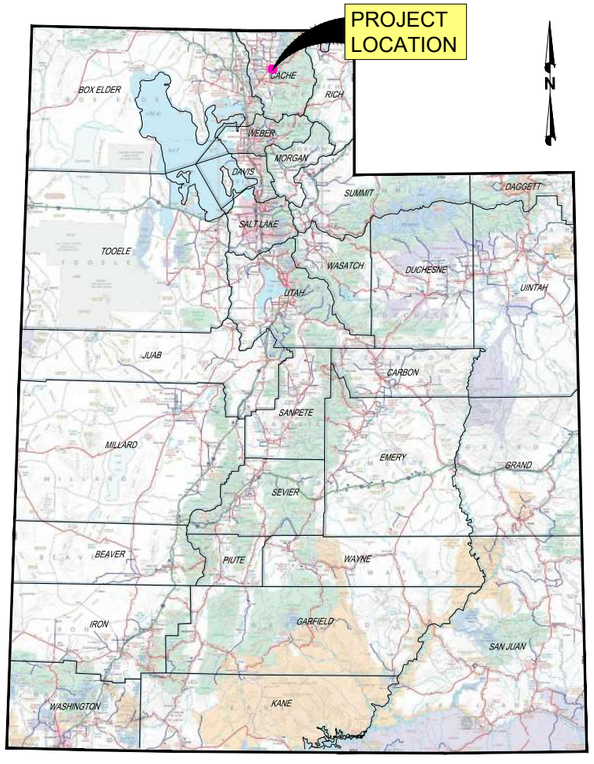
LOWER WELL IMPROVEMENT PROJECT

372 RIVERDALE AVE

RIVER HEIGHTS CITY

JANUARY 2023

SHEET INDEX



UTAH - PROJECT AREA MAP

NOT TO SCALE

LOWER WELL - VICINITY MAP

NOT TO SCALE

RIVER HEIGHTS CITY

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Blue Stakes of UTAH 811 Bluestakes.org

ALL IMPROVEMENTS NOT SPECIFICALLY COVERED HEREIN BY THE CONTRACT DOCUMENTS (RIVER HEIGHTS CITY STANDARDS AND SPECIFICATIONS) MUST MEET OR EXCEED THE CURRENT "APWA STANDARDS FOR PUBLIC WORKS CONSTRUCTION". WHERE IMPROVEMENTS ARE NOT COVERED BY THE CONTRACT DOCUMENTS, THE OWNER WILL BE THE SOLE JUDGE IN ESTABLISHING APPROPRIATE STANDARDS.

LICENSED PROFESSIONAL ENGINEER ERIC E. DURSTELER NO. 323794 01/04/23 STATE OF UTAH

FAI PROJECT NO. 14-13-0004, 028-0001

GENERAL NOTES

1. UTILITY LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE ONLY. CONTRACTOR SHALL FIELD VERIFY ALL UTILITY LOCATIONS BY CONTACTING BLUE STAKES AT 1-800-662-4111 OR 811 AND OTHER APPLICABLE UTILITIES PRIOR TO EXCAVATION. CONTRACTOR SHALL POT-HOLE AND LOCATE UTILITIES AT THE CONTRACTOR'S EXPENSE WHEN REQUIRED AND SHALL BE SOLELY RESPONSIBLE FOR COSTS AND REPAIRS DUE TO DAMAGE OF EXISTING UTILITIES. ALL UTILITIES MAY NOT BE SHOWN ON PLANS.

2. CONTRACTOR SHALL POTHOLE ALL GAS SERVICES, WATER LINES, COMMUNICATIONS LINES, SEWER LINES, AND POSSIBLE INTERFERING WATER SERVICES IN ORDER TO VERIFY ADEQUATE CLEARANCE TO THE NEW CONSTRUCTION. THIS SHALL BE DONE AT THE BEGINNING OF THE PROJECT IN ORDER TO PROVIDE UTILITY OWNERS ADEQUATE TIME TO RELOCATE SERVICES IF REQUIRED.

3. CONTRACTOR SHALL PROVIDE A TRAFFIC CONTROL PLAN, ADEQUATE TRAFFIC CONTROL, SIGNING, BARRICADING, AND PEDESTRIAN DIRECTION THROUGH AND AROUND THE CONSTRUCTION WORK ZONE IN COMPLIANCE WITH THE LATEST EDITION OF THE MUTCD AND UDOT REQUIREMENT.

4. CONTRACTOR SHALL REPAIR DISTURBED SURFACES TO EXISTING CONDITIONS, INCLUDING, BUT NOT LIMITED TO, UTILITY LINES AND SERVICES, ASPHALT REPAIR, DRIVEWAYS, PLANTER STRIPS, SPRINKLER AND IRRIGATION SYSTEMS, IRRIGATION DITCHES, AND GENERAL CLEANUP EXCEPT WHERE INSTRUCTED IN WRITING OTHERWISE.

5. ALL UTILITIES SHALL BE KEPT IN WORKING ORDER EXCEPT FOR THE MINIMUM TIME NEEDED FOR EXCAVATION, TRENCHING, CONNECTIONS, ETC.

6. APPROVAL FROM THE PUBLIC WORKS DIRECTOR IS REQUIRED PRIOR TO WATER SHUT-DOWNS IF REQUIRED TO COMPLETE THE WORK. ALL AFFECTED ENTITIES AND PROPERTY OWNERS SHALL BE NOTIFIED 24 HOURS PRIOR TO APPROVED SHUTDOWNS.

CONSTRUCTION NOTES

SURVEY AND CONSTRUCTION STAKING

1. OWNER WILL PROVIDE BENCHMARK LOCATIONS FOR THE PROJECT. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING CONSTRUCTION STAKING FOR THE PROJECT.

2. CONTRACTOR SHALL NOTIFY ALL EXISTING UTILITY OWNERS PRIOR TO COMMENCING THE WORK AND SHALL FIELD-VERIFY ALL UTILITY CROSSINGS PRIOR TO CONSTRUCTION.

PIPE AND FITTING MATERIALS

1. ALL POLYVINYL CHLORIDE PIPE (PVC) SHALL BE RIGID, THERMOPLASTIC PRESSURE CLASS 150 AND MEET THE REQUIREMENTS OF ANSI/AWWA STANDARD C900 FOR WATER DISTRIBUTION PIPE.

2. ALL FITTINGS FOR POLYVINYL CHLORIDE PIPE (PVC) SHALL BE DUCTILE IRON (DI) AND SHALL MEET THE REQUIREMENTS OF NSF 61 AND ANSI/AWWA C110/A21.10-82 OR C-153/A21.53-58.

3. ALL PVC/PE/HDPE PIPE, INCLUDING WATER SERVICE CONNECTIONS SHALL INCLUDE A #12 TRACER WIRE ATTACHED TO THE TOP OF THE PIPE.

4. ALL HIGH DENSITY POLYETHYLENE PIPE (HDPE) PIPE SHALL BE PE 3608 MADE OF HIGH DENSITY, HIGH MOLECULAR WEIGHT RESIN MANUFACTURED ACCORDING TO ASTM D3350, F714, OR API 15LE AND AWWA C906. SEE PLANS FOR PIPE DR REQUIREMENTS.

5. DISINFECTION OF WATER MAINS SHALL BE ACCOMPLISHED BY CHLORINE TABLETS PLACED INTO EACH 20' STICK OF PIPE AND ADHERED TO THE INSIDE TOP THEREOF.

6. CAUTION SHALL BE USED WHEN INSTALLING PVC PIPELINE SUCH THAT EACH PIPE SEGMENT IS NOT INSERTED FURTHER INTO THE RECEIVING BELL THAN THE MARK SHOWN THEREON. CONTRACTOR SHALL REMOVE AND REWORK PIPE SEGMENTS THAT ARE SEATED BEYOND THE SAID MARK. PIPE SHALL BE ASSEMBLED PER MANUFACTURER'S RECOMMENDATIONS.

7. ALL FITTING HARDWARE SHALL BE COATED WITH NSF61 APPROVED GREASE AND ENTIRE FITTING SHALL BE COVERED WITH POLYETHYLENE PLASTIC.

GENERAL CONSTRUCTION REQUIREMENTS

1. CONTRACTOR SHALL FIELD VERIFY ALL PIPE LENGTHS AND CONNECTION ANGLES PRIOR TO CONSTRUCTION OF JOINTS.

2. ALL MECHANICAL JOINT FITTINGS SHALL BE PROVIDED WITH THRUST RESTRAINT JOINTS ("MEGA-LUG" OR APPROVED EQUAL). THRUST BLOCKS ARE REQUIRED AT ALL TEES, AND BENDS 11.25° AND GREATER.

3. ALL MATERIALS WHICH MAY COME IN CONTACT WITH DRINKING WATER SHALL BE ANSI-CERTIFIED TO MEET OR EXCEED NSF STANDARD 61, AND SHALL BE STAMPED THEREON TO INDICATE SUCH CERTIFICATION.

4. CONTRACTOR SHALL COVER AND EFFECTIVELY SEAL ALL OPEN ENDS OF PIPELINES AT THE END OF EACH DAY'S WORK.

5. ALL CONSTRUCTION SHALL COMPLY WITH THE LATEST INTERNATIONAL BUILDING CODE AND LOCAL BUILDING CODES, AND SHALL BE CONSISTENT WITH COMMON CONSTRUCTION PRACTICES OF THE TRADES.

6. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTING PROJECT. ALL UTILITY LOCATIONS SHOWN ARE APPROXIMATE, EXCEPT AS NOTED.

7. ANY CONTRACTOR-CAUSED DAMAGE TO UTILITY AND/OR SERVICE LINES, SHOWN OR NOT SHOWN ON THE PLANS, SHALL BE REPAIRED OR REPLACED AT NO COST TO THE OWNER.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL UTILITY COMPANIES PRIOR TO COMMENCING WORK IN THE PROJECT AREA.

9. THE CONTRACTOR SHALL INSTALL THRUST BLOCKS AT ALL ELBOWS, TEES, VALVES, ETC. PER APWA STANDARDS AND SPECIFICATIONS.

10. EPOXY GROUT ANNULAR SPACE BETWEEN WALLS/FLOOR AND PIPE PENETRATION FLUSH TO SURFACE (TYP.)

PERMITS

1. IT SHALL BE UNLAWFUL TO DO ANY CONSTRUCTION, EXCAVATION WORK ON ANY STREET, CURB, GUTTER, SIDEWALK, SEWER LINE, WATER LINE, PRESSURE IRRIGATION LINE, STORM DRAIN OR OTHER INFRA-STRUCTURE ADDITION OR IMPROVEMENT IN THE CITY OF RIVER HEIGHTS WITHOUT A PUBLIC WORKS' PERMIT FROM THE CITY TO DO SO. THE CITY OF RIVER HEIGHTS AND ALL UTILITY COMPANIES ARE BOUND BY CITY STANDARD SPECIFICATIONS. NO WORK SHALL BE STARTED UNTIL A PERMIT IS SECURED.

2. CONTRACTOR SHALL COMPLY WITH THE TERMS OF ALL PERMITS REQUIRED FOR THIS PROJECT.

3. CONTRACTOR IS RESPONSIBLE TO CONTAIN AND MANAGE ALL STORMWATER RUNOFF FROM THE PROJECT SITE. CONTRACTOR SHALL MAINTAIN AN EROSION AND SEDIMENT CONTROL (ESC) PLAN FOR THE PROJECT. CONTRACTOR IS RESPONSIBLE TO MODIFY THE ESC PLAN AND BMP'S AS SITE CONDITIONS REQUIRE.

4. CONTRACTOR SHALL OBTAIN AND KEEP COPIES OF ALL PERMITS ON SITE.

5. AFTER COMPLETION OF ALL PUBLIC WORKS IMPROVEMENTS THE CONTRACTOR SHALL PROVIDE THE CITY WITH A SET OF "RECORD DRAWINGS" WHICH HAVE BEEN CORRECTED TO SHOW THE CONSTRUCTED IMPROVEMENTS. CONTRACTOR SHALL ALSO PROVIDE CONSTRUCTION NOTES, RECORDES AND PHOTOS TAKEN THROUGHOUT THE PROJECT ON A FLASH DRIVE TO RIVER HEIGHTS CITY.

6. NO ROAD SHALL BE CLOSED BY THE CONTRACTOR TO THE PUBLIC EXCEPT BY EXPRESS PERMISSION OF THE PUBLIC WORKS DIRECTOR AND THROUGH WRITTEN PERMISSION BY UDOT AS REQUIRED. THE DEVELOPER/CONTRACTOR SHALL, AT ALL TIMES, CONDUCT ITS WORK SO AS TO ENSURE THE LEAST POSSIBLE OBSTRUCTION TO TRAFFIC AND NORMAL COMMERCIAL PURSUITS.

STATE, AND LOCAL INSPECTING AGENCIES

THE SITE OF CONSTRUCTION IS TO BE OPEN AT ALL REASONABLE TIMES AND PLACES FOR PERIODIC OBSERVATION BY ACCREDITED REPRESENTATIVES OF THE FEDERAL, STATE, AND LOCAL AGENCIES WHO HAVE REGULATORY OR SUPERVISORY AUTHORITY OVER ANY PART OF THE WORK PROPOSED OR REGULATED THERETO.

RESTORATION OF SURFACE IMPROVEMENTS

1. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND THE RESTORATION OR REPLACEMENT OF ANY IMPROVEMENTS EXISTING ON PUBLIC OR PRIVATE PROPERTY AT THE START OF WORK OR PLACED THERE DURING THE PROGRESS OF THE WORK.

2. EXISTING IMPROVEMENTS SHALL INCLUDE BUT NOT TO BE LIMITED TO PERMANENT SURFACING, CURBS, GUTTERS, SIDEWALKS, PLANTED AREAS, DITCHES, DRIVEWAYS, CULVERTS, FENCES, AND WALLS. ALL IMPROVEMENTS SHALL BE RECONSTRUCTED TO EQUAL OR BETTER, IN ALL RESPECTS, THAN THE EXISTING IMPROVEMENTS REMOVED.

3. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO RESTORE TO THEIR ORIGINAL CONDITION ALL IRRIGATION CANALS, LEVEES, CULVERTS, GATES, FENCES, DRAINAGE DITCHES, AND ALL SUCH IMPROVEMENTS WHICH ARE CUT OR DISTURBED DURING CONSTRUCTION. TOPSOIL IN FARMING AREAS OR ALONG ROAD EDGES SHALL BE STORED SEPARATE FROM SUBSOIL DURING PIPE TRENCH EXCAVATION. TOPSOIL SHALL BE REPLACED DURING BACKFILL OPERATIONS AS NEARLY AS POSSIBLE TO ITS ORIGINAL CONDITION, THEREBY ASSURING SUITABLE SOIL FOR RESEEDING.

4. UNLESS OTHERWISE DIRECTED, ALL STREET SURFACING, CURBS, GUTTERS, SIDEWALKS, DRIVEWAYS, OR OTHER HARD SURFACE THAT MUST BE REMOVED IN THE PERFORMANCE OF THE WORK SHALL BE RESTORED IN KIND BY THE CONTRACTOR IN ACCORDANCE WITH THE SPECIFICATIONS CONTAINED HEREIN. DEVIATION OF MORE THAN ONE-FOURTH INCH (1/4") BETWEEN OLD AND NEW WORK OR WITHIN NEW CONSTRUCTION SHALL BE CORRECTED. SUCH MEASUREMENT SHALL BE MADE FROM A TEN-FOOT (10') MINIMUM LENGTH STRAIGHT EDGE. ADJOINING SURFACES BETWEEN OLD AND NEW MUST BE FLUSH

5. AT THE COMPLETION OF EACH AREA OF WORK ALL EQUIPMENT, BARRICADES, AND SIMILAR ITEMS SHALL BE REMOVED FROM THE AREA. ALL EXCESS MATERIAL WILL BE REMOVED. ALL ROCKS LARGER THAN TWO INCHES (2") SHALL BE REMOVED FROM THE SURFACE. ADJACENT BORROW PITS AND ROAD SHOULDERS USED FOR STORAGE OF EXCAVATING MATERIALS SHALL BE SMOOTHED AND RETURNED TO ITS ORIGINAL CONTOUR/GRADE.

6. ALL DISTURBED/IMPACTED AREAS RESULTING FROM THE DEMOLITION, REMOVAL, AND/OR RECONSTRUCTION EFFORTS SHALL BE RE-SEEDED; SEED MIX TO MATCH NATIVE GRASSES SURROUNDING SITE.

ACCESS AND IRRIGATION IMPACTS

1. ALL PROPERTY OWNERS AND RESIDENTS ADJACENT TO THE STREETS OR EASEMENTS AFFECTED BY THE CONSTRUCTION SHALL BE NOTIFIED BY THE DEVELOPER/CONTRACTOR AT LEAST FORTY-EIGHT (48) HOURS IN ADVANCE OF THE TIME CONSTRUCTION BEGINS. THE CONTRACTOR CAN SATISFY THIS REQUIREMENT BY PLACING A WRITTEN NOTICE ON THE DOOR OF EACH RESIDENCE OR BUSINESS READING "NOTICE OF CONSTRUCTION OPERATION" INDICATING THE WORK TO BE PERFORMED. THE CONTRACTOR SHALL PROVIDED A COPY OF THE NOTIFICATION FORM AT THE PRE-CONSTRUCTION MEETING AND THE METHOD TO BE USED (HANG ON DOOR, ETC.).

2. DAMAGE TO EXISTING IRRIGATION DITCHES, ROADWAY SWALES, OR OTHER CONVEYANCE SYSTEMS (INCLUDING CONTROL VALVES) SHALL BE REPAIRED BY CONTRACTOR AT NO COST TO THE CITY OF RIVER HEIGHTS OR THE UTILITY OWNER.

PUBLIC SAFETY AND CONVENIENCE

THE CONVENIENCE OF THE GENERAL PUBLIC AND THE PROTECTION OF PERSONS AND PROPERTY IS OF PRIME IMPORTANCE AND SHALL BE PROVIDED FOR BY THE CONTRACTOR DURING THIS PROJECT. THE CONTRACTOR SHALL USE EVERY REASONABLE PRECAUTION TO SAFEGUARD PERSONS AND PROPERTY. FAILURE OF THE OWNER OR THE PUBLIC WORKS REPRESENTATIVE/ENGINEER TO NOTIFY THE CONTRACTOR OF ANY DEFICIENCEIS IN PROVIDING FOR PUBLIC SAFETY AND CONVENIENCE SHALL NOT RELIEVE THE CONTRACTOR FROM ITS REPONSIBILITY. THE CONTRACTOR SHALL BE REQUIRED TO COMPLY WITH THE REQUIRMENTS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND THE REQUIREMENTS OF OSHA.

ALL IMPROVEMENTS NOT SPECIFICALLY COVERED HEREIN BY THE CONTRACT DOCUMENTS (RIVER HEIGHTS CITY STANDARDS AND SPECIFICATIONS) MUST MEET OR EXCEED THE CURRENT "APWA STANDARDS FOR PUBLIC WORKS CONSTRUCTION". WHERE IMPROVEMENTS ARE NOT COVERED BY THE CONTRACT DOCUMENTS, THE OWNER WILL BE THE SOLE JUDGE IN ESTABLISHING APPROPRIATE STANDARDS.

