WELL HOUSE AND TANK
CRIMSON RIDGE WATER COMPANY

2021

EDEN, WEBER, UTAH

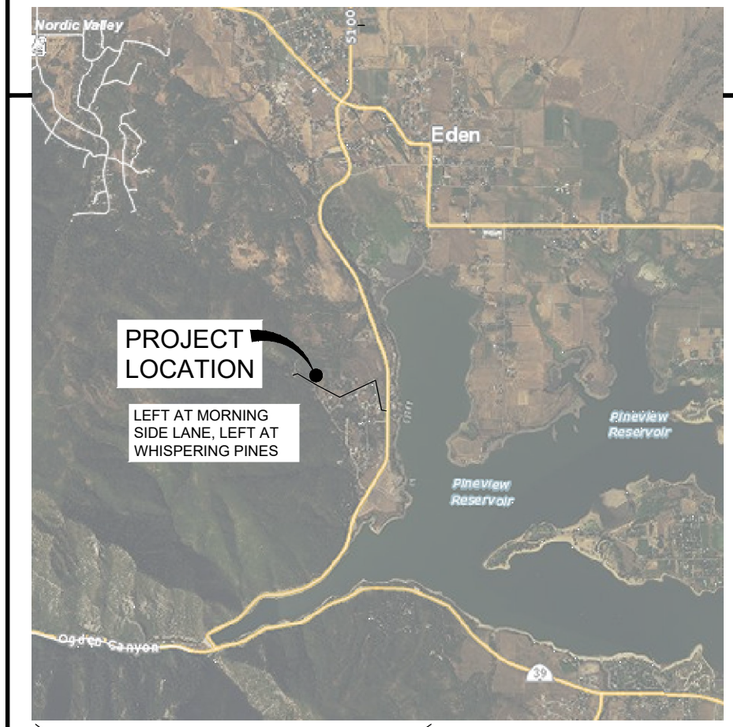
2018 International Codes, 2017 NEC, and the ICC A117.1-09

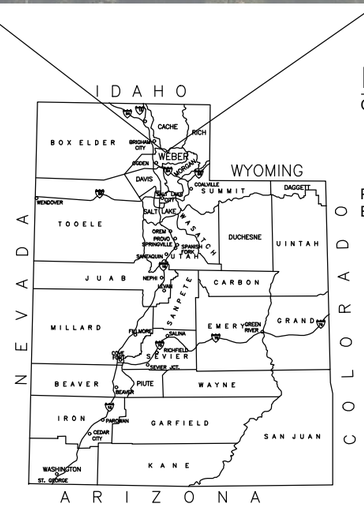
WELL HOUSE OCCUPANCY & BUILDING SUMMARY

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)

1





PROJECT CONTACTS

OWNER: B&H INVESTMENT PROPERTIES
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CENTERVILLE, UTAH

PROJECT ENGINEER: DAN WHITE, P.E. 801-476-0202
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GEOTECHNICAL INVESTIGATION
CG PROJECT NO.:227-002 W/ ADDENDUM
PREPARED BY:

Christensen Geotechnical
8143 South 2475 East South Weber, Utah 84405
Phone: 801 814-1714

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UTILITY NOTIFICATION CENTER, INC.
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GENERAL NOTES

1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ASPECTS OF SAFETY INCLUDING BUT NOT LIMITED TO, EXCAVATION, TRENCHING, SHORING, TRAFFIC CONTROL, AND SECURITY.
7. 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.
8. 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.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING ROADWAYS FREE AND CLEAR OF ALL CONSTRUCTION DEBRIS AND DIRT TRACKED FROM THE SITE.
10. 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.
11. 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.
12. 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

1. CONTRACTOR SHALL OBTAIN ALL NECESSARY UPDES PERMITS AS REQUIRED BY THE COUNTY ENGINEERING DEPARTMENT AND UTAH STATE DEPT. OF ENV. QUALITY.
2. 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.
3. INSPECTION TO BE PREFORMED WEEKLY BY A RSI OR OTHER CERTIFIED INSPECTOR.

ALL ADDENDA ITEMS HAVE BEEN INCORPORATED HEREIN WITH NO NOTATION REGARDING WHETHER THE DESIGN WAS AS ORIGINALLY PUBLISHED OR CHANGED BY ADDENDA.

ITEMS SHOWN IN REVISION CLOUDS ARE CLARIFICATIONS BASED ON A DIVISION OF DRINKING WATER REVIEW DATED 4-29-2021 AND ARE CLOUDED FOR CONVENIENCE OF DDW VERIFICATION. WITH THE POSSIBLE EXCEPTIONS OF THE CRASH BAR, SEPARATE FAN AND LIGHT SWITCHES AND "DANGER CHLORINE GAS" SIGN SHOWN ON SHEET W1, IT IS ANTICIPATED THAT THE REVISION CLOUDS HIGHLIGHT DESIGN ELEMENTS ALREADY INCLUDED BY SPECIFICATION AND WILL NOT RESULT IN ANY CONSTRUCTION COST CHANGE.

1 REVISIONS AS PER WC3 PLAN REVIEW COMMENTS DATED JUNE 17, 2021 ARE DENOTED BY TRIANGLE 1.

GENERAL GRADING NOTES

1. 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.
2. MAXIMUM SLOPES SHALL BE 3:1 FOR CUT AND FILL UNLESS OTHERWISE NOTED.
3. COMPACTION REQUIREMENTS AND TESTING SHALL BE PERFORMED TO MEET THE MANUAL OF STD. SPECIFICATIONS (ORANGE BOOK, LATEST EDITION).
4. NO FILL SHALL BE PLACED UNTIL VEGETATION HAS BEEN REMOVED AND SUB-GRADE PREPARED PER THE SOILS REPORT.
5. DUST SHALL BE CONTROLLED BY WATERING OR OTHER APPROVED METHODS.
6. 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.
7. 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.
8. THE CONTRACTOR SHALL CONTACT BLUE STAKES FOR LOCATION MARKING PRIOR TO COMMENCING EXCAVATION ACTIVITIES.
9. COUNTY MAY REQUIRE A PRE-CONSTRUCTION MEETING BEFORE A PERMIT IS ISSUED.
10. STREETS ADJACENT TO THE PROJECT SHALL BE CLEAN AT ALL TIMES.
11. CONTRACTOR IS RESPONSIBLE FOR ARRANGING FOR ALL REQUIRED INSPECTIONS.
12. 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

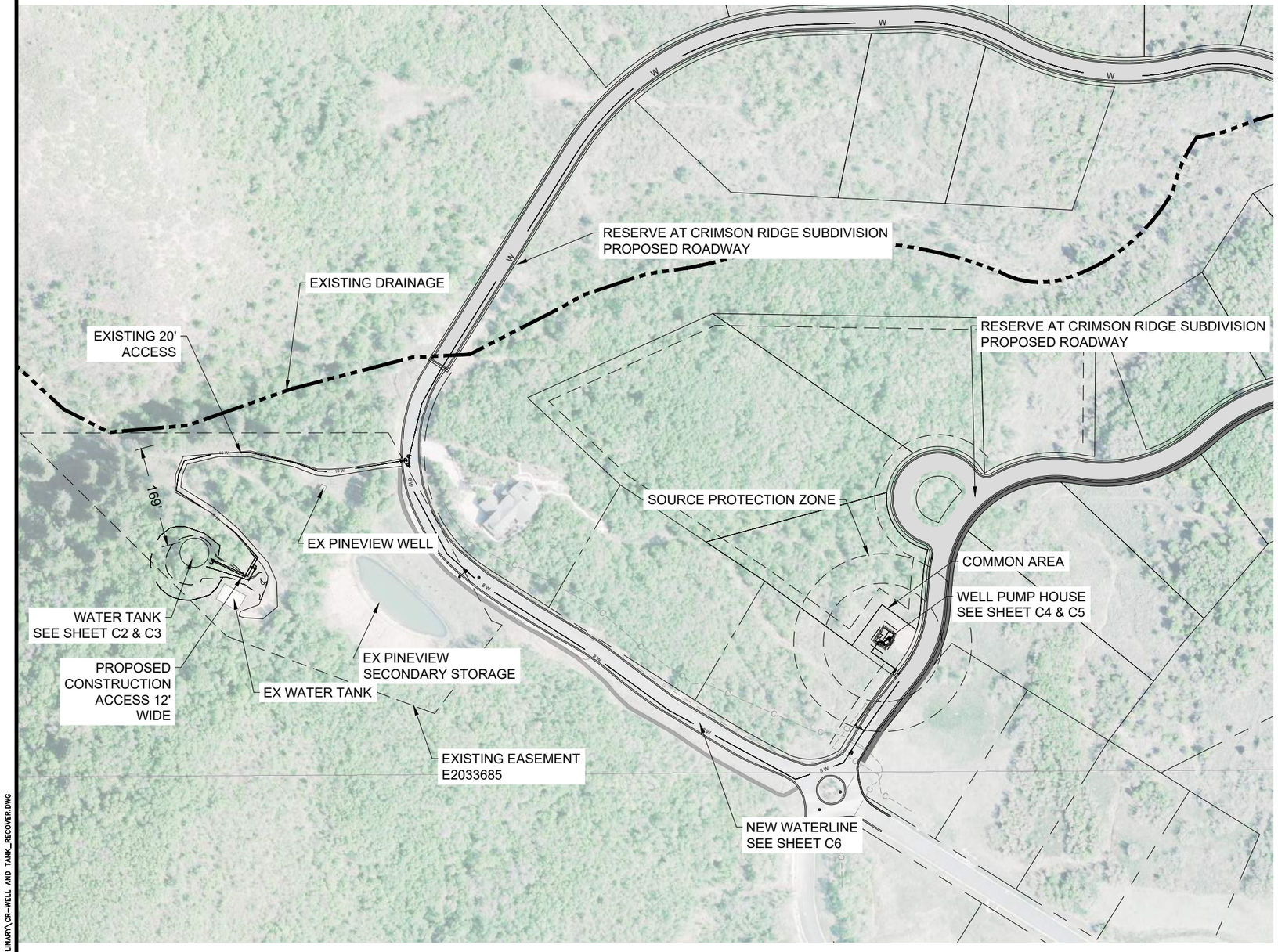
1. ALL INSTALLATION AND MATERIALS INSTALLED SHALL BE NEW AND CONFORM TO CRIMSON RIDGE WATER COMPANY STANDARDS, SPECIFICATIONS AND PLANS.
2. ALL INTERIOR SURFACES AND COATINGS SHALL COMPLY WITH ANSI/NSF STANDARD 61 OR OTHER STANDARDS APPROVED BY THE DIRECTOR. THIS REQUIREMENT APPLIES TO ANY PIPES AND 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.
3. THE CURRENT REQUIREMENTS OF THE UTAH DIVISION OF DRINKING WATER, GOVERNING THE MATERIALS AND INSTALLATION USED IN THE PROJECT SHALL BE MET.
4. THRUST BLOCKING AND MECHANICAL RESTRAINTS ARE REQUIRED AT ALL BENDS AND FITTINGS.
5. 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.
6. 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.
7. 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.
8. A MINIMUM HORIZONTAL CLEARANCE OF 10 FEET SHALL BE MAINTAINED FROM SANITARY SEWER MAINS.
9. UNLESS OTHERWISE SPECIFIED, ALL WATERLINES SHALL BE AWWA DUCTILE IRON PC 250 AND SHALL BE PRESSURE TESTED AT 200 PSI FOR AT LEAST 2 HOUR.
10. CONTRACTOR SHALL LOCATE VALVES PRIOR TO CONNECTION WITH EXISTING SYSTEM, BUT SHALL NOT OPERATE ANY VALVE WITHOUT PERMISSION FROM THE WATER UTILITY.
11. ALL WATER MAINS, VALVES, FIRE HYDRANTS, SERVICES AND APPURTENANCES SHALL BE INSTALLED, TESTED, AND APPROVED PRIOR TO COMMISSIONING TANK.
12. 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

SHEETS SD1 - SD5

WELL HOUSE AND TANK
CRIMSON RIDGE WATER COMPANY
2021

Revision Set 6/23/2021



NOTE:
WORK SHOWN ON THIS SHEET SHALL BE PERFORMED BY TWO SEPARATE CONTRACTORS

"SUBDIVISION CONTRACTOR"
- SITE GRADING
- SURFACE TREATMENT
- LANDSCAPING
- IMPROVEMENTS WITHIN THE SUBDIVISION BOUNDARY, WITH THE EXCEPTION OF PRESSURIZED WATERLINES SHOWN ON THE WELL HOUSE SITE
- STRUCTURE COMPLETE, INCLUDING HVAC, LIGHTING, AND FLOOR DRAINS
- PUMP-TO-WASTE BOX AND ALL STORM DRAIN LINES
- COORDINATE WITH "WATER CONTRACTOR"

"WATER CONTRACTOR"
- ALL PRESSURIZED CULINARY LINES BETWEEN WELL AND TEE
- ELECTRICAL
- CONTROLS
- HVAC

0' 100' 200' 400'

Scale in Feet
1" = 200'

Date: 4/9/2021
Scale: #######
Designed: MDD
Drafted: MDD
Checked: DLW

Revisions		
	Date	Description

PROFESSIONAL ENGINEER
10382576
MICHAEL DUANE DURTSCHI
STATE OF UTAH

OVERVIEW SITE
CRIMSON RIDGE WATER COMPANY
WELL HOUSE AND TANK
EDEN, WEBER, UTAH

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C1
C8

CONFORMED SET 2021-05-21

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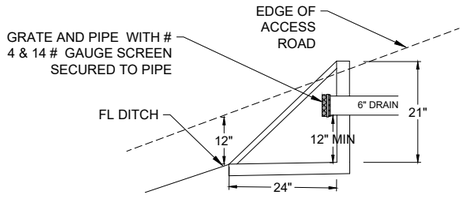
Revision Set 6/23/2021



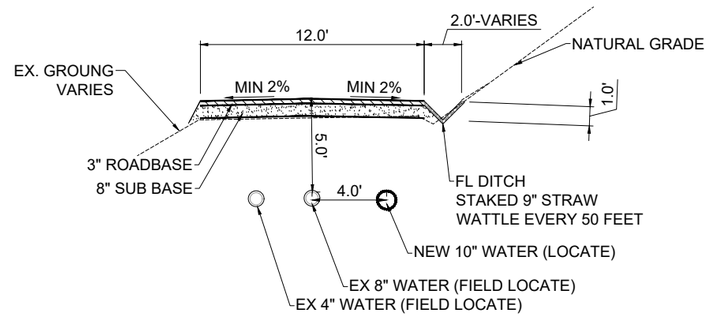
18" WIDE TO MINIMIZE WIDTH INTO ACCESS ROAD, BOX SHALL BE REINFORCED

DETAIL FOR NEW CONCRETE BOX

CUT PIPES, PICK AND PLACE DOWN HILL, RELOCATED ROCKS AS NEEDED, SEE PLAN

EXTEND (2) 8" AND A 4" DRAIN PIPES ~ 20' SCREEN DISCHARGE MAINTAIN PIPE SLOPE FOR DRAINAGE

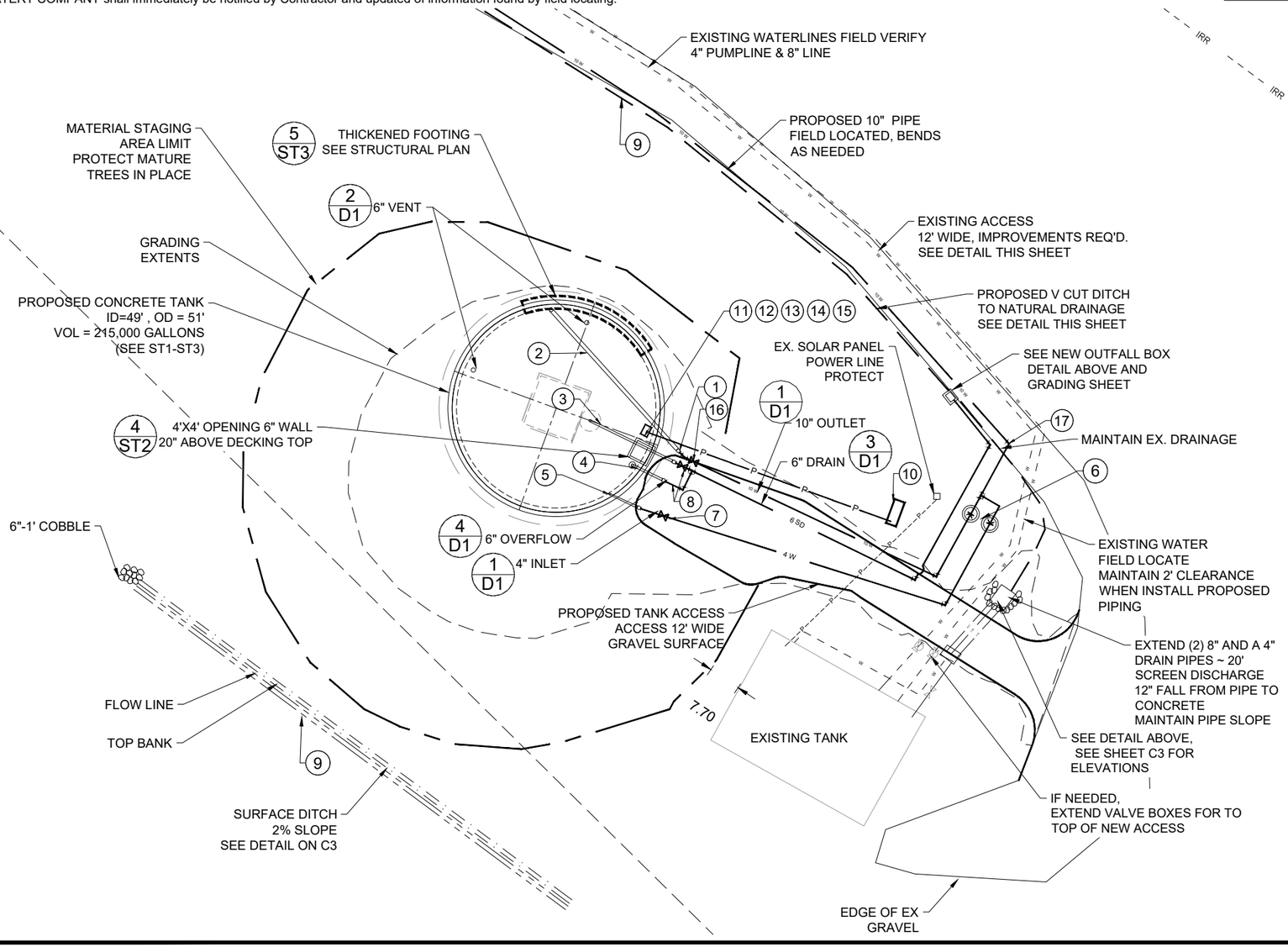
DETAIL OUTFALL BOX TO BE RELOCATED



PROTECT UP HILL SLOPE, GRADE ROAD AS NEEDED FOR EQUIPMENT, ENSURE DITCH MAINTAINS SLOPE

TANK ACCESS ROAD - LOOKING UP SLOPE

Prior to work beginning contractor will notify PVWC that the field locating of existing buried facilities will begin. The Project Engineer and PINE VIEW WATERT COMPANY shall immediately be notified by Contractor and updated of information found by field locating.



TANK PIPING

# KEY	BID ITEM	QTY.	PART	NOTES
1	1.5	4 EA	COUPLER	ROMAC MACRO HP, SIZE PER LINE
2	1.5	45 FT	10" SCH. 40 STEEL	10" OUTLET, HOR. LENGTH
3	1.5	21.5 FT	6" SCH. 40 STEEL	6" DRAIN, HOR. LENGTH
4	1.5	8 FT	6" SCH. 40 STEEL	6" OVERFLOW, HOR. LENGTH
5	1.5	8 FT	4" SCH. 40 STEEL	4" INLET, HOR. LENGTH
6	1.5	2 EA	CHECK VALVE W/ 4' Ø MANHOLE	W/RFCA'S 2/PER EACH , MH 12' DEPTH W/ SEE DETAIL 6 ON SD-2 FOR MANHOLE DETAILING, LIDS STAMPED WITH (CRWC WATER)
7	1.5	140 LF	4" DI PIPE C250/WITH FITTINGS	INLET LINE: PIPE, 4" GV, (2) ELBOW, (1) 10X4 TEE AND OTHER FITTINGS AS NEEDED
8	1.5	140 LF	6" DI PIPE C250/WITH FITTINGS	DRAIN & OVERFLOW LINE: PIPE, 6" GV, 6" TEE & ELBOWS TO OUTFALL BOX
9	1.4		OUTFALL BASIN AND DITCHES	SEE DETAILS ON THIS SHEET
TANK ELECTRICAL- see Specification 5.11 Specific Part Information				
10	1.9		SOLAR SYSTEM W/ BATTERY	FOR TANK ELECTRICAL ITEMS, MOUNT PANELS ON 4" SCH. 40 STEEL POLE IN 30"X6'X4" REINFORCED CONCRETE BASE. PEAK SUN HOURS:3.2 IN JAN,6.1 IN JUN AT A TILT OF APPROX. 45 DEG.
11	1.9		SUPPORT STRUCTURES & PANELS	FOR ALL ELECTRICAL ITEMS, WIRE PLACED IN SEPARATE PVC CONDUIT
12	1.10		MIXER AND CONTROLLER	SB500PWC BY IXOM WATER CARE OR PWM100 BY PAX TECHNOLOGIES
13	1.9		LEVEL TRANSDUCER	
14	1.9		RADIO/SCADA/ANTENNA SYSTEM	SEND INFORMATION TO WELL HOUSE, LOCATE ANTENNA TO ENSURE LINE OF SIGHT AND ADEQUATE SIGNAL STRENGTH TO WELL HOUSE, WIRE LENGTH AS NEEDED
15	1.9		HATCH INTRUSION SWITH	OPEN/CLOSED TIED TO PLC
YARD PIPING				
16	2.6	1	10" GV	
17	2.1	100 LF	10" PC 250 DIP	W/ ELBOWS AND FITTING, LENGTH IS TO ELBOW AT KEY NOTE

0' 15' 30' 60'

Scale in Feet
1" = 30'

Revisions

Date	Description

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Designed: MDD
Drafted: MDD
Checked: DLW

PROFESSIONAL ENGINEER 10382576 MICHAEL DUANE DURTSCHI STATE OF UTAH

TANK SITE PLAN
CRIMSON RIDGE WATER COMPANY
WELL HOUSE AND TANK
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C2
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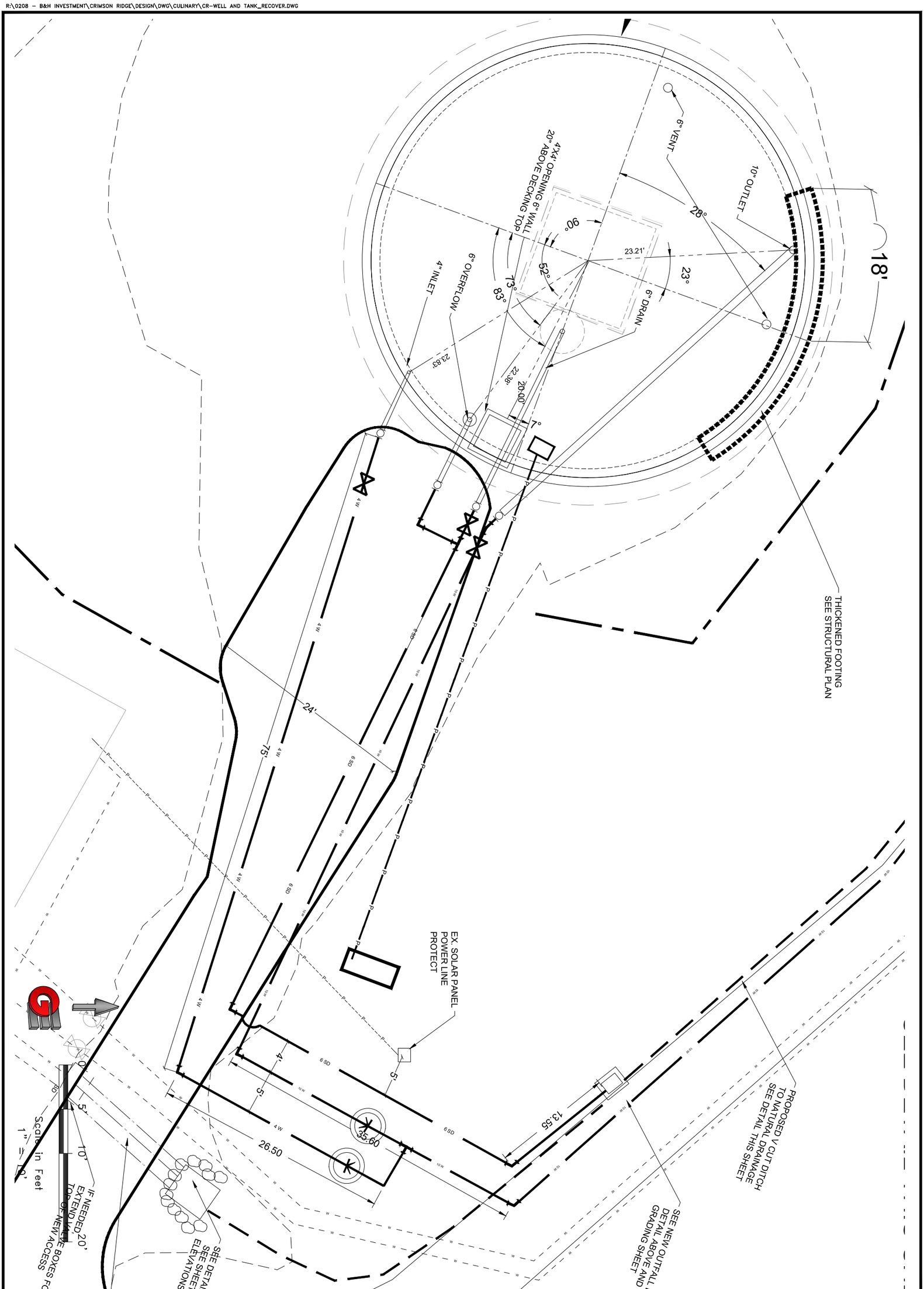

C2A
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BIG TANK SITE PLAN
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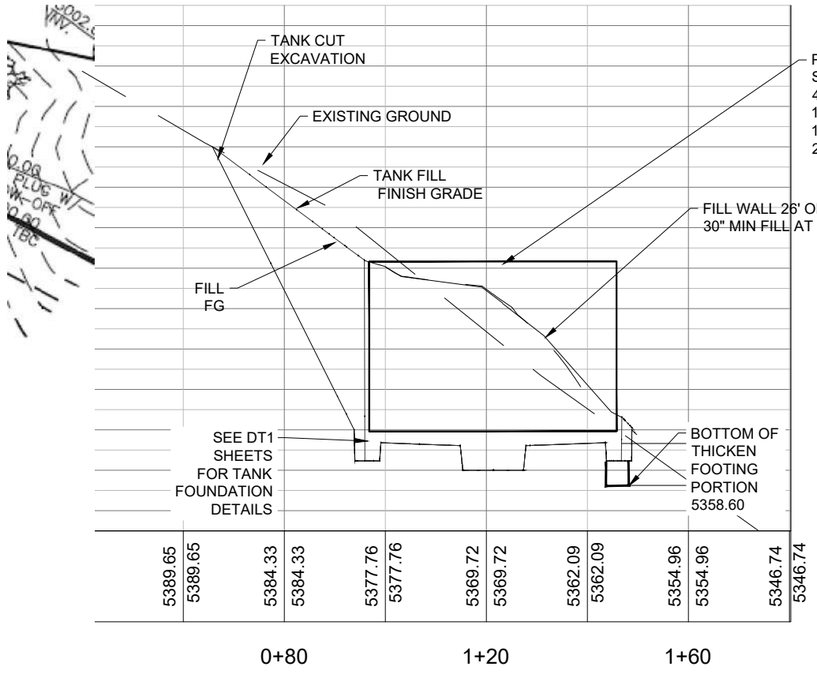
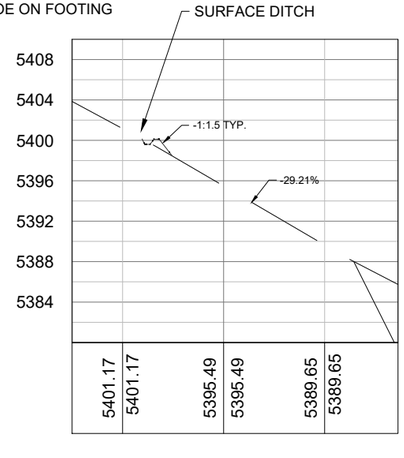
PROFILE VIEW

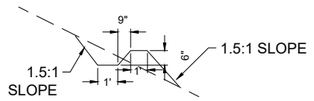


Tank Elevations	
15.5 over flow inlet (Adj. Tank 5375)	5375.5
Top of Decking (.5+.83)	5376.83
Floor at wall (16' wall, 15.5' overflow inlet)	5360
Bottom Footing at wall	5358.67
bottom of fill footing at wall	5357.17
30" ABOVE BOTTOM OF FOOTING	5361.17

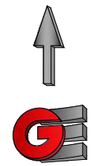


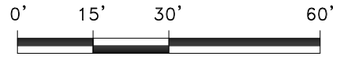
Cut/Fill Summary

Name	2d Area	Cut	Fill	Net
VOL_EGvsCUT	7558.51 Sq. Ft.	2252.76 Cu. Yd.	39.55 Cu. Yd.	2213.21 Cu. Yd.<Cut>
FG-CUT	7551.49 Sq. Ft.	3.54 Cu. Yd.	1224.29 Cu. Yd.	1220.75 Cu. Yd.<Fill>
vol ditch	2155.18 Sq. Ft.	8.92 Cu. Yd.	36.85 Cu. Yd.	27.93 Cu. Yd.<Fill>
Totals	17265.18 Sq. Ft.	2265.22 Cu. Yd.	1300.70 Cu. Yd.	964.53 Cu. Yd.<Cut>



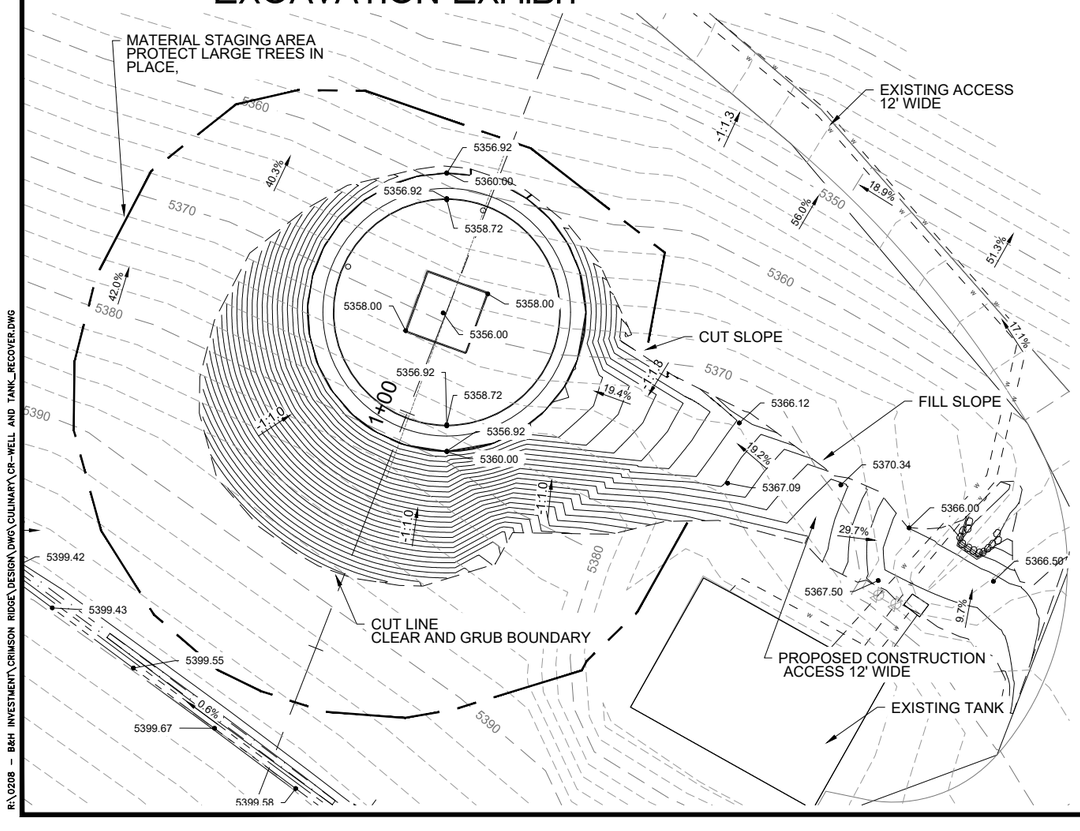
SURFACE DITCH



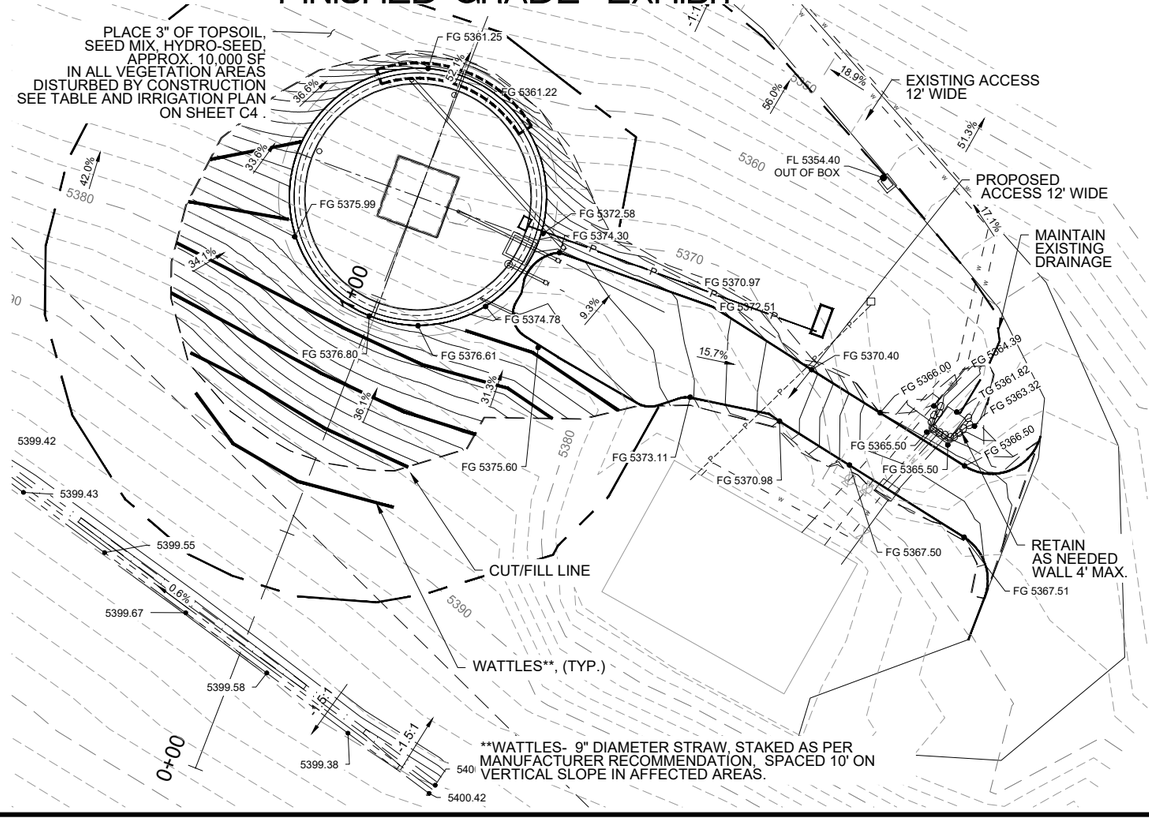


Scale in Feet
1" = 30'

