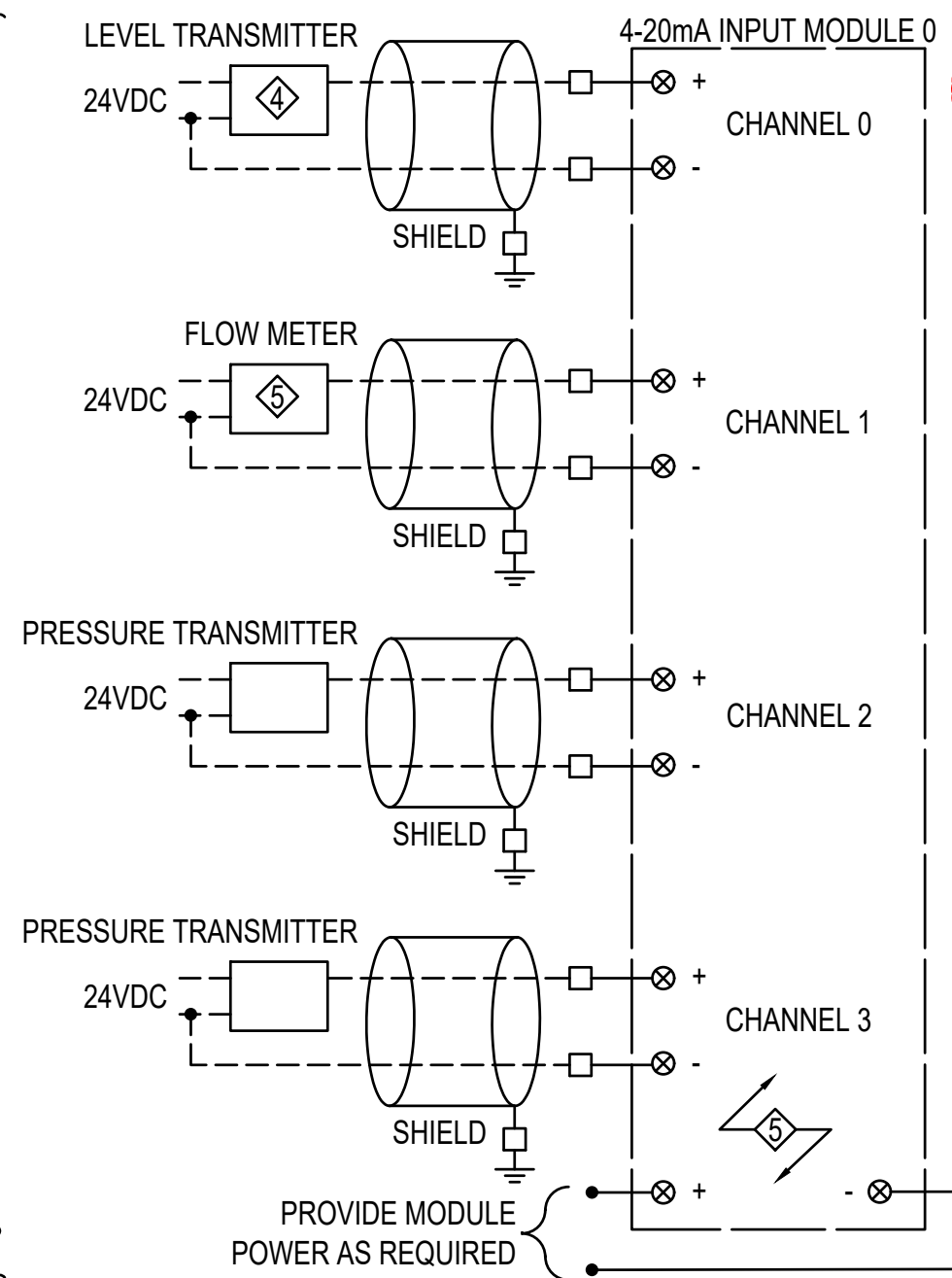
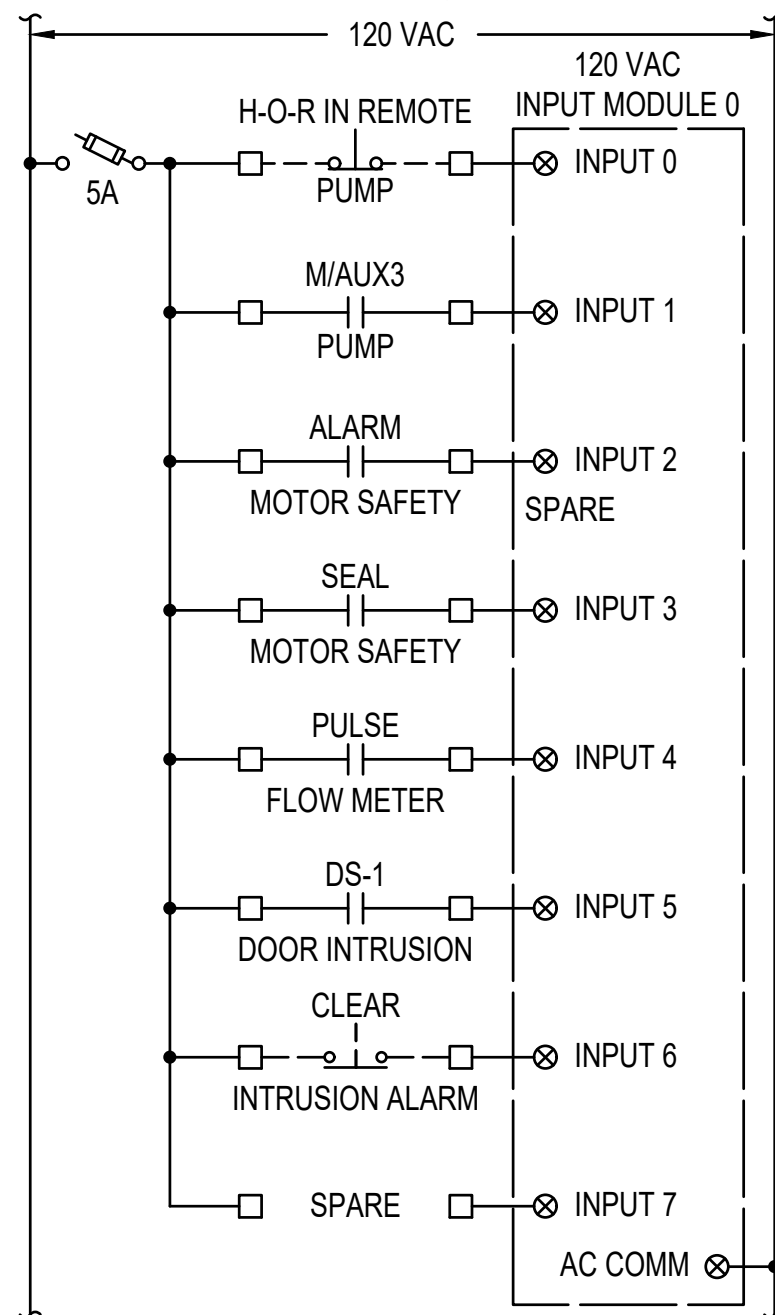
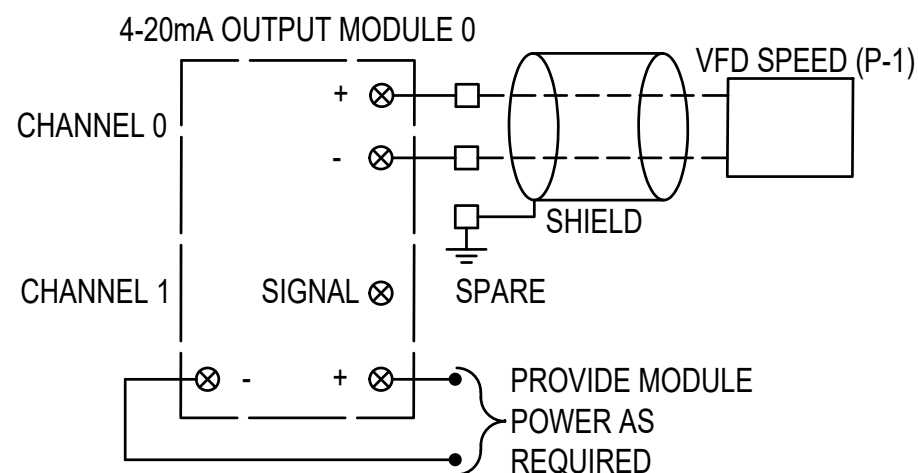
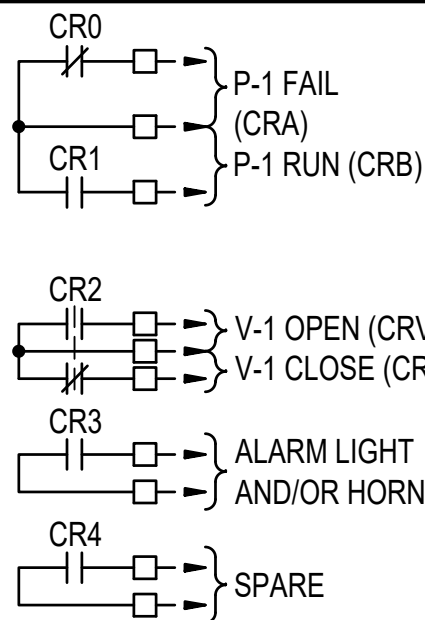
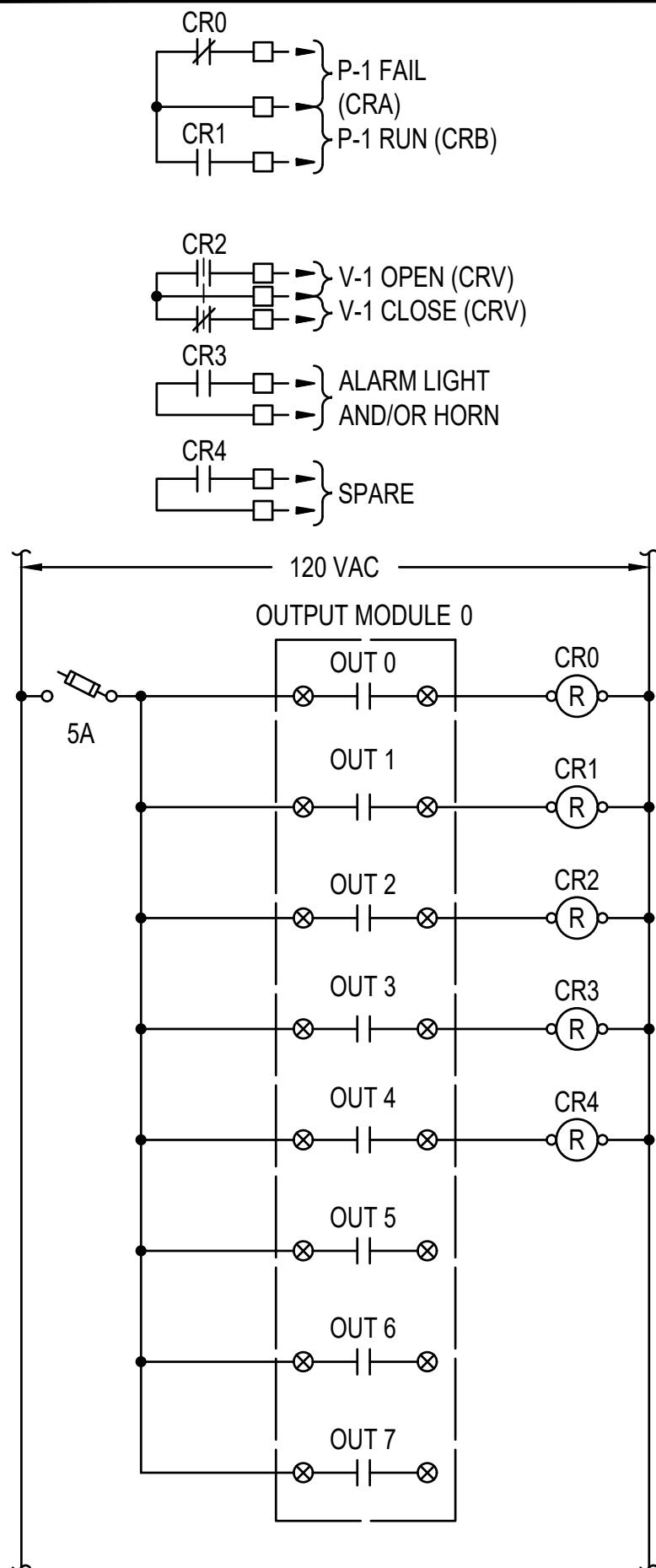
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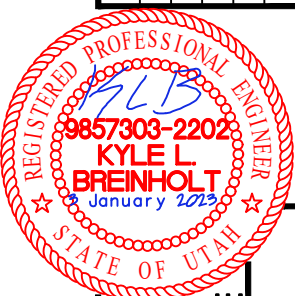
1 SERVICE GROUNDING DETAIL

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- NOTES
- CONTROL DIAGRAMS ARE CONCEPTUAL. CONTRACTOR SHALL MODIFY AS REQUIRED BASED ON EQUIPMENT SUPPLIED.
 - REFER TO SPECIFICATIONS FOR CONTROL REQUIREMENTS.
 - CONTRACTOR SHALL ASSIGN RELAY AND TERMINAL AND WIRE NUMBERS AS REQUIRED. REFER TO CONTROL PANEL NOTES.
- 4 SEAMETRICS PS98I OR APPROVED EQUAL
- 5 SIEMENS 5100W FLOW METER WITH 6000 DISPLAY OR APPROVED EQUAL
- 6 PROVIDE SPARES FOR FUTURE CHLORINATOR INPUTS.
- 7 COORDINATE ADDITIONAL SPARES REQUIRED WITH OWNER.