CONFINEMENT OF WORK AND ACCESS TO RIGHT-OF-WAY AND EASEMENTS:

THE CONTRACTOR WILL BE REQUIRED TO CONFINE CONSTRUCTION OPERATIONS WITHIN THE DEDICATED RIGHT-OF-WAY FOR PUBLIC THOROUGHFARES OR WITHIN AREAS FOR WHICH CONSTRUCTION EASEMENTS HAVE BEEN OBTAINED UNLESS IT HAD MADE SPECIAL ARRANGEMENTS WITH THE AFFECTED PROPERTY OWNERS IN ADVANCE. THE CONTRACTOR WILL BE REQUIRED TO PROTECT STORED MATERIALS, LAWN, TRESS, AND OTHER FEATURES LOCATED ADJACENT TO THE PROPOSED CONSTRUCTION SITE. DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN SUCH FACILITIES AS MAY BE REQUIRED TO PROVIDE ACCESS BY ALL PROPERTY OWNERS TO THEIR PROPERTY. NO PERSON SHALL BE CUT OFF FROM ACCESS TO THEIR RESIDENCES OR PLACES OF BUSINESS FOR A PERIOD EXCEEDING EIGHT (8) HOURS, UNLESS THE CONTRACTOR HAS MADE WRITTEN ARRANGEMENTS WITH THE AFFECTED PERSONS PRIOR TO COMMENCING WORK IN THE AREA. COPIES OF SUCH ARRANGEMENTS SHALL BE PROVIDED TO RIVER HEIGHTS CITY.

MATERIAL AND COMPACTION TESTING:

DURING THE COURSE OF THE WORK, A CONTRACTOR SHALL SUBCONTRACT A GEOTECHNICAL ENGINEER/TESTING COMPANY TO PERFORM SUCH TESTS, IN ACCORDANCE WITH UTAH APWA SPECIFICATIONS, AS ARE REQUIRED TO IDENTIFY MATERIALS, TO DETERMINE GRADATION, TO DETERMINE COMPACTION CHARACTERISTICS, TO DETERMINE MOISTURE, TO DETERMINE DENSITY OF FILLS IN PLACE, TO DETERMINE CONCRETE STRENGTH, TO DETERMINE DENSITY AND MIXTURE OF ASPHALT. THESE TESTS WILL BE USED TO VERIFY THAT THE CONSTRUCTION CONFORMS TO THE REQUIREMENTS OF THE SPECIFICATIONS. TEST RESULTS SHALL BE PROVIDED TO OWNER AND ENGINEER.

BITUMINOUS ASPHALT CEMENT PAVEMENT PATCH:

1. CONTRACTOR SHALL PLACE AND COMPACT A HOT-MIX ASPHALT SURFACE COURSE OVER THE FINISHED BASE COURSE MATERIAL. THE BITUMINOUS BINDER TYPE MATERIAL FOR THE SURFACE COURSE SHALL BE "PG58-28" ASPHALT CEMENT CONFORMING TO THE REQUIREMENTS OF AMERICAN SOCIETY FOR TESTING AND MATERIALS AND THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) FOR THE SAME IN ACCORDANCE WITH UTAH APWA STANDARDS AND SPECIFICATIONS. THE BITUMINOUS SURFACE COURSE SHALL BE PLACED AND COMPACTED ON THE PREPARED BASE IN CONFORMANCE WITH THE LINES AND DIMENSIONS SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH THESE SPECIFICATIONS.

2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTROL TRAFFIC. ALL TRAFFIC SHALL BE KEPT OFF THE COMPLETED SURFACE FOR A MINIMUM PERIOD OF 24 HOURS. NO BITUMINOUS SURFACE COURSE SHALL BE PLACED WHEN THE TEMPERATURE OF THE AIR OR ROADBED IS 50 DEG. F. OR BELOW, DURING RAINY WEATHER, WHEN THE BASE IS WET, OR DURING OTHER UNFAVORABLE WEATHER CONDITIONS AS DETERMINED BY THE PUBLIC WORKS REPRESENTATIVE/ENGINEER. THE AIR TEMPERATURE SHALL BE MEASURED IN THE SHADE.

3. HOT MIX ASPHALT MIX SHALL BE COMPACTED TO AN AVERAGE RELATIVE DENSITY OF 95 PERCENT PER ASTM D 5581 (MARSHAL METHOD) WITH NO DENSITY TEST RESULT LESS THAN 92 PERCENT. COMPACTION SHALL BE COMPLETED BEFORE ASPHALT TEMPERATURE FALLS BELOW 180-DEGREES FAHRENHEIT.SOCIETY FOR TESTING AND MATERIALS AND THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) FOR THE SAME IN ACCORDANCE WITH UTAH APWA STANDARDS AND SPECIFICATIONS. THE BITUMINOUS SURFACE COURSE SHALL BE PLACED AND COMPACTED ON THE PREPARED BASE IN CONFORMANCE WITH THE LINES AND DIMENSIONS SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH THESE SPECIFICATIONS.

ROCKY MOUNTAIN POWER CONSTRUCTION REQUIREMENTS:

HTTPS://WWW.ROCKYMOUNTAINPOWER.NET/WORKING-WITH-US/BUILDERS-CONTRACTORS/ELECTRIC-SERVICE-REQUIREMENTS.HTML; -> "ADDITIONAL SPECIFICATIONS AND RESOURCES - UNDERGROUND CONDUIT SYSTEM INSTALLATION"

PRIMARY POWER CONDUIT TO BE HIGH-DENSITY POLYETHYLENE (HDPE, SEE RMP ZG-031).

NO.	REVISIONS	BY	DATE
1	CLARIFICATIONS	ZLH	08/26

DRAWN EED/ZLH
DESIGNED EED/ZLH
APPROVED CN
QA

LICENSED PROFESSIONAL ENGINEER ERIC E. DURSTELER NO. 323794 01/04/23 STATE OF UTAH

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River Heights CITY

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LOWER WELL IMPROVEMENT PROJECT

GENERAL NOTES & SPECIFICATIONS

PROJECT NO: 014-13-0004-028
SHEET ID: GN-1
DATE: 7-2022
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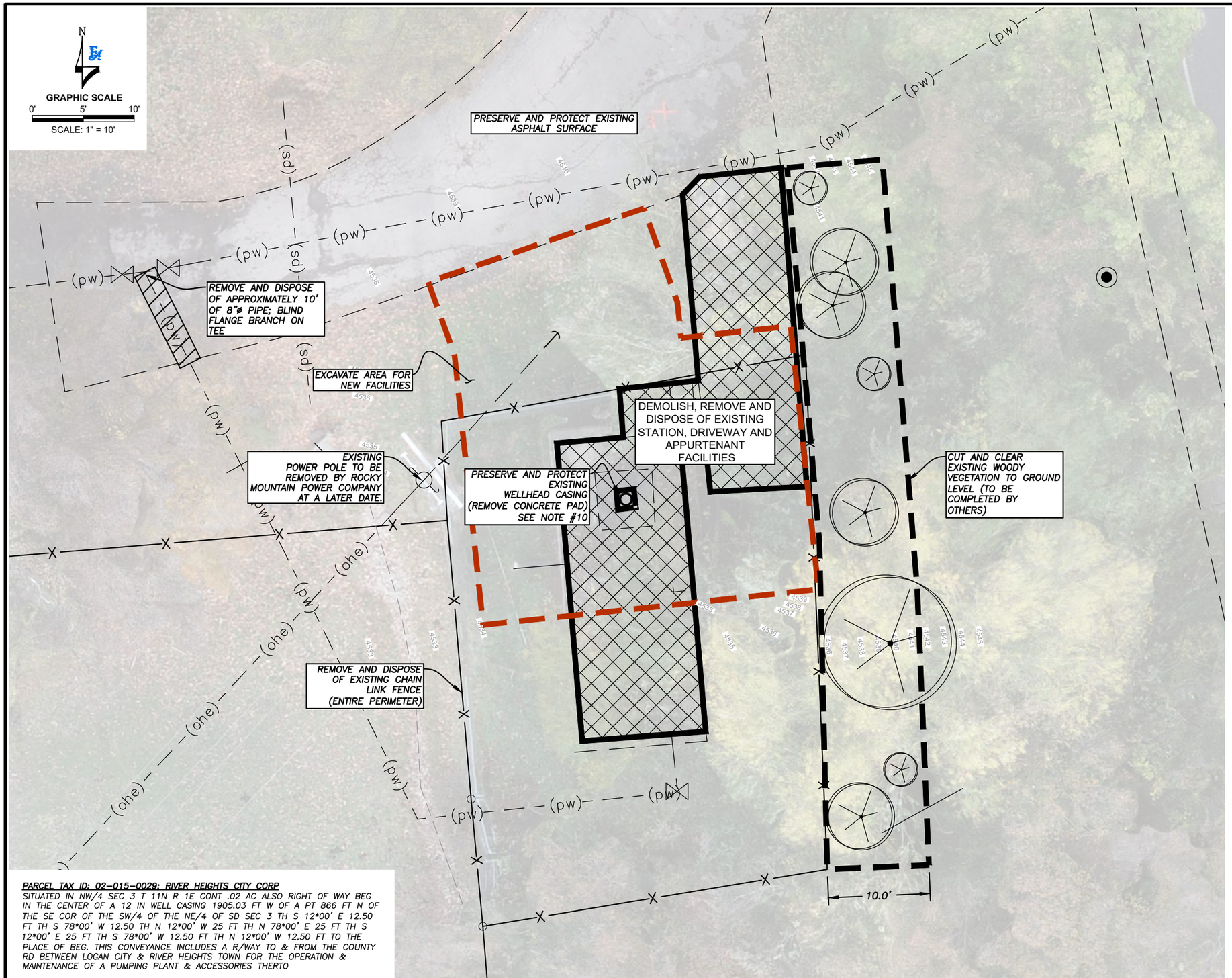

PARCEL TAX ID: 02-015-0029: RIVER HEIGHTS CITY CORP
SITUATED IN NW/4 SEC 3 T 11N R 1E CONT .02 AC ALSO RIGHT OF WAY BEG IN THE CENTER OF A 12 IN WELL CASING 1905.03 FT W OF A PT 866 FT N OF THE SE COR OF THE SW/4 OF THE NE/4 OF SD SEC 3 TH S 12*00' E 12.50 FT TH S 78*00' W 12.50 TH N 12*00' W 25 FT TH N 78*00' E 25 FT TH S 12*00' E 25 FT TH S 78*00' W 12.50 FT TH N 12*00' W 12.50 FT TO THE PLACE OF BEG. THIS CONVEYANCE INCLUDES A R/WAY TO & FROM THE COUNTY RD BETWEEN LOGAN CITY & RIVER HEIGHTS TOWN FOR THE OPERATION & MAINTENANCE OF A PUMPING PLANT & ACCESSORIES THERTO

DEMOLITION, REMOVAL AND DISPOSAL NOTES:

1. THIS PROJECT INVOLVES RENOVATION OF AND/OR INTERFACING WITH EXISTING FACILITIES. ALL REPRESENTATIONS OF EXISTING CONDITIONS SHOWN HEREIN WERE DERIVED FROM TOPOGRAPHIC SURVEYS, FIELD INVESTIGATIONS AND/OR FROM AVAILABLE RECORD DRAWING INFORMATION. NEITHER THE OWNER NOR ENGINEER GUARANTEES THESE LOCATIONS TO BE EITHER TRUE OR EXACT. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO VERIFY ALL EXISTING IMPROVEMENTS AND TO EXPOSE ALL EXISTING UNDERGROUND UTILITIES TO THE EXTENT NECESSARY IN ORDER TO DULY EXECUTE THE WORK.
2. THE CONTRACTOR SHALL INCLUDE IN THE BID THE COST OF REMOVING ANY EXISTING SITE FEATURES AND APPURTENANCES NECESSARY TO ACCOMPLISH THE CONSTRUCTION OF THE PROPOSED SITE IMPROVEMENTS. THE CONTRACTOR SHALL ALSO INCLUDE IN THE BID THE COST NECESSARY TO RESTORE SUCH ITEMS IF THEY ARE SCHEDULED TO REMAIN AS PART OF THE FINAL SITE IMPROVEMENTS. REFER TO PLANS TO DETERMINE EXCAVATION, DEMOLITION AND TO DETERMINE THE LOCATION OF THE PROPOSED SITE IMPROVEMENTS.
3. THESE DOCUMENTS MAKE NO REPRESENTATION AS TO THE EXISTENCE OR LOCATION OF EXISTING HAZARDOUS MATERIALS (INCLUDING ASBESTOS CONTAINING MATERIALS) AT THE SITE. REMOVAL OR ABATEMENT OF HAZARDOUS MATERIALS IS NOT INCLUDED IN THE SCOPE OF THIS PROJECT. SHOULD CONTRACTOR DISCOVER SUSPECTED HAZARDOUS MATERIALS AT THE SITE HE SHALL IMMEDIATELY BRING IT TO THE ATTENTION OF THE OWNER AND THE ENGINEER PRIOR TO STARTING OR CONTINUING WORK INVOLVING THOSE MATERIALS.
4. THE OWNER RESERVES THE RIGHT TO REVIEW ALL MATERIALS DESIGNATED FOR REMOVAL AND TO RETAIN OWNERSHIP OF SUCH MATERIALS. IF THE OWNER RETAINS ANY MATERIAL THE CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE OWNER TO HAVE THOSE MATERIALS REMOVED OFF SITE AT NO ADDITIONAL COST.
5. UNLESS SPECIFICALLY NOTED TO BE SAVED/STOCKPILED OR REUSED/RELOCATED, ALL SITE FEATURES CALLED FOR REMOVAL SHALL BE REMOVED WITH THEIR FOOTINGS, ATTACHMENTS, BASE MATERIAL, ETC, TRANSPORTED FROM THE SITE TO BE DISPOSED OF IN A LAWFUL MANNER AT AN ACCEPTABLE DISPOSAL SITE. ALL ITEMS CALLED FOR REMOVAL SHALL BE REMOVED TO FULL DEPTH INCLUDING ALL FOOTINGS, FOUNDATIONS, AND OTHER APPURTENANCES, EXCEPT AS SPECIFICALLY NOTED OTHERWISE.
6. THE EXISTING FACILITIES INCLUDING, SLABS, FOUNDATIONS, PAVEMENTS, ASSOCIATED DEBRIS, SURFACE VEGETATION, ROOT SYSTEMS, TOPSOIL, SPRINKLER IRRIGATION, NON-ENGINEERED FILL, AND ANY DELETERIOUS MATERIALS SHALL BE DEMOLISHED, REMOVED AND DISPOSED OF FROM BENEATH THE FOOTPRINT OF THE PROPOSED STRUCTURES AND EXTENDING OUT AT LEAST 5-FEET FROM THE PERIMETER OF THE PROPOSED STRUCTURES FOOTPRINT.
7. TREES DESIGNATED FOR REMOVAL SHALL BE TAGGED BY CONTRACTOR AND APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
8. DURING EARTHWORK OPERATIONS, CONTRACTOR SHALL TAKE CARE TO NOT DISTURB EXISTING MATERIALS TO REMAIN, OUTSIDE THE LIMITS OF EXCAVATION AND BACKFILL AND SHALL TAKE WHATEVER MEASURES NECESSARY, AT THE CONTRACTOR'S EXPENSE, TO PREVENT ANY EXCAVATED MATERIAL FROM COLLAPSING.
9. CONTRACTOR SHALL STOCKPILE EXCAVATED NATIVE SOIL MATERIAL FOR REUSE IN SITE RECLAMATION ACTIVITIES.
10. THE EXISTING WELL CASING SHALL BE EQUIPPED WITH A TEMPORARY STEEL TOP PLATE, TACK-WELDED IN PLACE UNTIL THE BUILDING DEMOLITION AND REMOVAL ACTIVITIES HAVE BEEN COMPLETED. THE EXISTING CONCRETE SURROUNDING THE WELL CASING IS TO BE CAREFULLY REMOVED TO EXPOSE 1-FOOT OF WELL CASING TO WHICH THE EXTENSION CAN BE WELDED.

SHEET LEGEND

- EXISTING OVERHEAD ELECTRIC/POWER LINE
- EXISTING POTABLE WATER LINES
- EXISTING STORMWATER/IRRIGATION LINES
- BUILDING ENVELOPE OF NEW FACILITIES
- EXISTING MAINLINE WATER VALVE
- EXISTING WATER METER
- EXISTING FIRE HYDRANT
- EXISTING SEWER MANHOLE
- EXISTING SEWER LINE CLEANOUT
- EXISTING TREE
- EXISTING SIGN
- DEMOLITION AND REMOVAL ELEMENTS

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1	CLARIFICATIONS	ZLH	08/26

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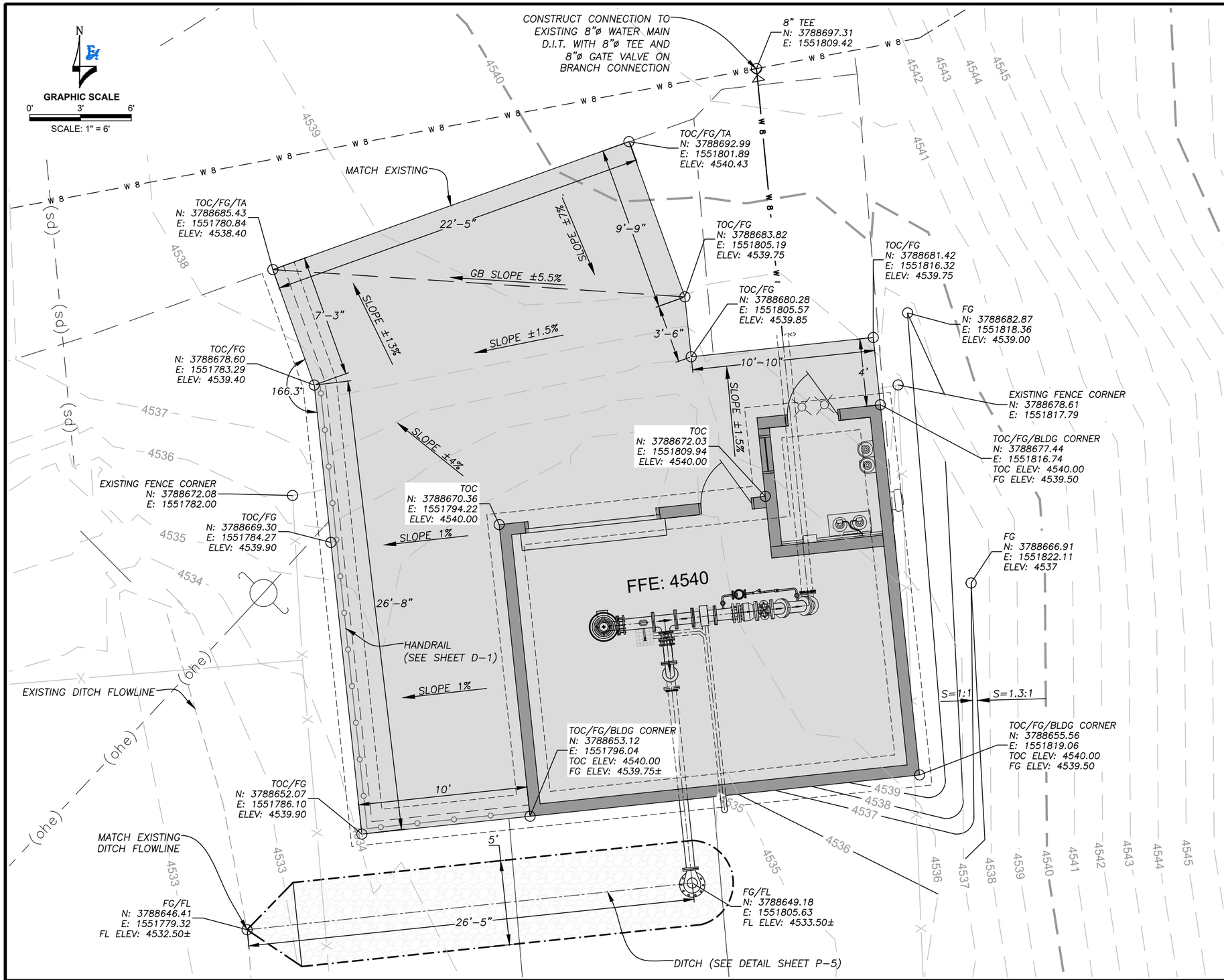
LOWER WELL IMPROVEMENT PROJECT