EXCAVATION EXHIBIT



FINISHED GRADE EXHIBIT



Date: 4/9/2021
Scale: #######
Designed: MDD
Drafted: MDD
Checked: DLW

Revisions

Date	Description

PROFESSIONAL ENGINEER 10382576 MICHAEL DUANE DURTSCHI STATE OF UTAH

TANK GRADING PLAN
CRIMSON RIDGE WATER
WELL HOUSE AND TANK
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

C3
C8

CONFORMED SET 2021-05-21

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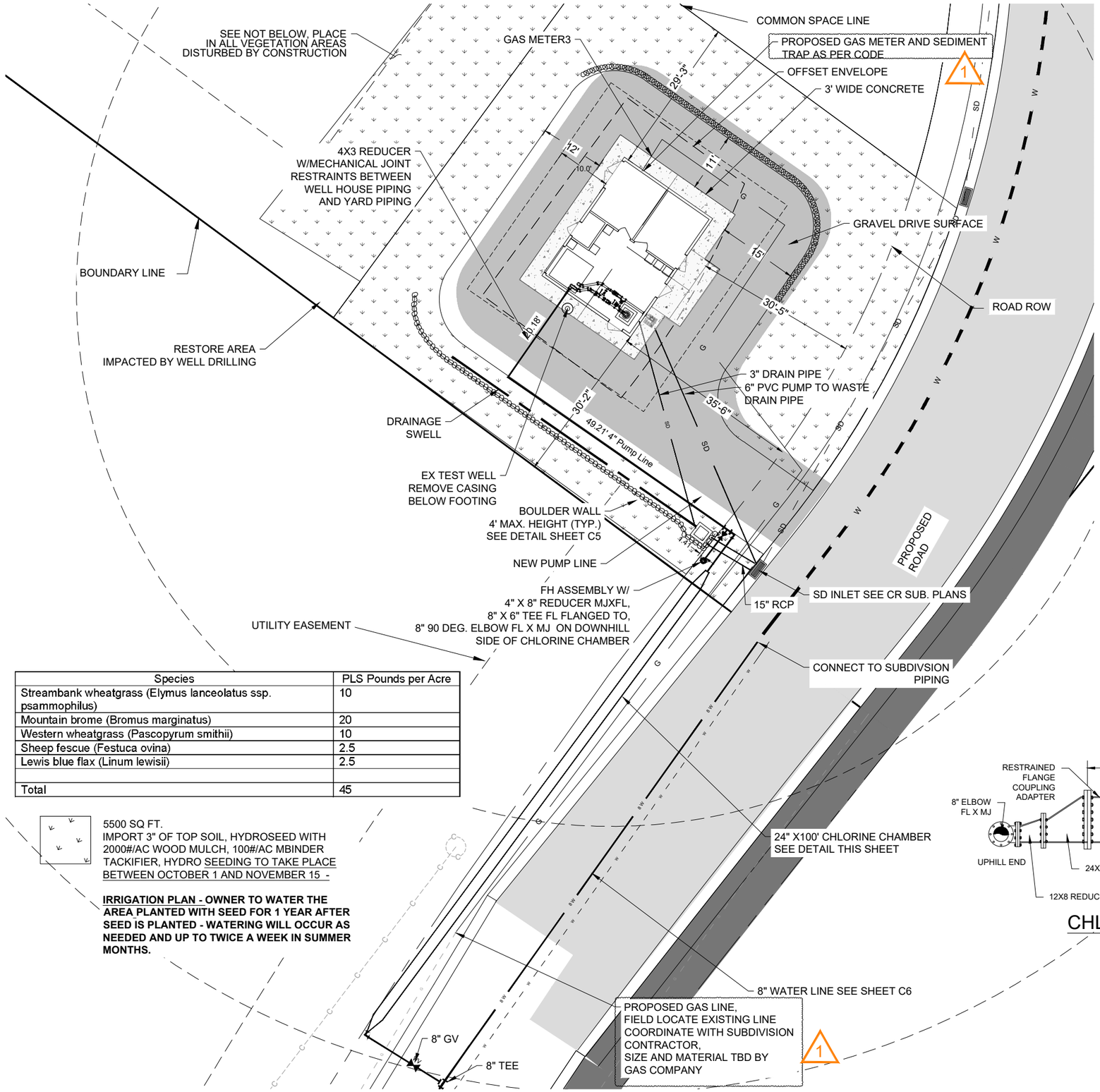


Species	PLS Pounds per Acre
Streambank wheatgrass (Elymus lanceolatus ssp. psammophilus)	10
Mountain brome (Bromus marginatus)	20
Western wheatgrass (Pascopyrum smithii)	10
Sheep fescue (Festuca ovina)	2.5
Lewis blue flax (Linum lewisii)	2.5
Total	45

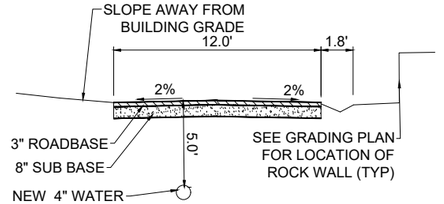
5500 SQ FT.
IMPORT 3" OF TOP SOIL, HYDROSEED WITH 2000#/AC WOOD MULCH, 100#/AC MBINDER TACKIFIER, HYDRO SEEDING TO TAKE PLACE BETWEEN OCTOBER 1 AND NOVEMBER 15 -

IRRIGATION PLAN - OWNER TO WATER THE AREA PLANTED WITH SEED FOR 1 YEAR AFTER SEED IS PLANTED - WATERING WILL OCCUR AS NEEDED AND UP TO TWICE A WEEK IN SUMMER MONTHS.

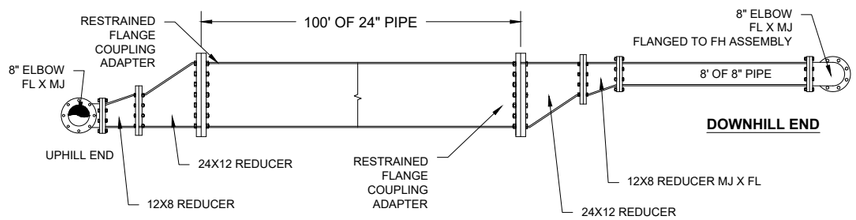
NOTE:
WORK SHOWN ON THIS SHEET SHALL BE PERFORMED BY TWO SEPARATE CONTRACTORS

"SUBDIVISION CONTRACTOR"
- SITE GRADING
- SURFACE TREATMENT
- LANDSCAPING
- IMPROVEMENTS WITHIN THE SUBDIVISION BOUNDARY, WITH THE EXCEPTION OF PRESSURIZED WATERLINES SHOWN ON THE WELL HOUSE SITE
- STRUCTURE COMPLETE, INCLUDING HVAC, LIGHTING, AND FLOOR DRAINS
- PUMP-TO-WASTE BOX AND ALL STORM DRAIN LINES
- COORDINATE WITH "WATER CONTRACTOR"

"WATER CONTRACTOR"
- ALL PRESSURIZED CULINARY LINES BETWEEN WELL AND TEE
- ELECTRICAL
- CONTROLS
- HVAC



WELL SITE GRAVEL DRIVING SURFACE



CHLORINE CONTACT CHAMBER DETAIL

0' 10' 20' 40'
Scale in Feet
1" = 20'

Revisions

Date	Description
6/23/21	1 WC3 6-17-21

Date: 4/9/2021
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PROFESSIONAL ENGINEER 10382576 MICHAEL DUANE DURTSCHI STATE OF UTAH

WELL SITE PLAN
CRIMSON RIDGE WATER COMPANY
WELL HOUSE AND TANK
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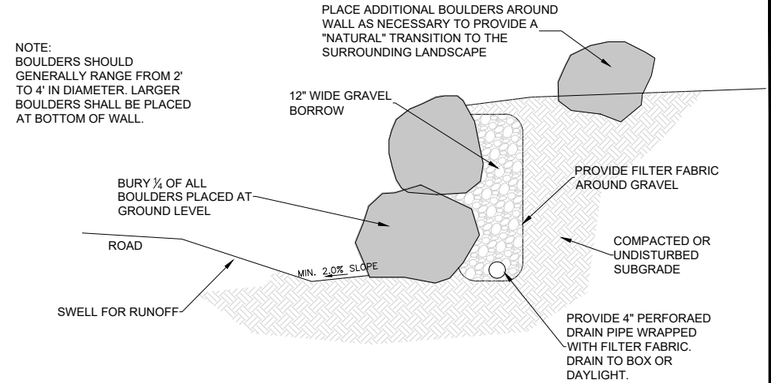
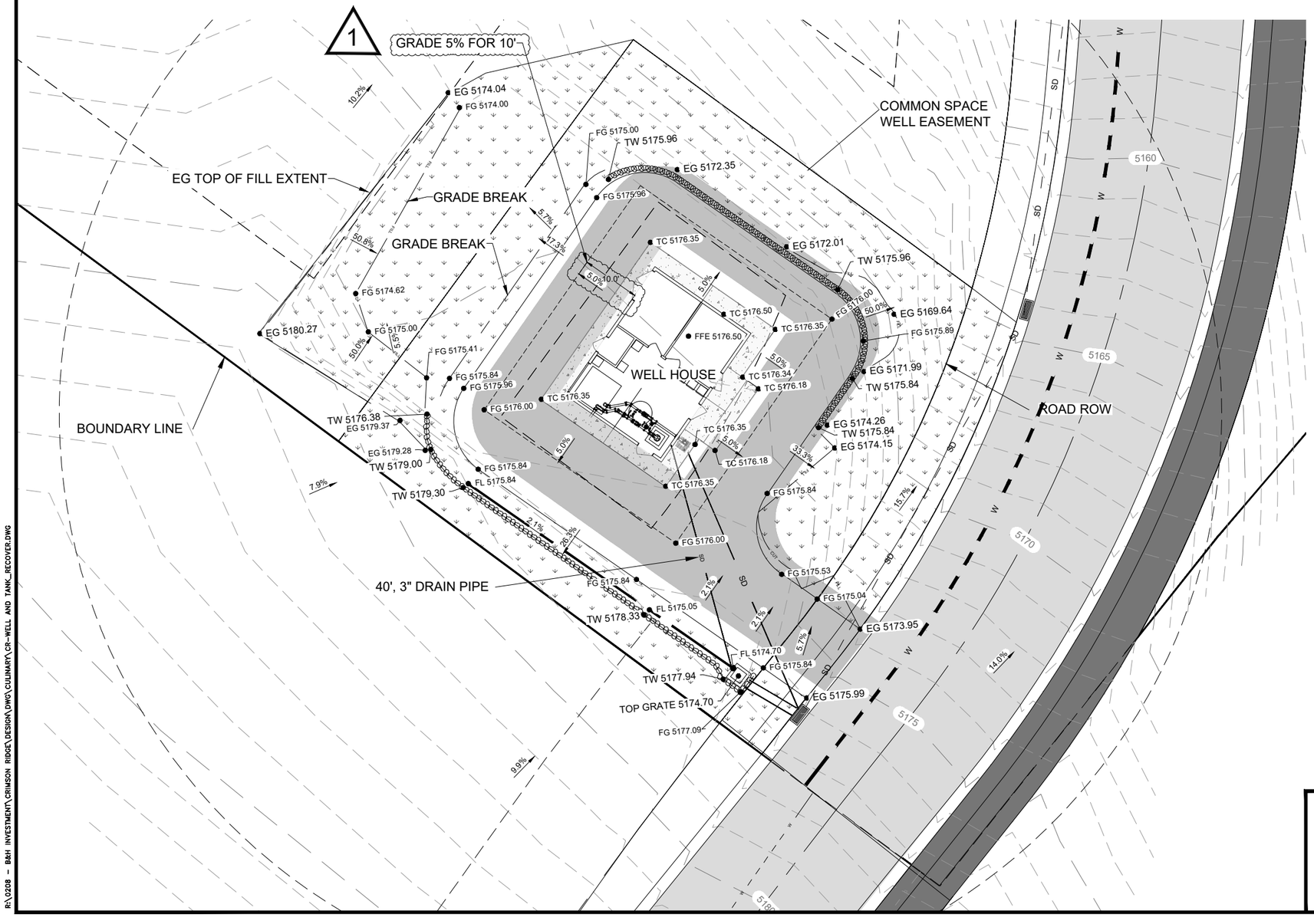


TYPICAL BOULDER RETAINING WALL DETAIL

NOT TO SCALE



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"WATER CONTRACTOR"
- ALL PRESSURIZED CULINARY LINES BETWEEN WELL AND TEE
- ELECTRICAL
- CONTROLS
- HVAC

0' 10' 20' 40'

Scale in Feet
1" = 20'

Date: 4/9/2021
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Revisions		
Date		Description
6/23/21	1	WC3 6-17-21

PROFESSIONAL ENGINEER
10382576
MICHAEL DUANE DURTSCHI
6/23/21
STATE OF UTAH

WELL GRADING PLAN
CRIMSON RIDGE WATER COMPANY
WELL HOUSE AND TANK
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Revision Set 6/23/2021

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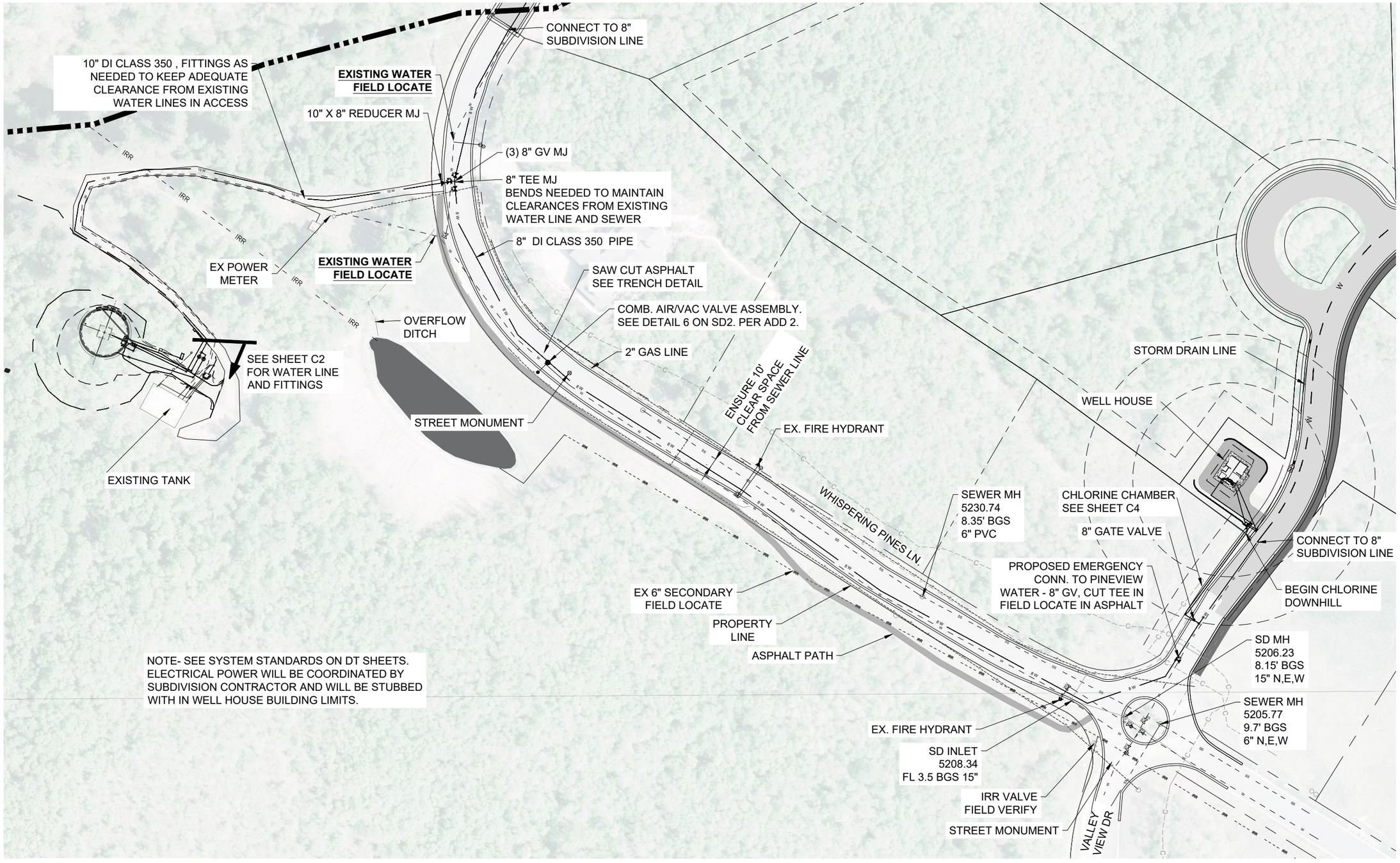

NOTE- SEE SYSTEM STANDARDS ON DT SHEETS. ELECTRICAL POWER WILL BE COORDINATED BY SUBDIVISION CONTRACTOR AND WILL BE STUBBED WITH IN WELL HOUSE BUILDING LIMITS.

Know what's below. 811
Call 811 before you dig.
BLUE STAKES OF UTAH
UTILITY NOTIFICATION CENTER, INC.
www.bluestakes.org
1-800-662-4111

CONTRACTOR SHALL FIELD VERIFY LOCATION OF EXISTING UTILITIES AND NOTIFY ENGINEER PRIOR TO EXCAVATION FOR NEW WATERLINES

0' 50' 100' 200'
Scale in Feet
1" = 100'

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PROFESSIONAL ENGINEER
10382576
MICHAEL DUANE DURTSCHI
STATE OF UTAH

WATERLINE
CRIMSON RIDGE WATER COMPANY
WELL HOUSE AND TANK
EDEN, WEBER, UTAH

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Revision Set 6/23/2021

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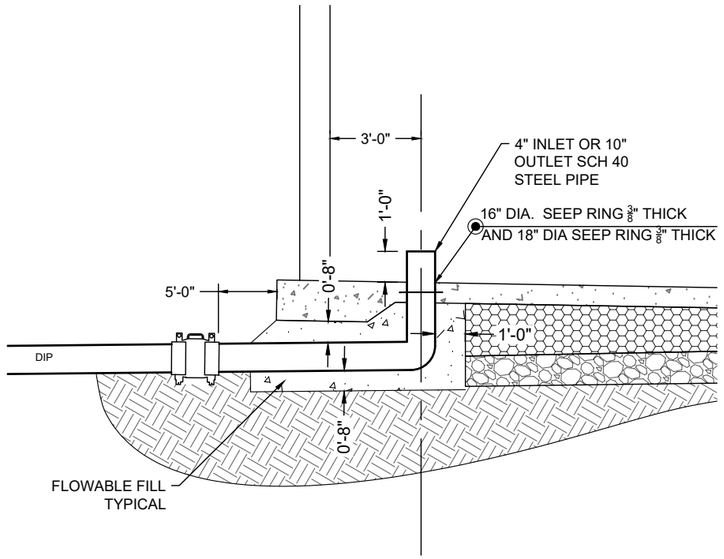
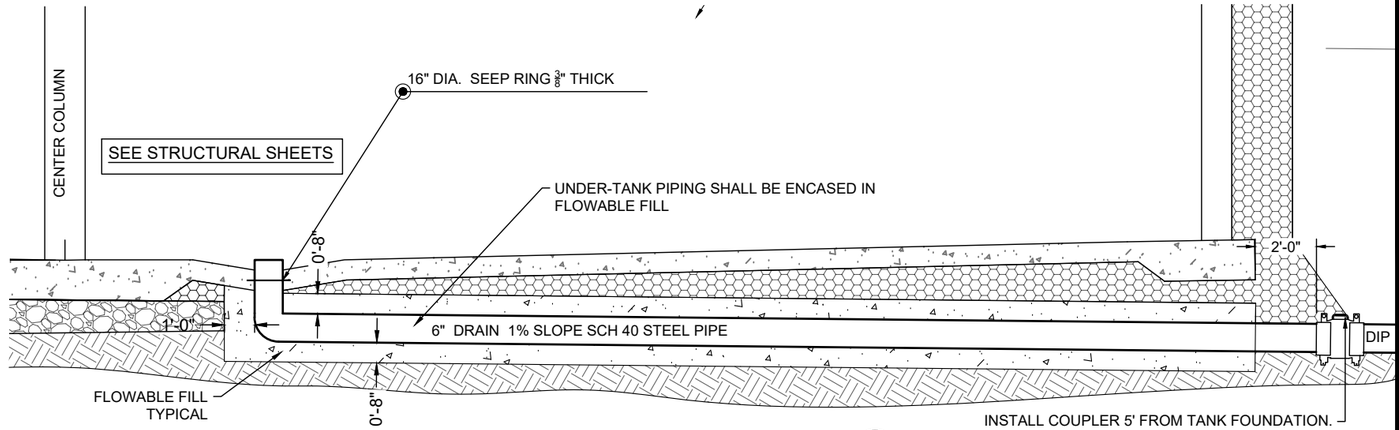


INLET/ OUTLET PROFILE VIEW (1 / D1)
NOT TO SCALE

NOTE: ALL PIPING SHALL BE SCH 40 STEEL WITHIN 2' OF TANK. ALL STEEL PIPE SHALL BE COATED, INSIDE & OUTSIDE, WITH A MINIMUM OF 2 COATS OF ULTRA-HIGH SOLIDS 2-PART EPOXY COMPLIANT WITH NSF 61 FOR THE GIVEN PIPE SIZE AND A TOTAL MIN. DFT PER MANUFACTURER'S RECOMMENDATION. TNEMEC N140, SHERWIN-WILLIAMS DURA PLATE 235 OR EQUAL



DRAIN PIPE PROFILE VIEW (3 / D1)
NOT TO SCALE

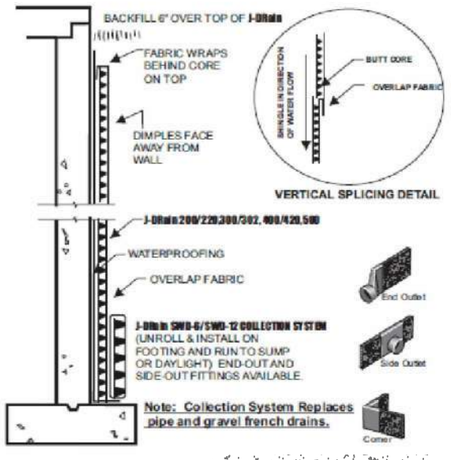
FOUNDATION WALL INSTALLATIONS
(With Waterproofing Membrane)

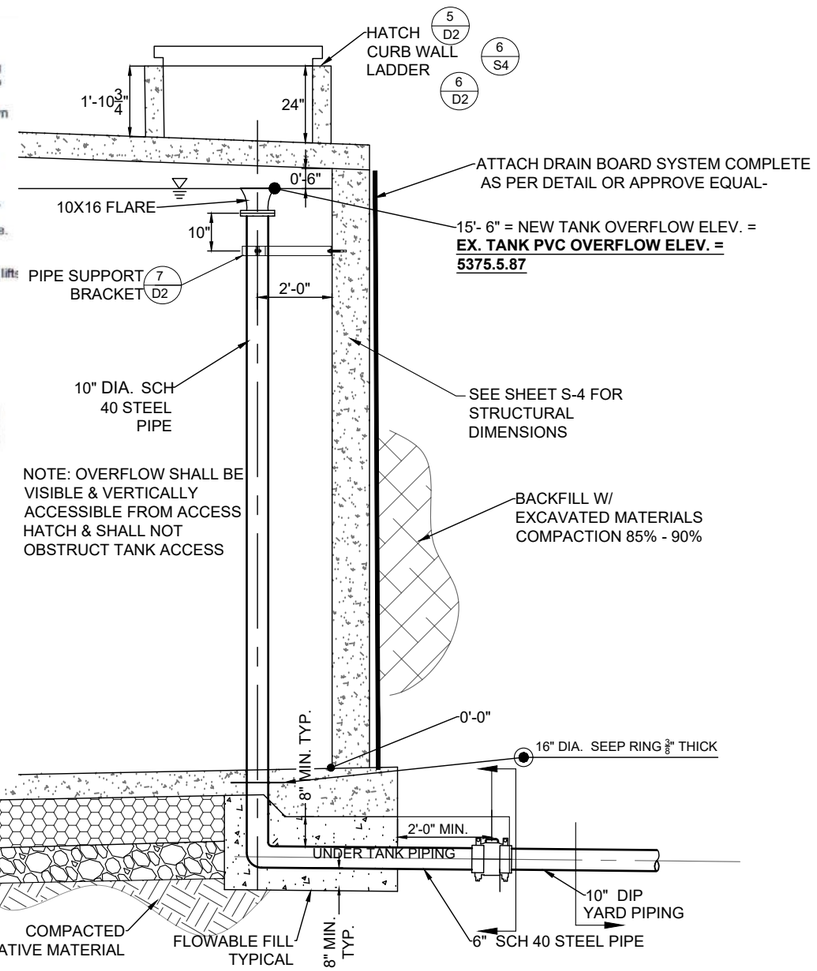
Collection and Discharge Unroll and install **J-Drain SWD-6 OR 12** along footing and attach to wall covering weep holes for uniform collection and discharge to weep holes.

J-Drain Panels are installed above the **J-Drain SWD** Collection System as shown in detail. Panels are butted and the filter fabric is shingled as shown in the Splicing Detail. **ALL FACTORY EDGES AND CUT EDGES SHOULD BE COVERED WITH FILTER FABRIC EITHER BY OVERLAPPING EDGE OR COVERING WITH EXCESS FILTER FABRIC.**

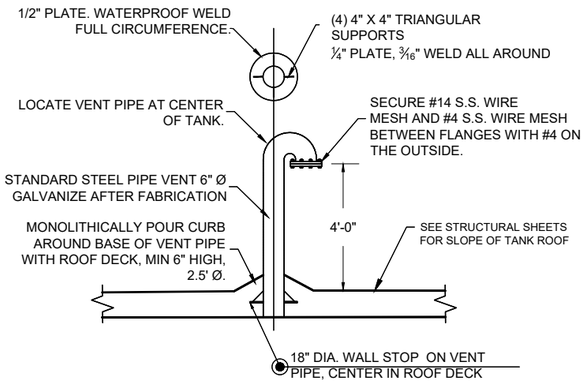
Attachment Method On concrete substrates, use mechanical fasteners, i.e., Nailing or powder actuated fasteners. On waterproofing substrates, use constructions adhesives that are compatible with the waterproofing membrane. **DIMPLES & FILTER FABRIC ALWAYS FACES BACKFILL.**

Backfilling Backfill as soon as possible not exceeding 5 - 7 days. Backfill in lifts and compact each lift. Backfill should extend at least 6" over top of panels.





OVER FLOW PROFILE VIEW
NOT TO SCALE



TANK VENT (2 / D1)
NOT TO SCALE

Revisions		
Date	Description	

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PROFESSIONAL ENGINEER 10382576 MICHAEL DUANE DURTSCHI STATE OF UTAH

Tank Details
CRIMSON RIDGE WATER COMPANY
WELL HOUSE AND TANK
EDEN, WEBER, UTAH

GARDNER ENGINEERING
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D1
NUM

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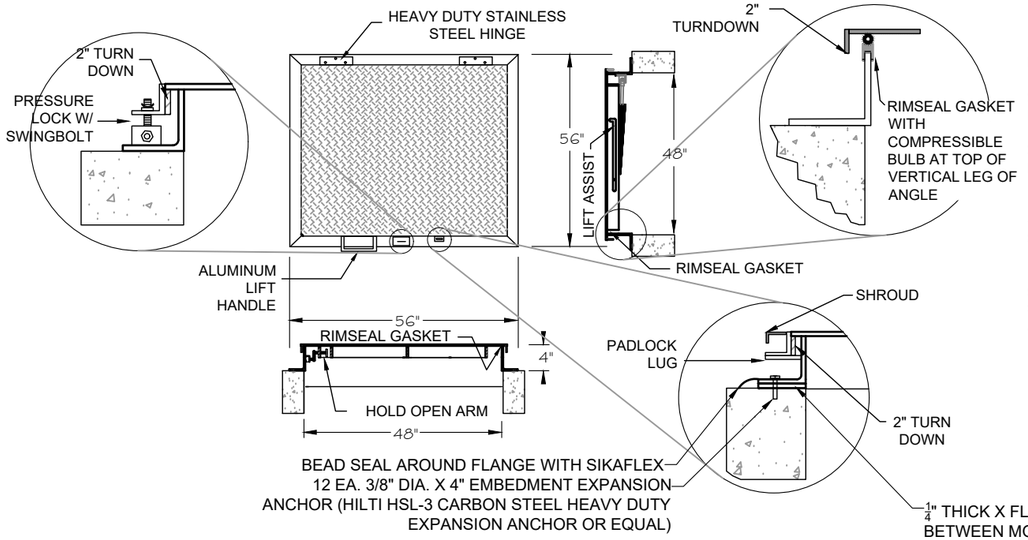


1.) MODEL "H484847O1" AS MANUFACTURED BY EJ OR APPROVED EQUAL. WESTERN REGIONAL OFFICE IN TOOELE, UT.
TEL: 801-544-5728.
FAX: 801-544-9571.

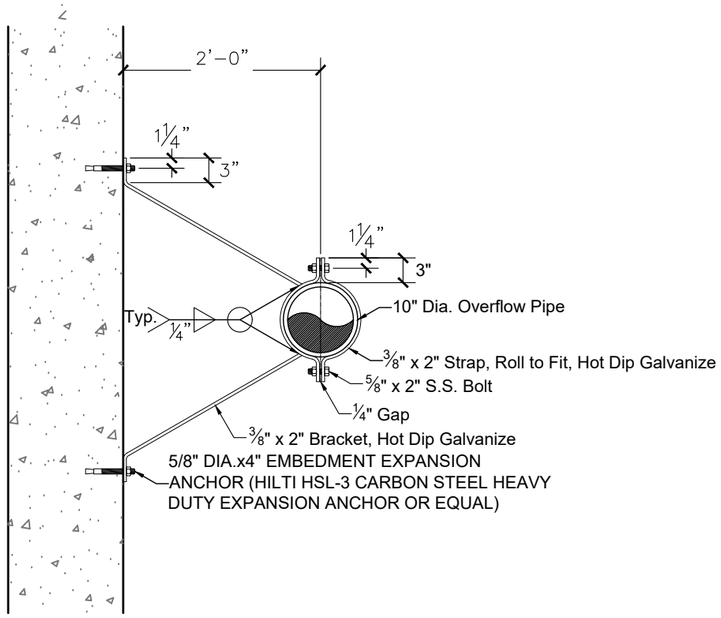
2.) UNIT DESIGNED FLOODTIGHT RATED FOR (150 PSF).

3.) COVER SHALL BE EQUIPPED WITH A HOLD OPEN ARM. DOOR SHALL LOCK OPEN IN THE 90 DEGREE POSITION.

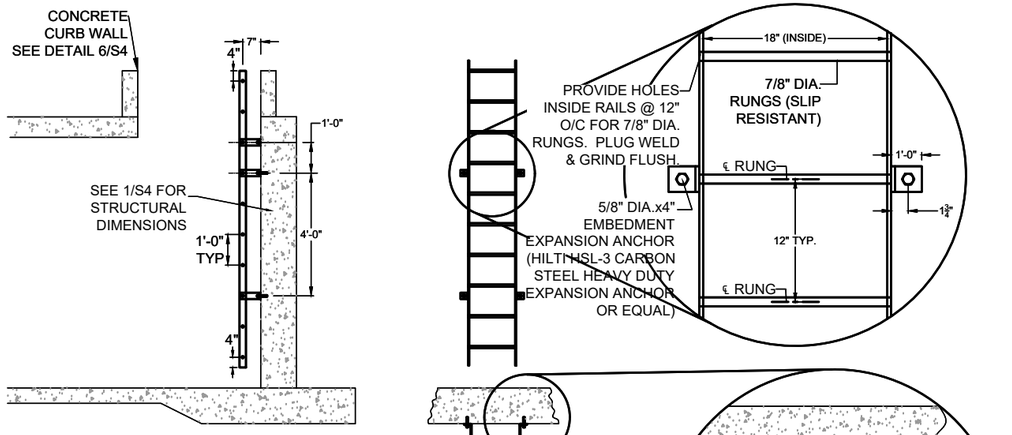
4.) COVER SHALL BE SUPPLIED WITH SHROUDED PADLOCK LUG AND PRESSURE LOCKS.

5.) UNIT SUPPLIED WITH A RIMSEAL GASKET ON INSIDE VERTICAL LEG OF ANGLE.