PLC WIRING DIAGRAMS

WCWSID - EAST WELL

5665 EAST ELK HORN DRIVE

EDEN, WEBER, UTAH

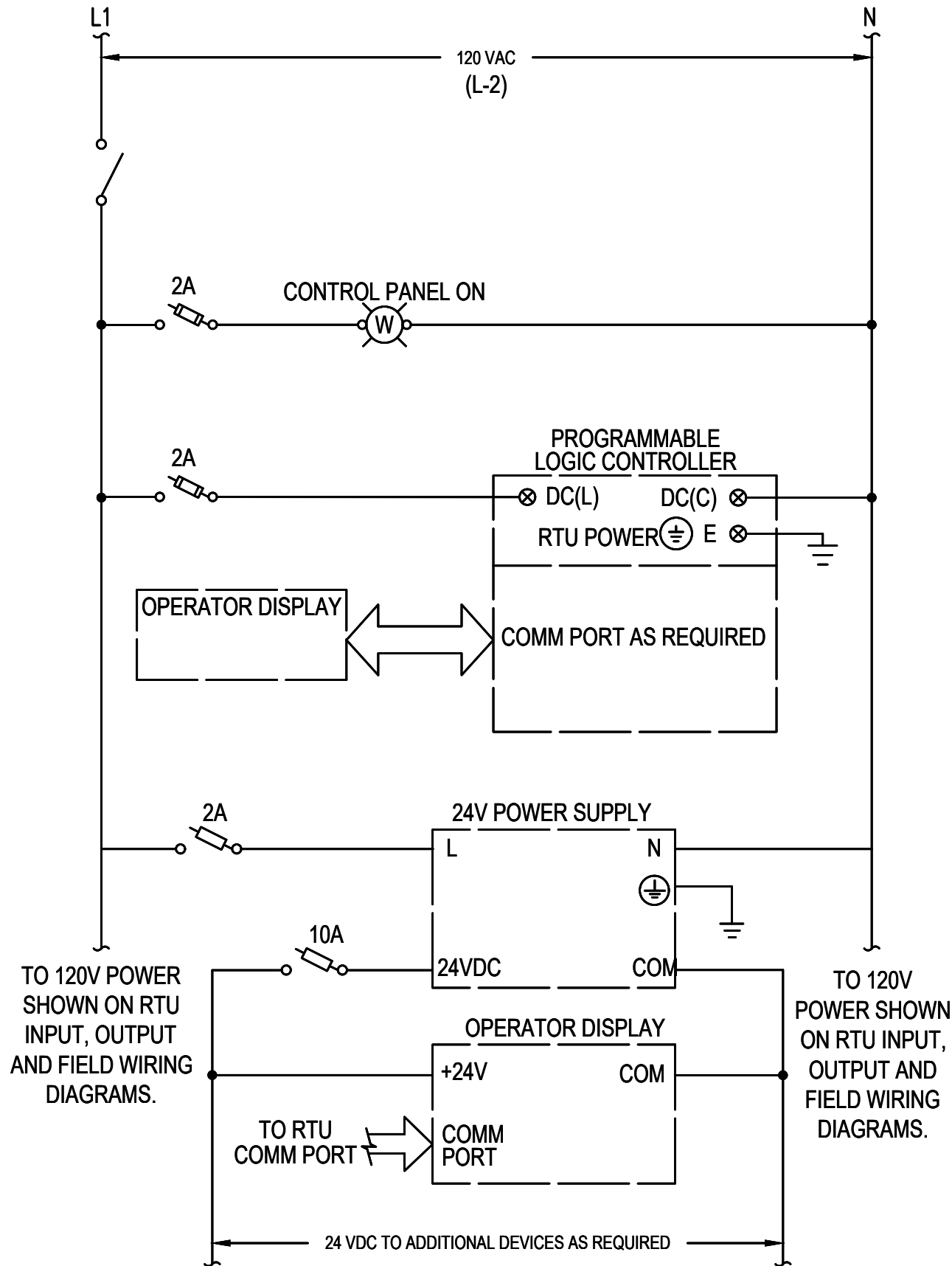


1 SERVICE GROUNDING DETAIL

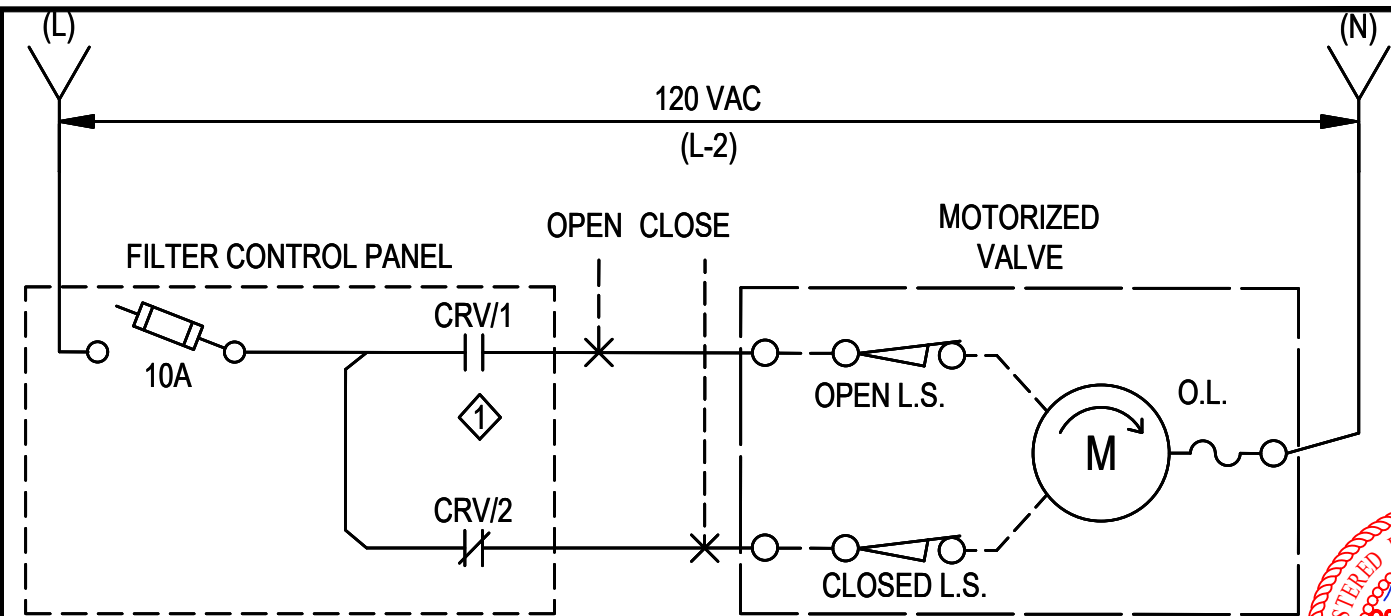
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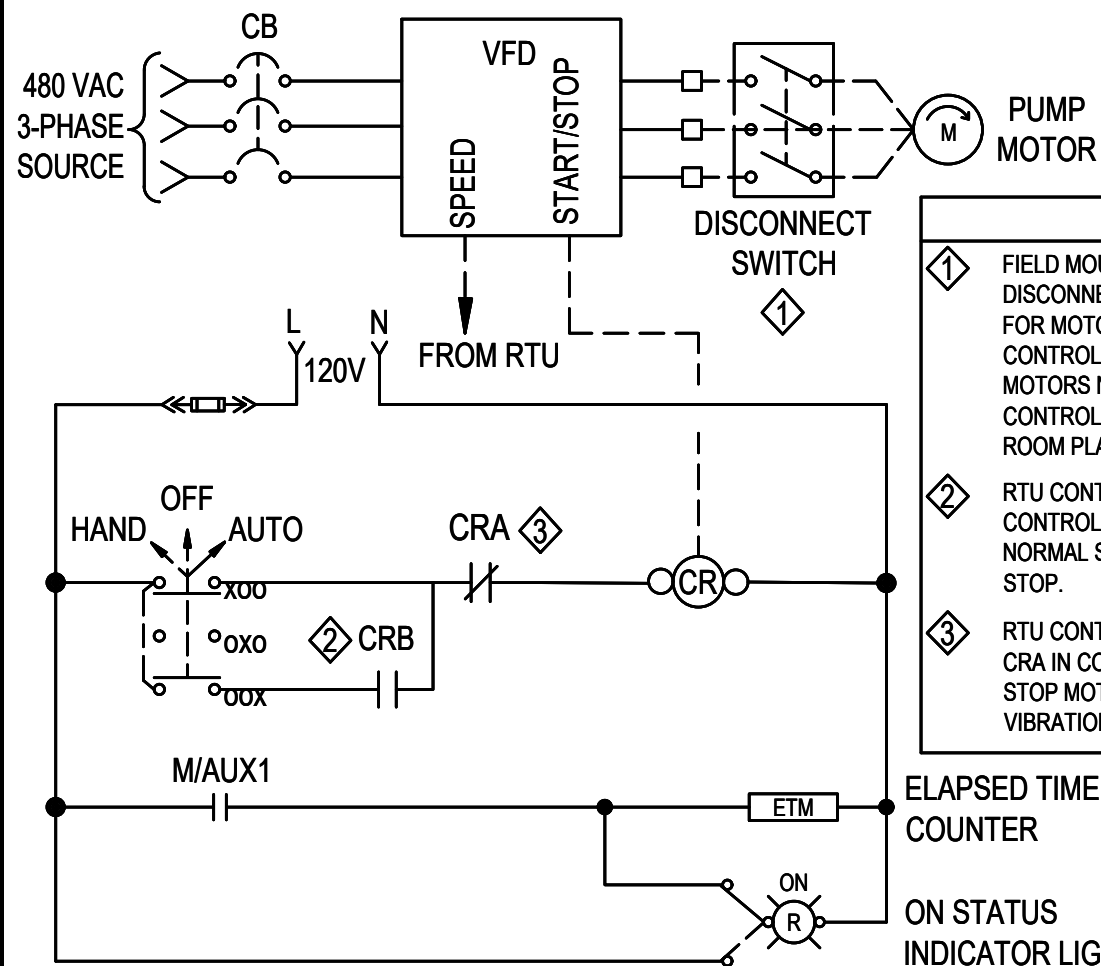
③ CONTROL PANEL POWER & COMMUNICATION



NOTES

① RTU OUTPUT. SEE RTU WIRING DIAGRAMS FOR SIGNAL ORIGIN.

① MOTORIZED VALVE CONTROL DIAGRAM



NOTES

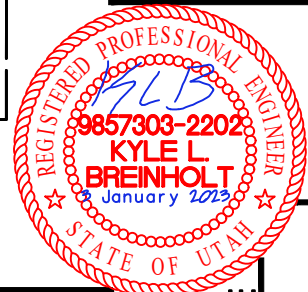
① FIELD MOUNTED NON-FUSED DISCONNECT SWITCH NOT REQUIRED FOR MOTORS WITHIN SIGHT OF MOTOR CONTROLLER. PROVIDE SWITCH FOR MOTORS NOT WITHIN SITE OF MOTOR CONTROLLER. REFER TO EQUIPMENT ROOM PLANS.

② RTU CONTROLLED RELAY CRB IN CONTROL PANEL. CLOSING FOR NORMAL START, OPENS FOR NORMAL STOP.

③ RTU CONTROLLED INTERPOSE RELAY CRA IN CONTROL PANEL. OPENS TO STOP MOTOR (IE, SEAL FAIL, VIBRATION ALARM, MOTOR SAFETY).

② PUMP W/VFD & SHUT-DOWN CONTROL

Date:	11/14/22
Scale:	
Revisions	Description
Date	



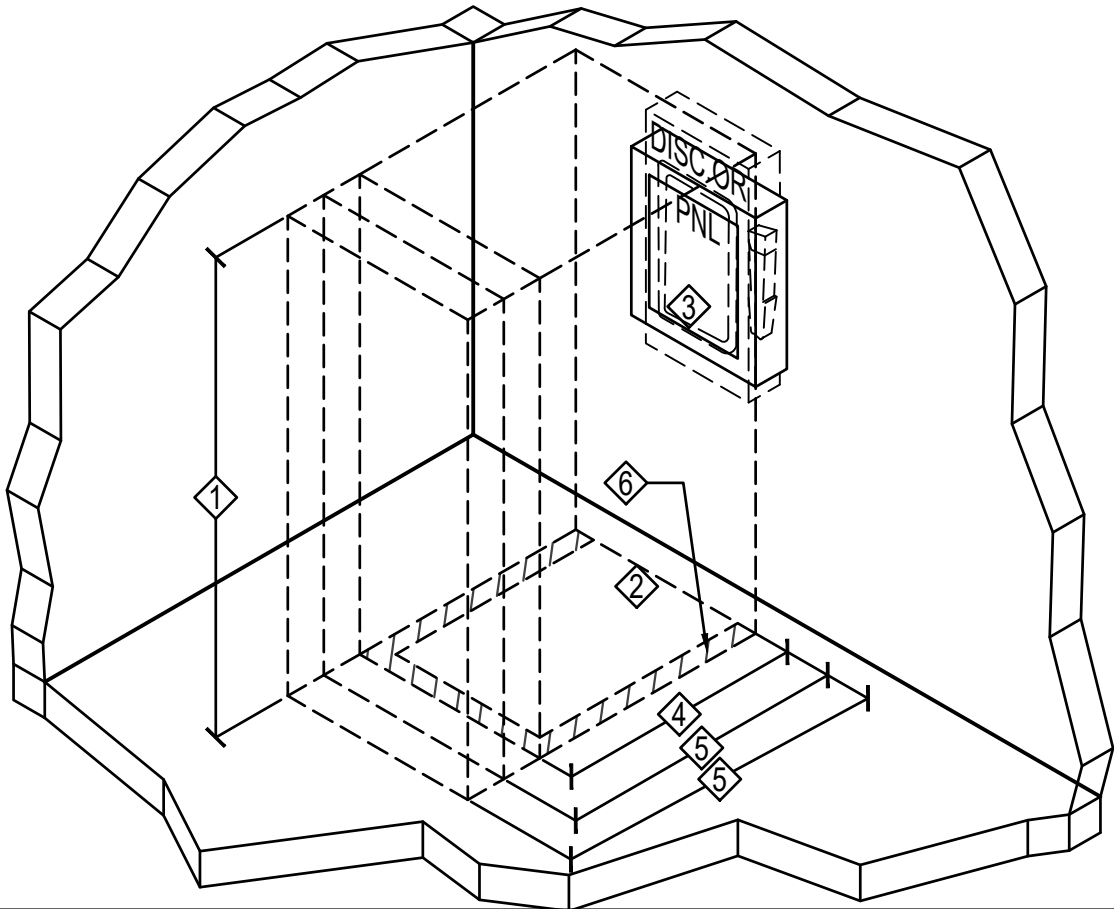
WIRING DIAGRAMS
WCWSID - EAST WELL
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NOTES:

- 1 THE MINIMUM HEADROOM OF WORKING SPACE SHALL BE 6½ FT.
- 2 THE WIDTH OF THE WORKING SPACE SHALL BE THE WIDTH OF THE EQUIPMENT OR 30 IN., WHICHEVER IS GREATER. THE PANEL DOOR SHALL OPEN AT LEAST 90 DEGREES.
- 3 ALL CIRCUIT BREAKERS OR DISCONNECT HANDLES SHALL BE NOT MORE THAN 6 FT 7 IN. ABOVE THE FLOOR WHEN IN THEIR HIGHEST POSITION.
- 4 3 FT CLEARANCE IF 0-150V TO GROUND.
- 5 3.5FT CLEARANCE IF 151-600V TO GROUND. 4FT IF EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORKING SPACE.
- 6 IN AREAS WHERE STORAGE IS LIKELY TO ENCROACH ON WORK SPACE CLEARANCE PROVIDE FLOOR MARKING TAPE, ON FINISHED FLOOR, FOR ELECTRICAL EQUIPMENT WORKING CLEARANCE IDENTIFICATION. FLOOR MARKING TAPE SHALL BE SELF-ADHESIVE VINYL OR POLYESTER TAPE WITH OVERLAMINATE, 3 INCHES (76MM) WIDE, WITH ALTERNATING BLACK AND WHITE STRIPES.
- 7 ALL WORKING SPACE CLEARANCE MEASURED FROM FACE OF PANEL FOR DEPTH, LEFT OR RIGHT EDGE FOR WIDTH, AND STANDING SURFACE FOR HEADROOM.
- 8 REFERENCE NEC 110.26 FOR WORKSPACE CLEARANCES.