WELL CONTROL BUILDING DEMOLITION AND REMOVAL PLAN

PROJECT NO: 014-13-0004-028
SHEET ID: DR-1
DATE: 7-2022
PAGE NO: 3



SITE PREPARATION AND CONSTRUCTION NOTES:

1. ALL PROPOSED SITE FEATURES SHALL BE LAID OUT AND STAKED FOR REVIEW AND APPROVAL BY THE OWNER'S REPRESENTATIVE PRIOR TO COMMENCEMENT OF INSTALLATION. ANY REQUIRED ADJUSTMENTS TO THE LAYOUT SHALL BE UNDERTAKEN AS DIRECTED, AT NO ADDITIONAL COST TO THE OWNER.
2. CONTRACTOR SHALL PLACE SURVEY HUBS NEAR PROPOSED BUILDING TO MARK FINISHED FLOOR ELEVATION FOR USE IN DETERMINING REQUIRED BURY DEPTH FOR UTILITY PIPING, AND TO ESTABLISH BUILDING CORNERS TO ENSURE PROPER UTILITY PIPING INSTALLATION.
3. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND GRADES ON THE GROUND AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ENGINEER.
4. THE CONTRACTOR SHALL KEEP ALL STREETS, PARKING LOTS AND WALKS THAT ARE NOT RESTRICTED FROM PUBLIC USE DURING CONSTRUCTION BROOM CLEAN AT ALL TIMES. THE CONTRACTOR SHALL USE ACCEPTABLE METHODS AND MATERIALS TO MAINTAIN ADEQUATE DUST CONTROL THROUGHOUT CONSTRUCTION.
5. THE MATERIALS TESTING ENGINEER MUST BE NOTIFIED PRIOR TO THE PLACEMENT OF STRUCTURAL SITE GRADING FILLS, FLOOR SLABS, FOOTINGS, AND PAVEMENTS TO VERIFY THAT ALL LOOSE/DISTURBED SOILS AND NON-ENGINEERED FILLS HAVE BEEN COMPLETELY REMOVED AND/OR PROPERLY PREPARED.
6. ALL BACKFILL MATERIALS SHALL BE PLACED AND COMPACTED AS SPECIFIED TO THE SUBGRADE REQUIRED FOR THE INSTALLATION OF THE REMAINDER OF THE CONTRACT WORK.
7. ALL PROPOSED PAVEMENTS SHALL MEET THE LINE AND GRADE OF EXISTING ADJACENT PAVEMENT SURFACES.
8. ALL PAVEMENT ADJACENT TO THE STRUCTURE SHALL BE SLOPED AWAY FROM THE STRUCTURE AT A TWO-PERCENT (2%) SLOPE UNLESS OTHERWISE INDICATED HEREON.

SITE RECLAMATION AND RESTORATION:

1. WHERE NEW EARTHWORK MEETS EXISTING EARTHWORK, CONTRACTOR SHALL BLEND NEW EARTHWORK SMOOTHLY INTO EXISTING, PROVIDING VERTICAL CURVES OR ROUNDS AT ALL TOP AND BOTTOM OF SLOPES.
2. WHERE A SPECIFIC LIMIT OF WORK LINE IS NOT OBVIOUS OR IMPLIED, CONTRACTOR SHALL BLEND GRADES TO MATCH AND MEET EXISTING CONDITIONS.
3. CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS WITH 4-INCHES OF TOP SOIL MATERIAL (I.E IN AREAS WHERE STRUCTURES/PAVEMENTS WERE REMOVED) AND RAKE AND WORK SUCH MATERIALS IN ORDER TO FORM A SMOOTH AND AESTHETICALLY PLEASING FINISHED GRADE FREE FROM ROUGHNESS, BUMPS, RIDGES OR IRREGULARITIES.
4. CONTRACTOR SHALL PLACE NATIVE GRASS SEED ON PREPARED TOP SOIL MATERIAL TO THE SATISFACTION OF THE OWNER (SEED MIX TO BE DETERMINED BY OWNER).

SHEET LEGEND

	EXISTING EDGE OF PAVEMENT
	EXISTING CONTOUR MAJOR (10')
	EXISTING CONTOUR MINOR (1')
	PROPOSED CONTOUR MINOR (1')
UGE	NEW UNDERGROUND ELECTRIC/POWER LINE
W 8	EXISTING WATER LINE
W 8	NEW WATER MAIN LINE
	PROPOSED HANDRAIL
x x	EXISTING FENCE
⋈	NEW WATER VALVE
TOC	TOP OF CONCRETE
TA	TOP OF ASPHALT
FG	FINISHED GRADE
	NEW CONCRETE WALKWAY/SURFACE
FL	FLOWLINE
N:	NORTHING
E:	EASTING
SD	STORM DRAIN
GB	GRADE BREAK

NO.	REVISIONS	BY	DATE
1	CLARIFICATIONS	ZLH	08/26

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DESIGNED EED/ZLH
APPROVED CN
QA

ERIC E. DURSTELER NO. 323794 01/04/23 REGISTERED PROFESSIONAL ENGINEER STATE OF UTAH

ATTENTION
LINE IS 1-INCH
AT 11X17 SIZE
IF NOT 1-INCH, SCALE DRAWING ACCORDINGLY

River Heights CITY

CITY OF RIVER HEIGHTS
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RIVER HEIGHTS, UTAH 84321

FORSGREN Associates Inc.
95 WEST 100 SOUTH, STE. 115, LOGAN, UT 84321
PH: 435.227.0333 FAX: 435.227.0334

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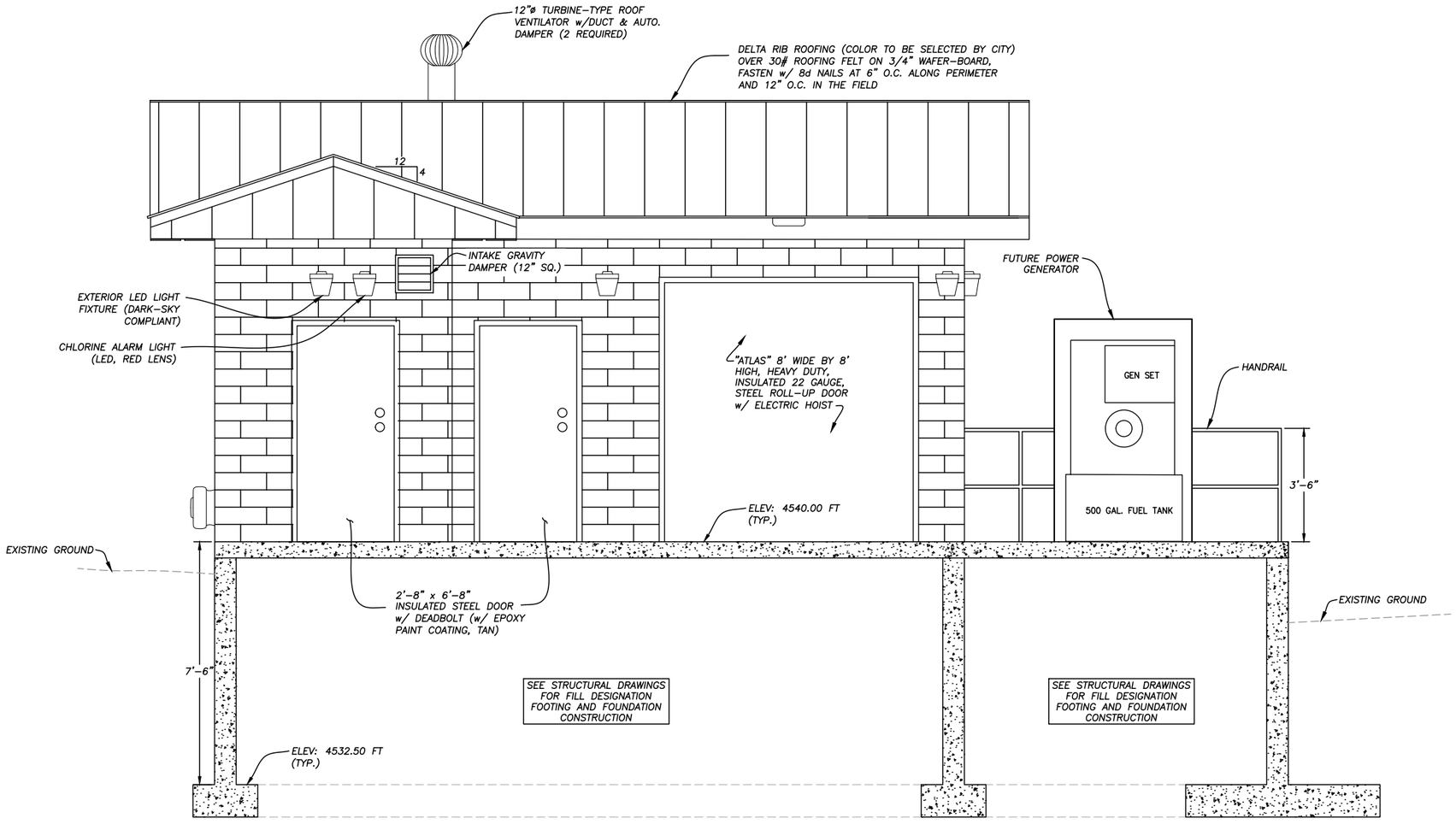
LOWER WELL IMPROVEMENT PROJECT

WELL CONTROL BUILDING
SITE & GRADING PLAN

PROJECT NO: 014-13-0004-028
SHEET ID: SGP-1
DATE: 7-2022
PAGE NO: 4



WELL OPERATIONS BUILDING - FRONT ELEVATION 1

SCALE 1" = 4'

NO.	REVISIONS	BY	DATE
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LICENSED PROFESSIONAL ENGINEER ERIC E. DURSTELER NO. 323794 01/04/23 STATE OF UTAH

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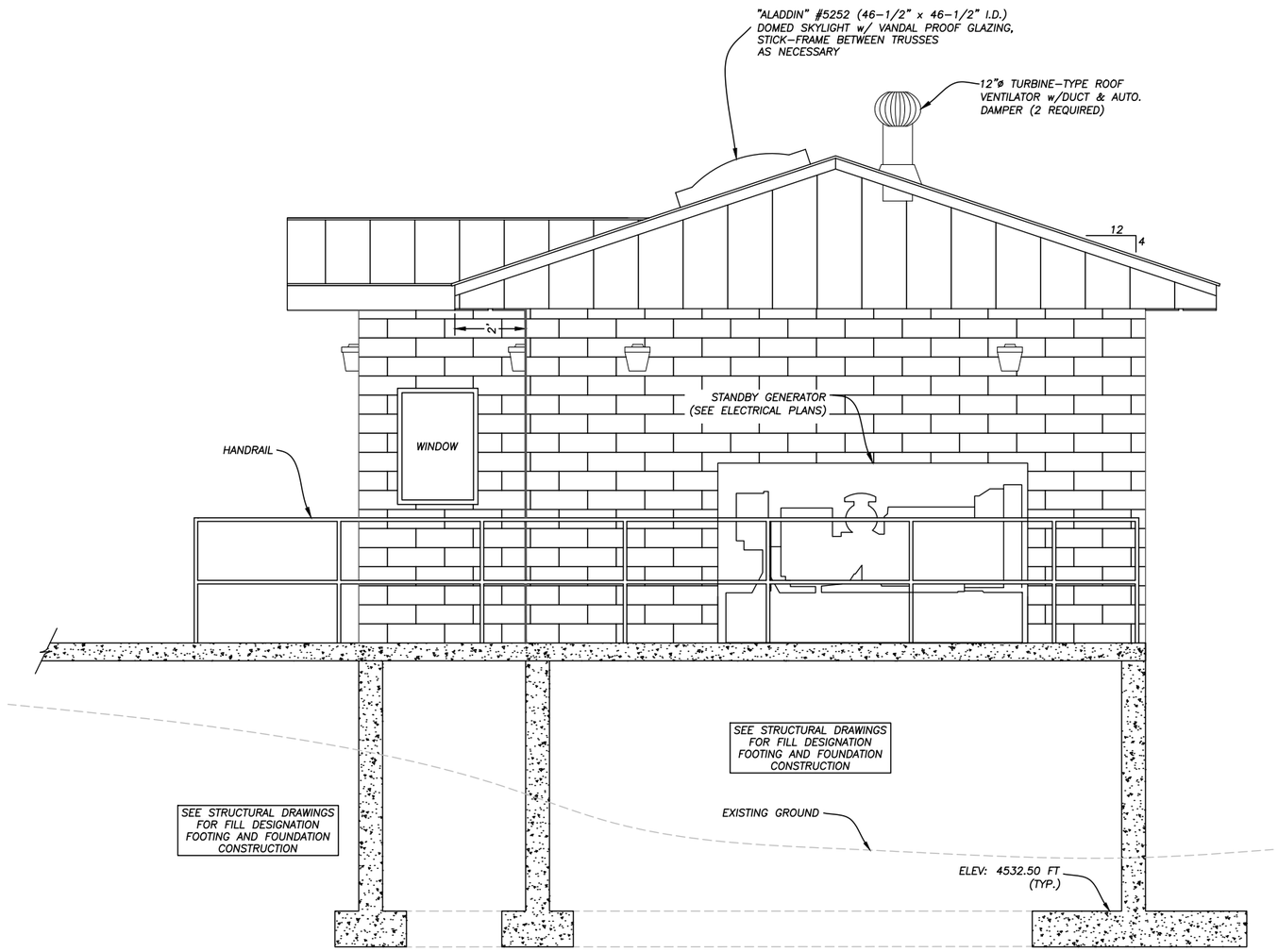
WELL CONTROL BUILDING
FRONT ELEVATION

PROJECT NO: 014-13-0004-028
SHEET ID: P-1
DATE: 7-2022
PAGE NO: 5



WELL OPERATIONS BUILDING - SIDE ELEVATION 2

SCALE 1" = 4'

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DESIGNED EED/ZLH

APPROVED CN

QA

LICENSED PROFESSIONAL ENGINEER
ERIC E. DURSTELER
NO. 323794
STATE OF UTAH
01/04/23

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LOWER WELL IMPROVEMENT PROJECT

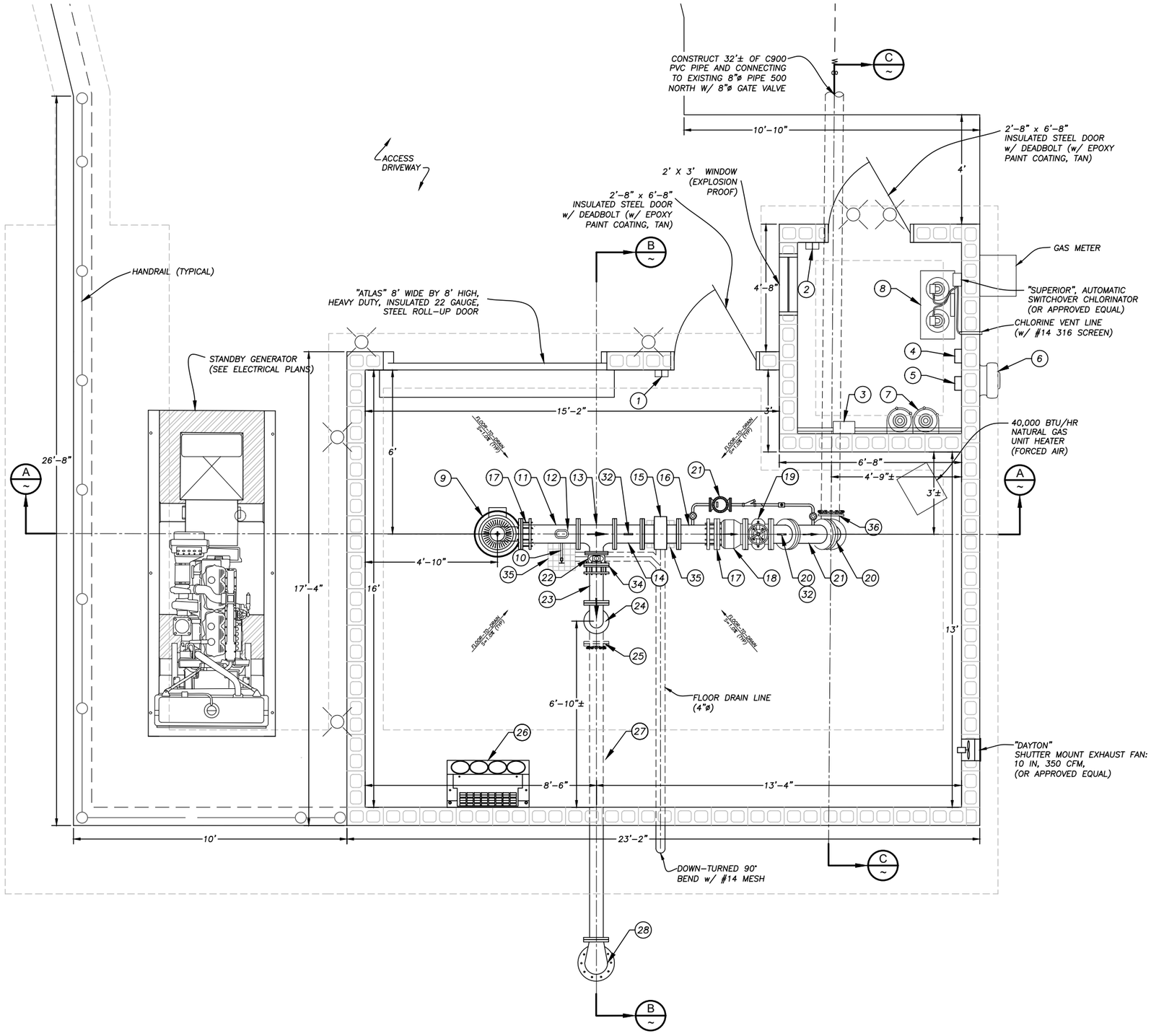
WELL CONTROL BUILDING
WEST ELEVATION

PROJECT NO: 014-13-0004-028

SHEET ID: P-2

DATE: 7-2022

PAGE NO: 6



GENERAL CONSTRUCTION REQUIREMENTS

1. ALL MATERIALS WHICH MAY COME IN CONTACT WITH DRINKING WATER SHALL BE ANSI-CERTIFIED TO MEET OR EXCEED NSF STANDARD 61, AND SHALL BE STAMPED THEREON TO INDICATE SUCH CERTIFICATION.
2. CONTRACTOR SHALL COVER AND EFFECTIVELY SEAL ALL OPEN ENDS OF PIPELINES AT THE END OF EACH DAY'S WORK.
3. ALL CONSTRUCTION SHALL COMPLY WITH THE LATEST INTERNATIONAL BUILDING CODE AND LOCAL BUILDING CODES, AND SHALL BE CONSISTENT WITH COMMON CONSTRUCTION PRACTICES OF THE TRADES.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL UTILITY COMPANIES PRIOR TO COMMENCING WORK IN THE PROJECT AREA.
5. THE CONTRACTOR SHALL INSTALL THRUST BLOCKS AT ALL ELBOWS, TEES, VALVES, ETC. PER APWA STANDARDS AND SPECIFICATIONS.