WATER TANK HATCH — 5/D2
NOT TO SCALE



PIPE SUPPORT BRACKET DETAIL — 7/D2
NOT TO SCALE



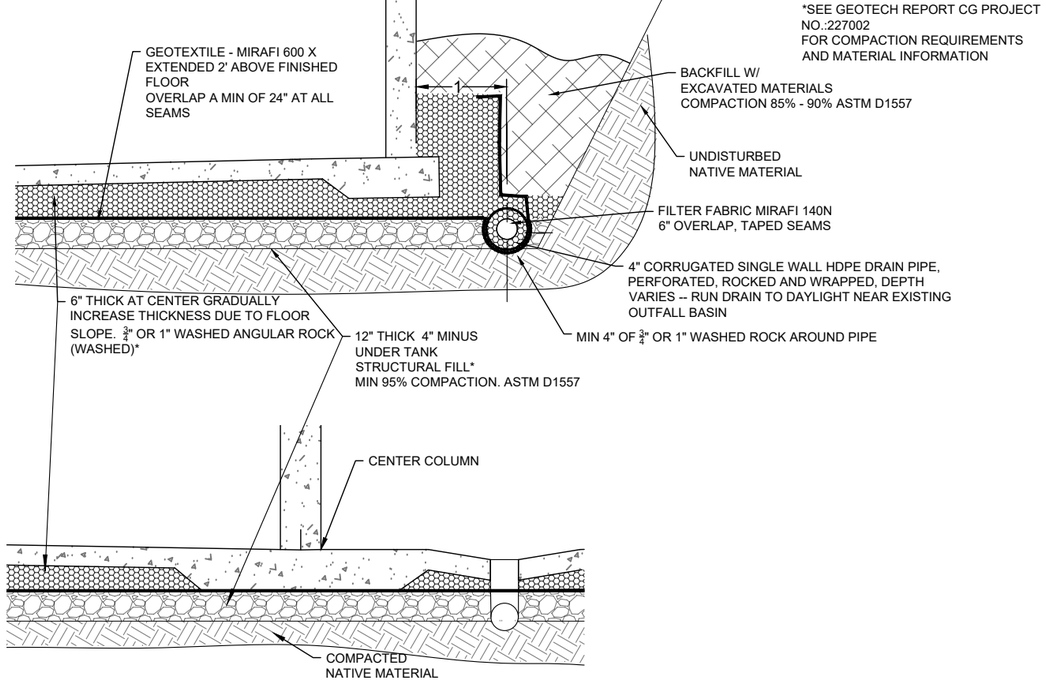
NOTES:

1. USE STAINLESS STEEL FOR ALL LADDER COMPONENTS.

2. E70 XX WELDS

3. USE STAINLESS STEEL BOLTS

LADDER DETAIL — 6/D2
NOT TO SCALE



*SEE GEOTECH REPORT CG PROJECT NO.:227002 FOR COMPACTION REQUIREMENTS AND MATERIAL INFORMATION

UNDER DRAIN/FILL DETAIL — 8/D2
NOT TO SCALE

Revisions					
Date	Description				

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PROFESSIONAL ENGINEER 10382576 MICHAEL DUANE DURTSCHI STATE OF UTAH

Tank Details

CRIMSON RIDGE WATER COMPANY

WELL HOUSE AND TANK

EDEN, WEBER, UTAH

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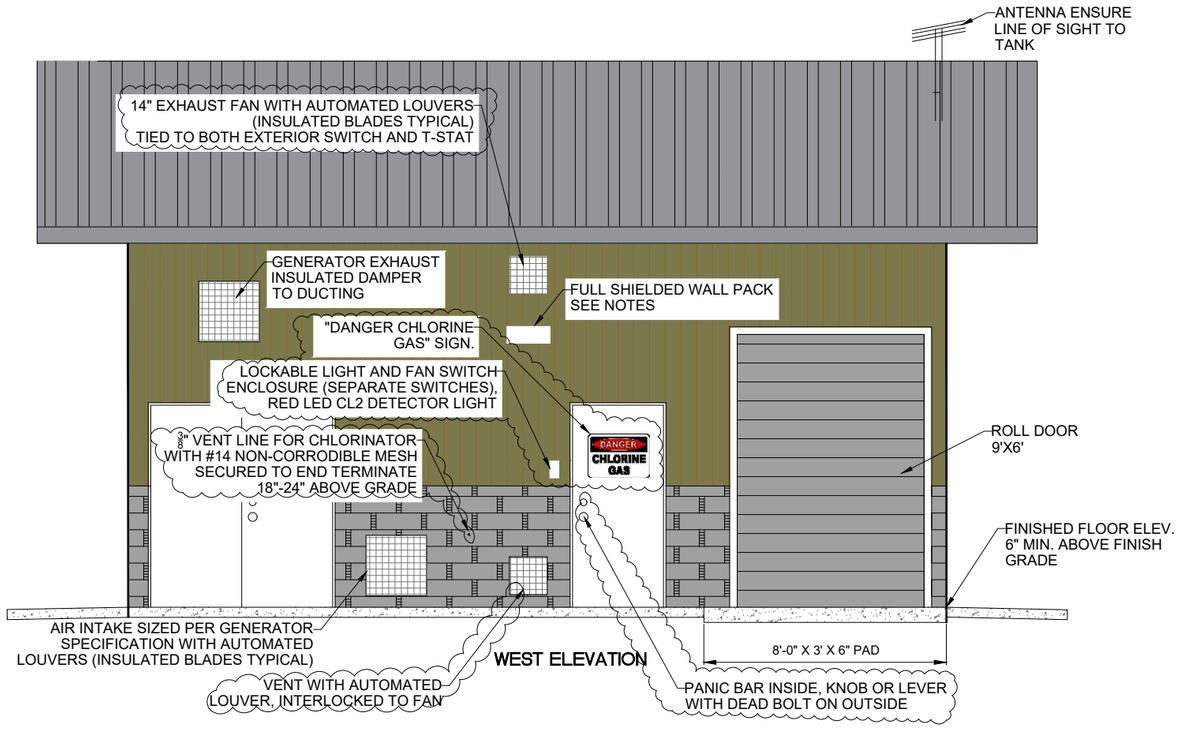
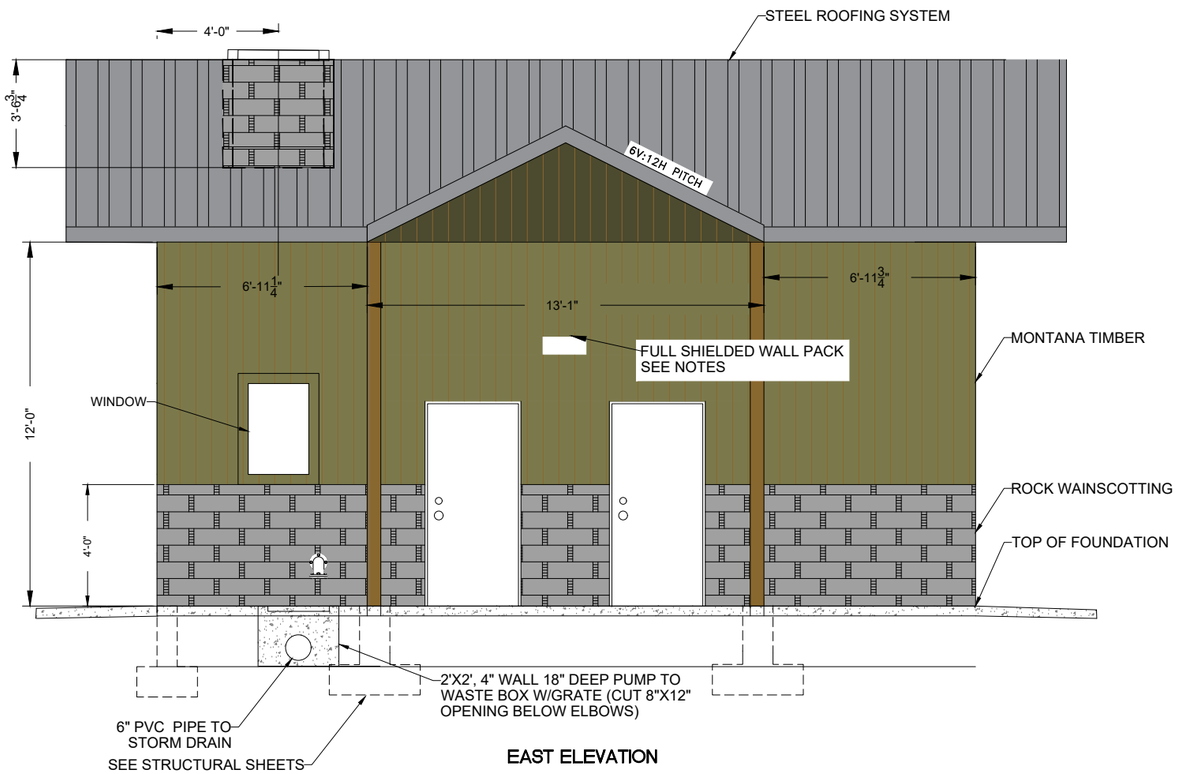


WEST ELEVATION



EAST ELEVATION

NOTES: SEE SPECIFICATIONS

1. ALL VENTS AND WINDOW SHALL HAVE NO.16 STAINLESS STEEL SCREENING AND ALL VENTS SHALL HAVE INSULATED LOUVERS RATED FOR THE SITE CONDITIONS.
2. CHLORINE ROOM VENTILATION - EXHAUST FAN AND VENT SHALL HAVE INSULATED LOUVERS THAT ARE AUTOMATED TO OPEN AND CLOSE BY THE OUTDOOR SWITCH BOX THAT IS PLACED NEXT TO THE ENTRANCE DOOR FOR THE CHLORINE ROOM. THE BOX WILL BE WEATHER RATED WITH MEANS TO PLACE PADLOCK FOR SECURITY AND SHALL HAVE THE ON OFF SWITCHES FOR VENTILATION AND LIGHTING IN THE CHLORINE ROOM. THE CHLORINE ROOM EXHAUST VENTILATION SHALL ALSO BE SETUP TO TURN ON AT A DESIRED TEMPERATURE SETTING, FOR THE PURPOSE OF COOLING ROOM IN SUMMER DAYS.
3. WELL HEAD ROOM AND GENERATOR ROOM VENTILATION - EACH ROOM SHALL HAVE A FAN AND EXHAUST VENT WITH INSULATED LOUVRE, VENTILATION SHALL BE CONTROLLED BY SWITCH OR TEMPERATURE SETTING.
4. GENERATOR ROOM SHALL HAVE VENTING, LOUVERS, EXHAUST FAN AND EXHAUST HOOD W/ DUCTING AS PER GENERATOR SPECIFICATION.
5. 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.
6. MATERIAL COLORS OF THE OUTER WELL HOUSE SHALL BE OF EARTHEN COLORS AND APPROVED BY ENGINEER.
7. HANG 1/2" SAG-AND MOISTURE-RESISTANT DRY WALL ON CEILING, PRIME + PAINT W/ 2 COATS SEMI- GLOSS ENAMEL.
8. INSTALL R-38 BATTING IN ATTIC AND INSTALL EXTERIOR WALLS WITH R-38 VALUE INSULATION PER CODE. 1
9. INSTALL WOOD (NO PRESS BOARD) AROUND WALL/CEILING INTERFACE, W/ PRIMER AND 2 COATS SEMI GLOSS ENAMEL PAINT.
10. INSTALL MOISTURE BARRIER AND STEEL ROOFING SYSTEM. ATTIC VENTING AS PER WEBER COUNTY BUILDING CODE.
11. PROVIDE ATTIC ACCESS PER CODE, TRIM OPENINGS.
12. PROVIDE APPROPRIATELY LOCATED AND SIZED OPENING IN CEILING W/ REMOVABLE CEILING PANEL FOR ATTIC ACCESS. PANELS SHALL BE INSULATED, TRIM CEILING AROUND OPENING.

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5/18/21	CL2, VENTLINE
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PROFESSIONAL ENGINEER 10382576 MICHAEL DUANE DURTSCHI STATE OF UTAH

ELEVATIONS

CRIMSON RIDGE WATER COMPANY

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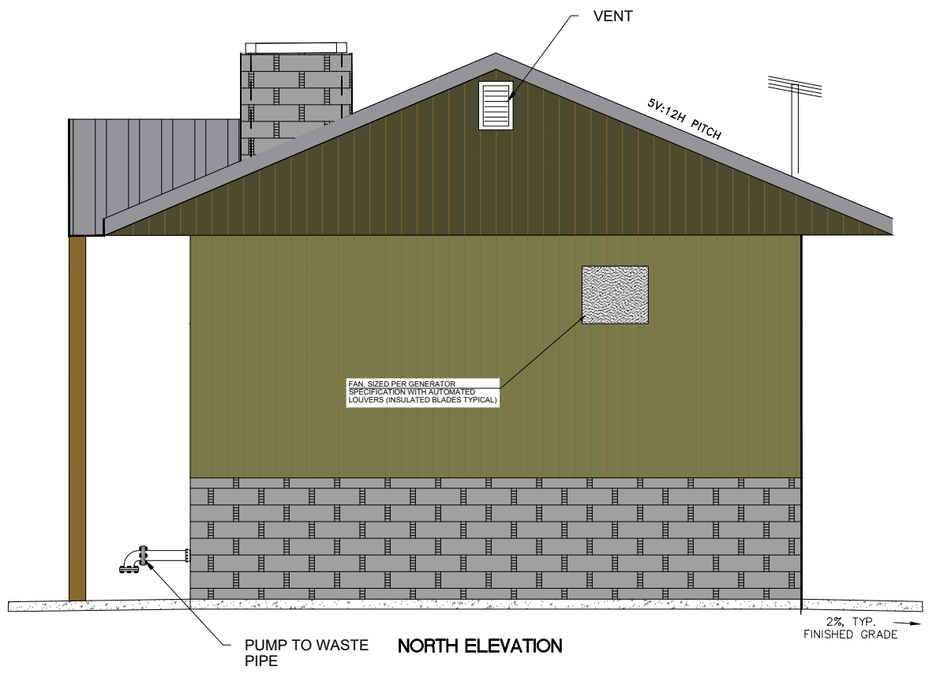
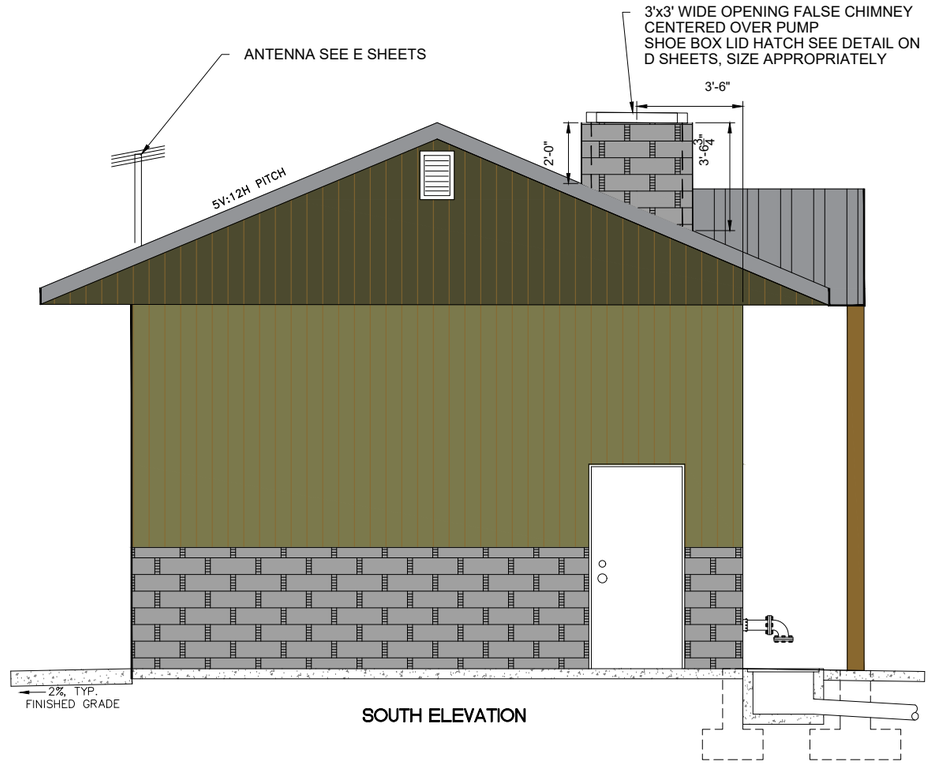


NORTH ELEVATION



SOUTH ELEVATION

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PROFESSIONAL ENGINEER
10382576
MICHAEL DUANE DURTSCHI
STATE OF UTAH

ELEVATIONS

CRIMSON RIDGE WATER COMPANY

WELL HOUSE AND TANK

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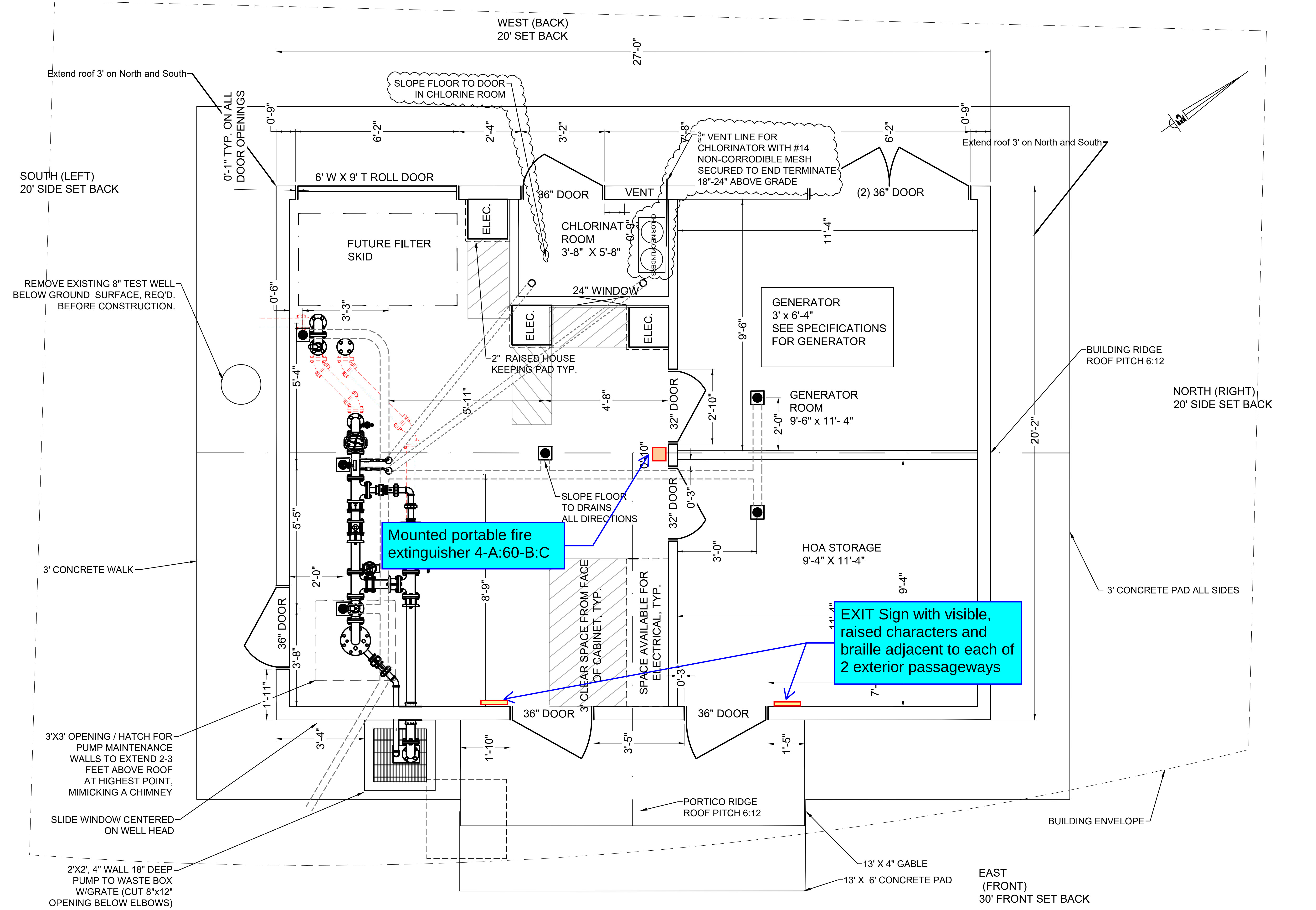

WEST (BACK)
20' SET BACK
27'-0"
Extend roof 3' on North and South
SLOPE FLOOR TO DOOR IN CHLORINE ROOM
0'-1" TYP. ON ALL DOOR OPENINGS
0'-9"
6'-2"
2'-4"
3'-2"
7'-8"
3/4" VENT LINE FOR CHLORINATOR WITH #14 NON-CORRODIBLE MESH SECURED TO END TERMINATE 18"-24" ABOVE GRADE
6'-2"
0'-9"
Extend roof 3' on North and South
SOUTH (LEFT)
20' SIDE SET BACK
6' W X 9' T ROLL DOOR
36" DOOR
VENT
(2) 36" DOOR
FUTURE FILTER SKID
ELEC.
CHLORINATOR ROOM
3'-8" X 5'-8"
CHLORINE CYLINDERS
11'-4"
REMOVE EXISTING 8" TEST WELL BELOW GROUND SURFACE, REQ'D. BEFORE CONSTRUCTION.
0'-6"
3'-3"
24" WINDOW
ELEC.
ELEC.
GENERATOR
3' x 6'-4"
SEE SPECIFICATIONS FOR GENERATOR
9'-6"
BUILDING RIDGE
ROOF PITCH 6:12
2" RAISED HOUSE KEEPING PAD TYP.
5'-4"
5'-11"
4'-8"
32" DOOR
2'-10"
GENERATOR ROOM
9'-6" x 11'- 4"
2'-0"
NORTH (RIGHT)
20' SIDE SET BACK
20'-2"
SLOPE FLOOR TO DRAINS ALL DIRECTIONS
0'-3"
32" DOOR
5'-5"
Mounted portable fire extinguisher 4-A:60-B:C
3'-0"
HOA STORAGE
9'-4" X 11'-4"
3' CONCRETE WALK
2'-0"
8'-9"
3' CLEAR SPACE FROM FACE OF CABINET, TYP.
SPACE AVAILABLE FOR ELECTRICAL, TYP.
9'-4"
3' CONCRETE PAD ALL SIDES
EXIT Sign with visible, raised characters and braille adjacent to each of 2 exterior passageways
36" DOOR
3'-8"
1'-11"
0'-3"
7'-
36" DOOR
36" DOOR
3'X3' OPENING / HATCH FOR PUMP MAINTENANCE WALLS TO EXTEND 2-3 FEET ABOVE ROOF AT HIGHEST POINT, MIMICKING A CHIMNEY
3'-4"
1'-10"
3'-5"
1'-5"
SLIDE WINDOW CENTERED ON WELL HEAD
PORTICO RIDGE
ROOF PITCH 6:12
BUILDING ENVELOPE
2'X2', 4" WALL 18" DEEP PUMP TO WASTE BOX W/GRATE (CUT 8"x12" OPENING BELOW ELBOWS)
13' X 4" GABLE
13' X 6' CONCRETE PAD
EAST (FRONT)
30' FRONT SET BACK

WELL HOUSE PLAN
NOT TO SCALE
1
W3

Date	Description
5/18/21	CL2, VENTLINE

Date: 4/9/2021
Scale: ######
Designed: MDD
Drafted: MDD
Checked: DLW

PROFESSIONAL ENGINEER 10382576 MICHAEL DUANE DURTSCHI STATE OF UTAH

WELL HOUSE PLAN
CRIMSON RIDGE WATER COMPANY
WELL HOUSE AND TANK
EDEN, WEBER, UTAH

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Revision Set 6/23/2021

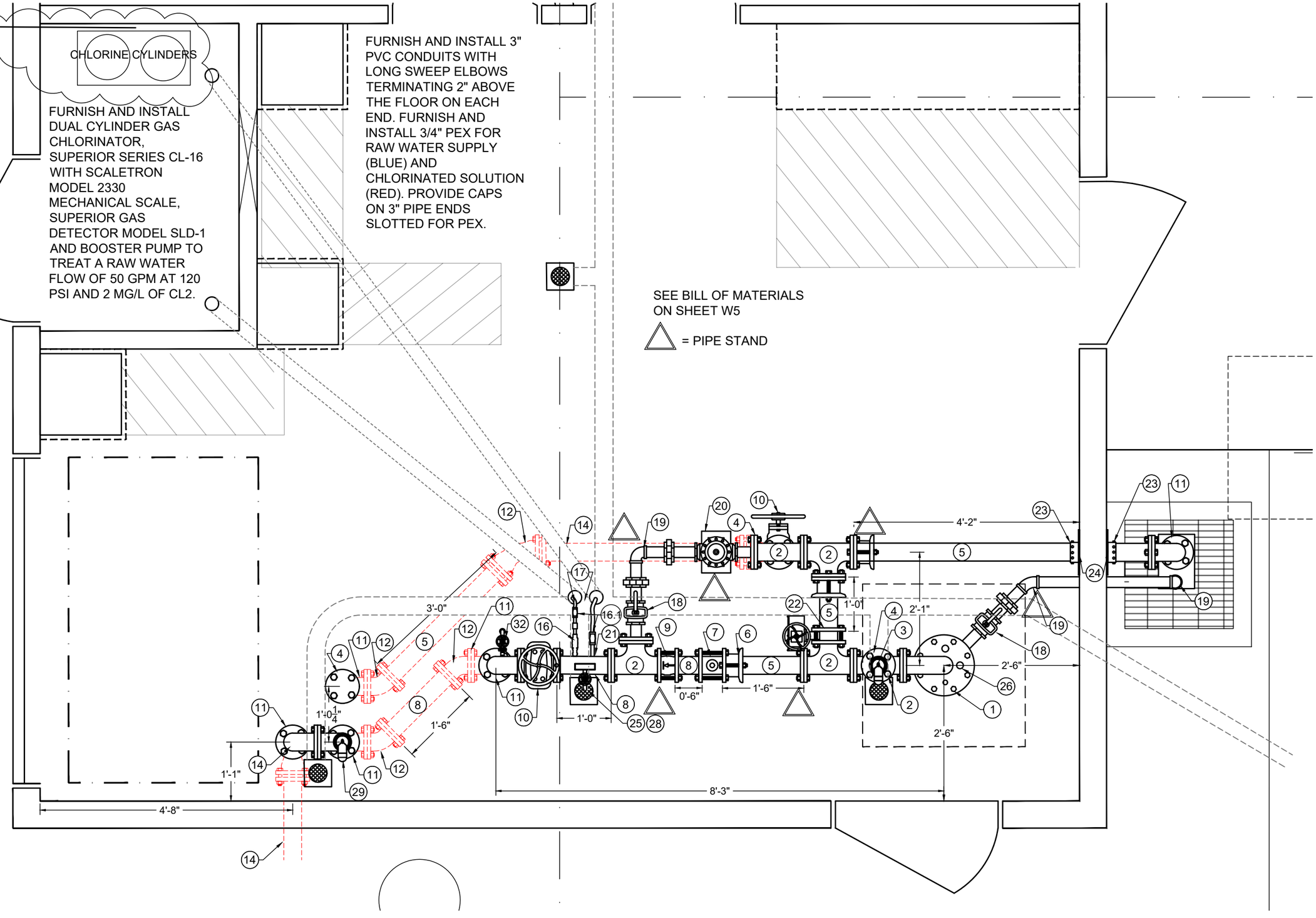
CHLORINE CYLINDERS

FURNISH AND INSTALL DUAL CYLINDER GAS CHLORINATOR, SUPERIOR SERIES CL-16 WITH SCALETRON MODEL 2330 MECHANICAL SCALE, SUPERIOR GAS DETECTOR MODEL SLD-1 AND BOOSTER PUMP TO TREAT A RAW WATER FLOW OF 50 GPM AT 120 PSI AND 2 MG/L OF CL2.

FURNISH AND INSTALL 3" PVC CONDUITS WITH LONG SWEEP ELBOWS TERMINATING 2" ABOVE THE FLOOR ON EACH END. FURNISH AND INSTALL 3/4" PEX FOR RAW WATER SUPPLY (BLUE) AND CHLORINATED SOLUTION (RED). PROVIDE CAPS ON 3" PIPE ENDS SLOTTED FOR PEX.

SEE BILL OF MATERIALS ON SHEET W5

△ = PIPE STAND



WELL PIPING PLAN
NOT TO SCALE
1 / W4

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CONFORMED SET 2021-05-21

Revisions	
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PROFESSIONAL ENGINEER 10382576 MICHAEL DUANE DURTSCHI STATE OF UTAH

WELL PIPING PLAN
CRIMSON RIDGE WATER COMPANY
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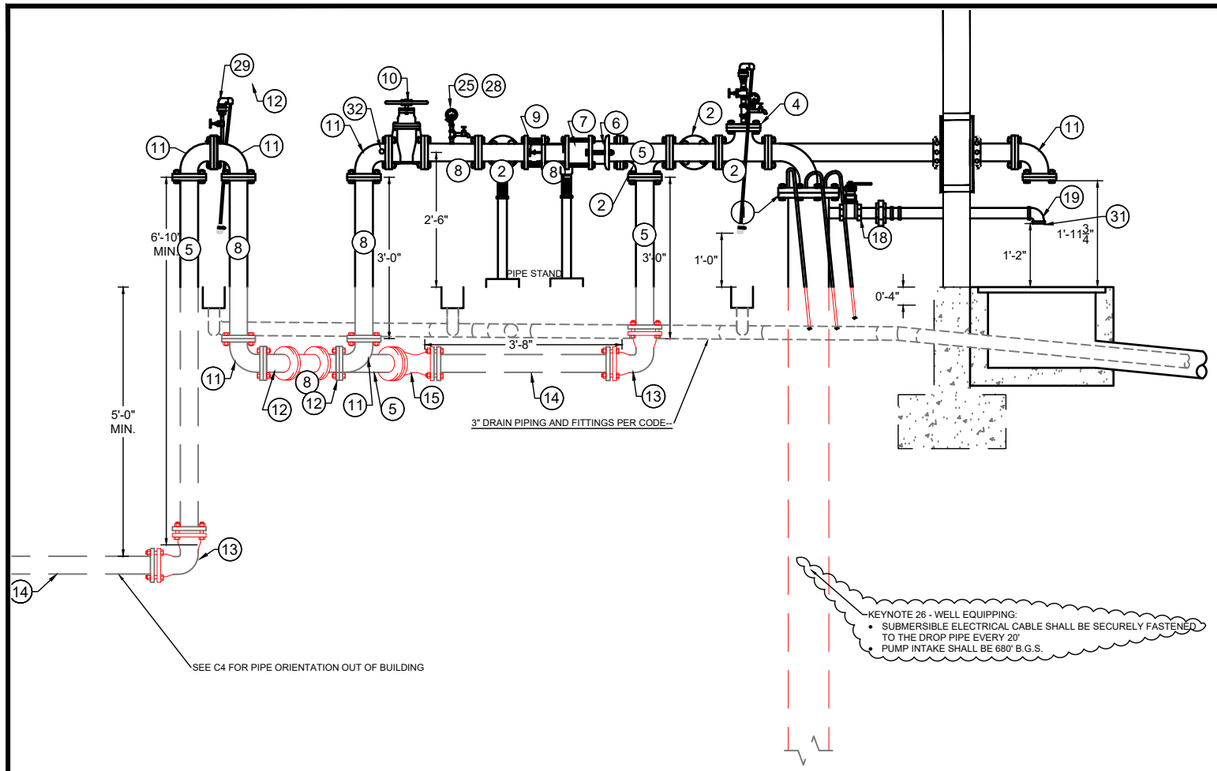
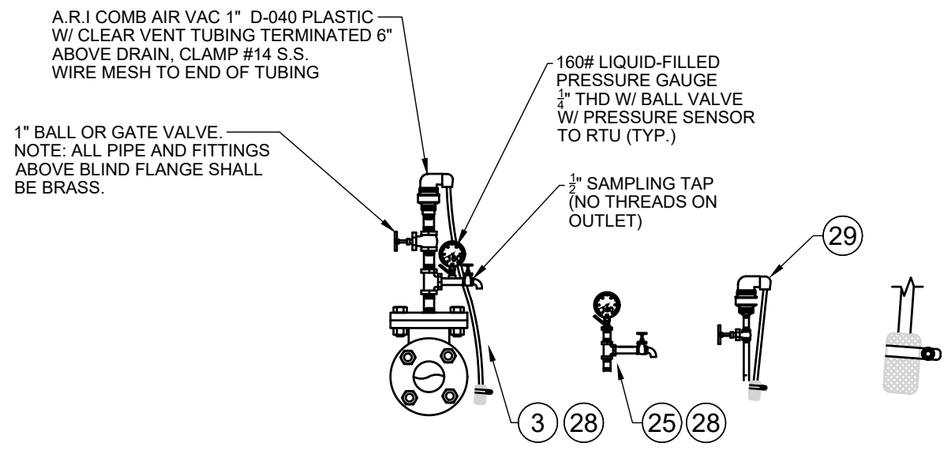
Revision Set 6/23/2021





PIPE VENTS, TAPS AND GUAGES

NOT TO SCALE

Bill of Materials - Well House Equiping

Keynote #	Qty	Description	Notes
1	1	8x3 Discharge Head	3 taps in flange for: power, transducer housing, casing vent
2	5	3" flanged tee	
3	1	Combination air vac assembly	See detail for main components
4	4	3" blind flange	Tap as needed
5	5	3" DIP Flange x plain end spool	Length as shown on plans
6	3	3" Flange coupling adapter	
7	1	3" wafer style mag or ultrasonic flow meter	Local readout, 4-20mA and pulse output connected to SCADA
8	5	3" DIP Flange x flange spool	Length as shown on plans
9	1	3" wafer style check valve	Val-Matic Silent check valve
10	1	3" flanged gate valve	With hand wheel
11	6	3" ductile iron flanged 90-deg elbow	
12	3	3" ductile iron flanged 45-deg elbow	
13	2	3" ductile iron MJ 90-deg elbow	With mechanical restraints
14	1	3" DIP plain end x plain end spool	10'-0" long
15	1	3" ductile iron MJ 45-deg elbow	With mechanical restraints
16	1	1/2" direct tap in DIP and Non-retractable injection quill w/check valve	Injection quill: 5AF-T-FLO BCK-50
16.1	2	Ball valve	Vented, CPVC body, Viton gaskets, slip connections where connected to Item 16. Brass body, Viton gaskets and FNPT where connected to Item 21.
17	2	Transition pipe and fittings to 3/4" PEX	
18	2	2" brass ball valve	FNPT
19	-	2" brass pipe, 3-piece union, fittings	As shown on plans with downturn 90 elbow w/ # 14 and # 4 mesh 316 SS secured to elbow.
20	1	Pressure relief valve	5inger 106-RPS, 120 PSI relief, atmospheric discharge
21	3	3/4" direct tap in DIP and brass nipple	
22	1	3" resilient seated wafer butterfly valve with electric actuator	Valve: Keystone F221. Actuator: Keystone EPI2 with adjustable stroking times, 120V.
23	2	Field flange	
24	2	1/4" thick steel thrust plate	Must bear against 2 wall studs, one on each side of pipe. Adjust framing as needed.
2S	2	1/2" smooth nose sampling tap	1/2" tap, nipple,1/2" ball valve and fittings
26	1 Lot	Well equipping	Seal plate on 8" casing, 8" x 3" flanged discharge head (Keyed item #1, above), transducer, transducer housing, submersible pump, drop pipe with 2 check valves, submersible cable, casing vent
27	2	Braided flexible PVC Connection	Clear Braided PVC hose and appropriate fittings to make flexible connection between PEX and Item 16.1, vented ball valve. 5ize shown on plans. Use thread sealant (not tape) on threads and pipe-material-specific primer and glue (CPVC where appropriate) on slip joints.
28	2	2 1/2" face,glycerin filled, pressure guage	0-160 psi (fittings to connect as needed) 1/4" thd w/ ball valve
29	1	1/2" A.R.I. Air Vac D-040 Plastic	w/ 1/2" tap, nipple,1/2" ball valve and fittings, tubing w/ clamped #14 S.S. mesh screen
30	1	Pump to Waste 5creened dishcharge	Flange on 316 5tainless Steel # 4 Mesh 5creening secured to elbow
31	1	Well Relief Screened dishcharge	Flange on 316 5tainless Steel # 4 and #16 Mesh Screening secured to elbow
32	1	3/4" threaded hose bib with ball valve	3/4" direct tap in DIP and brass nipple

Revisions

Date	Description
5/18/21	NOTES FOR 26

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PROFESSIONAL ENGINEER 10382576 MICHAEL DUANE DURTSCHI STATE OF UTAH

WELL PIPING SECTION
CRIMSON RIDGE WATER COMPANY
WELL HOUSE AND TANK
EDEN, WEBER, UTAH

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W5
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CONFORMED SET 2021-05-21