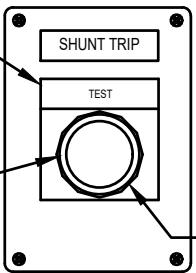
3 ELECTRICAL WORK SPACE CLEARANCES

NOTES:

1. WHEN MOUNTED IN CONTROL PANEL, ENCLOSURE IS NOT REQUIRED.

LEGEND PLATE SQ.
D, CLASS 9001
TYPE K (OR EQUAL)

SELECTOR SWITCH

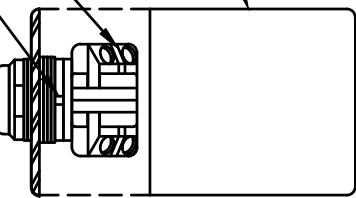


FRONT VIEW

CONTACT BLOCKS (2) SQ D, CLASS
9001, TYPE KA1 (OR EQUAL)

LOCATING NOTCH

OPERATOR MOMENTARY
PUSH BUTTON FULL GUARD
OPERATOR MAINTAINED
CONTACT BLACK, SQ D CLASS
9001, KR1B (OR EQUAL)



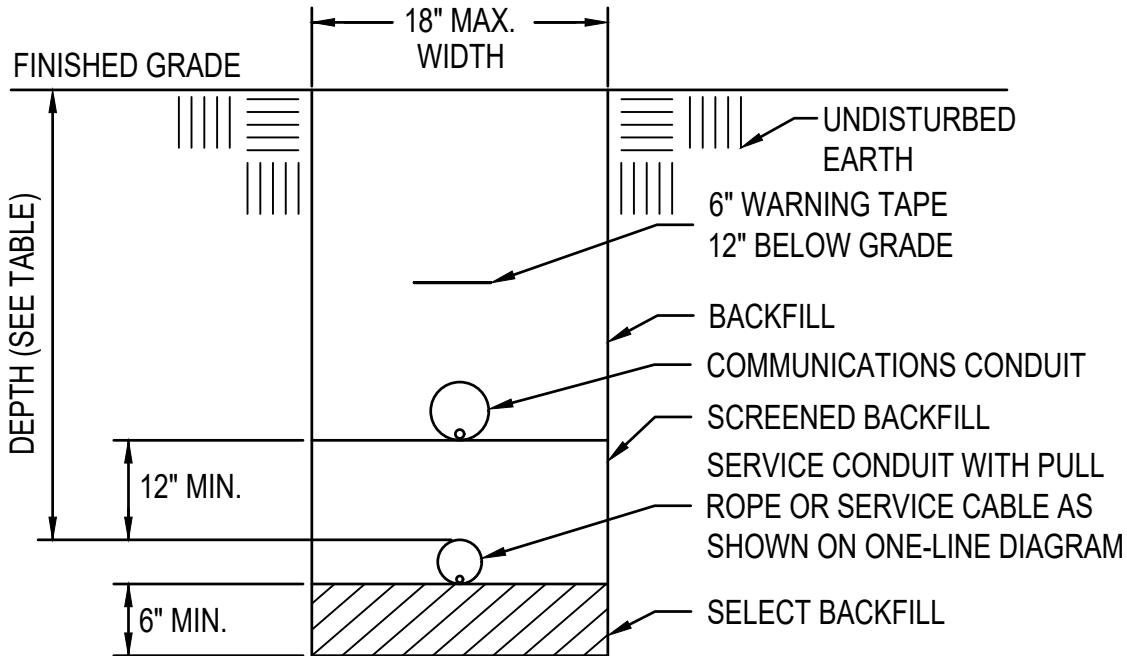
TOP VIEW

PUSHBUTTON ENCLOSURE
HOFFMAN Q-1PBPCD (OR EQUAL)

1 PUSH BUTTON

LOCATION DESCRIPTION	MIN. DEPTH
BELOW CONCRETE SLAB (NOT TRAFFIC)	18 INCHES
BELOW TRAFFIC SURFACES	24 INCHES
PARKING LOT (PAVED OR NON-PAVED)	24 INCHES
OTHER LOCATIONS	24 INCHES
UTILITY SECONDARY	24 INCHES*
UTILITY PRIMARY	48 INCHES*

(SEE NEC TABLE 300.5)
* VERIFY ALL DIMENSIONS WITH LOCAL POWER COMPANY STANDARDS AND SPECIFICATIONS.



2 TRENCHING DETAIL

SCALE: NTS

Date: 11/14/22
Scale:

Revisions
Description
Date

POWER ENGINEERING, PLLC
806 SOUTH 1430 WEST, LUT 84043
(801) 367-5180 PROJECT: BFE2212

REGISTERED PROFESSIONAL ENGINEER
KYLE L. BREINHOLT
January 2023
STATE OF UTAH

DETAILS

WCWSID - EAST WELL
5665 EAST ELK HORN DRIVE
EDEN, WEBER, UTAH

GARDNER
ENGINEERING

CIVIL • LAND PLANNING
MUNICIPAL • LAND SURVEYING

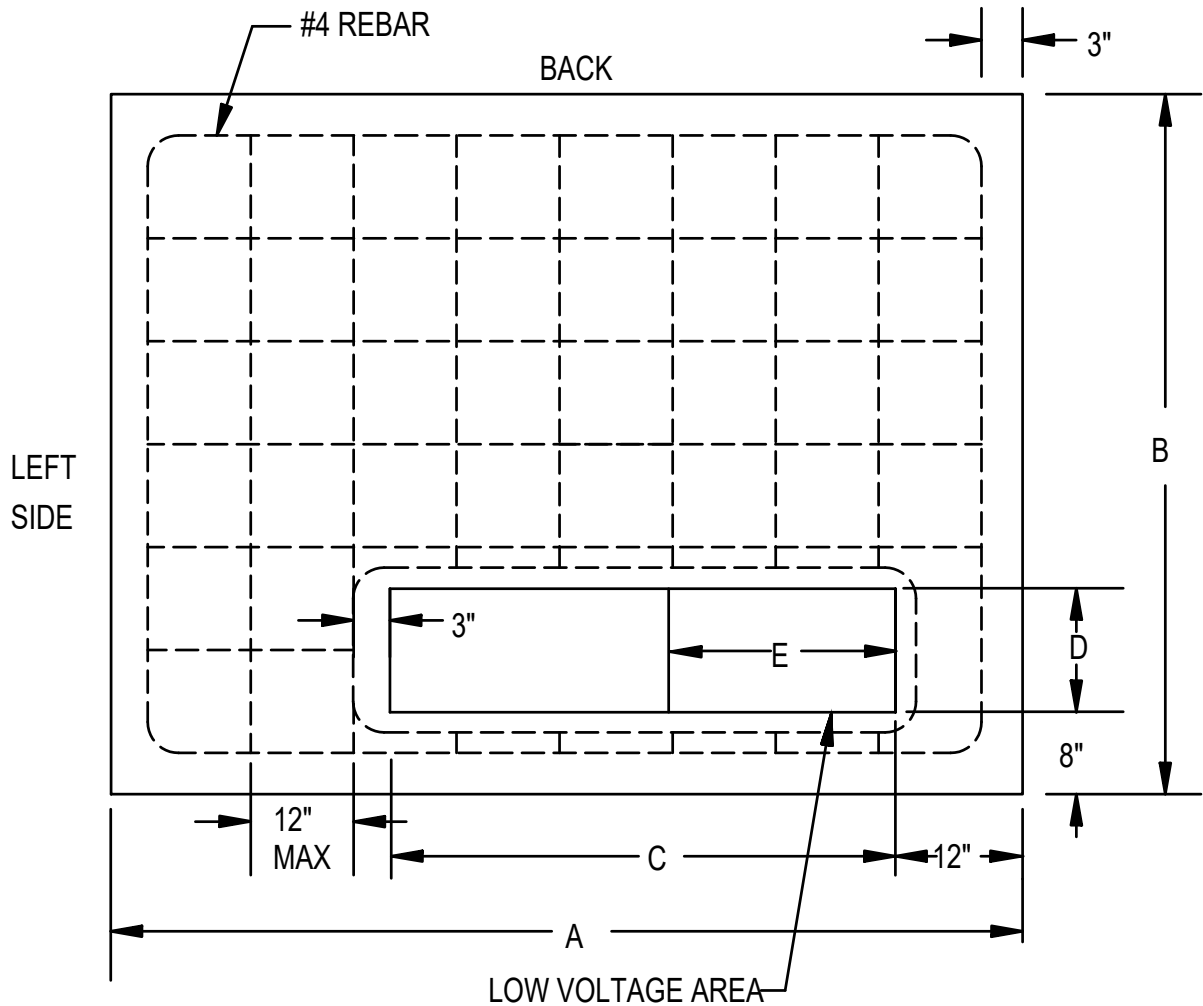
5150 SOUTH 375 EAST OGDEN, UT
OFFICE: 801.476.0202 FAX: 801.476.0066

E55

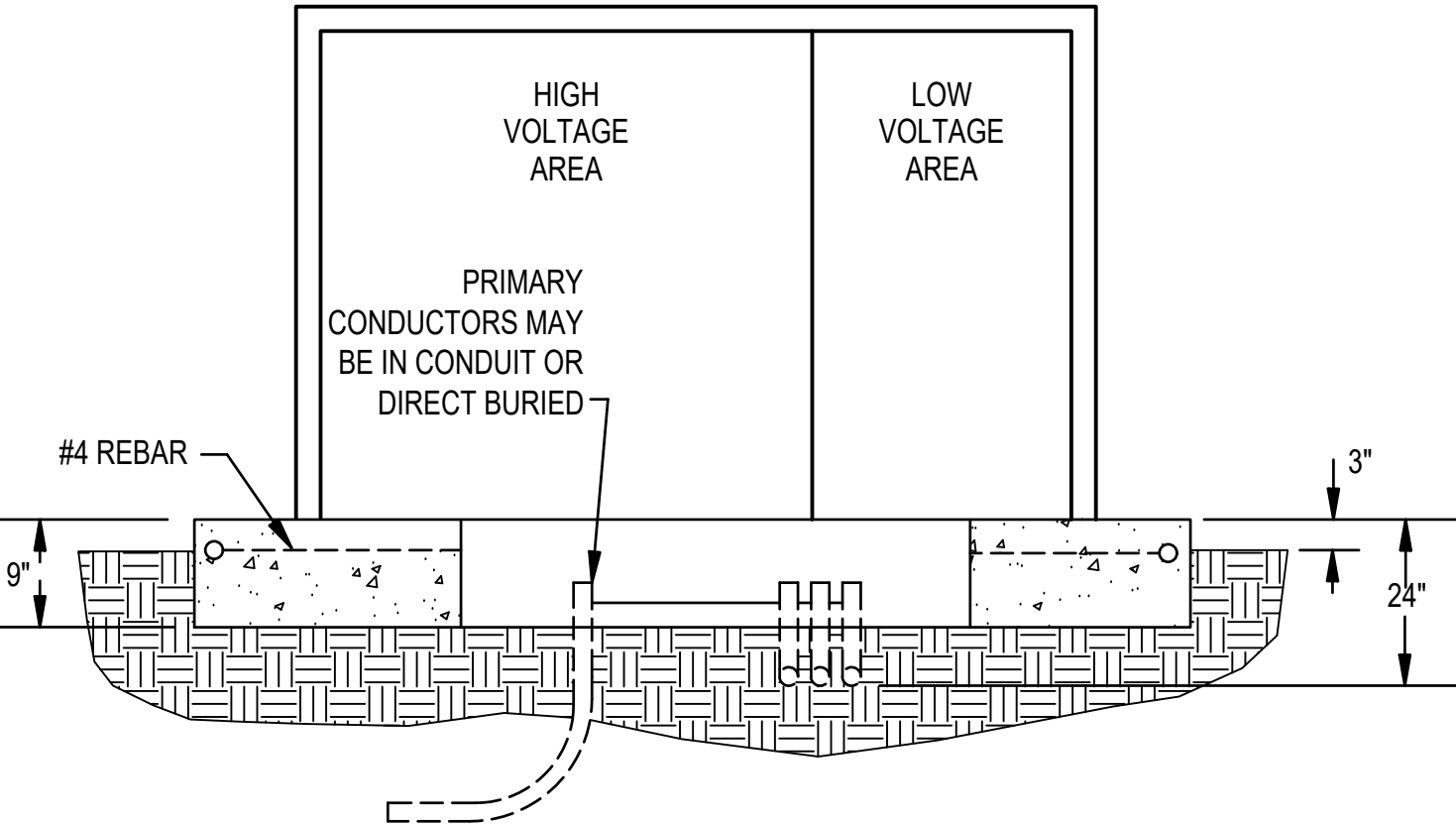
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TRANSFORMER PAD DIMENSION CHART					
TRANSFORMER RATING	DIMENSIONS				
	A	B	C	D	E
75-500KVA	84"	78"	48"	15"	20"
750-2500KVA	96"	82"	60"	16"	30"



- NOTES:
- SITE PREPARATION:** ALL DIRT BENEATH THE PAD SITE MUST BE COMPACTED AND LEVEL PRIOR TO SETTING OR POURING THE PAD TO PREVENT SETTLING.
 - 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.
 - PREFABRICATION:** THE PAD MAY EITHER BE CONSTRUCTED ON THE SITE OR PREFABRICATED ACCORDING TO SPECIFICATIONS.
 - 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. 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.
 - 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.



① ROCKY MOUNTAIN POWER TRANSFORMER FLAT PAD

SCALE: NTS

Date: 11/14/22

Scale:

Revisions

Description

Date

POWER ENGINEERING, PLLC

806 SOUTH 1430 WEST, LUTHERVILLE, GA 30046

(801) 367-5180 PROJECT: BRE2222

BREINHOLT

REGISTERED PROFESSIONAL ENGINEER

9857303-2202

KYLE L. BREINHOLT

January 2023

STATE OF UTAH

DETAILS

WCWSID - EAST WELL

5665 EAST ELK HORN DRIVE

EDEN, WEBER, UTAH

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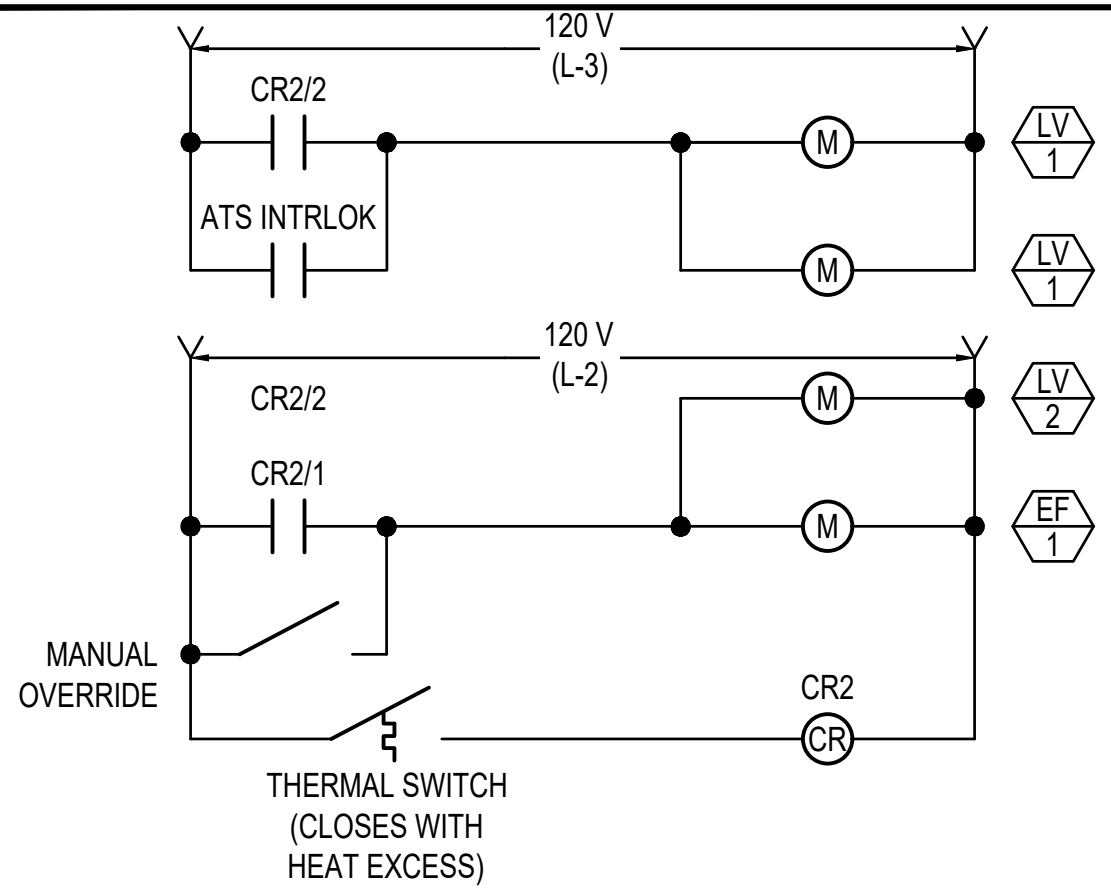
5150 SOUTH 375 EAST OGDEN, UT