PIPE, FITTINGS AND EQUIPMENT SCHEDULE

ITEM	QTY	SIZE	DESCRIPTION
1	2	–	LIGHT SWITCH AND EXHAUST FAN SWITCH
2	1	–	LIGHT SWITCH AND EXHAUST FAN SWITCH (CHLORINE ROOM)
3	1	–	"SUPERIOR" AUTOMATIC SWITCHOVER CHLORINATOR (OR APPROVED EQUAL)
4	1	–	"ATI" GAS SENSOR/GAS DETECTOR*
5	1	–	"SUPERIOR" SMARTVALVE GAS FEED REGULATOR*
6	1	–	420 CFM EXHAUST FAN w/GRAVITY BACKDRAFT DAMPER
7	2	–	DUAL SPARE CHLORINE CYLINDER STORAGE w/ STAINLESS STEEL CHAIN RESTRAINTS (w/ TANK WRENCH)
8	1	–	"SCALETRON" MODEL 2330 DUAL CYLINDER MANUAL SCALE*
9	1	SL11H (7 STAGE)	"SIMFLO" 1000 GPM VERTICAL TURBINE WELL PUMP, 200 HP, 1800 RPM, 450-FEET TDH (195 PSI), PUMP INTAKE 95' BGS.
10	1	8"ø	SMOOTH-NOSED SAMPLING TAP (MOUNTED HORIZONTALLY AS SHOWN) w/ "ASHCROFT" GLYCERIN FILLED PRESSURE GAUGE
11	1	8"ø x 2'-1"±	FL. x FL. CL-50 D.I.P. SPOOL PIECE w/ 1"ø THREADED PORT (A.R.V.)
12	1	1"ø	"FLOWMATIC" OR "VALMATIC" AIR RELIEF VALVE*
13	1	8"ø x 8"ø x 6"ø	FL. D.I. FLANGED REDUCING TEE
14	1	8"ø x 1'-6"±	FL. x FL. CL-50 D.I.P. SPOOL PIECE w/ 1"ø THREADED PORT
15	1	8"ø	"MCCROMETER" UM06 FLOWMETER w/ DUAL 4-20MA ANALOG, DUAL DIGITAL w/ REMOTE WALL-MOUNTED DISPLAY (GPM & TOTALIZER)
16	1	8"ø	FL. x P.E. CL-50 D.I.P.
17	2	8"ø	"ROMAC" FLANGED COUPLING ADAPTER
18	1	8"ø	"FLOWMATIC" GLOBE CHECK VALVE*
19	1	8"ø	FL. GATE VALVE
20	2	8"ø	FL. x FL. 45° BEND (1 w/ 1/2"ø THREADED PORT)
21	1	TBD	CHLORINE DISINFECTION SYSTEM PRESSURE BOOSTER PUMP
22	1	6"ø	"BRAY" FL. BUTTERFLY VALVE w/ 120V ELECTRIC ACTUATOR (4-20MA)*
23	1	6"ø x 1'0"±	FL. x P.E. CL-50 D.I.P.
24	1	6"ø	FL. x FL. 90° BEND
25	1	6"ø	M.J. x M.J. 90° BEND (w/MEGA-LUG RESTRAINTS)
26	1	–	"DANFOSS" fc202-134f0369 200 HP VFD (SEE ELECTRICAL DRAWING)
27	1	6"ø x 10'9"±	FL. x P.E. CL-50 D.I.P.
28	1	6"ø x 10"ø	D.I. FL. 90° REDUCING BEND w/ #4 AND #14 MESH
29	1	8"ø x 3'1"±	FL. x P.E. CL-50 D.I.P.
30	2±	–	PIPE SUPPORT (SCREW-TYPE ADJUSTABLE)
31	1	12"ø	12"ø WELL CASING EXTENSION TO ELEVATION 4540.50 FT
32	2	–	ELECTRONIC PRESSURE GAUGE (0-300 PSI) w/ 4-20MA OUTPUT
33	1	12"ø	1-1/4"ø PVC DROP PIPE TO BE EXTENDED 100' BELOW FLOOR ELEVATION (FOR PRESSURE TRANSDUCER)
34	1	6"ø	"ROMAC" FLANGED COUPLING ADAPTER
35	2	–	12"x12" SQUARE FLOOR DRAIN (DRAIN-TO-DAYLIGHT)
36	1	8"ø	M.J. x M.J. 90° BEND (w/MEGA-LUG RESTRAINTS)

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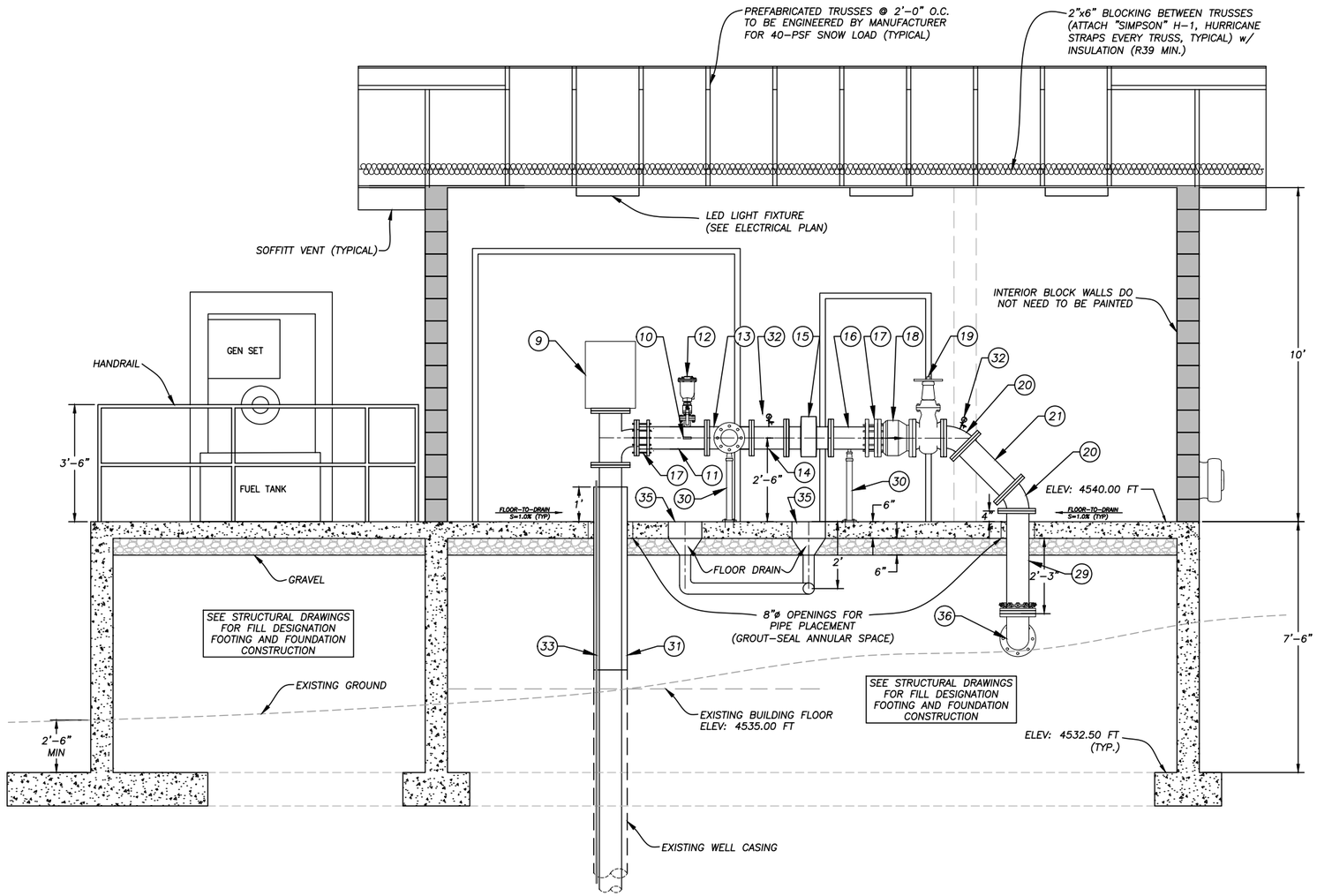
LOWER WELL IMPROVEMENT PROJECT

WELL CONTROL BUILDING PLAN VIEW

PROJECT NO: 014-13-0004-028
SHEET ID: P-3
DATE: 7-2022
PAGE NO: 7



WELL OPERATIONS BUILDING - SECTION A-A 3

SCALE 1" = 4'

WELL AND PUMP CONSTRUCTION NOTES:

1. *"SIMFLO, 1,000 GPM, 200 HP, 450-FEET TDH, 1800 RMP, VERTICAL TURBINE WELL PUMP AND MOTOR" IS TO BE EQUIPPED WITH A HOLLOW SHAFT, AN OIL LUBE SYSTEM, AND A SOLENOID CONTROL DROPPER (WITH BYPASS). IMPELLER TO BE SL11H WITH "A" (FULL) TRIM (81.9% EFFICIENT). THE WELL PUMP (BOTTOM) IS TO BE SET AT 115-FEET BELOW THE FINISHED WELL CASING ELEVATION. IT IS EXPECTED THAT WELL PUMP WILL TYPICALLY OPERATE AT APPROXIMATELY 425-FEET TDH (~1833 PSI).*
2. *AN ANNULUS SEAL PLATE IS TO BE INSTALLED BETWEEN THE 12-INCH DIAMETER WELL CASING AND 8-INCH DIAMETER PRODUCTION CASING (SEALED PER UDDW AND UDWR REQUIREMENTS).*
3. *THE COMPLETED WELL CASING EXTENSION IS TO BE 1-FOOT ABOVE FINISHED FLOOR, TO AN ELEVATION OF 4541.00 FT.*

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4. *THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL UTILITY COMPANIES PRIOR TO COMMENCING WORK IN THE PROJECT AREA.*
5. *THE CONTRACTOR SHALL INSTALL THRUST BLOCKS AT ALL ELBOWS, TEES, VALVES, ETC. PER APWA STANDARDS AND SPECIFICATIONS.*

PIPE, FITTINGS AND EQUIPMENT SCHEDULE

ITEM	QTY	SIZE	DESCRIPTION
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2	1	–	LIGHT SWITCH AND EXHAUST FAN SWITCH (CHLORINE ROOM)
3	1	–	"SUPERIOR" AUTOMATIC SWITCHOVER CHLORINATOR (OR APPROVED EQUAL)
4	1	–	"ATI" GAS SENSOR/GAS DETECTOR*
5	1	–	"SUPERIOR" SMARTVALVE GAS FEED REGULATOR*
6	1	–	420 CFM EXHAUST FAN w/GRAVITY BACKDRAFT DAMPER
7	2	–	DUAL SPARE CHLORINE CYLINDER STORAGE w/ STAINLESS STEEL CHAIN RESTRAINTS (w/ TANK WRENCH)
8	1	–	"SCALETRON" MODEL 2330 DUAL CYLINDER MANUAL SCALE*
9	1	SL11H (7 STAGE)	"SIMFLO" 1000 GPM VERTICAL TURBINE WELL PUMP, 200 HP, 1800 RPM, 450-FEET TDH (195 PSI), PUMP INTAKE 95' BGS.
10	1	8"ø	SMOOTH-NOSED SAMPLING TAP (MOUNTED HORIZONTALLY AS SHOWN) w/ "ASHCROFT" GLYCERIN FILLED PRESSURE GAUGE
11	1	8"ø x 2'-1"±	FL. x FL. CL-50 D.I.P. SPOOL PIECE w/ 1"ø THREADED PORT (A.R.V.)
12	1	1"ø	"FLOWMATIC" OR "VALMATIC" AIR RELIEF VALVE*
13	1	8"ø x 8"ø x 6"ø	FL. D.I. FLANGED REDUCING TEE
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28	1	6"ø x 10"ø	D.I. FL. 90° REDUCING BEND w/ #4 AND #14 MESH
29	1	8"ø x 3'1"±	FL. x P.E. CL-50 D.I.P.
30	2±	–	PIPE SUPPORT (SCREW-TYPE ADJUSTABLE)
31	1	12"ø	12"ø WELL CASING EXTENSION TO ELEVATION 4540.50 FT
32	2	–	ELECTRONIC PRESSURE GAUGE (0-300 PSI) w/ 4-20MA OUTPUT
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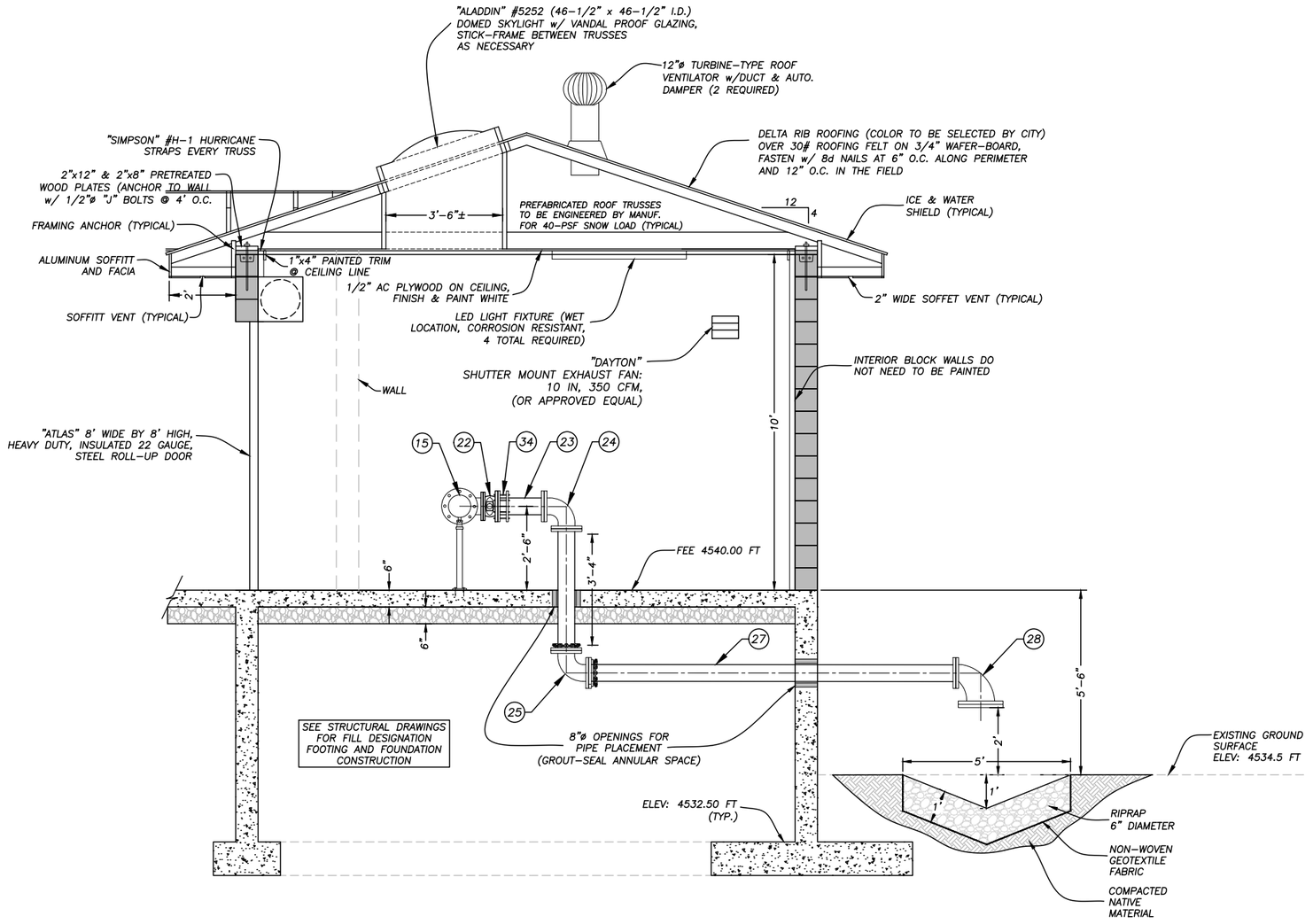
LOWER WELL IMPROVEMENT PROJECT

WELL CONTROL BUILDING
SECTION A- A

PROJECT NO: 014-13-0004-028
SHEET ID: P-4
DATE: 7-2022
PAGE NO: 8



WELL OPERATIONS BUILDING - SECTION B-B 4

SCALE 1" = 4'

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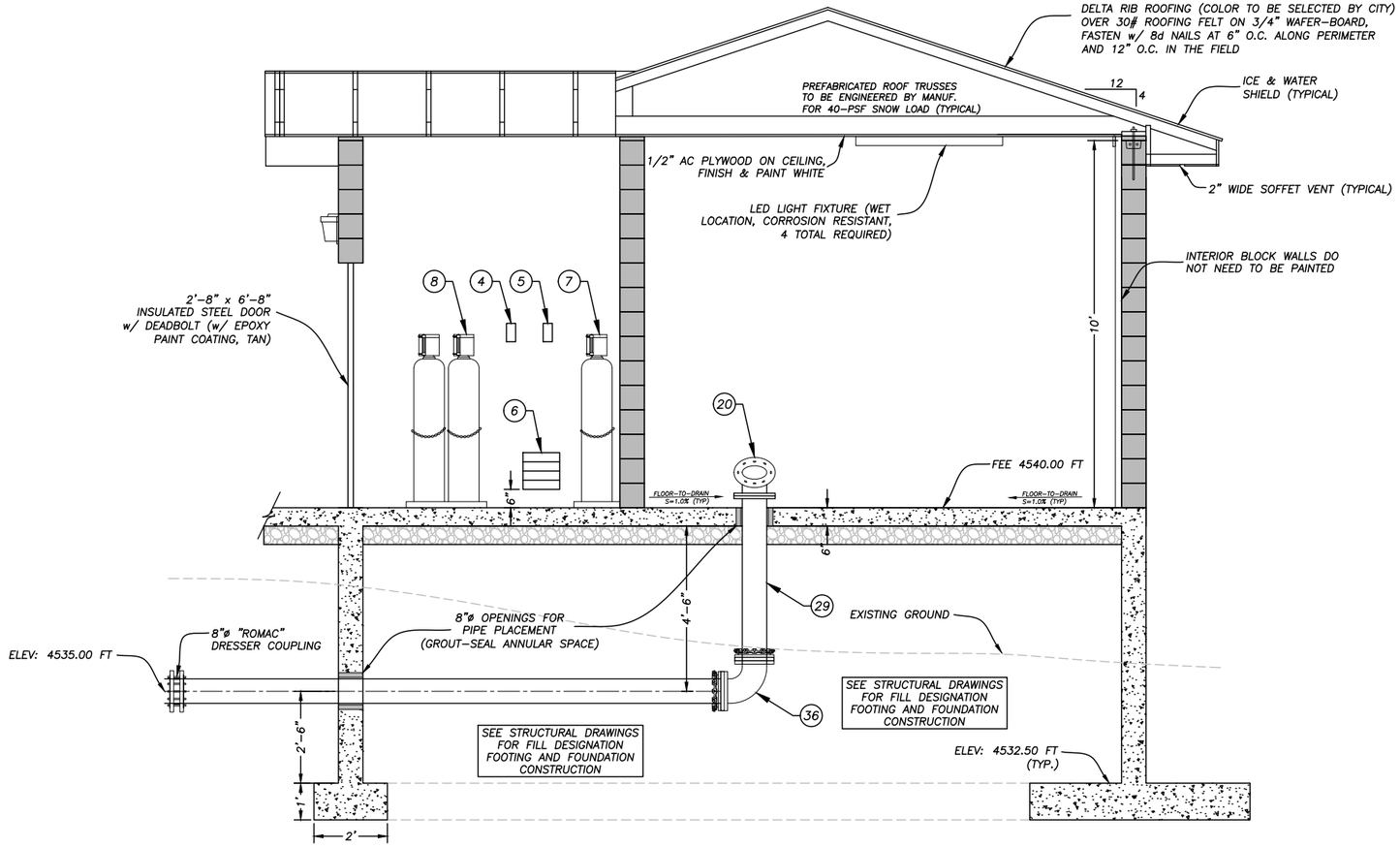
LOWER WELL IMPROVEMENT PROJECT

WELL CONTROL BUILDING
SECTION B- B

PROJECT NO: 014-13-0004-028
SHEET ID: P-5
DATE: 7-2022
PAGE NO: 9



WELL OPERATIONS BUILDING - SECTION C-C 5

SCALE 1" = 4'

GENERAL CONSTRUCTION REQUIREMENTS

1. ALL MATERIALS WHICH MAY COME IN CONTACT WITH DRINKING WATER SHALL BE ANSI-CERTIFIED TO MEET OR EXCEED NSF STANDARD 61, AND SHALL BE STAMPED THEREON TO INDICATE SUCH CERTIFICATION.
2. CONTRACTOR SHALL COVER AND EFFECTIVELY SEAL ALL OPEN ENDS OF PIPELINES AT THE END OF EACH DAY'S WORK.
3. ALL CONSTRUCTION SHALL COMPLY WITH THE LATEST INTERNATIONAL BUILDING CODE AND LOCAL BUILDING CODES, AND SHALL BE CONSISTENT WITH COMMON CONSTRUCTION PRACTICES OF THE TRADES.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL UTILITY COMPANIES PRIOR TO COMMENCING WORK IN THE PROJECT AREA.
5. THE CONTRACTOR SHALL INSTALL THRUST BLOCKS AT ALL ELBOWS, TEES, VALVES, ETC. PER APWA STANDARDS AND SPECIFICATIONS.