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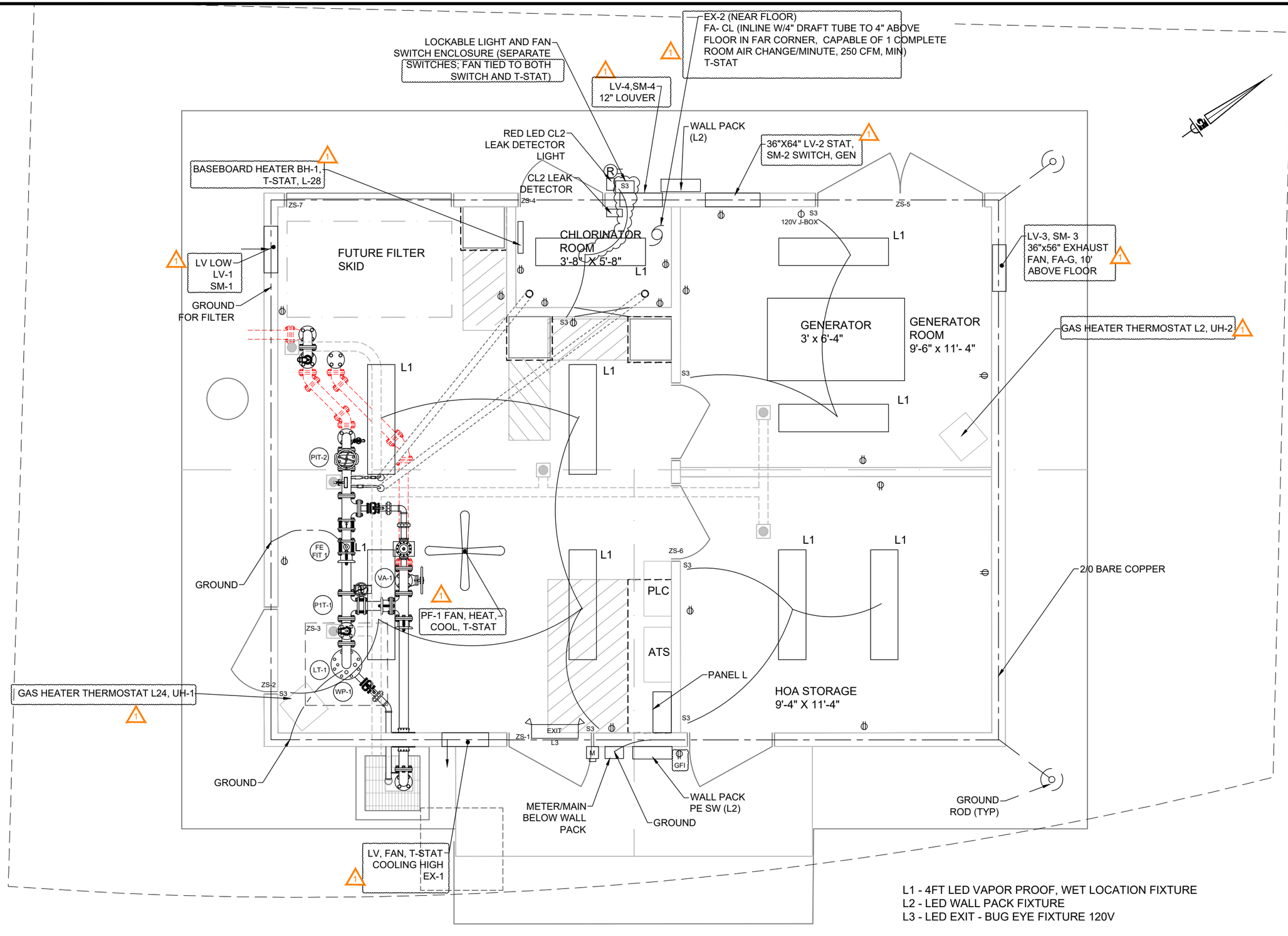

L1 - 4FT LED VAPOR PROOF, WET LOCATION FIXTURE
L2 - LED WALL PACK FIXTURE
L3 - LED EXIT - BUG EYE FIXTURE 120V

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Revisions	
Date	Description
5/18/21	CL2, VENTLINE
6/23/21	WC3 6-17-21

REGISTERED PROFESSIONAL ENGINEER
No. 354312
Daniel Leon White
04/08/2021
STATE OF UTAH

ELECTRIC PLAN

CRIMSON RIDGE WATER COMPANY

WELL HOUSE AND TANK

EDEN, WEBER, UTAH

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E1
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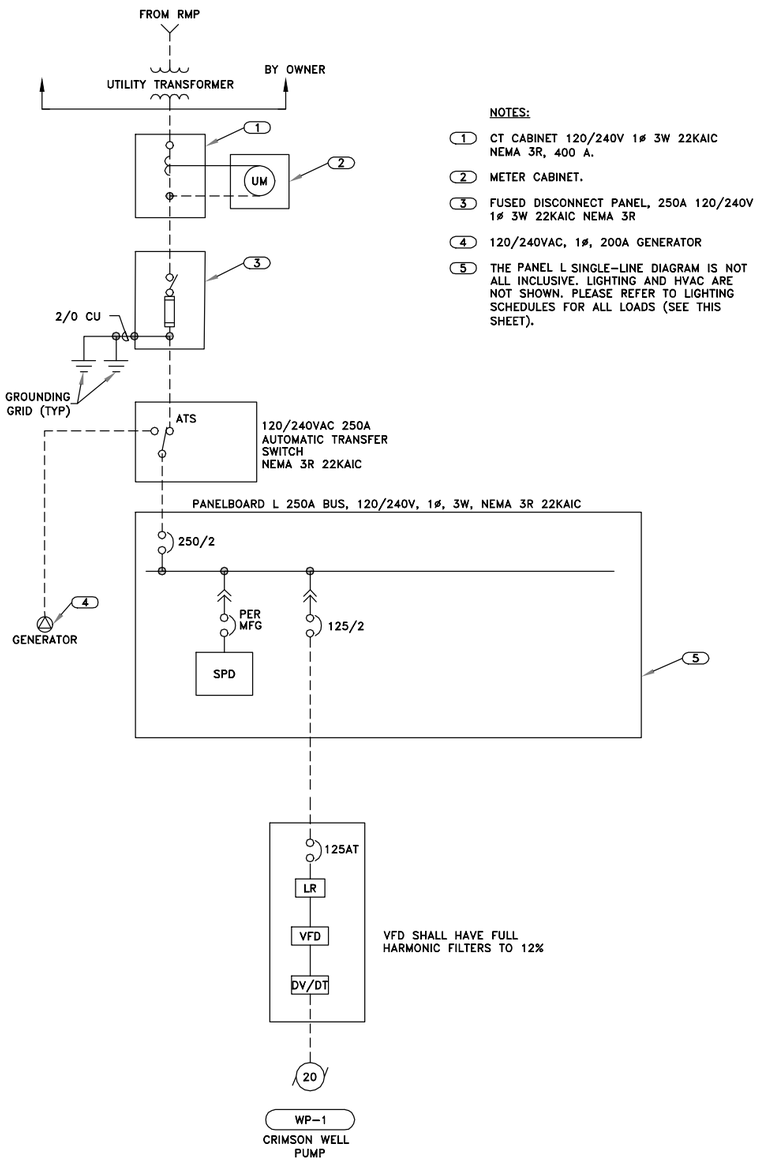

NOTES:

1. CT CABINET 120/240V 1ø 3W 22KAIC NEMA 3R, 400 A.
2. METER CABINET.
3. FUSED DISCONNECT PANEL, 250A 120/240V 1ø 3W 22KAIC NEMA 3R
4. 120/240VAC, 1ø, 200A GENERATOR
5. THE PANEL L SINGLE-LINE DIAGRAM IS NOT ALL INCLUSIVE. LIGHTING AND HVAC ARE NOT SHOWN. PLEASE REFER TO LIGHTING SCHEDULES FOR ALL LOADS (SEE THIS SHEET).

VFD SHALL HAVE FULL HARMONIC FILTERS TO 12%

PANEL L SINGLE LINE DIAGRAM

PANEL:	L	VOLTAGE:	120/240	MAIN CB:			250 AMP
CB TYPE:	BOLT-ON	MOUNTING:	WALL	BUS BRACING:	22KA	BKR AIC:	22KA
CIRCUIT DESCRIPTION	BKR	CIRCUIT	LINE 1	LINE 2	CIRCUIT	BKR	CIRCUIT DESCRIPTION
Well Pump (WP-1)		1	10560	10560			
					2	20/1	GEN- ROOM HEATER GAS 1
	125/2	3		240			
					4	20/1	SPARE
GEN - BLOCK HEATER		5	1920	1920			
					6	20/2	SPARE
	20/2	7					
					8		
GEN - BATTERY	20/1	9	1200				
					10	20/1	SPARE
PLC	20/1	11	1200				
				1680	12	20/1	VALVE ACTUATOR
PUMP HOUSE INDOOR/OUTDOOR	20/1	13	648				
				1920	14	20/1	FILTER CONTROL PANEL
PUMP HOUSE RECEPTACLES	20/1	15	720				
				960	16	20/1	FE/FIT-1
GEN - RECEPTACLES	20/1	17	720				
				1200	18	20/1	CHLORINE ROOM - RECEPTICALS
HOA ROOM - RECEPTACLES	20/1	19	720				
				1440	20	20/1	CHLORINE ROOM - EXHAST FAN, LOUVRE, TSTAT
GEN - EXHAUST FAN	20/1	21	1200				
				1200	22	20/1	CHLORINE ROOM - RECEPTICALS
GEN-LOUVER, TSTAT	20/1	23	1200				
				240	24	20/1	PUMP ROOM - UNIT HEATER GAS 1
VENTILATION FAN, DAMPER & T-STAT	20/1	25	1200				
					26		SPARE
SPARE	20/1	27					
				750 1	28	20/1	CHLORINE ROOM - WALL HEATER
SPARE	20/1	29					
				1200	30	20/1	PUMP ROOM - EXHAUST FAN, LOUVRE, TSTAT
SPARE	20/1	31					
					32	20/1	SPARE
SPARE	20/1	33					
					34	20/1	SPARE
SPARE	20/1	35					
					36	20/1	SPARE
SPARE	20/1	37					
					38	20/1	SPARE
SPARE	20/1	39					
					40	20/1	SPARE
SPARE	20/1	41					
					42	20/1	SPARE
CONNECTED VA PER PHASE			21288	23310	NOTES:		
CONNECT AMPS PER PHASE			177.40	194.25			
25% OF CONTINUOUS LIGHTING LOAD			162	0 1			
LARGEST MOTOR 25%			2640	2640			
VA PER PHASE			24,090	25,950			
AMPS PER PHASE			200.75	216.25			

PANEL L SCHEDULE

TAG	DESCRIPTION	MAKE	MODEL	SUPPLY	RANGE	COMMENTS
PIT-1	WELL 1 - PRESSURE TRANSMITTER	DWYER	626-11-CH-P1-E5-S1-LED	24VDC	0-160PSI	W/ LED DISPLAY OR APPROVED EQUAL
PIT-2	WELL 1 DISCHARGE - PRESSURE TRANSMITTER	DWYER	626-11-CH-P1-E5-S1-LED	24VDC	0-160 PSI	W/ LED DISPLAY OR APPROVED EQUAL
LT-1	WELL1 LEVEL TRANSMITTER	DWYER	SERIES MBLT	24VDC	0-100 PSI	OR APPROVED EQUAL
FE/FIT-1	WELL 1 - FLOW METER	KROHNE	OPTIFLUX 2050	120VAC	-	OR APPROVED EQUAL
ZS-1 - ZS-6	INTRUSION (7)	GE SENTROL	2507A	24VDC		OR APPROVED EQUAL
ZS-7	ROLLING DOOR	GE SENTROL	2207A	24VDC		OR APPROVED EQUAL
VA-1	VALVE ACTUATOR			120VAC		

INSTRUMENT SCHEDULE

SEE SPECIFICATION 5.11 FOR INSTRUMENTATION SPECIFICATION

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Revisions

Date	Description
6/23/21	WC3 6-17-21 1

REGISTERED PROFESSIONAL ENGINEER
No. 354312
Daniel Leon White
04/08/2021
STATE OF UTAH

ELECTRIC SCHEDULE
CRIMSON RIDGE WATER COMPANY
WELL HOUSE AND TANK
EDEN, WEBER, UTAH

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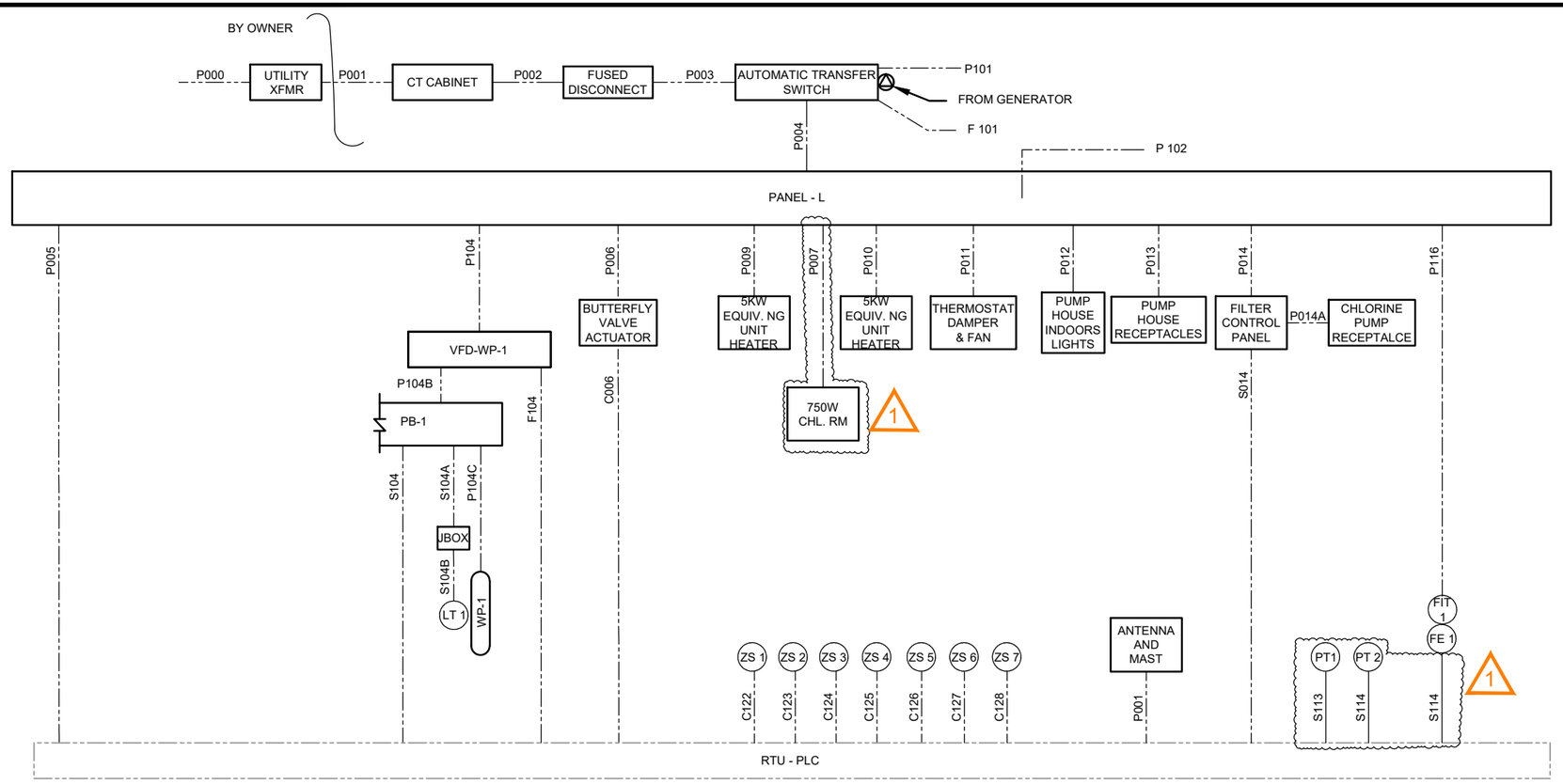

LINE TYPE LEGEND

ABOVE GROUND CONDUIT

BELOW GROUND CONDUIT

CONDUIT DEVELOPMENT

SYMBOL	DESCRIPTION	LOAD	VOLTS	PHASE	CFM	WATTS	REMARKS
EX-1	PUMP RM. EX - FAN	1/4 HP	120	1	5,200	245	PUMP RM. W/TSTAT
LV-1	PUMP RM. LOUVER	NO	NO	NO	24"	NO	INTAKE LOUVER AL.
SM-1	SHUTTER MOTOR	NO	120	1	NO	120	LOUVER MOTOR PUMP ROOM
PF-1	PADDLE FAN 52"	NO	120	1	5256	NO	PUMP RM W/TSTAT
LV-2	GEN. RM. INTAKE LOUVER	NO	NO	NO	36" X 54"	NO	AL. INTAKE LOUVER
LV-3	GEN. RM. EXHAUST LOUVER	NO	NO	NO	36" X 54"	NO	AL. EXHAUST LOUVER
SM-2	SHUTTER MOTOR	NO	20	1	NO	120	LOUVER MOTOR GEN. RM. INTAKE
SM-3	SHUTTER MOTOR	NO	120	1	NO	120	LOUVER MOTOR GEN. RM. EXHAUST
LV-4	CHL. RM. INTAKE	NO	NO	NO	12"	NO	12" LOUVER INTAKE
SM-4	CHL. RM. SHUTTER MOTOR	NO	120	1	NO	120	LOUVER SHUTTER MOTOR
EX-2	CHL. RM. EX-FAN	1/50 HP	120	1	2900 RPM	.17A	CHL. RM. EX-FAN
BH-1	CHL. RM. BASEBOARD HEATER	2560 BTU	120	1	NO	750	CHL. RM. HEATER W/TSTAT
UH-1	PUMP RM. GAS UNIT	GAS	120	1	NO	245	PUMP RM. HTR 120V FAN
UH-2	GEN. RM. GAS UNIT	GAS	120	1	NO	245	CHL. RM. HEATER 120V FAN

1

EQUIPMENT SCHEDULE

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Revisions		
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1	WC3 6-17-21	6/23/21

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CONDUIT DEVELOPMENT
CRIMSON RIDGE WATER COMPANY
WELL HOUSE AND TANK
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CRIMSON RIDGE WELL HOUSE - CONDUIT SCHEDULE

CONDUIT	SIZE	CONDUCTORS	SERVICE	VOLTAGE	ABOVE GROUND MATERIAL	UNDERGROUND MATERIAL	FROM	TO	DUCTBANKS	COMMENTS
C006	1"	6 #14, 2TSP	CONTROL	24VDC	GRS	PVC 40	RTU-PLC	BUTTERFLY VALVE ACTUATOR		
C122	1"	2 #14 W/ #14 GND	CONTROL	120VAC	GRS	PVC 40	RTU-PLC	ZS-1		
C123	1"	2 #14 W/ #14 GND	CONTROL	120VAC	GRS	PVC 40	RTU-PLC	ZS-2		
C124	1"	2 #14 W/ #14 GND	CONTROL	120VAC	GRS	PVC 40	RTU-PLC	ZS-3		
C125	1"	2 #14 W/ #14 GND	CONTROL	120VAC	GRS	PVC 40	RTU-PLC	ZS-4		
C126	1"	2 #14 W/ #14 GND	CONTROL	120VAC	GRS	PVC 40	RTU-PLC	ZS-5		
C127	1"	2 #14 W/ #14 GND	CONTROL	120VAC	GRS	PVC 40	RTU-PLC	ZS-6		
C128	1"	2 #14 W/ #14 GND	CONTROL	120VAC	GRS	PVC 40	RTU-PLC	FS-1		
F001	2"	COAX	COMMUNICATION	24VDC	GRS	PVC 40	RTU-PLC	NEW ANTENNA		2" CONDUIT MAST
F101	1"	6 #14	COMMUNICATION	24VOC	GRS	PVC 40	GEN	ATS		CONTROL WIRING
F104	1"	2-TSP, 6 #14	COMMUNICATION	24VOC	GRS	PVC 40	VFD	VFD-WP-1		
P000	4"		POWER	120/240VAC	GRS	PVC 40	EX UTILITY TRANSFORMER	NEW TRANSFORMER		BY OWNER
P001	3"		POWER	120/240VAC	GRS	PVC 40	NEW TRANSFORMER	CT METER		WIRE BY RMP
P002	3"	3 - 250 MCM W/ #4 GND	POWER	120/240VAC	GRS	PVC 40	METER	FUSED DISCONNECT		
P003	3"	3 - 250 MCM W/ #4 GND	POWER	120/240VAC	GRS	PVC 40	FUSED DISCONNECT	AUTO TRANSFER SWITCH		
P004	3"	3 - 250 MCM W/ #4 GND	POWER	120/240VAC	GRS	PVC 40	AUTO TRANSFER SWITCH	PANEL L		
P005	1"	2 #12 W/ #12 GND	POWER	120VAC	GRS	PVC 40	PANEL L	RTU-PLC		
P006	1"	2 #12 W/ #12 GND	POWER	120VAC	GRS	PVC 40	PANEL L	BUTTERFLY VALVE ACTUATOR		
P009	1"	2 #12 W/ #12 GND	POWER	120VAC	GRS	PVC 40	PANEL L	5 KW (EQUIVALENT) UNIT HEATER		HEATER IN WELL ROOM GAS
P010	1"	2 #12 W/ #12 GND	POWER	120VAC	GRS	PVC 40	PANEL L	5 KW (EQUIVALENT) UNIT HEATER		HEATER IN GENERATOR ROOM GAS
P011	1"	2 #12 W/ #12 GND	POWER	120VAC	GRS	PVC 40	PANEL L	VENTILATION FAN		
P012	3/4"	2 #12 W/ #12 GND	POWER	120VAC	GRS	PVC 40	PANEL L	PUMP HOUSE INDOOR LIGHTS		
P013	3/4"	2 #12 W/ #12 GND	POWER	120VAC	GRS	PVC 40	PANEL L	PUMP HOUSE RECEPTACLES		
P014	3/4"	2 #12 W/ #12 GND	POWER	120VAC	GRS	PVC 40	PANEL L	FILTER CONTROL PANEL		
P014A	3/4"	2 #12 W/ #12 GND	POWER	120VAC	GRS	PVC 40	FILTER CONTROL PANEL	CHLORINE PUMP DEDICATED RECEPTACLE		
P101	2"	3 #3 /0 W/ #4 GND	POWER	240VAC	GRS	PVC 40	GEN	ATS		
P102	1"	4 #12 W/ #12 GND	POWER	240VAC	GRS	PVC 40	ATS	GEN		BLOCK HEATER, BATTERY CHARGER
P104	1"	2 #3 W/ #8 GND	POWER	240VAC	GRS	PVC 40	PANEL L	PC-1		
P104A	1"	3 #3 W/ #8 GND	POWER	240VAC	GRS	PVC 40	PC-1	VFD - WP-1		
P104B	1"	3 #4 W/ #8 GND	POWER	240VAC	GRS	PVC 40	VFD - WP-1	PB-1	DB-2	
P104C	1"	3 #4 W/ #8 GND	POWER	240VAC	GRS	PVC 40	PB-1	WP-1	DB-3	
P116	1"	2 #12 W/ #12 GND	POWER	120VAC	GRS	PVC 40	PANEL L	FE/FIT-1		
S014	1"	4 /114, 1 CAT 6	SIGNAL	24VOC	GRS	PVC 40	RTU-PLC	FILTER CONTROL PANEL		
S104	1/4"	1 - TSP	SIGNAL	24VOC	GRS	PVC 40	RTU-PLC	FILTER CONTROL PANEL	DB-2	
S104A	1/4"	1 - TSP	SIGNAL	24VDC	GRS	PVC 40	PB-1	J-BOX	DB-3	
S104B	1"	MANUFACTURERS CABLE	SIGNAL	24VDC	GRS	PVC 40	J-BOX	LT-1		
S113	1"	1 - TSP	SIGNAL	24VOC	GRS	PVC 40	RTU-PLC	PIT-1		
S114	1"	1 - TSP	SIGNAL	24VOC	GRS	PVC 40	RTU-PLC	PIT-2		
S116	1"	2 - TSP	SIGNAL	24VOC	GRS	PVC 40	RTU-PLC	FE/FIT-1		
P007	3/4"	3 #12	POWER	120	GRS	PVC 40	PANEL L	BH -1		CHL. RM. BASEBOARD

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Revisions

Description	Date
WC3 6-17-21	6/23/21

REGISTERED PROFESSIONAL ENGINEER
No. 354312
Daniel Leon White
04/08/2021
STATE OF UTAH

CONDUIT SCHEDULE
CRIMSON RIDGE WATER COMPANY
WELL HOUSE AND TANK
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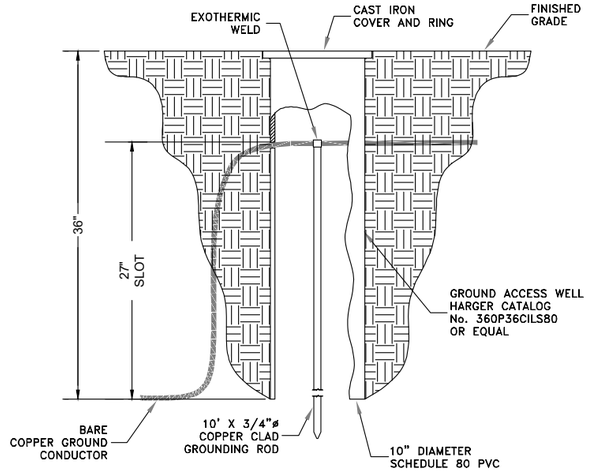
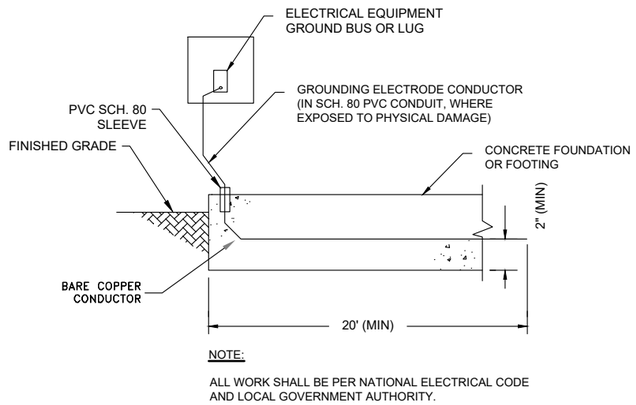
Revision Set 6/23/2021



100 TYP **GROUND ROD WITH ACCESS WELL**

SCALE: NONE

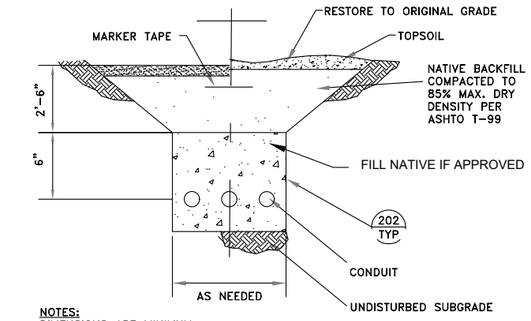


NOTE:

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

140 TYP **GROUNDING DETAIL ("UFER")**

SCALE: NONE

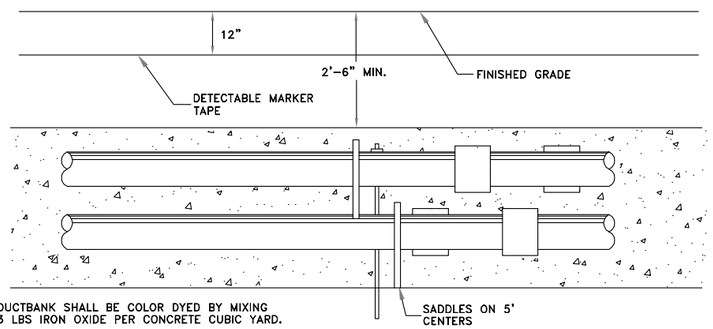


NOTES:
DIMENSIONS ARE MINIMUM.

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

TYPICAL TRENCH DETAIL FOR BELOW 600 VOLTS

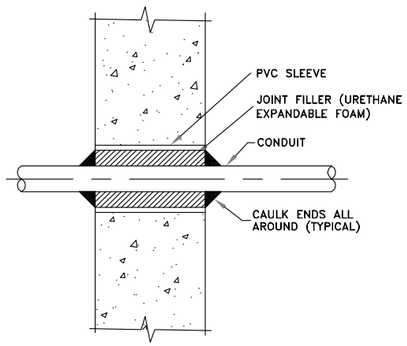
204 TYP SCALE: NONE



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

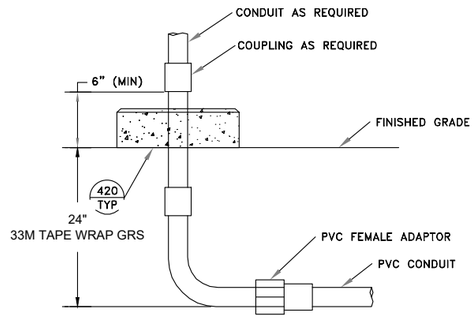
203 TYP **DUCTBANK DETAIL**

SCALE: NONE



CONDUIT PENETRATION AT NEW WALL OR SLAB

300 TYP SCALE: NONE



NOTES:

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

321 TYP **STUB UP DETAIL**

SCALE: NONE

Date: 4/08/2021
Scale: #######
Designed: MDD
Drafted: MDD
Checked: DLW

Revisions

Date	Description

REGISTERED PROFESSIONAL ENGINEER
No. 354312
Daniel Leon White
04/08/2021
STATE OF UTAH

DETAILS

CRIMSON RIDGE WATER COMPANY
WELL HOUSE AND TANK
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

E5
E6

CONFORMED SET 2021-05-21

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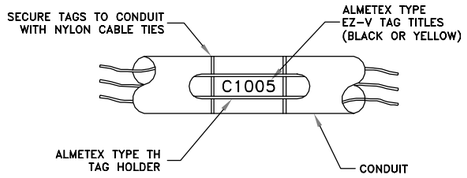
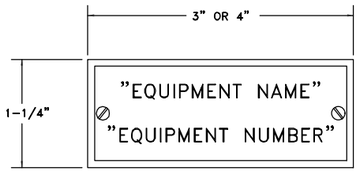


360 TYP **CONDUIT MARKING SYSTEM**

SCALE: NONE

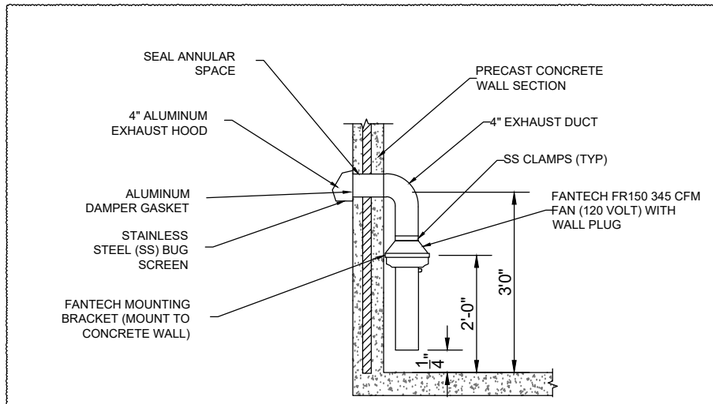


NOTES:

1. ALL LETTERS TO BE 1/4" UNLESS NOTED OTHERWISE.
2. ALL NAMEPLATES TO BE MOUNTED ON THE VERTICAL CENTERLINE OF THE CUBICAL OR DEVICE.
3. ATTACH ALL NAMEPLATES WITH STAINLESS STEEL SCREWS.
4. PROVIDE BLANK NAMEPLATES FOR ALL SPARE AND FUTURE DEVICES.

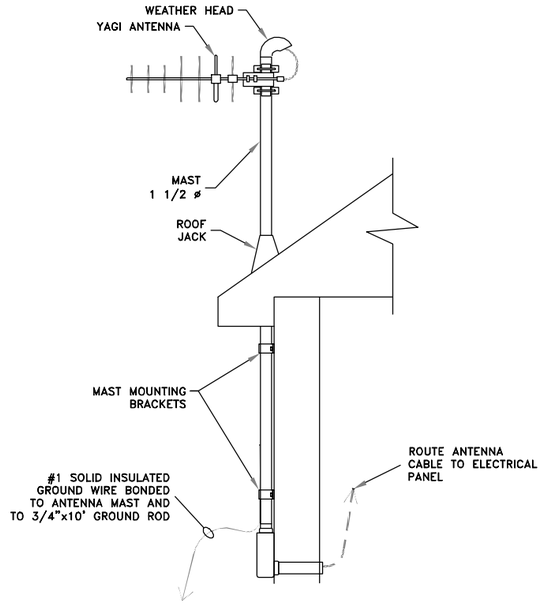
900 TYP **NAMEPLATE DETAIL**

SCALE: NONE



426 TYP **"CHLORINE ROOM"**

FAN INSTALLATION SECTION



709 TYP **YAGI ATENNA THRU ROOF DETAIL**

SCALE: NONE

Date: 4/08/2021
Scale: #######
Designed: MDD
Drafted: MDD
Checked: DLW

Revisions		
Date	Description	
6/23/21	1 WC3 6-17-21	

REGISTERED PROFESSIONAL ENGINEER
No. 354312
Daniel Leon White
04/08/2021
STATE OF UTAH

DETAILS
CRIMSON RIDGE WATER COMPANY
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STRUCTURAL NOTES :

A. GENERAL

1. THE STRUCTURAL NOTES ARE INTENDED TO COMPLEMENT THE PROJECT SPECIFICATIONS WHICH ARE PART OF THE CONSTRUCTION DOCUMENTS. SPECIFIC NOTES AND DETAILS ON THE DRAWINGS SHALL GOVERN OVER THE STRUCTURAL NOTES AND TYPICAL DETAILS.
2. THESE DRAWINGS (AND, WHERE APPLICABLE, ACCOMPANYING WRITTEN SPECIFICATIONS) ARE THE ONLY CONTRACT DOCUMENTS PROVIDED BY ARW ENGINEERS 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 THE VARIOUS ELEMENTS OF THE WORKING DRAWINGS AND/OR SPECIFICATIONS SHALL BE BROUGHT TO THE 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.
4. SEE SPECIFICATIONS FOR REQUIRED SUBMITTALS. SUBMITTALS SHALL BE MADE IN A TIMELY MANNER AS INDICATED IN SPECIFICATIONS. REVIEW OF SUBMITTALS BY ARW ENGINEERS IS FOR GENERAL COMPLIANCE ONLY AND IS NOT INTENDED 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 CONDITIONS AND DIMENSIONS AT THE SITE. IF ACTUAL CONDITIONS DIFFER FROM THOSE SHOWN ON CONTRACT DOCUMENTS, CONTRACTOR SHALL NOTIFY ARCHITECT PRIOR TO FABRICATION OR CONSTRUCTION OF ANY AFFECTED ELEMENTS.
6. THE CONTRACTOR SHALL COORDINATE AND VERIFY ALL LOCATIONS AND SIZES OF MECHANICAL EQUIPMENT OR OTHER EQUIPMENT BEFORE FABRICATING AND ERECTING STRUCTURAL ELEMENTS. SIZES AND LOCATIONS THAT DIFFER FROM THOSE SHOWN ON THE CONTRACT DOCUMENTS SHALL BE REPORTED TO THE ARCHITECT.
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. OBSERVATION VISITS TO THE SITE BY ARW ENGINEERS FIELD REPRESENTATIVES SHALL NEITHER BE CONSTRUED AS INSPECTION NOR APPROVAL OF CONSTRUCTION.
9. DURING AND AFTER CONSTRUCTION, BUILDER AND/OR OWNER SHALL KEEP LOADS ON STRUCTURE WITHIN THE LIMITS OF DESIGN LOADS AS NOTED IN THESE DOCUMENTS.
10. TYPICAL OR SIMILAR DETAILS AND SECTIONS SHALL APPLY WHERE SPECIFIC DETAILS ARE NOT SHOWN. TYPICAL OR SIMILAR DETAILS REFER TO THE CONDITION ADDRESSED AND ARE NOT NECESSARILY DETAILS LABELED “TYPICAL” OR “SIMILAR” IN THE PLANS AND DOCUMENTS.
11. 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.
12. THE CONTRACTOR SHALL PROVIDE ADEQUATE TEMPORARY SHORING AND BRACING 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.
13. ENGINEER SHALL NOT BE RESPONSIBLE FOR ACTIVITIES UNDER CONTROL OF THE CONTRACTOR SUCH AS CONSTRUCTION SITE SAFETY, MEANS, METHODS AND SEQUENCING OF CONSTRUCTION. 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.
14. NOTICE OF COPYRIGHT: THESE STRUCTURAL DRAWINGS ARE HEREBY COPYRIGHTED BY ARW ENGINEERS, 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 DRAWINGS OR OTHER SUBMITTALS.
15. WHERE THE WORD "SHALL" OCCURS IN THESE DRAWINGS AND ANY ACCOMPANYING SPECIFICATIONS, IT IS CONSIDERED A MANDATORY OBLIGATION AND SYNONYMOUS WITH THE PHRASE "HAS DUTY TO".