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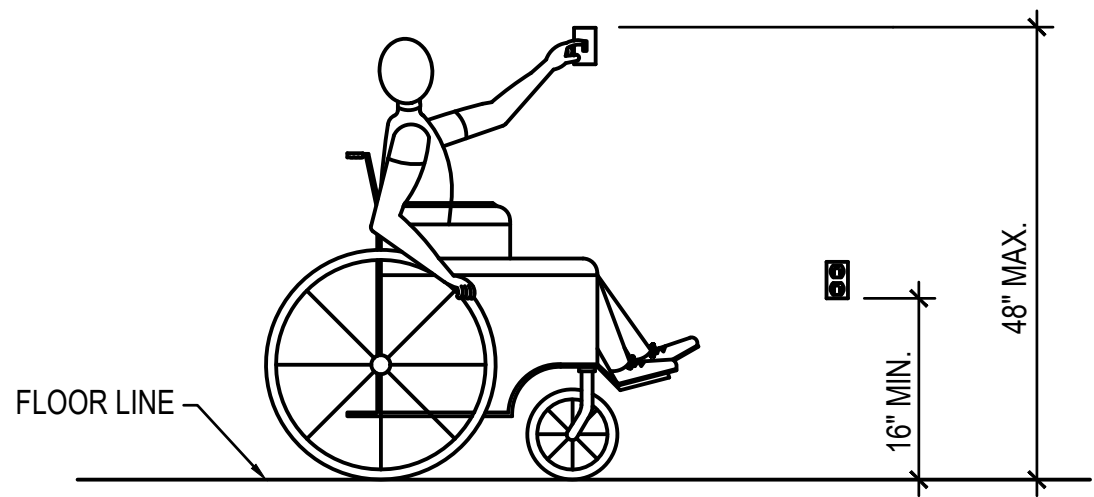
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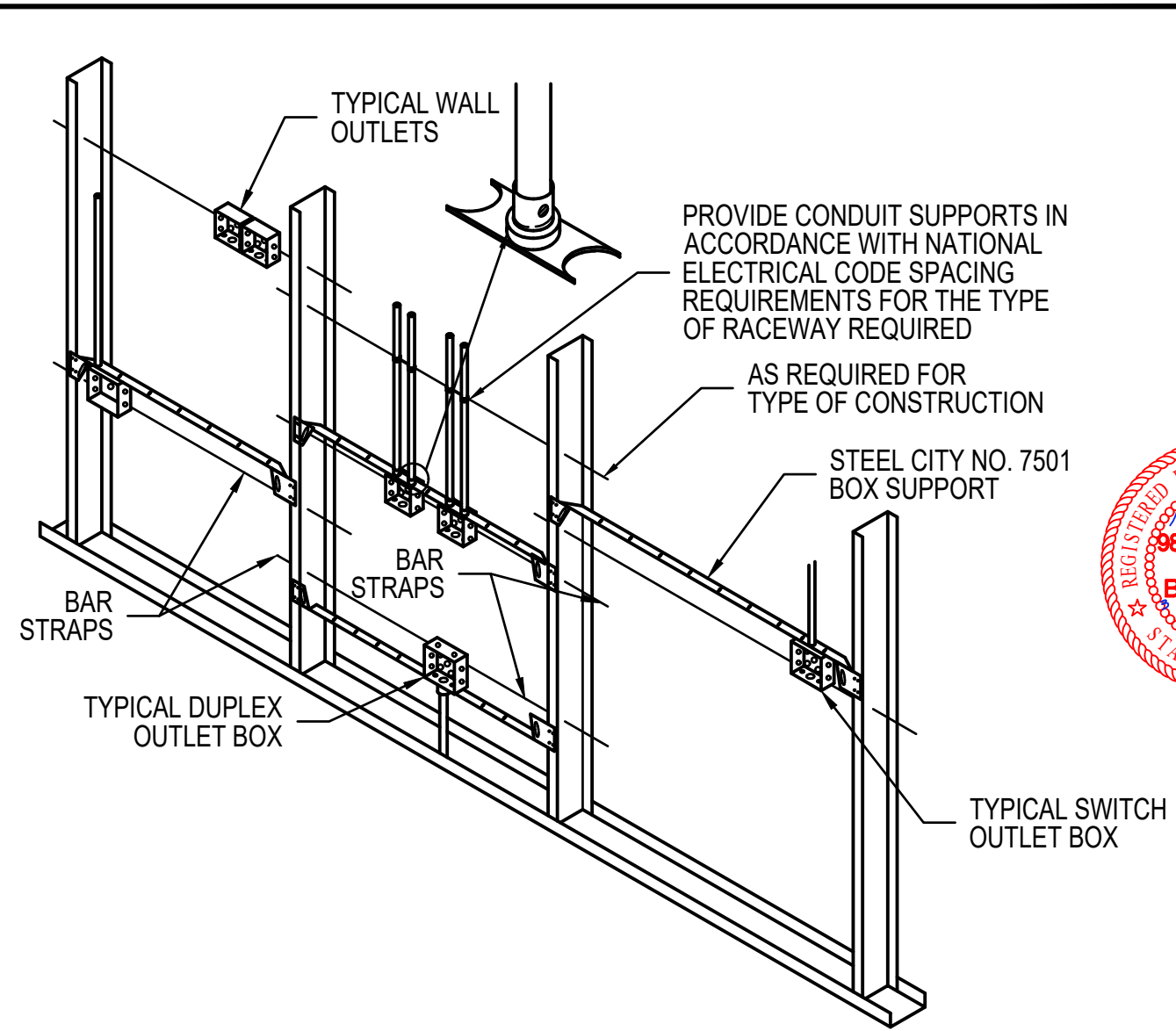
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② EX FAN THERMOSTAT WIRING DIAGRAM



③ DEVICE MOUNTING HEIGHTS



GENERAL NOTES:

1. TYPICAL FOR WOOD & METAL STUD ROUGH-IN.
2. PLASTER RINGS NOT SHOWN.
3. LOCATE ALL OUTLET BOXES IN ACCORDANCE WITH ARCHITECTURAL, MECHANICAL DRAWINGS' AND ALL APPLICABLE SHOP DRAWINGS.
4. IN ACCORDANCE WITH IBC 711.3.2, OUTLETS ON OPPOSITE SIDES OF FIRE RATED WALLS OR PARTITIONS IN THE SAME STUD SPACE MUST BE SEPARATED BY MINIMUM OF 24" HORIZONTAL DISTANCE.

① ROUGH-IN DETAIL FOR CONDUIT

Date: 11/14/22	
Scale:	
Revisions	Description
Date	



DETAILS
WCWSID - EAST WELL
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INSTRUMENTATION	
SYMBOL	DESCRIPTION
<div>LEVEL</div>	WELL LEVEL 1. PS981 TRANSMITTER 4-20MA 2. INSTALL IN SOUNDER TUBE JUST ABOVE THE PUMP DISCHARGE. 3. LENGTH OF CABLE AND RANGE DETERMINED BY CONTRACTOR PER WELL DEPTH & FIELD CONDITIONS
<div>FLOW</div>	FLOW METER 1. SIEMENS 5100W FLOW METER WITH 6000 DISPLAY. 2. 4-20MA OUTPUT & PULSE OUTPUT
<div>DS</div>	DOOR INTRUSION 1. MAGNETIC REED SWITCH 2. CONNECT DIRECTLY INTO MISSION REMOTE TELEMETRY UNIT. 3. LOCAL SUPPLIER, NO SPECIFIC BRAND OR MODEL. 4. COORDINATE NORMALLY OPEN OR NORMALLY CLOSED CONTACT WITH TELEMETRY PROGRAMMING
<div>PRESSURE</div>	LINE PRESSURE MONITORING 1. LOCAL SUPPLIER, NO SPECIFIC BRAND OR MODEL. 2. TRANSMITTER ONLY, NO DISPLAY REQUIRED. (MISSION RTU WILL DISPLAY PRESSURE ON LOCAL SCREEN)
<div>VFD</div>	VFD 1. DANFOSS VLT FC202 2. NO SUBSTITUTIONS, INDICATED MODEL HAS OWNER'S DESIRED THE PARAMETERS AND RAMP TIME. 3. PROVIDE LOAD SIDE WAVE FILTER AS REQUIRED FOR MOTOR PROTECTION AND TO MAINTAIN MOTOR WARRANTY. 4. PROGRAM AS DIRECTED BY OWNER.

SYMBOL	DESCRIPTION	SERVICE		DISCONNECT	STARTER	LOAD			REMARKS
		VOLTS	PHASE	SIZE		HP/TON	VA	AMPS	
<div>EF 1</div>	EXHAUST FAN	120 V	1Ø	NOTE E.	-	FRAC	240	2.0 A	
<div>LVR 1</div>	MOTORIZED LOUVER	120 V	1Ø	NOTE E.	-	FRAC	240	2.0 A	
<div>LVR 2</div>	MOTORIZED LOUVER	120 V	1Ø	NOTE E.	-	FRAC	240	2.0 A	
<div>P-1</div>	SUBMERSIBLE PUMP	480 V	3Ø	CIRCUIT BREAKER	VFD	30 HP	33,255	40.0 A	NOTE D.
<div>UH 1</div>	UNIT HEATER	120 V	1Ø	T-STAT	INTEGRAL	¼ HP	696	5.8 A	
NOTES: A. VERIFY ALL EQUIPMENT LOCATIONS AND CONNECTION REQUIREMENTS (i.e. VOLTAGE, PHASE, FLA, ETC.) WITH MECHANICAL DRAWINGS/SUBMITTALS BEFORE FOR ACTUAL EQUIPMENT INSTALLED. B. ALL FUSES SHALL BE DUAL ELEMENT TIME DELAY. FINAL BREAKER/FUSE & DISCONNECT SIZE SHALL BE DETERMINED BY MANUFACTURER'S RECOMMENDATION FOR ACTUAL EQUIPMENT INSTALLED. C. MAXIMUM VALUES INDICATED. D. DISCONNECTING MEANS NOT REQUIRED FOR EQUIPMENT WITHIN SIGHT (AS DEFINED IN NEC) OF BRANCH PANEL SERVING EQUIPMENT. SEE NEC 422.31 (B). E. DISCONNECTING MEANS NOT REQUIRED FOR APPLIANCES NOT OVER 300 VA. SEE NEC 422.31 (A).									

FIXTURE NUMBER	FIXTURE MANUFACTURER	FIXTURE CATALOG #	LAMPS		FIXTURE			DESCRIPTION	REMARKS
			TYPE	QTY.	VOLTS	WATTS	MOUNTING		
F1E	METALUX LITHONIA DAY-BRITE LSI COLUMBIA ORACLE ALPHALITE	4SNLED-LD4-30SL-LW-UNV-EL14W-L835-CD1-U ZL1N-L48-3000LM-FST-MVOLT-35K-80CRI-E7W-WH FSS440L835-UNV-DIM-EMLD SDL-4-LED-SS-WW-UE-EM LCL4-35LW-EDU-ELL14 4-OC1-LED-3000L-DIM10-MVOLT-35K-80-O-EMG-LED ILL-4-L(25S2)/8-35-EM1400	LED 3500 KELVIN 3000 LUMENS 80 CRI	INTEGRAL	277	29	SURFACE/CHAIN	48" LED STRIP WITH EMERGENCY BATTERY PACK	
F3	MCGRAW EDISON LITHONIA VISIONAIRE BROWNLEE HUBBELL ORACLE PARAFLEX	IST-F01-LED-E1-BL3-SCBA WST LED P1 30K VF MVOLT SCBA HEX-021-A-WW-MT-WPC 7037-C24LED-30K-CBA TRP1-12L-30-3K7-3-U-CBA OWP-FC-201-LED-2000L-MVOLT-30K-CBA DC150-90-24W-30K-FINISH	LED 3000 KELVIN 2200 LUMENS 80 CRI	INTEGRAL	277	27	SURFACE WALL	TRAPEZOID WALL SCONCE	COLOR TO BE SELECTED BY ARCHITECT. INSTALLATION SHALL COMPLY WITH WEBER COUNTY'S DARK SKY LIGHTING ORDINANCE.
EG	SURELITE LITHONIA EMERGENSEE LSI DUAL-LITE MAXILUME BLG	SELW25XX AFN-DB-EXT SEELEDEMDEL-W-SDT-CW CSN-DB-CT PGZ-HTR ELM-807-BZ TRL-ACEM-FINISH-CL	6W XENON INCLUDED	2	277	12	SURFACE WALL	EMERGENCY EGRESS LIGHT	EMERGENCY EGRESS FINISH SELECTED BY ARCHITECT



Date: 11/14/22

Scale:

POWER ENGINEERING, PLLC
806 SOUTH 1430 WEST, LEHI UT 84043
(801) 367-5180 PROJECT: BRE2212

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EQUIPMENT SCHEDULES

WCWSID - EAST WELL

5665 EAST ELK HORN DRIVE

EDEN, WEBER, UTAH

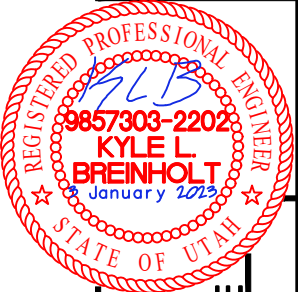
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5150 SOUTH 375 EAST OGDEN, UT
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PANEL SCHEDULE "H"																							
VOLTAGE: 480 Y/ 277 VOLTS				BUS RATING (AMPS): 125				REMARKS:															
MOUNTING: SURFACE				PHASE: 3				MAIN LUGS ONLY															
ENCLOSURE: NEMA 1				WIRE: 4				MINIMUM EQUIPMENT RATING: 25,000				AMPS (RMS-SYM) AFC 22,784											
CIRCUIT BREAKER				CIRCUIT NAME	FEEDER			CKT. LOAD		LOAD/PHASE (VA)			CKT. LOAD		FEEDER			CIRCUIT NAME	CIRCUIT BREAKER				
No.	AMPS	POLE	MOD.		C	WIRE	GRD	DEMAND FACTOR	WATTS	ØA	ØB	ØC	WATTS	DEMAND FACTOR	GRD	WIRE	C		MOD.	POLE	AMPS	No.	
1	60	3	-	P-1 SUBMERSIBLE PUMP	1"	#6	#10	1.25	11,085	13,565			2,480	1.00	#12	#12	¾"	TRANSFOMER/PANEL L	-	3	20	2	
3	-	-	-	-	-	#6	-	1.25	11,085		14,505		3,420	1.00	-	#12	-	-	-	-	4		
5	-	-	-	-	-	#6	-	1.25	11,085			12,321	1,236	1.00	-	#12	-	-	-	-	6		
7	20	1	-	LIGHT	¾"	#12	#12	1.00	153	153				1.00				SPACE	-			8	
9			-	SPACE				1.00			0			1.00				SPACE	-			10	
11			-	SPACE				1.00			0			1.00				SPACE	-			12	
<div>NOTES :</div> <div><div>A. ALL INSULATION ON CONDUCTORS TO BE THHN UNLESS NOTED OTHERWISE. INSULATION ON ALL UNDERGROUND EXTERIOR CONDUCTORS SHALL BE THHW.</div><div>B. LOAD DEMANDS CALCULATED AS PER SECTIONS 210 & 220 OF THE NATIONAL ELECTRICAL CODE.</div><div>C. PANEL COVER SHALL BE FIELD MARKED FOR FLASH PROTECTION WITH A PERMANENT LABEL AS REQUIRED BY THE NATIONAL ELECTRICAL CODE SECTION 110. LABEL SHALL READ: "DANGER: POTENTIAL ARC FLASH HAZARD"</div><div>D. ABBREVIATIONS: CO-CONVENIENCE OUTLET, RR-RESTROOM, (N)ORTH, (S)OUTH, (E)AST, (W)EST.</div></div>																							
										ØA	ØB	ØC	TOTALS										
										13,718	14,505	12,321	40,544	CONNECTED LOAD (VA)									
													49	CONNECTED LOAD (A)									
										2,771	2,771	2,771	8,314	DEMAND FACTOR ADJUSTMENTS (VA)									
										16,489	17,276	15,092	48,858	TOTAL LOAD (VA)									
										60	62	54		TOTAL LOAD (A)									
													62	MAXIMUM LOAD (A)									
										34%	35%	31%		PHASE BALANCE									