PIPE, FITTINGS AND EQUIPMENT SCHEDULE

ITEM	QTY	SIZE	DESCRIPTION
1	2	–	LIGHT SWITCH AND EXHAUST FAN SWITCH
2	1	–	LIGHT SWITCH AND EXHAUST FAN SWITCH (CHLORINE ROOM)
3	1	–	"SUPERIOR" AUTOMATIC SWITCHOVER CHLORINATOR (OR APPROVED EQUAL)
4	1	–	"ATI" GAS SENSOR/GAS DETECTOR*
5	1	–	"SUPERIOR" SMARTVALVE GAS FEED REGULATOR*
6	1	–	420 CFM EXHAUST FAN w/GRAVITY BACKDRAFT DAMPER
7	2	–	DUAL SPARE CHLORINE CYLINDER STORAGE w/ STAINLESS STEEL CHAIN RESTRAINTS (w/ TANK WRENCH)
8	1	–	"SCALETRON" MODEL 2330 DUAL CYLINDER MANUAL SCALE*
9	1	SL11H (7 STAGE)	"SIMFLO" 1000 GPM VERTICAL TURBINE WELL PUMP, 200 HP, 1800 RPM, 450-FEET TDH (195 PSI), PUMP INTAKE 95' BGS.
10	1	8"ø	SMOOTH-NOSED SAMPLING TAP (MOUNTED HORIZONTALLY AS SHOWN) w/ "ASHCROFT" GLYCERIN FILLED PRESSURE GAUGE
11	1	8"ø x 2'-1"±	FL. x FL. CL-50 D.I.P. SPOOL PIECE w/ 1"ø THREADED PORT (A.R.V.)
12	1	1"ø	"FLOWMATIC" OR "VALMATIC" AIR RELIEF VALVE*
13	1	8"ø x 8"ø x 6"ø	FL. D.I. FLANGED REDUCING TEE
14	1	8"ø x 1'-6"±	FL. x FL. CL-50 D.I.P. SPOOL PIECE w/ 1"ø THREADED PORT
15	1	8"ø	"MCCROMETER" UM06 FLOWMETER w/ DUAL 4-20MA ANALOG, DUAL DIGITAL w/ REMOTE WALL-MOUNTED DISPLAY (GPM & TOTALIZER)
16	1	8"ø	FL. x P.E. CL-50 D.I.P.
17	2	8"ø	"ROMAC" FLANGED COUPLING ADAPTER
18	1	8"ø	"FLOWMATIC" GLOBE CHECK VALVE*
19	1	8"ø	FL. GATE VALVE
20	2	8"ø	FL. x FL. 45° BEND (1 w/ 1/2"ø THREADED PORT)
21	1	TBD	CHLORINE DISINFECTION SYSTEM PRESSURE BOOSTER PUMP
22	1	6"ø	"BRAY" FL. BUTTERFLY VALVE w/ 120V ELECTRIC ACTUATOR (4-20MA)*
23	1	6"ø x 1'0"±	FL. x P.E. CL-50 D.I.P.
24	1	6"ø	FL. x FL. 90° BEND
25	1	6"ø	M.J. x M.J. 90° BEND (w/MEGA-LUG RESTRAINTS)
26	1	–	"DANFOSS" fc202-134f0369 200 HP VFD (SEE ELECTRICAL DRAWING)
27	1	6"ø x 10'9"±	FL. x P.E. CL-50 D.I.P.
28	1	6"ø x 10"ø	D.I. FL. 90° REDUCING BEND w/ #4 AND #14 MESH
29	1	8"ø x 3'1"±	FL. x P.E. CL-50 D.I.P.
30	2±	–	PIPE SUPPORT (SCREW-TYPE ADJUSTABLE)
31	1	12"ø	12"ø WELL CASING EXTENSION TO ELEVATION 4540.50 FT
32	2	–	ELECTRONIC PRESSURE GAUGE (0-300 PSI) w/ 4-20MA OUTPUT
33	1	12"ø	1-1/4"ø PVC DROP PIPE TO BE EXTENDED 100' BELOW FLOOR ELEVATION (FOR PRESSURE TRANSDUCER)
34	1	6"ø	"ROMAC" FLANGED COUPLING ADAPTER
35	2	–	12"x12" SQUARE FLOOR DRAIN (DRAIN-TO-DAYLIGHT)
36	1	8"ø	M.J. x M.J. 90° BEND (w/MEGA-LUG RESTRAINTS)

* OR AN APPROVED EQUAL

NO.	REVISIONS	BY	DATE
1	CLARIFICATIONS	ZLH	08/26

DRAWN EED/ZLH
DESIGNED EED/ZLH
APPROVED CN
QA

LICENSED PROFESSIONAL ENGINEER ERIC E. DURSTELER NO. 323794 01/04/23 STATE OF UTAH

ATTENTION
LINE IS 1-INCH
AT 11X17 SIZE
IF NOT 1-INCH, SCALE DRAWING ACCORDINGLY

River Heights CITY

CITY OF RIVER HEIGHTS
520 SOUTH 500 EAST
RIVER HEIGHTS, UTAH 84321

FORSGREN Associates Inc.
95 WEST 100 SOUTH, STE. 115, LOGAN, UT 84321
PH: 435.227.0333 FAX: 435.227.0334

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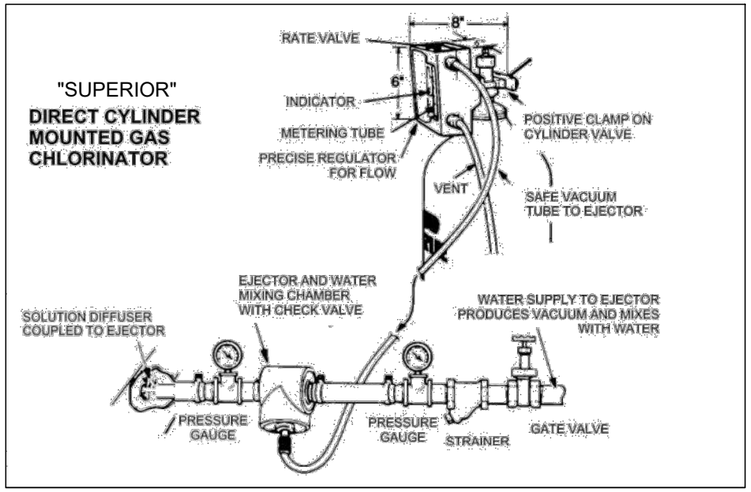
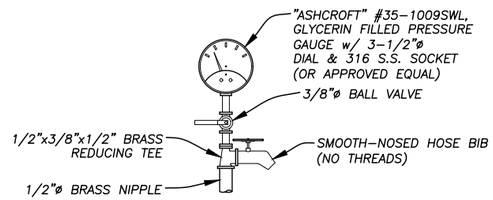
LOWER WELL IMPROVEMENT PROJECT

WELL CONTROL BUILDING
SECTION C- C

PROJECT NO: 014-13-0004-028
SHEET ID: P-6
DATE: 7-2022
PAGE NO: 10



~ FOR REFERENCE ONLY ~

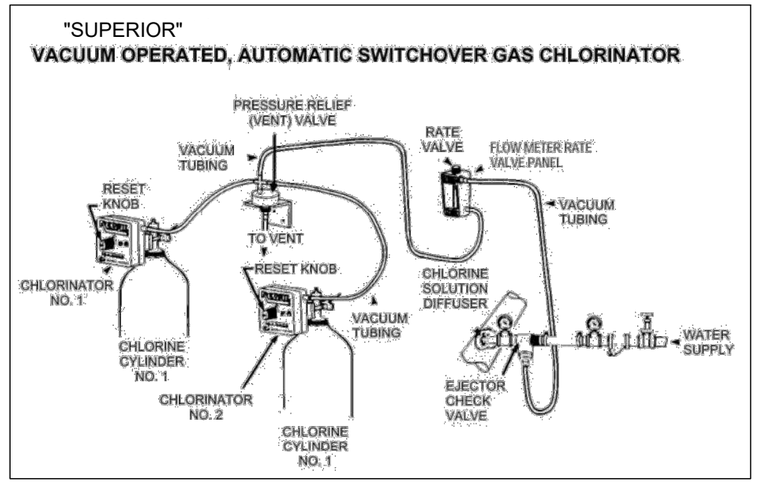


PRESSURE GAUGE REQUIREMENTS:

INLET PRESSURE SUSTAINING VALVE / EJECTOR CHECK VALVE:
1. *UPSTREAM – RANGE: 0-300 PSI w/SAMPLING TAP*
2. *DOWNSTREAM – RANGE: 0-300 PSI*

PRESSURE GAUGE / SAMPLING TAP 6

@WELLHEAD ITEM #10 NOT TO SCALE



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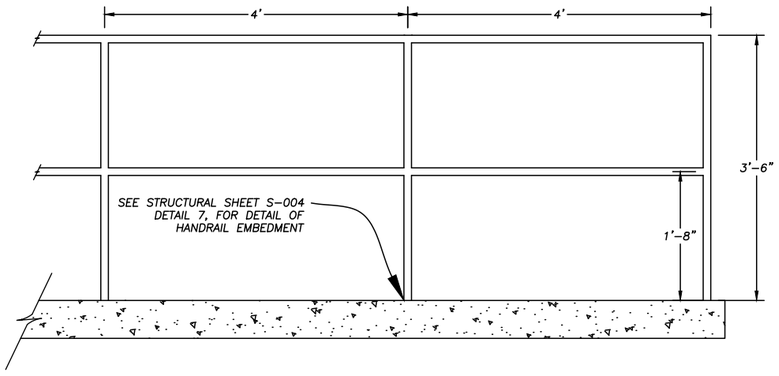

HANDRAIL DETAIL 6

NOT TO SCALE

GENERAL CONSTRUCTION NOTES:

1. *CONTRACTOR SHALL FIELD VERIFY ALL PIPE LENGTHS AND CONNECTION ANGLES PRIOR TO CONSTRUCTION OF JOINTS.*
2. *ALL MATERIALS WHICH MAY COME IN CONTACT WITH DRINKING WATER SHALL BE ANSI-CERTIFIED TO MEET OR EXCEED NSF STANDARD 61, AND SHALL BE STAMPED THEREON TO INDICATE SUCH CERTIFICATION.*
3. *CONTRACTOR SHALL BE AND/OR EMPLOY A CERTIFIED "SUPERIOR" GAS CHLORINATION SYSTEM CONTRACTOR TO FURNISH AND INSTALL THE GAS CHLORINATION SYSTEM COMPLETE AS TO FORM, FUNCTION, AND OPERATION. CONTRACTOR SHALL PROVIDE THE OWNER THE NECESSARY AND PRUDENT TRAINING AND INSTRUCTION ON OPERATION AND MAINTENANCE OF THE INSTALLED GAS CHLORINATION SYSTEM.*
4. *CONTRACTOR SHALL VERIFY THAT THE PUMP FOUNDATION AND BASE IS CONSTRUCTED TO PREVENT FLUIDS FROM COMING INTO CONTACT WITH JOINTS BETWEEN THE PUMP BASE AND THE CASTING.*

WATER LEVEL MEASUREMENTS:

CONTRACTOR SHALL INSTALL DROP TUBE FOR PLACEMENT OF LEVEL TRANSDUCER (TRANSDUCER TO BE FURNISHED AND INSTALLED BY CONTRACTOR 100 FEET BELOW FLOOR).

WELL HOUSE CONSTRUCTION U.A.C. R309 REQUIREMENTS:

1. *CASING THE PROJECTION ABOVE FLOOR. THE PERMANENT CASING FOR ALL GROUND WATER WELLS SHALL PROJECT AT LEAST 12 INCHES ABOVE THE PUMP HOUSE FLOOR OR CONCRETE APRON SURFACE AND AT LEAST 18 INCHES ABOVE THE FINAL GROUND SURFACE. HOWEVER, CASINGS TERMINATED IN UNDERGROUND VAULTS MAY BE PERMITTED IF THE VAULT IS PROVIDED WITH A "DRAIN-TO-DAYLIGHT" SIZED TO HANDLE IN EXCESS OF THE WELL FLOW AND SURFACE RUNOFF IS DIRECTED AWAY FROM THE VAULT ACCESS.*
2. *FLOOR DRAIN. WHERE A WELL HOUSE IS CONSTRUCTED, THE FLOOR SURFACE SHALL BE AT LEAST SIX INCHES ABOVE THE FINAL GROUND ELEVATION AND SHALL BE SLOPED TO PROVIDE DRAINAGE. A "DRAIN-TO-DAYLIGHT" SHALL BE PROVIDED UNLESS HIGHLY IMPRACTICAL.*
3. *EARTH BERM. SITES SUBJECT TO FLOODING SHALL BE PROVIDED WITH AN EARTH BERM TERMINATING AT AN ELEVATION AT LEAST TWO FEET ABOVE THE HIGHEST KNOWN FLOOD ELEVATION OR OTHER SUITABLE PROTECTION AS DETERMINED BY THE DIRECTOR*
4. *WELL CASING TERMINATION AT FLOOD SITES. THE TOP OF THE WELL CASING AT SITES SUBJECT TO FLOODING SHALL TERMINATE AT LEAST THREE FEET ABOVE THE 100-YEAR FLOOD LEVEL OR THE HIGHEST KNOWN FLOOD ELEVATION, WHICHEVER IS HIGHER (REFER TO R309-515-6(6)(B)(VI)).*
5. *THE WELL HOUSE SHALL BE VENTILATED, HEATED, AND LIGHTED IN SUCH A MANNER AS TO ASSURE ADEQUATE PROTECTION OF THE EQUIPMENT (REFER TO R309-540-5(2) (A) THROUGH (H)).*

NO.	REVISIONS	BY	DATE
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LICENSED PROFESSIONAL ENGINEER ERIC E. DURSTELER NO. 323794 01/04/23 STATE OF UTAH

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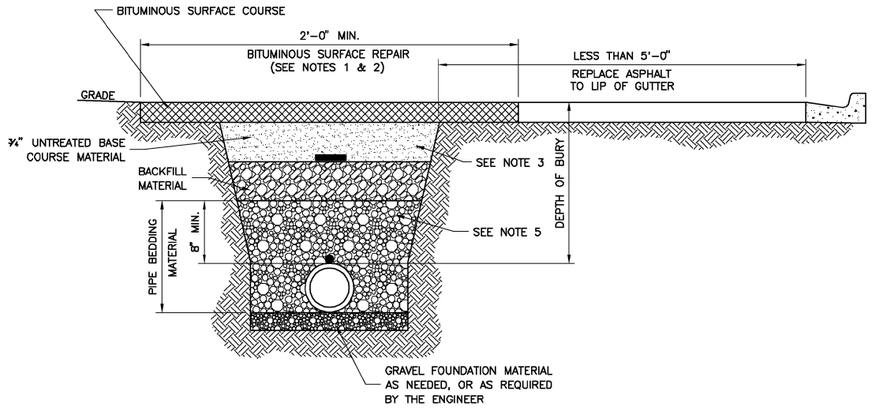
LOWER WELL IMPROVEMENT PROJECT

WELL CONTROL BUILDING GENERAL DETAILS

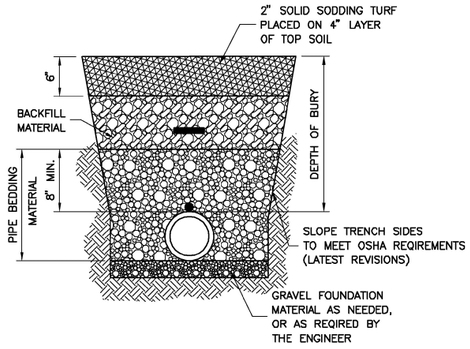
PROJECT NO: 014-13-0004-028
SHEET ID: D-1
DATE: 7-2022
PAGE NO: 11



BITUMINOUS SURFACE REPAIR/TRENCH SECTION

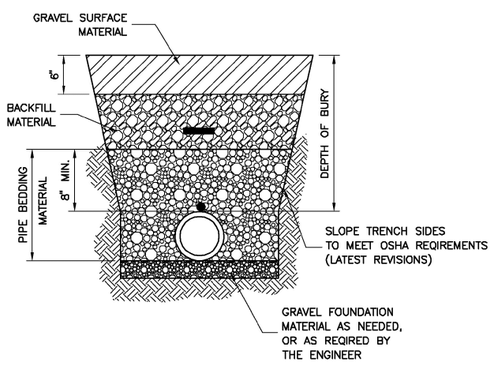
SCALE: N.T.S.