B. BASIS OF DESIGN

1. GOVERNING BUILDING CODE : INTERNATIONAL BUILDING CODE (IBC) 2018
   RISK CATEGORY : II
2. ROOF LOADS
   a. FLAT-ROOF SNOW LOAD, P_f : 60 PSF
      1. GROUND SNOW LOAD, P_g : 72PSF
      2. SNOW EXPOSURE FACTOR, C_e : 1.0
      3. SNOW LOAD IMPORTANCE FACTOR, I_s : 1.0
      4. THERMAL FACTOR, C_t : 1.2
      5. SLOPE FACTOR, C_S : 1.0
      6. SNOW DRIFT : SHOWN ON PLANS WHERE APPLICABLE.
   b. LIVE LOAD = 20 PSF
   c. DEAD LOAD = 20 PSF
   d. SPECIAL LOADS, IE. PHOTOVOLTAIC PANEL SYSTEMS, ETC. = 0 PSF
3. WIND DESIGN
   a. BASIC WIND SPEED (3 SECOND GUST) : 103 MPH
   b. WIND EXPOSURE : C
   c. INTERNAL PRESSURE COEFFICIENT, G_{CPI} : 0.18
   d. COMPONENT AND CLADDING DESIGN WIND PRESSURE SHALL BE AS REQUIRED PER ASCE 7-16.
4. SEISMIC DESIGN :
   a. SEISMIC IMPORTANCE FACTOR, I_E : 1.0
   b. SITE CLASS : D
   c. MAPPED SPECTRAL RESPONSE ACCELERATIONS : $S_S = 0.945$, $S_1 = 0.337$
   d. SPECTRAL RESPONSE COEFFICIENTS : $S_{DS} = 0.707$, $S_{D1} = 0.441$
   e. SEISMIC DESIGN CATEGORY : D
   f. BASIC SEISMIC-FORCE-RESISTING SYSTEM : LIGHT FRAMED WALL WITH STRUCTURAL PLYWOOD SHEATHING
   g. DESIGN BASE SHEAR : $V_{N-S} = 4.4K$, $V_{E-W} = 4.4K$
   h. SEISMIC RESPONSE COEFFICIENT, C_S : 0.1087
   i. RESPONSE MODIFICATION FACTOR, R : 6.5
   j. ANALYSIS PROCEDURE : EQUIVALENT LATERAL FORCE

C. FOUNDATION

1. GENERAL
   a. DESIGN SOIL PRESSURE : 1500 PSF
   b. SOILS REPORT BY : CHRISTENSEN GEOTECHNICAL
      REPORT # : 227-001
      DATED : MAY 26, 2020
   c. SOIL PREPARATION UNDER FOUNDATIONS AND SLABS-ON-GRADE SHALL BE IN ACCORDANCE WITH THE SOILS REPORT.
   d. TOP OF FOOTING ELEVATIONS SHOWN ON THE FOOTING AND FOUNDATION PLAN ARE BASED ON PRELIMINARY GRADING INFORMATION AND SHALL BE VERIFIED PRIOR TO CONSTRUCTION. STEPS WHERE SHOWN ARE AT APPROXIMATE LOCATIONS. ACTUAL STEP LOCATIONS SHALL BE AT THE CONTRACTOR'S DISCRETION BASED UPON FIELD CONDITIONS. ALL EXTERIOR FOUNDATIONS SHALL BEAR A MINIMUM OF 30 INCHES BELOW LOWEST ADJACENT FINAL GRADE.
   e. ALL WALLS (EXCEPT CANTILEVERED RETAINING WALLS) SHALL BE ADEQUATELY BRACED AGAINST LATERAL MOVEMENT PRIOR TO BACKFILLING. DESIGN AND ERECTION OF BRACING/SHORING SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. BRACING SHALL REMAIN IN PLACE UNTIL SUPPORTING STRUCTURAL ELEMENTS ARE IN PLACE AND HAVE ATTAINED FULL STRENGTH.
   f. UNLESS NOTED OTHERWISE, ALL FOOTINGS AT COLUMNS SHALL BE CENTERED BELOW COLUMNS.
   g. 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 ALL SIDE.

D. CONCRETE

1. ALL CONCRETE MIX DESIGNS SHALL COMPLY WITH ***THE PROJECT SPECIFICATIONS AND*** THE REQUIREMENTS LISTED BELOW :
   a. FOOTINGS, GRADE BEAMS, FOUNDATION WALLS :
      1. WHERE THE TOP OF THE ELEMENT IS EXPOSED OR IS LOCATED WITHIN ***30”*** OF THE LOWEST ADJACENT GRADE (EXPOSURE CATEGORY F2) :
         a. 28 DAY COMPRESSIVE STRENGTH : 4500 PSI
         b. MAXIMUM W/C RATIO : 0.45
         c. MAXIMUM AGGREGATE SIZE : ***1”***
         d. AIR CONTENT : SEE SCHEDULE BELOW
      2. WHERE THE TOP OF THE ELEMENT IS NOT EXPOSED OR IS NOT LOCATED WITHIN ***30”*** OF THE LOWEST ADJACENT GRADE (EXPOSURE CATEGORY F0) :
         a. 28 DAY COMPRESSIVE STRENGTH : 3000 PSI
   b. INTERIOR SLABS ON GRADE (EXPOSURE CATEGORY F0) :
      1. 28 DAY COMPRESSIVE STRENGTH : 3000 PSI
   c. EXTERIOR SLABS (DOCKS, ETC.) (EXPOSURE CATEGORY F2) :
      1. 28 DAY COMPRESSIVE STRENGTH : 4500 PSI
      2. MAXIMUM W/C RATIO : 0.45
      3. MAXIMUM AGGREGATE SIZE : ***1”***
      4. MINIMUM AIR CONTENT : SEE SCHEDULE BELOW
   d. TOTAL AIR CONTENT FOR CONCRETE EXPOSED TO CYCLES OF FREEZING AND THAWING SHALL BE DETERMINED IN ACCORDANCE WITH THIS SCHEDULE. TOLERANCE ON AIR CONTENT AS DELIVERED SHALL BE +/- 1.5 PERCENT.

NOMINAL MAXIMUM	TARGET AIR CONTENT, PERCENT	
AGGREGATE SIZE, IN.	F1	F2 AND F3
3/8	6	7.5
1/2	5.5	7
3/4	5	6
1	4.5	6
1-1/2	4.5	5.5
2	4	5
3	3.5	4.5

2. WATER USED IN MIXING CONCRETE SHALL CONFORM TO ASTM C1602.
3. NO PIPES, DUCTS, SLEEVES, ETC. SHALL BE PLACED IN STRUCTURAL CONCRETE UNLESS SPECIFICALLY DETAILED OR APPROVED BY THE STRUCTURAL ENGINEER. NO ALUMINUM PRODUCTS SHALL BE EMBEDDED IN CONCRETE. PENETRATIONS THRU STRUCTURAL CONCRETE ELEMENTS MUST BE APPROVED BY THE ENGINEER AND SHALL BE BUILT INTO THE ELEMENT PRIOR TO CONCRETE PLACEMENT.
4. REFER TO ARCHITECTURAL DRAWINGS FOR MOLDS, GROOVES, ORNAMENTS, ETC. TO BE CAST IN TO CONCRETE, AND FOR EXTENT AND LOCATION OF DEPRESSIONS, CURBS, RAMPS, ETC.
5. UNLESS NOTED OTHERWISE, MINIMUM REINFORCING IN ALL CONCRETE FOUNDATION WALLS SHALL BE AS FOLLOWS:

THICKNESS	TOP & BOTTOM BARS	VERTICAL	HORIZONTAL
8”	(2) #5	#4 AT 18”O.C.	#4 AT 12”O.C.

6. UNLESS NOTED OTHERWISE, CONCRETE SLABS ON EARTH SHALL BE REINFORCED AS FOLLOWS:
   4” THICK - #3 AT 18”O.C. EACH WAY
   6” THICK - #4 AT 18”O.C. EACH WAY
7. UNLESS NOTED OTHERWISE, FOR NON-DETAILED OPENINGS IN CONCRETE WALLS LARGER THAN 12” AND SMALLER THAN 24” IN ANY DIRECTION ADD (2) #5 BARS ON ALL SIDES IN ADDITION TO REGULAR WALL REINFORCING AND EXTEND 24” EACH WAY BEYOND OPENING. IF 24” IS NOT AVAILABLE ON EVERY SIDE, NOTIFY STRUCTURAL ENGINEER FOR FURTHER DIRECTION. OPENINGS SHALL HAVE A MINIMUM OF 12" OF CONCRETE ABOVE THE OPENING, TYP.
8. CONSTRUCTION JOINTS NOT SHOWN ON THE PLANS SHALL BE MADE AND LOCATED SO AS TO NOT IMPAIR THE STRENGTH OF THE STRUCTURE AND AS APPROVED BY THE STRUCTURAL ENGINEER. PROVIDE 2 X 4 (SHAPED) KEYWAY IN ALL VERTICAL AND HORIZONTAL JOINTS UNLESS NOTED OR DETAILED OTHERWISE. ALL STEEL REINFORCING SHALL BE CONTINUOUS THROUGH COLD JOINTS UNLESS NOTED OTHERWISE. SEE TYPICAL DETAILS FOR COLD/CONSTRUCTION JOINTS FOR SLABS ON GRADE.

E. ANCHOR BOLTS/EMBEDDED BOLTS

1. ALL ANCHOR BOLTS SHALL HAVE ASTM A-563 HEAVY HEX NUT AND ASTM F-436 WASHERS AT STANDARD OR OVERSIZED HOLES PER AISC SPECIFICATION TABLE J3.3. WHERE HOLE SIZES DO NOT COMPLY WITH THE LIMITATIONS FOR OVERSIZED HOLES THE STRUCTURAL ENGINEER SHALL BE NOTIFIED TO DETERMINE STEEL PLATE WASHER REQUIREMENTS. ANCHOR BOLTS SHALL COMPLY WITH THE FOLLOWING :
   a. AT BRACED FRAMES & MOMENT RESISTING FRAMES - ASTM F1554 GRADE 105 HEADED BOLTS.(ASTM A449 THREADED ROD MAY BE USED WITH DOUBLE NUT AND WASHER.)
   b. AT WOOD STUD WALLS - ASTM A-307 GRADE HEADED BOLTS. ANCHOR BOLTS IN TREATED LUMBER SHALL BE GALVANIZED OR STAINLESS STEEL. SEE TIMBER NOTES FOR MORE INFORMATION.
   c. AT ALL OTHER ANCHOR BOLTS (UNLESS NOTED OTHERWISE) - ASTM F1554 GRADE 36 HEADED BOLTS. (ASTM A36 THREADED ROD MAY BE USED WITH DOUBLE NUT AND WASHER.)
2. EMBEDDED BOLTS IN MASONRY SHALL BE (UNLESS NOTED OTHERWISE) ASTM A-307 GRADE HEADED BOLTS.
3. SEE TYPICAL ANCHOR BOLT DETAIL FOR DEFINITIONS OF EMBEDMENT LENGTH, ETC.
4. FURNISH TEMPLATES AND OTHER DEVICES AS NECESSARY FOR PRESETTING ALL BOLTS PRIOR TO PLACING CONCRETE AND/OR GROUT.
5. IF THREADED RODS ARE USED AS PERMITTED ABOVE, THEY SHALL BE CLEAR OF SOIL AND DIRT.
6. WHERE REQUIRED FOR ERECTION, HOLES LARGER THAN OVERSIZED MAY BE PERMITTED WITH THE USE OF STEEL PLATE WASHERS AT THE DISCRETION OF THE STRUCTURAL ENGINEER.

F. ADHESIVE/MECHANICAL ANCHORS

1. WITHOUT WRITTEN APPROVAL OF THE ENGINEER, CONTRACTOR SHALL NOT SUBSTITUTE POST-INSTALLED ANCHORS WHERE CAST-IN-PLACE ANCHORS ARE SPECIFIED IN THE DRAWINGS.
2. WHERE STRUCTURAL DETAILS SPECIFY SPECIFIC BRANDS AND/OR TYPES OF ADHESIVES OR ANCHORS, SUBSTITUTIONS OF OTHER BRANDS AND/OR TYPES IS NOT ALLOWED, WITHOUT WRITTEN APPROVAL OF THE ENGINEER.
3. SUBSTITUTION REQUESTS FOR ALTERNATE PRODUCTS SHALL BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER OF RECORD PRIOR TO USE. SUBSTITUTION REQUESTS SHALL INCLUDE AN ICC ESR OR IAPMO REPORT AND SUPPORTING CALCULATIONS INDICATING COMPLIANCE WITH DESIGN INTENT.
4. ALL ADHESIVE/MECHANICAL ANCHORS SHALL BE INSTALLED, INCLUDING HOLE DRILLING AND PREPARATION, IN ACCORDANCE WITH AN APPROVED INDEPENDENT EVALUATION REPORT (ICC-ES, IAPMO, OR APPROVED EQUAL), AS INDICATED BELOW, AND IN ACCORDANCE WITH ALL MANUFACTURER’S PRINTED INSTALLATION INSTRUCTIONS (MPII).
5. ADHESIVE ANCHORS SHALL BE INSTALLED IN CONCRETE HAVING A MINIMUM AGE OF 21 DAYS AT TIME OF ANCHOR INSTALLATION. ADHESIVE ANCHORS SHALL NOT BE FULLY LOADED UNTIL CONCRETE HAS REACHED DESIGN STRENGTH.
6. UNLESS APPROVED BY THE ENGINEER OF RECORD, CONCRETE AND DRILLED ANCHOR HOLES SHALL BE DRY AND FREE OF WATER FOR 24 HOURS PRIOR TO ADHESIVE INSTALLATION. CONTACT THE ENGINEER OF RECORD FOR GUIDANCE IF THE CONTRACTOR CHOOSES TO INSTALL IN WET OR DAMP HOLES.
7. CONCRETE TEMPERATURE AT THE TIME OF INSTALLATION SHALL BE MONITORED BY THE CONTRACTOR. CONTRACTOR SHALL COMPLY WITH ALL MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPII) RELATIVE TO SUBSTRATE TEMPERATURE.
8. UNLESS NOTED OTHERWISE, ALL ADHESIVE ANCHORS INTO CONCRETE SHALL BE:
   a. HILTI HIT-RE 500V3 (ESR-3814), OR HILTI HIT-HY 200-A (ESR-3187).
   b. SIMPSON SET-3G (ESR-4057), OR AT-XP (ER-0263).
   c. DEWALT PURE 110+ (ESR-3298), OR AC200+ GOLD (ESR-4027-COLD WEATHER).
9. UNLESS NOTED OTHER WISE, ALL MECHANICAL ANCHORS INTO CONCRETE SHALL BE:
   a. HILTI KWIK BOLT TZ (ESR-1917).
   b. SIMPSON STRONG-BOLT 2 (ESR-3037).
10. IF REINFORCEMENT IS ENCOUNTERED DURING DRILLING, ABANDON THAT HOLE AND SHIFT THE ANCHOR LOCATION TO AVOID THE REINFORCEMENT. PROVIDE A MINIMUM SPACE OF (2) ANCHOR HOLE DIAMETERS OR 1 INCH, WHICH EVER IS LARGER, OF SOUND CONCRETE/MASONRY BETWEEN THE ANCHOR AND THE ABANDONED HOLE. FILL THE ABANDONED HOLE WITH NON-SHRINK GROUT. AT CONTRACTORS OPTION, LOCATE EXISTING REINFORCEMENT PRIOR TO DRILLING/CORING. IF THE ANCHOR OR DOWEL CANNOT BE SHIFTED AS NOTED ABOVE, THE ENGINEER WILL DETERMINE A NEW LOCATION.
11. LOCATE REINFORCEMENT AND CONFIRM FINAL ANCHOR LOCATIONS PRIOR TO FABRICATING PLATES, MEMBERS, OR OTHER STEEL ASSEMBLIES ATTACHED WITH MECHANICAL ANCHORS.

G. REINFORCING STEEL

1. REINFORCING BAR STRENGTH REQUIREMENTS:
   a. ALL REINFORCING BARS EXCEPT AS INDICATED IN NOTE b, SHALL CONFORM TO ASTM STANDARD A-615 GRADE 60 AND ALL WELDED WIRE FABRIC SHALL CONFORM TO ASTM STANDARD A-1064 AND SHALL BE SUPPLIED IN FLAT SHEETS. ADEQUATELY TIE AND SUPPORT ALL REINFORCING STEEL AS SPECIFIED BY ACI 117, TO MAINTAIN EXACT REQUIRED POSITION.
2. ALL REINFORCING STEEL SHALL BE TIED IN PLACE AND ADEQUATELY SUPPORTED PRIOR TO PLACING CONCRETE. WET STABBING OF ANY REINFORCING STEEL IS NOT PERMITTED, UNLESS SPECIFICALLY DETAILED OTHERWISE OR APPROVED BY THE ENGINEER.
3. ALL FIELD BENT DOWELS SHALL BE GRADE 40 WITH SPACING INDICATED REDUCED BY 1/3.
4. UNLESS NOTED OTHERWISE, REINFORCEMENT SHALL HAVE THE FOLLOWING CONCRETE COVERAGE :
   a. CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH ….. 3”
   b. EXPOSED TO EARTH OR WEATHER :
      1. #6 & LARGER ….. 2”
      2. #5 & SMALLER …..1-1/2”
   c. NOT EXPOSED TO WEATHER OR EARTH :
      1. SLABS, WALLS, JOISTS, #11 & SMALLER ….. 3/4”
      2. BEAMS, COLUMNS: MAIN REINFORCING OR TIES ….. 1-1/2”
   d. SLAB ON GRADE :
      1. PLACE REINFORCING AT CENTER OF SLAB UNLESS INDICATED OTHERWISE.
5. EXCEPT WHERE NOTED ON PLANS OR DETAILS CONTINUOUS REINFORCEMENT SHALL BE SPLICED AT POINTS OF MINIMUM STRESS BY LAPPING PER THE REBAR LAP SCHEDULE.
6. REINFORCING STEEL MAY BE SPLICED WITH MECHANICAL COUPLERS THAT HAVE A TENSION CAPACITY OF AT LEAST 125% OF THE STRENGTH OF THE BAR. MECHANICAL COUPLERS SHALL BE A POSITIVE CONNECTING TYPE COUPLER, AND SHALL BE INSTALLED IN ACCORDANCE WITH AN APPROVED ICC RESEARCH REPORT. WHERE THESE ARE USED, SPLICES ON ADJACENT BARS SHALL BE STAGGERED AT LEAST 24 INCHES ALONG THE LENGTH OF THE BARS.
7. ALL VERTICAL REINFORCING IN STRUCTURAL ELEMENTS ABOVE SHALL BE SPLICED WITH MATCHING DOWELS EMBEDDED WITHIN THE FOOTINGS OR STRUCTURE BELOW. SPLICE LENGTHS SHALL COMPLY WITH REBAR LAP SCHEDULE. DOWELS INTO FOOTINGS SHALL TERMINATE WITH A STANDARD HOOK, AND SHALL EXTEND TO WITHIN 4” OF THE BOTTOM OF THE FOOTING, BUT NEED NOT EXTEND MORE THAN 20” INTO FOOTING.
8. DO NOT WELD REINFORCING EXCEPT AS NOTED ON PLANS, WHERE REINFORCING IS WELDED, USE ASTM A-706 REINFORCING.
9. REINFORCING BARS, TIES, AND TENDONS SHALL BE SUPPORTED BY NYLON CONES, PLASTIC-COATED TIE-WIRES, OR PLASTIC-COATED CHAIRS. REINFORCING IN FOOTINGS IS PERMITTED TO BE SUPPORTED ON CONCRETE DOBIES.
10. UNLESS NOTED OTHERWISE, HOOKS, STIRRUPS, TIES, AND OTHER BENDS IN REINFORCING STEEL SHALL MEET THE STANDARDS SET FORTH IN ACI 318/318R-14. UNLESS OTHERWISE PERMITTED BY THE ENGINEER, ALL REINFORCEMENT SHALL BE BENT COLD. REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT, EXCEPT AS SHOWN ON THESE DRAWINGS OR OTHERWISE PERMITTED BY THE ENGINEER.
11. UNLESS SPECIFICALLY NOTED AND/OR DETAILED IN THE STRUCTURAL DRAWINGS CONDUIT SHALL NOT BE IN CONTACT WITH REINFORCING STEEL.

H. TIMBER

1. WOOD GRADES (UNLESS NOTED OTHERWISE)
   a. ALL FRAMING LUMBER SHALL BE DOUGLAS FIR/LARCH CLEARLY MARKED WITH A STAMP BY WWPA APPROVED AGENCY AND SHALL BE GRADED AS FOLLOWS:
      1. HORIZONTAL MEMBERS: JOISTS & RAFTERS: NO. ***2***, BEAMS & STRINGERS: NO. ***2***.
      2. VERTICAL MEMBERS: POST & TRIMMERS: NO. ***1***, STUDS: NO. ***2***.
   b. ALL FRAMING IN CONTACT WITH FOOTINGS, FOUNDATIONS OR SLABS ON GRADE SHALL BE PRESSURE TREATED OR TIMBERSTRAND LSL TREATED LUMBER WITH EQUIVALENT STRESS GRADES TO TYPICAL FRAMING MEMBERS.
   c. UNLESS NOTED OTHERWISE, ALL ENGINEERED LUMBER SHALL BE FURNISHED BY TRUS-JOIST CORPORATION OR APPROVED EQUAL AND SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES :

	MODULUS OF ELASTICITY	FLEXURAL STRESS RATING
LVL :	2,000,000 PSI	2,600 PSI
PSL :	2,000,000 PSI	2,900 PSI
LSL :	1,500,000 PSI	2,250 PSI

   d. ALL WOOD “I” JOISTS AND BRIDGING SHALL BE FURNISHED BY TRUS-JOIST CORPORATION OR APPROVED EQUAL.
2. SHEATHING SHALL BE APA RATED SHEATHING, EXPOSURE I, EXTERIOR GLUE AND PANEL INDEX RATING AS NOTED BELOW UNLESS NOTED OTHERWISE :

LOCATION	THICKNESS	PANEL INDEX
WALLS :	3/8”	24/0
FLOORS :	23/32”	48/24
ROOFS :	19/32”	32/16

3. INDIVIDUAL PIECES OF SHEATHING AT ROOF, FLOOR, AND SHEAR WALLS SHALL NOT BE SMALLER THAN ***24”*** IN EITHER DIRECTION AND SHALL SPAN A MINIMUM OF TWO FRAMING SPACES, UNO.
4. ALL 23/32” FLOOR SHEATHING SHALL BE TONGUE AND GROOVE UNLESS NOTED OTHERWISE.
5. CONNECTIONS, FASTENERS, AND ADHESIVE
   a. ALL BOLTS THRU WOOD SHALL BE ASTM A307 AND SHALL HAVE HARDENED WASHERS UNDER ASTM A563 HEAVY HEX NUT AND BOLT HEADS.
   b. UNLESS NOTED OTHERWISE, 10d COMMON (0.148) NAILS SHALL BE USED TO FASTEN ALL PLYWOOD FLOOR AND ROOF SHEATHING TO SUPPORTING TRUSSES, JOISTS, LEDGERS OR BLOCKING AS FOLLOWS:
      1. BOUNDARY NAILING “BN”: 6"O.C. AT ALL BEARING WALLS, SHEAR WALLS, BLOCKING, AND WHERE OTHERWISE INDICATED IN THE STRUCTURAL DRAWINGS.
      2. PANEL EDGE NAILING “EN”: 6”O.C. AT ALL OTHER PLYWOOD PANEL EDGES.
      3. PANEL FIELD NAILING “FN”: 12”O.C. AT INTERIOR SUPPORTS IN FIELD OF PANEL.
   c. 8d COMMON (0.131) NAILS SHALL BE USED TO FASTEN ALL PLYWOOD SHEAR WALL SHEATHING TO STUDS AND BLOCKING AS FOLLOWS:
      1. PANEL EDGE NAILING “EN”: 4”O.C.
      2. PANEL FIELD NAILING “FN”: 12”O.C. AT INTERIOR SUPPORTS IN FIELD OF PANEL.
   d. NAILS SHALL BE GALVANIZED OR STAINLESS STEEL AT EXPOSED LOCATIONS OR IN TREATED WOOD (SEE NOTE BELOW FOR FASTENERS CONNECTED TO OR IN CONTACT WITH TREATED WOOD). THE HEAD OF ALL NAILS SHALL BE DRIVEN FLUSH WITH THE SURFACE OF THE SHEATHING.
   e. UNLESS NOTED OTHERWISE, ALL NAILS SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES :

COMMON NAIL SIZE	SHANK DIAMETER	HEAD DIAMETER	LENGTH	MIN. PENETRATION INTO SUPPORT MEMBER
6d	0.113”	0.266”	2”	1.25”
8d	0.131”	0.281”	2-1/2”	1.375”
10d	0.148”	0.312”	3”	1.50”
12d	0.148”	0.312”	3-1/4”	1.50”
16d	0.162”	0.344”	3-1/2”	1.62”

   f. A CONTINUOUS BEAD OF PERMANENT BOND TIMBER/WOOD ADHESIVE COMPOUND SHALL BE USED TO FASTEN ALL PLYWOOD FLOOR SHEATHING TO FLOOR JOISTS IN ACCORDANCE WITH MANUFACTURERS' SPECIFICATIONS.
   g. ALL FRAMING ANCHORS, POST CAPS, HOLD DOWNS, COLUMN BASES ETC. TO BE PROVIDED BY SIMPSON OR APPROVED EQUAL AND SHALL BE ATTACHED IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED DATA, UNLESS NOTED OTHERWISE.
   h. UNLESS NOTED OTHERWISE, ALL WALL BOTTOM PLATES TO BE ANCHORED TO FOUNDATIONS OR FOOTINGS WITH 3/4” DIAMETER ANCHOR BOLTS AT 32”O.C. WITH 8” MINIMUM EMBEDMENT. THERE SHALL BE A MINIMUM OF (2) ANCHOR BOLTS PER PLATE WITH ONE BOLT LOCATED NOT MORE THAN 12” AND NOT LESS THAN 4” FROM EACH END OF EACH PIECE.
   i. WALL BOTTOM PLATES AT SHEAR WALLS SHALL INCLUDE 1/4” x 3” x 3” STEEL PLATE WASHERS BETWEEN THE SILL PLATE AND NUT OF THE ANCHOR BOLT. THE HOLE IN THE PLATE WASHER IS PERMITTED TO BE DIAGONALLY SLOTTED WITH A WIDTH UP TO 3/16” LARGER THAN THE BOLT DIAMETER AND SLOT LENGTH NOT TO EXCEED 1-3/4”, PROVIDED A STANDARD CUT WASHER IS PLACED BETWEEN THE PLATE WASHER AND THE NUT. THE PLATE WASHER SHALL EXTEND TO WITHIN ½” OF THE EDGE OF THE BOTTOM PLATE ON THE SHEATHED SIDE.
   j. FASTENERS CONNECTED TO OR IN CONTACT WITH PRESERVATIVE-TREATED AND/OR FIRE-RETARDANT-TREATED WOOD (EXCEPT FOR TIMBERSTRAND LSL TREATED LUMBER AND BORATE BASED TREATMENTS) SHALL BE OF G-185 HOT-DIP GALVANIZED STEEL OR 304 OR 316 STAINLESS STEEL. STAINLESS STEEL AND GALVANIZED STEEL SHALL NEVER BE USED IN CONTACT WITH EACH OTHER.
   k. EXCEPT WHERE NOTED OTHERWISE, THE NUMBER AND SIZE OF NAILS CONNECTING WOOD MEMBERS SHALL NOT BE LESS THAN THAT SET FORTH IN IBC TABLE 2304.10.1. CONNECTIONS FOR MULTIPLE PIECES OF ENGINEERED LUMBER PIECES SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS.
6. ALL WOOD TRUSSED RAFTERS SHALL BE FABRICATED IN COMPLIANCE WITH THE RESEARCH COMMITTEE RECOMMENDATIONS OF THE ICC FOR THE CONNECTOR PLATES USED. SUBMIT DESIGN CALCULATIONS WITH ENGINEERS SEAL FOR REVIEW WITH SHOP DRAWINGS. PROVIDE CALCULATIONS AND DETAILS FOR ALL TRUSS TO TRUSS CONNECTIONS INCcoLUDING CONNECTION HARDWARE. ALL NECESSARY TRUSS BRIDGING AND CONNECTION DESIGN OF TRUSS BRIDGING SHALL BE PROVIDED BY THE TRUSS DESIGNER AND SHALL BE INCLUDED IN THE DESIGN CALCULATIONS FOR REVIEW.
7. INSTALLATION OF ALL METAL-PLATE-CONNECTED WOOD TRUSSES SHALL COMPLY WITH THE FOLLOWING STANDARDS :
   a. ANSI/TPI 1 “NATIONAL DESIGN STANDARD FOR METAL-PLATE-CONNECTED WOOD TRUSSES”.
   b. TPI HIB “COMMENTARY AND RECOMMENDATIONS FOR HANDLING INSTALLING & BRACING METAL-PLATE-CONNECTED WOOD TRUSSES”.
   c. TPI DSB “RECOMMENDED DESIGN SPECIFICATION FOR TEMPORARY BRACING OF METAL-PLATE-CONNECTED WOOD TRUSSES”.
8. UNLESS NOTED OTHERWISE, ALL ROOF SHEATHING AND WALL SHEATHING AT SHEAR WALLS SHALL HAVE SOLID BLOCKING AT ALL PANEL EDGES.
9. PROVIDE DOUBLE JOIST UNDER PARALLEL NONBEARING WALLS AND SOLID BLOCKING UNDER PERPENDICULAR NONBEARING WALLS.
10. AT ALL OVERBUILD LOCATIONS, ROOF SHEATHING SHALL BE COMPLETE BELOW OVERBUILDS PRIOR TO OVERBUILD CONSTRUCTION.
11. PROVIDE SOLID 2” (NOMINAL) FULL DEPTH BLOCKING AT ENDS AND SUPPORT LOCATIONS FOR ALL JOISTS AND RAFTERS. BLOCKING SHALL BE ATTACHED TO SUPPORT FRAMING WITH A MINIMUM OF (1) SIMPSON A35 FRAMING ANCHOR BETWEEN JOISTS UNLESS NOTED OTHERWISE.
12. UNLESS NOTED OTHERWISE, ALL BEARING WALLS SHALL BE 2X6 SPACED AT 16" O.C. BLOCK ALL NON-SHEATHED BEARING WALLS AT 4’-0”O.C.
13. VERIFY THE STUD SPACING WITH THE ANCHOR BOLT LAY-OUT. WHERE STUDS INTERFERE WITH ANCHOR BOLTS, PROVIDE AN ADDITIONAL FULL-HEIGHT STUD TO ENSURE THAT THE FULL CROSS-SECTIONAL AREA OF THE STUD IS IN CONTACT WITH THE SILL PLATE.
14. UNLESS NOTED OTHERWISE, ALL EXTERIOR WALLS AND SHEAR WALLS SHALL HAVE DOUBLE 2X TOP PLATES THAT ARE SPLICED TOGETHER WITH A MINIMUM OF 48" OF OVERLAP AND SHALL BE CONNECTED TOGETHER WITH A MINIMUM OF (12) 10d COMMON NAILS EACH SIDE OF THE SPLICE. OUTSIDE OF THESE SPLICE LOCATIONS, TOP PLATES SHALL BE NAILED TOGETHER WITH 10d NAILS AT 12” O.C.
15. UNLESS NOTED OTHERWISE, ALL HORIZONTAL FRAMING MEMBERS SHALL BE INSTALLED WITH THE NATURAL CROWN UP.

I. STRUCTURAL DELEGATED DESIGNS AND DEFERRED SUBMITTALS

1. STRUCTURAL DELEGATED DESIGN ITEMS REQUIRING DEFERRED SUBMITTALS INCLUDE:
   a. PRE-MANUFACTURED WOOD TRUSSES, BLOCKING, BRIDGING, BRIDGING CONNECTIONS, TRUSS HANGERS, AND RELATED COMPONENTS.

LEGEND OF SYMBOLS AND ABBREVIATIONS

AB	=	ANCHOR BOLT
ABV	=	ABOVE
ARCH	=	ARCHITECT
BLW	=	BELOW
BN	=	BOUNDARY NAILING
BRB	=	BUCKLING RESTRAINED BRACE
BRBF	=	BUCKLING RESTRAINED BRACE FRAME
CJP	=	COMPLETE JOINT PENETRATION
CL	=	CENTERLINE
CMU	=	CONCRETE MASONRY UNIT
COL	=	COLUMN
CONC	=	CONCRETE
CP	=	CONCRETE PIER
DC	=	DEMAND CRITICAL
DIA / Ø	=	DIAMETER
DBA	=	DEFORMED BAR ANCHOR
DBE	=	DECK BEARING ELEVATION
ELEV	=	ELEVATION
EN	=	EDGE NAILING
EOD	=	EDGE OF DECK
FDN	=	FOUNDATION
FTG	=	FOOTING
FFE	=	FINISHED FLOOR ELEVATION
GB	=	CONCRETE GRADE BEAM
HSA	=	HEADED STUD ANCHOR
JBE	=	JOIST BEARING ELEVATION
KB	=	KICKER BRACE
MAX	=	MAXIMUM
MB	=	MASONRY BEAM
MC	=	MASONRY COLUMN
MECH	=	MECHANICAL
MEZZ	=	MEZZANINE
MIN	=	MINIMUM
MJ	=	MASONRY JAMB
MW	=	MASONRY WALL
NS, FS	=	NEAR SIDE, FAR SIDE
OAE	=	OR APPROVED EQUAL
OPP	=	OPPOSITE
PAF	=	POWDER ACTUATED FASTENER
PL	=	PLATE
REINF	=	REINFORCING
REQ'D	=	REQUIRED
SIM	=	SIMILAR
SSH	=	STEEL STUD HEADER
SSJ	=	STEEL STUD JAMB
SSS	=	STEEL STUD SILL
SSW	=	STEEL STUD WALL
TOB	=	TOP OF BEAM ELEVATION
TOC	=	TOP OF CONCRETE SLAB
TOF	=	TOP OF FOOTING
TOG	=	TOP OF GIRDER ELEVATION
TOM	=	TOP OF MASONRY
TOS	=	TOP OF STEEL ELEVATION
TYP	=	TYPICAL
UNO	=	UNLESS NOTED OTHERWISE

FOOTING MARK
TOP OF FOOTING ELEV.
SECTION MARK
SHEET NUMBER
TOP OF FOUNDATION WALL OR COLUMN PIER ELEV.
SHEAR WALL - SEE SCHEDULE
MIN. LENGTH OF SHEAR WALL
FOOTING STEP
MASONRY WALL
DEPRESS FDN./WALL AND POUR FLOOR SLAB OVER AT MASONRY FOUNDATION WALL
DEPRESS FDN./WALL AND POUR FLOOR SLAB OVER AT CONCRETE FOUNDATION WALL
MASONRY BEAM
CONCRETE BEAM
HD - SIMPSON HOLDOWN SIZE POST - SIZE OF END POST CONNECTED TO HOLDOWN "A" - PLAN CONFIGURATION AT HOLDOWN AT FOUNDATION
FRAMING ANGLE SEE TYPICAL DETAIL
FRAMING CHANNEL SEE TYPICAL DETAIL
ITEMS, DETAILS, & SYSTEMS WHICH ARE PART OF THE LATERAL FORCE RESISTING SYSTEM.
MOMENT RESISTING CONNECTIONS - SEE DETAIL
MOMENT RESISTING CANTILEVER CONNECTIONS - SEE DETAIL
KICKER BRACE

Structural Sheet Index

SHEET NUMBER	SHEET NAME
S1	STRUCTURAL NOTES
S2	SCHEDULES
S3	FOOTING, FDN, & ROOF FRAMING PLAN
S4	DETAILS
S5	DETAILS

DATE: 11/23/2020
ENGINEER: JH
DRAWN BY: BLP
CHECKED BY: DLP
ARW Project No. 20208

REVISION		
	DATE	DESCRIPTION
1	06.28.2021	Plan Review Revision

DWG.