PANEL SCHEDULE "L"																							
VOLTAGE: 208 Y/ 120 VOLTS				BUS RATING (AMPS): 100				REMARKS:															
MOUNTING: SURFACE				PHASE: 3				MAIN CIRCUIT BREAKER: 45															
ENCLOSURE: NEMA 1				WIRE: 4				MINIMUM EQUIPMENT RATING: 22,000 AMPS (RMS-SYM) AFC 21,653															
CIRCUIT BREAKER				CIRCUIT NAME	FEEDER			CKT. LOAD		LOAD/PHASE (VA)			CKT. LOAD		FEEDER			CIRCUIT NAME	CIRCUIT BREAKER				
No.	AMPS	POLE	MOD.		C	WIRE	GRD	DEMAND FACTOR	WATTS	ØA	ØB	ØC	WATTS	DEMAND FACTOR	GRD	WIRE	C		MOD.	POLE	AMPS	No.	
1	20	1	-	EF-1 EXHAUST FAN & LVR-2 MOT	¾"	#12	#12	1.00	480	980			500	1.00	#12	#12	¾"	CONTROL POWER	-	1	20	2	
3	20	1	-	(2) LVR-1 MOTORIZED LOUVER	¾"	#12	#12	1.00	480		1,920		1,440	1.00	#12	#12	¾"	CO - INTERIOR	GFCI	1	20	4	
5	20	1	-	UH-1 UNIT HEATER	¾"	#12	#12	1.00	696			1,236	540	1.00	#12	#12	¾"	CO - EXTERIOR	GFCI	1	20	6	
7	20	1	-	GENERATOR BLOCK HEATER	¾"	#12	#12	1.00	1,500	1,500				1.00				SPACE	-			8	
9	20	1	-	GENERATOR BATTERY CHARGER	¾"	#12	#12	1.00	1,500		1,500			1.00				SPACE	-			10	
11			-	SPACE				1.00				0		1.00				SPACE	-			12	
<div>NOTES :</div> <div>A. ALL INSULATION ON CONDUCTORS TO BE THHN UNLESS NOTED OTHERWISE. INSULATION ON ALL UNDERGROUND EXTERIOR CONDUCTORS SHALL BE THHW.</div> <div>B. LOAD DEMANDS CALCULATED AS PER SECTIONS 210 & 220 OF THE NATIONAL ELECTRICAL CODE.</div> <div>C. PANEL COVER SHALL BE FIELD MARKED FOR FLASH PROTECTION WITH A PERMANENT LABEL AS REQUIRED BY THE NATIONAL ELECTRICAL CODE SECTION 110. LABEL SHALL READ: "DANGER: POTENTIAL ARC FLASH HAZARD"</div> <div>D. ABBREVIATIONS: CO-CONVENIENCE OUTLET, RR-RESTROOM, (N)ORTH, (S)OUTH, (E)AST, (W)EST.</div>																							
										ØA	ØB	ØC	TOTALS										
										2,480	3,420	1,236	7,136	CONNECTED LOAD (VA)									
													20	CONNECTED LOAD (A)									
										0	0	0	0	DEMAND FACTOR ADJUSTMENTS (VA)									
										2,480	3,420	1,236	7,136	TOTAL LOAD (VA)									
										21	28	10		TOTAL LOAD (A)									
													28	MAXIMUM LOAD (A)									
										35%	48%	17%		PHASE BALANCE									



Date: 11/14/22
Scale:
BREINHOLT
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806 SOUTH 1430 WEST, LEBANON, UT 84043
(801) 367-5180 PROJECT: BFE2212

Revisions	Description	Date

PANEL SCHEDULES
WCWSID - EAST WELL
5665 EAST ELK HORN DRIVE
EDEN, WEBER, UTAH



E62
15

DESIGN CRITERIA

1. BUILDING CODE: UTAH CODE, TITLE 15A
1.1 MODEL BUILDING CODE: 2018 IBC
1.2 USE AND OCCUPANCY CLASSIFICATION: R
1.3 RISK CATEGORY: II
2. DEAD LOADS
2.1 ROOF = 15 PSF (10 PSF TOP CHORD, 5 PSF BOTTOM CHORD)
2.2 FLOOR = 10 PSF
2.3 WALLS = 10 PSF (INTERIOR WALLS), 20 PSF (EXTERIOR WALLS)
3. LIVE LOADS
3.1 ROOF = 20 PSF (OR 300 LB POINT LOAD)
3.1 FLOOR = 40 PSF (LIVING SPACE), 60 PSF (EXT. DECK)
4. SNOW LOAD
4.1 ROOF SNOW LOAD = 30 PSF
4.2 EXPOSURE FACTOR, CE = 1
4.3 THERMAL FACTOR, CT = 1
4.4 SNOW IMPORTANCE FACTOR, IS = 1
5. SEISMIC DESIGN PARAMETERS (ASCE 7-16 12.8)
Ss: 0.907 Sds: 0.725
Si: 0.32 Sdi: 0.376
5.1 SEISMIC DESIGN CATEGORY: D
5.2 SITE CLASS: D
5.3 RISK CATEGORY: II
5.4 IMPORTANCE FACTOR, LC: 1.00
5.5 BASIC SEISMIC-FORCE-RESISTING SYSTEM:
LIGHT FRAMED WALLS SHEATHED W/ WOOD STRUCTURAL PANELS
5.5.1 RESPONSE MODIFICATION FACTOR: R = 6.5
5.5.2 SYSTEM OVERSTRENGTH FACTOR: OMEGA = 3
5.5.3 DEFLECTION AMPLIFICATION FACTOR: CD = 4
5.6 EQUIVALENT LATERAL FORCE PROCEDURE
5.6.1 SEISMIC RESPONSE COEFFICIENT, Cs: 0.132
5.6.2 DESIGN BASED SHEAR, V: CsW
6. WIND DESIGN PARAMETERS (ASCE 7-16 6.4)
6.1 EXPOSURE CATEGORY: C
6.2 ULTIMATE WIND SPEED: 115 MPH
6.3 RISK CATEGORY: II
6.4 COMPONENTS AND CLADDING DESIGN WIND LOADS TO BE PER ASCE 7-16



GENERAL NOTES

1. THE STRUCTURAL NOTES AND TYPICAL DETAILS ARE INTENDED TO COMPLIMENT THE PROJECT SPECIFICATIONS AND APPLY WHERE SPECIFIC NOTES AND DETAILS ARE NOT AVAILABLE. TYPICAL OR SIMILAR DETAILS REFER TO THE CONDITIONS ADDRESSED AND ARE NOT NECESSARILY DETAILS LABELED "TYPICAL" OR "SIMILAR" IN THE PLANS AND DOCUMENTS. SPECIFIC NOTES AND DETAILS ON THE DRAWINGS SHALL GOVERN OVER THE STRUCTURAL NOTES AND TYPICAL DETAILS. STRUCTURAL REQUIREMENTS SHOWN ON THE FRAMING PLANS AND STRUCTURAL DETAILS SHALL TAKE PRECEDENCE OVER STRUCTURAL NOTES INDICATED IN ARCHITECTURAL SECTIONS.
2. THESE DRAWINGS (AND, WHERE APPLICABLE, ACCOMPANYING WRITTEN SPECIFICATIONS) ARE THE ONLY CONTRACT DOCUMENTS PROVIDED BY IRONSIDE ENGINEERING FOR THE PROJECT REPRESENTED HEREIN. NOTHING IN ANY DIGITAL MODEL OR DIGITAL FILE RELATED TO THIS PROJECT SHALL BE TAKEN TO SUPERSEDE ANY INFORMATION SHOWN IN THESE DRAWINGS (INCLUDING, BUT NOT LIMITED TO, DIMENSIONS, SIZES, ETC.).
3. THE ARCHITECTURAL DRAWINGS ARE THE PRIME CONTRACT DRAWINGS. THE STRUCTURAL DRAWINGS ARE SUPPLEMENTARY TO AND MUST BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS AND OTHER CONSULTANTS DRAWINGS. ALL OMISSIONS OR CONFLICTS BETWEEN VARIOUS ELEMENTS OF THE WORKING DRAWINGS AND/OR SPECIFICATIONS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ARCHITECT AND STRUCTURAL ENGINEER BEFORE PROCEEDING WITH ANY WORK INVOLVED. IN CASE OF CONFLICT, FOLLOW THE MOST STRINGENT REQUIREMENT AS DIRECTED BY THE ARCHITECT AT NO ADDITIONAL COST TO THE OWNER BEFORE PROCEEDING WITH ANY WORK INVOLVED.
4. SEE SPECIFICATIONS FOR REQUIRED SUBMITTALS. SUBMITTALS SHALL BE MADE IN A TIMELY MANNER AS INDICATED IN SPECIFICATIONS. REVIEW OF SUBMITTALS BY IRONSIDE ENGINEERING IS FOR GENERAL COMPLIANCE ONLY AND IS NOT INTENED AS APPROVAL. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL SIZES, DIMENSIONS, AND ELEVATIONS ON SUBMITTALS AS RELATED TO DESIGN DOCUMENTS. PREPARATION OF SHOP DRAWINGS FOR STRUCTURAL ELEMENTS WILL REQUIRE INFORMATION (I.E. DIMENSIONS, ETC.) FOUND IN THE ARCHITECTURAL, STRUCTURAL, AND OTHER CONSULTANTS DRAWINGS.
5. THE CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS, DIMENSIONS, SPANS, ELEVATIONS, COORDINATE ALL MECHANICAL AND/OR OTHER EQUIPMENT, ETC. IF ACTUAL CONDITIONS DIFFER FROM THOSE SHOWN ON CONTRACT DOCUMENTS, CONTRACTOR IS TO IMMEDIATELY NOTIFY ARCHITECT PRIOR TO FABRICATION OR CONSTRUCTION OF ANY AFFECTED ELEMENTS. CONTRACTOR IS TO BECOME FAMILIAR WITH ALL PORTIONS OF THE CONSTRUCTION DOCUMENTS AND SHALL ENSURE THAT ALL SUBCONTRACTORS ARE FAMILIAR WITH THOSE PORTIONS PERTAINING TO THEIR AREA OF WORK INCLUDING THE COORDINATION OF ALL LOCATIONS AND SIZES OF MECHANICAL EQUIPMENT AND OTHER EQUIPMENT.
6. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE TEMPORARY SHORING AND BRACING TO THE STRUCTURE DURING THE SEQUENCE OF CONSTRUCTION, PROVIDING ADEQUATE VERTICAL AND LATERAL SUPPORT FOR ALL STRUCTURAL ELEMENTS UNTIL THE ENTIRE STRUCTURAL SYSTEM IS COMPLETED. DESIGN OF ALL SHORING AND BRACING IS BY OTHERS AT NO ADDITIONAL COST TO THE OWNER.
7. THE CONTRACTOR SHALL SUBMIT A WRITTEN REQUEST TO THE ARCHITECT FOR ARCHITECT AND/OR ENGINEER APPROVAL BEFORE PROCEEDING WITH ANY CHANGES, MODIFICATIONS, OR SUBSTITUTIONS.
8. DURING AND AFTER CONSTRUCTION, BUILDER AND/OR OWNER SHALL KEEP LOADS ON STRUCTURE WITHIN THE LIMITS OF DESIGN LOADS AS NOTED IN THESE DOCUMENTS.
9. DRAWINGS AND DETAILS HAVE BEEN PREPARED WITH THE INTENT TO VISUALLY REPRESENT INFORMATION PROVIDED IN SCALED FORM; HOWEVER, CONTRACTOR/SUPPLIERS SHOULD NOT SCALE PLANS OR DETAILS FOR DIMENSIONAL INFORMATION.
10. ENGINEER SHALL NOT BE RESPONSIBLE FOR ACTIVITIES UNDER THE CONTROL OF THE CONTRACTOR INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION SITE SAFETY, MEANS, METHODS AND SEQUENCING OF CONSTRUCTION, ETC. ENGINEER SHALL NOT BE RESPONSIBLE FOR FABRICATION, ERECTION AND CONSTRUCTION REQUIREMENTS AS PRESCRIBED BY OSHA OR OTHER REGULATORY AGENCIES REGARDLESS OF INDICATIONS IN THESE DOCUMENTS.
11. NOTICE OF COPYRIGHT: THESE STRUCTURAL DRAWINGS ARE HEREBY COPYRIGHTED BY IRONSIDE ENGINEERING. ALL RIGHTS RESERVED. THESE DOCUMENTS DEFINE A STRUCTURE AND ARE INSTRUMENTS OF SERVICE. FOR ONE USE ONLY. REPRODUCTION AND DISTRIBUTION OF THESE DRAWINGS IS ONLY ALLOWED AS REQUIRED FOR REGULATORY AGENCIES AND FOR CONVEYANCE OF INFORMATION TO PARTIES INVOLVED IN THE CONSTRUCTION OF THIS PROJECT. THESE DOCUMENTS SHALL NOT BE REPRODUCED OR COPIED, IN PART OR WHOLE BY ANY PARTY FOR USE IN PREPARATION OF SHOP DRAWING OF OTHER SUBMITTALS

MASONRY (CMU)