NOTES:
1. SAW CUT BITUMINOUS ASPHALT SURFACE 6" WIDER THAN TRENCH ON EACH SIDE FOR FINAL TRENCH REPAIR WHERE BITUMINOUS SURFACE EXISTS.
2. BITUMINOUS SURFACE IS TO BE 5" OR TO MATCH EXISTING THICKNESS, WHICHEVER IS GREATER FOR STATE ROADS & 3" OR MATCH EXISTING THICKNESS, WHICHEVER IS GREATER FOR OTHER ROADS.
3. FOR TRENCH REPAIR, ¾" UNTREATED BASE COURSE MATERIAL IS TO BE 12" OR TO MATCH EXISTING THICKNESS, WHICHEVER IS GREATER. FOR NEW ROAD CONSTRUCTION, ¾" UNTREATED BASECOURSE MATERIAL IS TO BE 10" MIN. OR AS DIRECTED BY THE ENGINEER. BASE COURSE TO BE COMPACTED TO 96% ASTM D-1557.
4. SLOPE TRENCH SIDES TO MEET OSHA SAFETY REGULATIONS. (LATEST REV.)
5. BACKFILL TO BE COMPACTED TO 96% ASTM D-1557 IN ROADWAYS AND 90% IN LANDSCAPED AREAS.



TURF SURFACE TRENCH SECTION

SCALE: N.T.S.

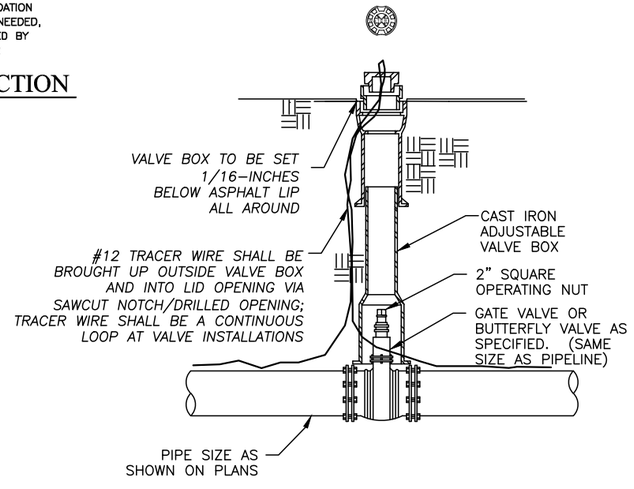


GRAVEL SURFACE TRENCH SECTION

SCALE: N.T.S.

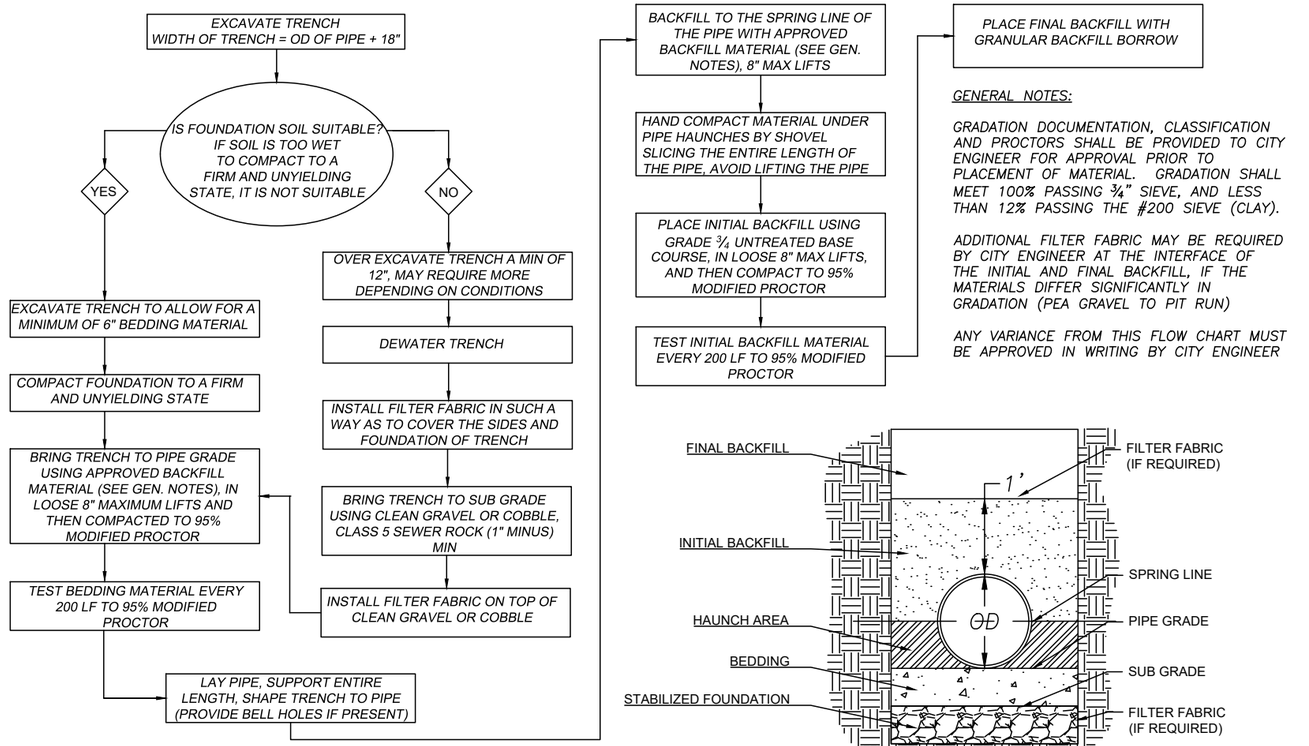
TYPICAL TRENCH SECTIONS

NOT TO SCALE — 7



TYPICAL VALVE DETAIL

NOT TO SCALE — 8



GENERAL NOTES:

GRADATION DOCUMENTATION, CLASSIFICATION AND PROCTORS SHALL BE PROVIDED TO CITY ENGINEER FOR APPROVAL PRIOR TO PLACEMENT OF MATERIAL. GRADATION SHALL MEET 100% PASSING ¾" SIEVE, AND LESS THAN 12% PASSING THE #200 SIEVE (CLAY).

ADDITIONAL FILTER FABRIC MAY BE REQUIRED BY CITY ENGINEER AT THE INTERFACE OF THE INITIAL AND FINAL BACKFILL, IF THE MATERIALS DIFFER SIGNIFICANTLY IN GRADATION (PEA GRAVEL TO PIT RUN)

ANY VARIANCE FROM THIS FLOW CHART MUST BE APPROVED IN WRITING BY CITY ENGINEER

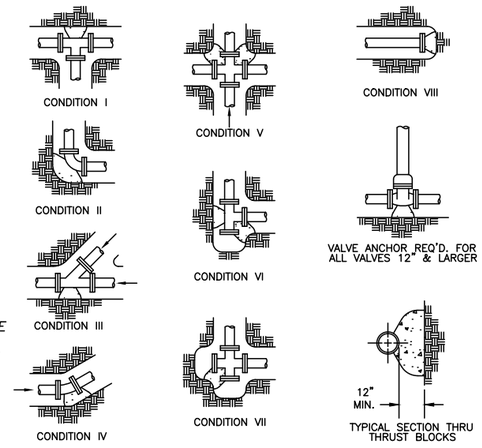
PIPE LAYING FLOW CHART

NOT TO SCALE — 9

THRUST BLOCK BEARING AREA IN SQ. FT.								
PIPE SIZE	CONDITION							
	I	II	III	IV	V	VI	VII	VIII
4	1.7	2.2	1.7	1.0	0.9	1.3	2.2	1.7
6	3.1	4.3	2.4	1.3	1.7	2.2	2.2	3.1
8	5.2	7.3	3.9	2.2	2.6	3.9	7.3	5.2
10	8.3	11.7	6.5	3.5	4.3	6.1	11.7	8.3
12	11.7	16.3	9.1	5.2	6.1	8.2	16.5	11.7
14	16.0	22.5	12.1	6.5	8.2	11.3	22.5	16.0
16	20.7	29.3	15.9	8.5	10.3	15.5	29.3	20.7
18	24.9	35.7	20.4	10.6	12.0	21.2	35.7	24.9

NOTES:

1. ALL THRUST BLOCK BEARING FACES SHALL BE POURED AGAINST UNDISTURBED SOIL OR APPROVED COMPACTED BACKFILL.
2. CONCRETE SHALL HAVE A 28 DAY AVERAGE COMPRESSIVE STRENGTH OF 2500 PSI. CALCULATED ON 150 LB. STATIC PRESSURE & ALLOWABLE BEARING PRESSURE OF 2000 LBS. PER SQ. FT.
3. IN POORER SOILS SPECIAL DESIGN IS REQ'D.
4. ALL THRUST BLOCK SIDES SHALL BE FORMED.
5. ALL FITTINGS REQUIRING THRUST BLOCKS SHALL BE COVERED WITH 8 MIL POLYETHYLENE COVER.



CURVE THRUST BLOCKING

NOT TO SCALE — 10

NO.	REVISIONS	BY	DATE
1	CLARIFICATIONS	ZLH	08/26

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DESIGNED EED/ZLH
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QA

ERIC E. DURSTELER NO. 323794 01/04/23 LICENSED PROFESSIONAL ENGINEER STATE OF UTAH

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LOWER WELL IMPROVEMENT PROJECT

WELL CONTROL BUILDING
GENERAL DETAILS

PROJECT NO: 014-13-0004-028
SHEET ID: D-2
DATE: 7-2022
PAGE NO: 12

GENERAL

1. ALL DESIGN, CONSTRUCTION, AND INSPECTION SHALL BE IN CONFORMANCE WITH THE 2018 INTERNATIONAL BUILDING CODE (IBC) AND REFERENCED STANDARDS.
2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AT THE SITE.
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.
4. DRAWINGS INDICATE THE FINISHED PRODUCT. THEY DO NOT INDICATE A METHOD OF CONSTRUCTION. CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH PRECAUTIONS SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING FOR CONSTRUCTION EQUIPMENT, ETC..
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPENSATING THE OWNER FOR ANY CHANGES MADE AS A RESULT OF A DEVIATION FROM THE CONTRACT DOCUMENTS, DEVIATION FROM THE SPECIFICATIONS, FAULTY MATERIALS, OR FAULTY WORKMANSHIP.
6. OPTIONS ARE FOR THE CONTRACTOR'S CONVENIENCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED DESIGN CHANGES. COST ASSOCIATED WITH ANY DESIGN WORK INITIATED BY THE OPTION SHALL BE BORN BY THE CONTRACTOR.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR SAFETY AND PROTECTION WITHIN AND ADJACENT TO THE JOB SITE.
8. TEMPORARY SHORING AND BRACING SHALL BE PROVIDED WHEREVER NECESSARY TO TAKE CARE OF ALL LOADS TO WHICH THE STRUCTURE MAY BE SUBJECTED INCLUDING WIND. SUCH BRACING SHALL BE LEFT IN PLACE AS LONG AS MAY BE REQUIRED FOR SAFETY OR UNTIL ALL THE STRUCTURAL ELEMENTS ARE COMPLETE.
9. DURING AND AFTER CONSTRUCTION THE CONTRACTOR AND/OR OWNER SHALL KEEP LOADS ON THE STRUCTURE WITHIN THE LIMITS OF THE DESIGN LOADS.
10. THE GENERAL CONTRACTOR SHALL HAVE SHOP DRAWINGS REVIEWED BY THE ENGINEER PRIOR TO FABRICATION OR ERECTION.
11. ALL DETAILS, SECTIONS, AND NOTES ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO SIMILAR SITUATIONS UNLESS NOTED OR SHOWN OTHERWISE.
12. REFER TO THE SPECIFICATIONS FOR ADDITIONAL INFORMATION NOT COVERED ON THE DRAWINGS.
13. OBSERVATION VISITS TO THE JOB SITE BY THE OWNER, ENGINEER OR FIELD REPRESENTATIVES OF THE ENGINEER SHALL NEITHER BE CONSTRUED AS INSPECTION NOR APPROVAL OF CONSTRUCTION.
14. SIZES, LOCATIONS, AND ANCHORAGE'S OF EQUIPMENT SHALL BE VERIFIED IN THE FIELD WITH EQUIPMENT MANUFACTURERS (SUPPLIERS) PRIOR TO PLACING CONCRETE OR FABRICATING STEEL.

DESIGN CRITERIA

THE FOLLOWING STRUCTURAL DESIGN LOADS APPLY U.N.O.:

ROOF LIVE LOAD . . . . . L_r = 20 PSF
ROOF DEAD LOAD . . . . . D_r = 20 PSF

STRUCTURE RISK CATEGORY IV

SNOW LOAD:
- GROUND SNOW LOAD. . . . . P_g = 40 PSF
- SNOW IMPORTANCE FACTOR. . . . . I_s = 1.2
- SNOW EXPOSURE FACTOR. . . . . C_e = 1.0
- SNOW THERMAL FACTOR . . . . . C_t = 1.1
- SNOW SLOPE FACTOR . . . . . C_s = 1.0
- FLAT ROOF SNOW LOAD. . . . . P_f = 37 PSF
- SLOPED ROOF SNOW LOAD . . . . . P_s = 37 PSF

WIND:
- BASIC WIND SPEED . . . . . V = 114 MPH (3-SECOND GUST)
- WIND EXPOSURE. . . . . B

SEISMIC:
- SEISMIC IMPORTANCE FACTOR. . . . . I_E = 1.5
- SPECTRAL RESPONSE ACCELERATION. . . . . S_S = 1.05
- SPECTRAL RESPONSE ACCELERATION. . . . . S_1 = 0.35
- SEISMIC SOIL SITE CLASS . . . . . D
- SPECTRAL RESPONSE COEFFICIENT . . . . . S_{DS} = 0.84
- SEISMIC DESIGN CATEGORY . . . . . D
- BASIC SEISMIC FORCE RESISTING SYSTEM:
  - SPECIAL REINFORCED MASONRY SHEAR WALLS
  - RESPONSE MODIFICATION COEFFICIENT. . . . . R = 5.0
  - OVERSTRENGTH FACTOR . . . . . Ω_0 = 2.5
- SEISMIC RESPONSE COEFFICIENT . . . . . .Cs = 0.25

SOILS:
- DESIGN BEARING CAPACITY = 1500 PSF (ASSUMED)

CONCRETE

1. ALL CONCRETE SHALL MEET THE REQUIREMENTS OF ACI-301, "SPECIFICATION FOR STRUCTURAL CONCRETE FOR BUILDINGS." PROPORTIONING OF INGREDIENTS FOR EACH CONCRETE MIX SHALL BE BY METHOD 2 OR THE ALTERNATE PROCEDURE GIVEN IN ACI-301. PLACE CONCRETE PER ACI-304 AND CONFORM TO ACI-604 (306) FOR COLD WEATHER PLACEMENT AND ACI-605 (305) FOR HOT WEATHER PLACEMENT, USE INTERIOR MECHANICAL VIBRATORS WITH 7,000 RPM MINIMUM FREQUENCY. DO NOT OVER-VIBRATE. CONCRETE SHALL BE PLACED MONOLITHICALLY BETWEEN CONSTRUCTION AND CONTROL JOINTS. PROTECT ALL CONCRETE FROM PREMATURE DRYING, EXCESSIVE HOT OR COLD TEMPERATURE FOR SEVEN DAYS AFTER PLACING.
2. STRENGTH
   TWENTY-EIGHT DAY COMPRESSIVE STRENGTH SHALL BE: f'c = 4000 PSI
   SLUMP: 4" + 1 INCH.
   MAX. WATER/CEMENT RATIO: 0.45
3. STRUCTURAL CONCRETE EXPOSURE CLASS: F2
4. MATERIALS
   CEMENT: ASTM 150, TYPE I.
   COARSE AND FINE AGGREGATE: ASTM C33.
   WATER SHALL BE CLEAN AND POTABLE.
5. ADMIXTURES

   WATER REDUCING ADMIXTURE: ASTM C494, ADMIXTURES SHALL BE USED IN EXACT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

   SYNERGIZED PERFORMANCE SYSTEMS: CONCRETE USING ADMIXTURES TO PRODUCE FLOWABLE CONCRETE MAY BE USED SUBJECT TO ENGINEER'S APPROVAL.
6. AIR ENTRAINMENT:ASTM C260 AND ASTM C494, ENTRAIN 6% PLUS/MINUS 1 1/2% BY VOLUME IN ALL EXPOSED CONCRETE.
7. NO OTHER ADMIXTURE PERMITTED UNLESS APPROVED BY THE ENGINEER OF RECORD.
8. THE FLATNESS AND LEVELNESS OF CONCRETE FLOORS SHALL BE MEASURED PER ASTM E 1155:STANDARD TEST METHOD FOR DETERMINING FLOOR FLATNESS AND LEVELNESS USING THE F-NUMBER SYSTEM.

   SPECIFIED OVERALL F-NUMBER FF 25/FL 20
   MINIMUM LOCAL F-NUMBER FF 15/FL 12
9. A STATEMENT OF MIX DESIGN FOR ALL CONCRETE SHALL BE SUBMITTED TO AND REVIEWED BY THE ENGINEER PRIOR TO COMMENCING WORK.
10. ALL CONCRETE WORK SHALL BE PLACED, CURED, STRIPPED, AND PROTECTED AS DIRECTED BY THE SPECIFICATIONS AND ACI STANDARDS AND PRACTICES.
11. DAMP PROOFING WILL NOT BE REQUIRED ON THE FOUNDATION WALLS.
12. DOWEL VERTICAL BARS THE DEVELOPMENT LENGTH INTO STRUCTURE ABOVE AND FOOTINGS BELOW. PROVIDE 90 DEGREE HOOK WHERE DEVELOPMENT LENGTH IS NOT POSSIBLE. LAP ALL REINF. IN CONCRETE THE LISTED LENGTH U.N.O.
13. BEFORE CONCRETE IS POURED CHECK WITH ALL TRADES TO ENSURE PROPER PLACEMENT OF ALL OPENINGS, SLEEVES, CURBS, CONDUITS, BOLTS, INSERTS, ETC. RELATIVE TO WORK.
14. ADD 2-#5 BARS MINIMUM AROUND ALL OPENINGS (UNLESS OTHERWISE NOTED) AND EXTEND 24" BEYOND CORNER OF OPENING.
15. REFER TO DRAWINGS FOR TYPICAL CONSTRUCTION JOINT DETAILS.
16. WHERE EXTERIOR SLABS ON GRADE ABUT FOUNDATIONS OR COLUMNS PROVIDE 3/8" PREFORMED EXPANSION JOINT WITH SEALANT.
17. CONTRACTOR SHALL SUBMIT A PLACEMENT PLAN FOR REVIEW INCLUDING ALL ITEMS EMBEDDED IN CONCRETE AND ALL CONCRETE PENETRATIONS.

FOOTINGS

1. EXTERIOR WALL FOOTINGS SHALL BEAR AT A MINIMUM DEPTH OF 30" BELOW FINISHED EXTERIOR GRADE.
2. NO GEOTECHNCAL REPORT HAS BEEN PREPARED. PLACE FOUNDATION ON NATIVE UNDISTURBED COMPETENT MATERIAL.
3. NO FOOTINGS SHALL BE PLACED IN WATER OR ON FROZEN GROUND.
4. ANY SOIL CONDITION ENCOUNTERED DURING EXCAVATION THAT IS CONTRARY TO THE CONDITIONS DESCRIBED ON THE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING.
5. WHERE 6" DIAMETER OR LARGER PIPE PASSES THROUGH AN INTERIOR OR EXTERIOR FOUNDATION WALL, STEP THE FOOTING DOWN TO PASS BELOW PIPE AND THEN STEP BACK UP TO INDICATED ELEVATION. PROVIDE PIPE SLEEVE THROUGH FOUNDATION WALL. PLACE BOTTOM OF PIPE SLEEVE 12" ABOVE TOP OF FOOTING.
6. COMPACT DISTURBED SOIL UNDER FOOTINGS TO AT LEAST 95% OF MAXIMUM DRY DENSITY AS DETERMINED BY (MODIFIED PROCTOR) ASTM D1557.