PROFESSIONAL STRUCTURAL ENGINEER
No. 177464
DAVID L. PIERSON
STATE OF UTAH
11-23-2020

Project Status

STRUCTURAL NOTES

CRIMSON RIDGE WELLHOUSE

CRIMSON RIDGE PH. 2

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S1

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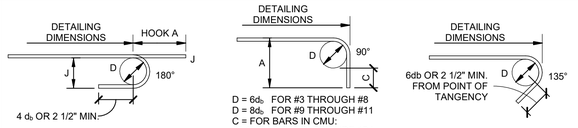
STANDARD HOOK & BEND SCHEDULE



D = 6d_b FOR #3 THROUGH #8
D = 8d_b FOR #9 THROUGH #11

D = 6d_b FOR #3 THROUGH #8
D = 8d_b FOR #9 THROUGH #11
C = FOR BARS IN CMU:
#6 AND LARGER, PROVIDE 12d_b FROM POINT OF TANGENCY
#5 AND SMALLER, PROVIDE 6d_b FROM POINT OF TANGENCY
(2 1/2" MINIMUM)

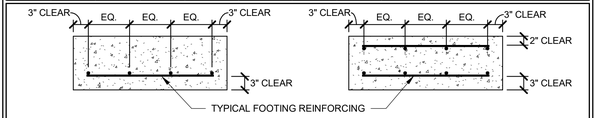
D = 4d_b FOR #3 THROUGH #5
D = 6d_b FOR #6 THROUGH #8
D = 8d_b FOR #9 THROUGH #11

NOTE: d_b = BAR DIAMETER

BAR SIZE	DIMENSION OF STANDARD 180° HOOKS, ALL GRADES		DIMENSION OF STANDARD 90° HOOKS, ALL GRADES
	A	J	A
#3	5"	3"	6"
#4	6"	4"	8"
#5	7"	5"	10"
#6	8"	6"	1'-0"
#7	10"	7"	1'-2"
#8	11"	8"	1'-4"
#9	1'-3"	11 3/4"	1'-7"
#10	1'-5"	1'-1 1/4"	1'-10"
#11	1'-7"	1'-2 3/4"	2'-0"

FOOTING SCHEDULE

MARK	WIDTH	LENGTH	THICK	LENGTHWISE REINF.		CROSSWISE REINF.			REMARKS
				NO.	SIZE	NO.	SIZE	SPA.	
FC2	2'-0"	CONT.	12"	(2)	#5	--	--	--	
F3	3'-0"	3'-0"	12"	(3)	#5	(3)	#5	--	

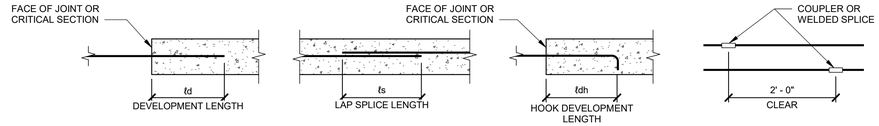


TYP. FOOTING SECTION

TYP. FOOTING SECTION
W/ TOP & BOTTOM REINF.

2018 IBC CONCRETE REBAR LAP SPLICE SCHEDULE

FOR CONCRETE APPLICATIONS (ACI 318 - 14)



BAR LOCATION	CONCRETE REINFORCING & SPLICE LENGTHS (IN)																													
	CONCRETE		BAR SIZE																											
	TYPE	STRENGTH	#3			#4			#5			#6			#7			#8			#9			#10			#11			COMMENTS
			ℓd	ℓs	ℓdh	ℓd	ℓs	ℓdh	ℓd	ℓs	ℓdh	ℓd	ℓs	ℓdh	ℓd	ℓs	ℓdh	ℓd	ℓs	ℓdh	ℓd	ℓs	ℓdh	ℓd	ℓs	ℓdh	ℓd	ℓs	ℓdh	
VERT. WALL BARS, FILL ON METAL DECK	NWC	3000 PSI	17	22	8	22	29	8	28	36	10	33	43	12	48	62	13	55	72	15	62	81	17	69	90	19	76	99	30	
HORIZ. WALL BARS, FOOTING TOP BARS	NWC	3000 PSI	17	22	8	22	29	8	28	36	10	33	43	12	48	62	13	55	72	15	62	81	17	69	90	19	76	99	30	
BEAM BOTTOM BARS, COLUMN BARS	NWC	3000 PSI	17	22	8	22	29	11	28	36	14	33	43	16	48	62	19	55	72	22	62	81	25	69	90	27	76	99	30	
FOOTING BOTTOM BARS	NWC	3000 PSI	12	16	8	14	18	8	17	22	10	20	26	12	29	38	13	33	43	15	37	48	17	42	55	19	46	60	30	
BEAM TOP BARS	NWC	3000 PSI	22	29	8	29	38	11	36	47	14	43	56	16	63	82	19	72	94	22	81	105	25	90	117	27	98	127	30	
SLAB ON GRADE	NWC	3000 PSI	12	16	8	14	18	8	17	22	10	20	26	12	32	42	13	42	55	15	53	69	17	69	90	19	76	99	30	

BAR LOCATION	CONCRETE REINFORCING & SPLICE LENGTHS (IN)																													
	CONCRETE		BAR SIZE																											
	TYPE	STRENGTH	#3			#4			#5			#6			#7			#8			#9			#10			#11			COMMENTS
			ℓd	ℓs	ℓdh	ℓd	ℓs	ℓdh	ℓd	ℓs	ℓdh	ℓd	ℓs	ℓdh	ℓd	ℓs	ℓdh	ℓd	ℓs	ℓdh	ℓd	ℓs	ℓdh	ℓd	ℓs	ℓdh	ℓd	ℓs	ℓdh	
VERT. WALL BARS, FILL ON METAL DECK	NWC	4500 PSI	14	18	7	18	23	6	23	30	8	27	35	9	40	52	11	45	59	13	51	66	14	56	73	16	62	81	25	
HORIZ. WALL BARS, FOOTING TOP BARS	NWC	4500 PSI	14	18	7	18	23	6	23	30	8	27	35	9	40	52	11	45	59	13	51	66	14	56	73	16	62	81	25	
BEAM BOTTOM BARS, COLUMN BARS	NWC	4500 PSI	14	18	7	18	23	9	23	30	11	27	35	13	40	52	16	45	59	18	51	66	20	56	73	22	62	81	25	
FOOTING BOTTOM BARS	NWC	4500 PSI	12	16	7	12	16	6	14	18	8	17	22	9	24	31	11	27	35	13	31	40	14	34	44	16	37	48	25	
BEAM TOP BARS	NWC	4500 PSI	18	23	7	24	31	9	30	39	11	35	46	13	51	66	16	59	77	18	66	86	20	73	95	22	80	104	25	
SLAB ON GRADE	NWC	4500 PSI	12	16	7	12	16	6	14	18	8	17	22	9	27	35	11	34	44	13	44	57	14	56	73	16	62	81	25	

NOTES :

1. MECHANICAL COUPLERS MAY BE USED IN LIEU OF LAP SPLICES SHOWN. SEE STRUCTURAL NOTES FOR MINIMUM COUPLER CAPACITY. WHERE MECHANICAL COUPLERS ARE USED, STAGGER ADJACENT SPLICES A MINIMUM OF 24" AS INDICATED ABOVE.
2. DEVELOPMENT LENGTHS SHALL BE INCREASED BY 50% FOR STRAIGHT BAR DEVELOPMENT AND 20% FOR HOOKED BARS WHERE EPOXY COATING IS USED.
3. WHEN SPLICING BARS OF DIFFERENT SIZES, USE LAP SPLICE LENGTH OF LARGER BARS UNO.
4. SPLICE BARS LARGER THAN #11 USING MECHANICAL COUPLERS.

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CHECKED BY: DLP
ARW Project No. 20208

REVISION	
DATE	DESCRIPTION

DWG.

No. 177464
DAVID L. PIERSON
11-23-2020

Project Status

SCHEDULES

CRIMSON RIDGE WELLHOUSE

CRIMSON RIDGE PH. 2

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S2

FOOTING & FOUNDATION NOTES :

1. SEE SHEET S1 FOR GENERAL STRUCTURAL NOTES.
2. ALL FOOTINGS SHALL BE PLACED ON SOIL WHICH HAS BEEN PREPARED FOR THE BEARING PRESSURE SHOWN IN THE STRUCTURAL NOTES.
3. VERIFY ALL DIMENSIONS WITH DRAWINGS AND NOTIFY ENGINEER OF ANY DISCREPANCIES FOUND.
4. SOLID GROUT ALL MASONRY COURSES BELOW FINISHED FLOOR OR EXTERIOR GRADE (WHICHEVER IS HIGHER).
5. SEE SHEET S2 FOR FOOTING SCHEDULE.
6. PROVIDE DOWELS IN FOOTINGS / FOUNDATIONS TO MATCH VERTICAL WALL REINFORCING U.N.O.
7. SEE SHEET S4 FOR TYPICAL FOOTING AND FOUNDATION DETAILS.
8. ALL EXTERIOR WALL FOOTINGS TO BEAR A MINIMUM DIMENSION BELOW EXTERIOR GRADE AS NOTED IN GENERAL STRUCTURAL NOTES.
9. FOUNDATION WALLS ARE DESIGNED AND DETAILED FOR THE COMPLETED CONDITION. CONTRACTOR IS RESPONSIBLE FOR MEANS AND METHODS OF CONSTRUCTION. BACKFILLED WALLS SHALL BE ADEQUATELY BRACED DURING CONSTRUCTION AND BACKFILLING TO PRODUCE PLUMB AND TRUE FINISHED WALLS.
10. ALL ANCHORS, HOLD-DOWNS, ANCHOR BOLTS, DOWELS, EMBEDDED ITEMS, ETC. SHALL BE HELD IN PLACE PRIOR TO AND DURING CONCRETE AND/OR GROUT PLACEMENT.
11. COORDINATE ALL FOOTING DEPTHS (INTERIOR AND EXTERIOR) WITH DRAINS, CONDUITS, ETC. THAT MAY INTERFERE WITH FOOTINGS.

CONCRETE SLAB NOTES :

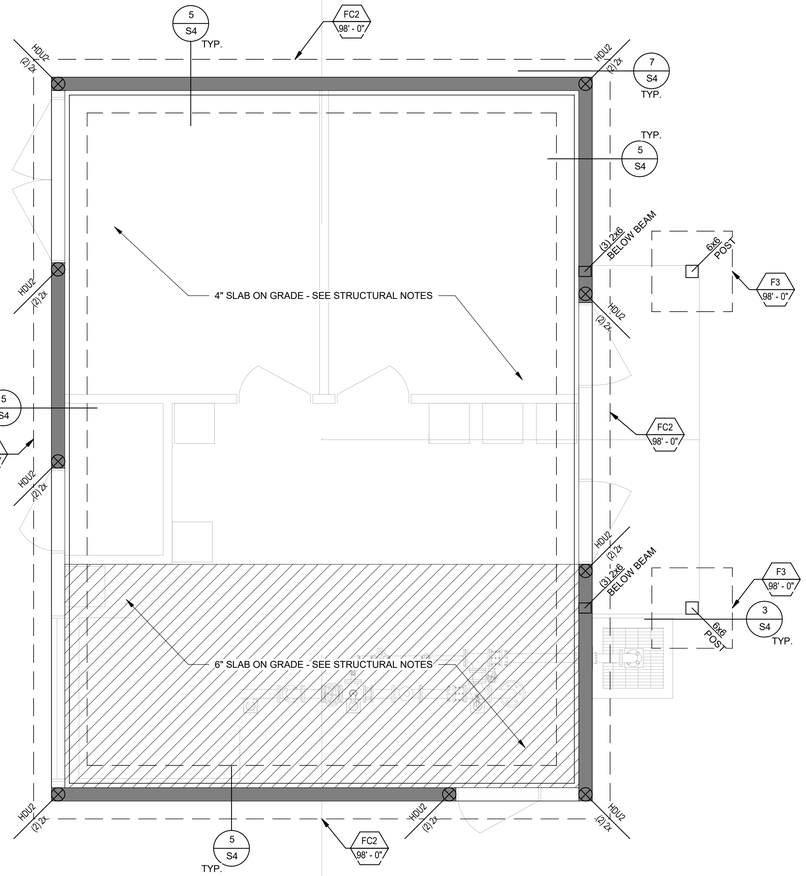
1. SLAB ON GRADE SHALL BE 4" THICK CONCRETE U.N.O. SLAB SHALL BE UNDERLAIN BY FREE DRAINING MATERIAL AS PRESCRIBED IN THE SOILS REPORT.
2. SEE SHEET S4 FOR CONTROL AND CONSTRUCTION JOINT INFORMATION.

WOOD FRAMING NOTES :

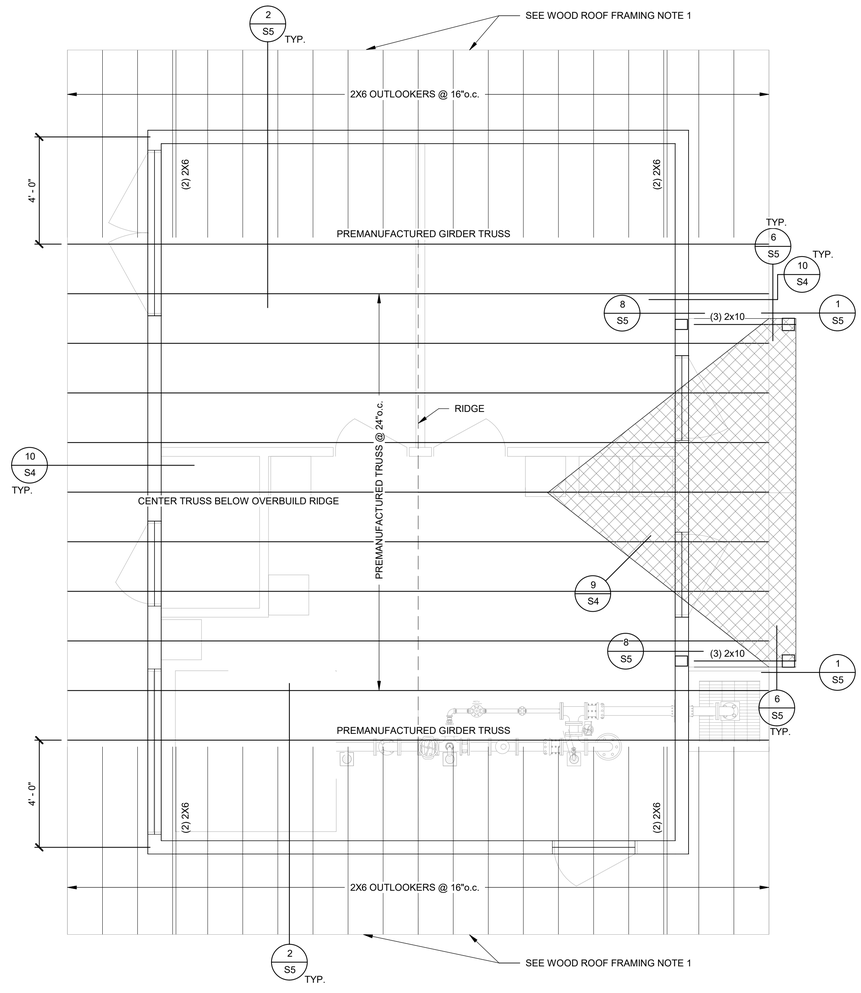
1. FOR ROOF SHEATHING AND NAILING REQUIREMENTS, SEE STRUCTURAL NOTES SHEET S1.
2. SHEAR WALLS ARE INDICATED ON SHEET S3.
3. AT TOP PLATE SPLICE, LAP 4'-0" MIN. AND CONNECT WITH MIN (12) 16d COMMON NAILS EACH SIDE.
4. U.N.O., ALL EXTERIOR WALLS, INTERIOR BEARING WALLS AND SHEAR WALLS SHALL BE SHEATHED AND CONSTRUCTED WITH 2x6 STUDS @ 16"o.c.
5. TYPICAL HEADERS WHERE NOT OTHERWISE INDICATED TO BE AS FOLLOWS :
   UP TO 4'-0" OPENING (2) 2x8
   4'-1" TO 6'-1" (2) 2x12
6. FOR TYPICAL TRIMMERS, WHERE NOT OTHERWISE INDICATED, SEE DETAIL 7/S5.
7. FOR TYPICAL KING STUDS, WHERE NOT OTHERWISE INDICATED, SEE DETAIL 7/S5.
8. SEE DETAIL 8/S4 FOR PLYWOOD ROOF SHEATHING LAYOUT.
9. AT OVERBUILD/DORMER LOCATIONS, USE THE FOLLOWING JOISTS :
   UP TO 4'-8" SPAN 2x6 @ 24" O.C.
   4'-10" TO 9'-6" SPAN 2x10 @ 24" O.C.
10. AT OVERBUILD/DORMER LOCATIONS, USE THE FOLLOWING AT HIPS/RIDGES :
    UP TO 8'-0" SPAN (2) 2x8
    8'-0" TO 12'-0" SPAN (2) 2x10
    FOR SPANS GREATER THAN 12'-0", USE PONY WALLS.
11. CONTRACTOR SHALL ERECT AND MAINTAIN ADEQUATE TEMPORARY BRACING UNTIL ALL ROOF FRAMING AND ROOF DIAPHRAGM ATTACHMENTS ARE COMPLETE.
12. SEE DETAIL 6/S4 FOR ATTACHMENT OF NON-BEARING WALLS TO PRE-MANUFACTURED TRUSSES.
13. = SHADING INDICATES OVERBUILD AREA
14. = SIMPSON STRAP (ALIGN OVER 2x FLAT BLOCKING) - SEE PLAN.
15. = SHADING INDICATES SHEARWALL.

WOOD ROOF FRAMING NOTES

1. 2X6 FASCIA BOARD SHALL BE CONTINUOUS FROM THE PEAK. CONNECT FASCIA BOARD TO EACH OUTLOOKER WITH (3) 10d NAILS.



FOOTING AND FOUNDATION PLAN
SCALE : 3/8" = 1'-0"
A
S3



ROOF FRAMING PLAN
SCALE : 3/8" = 1'-0"
B
S3

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DATE: 11/23/2020
ENGINEER: JH
DRAWN BY: BLP
CHECKED BY: DLP
ARW Project No. 20208

REVISION
DATE | DESCRIPTION | DWG.

PROFESSIONAL STRUCTURAL ENGINEER
No. 177484
DAVID L. PIERSON
STATE OF UTAH
11-13-20

Project Status

FOOTING, FDN, & ROOF FRAMING PLAN

CRIMSON RIDGE WELLHOUSE

CRIMSON RIDGE PH. 2

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5150 SOUTH 375 EAST OGDEN, UT
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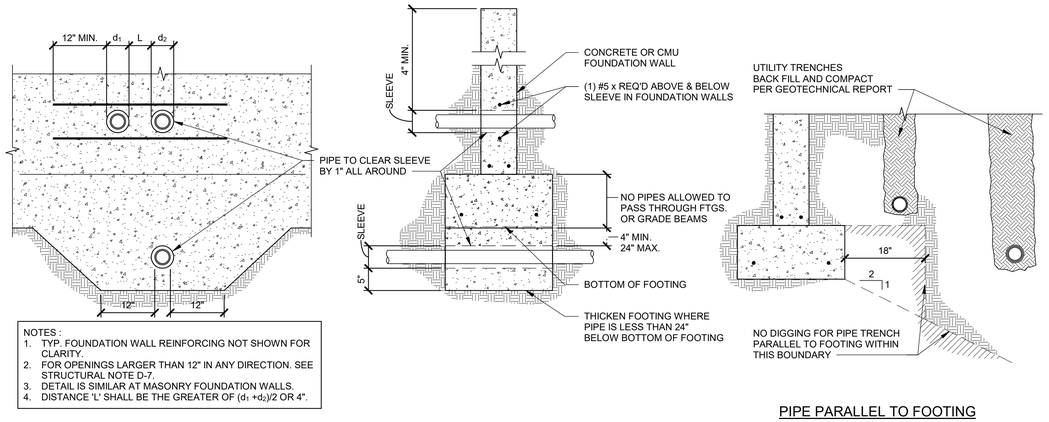
S3

6/24/2021 8:56:34 AM

X:\DRAWINGS 2020\20208 - Crimson Ridge Water Tank\S-20208 - Crimson Ridge Pumphouse - 2020.rvt



NOTES :
1. TYP. FOUNDATION WALL REINFORCING NOT SHOWN FOR CLARITY.
2. FOR OPENINGS LARGER THAN 12" IN ANY DIRECTION. SEE STRUCTURAL NOTE D-7.
3. DETAIL IS SIMILAR AT MASONRY FOUNDATION WALLS.
4. DISTANCE 'L' SHALL BE THE GREATER OF $(d_1 + d_2)/2$ OR 4".

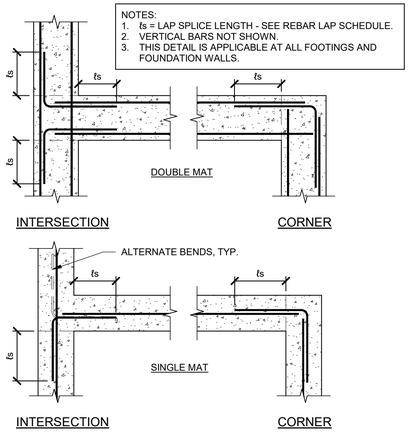
PIPE CROSSING FOOTING / FOUNDATION WALL

PIPE PARALLEL TO FOOTING

ALLOWABLE PIPING LOCATIONS @ FOOTING DETAIL

SCALE : NONE

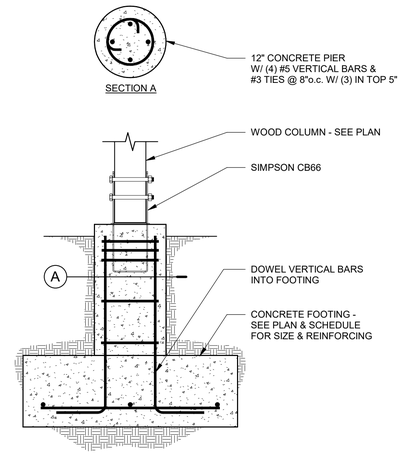
1 / S4



TYP. REINF. @ INTERSECTIONS IN CONC. DETAIL

SCALE : NONE

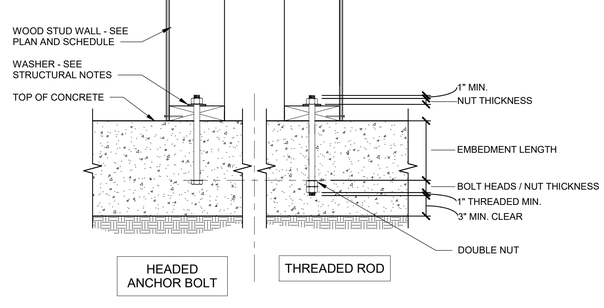
2 / S4



DETAIL

SCALE : NONE

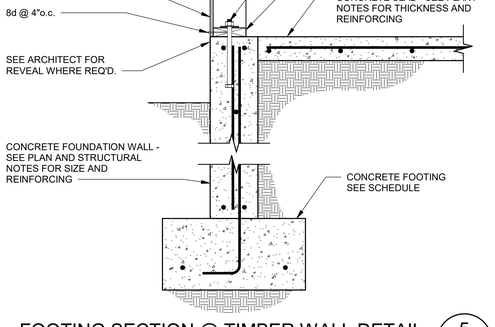
3 / S4



DETAIL

SCALE : NONE

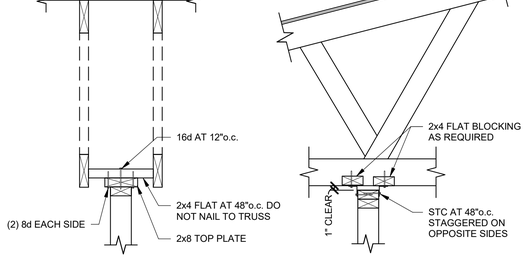
4 / S4



FOOTING SECTION @ TIMBER WALL DETAIL

SCALE : NONE

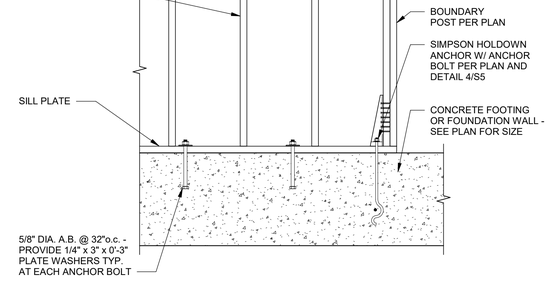
5 / S4



TYP. NON-BEARING WALL

SCALE : NONE

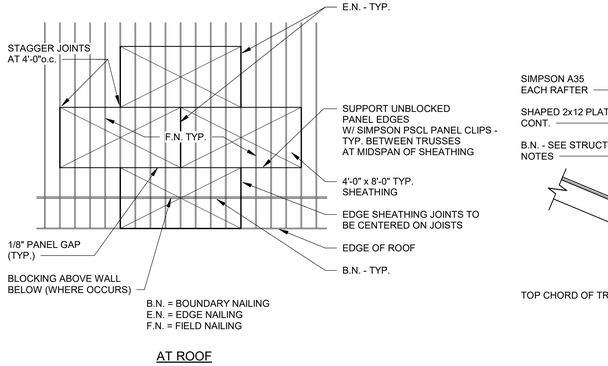
6 / S4



TYP. HOLD DOWN DETAIL

SCALE : NONE

7 / S4

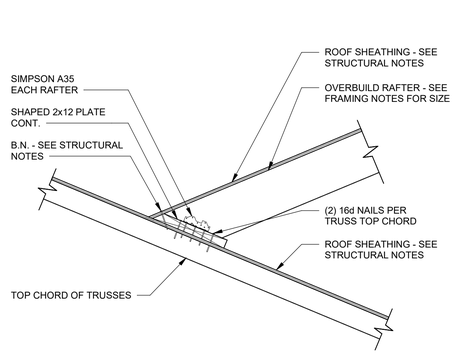


AT ROOF

TYP. SHEATHING LAYOUT (UNBLOCKED DIAPHRAGM)

SCALE : NONE

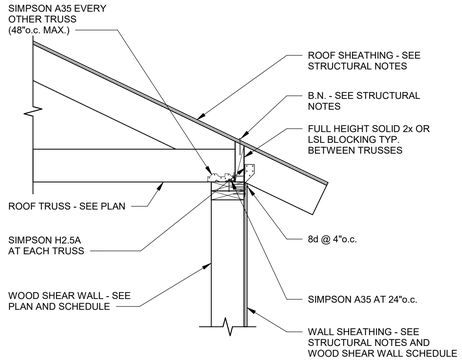
8 / S4



DETAIL

SCALE : NONE

9 / S4



DETAIL

SCALE : NONE

10 / S4

DATE: 11/23/2020
ENGINEER: JH
DRAWN BY: BLP
CHECKED BY: DLP
ARW Project No. 20208

REVISION
DESCRIPTION
DATE
DWG.

PROFESSIONAL ENGINEER No. 177468 DAVID L PIERSON STATE OF UTAH 11-13-20

Project Status

DETAILS

CRIMSON RIDGE WELLHOUSE

CRIMSON RIDGE PH. 2

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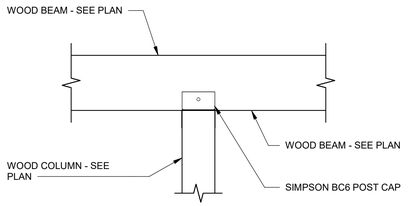
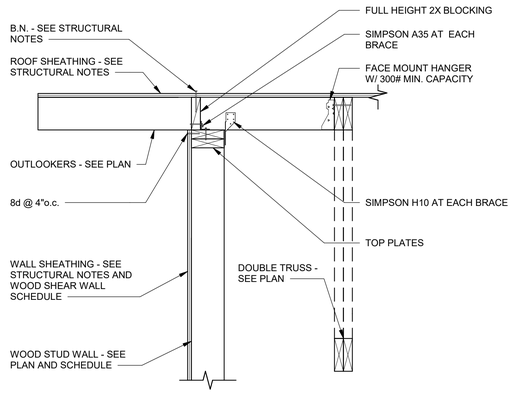
S4



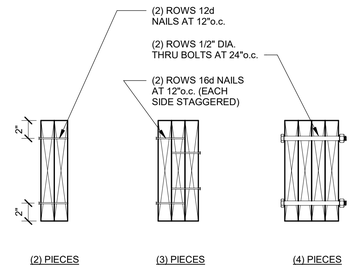
DETAIL
SCALE : NONE

1
S5



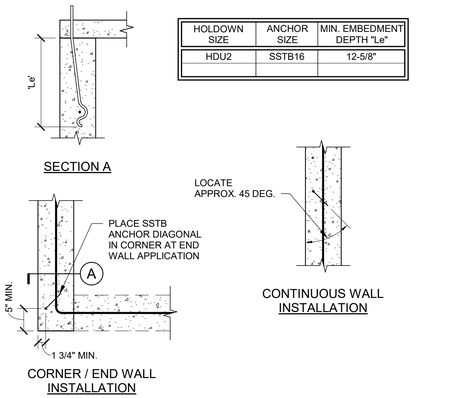
TRUSS RAKE DETAIL
SCALE : NONE

2
S5



HEADER AND BEAM MEMBER CONNECTIONS
SCALE : NONE

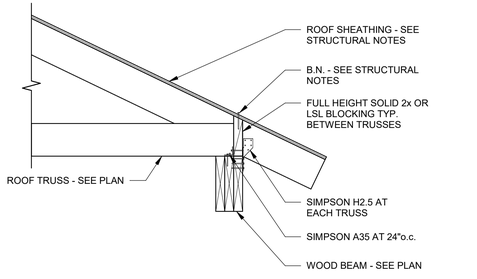
3
S5



HOLDOWN SIZE	ANCHOR SIZE	MIN. EMBEDMENT DEPTH "Le"
HDU2	SSTB16	12-5/8"

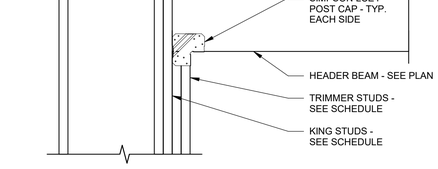
HOLDOWN EMBED SCHEDULE
SCALE : NONE

4
S5



DETAIL
SCALE : NONE

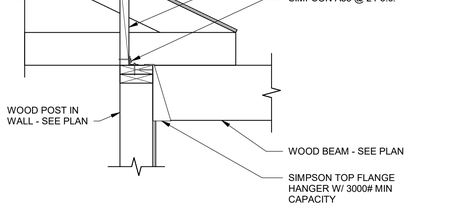
6
S5



OPENING SIZE	KING STUDS	TRIMMER STUDS
UP TO 6'-0"	(2) 2x6	(2) 2x6

DETAIL
SCALE : NONE

7
S5



DETAIL
SCALE : NONE

8
S5

DATE:	11/23/2020
ENGINEER:	JH
DRAWN BY:	BLP
CHECKED BY:	DLP
ARW Project No.	20208

REVISION	DESCRIPTION	DATE

DWG.

PROFESSIONAL STRUCTURAL ENGINEER No. 177464 DAVID L. PIERSON STATE OF UTAH 11-13-20

Project Status

DETAILS

CRIMSON RIDGE WELLHOUSE

CRIMSON RIDGE PH. 2

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S5

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Revision Set 6/23/2021

CONFORMED SET 2021-05-21

11/24/2020 9:31:19 AM

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STRUCTURAL NOTES :

A. GENERAL

1. THE STRUCTURAL NOTES ARE INTENDED TO COMPLEMENT THE PROJECT SPECIFICATIONS WHICH ARE PART OF THE CONSTRUCTION DOCUMENTS. SPECIFIC NOTES AND DETAILS ON THE DRAWINGS SHALL GOVERN OVER THE STRUCTURAL NOTES AND TYPICAL DETAILS.
2. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AT THE SITE. IF ACTUAL CONDITIONS DIFFER FROM THOSE SHOWN ON CONTRACT DOCUMENTS, CONTRACTOR SHALL NOTIFY ENGINEER PRIOR TO FABRICATION OR CONSTRUCTION OF ANY AFFECTED ELEMENTS.
3. ALL OMISSIONS OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE WORKING DRAWINGS AND/OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH ANY WORK INVOLVED. IN CASE OF CONFLICT, FOLLOW THE MOST STRINGENT REQUIREMENT AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.
4. OBSERVATION VISITS TO THE SITE BY ARW ENGINEERS FIELD REPRESENTATIVES SHALL NEITHER BE CONSTRUED AS INSPECTION NOR APPROVAL OF CONSTRUCTION.
5. SEE SPECIFICATIONS FOR REQUIRED SUBMITTALS. SUBMITTALS SHALL BE MADE IN A TIMELY MANNER AS INDICATED IN SPECIFICATIONS. REVIEW OF SUBMITTALS BY ARW ENGINEERS IS FOR GENERAL COMPLIANCE ONLY AND IS NOT INTENDED AS APPROVAL. SUBMITTALS WHICH ARE UNCLEAR OR DIFFICULT TO READ SHALL BE REJECTED.
6. DURING AND AFTER CONSTRUCTION, BUILDER AND/OR OWNER SHALL KEEP LOADS ON STRUCTURE WITHIN THE LIMITS OF DESIGN LOADS.
7. TYPICAL DETAILS AND SECTIONS SHALL APPLY WHERE SPECIFIC DETAILS ARE NOT SHOWN.
8. THE CONTRACTOR SHALL SUBMIT A WRITTEN REQUEST TO THE ENGINEER FOR APPROVAL BEFORE PROCEEDING WITH ANY CHANGES, MODIFICATIONS OR SUBSTITUTIONS.
9. THE CONTRACTOR SHALL PROVIDE ADEQUATE TEMPORARY SHORING AND BRACING FOR ALL STRUCTURAL ELEMENTS UNTIL THE ENTIRE STRUCTURAL SYSTEM IS COMPLETED. CONTRACTOR IS RESPONSIBLE FOR DESIGN OF ALL SHORING.
10. THE CONTRACTOR SHALL COORDINATE AND VERIFY ALL LOCATIONS AND SIZES OF MECHANICAL EQUIPMENT OR OTHER EQUIPMENT BEFORE FABRICATING AND ERECTING STRUCTURAL ELEMENTS.