1. ALL MASONRY AND VENEER MATERIALS, CONSTRUCTION AND QUALITY SHALL OBSERVE THE REQUIREMENTS FOUND IN (IBC 2018 2103-2105)
2. HOLLOW CLAY BRICK UNITS (ATLAS BRICK) SHALL BE GRADE 1 BRICK UNITS CONFORMING TO ASTM DESIGNATIONS C652 AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 8250 PSI ON THE NET SECTION (DESIGN STRENGTH, fm = 3000 PSI).
3. CONCRETE MASONRY UNITS (CMU) ARE TO BE LIGHTWEIGHT, GRADE N UNITS CONFORMING TO ASTM DESIGNATION C90 AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI ON THE NET SECTION (DESIGN STRENGTH, fm = 1500 PSI).
4. TYPE "S" JOINT MORTAR SHALL CONFORM TO ASTM C270 (SECTION 2103.2 OF THE INTERNATIONAL BUILDING CODE). USE PORTLAND CEMENT, TYPE I OR II.
5. ALL MASONRY SHALL BE REINFORCED WITH HORIZONTAL AND VERTICAL REINFORCEMENT. ALL GROUTED CELLS OR CAVITIES SPECIFIED TO HAVE REINFORCEMENT SHALL BE FULLY GROUTED WITH 2500 PSI GROUT. GROUT SHALL CONFORM TO THE REQUIREMENTS OF ASTM C476. CELLS SHALL BE ALIGNED TO PRESERVE UNOBSTRUCTED VERTICAL CAVITIES OF 2"x3" MINIMUM. WALLS ARE NOT TO BE SOLID GROUTED UNLESS SPECIFICALLY NOTED/REQUIRED ON THE PLANS.
6. GROUT SHALL HAVE 3/8" MAXIMUM SIZE COURSE AGGREGATE. SLUMP FOR GROUT IS TO BE BETWEEN 8 AND 11 INCHES TO PROVIDE THE NEEDED FLOW INTO THE BLOCK CELLS WITHOUT LEAVING VOIDS.
7. MASONRY REINFORCEMENT: UNLESS NOTED OTHERWISE ON THE DRAWINGS, THE MINIMUM REINFORCEMENT IN GROUTED CELLS FOR ALL MASONRY WALLS SHALL BE AS FOLLOWS:
12" WALLS: #6 @ 32" OC VERTICAL AND
(2) #4 @ 48" OC HORIZONTAL
10" WALLS: #5 @ 32" OC VERTICAL AND
(2) #4 @ 48" OC HORIZONTAL
8" WALLS: #5 @ 32" OC VERTICAL AND
(2) #4 @ 48" OC HORIZONTAL
8. ALL HORIZONTAL REINFORCING AT ENDS OF WALLS SHALL TERMINATE WITH A HOOK AROUND VERTICAL REINFORCING.
9. REINFORCEMENT PROTECTION (COVER):
A. JOINT REINFORCEMENT SHALL HAVE NOT LESS THAN 5/8" MORTAR COVERAGE FROM THE EXPOSED FACE.
B. OTHER REINFORCEMENT SHALL HAVE A MINIMUM COVERAGE OF ONE BAR DIAMETER OVER ALL THE BARS, BUT NOT LESS THAN 3/4" WHEN MASONRY IS EXPOSED TO WEATHER OR SOIL. MINIMUM COVERAGE SHALL BE 2".
10. CONTINUE VERTICAL REINFORCING BARS IN MASONRY COLUMNS THROUGH FOUNDATION WALL INTO FOOTINGS WITH MATCHING BARS AND DOWELS. ENCLOSE THESE BARS WITH SAME SIZE TIES AT SAME SPACING AS IN MASONRY COLUMN. PROVIDE MATCHING DOWELS FOR VERTICAL BARS IN MASONRY WALLS TO STRUCTURE BELOW.
11. CONTINUE HORIZONTAL REINFORCEMENT IN WALLS THROUGH MASONRY COLUMNS AND PILASTERS. THIS REINFORCEMENT SHALL HAVE MATCHING DOWELS, CORNER BARS, AT CORNERS AND AT INTERSECTIONS OF THE WALLS WITH REQUIRED LAP LENGTHS.
12. UNLESS NOTED OTHERWISE, HOLLOW CELLS AT ALL FOUR (4) SIDES OF OPENINGS IN WALLS SHALL BE GROUTED AND REINFORCED WITH (2) #5, MINIMUM, WITH 2-8" PROJECTION BEYOND EDGES OF OPENINGS AT EACH END.
13. HORIZONTAL BARS SHALL BE PLACED IN BOND BEAMS FILLED WITH GROUT AT THE TOP OF ALL WALLS AND AT 48" OC MAXIMUM BETWEEN TOP OF WALL AND FOUNDATION. BOND BEAM UNITS AND REINFORCING SHALL CONTINUE UNINTERRUPTED AROUND ALL CORNERS AND WALL INTERSECTIONS. WHERE STRUCTURAL STEEL COLUMNS OR BEAMS INTERRUPT THE CONTINUITY OF A BOND BEAM, DOWELS MATCHING BOND BEAM REINFORCEMENT SHALL BE WELDED TO THE STRUCTURAL STEEL TO PROVIDE CONTINUITY.
14. IN ADDITION LADDER-TYPE REINFORCING CONSISTING OF #9 WIRE FOR EACH FACE SHELL OF EACH WYTHE SHALL BE USED AT 16" OC HORIZONTALLY IN ALL MASONRY WALLS. REINFORCEMENT SHALL BE FOR TOTAL WIDTH OF CAVITY WALLS.
15. ALL VERTICAL REINFORCING BARS SHALL BE DOWELED TO STRUCTURE BELOW WITH BARS OF SAME SIZE AND SPACING. LAP ALL SPLICES IN MASONRY 48 BAR DIAMETERS. PLACE ALL BARS SECURELY PRIOR TO GROUTING.
16. STOP GROUT POURS 1/2" BELOW TOP OF BLOCK UNITS BETWEEN GROUT LIFTS.
17. ALL ANCHOR BOLTS MUST BE PLACED IN GROUTED CELLS.
18. WHERE BEAMS BEAR ON CONCRETE BLOCK WALLS, BLOCK CELLS SHALL BE FILLED WITH GROUT 1-4" WIDE TO FOUNDATION AND REINFORCE WITH A #5 EACH CELL, UNLESS OTHERWISE SHOWN.
19. AN ADDITIONAL VERTICAL BAR (MATCHING WALL REINFORCEMENT) SHALL BE PLACED AT EACH CORNER, END OF WALL, AND JAMB OF ALL OPENINGS.
20. ALL STEEL JOIST, JOIST GIRDER, AND STEEL BEAM POCKETS IN MASONRY SHALL BE GROUTED SOLID UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
21. NO MASONRY SHALL BE LAID WHEN THE TEMPERATURE OF THE OUTSIDE AIR IS BELOW 40 DEGREES FARENHEIT, UNLESS APPROVED METHODS ARE USED DURING CONSTRUCTION TO PREVENT DAMAGE TO THE MASONRY. SUCH METHODS SHALL INCLUDE PROTECTION OF THE MASONRY FOR A PERIOD OF AT LEAST 48 HOURS.
22. ALL REINFORCING SHALL BE IN PLACE PRIOR TO GROUTING. VERTICAL REINFORCING BARS SHALL BE HELD IN POSITION AT THE TOP, BOTTOM AND AT INTERVALS NOT FARTHER APART THAN 200 BAR DIAMETERS. PROVIDE WIRE TIES AT ALL LAP SPLICES.
23. ALL MASONRY WALLS SHALL HAVE VERTICAL CONTROL JOINTS AT: MAJOR CHANGES IN WALL HEIGHT, AT CHANGES IN WALL THICKNESS, AT BUILDING CONSTRUCTION JOINTS, AND NOT FARTHER APART THAN 40 FEET ELSEWHERE. PROVIDE MATCHING CONTROL JOINTS FOR BRICK VENEER. CONSULT ARCHITECTURAL DRAWINGS FOR LOCATIONS. VERTICAL CELLS EACH SIDE OF CONTROL JOINTS SHALL BE GROUTED AND REINFORCED WITH REBARS TO MATCH VERTICAL REINFORCEMENT USED THROUGHOUT THAT WALL. ONLY HORIZONTAL REBARS IN BOND BEAMS AT FLOORS AND AT ROOF LEVEL SHALL CONTINUE THROUGH CONTROL JOINTS. PROVIDE FULL HEIGHT HARD RUBBER KEY AT JOINT. WHERE JOINT LOCATIONS ARE NOT SHOWN ON THE DRAWINGS THE CONTRACTOR SHALL SUBMIT PROPOSED LOCATIONS TO ARCHITECT/ENGINEER FOR REVIEW.

WOOD

1. ALL WOOD MATERIALS, QUALITY AND CONSTRUCTION SHALL OBSERVE THE REQUIREMENTS FOUND IN IBC 2018 CHAPTER 23.
2. ALL DIMENSIONAL LUMBER SHALL BE DF-L#2 GRADE OR BETTER. SAWN LUMBER SHALL BE IDENTIFIED BY THE GRADE MARK OF A LUMBER GRADING OR INSPECTION AGENCY THAT HAS BEEN APPROVED BY AN ACCREDITATION BODY THAT COMPLIES WITH DOC PS 20 OR EQUIVALENT. (IBC 2018 2303.1.1) ALL LUMBER, TIMBER, AND PLYWOOD REQUIRED TO BE PRESERVATIVE TREATED SHALL BEAR THE QUALITY MARK OF AN INSPECTION AGENCY THAT MAINTAINS CONTINUING SUPERVISION, TESTING AND INSPECTION OVER THE QUALITY OF PRESERVATIVE-TREATED WOOD. (IBC 2018 2303.1.9.1) LUMBER GRADES TO BE AS FOLLOWS:
JOISTS: DOUG FIR #2 OR BETTER
PARALLAMS: PER MANUFACTURER SPECIFICATIONS
BEAMS/HEADERS: DOUG FIR #2 OR BETTER
BEARING WALL STUDS: DOUG FIR #2 OR BETTER
SILL PLATES: P.T. OR RED WOOD
POSTS: DOUG FIR #1 OR BETTER
EXTERIOR DECK JOISTS AND BEAMS: P.T. DOUG FIR OR BETTER
PRE-FAB TRUSSES/JOISTS: PER MANUFACTURER SPECIFICATIONS
3. ALL SHEATHING TO BE APA RATED SHEATHING EXPOSURE 1 AND SHALL CONFORM TO THE REQUIREMENTS FOR THEIR TYPE IN DOC PS 1 OR DOC PS 2. ALL EXTERIOR WALLS ARE REQUIRED TO BE SHEATHED. ALL SHEATHING SHALL HAVE THE FOLLOWING SPAN RATINGS ACCORDING TO (IBC 2018 2304.6-8)
A. FLOOR W/ 12" JOIST/TRUSS SPACING: 24/12
B. FLOOR W/ 16" JOIST/TRUSS SPACING: 32/16
C. FLOOR W/ 24" JOIST/TRUSS SPACING: 48/24
D. ROOF W/ 12" JOIST/TRUSS SPACING: 12/0
E. ROOF W/ 24" JOIST/TRUSS SPACING: 24/0
F. ROOF W/ 48" JOIST/TRUSS SPACING: 48/24
G. WALL W/ 12" STUD SPACING: 16/0
H. WALL W/ 16" STUD SPACING: 24/0
4. LOCATIONS REQUIRING TREATED LUMBER OR REDWOOD: (IBC 2018 2304.12.1)
4.1 ALL WALL SILL PLATES ON A CONCRETE SLAB THAT ARE IN DIRECT CONTACT WITH EARTH
4.2 WOOD FRAMING MEMBERS THAT REST ON EXTERIOR FOUNDATION WALLS AND ARE LESS THAN 8" FROM EXPOSED EARTH.
4.3 WOOD FRAMING MEMBERS AND FURRING STRIPS ATTACHED DIRECTLY TO THE INTERIOR OF EXTERIOR MASONRY OR CONCRETE WALLS BELOW GRADE.
4.4 WOOD JOISTS THAT ARE CLOSER THAN 18" OR WOOD GIRDERS THAT ARE CLOSER THAN 12" TO THE EXPOSED GROUND IN CRAWL SPACES OR UNEXCAVATED AREAS LOCATED WITHIN THE PERIMETER OF THE BUILDING FOUNDATION.
5. PROVIDE (1) TRIMMER ON EACH SIDE OF ALL OPENINGS LESS THAN 4'-0" WIDE. PROVIDE (2) TRIMMERS MIN. ON EACH SIDE OF ALL OPENINGS 4'-0" WIDE AND GREATER. A MINIMUM OF (2) STUDS SHALL BE PROVIDED AT ALL VERTICAL EDGES OF SHEAR WALLS, GIRDER TRUSSES, AND BEAMS UNLESS OTHERWISE NOTED ON STRUCTURAL PLANS. FOR HEADERS 5'-0" AND LONGER INSTALL (2) ACE STRAPS @ EACH END OR 12" CS16 STRAP. TWO TRIMMERS REQUIRED.
6. OPENINGS SHALL BE FRAMED WITH THE FOLLOWING KING STUDS UNLESS OTHERWISE NOTED ON STRUCTURAL PLANS.
6.1 OPENINGS UP TO 2'-0" (1) 2X4 OR (1) 2X6 KING STUD AT EACH SIDE OF OPENING
6.2 OPENINGS UP TO 4'-0" (2) 2X4 OR (1) 2X6 KING STUD AT EACH SIDE OF OPENING
6.3 OPENINGS UP TO 6'-0" (3) 2X4 OR (2) 2X6 KING STUD AT EACH SIDE OF OPENING
6.4 OPENINGS UP TO 10'-0" (4) 2X4 OR (2) 2X6 KING STUD AT EACH SIDE OF OPENING
7. NAILS (IBC 2018 2303.6 TABLE 2304.10.1)
PENNYWEIGHT COMMON BOX SINKER
7.1 8d = 0.131" X 2.5" 0.131" X 2.5" .113" X 2.375"
7.2 10d = .148" X 3.0" .0128" X 3.0" .120" X 2.875"
7.3 12d = .148" X 3.25" .128" X 3.25" .135" X 3.125"
7.4 16d = .162" X 3.5" .135" X 3.5" .148" X 3.25"
7.5 20d = .192" X 4" .148" X 4" .177" X 3.75"
7.6 30d = .207" X 4.5" .148" X 4.5" .192" X 4.25"
8. STAPLES
8.1. 16 GAGE = 7/16" CROWN X 1 3/4" LONG (IBC 2018 TABLE 2306.3(2))
9. FASTENERS, INCLUDING NUTS AND WASHERS, IN CONTACT WITH PRESERVATIVE-TREATED WOOD SHALL BE OF HOT-DIPPED ZINC-COATED GALVANIZED STEEL, STAINLESS STEEL, SILICON BRONZE OR COPPER. STAPLES SHALL BE OF STAINLESS STEEL. (IBC 2018 2304.10.5)
10. SHEATHING NAILS OR OTHER APPROVED SHEATHING CONNECTORS SHALL BE DRIVEN SO THAT THEIR HEAD OR CROWN IS FLUSH WITH THE SURFACE OF THE SHEATHING. (IBC 2018 2304.10.2)
11. SILL PLATES OF EXTERIOR WALLS ARE TO BE ANCHORED TO FOUNDATION WITH A MINIMUM OF 1/2" X 10" ANCHOR BOLTS @ 32" O.C. INTERIOR SHEAR WALLS ARE TO BE ANCHORED TO FOUNDATION WITH A MINIMUM OF 5/8" X 12" ANCHOR BOLTS @ 24" O.C. ALL ANCHOR BOLTS SHALL BE EMBEDDED IN AT LEAST 7" OF CONCRETE AND PLACED WITHIN 12" OF SILL PLATE END. IF MULTIPLE PLATES ARE USED, THE ANCHOR BOLTS SHALL EXTEND THROUGH ALL PLATES. THERE SHALL BE A MINIMUM OF 2 ANCHOR BOLTS PER WALL SECTION. 3"X3"X.229" SQUARE WASHERS SHALL BE USED BETWEEN ANCHOR BOLT NUT AND SILL PLATE. (SEE DETAIL PAGES FOR SPACING) (IBC 2018 2308.3.1)
12. ALL BOLT HOLES ARE TO BE DRILLED WITH A BIT NO MORE THAN +1/16" THE SIZE OF THE NOMINAL BOLT DIAMETER.
13. ALL EXTERIOR WALLS AND INTERIOR BEARING WALLS SHALL HAVE FULL BEARING ON A PLATE OR SILL. PLATES OR SILLS SHALL NOT BE LESS THAN 2 INCHES IN THICKNESS AND HAVE A WIDTH NOT LESS THAN THE WIDTH OF THE WALL STUDS. ALL EXTERIOR AND INTERIOR BEARING WALLS SHALL BE CAPPED WITH 2X DOUBLE TOP PLATES INSTALLED TO PROVIDE OVERLAPPING AT CORNERS AND INTERSECTIONS WITH OTHER PARTITIONS. (IBC 2018 2308.5.3) ALL NONBEARING WALLS ARE TO BE CAPPED WITH NO LESS THAN A SINGLE TOP PLATE. ALL DOUBLE TOP PLATES SHALL BE NAILED WITH 16d NAILS @ 16" O.C. (A MINIMUM OF 8-16d NAILS SHALL BE PLACED ON EACH SIDE OF JOINT UNLESS OTHERWISE NOTED).
14. IN EXTERIOR WALL AND BEARING PARTITIONS, WOOD STUDS ARE PERMITTED TO BE CUT OR NOTCHED TO A DEPTH NOT EXCEEDING 25 PERCENT OF THE WIDTH OF THE STUD. IN NONBEARING PARTITIONS, THE CUTTING AND NOTCHING OF STUDS TO A DEPTH NOT GREATER THAN 40 PERCENT OF THE WIDTH OF THE STUD IS ACCEPTABLE. (IBC 2018 2308.5.9)
15. BORED HOLES NOT GREATER THAN 40 PERCENT OF THE STUD WIDTH ARE PERMITTED TO BE BORED IN ANY WOOD STUD, THE EDGE OF A BORED HOLE SHALL NOT BE NEARER THAN 5/8" TO THE EDGE OF THE STUD. BORED HOLES SHALL NOT BE LOCATED AT THE SAME SECTION OF STUD AS A CUT OR NOTCH. (IBC 2018 2308.5.10)
16. ALL GLUED-LAMINATED TIMBERS SHALL BE MANUFACTURED AND IDENTIFIED IN ACCORDANCE WITH ANSI/APA PRG 320. (IBC 2018 2303.1.3)
17. ALL PREFABRICATED JOISTS SHALL OBSERVE THE STRUCTURAL CAPACITIES AND DESIGN PROVISIONS IN ACCORDANCE WITH ASTM D5055. (IBC 2018 2303.1.2)
18. BLOCKING BETWEEN ENGINEERED TRUSSES AND JOISTS IS TO BE INSTALLED AS DESIGNED BY THE MANUFACTURER.
19. THE ENDS OF EACH JOIST SHALL HAVE NOT LESS THAN 1.5" OF BEARING ON WOOD OR METAL, OR NOT LESS THAN 3" ON MASONRY. (IBC 2018 2308.4.2.2)
20. WOOD COLUMNS AND POSTS SHALL BE FRAMED TO PROVIDE FULL END BEARING. COLUMNS AND POSTS SHALL BE AS WIDE AS THE MEMBERS THEY SUPPORT AND PROVIDE CONTINUOUS OR SUPERIMPOSED BEARING THROUGHOUT ALL STORIES TO THE FOUNDATION. COLUMNS AND POSTS ARE TO BE FASTENED AT EACH LEVER TO RESIST LATERAL AND NET INDUCED UPLIFT FORCES. (IBC 2018 2304.10.7)