FORM WORK

1. FOLLOW RECOMMENDED PRACTICE FOR CONCRETE FORMWORK (ACI-347-14).
2. ALL SHORING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. FORMWORK SUPPORTS AND SHORING SHALL BE DESIGNED TO PROVIDE FINISHED CONCRETE SURFACES OF ALL FACES LEVEL, PLUMB, AND TRUE TO THE DIMENSIONS AND ELEVATIONS SHOWN. TOLERANCES AND VARIATIONS SHALL BE AS SPECIFIED.

REINFORCING STEEL

1. ALL REINFORCEMENT SHALL BE DETAILED AND PLACED IN ACCORDANCE WITH BP-66(04): ACI DETAILING MANUAL - 2004.
2. REINFORCING STEEL SHALL BE ASTM A615 GRADE 60. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A1064.
3. ALL REINFORCEMENT SHALL BE SECURELY TIED AND HELD IN PLACE.
4. REINFORCING BARS THAT ARE TO BE WELDED, INCLUDING DEFORMED BAR ANCHORS (D.B.A.) SHALL COMPLY WITH ASTM A706 OR ANOTHER APPROVED WELDABLE GRADE AND SHALL BE WELDED IN ACCORDANCE WITH THE A.W.S. RECOMMENDATIONS.
5. ALL CONTINUOUS REINFORCEMENT SHALL TERMINATE WITH A 90 DEG. TURN OR A SEPARATE CORNER BAR. ALL SPLICES IN CONCRETE SHALL LAP THE LISTED LAP LENGTH.
6. THE FOLLOWING CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT:
   A. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"
   B. ALL OTHER CONCRETE:2"
7. PRIOR TO FABRICATION AND PLACEMENT, SHOP DRAWINGS FOR ALL REINFORCING STEEL SHALL BE REVIEWED BY THE ENGINEER.
8. ALL BENDS, UNLESS OTHERWISE SHOWN, SHALL BE A 90 DEGREE STANDARD HOOK. REFER TO STANDARD CONCRETE HOOK DETAILS.
9. ALL WALL CORNER AND WALL INTERSECTION REINFORCEMENT BARS SHALL BE CONTINUOUS AROUND CORNERS AND THROUGH COLUMNS OR PILASTERS. REINFORCEMENT SHALL BE EXTENDED INTO CONNECTING WALLS AND LAPPED ON THE OPPOSITE FACE OF THE CONNECTING WALLS.

MASONRY

1. ALL MASONRY SHALL BE REINFORCED WITH BOTH HORIZONTAL AND VERTICAL REINFORCEMENT. ALL BLOCK CELLS WITH REINFORCEMENT SHALL BE GROUTED FULL USING 2000 PSI GROUT. CELLS SHALL BE ALIGNED TO PRESERVE UNOBSTRUCTED VERTICAL CAVITIES OF 2" x 3" MINIMUM.
2. GROUT FOR BLOCK FILL SHALL HAVE 3/8 INCH MAXIMUM SIZE COURSE AGGREGATE AND SUFFICIENT WATER SO THE CONCRETE WILL FLOW INTO THE BLOCK CELLS WITHOUT LEAVING VOIDS. WHERE BEAMS BEAR ON CONCRETE BLOCK WALLS. BLOCK CELLS SHALL BE FILLED WITH CONCRETE 1' -4" WIDE TO FOUNDATION AND REINFORCED WITH A #5 BAR AT EACH CELL, UNLESS OTHERWISE SHOWN.
3. ADDITIONAL VERTICAL BARS (MATCHING WALL REINFORCEMENT) SHALL BE PLACED AT EACH CORNER, END OF WALL, EACH SIDE OF JOINTS AND JAMB OF ALL OPENINGS.
4. ALL STEEL BEAM POCKETS IN MASONRY SHALL BE GROUTED SOLID UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
5. HORIZONTAL BARS SHALL BE PLACED IN BOND BEAMS FILLED WITH GROUT AT THE TOP OF ALL WALLS AND AT 48" O.C. MAXIMUM BETWEEN TOP OF WALL AND FOUNDATION. ALL HORIZONTAL REINFORCING SHALL TERMINATE WITH A STANDARD 180 DEGREE HOOK AROUND VERTICAL REINFORCING. BOND BEAM UNITS AND REINFORCING SHALL CONTINUE UNINTERRUPTED AROUND ALL CORNERS AND WALL INTERSECTIONS. WHERE STRUCTURAL STEEL COLUMNS OR BEAMS INTERRUPT THE CONTINUITY OF A BOND BEAM, DOWELS MATCHING BOND BEAM REINFORCEMENT SHALL BE WELDED TO THE STRUCTURAL STEEL TO PROVIDE CONTINUITY.
6. ALL VERTICAL REINFORCING BARS SHALL BE DOWELED TO STRUCTURE BELOW WITH BARS OF SAME SIZE AND SPACING. LAP ALL SPLICES IN MASONRY PER REBAR SCHEDULE. PLACE ALL BARS SECURELY PRIOR TO GROUTING.
7. MASONRY REINFORCEMENT: THE MINIMUM REINFORCEMENT FOR ALL MASONRY WALLS SHALL BE AS FOLLOWS:
   8 IN. WALLS: #5 @ 32 IN. O.C. IN VERTICAL GROUTED CELLS & (2) #4 @ 48 IN. O.C. IN BLOCK UNIT HORIZONTALLY GROUTED.
8. CONCRETE MASONRY UNITS SHALL BE LIGHT WEIGHT UNITS CONFORMING TO ASTM C90 AND SHALL HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 2000 PSI (f'm = 2000 PSI) ON THE NET SECTION.
9. MORTAR SHALL BE TYPE "S", CONFORM TO A.S.T.M. C270, AND SHALL HAVE THE FOLLOWING PROPORTIONS BY VOLUMES:

   PORTLAND CEMENT . . . . . 1 PART
   HYDRATED LIME . . . . . 1/4 - 1/2 PART DAMP.
   DAMP. LOOSE AGGREGATE. . . . . NOT LESS THAN 2-1/4 & NOT MORE THAN (3) TIMES THE SUM OF CEMENT AND LIME USED.
10. STOP GROUT POURS 1/2" BELOW TOP OF BLOCK UNITS.
11. ALL ANCHOR BOLTS MUST BE PLACED IN GROUTED CELLS.
12. NO MASONRY SHALL BE LAID WHEN THE TEMPERATURE OF THE OUTSIDE AIR IS BELOW 40 DEG. F., UNLESS APPROVED METHODS ARE USED DURING CONSTRUCTION TO PREVENT DAMAGE TO THE MASONRY. SUCH METHODS SHALL INCLUDE PROTECTION OF THE MASONRY FOR A PERIOD OF AT LEAST 48 HOURS.
13. ALL REINFORCING SHALL BE IN PLACE PRIOR TO GROUTING. VERTICAL REINFORCING BARS SHALL BE HELD IN POSITION AT THE TOP, BOTTOM AND AT INTERVALS NOT FARTHER APART THAN 200 BAR DIAMETERS. PROVIDE WIRE TIES AT ALL LAP SPLICES.

WOOD FRAMING

1. REFER TO STRUCTURAL DRAWINGS AND SPECIFICATIONS FOR DETAILS, ADDITIONAL NOTES AND SCHEDULES PERTAINING TO PLYWOOD ROOF.
2. STRUCTURAL FRAMING LUMBER SHALL BE CLEARLY MARKED AND MEET THE FOLLOWING MINIMUM GRADES AS DEFINED BY THE 2018 EDITION OF THE NATIONAL DESIGN SPECIFICATION:

   A. 2" TO 4" THICK
   5" AND WIDER: DOUGLAS FIR-LARCH GRADE NO.2
1. ALL NAILS SPECIFIED ON DETAILS OR SCHEDULED SHALL BE COMMON STEEL WIRE NAILS (COATED) UNLESS NOTED OTHERWISE AND SHALL COMPLY WITH REQUIREMENTS OF ASTM F 1667 AND IBC SECTION 2303.6.

NAIL SIZE	SHANK DIAMETER	MIN. PENETRATION INTRO SUPPORTED MEMBER
6d	0.113"	1.25"
8d	0.131"	1.50"
10d	0.148"	1.63"
12d	0.148"	1.63"
16d	0.162"	1.75"

2. HOLES FOR NAILS, WHERE NECESSARY TO PREVENT SPLITTING, SHALL BE BORED OF A DIAMETER SMALLER THAN THAT OF THE NAILS.
3. ALL JOISTS AND BEAM HANGERS, FRAMING ANCHORS, STRAP TIES, AND OTHER METAL FASTENERS FOR WOOD FRAMING SHALL BE SIMPSON BRAND (OR EQUIV.).
4. UNLESS NOTED OTHERWISE, ANCHOR ALL TRUSSES, RAFTERS AND JOISTS TO SUPPORTS WITH GALVANIZED FRAMING ANCHORS.
5. UNLESS NOTED OTHERWISE, PROVIDE 2x CONTINUOUS BLOCKING BETWEEN MAIN MEMBERS AT ALL RIDGES, HIPS AND VALLEYS.
6. NAILING AND CONNECTION SHALL BE IN CONFORMANCE W/ IBC AND AITC. REFER TO IBC 2018, TABLE 2304.10.1 FOR FASTENING SCHEDULE.
7. ALL BOLTS FOR STRUCTURAL WOOD CONNECTIONS SHALL BE ASTM A307 BOLTS.
8. P.T. LUMBER SHALL BE IN CONFORMANCE WITH IBC SECTION 2303.1.9
9. NAILS IN CONTACT WITH P.T. LUMBER SHALL BE STAINLESS STEEL.
10. WOOD SHEATHING SHALL MEET THE RATING REQUIREMENTS OF THE APA FOR EXPOSURE 1 AND SHALL CONFORM TO THE REQUIREMENTS FOR ITS TYPE IN USDOC PC1 OR USDOC PS2. THE PANELS MUST BE IDENTIFIED BY THE TRADEMARKS OF THE APPROVING TESTING AND INSPECTION AGENCY. WOOD SHEATHING SPAN RATINGS FOR THE CORRESPONDING THICKNESS ARE LISTED BELOW. SEE NOTES AND SCHEDULES FOR SHEATHING THICKNESS REQUIREMENTS.
    7/16" THICK - 24/16 SPAN RATING
    15/32" THICK - 32/16 SPAN RATING
    19/32" THICK - 40/20 SPAN RATING
    23/32" THICK - 48/24 SPAN RATING

PLYWOOD DIAPHRAGM FASTENERS

1. SUBSTITUTION OF FASTENERS OTHER THAN THOSE SPECIFIED IN THE STRUCTURAL NOTES OR THE PLYWOOD DIAPHRAGM SCHEDULE IS NOT ALLOWED.
2. NAILS SHALL BE PLACED NOT LESS THAN 3/8" FROM THE EDGE OF PLYWOOD PANELS. STAGGER NAILS EACH SIDE OF PANEL EDGE.
3. AT ROOF DIAPHRAGM, APPLY NAILS AT PANEL EDGE SPACING TO ALL, BLOCKING OVER WALLS, AND ANY OTHER SPECIAL DIAPHRAGM MEMBERS NOTED ON PLANS.
4. AT PLYWOOD SHEAR WALLS, APPLY NAILS AT PANEL EDGE SPACING TO TOP AND BOTTOM PLATES, END POSTS, ALL VERTICAL ELEMENTS AT HOLD DOWN ANCHORS, AND HORIZONTAL BLOCKING.
5. ALL PANEL EDGES OF PLYWOOD SHEAR WALLS MUST BE BLOCKED WITH 2x4 MIN.
6. NAILS SHALL BE COATED AND SHALL COMPLY WITH THE REQUIREMENTS OF ASTM F 1667 NLCMS AND IBC SECTION 2303.6.

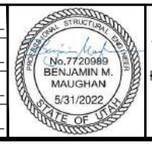
SHOP DRAWINGS

SUBMIT SHOP DRAWINGS TO THE ENGINEER OF RECORD FOR THE FOLLOWING:

1. REINFORCING STEEL FOR MASONRY AND CONCRETE.
2. PRE-MANUFACTURED WOOD TRUSSES w/ DESIGN CALCULATIONS AND DRAWINGS STAMPED BY A LICENSED PROFESSIONAL ENGINEER.
3. STEEL ANGLE WALL ANCHORS.

NO.	REVISIONS	BY	DATE
1			

DRAWN ZH
DESIGNED ZH
APPROVED BM
QA KD



ATTENTION
LINE IS 1-INCH
AT 11X17 SIZE
IF NOT 1-INCH,
SCALE DRAWING ACCORDINGLY

River Heights CITY

CITY OF RIVER HEIGHTS
520 SOUTH 500 EAST
RIVER HEIGHTS, UTAH 84321

FORSGREN Associates Inc.
95 WEST 100 SOUTH, STE. 115, LOGAN, UT 84321
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LOWER WELL IMPROVEMENT PROJECT

GENERAL NOTES AND SPECIFICATIONS

PROJECT NO: 014-13-0004-028
SHEET ID: S-001
DATE: 5-2022
PAGE NO: 13

QUALITY ASSURANCE PLAN

1. SPECIAL INSPECTION SHALL BE PROVIDED ACCORDING TO IBC CHAPTER 17 FOR THE ITEMS IDENTIFIED IN THIS SECTION AND ON THE CONTRACT DOCUMENTS.
2. THE NAMES AND CREDENTIALS OF SPECIAL INSPECTORS TO BE USED SHALL BE SUBMITTED TO THE BUILDING DEPARTMENT WHEN APPLYING FOR A BUILDING PERMIT.
3. SPECIAL INSPECTION REPORTS SHALL BE DELIVERED TO THE OWNER BI-WEEKLY OR MORE FREQUENTLY AS REQUIRED BY THE INSPECTOR OR BUILDING OFFICIAL.
4. OFF-SITE FABRICATION: WHERE FABRICATION OF STRUCTURAL LOAD-BEARING MEMBERS AND ASSEMBLIES IS BEING PERFORMED ON THE PREMISES OF A FABRICATORS SHOP, SPECIAL INSPECTION OF THE FABRICATED ITEMS SHALL BE IN ACCORDANCE WITH IBC SECTION 1704.2.5 UNLESS THE FABRICATOR IS APPROVED ACCORDING TO IBC SECTION 1704.2.5.1.
5. CONCRETE CONSTRUCTION: SPECIAL INSPECTIONS AND VERIFICATIONS SHALL BE PROVIDED IN ACCORDANCE WITH TABLE 1705.3.
6. MASONRY CONSTRUCTION: LEVEL 3 SPECIAL INSPECTION SHALL BE PROVIDED FOR MASONRY CONSTRUCTION IN ACCORDANCE WITH SECTION TMS 402/602-16 TABLES 3 & 4.
7. SOILS: SPECIAL INSPECTION SHALL BE PROVIDED FOR PLACEMENT OF FILL 12 INCHES OR MORE DEEP IN ACCORDANCE WITH SECTION 1705.6.
8. ADHESIVE ANCHORS: PRIOR TO AND DURING ADHESIVE INJECTION TO INSURE PROPER INSTALLATION AS PER MANUFACTURERS REQUIREMENTS. CONTRACTOR SHALL SUBMIT PROPOSED ADHESIVE MANUFACTURERS EVALUATION REPORT TO ENGINEER PRIOR TO INSTALLATION.

QUALITY ASSURANCE CONTRACTOR RESPONSIBILITY

EACH CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OF A SEISMIC-FORCE-RESISTING SYSTEM, DESIGNATED SEISMIC SYSTEM, OR COMPONENT LISTED IN THE QUALITY ASSURANCE PLAN SHALL SUBMIT A WRITTEN CONTRACTOR'S STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND TO THE OWNER PRIOR TO THE COMMENCEMENT OF WORK ON THE SYSTEM OR COMPONENT IN ACCORDANCE WITH IBC SECTION 1704.4. THE CONTRACTOR'S STATEMENT OF RESPONSIBILITY SHALL CONTAIN THE FOLLOWING:

A. ACKNOWLEDGMENT OF AWARENESS OF THE SPECIAL REQUIREMENTS CONTAINED IN THE QUALITY ASSURANCE PLAN.

B. ACKNOWLEDGMENT THAT CONTROL WILL BE EXERCISED TO OBTAIN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS APPROVED BY THE BUILDING OFFICIAL.

C. PROCEDURES FOR EXERCISING CONTROL WITHIN THE CONTRACTOR'S ORGANIZATION, THE METHOD AND FREQUENCY OF REPORTING, AND THE DISTRIBUTION OF REPORTS.

D. IDENTIFICATION AND QUALIFICATIONS OF THE PERSON(S) EXERCISING SUCH CONTROL AND THE POSITION(S) IN THE ORGANIZATION.

STRUCTURAL OBSERVATIONS

1. STRUCTURAL OBSERVATION SHALL BE PROVIDED BY A REGISTERED DESIGN PROFESSIONAL AT THE COMPLETION OF CRITICAL STRUCTURAL COMPONENTS AS DESCRIBED BELOW.
2. PRIOR TO THE COMMENCEMENT OF OBSERVATIONS THE STRUCTURAL OBSERVER SHALL SUBMIT TO THE BUILDING OFFICIAL A WRITTEN STATEMENT IDENTIFYING THE FREQUENCY AND EXTEND OF STRUCTURAL OBSERVATIONS.
3. AT THE CONCLUSION OF THE WORK THE STRUCTURAL OBSERVER SHALL SUBMIT TO THE BUILDING OFFICIAL A WRITTEN STATEMENT THAT THE SITE VISITS HAVE BEEN MADE AND IDENTIFY AN REPORTED DEFICIENCIES THAT, TO THE BEST OF THE STRUCTURAL OBSERVER'S KNOWLEDGE, HAVE NOT BEEN RESOLVED.
4. STRUCTURAL OBSERVATION REPORTS SHALL BE SHALL BE PROVIDED TO THE ARCHITECT, STRUCTURAL ENGINEER OF RECORD AND, WHERE REQUIRED, THE BUILDING OFFICIAL.
5. PROVIDE STRUCTURAL OBSERVATION AT THE FOLLOWING CONSTRUCTION STAGES:
   5.1. FOOTING REINFORCING, RETAINING WALL REINFORCING, MASONRY WALL REINFORCING, WOOD SHEAR WALLS, WOOD ROOF DIAPHRAGMS, AND STEEL ANGLE WALL ANCHORS.