B. SPECIAL INSPECTIONS

1. SPECIAL INSPECTION OF ALL CONCRETE SHALL BE PROVIDED BY AN INDEPENDENT AGENCY EMPLOYED AS OUTLINED IN THE SPECIFICATIONS. CONTRACTOR SHALL COORDINATE AND COOPERATE WITH REQUIRED INSPECTIONS.

C. BASIS OF DESIGN

1. GOVERNING BUILDING CODE : ACI 318 / ACI 350 / ACI 350.3
   a. SNOW LOAD = 72 PSF (USE 100 PSF)
   b. MAXIMUM SOIL OVER COVER = NONE

D. FOUNDATION

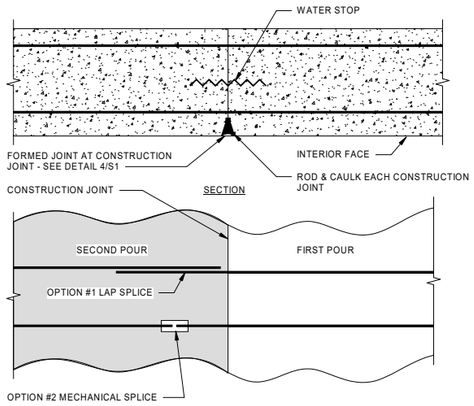
1. DESIGN SOIL PRESSURE : 2,000 PSF
2. SOILS REPORT BY : CHRISTENSEN GEOTECHNICAL
   REPORT # : 227-002
   DATED : SEPTEMBER 22, 2020
3. SOIL PREPARATION UNDER FOOTINGS AND SLABS-ON-GRADE SHALL BE IN ACCORDANCE WITH THE SOILS REPORT.
4. UNLESS NOTED OTHERWISE, ALL FOOTINGS AT COLUMNS TO BE CENTERED BELOW COLUMNS

E. CONCRETE

1. ALL CONCRETE SHALL HAVE A DESIGN 28-DAY COMPRESSIVE STRENGTH AS FOLLOWS :
   a. FOOTINGS, SLAB ON GRADE, COLUMNS, WALLS, AND ROOF SLAB : 4500psi
   b. ALL CONCRETE SHALL HAVE AN AIR CONTENT OF 5% AND MAXIMUM WATER / CEMENT RATIO OF 0.40
2. NO PIPES, DUCTS, SLEEVES, ETC. SHALL BE PLACED IN STRUCTURAL CONCRETE UNLESS SPECIFICALLY DETAILED OR APPROVED BY STRUCTURAL ENGINEER. NO ALUMINUM PRODUCTS SHALL BE EMBEDDED IN CONCRETE. PENETRATIONS THRU WALLS WHEN APPROVED SHALL BE BUILT INTO THE WALL PRIOR TO PLACEMENT OF CONCRETE.
3. REFER TO OTHER (CIVIL, ETC.) DRAWINGS FOR EXTENT AND LOCATION OF DEPRESSIONS, CURBS, RAMPS, ETC.,
4. AROUND OPENINGS IN SUSPENDED CONCRETE SLABS, ADD REINFORCING BARS EQUIVALENT TO BARS CUT BY OPENING WITH HALF ON EACH SIDE OF OPENING. BARS SHALL RUN FULL LENGTH OF SPAN. SEE DETAIL 3/S1.
5. CONSTRUCTION JOINTS NOT SHOWN ON THE PLANS SHALL BE MADE AND LOCATED SO AS TO NOT IMPAIR THE STRENGTH OF THE STRUCTURE AND AS APPROVED BY THE STRUCTURAL ENGINEER. PROVIDE WATERSTOP IN ALL VERTICAL AND HORIZONTAL JOINTS. ALL STEEL REINFORCING SHALL BE CONTINUOUS THROUGH COLD JOINTS, WITH LAP SPLICES AS INDICATED, UNLESS NOTED OTHERWISE.
6. SEE PROJECT SPECIFICATION FOR WATERPROOFING ADMIXTURE.

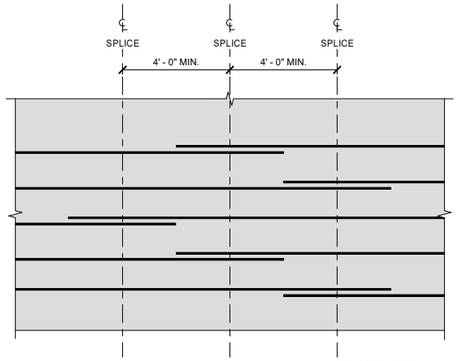
F. REINFORCING STEEL

1. ALL REINFORCING BARS SHALL CONFORM TO ASTM STANDARD A-615 GRADE 60 ADEQUATELY TIE AND SUPPORT ALL REINFORCING STEEL AS SPECIFIED BY ACI 315, TO MAINTAIN EXACT REQUIRED POSITION. ALL FIELD BENT DOWELS SHALL BE GRADE 40 WITH SPACINGS INDICATED REDUCED BY 1/3.
2. REINFORCEMENT SHALL HAVE THE FOLLOWING CONCRETE COVERAGE:
   a. CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH . . . . . 3"
   b. EXPOSED TO EARTH, WATER OR WEATHER:
      1. #6 & LARGER . . . . . 2"
      2. #5 & SMALLER . . . . . 2" (1 3/4" FOR #3 COLUMN TIES)
   c. SLAB ON GRADE
      1. PLACE REINFORCING AT CENTER OF SLAB UNLESS INDICATED OTHERWISE.
3. EXCEPT WHERE NOTED, CONTINUOUS REINFORCEMENT SHALL BE SPLICED WITH LAP SPLICES AT POINTS OF MINIMUM STRESS AS FOLLOWS:
   a. IN RESERVOIR WALLS, SEE DETAILS 1/ST1, 2/ST1 AND 1/ST3.
   b. IN COLUMNS, USE 35 INCH LAP
   c. IN SUSPENDED SLAB, USE 48 BAR DIAMETER LAP AND STAGGER ADJACENT BAR SPLICES 24" MIN.
   d. IN SLAB-ON-GRADE, USE 30 BAR DIAMETER LAP.
4. ALL VERTICAL REINFORCING SHALL BE DOWELED TO FOOTINGS OR STRUCTURE BELOW WITH DOWELS TO MATCH. SPLICE LENGTHS SHALL COMPLY WITH NOTE F.3. DOWELS INTO FOOTINGS SHALL TERMINATE WITH A STANDARD HOOK, AND SHALL EXTEND TO WITHIN 4" OF THE BOTTOM OF THE FOOTING, BUT NOT MORE THAN 14" INTO FOOTING. SEE DETAILS FOR REQ'D. EMBEDMENT OR DOWELS.
5. DO NOT WELD REINFORCING.



NOTES:
1. FOR OPTION #1 - SPLICE LENGTHS ARE
   a. #5 BARS - 39"
   b. #6 BARS - 46"
2. FOR OPTION #2 - USE MECHANICAL CONNECTORS WHICH ACHIEVE 125% OF THE STRENGTH OF THE BARS BEING SPLICED. SUBMIT A CURRENT ICC RESEARCH REPORT FOR APPROVAL PRIOR TO CONSTRUCTION.

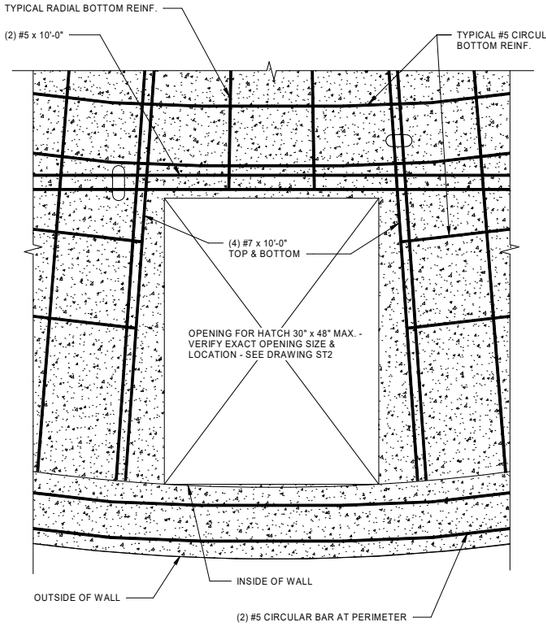
TYP. CONSTRUCTION JOINT IN WALL DETAIL — 1 ST1
SCALE : NONE



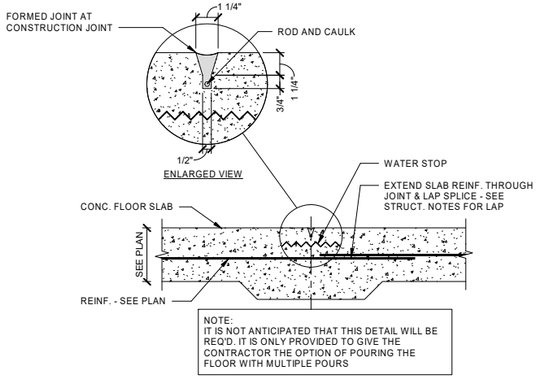
NOTES:
SPLICES MAY NOT COINCIDE VERTICALLY MORE REQUENTLY THAN EVERY THIRD BAR.

SPLICE LENGTHS
#5 BARS - 39"
#6 BARS - 46"

TYP. REINFORCING BAR SPLICE DETAIL — 2 ST1
SCALE : NONE

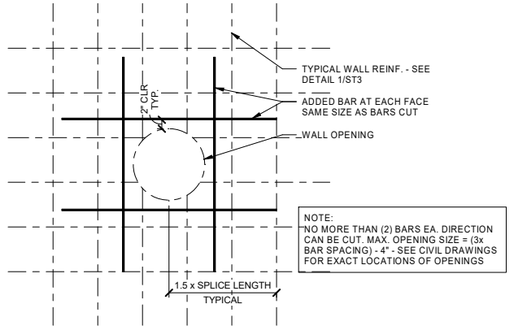


TYP. HATCH OPENING — 3 ST1
SCALE : NONE



NOTE:
IT IS NOT ANTICIPATED THAT THIS DETAIL WILL BE REQ'D. IT IS ONLY PROVIDED TO GIVE THE CONTRACTOR THE OPTION OF POURING THE FLOOR WITH MULTIPLE POURS

TYP. CONSTRUCTION JOINT IN FLOOR SLAB DETAIL — 4 ST1
SCALE : NONE



NOTE:
NO MORE THAN (2) BARS EA. DIRECTION CAN BE CUT. MAX. OPENING SIZE = (3x BAR SPACING) - 4" - SEE CIVIL DRAWINGS FOR EXACT LOCATIONS OF OPENINGS

TYPICAL WALL OPENING DETAIL — 5 ST1
SCALE : NONE

Structural (Tank) Sheet Index

DATE: 11/23/2020
ENGINEER: JH
DRAWN BY: BLP
CHECKED BY: DLP
ARW Project No. 20208

REVISION
DATE | DESCRIPTION | DWG.

PROFESSIONAL STRUCTURAL ENGINEER No. 171484 DAVID L. PIERSON STATE OF UTAH 11-23-2020

STRUCTURAL NOTES & SCHEDULES

CRIMSON RIDGE WATER TANK

CRIMSON RIDGE PH. 2

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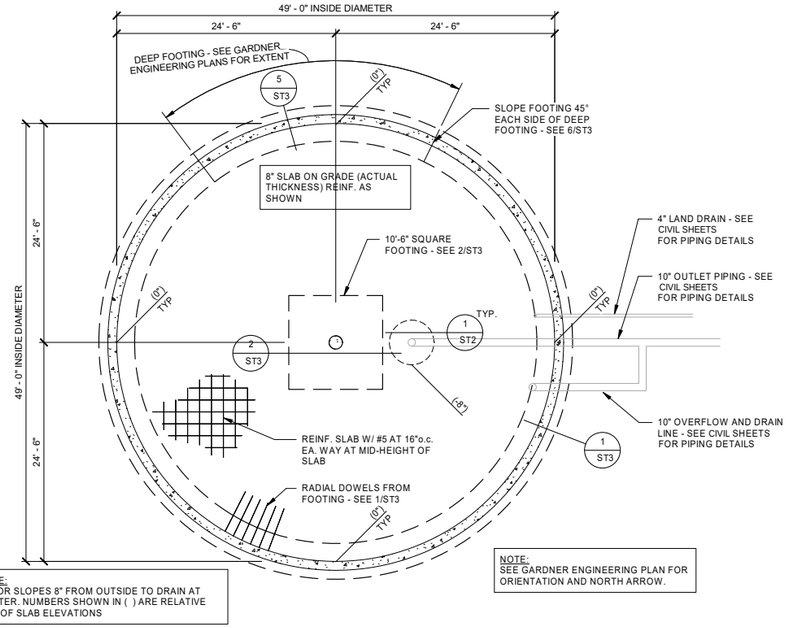
ST1

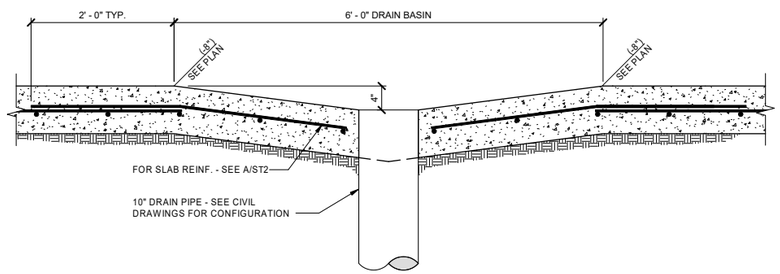
Revision Set 6/23/2021

CONFORMED SET 2021-05-21



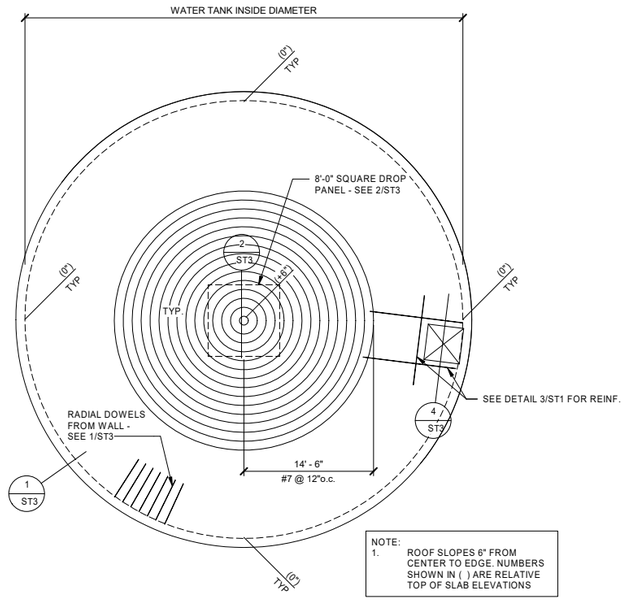
FOOTING & FOUNDATION BASE SLAB PLAN — A / ST2

SCALE : NONE



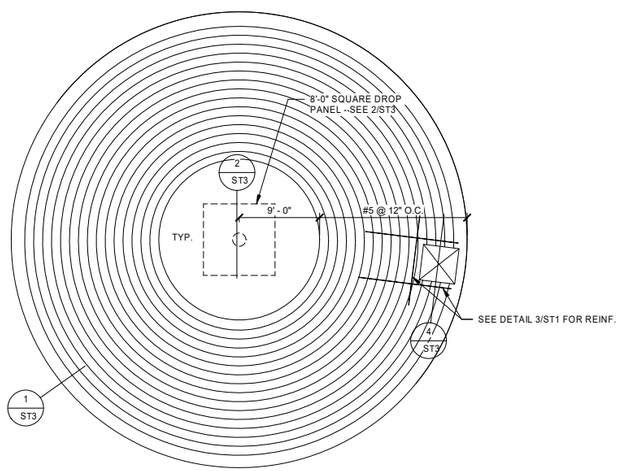
DRAIN BASIN — 1 / ST2

SCALE : NONE



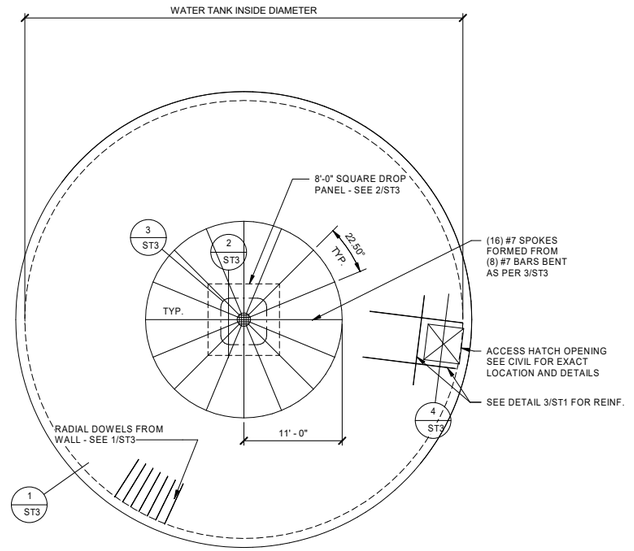
TOP STEEL REINFORCING PLAN CIRCULAR (TANGENTIAL) STEEL - ROOF SLAB — B / ST2

SCALE : NONE



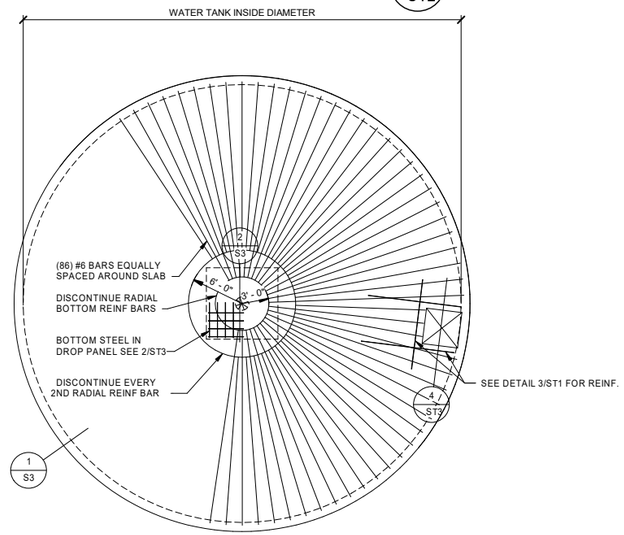
BOTTOM STEEL REINFORCING PLAN CIRCULAR (TANGENTIAL) STEEL - ROOF SLAB — D / ST2

SCALE : NONE



TOP STEEL REINFORCING PLAN - (RADIAL STEEL) - ROOF SLAB — C / ST2

SCALE : NONE



BOTTOM STEEL REINFORCING PLAN - (RADIAL STEEL) - ROOF SLAB — E / ST2

SCALE : NONE

REVISION			
DATE	DESCRIPTION		

DWG.

DATE: 11/23/2020
ENGINEER: JH
DRAWN BY: BLP
CHECKED BY: DLP
ARW Project No. 20208

PROFESSIONAL STRUCTURAL ENGINEER No. 177464 DAVID L. PIERSON STATE OF UTAH 6-15-21

STRUCTURAL PLANS

CRIMSON RIDGE WATER TANK

CRIMSON RIDGE PH. 2

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

ST2

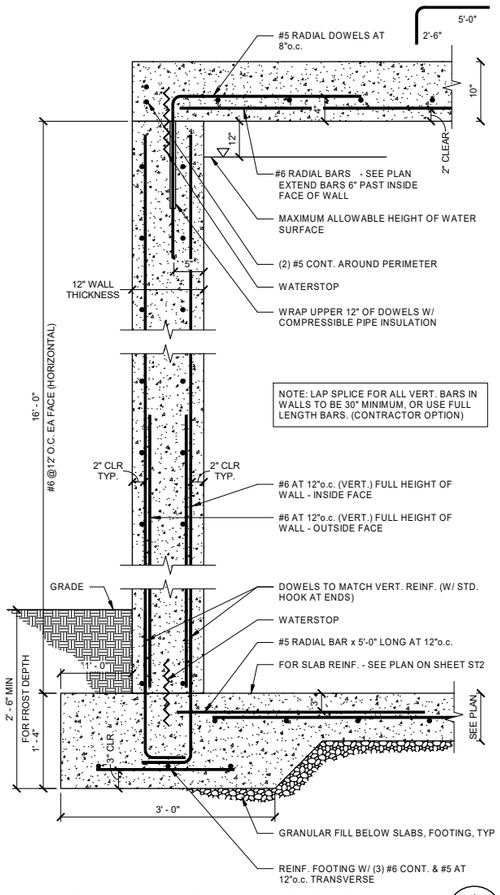
ARW ENGINEERS
structural consultants
1564 W. Park Cir. Ogden, Utah 84404
ph. 801.782.8008 fx. 801.782.4658

11/24/2020 9:11:14 AM

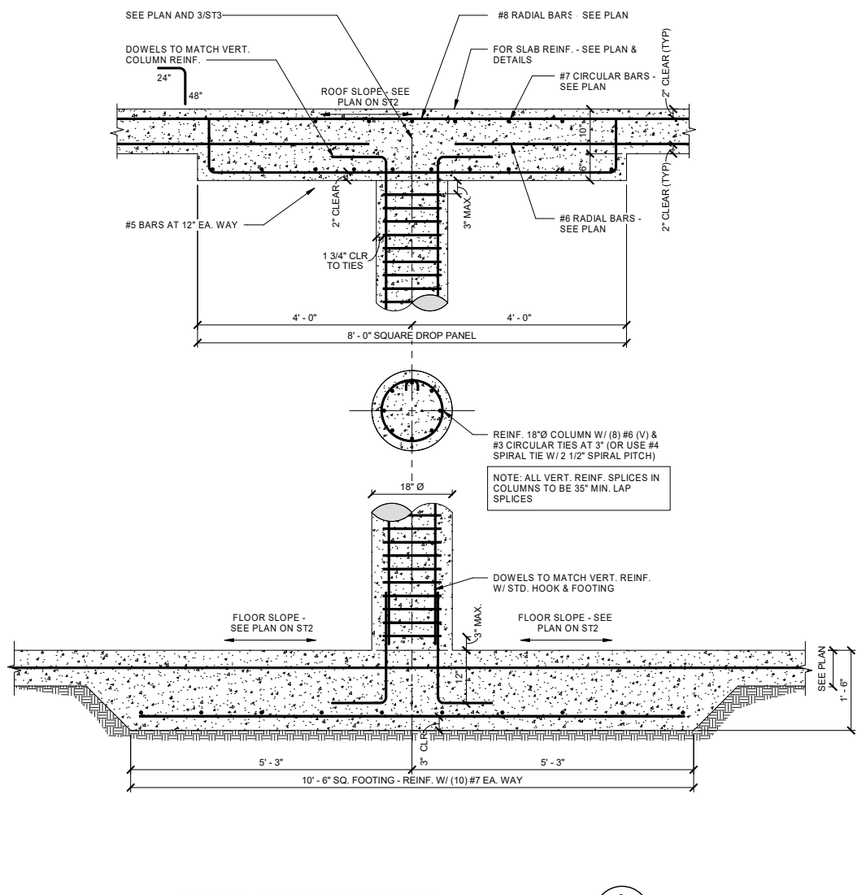
X:\DRAWINGS 2020\20208 - Crimson Ridge Water Tank\S-20208 - Crimson Ridge Water Tank - 2020.rvt

Revision Set 6/23/2021

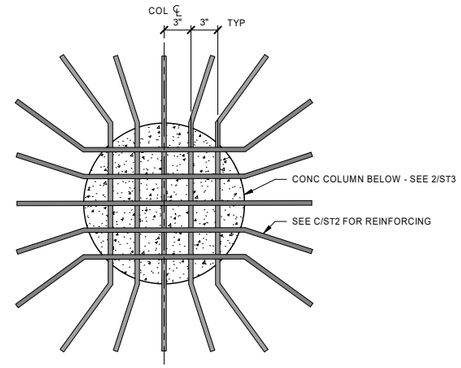
CONFORMED SET 2021-05-21



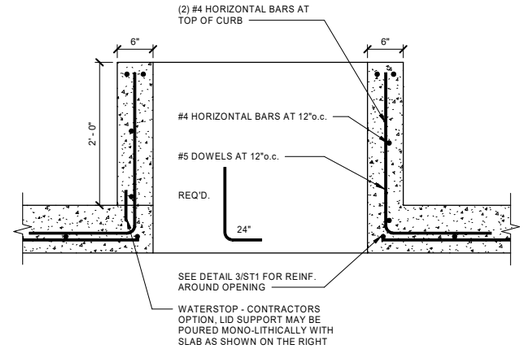
TYPICAL RESERVOIR WALL SECTION
SCALE : NONE
1 ST3



TYPICAL INTERIOR COLUMN
SCALE : NONE
2 ST3



DETAIL
SCALE : NONE
3 ST3



CURB WALL SECTION
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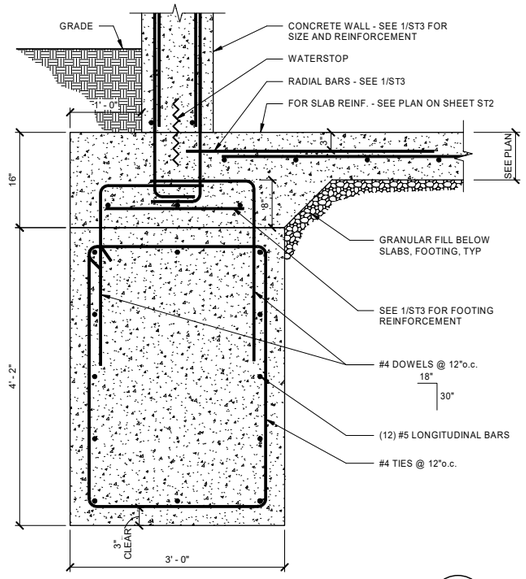
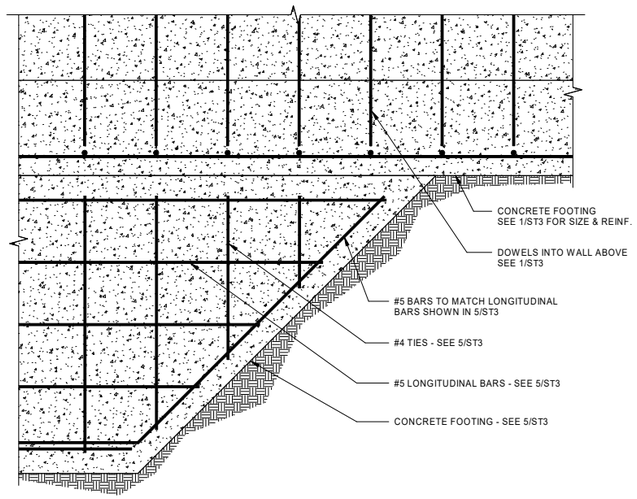
4 ST3



DETAIL
SCALE : NONE
5 ST3



DETAIL
SCALE : NONE
6 ST3

DATE: 11/23/2020
ENGINEER: JH
DRAWN BY: BLP
CHECKED BY: DLP
ARW Project No. 20208

REVISION	
DATE	DESCRIPTION

DWG

PROFESSIONAL ENGINEER No. 177484 DAVID L PIERSON STATE OF UTAH 12-15-20

DETAILS

CRIMSON RIDGE WATER TANK

CRIMSON RIDGE PH. 2

GARDNER ENGINEERING
CIVIL - LAND PLANNING
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5150 SOUTH 375 EAST OGDEN, UT
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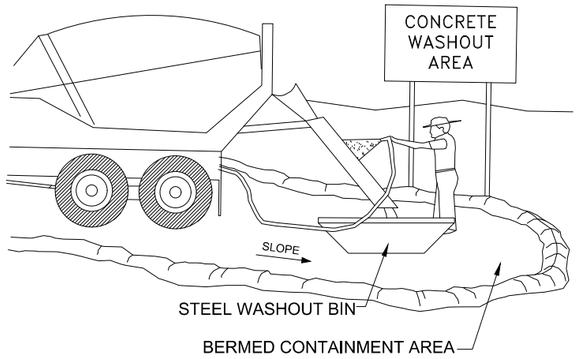
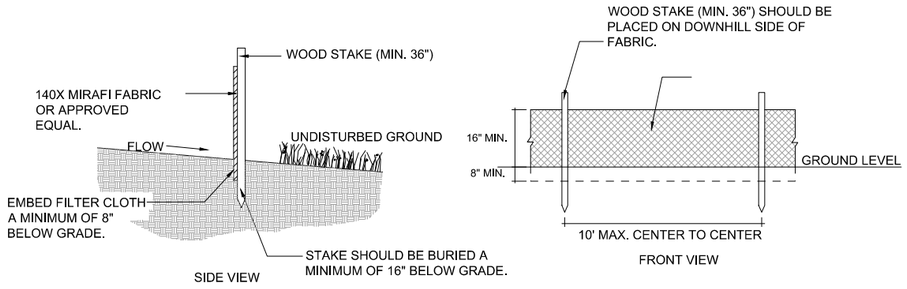
ST3

ARW ENGINEERS
structural consultants
1594 W. Park Cir. Ogden, Utah 84404
ph. 801.782.8008 fx. 801.782.4656



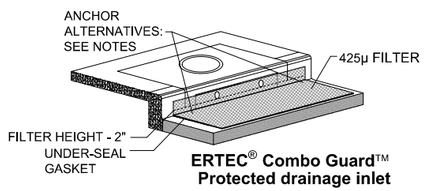
NOTES:

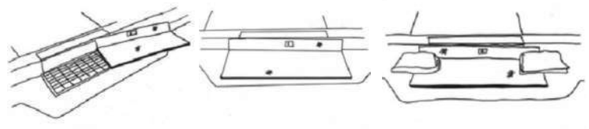
1. EXCESS AND WASTE CONCRETE SHALL BE DISPOSED OF OFF SITE OR AT DESIGNATED AREAS ONLY.
2. EXCESS AND WASTE CONCRETE SHALL NOT BE WASHED INTO THE STREET OR INTO A DRAINAGE SYSTEM.
3. FOR WASHOUT OF CONCRETE AND MORTAR PRODUCTS ONSITE, A DESIGNATED CONTAINMENT FACILITY OF SUFFICIENT CAPACITY TO RETAIN 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 SHAL BE VACUUMED OR CONTAINED, DRIED, PICKED UP AND DISPOSED OF PROPERLY.



2 SILT FENCE

Scale: NTS



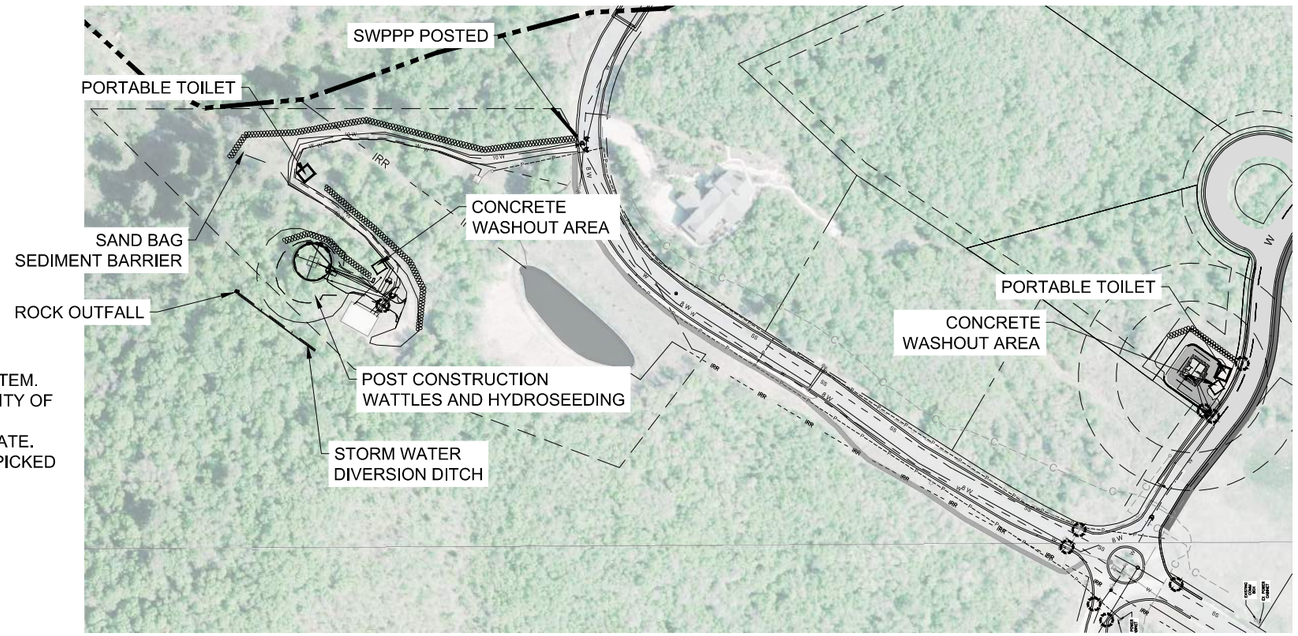


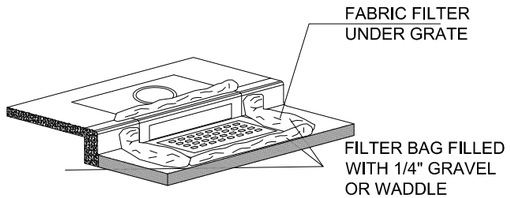
INSTALLATION NOTES

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.

1A INLET PROTECTION - OPTION 1

Scale: NTS





1B INLET PROTECTION - OPTION 2

Scale: NTS

INLET PROTECTION

SILT FENCE

0' 100' 200' 400'

Scale in Feet
1" = 200'

Date: 4/9/2021
Scale: #######
Designed: MDD
Drafted: MDD
Checked: DLW

Revisions

Date	Description

PROFESSIONAL ENGINEER
10382576
MICHAEL DUANE DURTSCHI
STATE OF UTAH

SWPPP
CRIMSON RIDGE WATER COMPANY
WELL HOUSE AND TANK
EDEN, WEBER, UTAH

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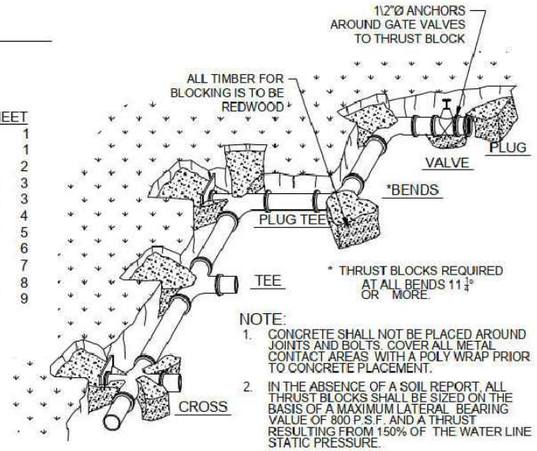
CIVIL · LAND PLANNING
MUNICIPAL · LAND SURVEYING
5150 SOUTH 375 EAST OGDEN, UT
OFFICE: 801.476.0202 FAX: 801.476.0066

SW1
C8

CONFORMED SET 2021-05-21

Conformed Set 2021-05-11

TABLE OF CONTENTS



NOTE:
1. CONCRETE SHALL NOT BE PLACED AROUND JOINTS AND BOLTS. COVER ALL METAL CONTACT AREAS WITH A POLY WRAP PRIOR TO CONCRETE PLACEMENT.
2. 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.

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

SIZE	BENDS				TEES*	GATE VALVES	DEAD ENDS	CROSSW/ 1 BRANCH PLUGGED	CROSSW/ 2 BRAN. PLUGGED
	90°	45°	22 ½°	11 ¼°					
3	1.0	0.0	0.5	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	SPECIAL DESIGN	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. ET. BEARING AREAS FOR ANY PRESSURE AND SOIL BEARING CAPACITY MAY BE OBTAINED BY MULTIPLYING THE TABULATED VALUES BY A CORRECTION FACTOR "F".