SOIL AND FOUNDATIONS

1. DESIGN VALUES BASED ON ASSUMED VALUES
A) ALLOWABLE SOIL BEARING PRESSURE - 1500 PSF
B) COEFFICIENT OF FRICTION - .25
C) PASSIVE EARTH PRESSURE - 150 PSF/FT OF DEPTH
D) FROST DEPTH TO BE 30" FOR EXTERIOR FOOTINGS, OR LOCAL FROST DEPTH AND GROUND
- LEVEL FOR INTERIOR FOOTINGS
2. THE BUILDING PAD AREA SHALL BE STRIPPED OF ALL FROZEN SOILS, DEBRIS, VEGETATION AND TOPSOIL. ALL FILL SOILS AND ANY REMAINING LOOSE NATURAL SOILS SHALL BE EXCAVATED TO EXPOSE SUITABLE NATURAL SOILS.
3. PROOF ROLL THE ENTIRE BUILDING PAD AREA TO LOCATE AND REMOVE ALL SOFT SPOTS, REPLACE WITH COMPACTED STRUCTURAL FILL.
4. PLACE ALL FOOTINGS AND FOUNDATIONS ON UNDISTURBED NATURAL SOIL, COMPACTED FILL. MATERIAL OF CLSM, COMPACTED FILL MATERIAL AND CLSM SHALL BE PLACED IN ACCORDANCE WITH IBC 2018 1804.5 AND IBC 2018 1804.6, RESPECTIVELY. (IBC 2018 1807.2)
5. THE TOP SURFACE OF FOOTINGS SHALL BE LEVEL. THE BOTTOM SURFACE OF FOOTINGS SHALL BE PERMITTED TO HAVE A SLOPE OF MAXIMUM 10-PERCENT. FOOTINGS SHALL BE STEPPED WHERE IT IS NECESSARY TO CHANGE THE ELEVATION OF THE TOP SURFACE OF THE FOOTING OR WHERE THE SURFACE OF THE GROUND HAS A SLOPE OF MORE THAN 10-PERCENT. (IBC 2018 1809.3)
6. ALL WALLS (EXCEPT CANTILEVERED RETAINING WALLS) SHALL BE ADEQUATELY BRACED AGAINST LATERAL MOVEMENT (INSTALLATION AND ANCHORAGE OF FLOOR SYSTEM TO FOUNDATION) PRIOR TO BACKFILLING. DESIGN AND ERECTION OF BRACING/SHORING IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. BRACING SHALL REMAIN IN PLACE UNTIL SUPPORTING STRUCTURAL ELEMENTS ARE IN PLACE AND HAVE ATTAINED FULL STRENGTH.
7. UNLESS NOTED OTHERWISE, ALL FOOTINGS AT COLUMNS ARE TO BE CENTERED BELOW COLUMNS.
8. UNLESS NOTED OTHERWISE, ALL FOOTINGS SHALL HAVE VERTICAL FACES FORMED WITH STANDARD FORMING MATERIALS (WOOD, METAL, ETC.), WITH PRIOR APPROVAL OF ARCHITECT AND ENGINEER, CONCRETE FOR FOOTINGS CAN BE PLACED IN EXCAVATED "SOIL" FORMS PROVIDED THAT THE DIMENSIONS ARE INCREASED 3" ON EACH SIDE.
9. FLOORS OF BASEMENTS SHALL BE PLACED OVER A FLOOR BASE COURSE NOT LESS THAN 4 INCHES IN THICKNESS THAT CONSISTS OF GRAVEL OR CRUSHED STONE CONTAINING NOT MORE THAN 10 PERCENT OF MATERIAL THAT PASSES THROUGH A NO. 4 SIEVE. (4.75 mm) (IBC 2018 1805.4.1)

STRUCTURAL STEEL

1. THE DESIGN, FABRICATION , AND ERECTION OF ALL STRUCTURAL STEEL ELEMENTS SHALL COMPLY TO (IBC 2018 2205).
2. STRUCTURAL SHAPES
2.1. W: fy = 50 KSI (ASTM A992)
2.2. HSS SQUARE/RECT. fy = 46 KSI (ASTM A500 Gr. B)
2.3. HSS ROUND fy = 42 KSI (ASTM A500 Gr. B)
2.4. PIPE fy = 35 KSI (ASTM A53 Gr. B)
2.5. M.S.C.M.C. L fy = 36 KSI (ASTM A36)
3. PLATES AND BARS fy = 36 KSI (ASTM A36)
4. METAL DECKING fy = 36 KSI (ASTM A611)
- 4.1 ALL DECK SHALL BE CONTINUOUS OVER 3 SPANS. WHERE NOT POSSIBLE, THE DECK SUPPLIER/ CONTRACTOR SHALL PROVIDE HEAVIER GAUGE DECK AS NEEDED TO PROVIDE THE EQUIVALENT PERFORMANCE OF THE SPECIFIED DECK WIT 3 SPAN CONTINUITY.
- 4.2 SEE TYPICAL DETAILS FOR SUPPORT OF DECK AT OPENINGS
- 4.3 UNLESS NOTED OTHERWISE, METAL ROOF DECK SHALL BE GALVANIZED/PAINTED STEEL DECK. PAINTED STEEL DECK SHALL CONFORM TO ASTM A1008 AND GALVANIZED STEEL DECK SHALL CONFORM TO A653 GRADE G60.
5. STRUCTURAL FASTENERS
5.1 HIGH-STRENGTH BOLTS: fu = 105-150 KSI (ASTM A325, A490)
5.2 COMMON BOLTS: fu = 60 KSI (ASTM A3007 Gr. A)
5.2.1 UNLESS NOTED OTHERWISE, ALL BOLTING IS CLASSIFIED AS NON-SLIP CRITICAL BEARING TYPE CONNECTIONS WITH THREADS INCLUDED IN SHEAR PLANE. TIGHTEN BOLTS TO A SNUG TIGHT CONDITION, WITH ALL PLIES OF THE JOINT IN FIRM CONTACT.
5.2.2 AT OVERSIZED AND SLOTTED HOLES, WASHERS SHALL CONFORM TO ASTM F436 AND COMPLETELY COVER HOLE.
5.3 THREADED RODS: fy = 36 KSI (ASTM A36)
5.4 ANCHOR RODS: fy = 36 KSI (ASTM F1554 Gr. 36)
6. WELDING
6.1 ALL WELDING AND CUTTING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS IN ACCORDANCE WITH ANSI/AWS D1.1.
6.2 E-60XX ELECTRODES MAY BE USED FOR WELDING STEEL DECKS.
6.3 ALL INTERSECTING STEEL SHAPES WHICH ARE NOT CONNECTED WITH BOLTS SHALL BE WELDED TOGETHER WITH A FILLET WELD ALL AROUND UNLESS NOTED OTHERWISE. WHERE WELD SIZES ARE NOT SHOWN USE THE FOLLOWING:
6.3.1 WHERE ALL CONNECTED PARTS ARE THICKER THAN 1/4", WELD IS 1/16" LESS THAN THE THICKNESS OF THE THINNEST PART.
6.3.2 WHERE ANY OF THE CONNECTED PARTS ARE LESS THAN 1/4" THICK, WELD IS SAME AS THICKNESS OF THE THINNEST PART.

OPEN WEB JOISTS AND PREFABRICATED METAL PLATE WOOD TRUSSES

1. ALL WOOD TRUSS SHALL BE DESIGNED IN ACCORDANCE WITH IBC 2018 2303.4.
1.1 ALL JOISTS AND TRUSSES SHALL COMPLY TO THE STRUCTURAL SPECIFICATIONS AND DESIGN PROVIDED BY ENGINEER OF RECORD.
2. THE TRUSS DESIGNER SHALL SUBMIT A TRUSS PACKAGE, TO THE ENGINEER OF RECORD, THAT INCLUDES THE FOLLOWING:
2.1 A TRUSS PLACEMENT DIAGRAM IDENTIFYING PROPOSED LOCATION OF EACH TRUSS
2.2 INDIVIDUAL TRUSS DESIGN DRAWINGS
2.3 INDIVIDUAL TRUSS MEMBER RESTRAINT/BRACING METHOD
3. TRUSS PACKAGE PROVIDED BY TRUSS DESIGNER IS TO BE APPROVED BY ENGINEER OF RECORD.
4. TRUSS MEMBERS AND COMPONENTS SHALL NOT BE CUT, NOTCHED, DRILL, SPLICED OR OTHERWISE ALTERED IN ANY WAY WITHOUT WRITTEN CONCURRENCE AND APPROVAL OF A REGISTERED DESIGN PROFESSIONAL. ALTERATIONS RESULTING IN THE ADDITION OF LOADS TO ANY MEMBER (FOR EXAMPLE, HVAC EQUIPMENT, PIPING, ADDITION ROOFING OR INSULATION) SHALL NOT BE PERMITTED WITHOUT VERIFICATION THAT THE TRUSS IS CAPABLE OF SUPPORTING SUCH ADDITION LOADING. (IBC 2018 2303.4.5)

SPECIAL INSPECTION

1. THE FOLLOWING SPECIAL INSPECTIONS ARE REQUIRED BY THE CURRENT EDITION OF THE IBC:
EXPANSION, ADHESIVE, AND POST INSTALLED ANCHORS
SOILS (IBC 1704.7 AND TABLE 1704.7)
SITE PREPARATION - PERIODIC
SOIL COMPACTION - CONTINUOUS
STRUCTURAL FILL SUITABILITY AND PLACEMENT - PERIODIC DURING PLACEMENT
OBSERVATION OF SUB GRADES - PERIODIC
ADDITIONAL REQUIREMENTS IN GEOTECHNICAL REPORT
STRUCTURAL WOOD
PERIODIC SPECIAL INSPECTION: REQUIRED FOR ALL NAILING, BOLTING, ANCHORING, AND OTHER FASTENING OF SHEAR WALLS, DIAPHRAGMS, DRAG STRUTS, AND HOLD DOWNS WHERE FASTENER SPACING IS 4" O.C. OR CLOSER.