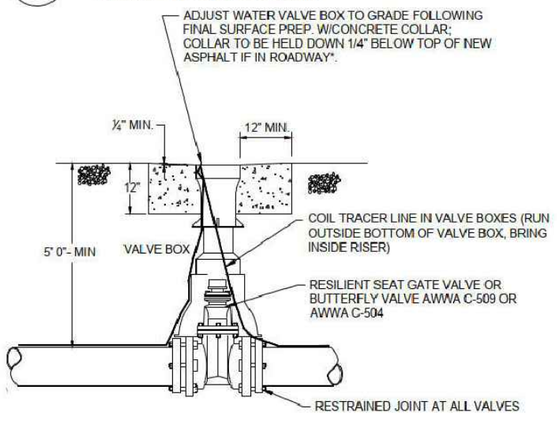
F= ACTUAL SPECIFIED TEST PRESSURE IN HUNDREDS OF LBS/SQ. IN. / ACTUAL SOIL BEARING CAPACITY IN THOUSANDS OF LBS.

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 X 7.1=3.56 ~ 4 SQ. FT. (~OR 2FT. LONG BY 2FT. HIGH.)

1 THRUST BLOCK DETAIL

APPLIES TO ALL PRESSURE PIPE

NTS



NOTES:
1. VALVE BOX, RISER AND LID MUST COME FROM THE SAME MFR., BE INTENDED FOR USE TOGETHER AND SHALL BE WITHIN PUBLISHED DIMENSION TOLERANCES.
2. ALL MAIN LINE VALVES SHALL BE MJ X MJ, INSTALLED AT EXTENSIONS OF ADJACENT PROPERTY LINES, UNLESS SPECIFICALLY NOTED OTHERWISE ON CONSTRUCTION DRAWINGS
3. VALVES MUST BE INSTALLED ON EACH SIDE OF TEE'S AND CROSSES, UNLESS THERE IS A VALVE WITHIN 200 FEET OF SAID FITTINGS.

2 TYPICAL VALVE DETAIL

NTS

DRAFTED: MDD	DEVIATIONS FROM STANDARDS MUST BE APPROVED BY CRIMSON RIDGE WATER COMPANY, LLC
DESIGNED: DW	
CHECKED:	
DATE: 11/20/2020	
REV 1:	
REV 2:	

No. 354312 Daniel Leon White — REGISTERED PROFESSIONAL ENGINEER — STATE OF UTAH

STANDARD WATER DETAILS
CRIMSON RIDGE WATER COMPANY, LLC
THRUST BLOCK DETAIL
TYPICAL VALVE DETAIL
SHEET 1

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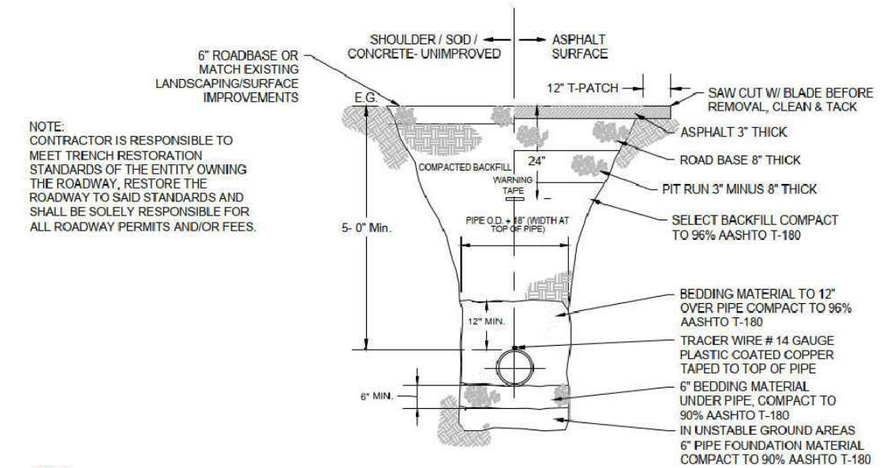
MUNICIPAL • LAND SURVEYING
5150 SOUTH 375 EAST OGDEN, UT
OFFICE: 801.476.0202 FAX: 801.476.0066



NOTE:
CONTRACTOR IS RESPONSIBLE TO MEET TRENCH RESTORATION STANDARDS OF THE ENTITY OWNING THE ROADWAY, RESTORE THE ROADWAY TO SAID STANDARDS AND SHALL BE SOLELY RESPONSIBLE FOR ALL ROADWAY PERMITS AND/OR FEES.

NOTE:
- WATER & SEWER LINES SHALL BE INSTALLED A MINIMUM OF 10 HORIZONTAL FEET FROM EACH OTHER.
- WHERE A WATER LINE AND A SEWER LINE MUST CROSS, THE WATER LINE SHALL BE AT LEAST 18" ABOVE THE SEWER LINE.
- SEPARATION DISTANCES ARE TO BE MEASURED EDGE-TO-EDGE.
- WATER LINES SHALL NOT BE INSTALLED IN THE SAME TRENCH WITH EITHER SEWER OR SECONDARY PIPES.
- IF THESE STANDARDS CANNOT BE MET AN EXCEPTION TO THE STANDARD MAY BE POSSIBLE. THE ENTITY SEEKING THE EXCEPTION SHALL INITIATE AND PURSUE A REQUEST FOR A SEPARATION EXCEPTION WITH THE STATE DIVISION OF DRINKING WATER, IN ACCORDANCE WITH R309-550-7 OF THE STATE OF UTAH ADMINISTRATIVE RULES.

3 TYPICAL TRENCH SECTION

NTS

DRAFTED: MDD	DEVIATIONS FROM STANDARDS MUST BE APPROVED BY CRIMSON RIDGE WATER COMPANY, LLC
DESIGNED: DW	
CHECKED:	
DATE: 11/20/2020	
REV 1:	
REV 2:	

No. 354312 Daniel Leon White — REGISTERED PROFESSIONAL ENGINEER — STATE OF UTAH

STANDARD WATER DETAILS
CRIMSON RIDGE WATER COMPANY, LLC
TYPICAL TRENCH SECTION
UDOT CROSSING TRENCH DETAIL
SHEET 2

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5150 SOUTH 375 EAST OGDEN, UT
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Revisions			
Date	Description		

Date: 3/29/2021
Scale: #######
Designed: MDD
Drafted: MDD
Checked: DLW

STANDARD DETAILS
CRIMSON RIDGE WATER COMPANY
WELL HOUSE AND TANK
EDEN, WEBER, UTAH

GARDNER ENGINEERING
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5150 SOUTH 375 EAST OGDEN, UT
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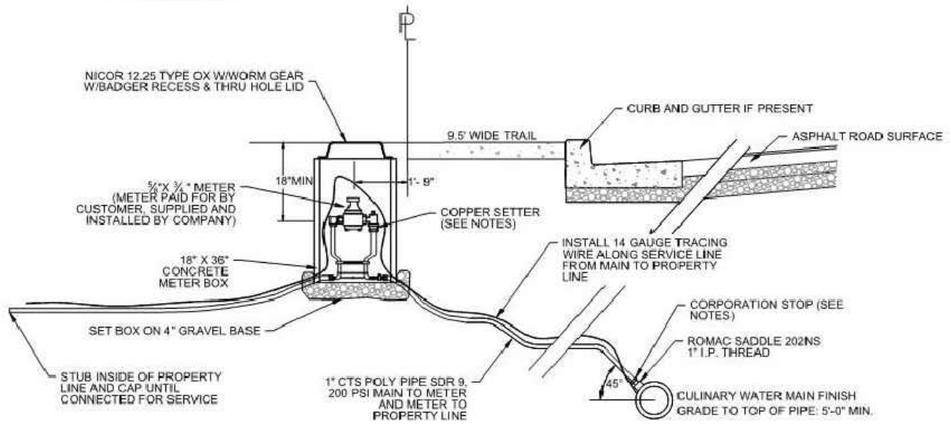
SD1
SD5

NOTES:

ACCEPTABLE COPPER SETTERS
¾" - FORD VBHC 72-18W-44-33QNL

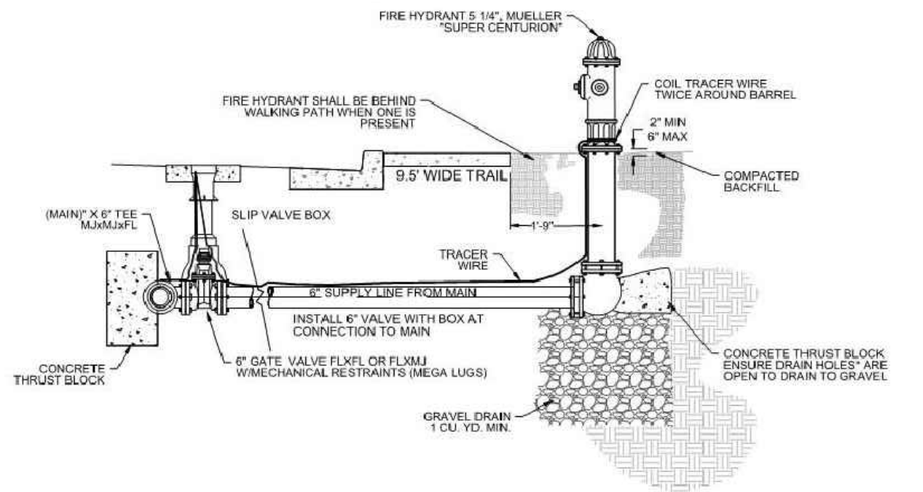
ACCEPTABLE CORPORATION STOPS
1" - FORD FB1100-4-Q-NL

ALL COMPRESSION FITTINGS:
SHALL HAVE STAINLESS STEEL INSERTS



4 TYPICAL WATER CONNECTION\RE-CONNECTION

NTS



*NOTE: HYDRANT DRAINS SHALL NOT BE CONNECTED TO, OR LOCATED WITHIN, 10 FEET OF SANITARY SEWERS. WHERE POSSIBLE, HYDRANT DRAINS SHALL NOT BE LOCATED WITHIN 10 FEET OF STORM DRAINS.

5 FIRE HYDRANT DETAIL

NTS

DRAFTED: MDD	DEVIATIONS FROM STANDARDS MUST BE APPROVED BY CRIMSON RIDGE WATER COMPANY, LLC
DESIGNED: DW	
CHECKED:	
DATE: 11/20/2020	
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REV 2:	

REGISTERED PROFESSIONAL ENGINEER No. 354312 Daniel Leon White STATE OF UTAH

STANDARD WATER DETAILS
CRIMSON RIDGE WATER COMPANY, LLC
TYPICAL WATER CONNECTION DETAIL
FIRE HYDRANT DETAIL
SHEET 3

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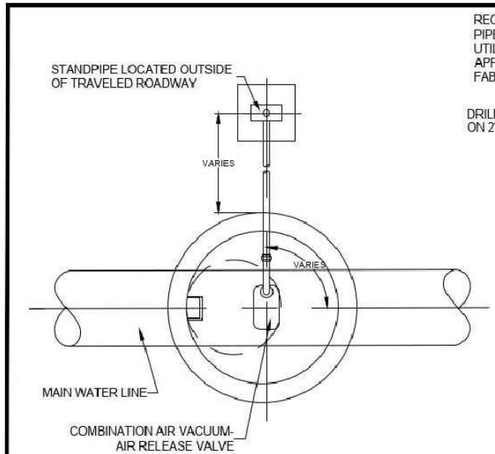
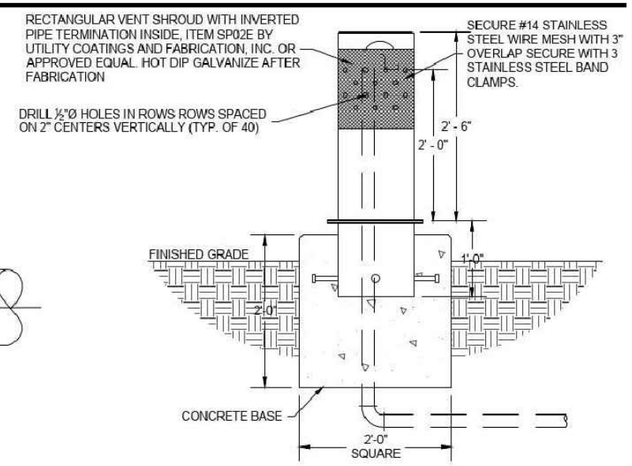
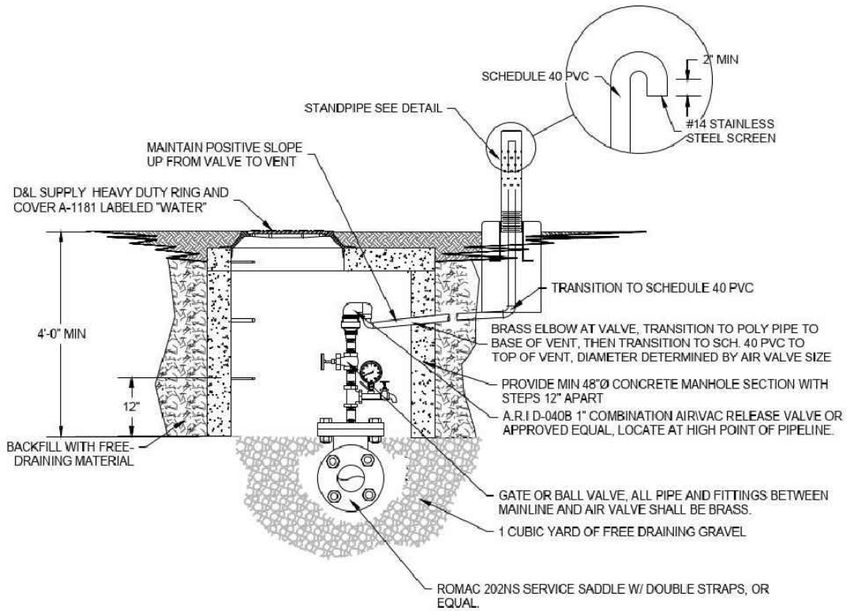


AIR VALVE PLAN VIEW
NTS



STANDPIPE DETAIL
NTS

NOTES:
1. LOCATE STANDPIPE WELL OUTSIDE TRAVELED ROADWAY OR AS DIRECTED BY THE ENGINEER.



6 COMBINATION AIR/VAC VALVE DETAILS

NTS

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DESIGNED: DW	
CHECKED:	
DATE: 11/20/2020	
REV 1:	
REV 2:	

REGISTERED PROFESSIONAL ENGINEER No. 354312 Daniel Leon White STATE OF UTAH

STANDARD WATER DETAILS
CRIMSON RIDGE WATER COMPANY, LLC
COMBINATION AIR/VAC VALVE DETAIL
SHEET 4

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

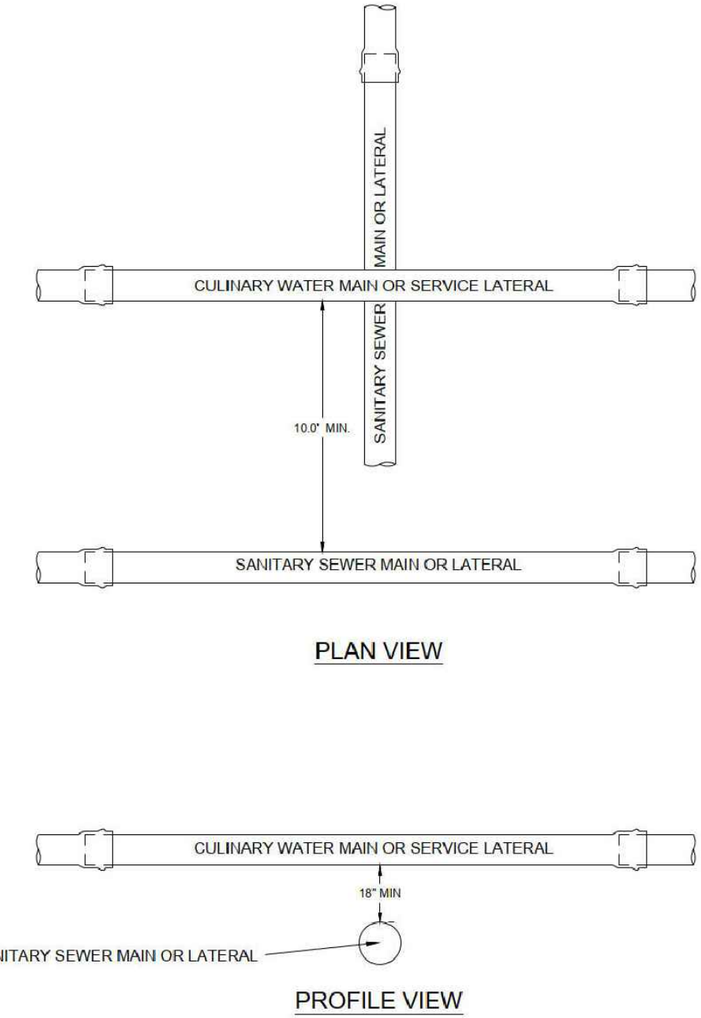
Revisions		
Date	Description	

Date: 3/29/2021
Scale: #######
Designed: MDD
Drafted: MDD
Checked: DLW

STANDARD DETAILS
CRIMSON RIDGE WATER COMPANY
WELL HOUSE AND TANK
EDEN, WEBER, UTAH

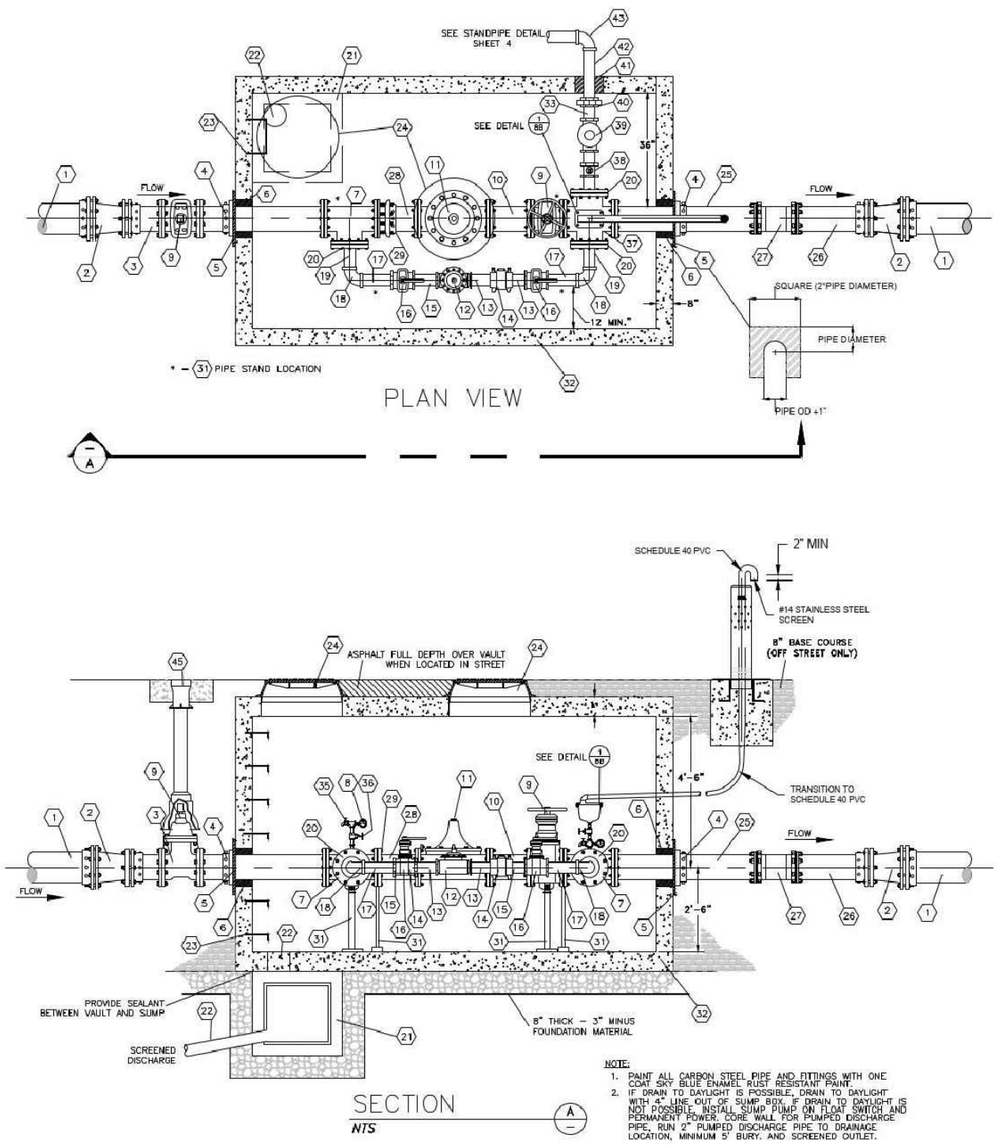
SD2
SD5

NOTE:
WATER LINES AND SEWER LINES SHALL NOT BE INSTALLED IN THE SAME TRENCH. WHERE LOCAL CONDITIONS MAKE IT IMPOSSIBLE TO INSTALL WATER OR SEWER LINES AT THE SEPARATION DISTANCES SHOWN HERE, AN EXCEPTION TO THE STANDARD MAY BE POSSIBLE. THE ENTITY SEEKING THE EXCEPTION SHALL INITIATE AND PURSUE A REQUEST FOR A SEPARATION EXCEPTION WITH THE STATE DIVISION OF DRINKING WATER, IN ACCORDANCE WITH R309-550-7 OF THE STATE OF UTAH ADMINISTRATIVE RULES.



7 TYPICAL SEWER CROSSING DETAIL

NTS



8A PRV STATION

SEE DETAIL 8B ON SHEET 7 FOR BILL OF MATERIALS

NTS

DRAFTED: MDD	DEVIATIONS FROM STANDARDS MUST BE APPROVED BY CRIMSON RIDGE WATER COMPANY, LLC	No. 354312 Daniel Leon White	STANDARD WATER DETAILS	GARDNER ENGINEERING
DESIGNED: DW			CRIMSON RIDGE WATER COMPANY, LLC	CIVIL · LAND PLANNING MUNICIPAL · LAND SURVEYING
CHECKED:			TYPICAL SEWER CROSSING / SHEET 5	5150 SOUTH 375 EAST OGDEN, UT OFFICE: 801.476.0202 FAX: 801.476.0066
DATE: 11/20/2020				
REV 1:				
REV 2:				

DRAFTED: MDD	DEVIATIONS FROM STANDARDS MUST BE APPROVED BY CRIMSON RIDGE WATER COMPANY, LLC	No. 354312 Daniel Leon White	STANDARD WATER DETAILS	GARDNER ENGINEERING
DESIGNED: DW			CRIMSON RIDGE WATER COMPANY, LLC	CIVIL · LAND PLANNING MUNICIPAL · LAND SURVEYING
CHECKED:			PRESSURE REDUCING VALVE STATION / SHEET 6	5150 SOUTH 375 EAST OGDEN, UT OFFICE: 801.476.0202 FAX: 801.476.0066
DATE: 11/20/2020				
REV 1:				
REV 2:				

Revisions		Date: 3/29/2021
Date	Description	Scale: #######
		Designed: MDD
		Drafted: MDD
		Checked: DLW

STANDARD DETAILS
CRIMSON RIDGE WATER COMPANY
WELL HOUSE AND TANK
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

SD3
SD5

CONFORMED SET 2021-05-21

R:\0208 - B&H INVESTMENT\CRIMSON RIDGE\DESIGN\DWG\CULINARY\STANDARD DETAIL SHEETS.DWG

R:\0208 - B&H Investment\Crimson Ridge\DESIGN\DWG\Culinary\Standard Detail Sheets.dwg, 5/21/2021 12:00:06 PM, AutoCAD PDF (General Documentation).pc3

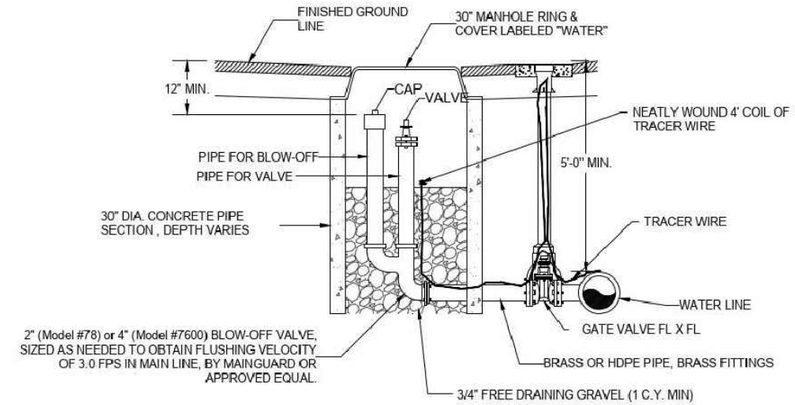
BILL OF MATERIALS

NO.	QTY	DESCRIPTION	6" LINE	8" LINE	10" LINE	NOTES
1	2	DIP OR PVC MJxPE	6"	8"	10"	
2	2	REDUCER MJxMJ	6"X4"	8"X6"	10"X8"	USE JOINT RETAINER GLANDS
3	1	DIP SPOOL 5'-0" LENGTH FLGXPE	4"	6"	8"	
4	2	FIELD FLANGE FOR DIP	4"	6"	8"	
5	2	1/4" THICK STEEL THRUST PLATE	10"X10" 5"ø	15"X15" 7.5"ø	18"X18" 10"ø	SQ. W/ ø CUT OUT
6	2	PRE-CORED HOLES	10" ø	12" ø	14" ø	SEAL WITH NON-SHRINK GROUT
7	2	TEE FLGxFLG	4"X4"X4"	6"X6"X6"	8"X8"X8"	
8	2	1/4" (1-200) PSI LIQUID FILLED PRESSURE GAUGE				SUPPLY WITH BRASS STOP COCK
9	2	RESILIENT SEAT GATE VALVE W/ VALVE BOX	4"	6"	8"	
10	1	DIA. X 1'-0" 1/4" DIP FLGxFLG	6"	8"	10"	
11	1	PRESSURE REDUCING VALVE FLGxFLG	4"	6"	8"	CLA-VAL MODEL 90-01 KC
12	1	PRESSURE REDUCING VALVE THDxTHD	2"	3"	3"	CLA-VAL MODEL 90-01 KC
13	2	DIA. X LENGTH GALV. PIPE THDxPE.	2"ø	3"ø	3ø	FIELD ADJUST LENGTH
14	2	COUPLING	2"	3"	3"	
15	1	DIA. X LENGTH GALV. PIPE THDxPE.	2"ø	3"ø	3"ø	FIELD ADJUST LENGTH
16	2	BALL VALVE THDxTHD	2"	3"	3"	
17	2	DIA. X LENGTH GALV. PIPE THDxTHD	2"ø	3"ø	3"ø	FIELD ADJUST LENGTH
18	2	90° GALV. BEND THDxTHD	2"	3"	3"	
19	2	DIA. X 8" GALV. PIPE THDxTHD	2"ø	3"ø	3ø	
20	2	BLIND FLANGE W/, THREAD TAP	4",2"	6",3"	8",3"	
21	1	2' X 2' CONCRETE CATCH BASIN				SUMP FOR SUBSURFACE WATER
22	1	8" PRE-CORED HOLE/4" DRAIN PVC PIPE TO DAYLIGHT				*SUMP HOLE IF NO SUBSURFACE WATER
23	6	STEPS				
24	1	A-1181 D&L MANHOLE RING AND COVER				"WATER", GRADE RING IF NEEDED
25	1	DIA. X LENGTH DIP FLGxPE	4", 6'-0"	6", 5'-0"	8", 4-2"	
26	1	DIA. X 2'-0" SPOOL PExPE	4"	6"	8"	
27	1	DIP SLEEVE MJxMJ	4"	6"	8"	
28	1	DIA. X 1'-0" DIP FLGxPE	4"	6"	8"	
29	1	RESTRAINED FLANGED COUPLING ADAPTER	4"	6"	8"	
31	4	PIPE STAND				
32	1	6' X 12' X 7' TALL PRECAST CONCRETE VAULT				H20 LOADING
33	1	COMBINATION AIR RELEASE VALVE W/ AIR VENT	1", 143C	1", 143C	2", 145C	APCO MODEL 143C,145C W/ FITTINGS
34	1	SCREWED GATE VALVE	1"	1"	2"	W/ FITTINGS
35	2	1/2" SMOOTH NOSE TAP				W/ FITTINGS
36	1	SCREWED GATE VALVE	3/4"	3/4"	3/4"	W/ FITTINGS
37	1	CROSS	4"	6"	8"	**
38	1	SCREWED GATE VALVE	2"	3"	4"	FNPT
39	1	RELIEF/SUSTAINING VALVE	2"	3"	4"	CLA-VAL 50-1 OR EQL
40	1	UNION	2"	3"	4"	FNPT
41	1	CORE AND GROUT	5"	6"	8"	
42	*	GALVANIZED STEEL PIPE (GSP)	2"	3"	4"	TAP INSIDE VAULT FOR DRAINAGE
43	*	ELBOW GSP	2"	3"	4"	
44	1	NO. 4 MESH SCREEN	2"	3"	4"	NON-CORRODIBLE
45	1	CONCRETE COLLAR	12"TH X 12"W			

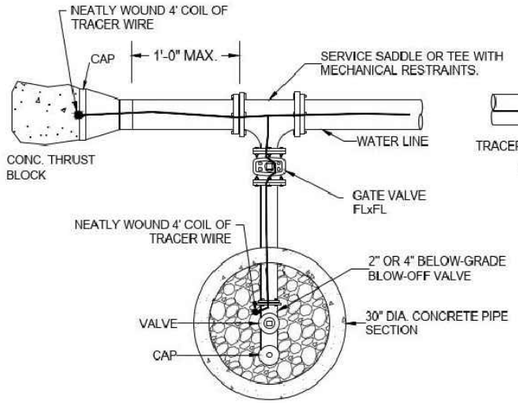
* TO BE DETERMINED BY SITE ** 8" CROSS MAY USE 8"X4" CROSS W/DIP FITTINGS FOR RELIEF VALVE, VERIFY WITH OWNER AND ENGINEER

8B PRV STATION BILL OF MATERIALS

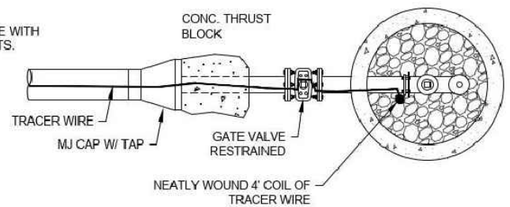
NTS



SIDE VIEW



TEE'D PLAN VIEW



END OF LINE PLAN VIEW

NOTE: BLOW OFF SHALL BE INSTALLED OUTSIDE OF ROAD WAY

9 BLOW OFF DETAIL

NTS

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DESIGNED: DW	
CHECKED:	
DATE: 11/20/2020	
REV 1:	
REV 2:	

No. 354312 Daniel Leon White — REGISTERED PROFESSIONAL ENGINEER — STATE OF UTAH

STANDARD WATER DETAILS
CRIMSON RIDGE WATER COMPANY, LLC
PRESSURE REDUCING VALVE STATION | SHEET 7

GARDNER ENGINEERING
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MUNICIPAL · LAND SURVEYING
5150 SOUTH 375 EAST OGDEN, UT
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REV 2:	

No. 354312 Daniel Leon White — REGISTERED PROFESSIONAL ENGINEER — STATE OF UTAH

STANDARD WATER DETAILS
CRIMSON RIDGE WATER COMPANY, LLC
BLOW OFF DETAIL | SHEET 8

GARDNER ENGINEERING
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Revisions		
Date	Description	

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Scale: #######
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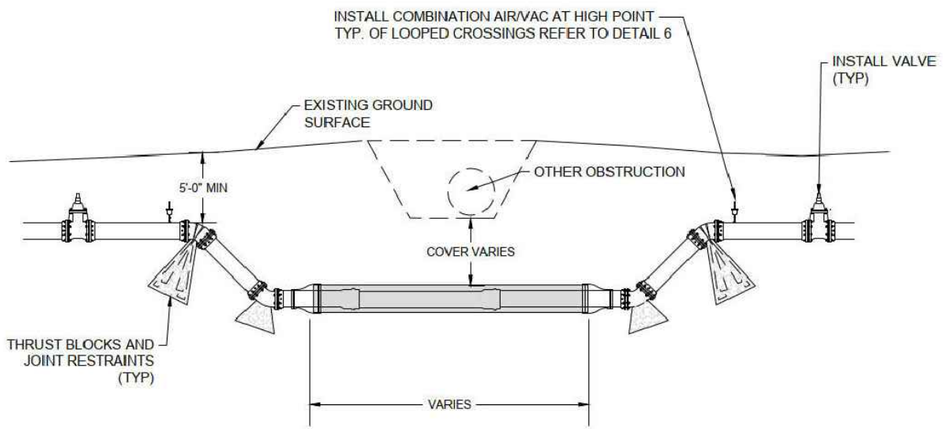
STANDARD DETAILS
CRIMSON RIDGE WATER COMPANY
WELL HOUSE AND TANK
EDEN, WEBER, UTAH

SD4
SD5

COVER (MIN.)
OTHER OBSTRUCTION 12" MIN

PIPE SIZE	CASING SIZE*
8"	16"
10"	18"
12"	24"

* CASING WALL THICKNESS (0.375") MIN.



NOTE:
1. CASINGS REQUIRE CENTRALIZING SPACERS AND END SEALS W/ S.S. BAND CLAMPS SUBMITTED TO INSPECTOR FOR APPROVAL PRIOR TO INSTALLATION.
2. PVC PIPE REQUIRES SELF- RESTRAINING GASKETS ON PIPE JOINTS INSIDE OF CASING AND ONE PIPE JOINT EACH SIDE OF CASING.
3. ISOLATION VALVE INSTALLATION IS REQUIRED ON EACH SIDE OF CASING.
4. COMBINATION AIR/VAC VALVE INSTALLATION IS REQUIRED ON EACH SIDE OF LOOPED CROSSINGS.
5. INSTALLATION OF A SAMPLING TAP OR OTHER ACCEPTABLE MEANS OF SAMPLING WILL BE REQUIRED TO ALLOW FOR REPRESENTATIVE WATER QUALITY TESTING ON THE UPSTREAM AND DOWNSTREAM SIDE OF THE CROSSING, IF THE COMPANY INSPECTOR DETERMINES THAT ANOTHER MEANS OF SAMPLING DOES NOT EXIST NEAR THE GIVEN LOCATION.
6. CROSSINGS SHALL BE COMMISSIONED AS AN INTEGRAL PART OF THE SURROUNDING PIPE SYSTEM (FLUSH, DISINFECT, PRESSURE TEST).

10 VERTICAL LOOP DETAIL

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DESIGNED: DW	
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No. 354312 Daniel Leon White
REGISTERED PROFESSIONAL ENGINEER STATE OF UTAH

STANDARD WATER DETAILS
CRIMSON RIDGE WATER COMPANY, LLC
CANAL/UDOT CROSSING DETAIL | SHEET 9

GARDNER ENGINEERING
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Revisions

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STANDARD DETAILS
CRIMSON RIDGE WATER COMPANY
WELL HOUSE AND TANK
EDEN, WEBER, UTAH

SD5
SD5

CONFORMED SET 2021-05-21