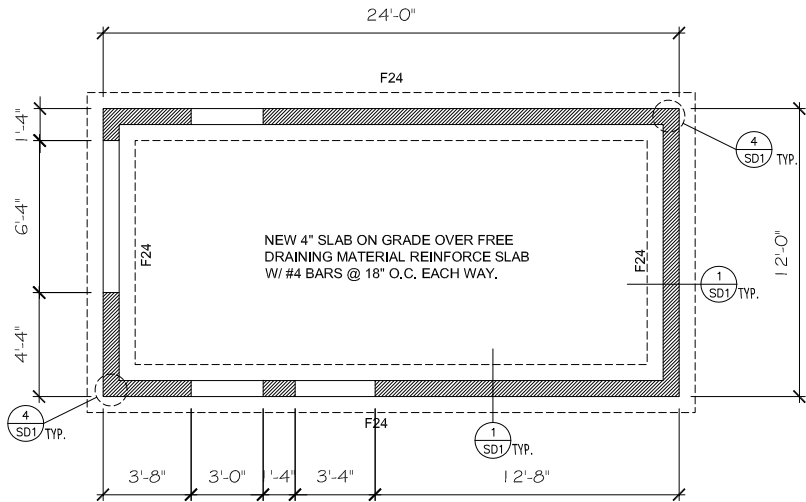
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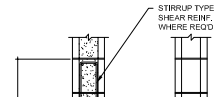
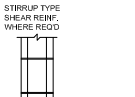



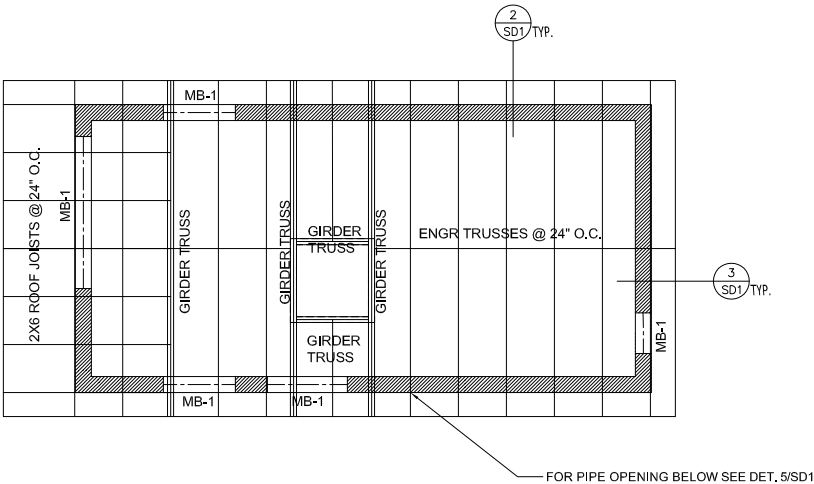
FOOTING SCHEDULE				
MARK	WIDTH	LENGTH	THICKNESS	REINFORCEMENT
F24	24"	CONT	10"	(3) #4 BARS CONT
F30	30"	CONT	12"	(3) #4 BARS CONT
F36	36"	CONT	12"	(4) #4 BARS CONT
S24	24"	24"	10"	(2) #4 BARS BOTH DIRECTIONS
S30	30"	30"	10"	(3) #4 BARS BOTH DIRECTIONS
S36	36"	36"	12"	(4) #4 BARS BOTH DIRECTIONS
S42	42"	42"	12"	(5) #4 BARS BOTH DIRECTIONS
S48	48"	48"	12"	(6) #4 BARS BOTH DIRECTIONS
S60	60"	60"	12"	(7) #4 BARS BOTH DIRECTIONS



FOOTING AND FOUNDATION

FOUNDATION SCHEDULE																	
MAXIMUM WALL HEIGHT FROM T.O. FOOTING	TOP EDGE SUPPORT	MIN. WALL WIDTH	VERTICAL WALL REINF.		HORIZONTAL WALL REINF.		ADDITIONAL REINF. FOR OPENINGS						MAX LINTEL LENGTH	MIN. LINTEL DEPTH	ADDITIONAL FTG. SIZE AND REINF.		FOUNDATION BOLTS(MIN. 7" EMBEDMENT)
			SIZE	SPACING	SIZE	SPACING	ABOVE		SIDES		BELOW						
							QTY	SIZE	QTY	SIZE	QTY	SIZE					
2'-0" TO 5'-0"	NONE	8"	#4	16" O.C.	#4	18" O.C.	2	#4	1	#4	1	#4	2'	6"	SEE FTG. SCHED.	½" X 10" @ 32" O.C.	
NOTES:																	
1. REBAR TO BE PLACED IN THE CENTER OF THE WALL AND EXTEND FROM THE FOOTING TO WITHIN 3" OF THE TOP OF THE WALL																	
2. #4 FOOTING DOWELS SHALL EXTEND MINIMUM OF 24" INTO FOUNDATION WALL AND MATCH FOUNDATION WALL VERTICAL STEEL SPACING																	
3. LOCATE (1) HORIZONTAL REBAR IN THE TOP 3" AND (1) HORIZONTAL REBAR IN THE BOTTOM 3". REMAINING HORIZONTAL REBAR TO BE SPACED EQUALLY																	
4. REBAR SHALL BE PLACED WITHIN 2" OF THE OPENINGS AND EXTEND 24" BEYOND EDGE OF OPENING.																	
5. ALL FOUNDATION STEPS TO BE MINIMUM 24"																	
6. USE 3x3x.229 WASHERS. ADD CUT WASHER IF SLOTTED 3x3 WASHER USED																	
7. FOUNDATION BOLTS MAY BE REPLACED WITH #4 BARS @ 12" O.C. EXTENDING 24" OUT OF FOUNDATION WALL AND CAST INTO SUSPENDED SLAB/PORCH CAP																	
8. LARGER FOOTINGS SPECIFIED ON 5'-1" TO 7'-0" WALL MAY BE REDUCED TO SIZE SPECIFIED ON FOOTING SCHEDULE, AND VERTICAL REBAR SPACING OF 24" O.C. FOR FOUNDATION WALLS MAY BE USED PROVIDED THAT THE FOLLOWING CONDITIONS ARE MET:																	
a. 5'-1" TO 7'-0" DOES NOT EXCEED 10'-0" LONG																	
b. UNBALANCED BACKFILL DOES NOT EXCEED 48"																	
9. Fc-3000 PSI PER IRC 402.2 AND 60,000 PSI REINFORCING STEEL																	
10. THIS TABLE ASSUMES 1500 PSF BEARING CAPACITY. 38 PSF EQUIVALENT FLUID PRESSURE AND A GLOBALLY STABLE SITE.																	

MASONRY BEAM/JAMB SCHEDULE													BEAM REINF. EXAMP.		JAMB REINF. EXAMP.	
BEAM CALLOUT	LINTEL DEPTH	WALL WIDTH	REINF AT BOT.		REINF AT TOP.		VERTICAL SHEAR REINF.			JAMB REINF. (SEE EXAMPLE)						
			#	SIZE	#	SIZE	TYPE	SIZE	SPACING	WIDTH.	REINF./CELL QTY	SIZE				
MB-1	16"	8"	(2)	#4	NA	NA	NA	NA	NA	8	1	#5				
NOTES:																
1. BOTTOM REBAR TO BE PLACED 3" FROM BOTTOM FACE OF BEAM. WHEN PRESENT TOP REINFORCING IS TO ALLOW ENOUGH ROOM FOR SHEAR REINFORCING TO RUN OVER TOP AND HAVE AT LEAST 1" OF COVER																
2. BOTTOM REINFORCING TO RUN PAST JAMB A MIN. OF 24" FOR #4 BARS AND 36" FOR #5 BARS																
3. BEAM TO BE SOLID GROUTED THROUGH THE FULL DEPTH AND LENGTH																
4. THIS TABLE ASSUMES F'M OF 1500 PSI																
5. JAMBS AT EITHER SIDE TO BE REINFORCED PER SCHEDULE AND SOLID GROUTED																



ROOF FRAMING

TRUSS NOTES

- ROOF TRUSSES SHALL BE DESIGNED TO MEET THE LOADS SPECIFIED IN THE DESIGN CRITERIA. ALL TRIBUTARY, DRIFT, UNBALANCED SNOW, MECHANICAL, ETC., LOADS SHALL BE CONSIDERED IN THE DESIGN PER IRC REQUIREMENTS.
- THE CONTRACTOR SHALL BLOCK BETWEEN TRUSSES AND CONNECT EACH TRUSS TO WALL TOP PLATE WITH SIMPSON H1 OR H2.5 CONNECTORS.
- ANY CHANGES TO THE TRUSS CONFIGURATION SHOWN ON THE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO CONSTRUCTION.
- ALL ENGINEERING TRUSS SUBMITTALS SHALL BE STAMPED BY AN ENGINEER LICENSED IN THE STATE OF UTAH.

ROOF SHEATHING NOTES

- SHEATHING SHALL BE 7/16", 24/16, APA RATED SHEATHING. NAIL WITH 8D'S @ 6" O.C. 3/8" FROM EDGE OF PANEL AT ALL PANEL ENDS, SUPPORTED EDGES, SHEAR WALL TOPS, AND ALL BLOCKING. NAIL @ 12" O.C. ALONG INTERMEDIATE FRAMING MEMBERS.
- LAY SHEATHING WITH FACE GRAIN AT RIGHT ANGLES TO FRAMING WITH STAGGERED END JOINTS.
- FOR ROOF SNOW LOADS OVER 40 PSF USE 5/8" SHEATHING WITH 10D NAILS @ 6" O.C.



STRUCTURAL PLAN SHEET

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

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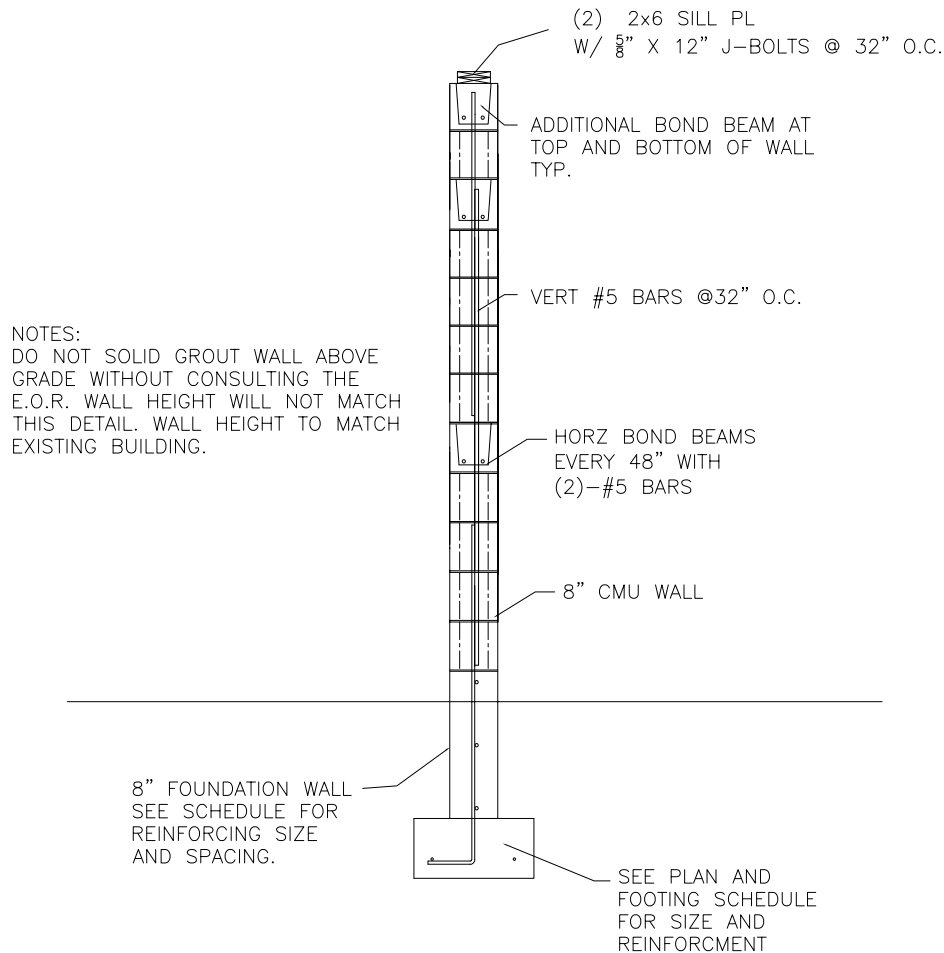


GARDNER ENGINEERING

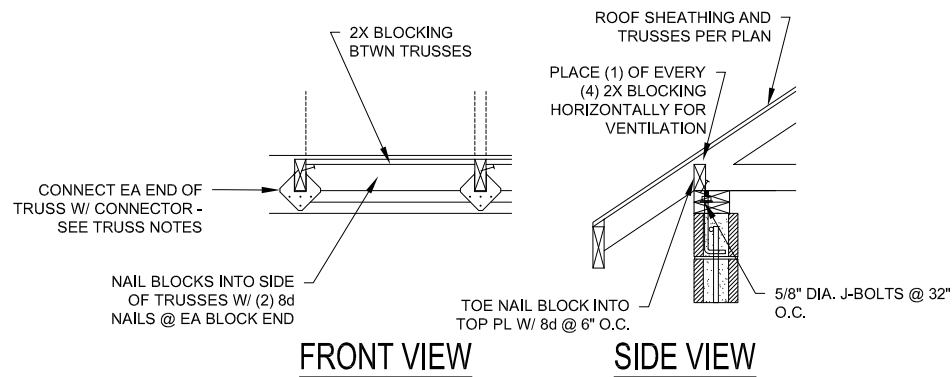
WOLF CREEK WELL HOUSE
EDEN, UTAH

SHEET

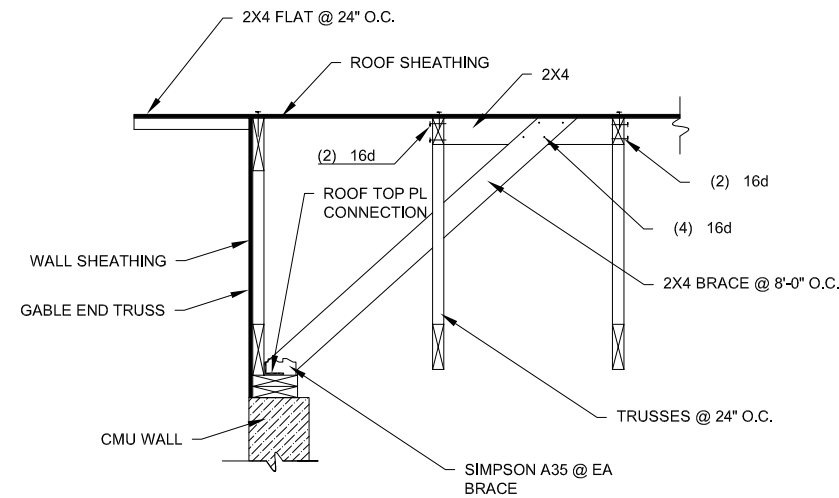
S 1



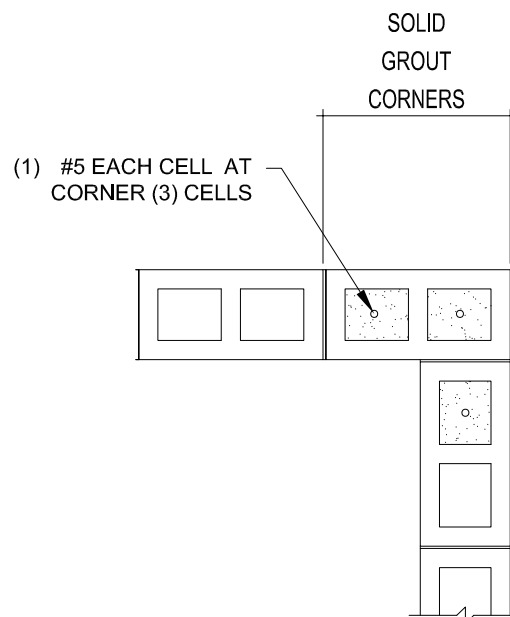
1 CMU WALL DETAIL: TYPICAL CROSS SECTION
N.T.S. TYPICAL DETAIL - USE WHEN APPLIES



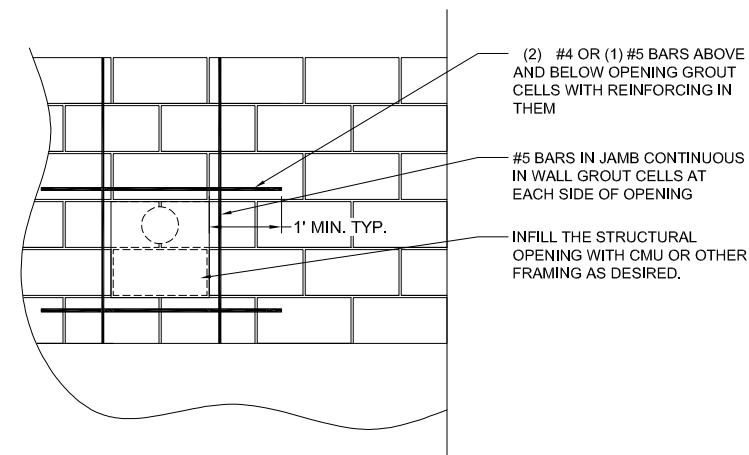
2 TRUSS BLOCKING
N.T.S. TYPICAL DETAIL - USE WHEN APPLIES



3 GABLE END BRACING
N.T.S. TYPICAL DETAIL - USE WHEN APPLIES



4 MASONRY CORNER REINFORCING
N.T.S. USE WHEN NOTED



5 MECHANICAL OPENING REINFORCING
N.T.S. USE WHEN NOTED



STRUCTURAL DETAILS

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

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SHEET
SD 1