TABLE 1705.3 REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD	IBC REFERENCE
1. INSPECTION OF REINFORCING STEEL, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT.	--	X	ACI 318 CH. 20, 25.2, 25.3, 26.6.1-26.6.3	1908.4
2. INSPECT ANCHORS CAST IN CONCRETE.	--	X	ACI 318:17.8.2	--
3. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS.				
a. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS.	X	--	ACI 318:17.8.2.4	--
b. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 3.a.	--	X	ACI 318: 17.8.2	--
4. VERIFYING USE OF REQUIRED DESIGN MIX.	--	X	ACI 318: CH. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
5. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	--	ASTM C172, ASTM C31, ACI 318: 26.4, 26.12	1908.10
6. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	--	ACI 318: 26.5	1908.6, 1908.7, 1908.8
7. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	--	X	ACI 318: 26.5.3-26.5.5	1908.9
8. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	--	X	ACI 318: 26.11.1.2(b)	--

TABLE 1705.6 REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS

VERIFICATION AND INSPECTION	CONTINUOUS DURING TASK LISTED	PERIODICALLY DURING TASK LISTED
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	--	X
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	--	X
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.	--	X
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X	--
5. PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	--	X

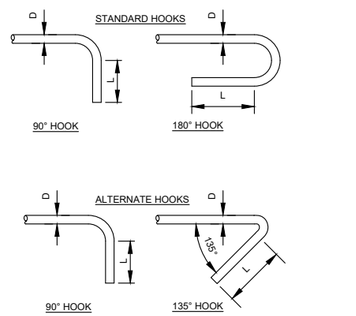
MASONRY STANDARD HOOKS

BAR SIZE (D)	L STANDARD 90°	L STANDARD 180°	L ALTERNATE 90°	L ALTERNATE 135°	MIN. BEND DIAMETER
#3	4 1/2"	2 1/2"	2 1/4"	2 1/4"	2 1/4"
#4	6"	2 1/2"	3"	3"	3"
#5	7 1/2"	2 1/2"	3 3/4"	3 3/4"	3 3/4"
#6	9"	3"	4 1/2"	4 1/2	4 1/2"
#7	10 1/2"	3 1/2"	5 1/4"	5 1/4	5 1/4"
#8	12"	4"	6"	6"	6"

MASONRY REBAR SPLICE SCHEDULE

BAR SIZE	#3	#4	#5	#6
SINGLE MAT	15"	24"	30"	36"

NOTES:
1. f'm=1500 PSI, fy=60,000 PSI.
2. DOUBLE MAT REINF. SHALL HAVE 2" CLEARANCE BETWEEN FACE OF WALL & EDGE OF VERT. BAR.



NOTES:
1. STANDARD HOOKS SHALL BE AROUND A PERPENDICULAR BAR, U.N.O. ON DRAWINGS.
2. ALT. HOOKS ARE ONLY ALLOWED FOR MASONRY COLUMN TIES AND BEAM STIRRUPS.
3. COLUMN TIES SHALL BE 180° STANDARD OR 135° ALTERNATE HOOK.
4. BEND DIAMETER IS MEASURED FROM INSIDE FACE OF REINFORCING.

TMS 402/602-16, TABLE 3 - MINIMUM VERIFICATION REQUIREMENTS

MINIMUM VERIFICATION	REQUIRED FOR QUALITY ASSURANCE			REFERENCE FOR CRITERIA
VERIFICATION AND INSPECTION	LEVEL 1	LEVEL 2	LEVEL 3	TMS 602
PRIOR TO CONSTRUCTION, VERIFICATION OF COMPLIANCE OF SUBMITTALS	NR	R	R	ART. 1.5
PRIOR TO CONSTRUCTION, VERIFICATION OF f'_m AND f'_{AAC} EXCEPT WHERE SPECIFICALLY EXEMPTED NY THIS CODE	NR	R	R	ART. 1.4 B
DURING CONSTRUCTION, VERIFICATION OF SLUMP FLOW AND VISUAL STABILITY INDEX (VSI) WHEN SELF-CONSOLIDATING GROUT IS DELIVERED TO THE PROJECT SITE.	NR	NR	R	ART. 1.5 & 1.6.3
PRIOR TO CONSTRUCTION, VERIFICATION OF f'_m AND f'_{AAC} FOR EVERY 5,000 SQ.	NR	NR	R	ART. 1.4 B
DURING CONSTRUCTION, VERIFICATION OF PROPORTIONS OF MATERIALS AS DELIVERED TO THE PROJECT SITE FOR PREMIXED OR PREBLENDED MORTAR, PRESSTRESSING GROUT, AND GROUT OTHER THAN SELF-CONSOLIDATING GROUT.	NR	NR	R	ART. 1.4 B

R= REQUIRED, NR- NOT REQUIRED.

TMS 402/602-16, TABLE 4 - MINIMUM SPECIAL INSPECTIONS REQUIREMENTS

MINIMUM SPECIAL INSPECTIONS					
INSPECTION TASK	FREQUEMCY [a]			REFERENCE FOR CRITERIA	
	LEVEL 1	LEVEL 2	LEVEL 3	TMS 402	TMS 602
1. AS MASONRY CONSTRUCTION BEGINS, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:					
A. PROPORTIONS OF SITE-PREPARED MORTAR.	NR	P	P	--	ART. 2.1, 2.6 A, & 2.6 C
B. GRADE AND SIZE OF PRESTRESSING TENDONS AND ANCHORAGES	NR	P	P	--	ART. 2.4 B, 2.4 H
C. GRADE, TYPE AND SIZE OF REINFORCEMENT, CONNECTORS, ANCHOR BOLTS, AND PRESTRESSING TENDONS AND ANCHORAGES.	NR	P	P	--	ART. 3.4, 3.6 A
D. PRESTRESSING TECHNIQUE	NR	P	P	--	ART. 3.6 B
E. PROPERTIES OF THIN-BED MORTAR FOR AAC MASONRY	NR	C [b]/P[c]	C	--	ART. 2.1 C.1
F. SAMPLE PANEL CONSTRUCTION	NR	P	C	--	ART. 1.6 D
2. PRIOR TO GROUTING, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:					
A. GROUT SPACE	NR	P	C	--	ART. 3.2 D, 3.2 F
B. PLACEMENT OF PRESTRESSING TENDONS AND ANCHORAGES.	NR	P	P	SEC. 10.8 & 10.9	ART. 2.4, 3.6
C. PLACEMENT OF REINFORCEMENT, CONNECTORS, AND ANCHOR BOLTS	NR	P	C	SEC. 6.1, 6.3.1, 6.3.6, 6.3.7	ART. 3.2 E & 3.4
D. PROPORTIONS OF SITE-PREPARED GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS.	NR	P	P	--	ART. 2.6 B, 2.4 G.1.b
3. VERIFY COMPLIANCE OF THE FOLLOWING DURING CONSTRUCTION:					
A. MATERIALS AND PROCEDURES WITH THE APPROVED SUBMITTALS.	NR	P	P	--	ART. 1.5
B. PLACEMENT OF MASONRY UNITS AND MORTAR JOINT CONSTRUCTION.	NR	P	P	--	ART. 3.3 B
C. SIZE AND LOCATION OF STRUCTURAL MEMBERS	NR	P	P	--	ART. 3.3 F
D. TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION.	NR	P	P	SEC. 1.2.1(e), 6.2.1, 6.3.1	--
E. WELDING OF REINFORCEMENT	NR	C	C	SEC. 6.1.6.1.2	--
F. PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40°F) OR HOT WEATHER (90°F).	NR	P	P	--	ART. 1.8 C, 1.8 D
G. APPLICATION AND MEASUREMENT OF PRESTRESSING FORCE.	NR	C	C	--	ART. 3.6 B
H. PLACEMENT OF GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS IS IN COMPLIANCE.	NR	C	C	--	ART. 3.5, 3.6 C
I. PLACEMENT OF AAC MASONRY UNITS AND CONSTRUCTION OF THIN-BED MORTAR JOINTS.	NR	C [b]/P[c]	C	--	ART. 3.3 B.9, 3.3 F.1.b
4. OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS.	NR	P	C	--	ART. 1.4 B.2.a.3, 1.4 B.2.b.3, 1.4 B.2.c.3, 1.4 B.3, 1.4 B.4

(a) FREQUENCY REFERS TO THE FREQUENCY OF INSPECTION, WHICH MAY BE CONTINUOUS DURING THE LISTED TASK OR PERIODICALLY DURING THE LISTED TASK, AS DEFINED IN THE TABLE.

(b) REQUIRED FOR THE FIRST 5000 SQUARE FEET OF AAC MASONRY.

(c) REQUIRED AFTER THE FIRST 5000 SQUARE FEET OF AAC MASONRY.

NO.	REVISIONS	BY	DATE
1			

DRAWN ZH
DESIGNED ZH
APPROVED BM
QA KD

PROFESSIONAL STRUCTURAL ENGINEER — No.7720989 — BENJAMIN M. MAUGHAN — 5/31/2022 — STATE OF UTAH

ATTENTION
LINE IS 1-INCH
AT 11X17 SIZE
IF NOT 1-INCH, SCALE DRAWING ACCORDINGLY

River Heights CITY

CITY OF RIVER HEIGHTS
520 SOUTH 500 EAST
RIVER HEIGHTS, UTAH 84321

FORSGREN Associates Inc.
95 WEST 100 SOUTH, STE. 115, LOGAN, UT 84321
PH: 435.227.0333 FAX: 435.227.0334

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LOWER WELL IMPROVEMENT PROJECT

GENERAL NOTES AND SPECIFICATIONS

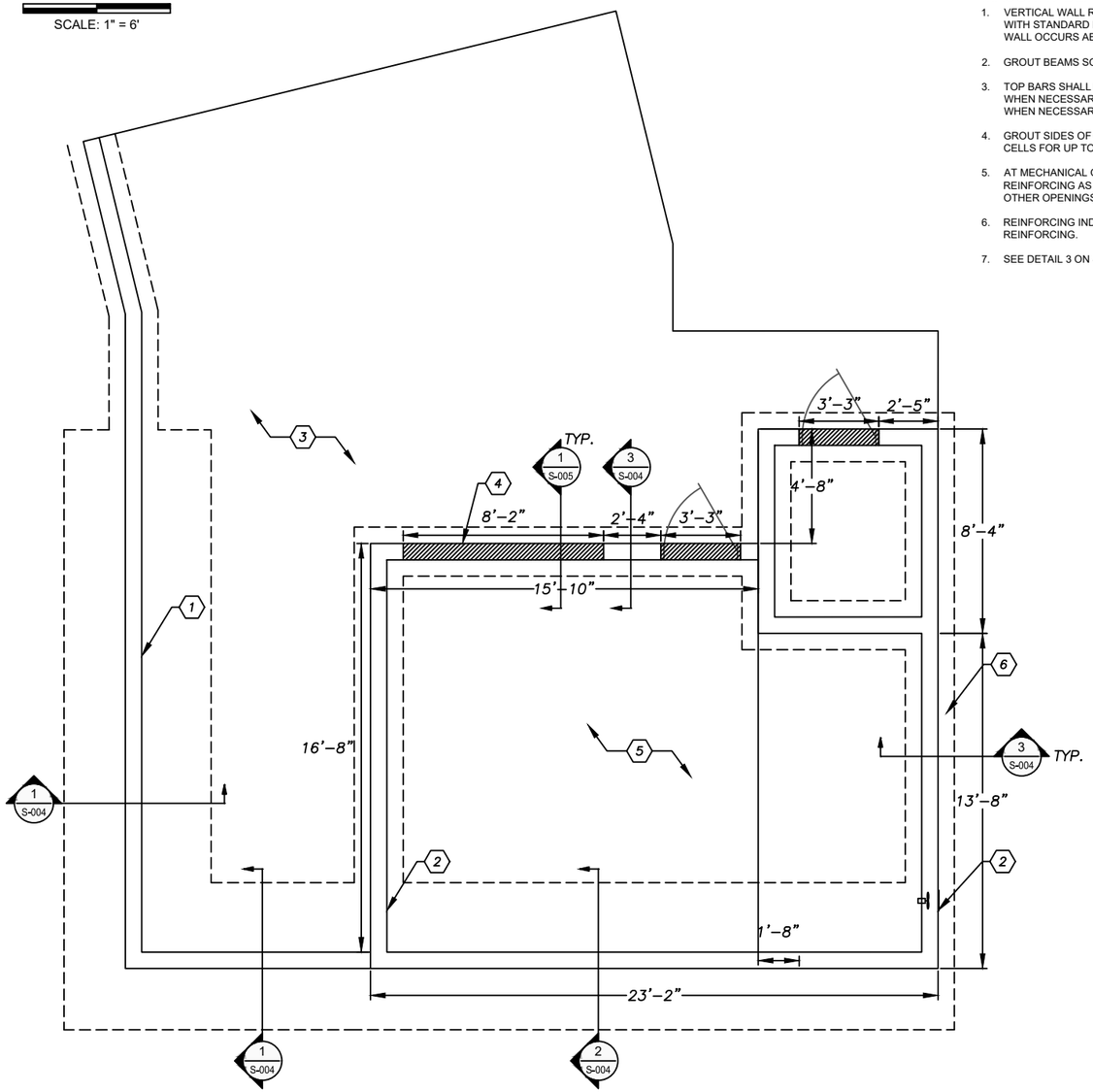
PROJECT NO: 014-13-0004-028
SHEET ID: S-002
DATE: 5-2022
PAGE NO: 14

N

GRAPHIC SCALE

0' 3' 6'

SCALE: 1" = 6'



STRUCTURAL - FOOTING AND FOUNDATION 1

SCALE 1" = 6'

MASONRY BEAM SCHEDULE

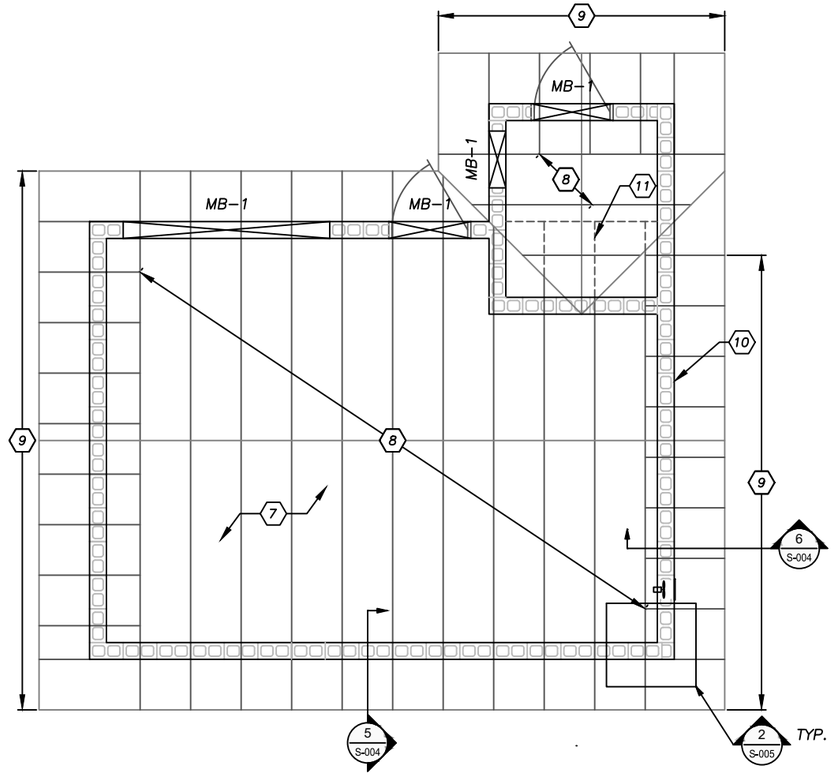
MARK	WIDTH	DEPTH	COVER	REINFORCEMENT		NOTES
				HORIZONTAL	VERTICAL	
MB-1	WALL	24"	2"	(2) #4	--	REINFORCING TOP AND BOTTOM

MASONRY BEAM SCHEDULE NOTES:

1. VERTICAL WALL REINFORCEMENT (SIZE AND SPACING) SHALL BE USED IN MASONRY BEAMS, U.N.O. VERTICAL REINF. ENDS WITH STANDARD HOOK AND LAP WITH VERTICAL REINF. ABOVE BEAM. PROVIDE STANDARD HOOK AT TOP ALSO WHERE NO WALL OCCURS ABOVE BEAM.
2. GROUT BEAMS SOLID FOR DEPTH SHOWN IN BEAM SCHEDULE PLUS AS PER DETAILS AND STRUCTURAL NOTES.
3. TOP BARS SHALL EXTEND THE GREATER OF 24 INCHES OR 48 BAR DIAMETERS BEYOND FACE OF SUPPORTS AND BE SPLICED WHEN NECESSARY AT MIDSPAN. BOTTOM BARS SHALL EXTEND 24 INCHES INTO SUPPORTS AND BE SPLICED OVER SUPPORTS, WHEN NECESSARY.
4. GROUT SIDES OF OPENINGS, SOLID 1"/FT. OF OPENING WIDTH, MINIMUM ONE 8" CELL FOR OPENINGS UP TO 8'-0" SPAN, 2 CELLS FOR UP TO 16'-0" SPAN, ETC.
5. AT MECHANICAL OPENINGS, UNLESS SHOWN OTHERWISE IN WALLS, USE MASONRY BEAMS OF SIMILAR SIZE AND REINFORCING AS SHOWN IN THOSE WALLS FOR EQUIVALENT WIDTH OPENINGS. NO MECHANICAL, ELECTRICAL, PLUMBING OR OTHER OPENINGS SHALL BE PLACED IN WALLS BELOW STEEL, OR MASONRY BEAM BEARING.
6. REINFORCING INDICATED IN BEAM SCHEDULE IS IN ADDITION TO SCHEDULED WALL HORIZONTAL AND VERTICAL REINFORCING.
7. SEE DETAIL 3 ON SHEET S-005., FOR BEAM CONSTRUCTION AND REINFORCEMENT PLACEMENT.

(#) KEY NOTES:

1. PROVIDE FOUNDATION STEP AS NECESSARY. FOOTING STEPS ARE REQUIRED TO PROVIDE ADEQUATE FROST DEPTH FOR THE FOOTINGS. CONTRACTOR SHALL COORDINATE FOOTING DEPTHS AND STEP LOCATIONS TO MAINTAIN FROST DEPTH FOR THE FOOTINGS. STEP LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE ONLY AND SHOULD NOT BE CONSTRUED OTHERWISE, SEE DETAIL 4 ON S-004. 2'-0" MAX STEP ALLOWED
2. APPROXIMATE LOCATION OF FOUNDATION STEP, SEE DETAIL 4 ON S-004.
3. 6" EXTERIOR UNREINFORCED CONCRETE SLAB ON GRADE, PROVIDE CONTRACTION JOINTS AT 10' O.C. MAX.
4. DEPRESS TOP OF WALL (HATCHED) AT OPENINGS 6" MIN., TYPICAL.
5. INTERIOR 6" CONCRETE SLAB ON GRADE w/ #4 BARS @ 18" O.C. EACH WAY, ADHESIVE ANCHOR REINFORCING TO WALL.
6. 2'-0" X 12" CONTINUOUS FOOTING w/ (3) #4 LONGITUDINAL BARS EVENLY SPACED IN FOOTING WHERE WALL ABOVE FOOTING IS NOT RETAINING SOIL. WHERE WALL IS RETAINING SOIL, SEE DETAILS FOR FOOTING INFO.
7. PROVIDE 15/32" THICK SHEATHING AT ROOF DIAPHRAGM w/ 10 d NAILS AT 6" O.C. AT PANEL EDGES AND INTERMEDIATE SUPPORTS. PROVIDE PSCA SIMPSON PANEL SHEATHING CLIP AT UNSUPPORTED PANEL EDGES.
8. PREFABRICATED TRUSSES @ 2'-0" O.C. TO BE ENGINEERED BY MANUFACTURER FOR 40-PSF SNOW LOAD (TYPICAL) SUBMIT TO THE E.O.R. DESIGN CALCULATIONS AND DRAWINGS STAMPED BY A UTAH REGISTERED ENGINEER.
9. 2X6 OUTRIGGERS @ 24" O.C.
10. 8" MASONRY WALL, TYP. w/ (2) #4 HORIZONTAL BARS @ 48" O.C. AND (1) #5 VERTICAL BAR @ 32" O.C., PROVIDE (1) #5 VERTICAL BAR IN OPENING JAMBS FULL HEIGHT OF WALL, PROVIDE (2) #4 HORIZONTAL BARS AT TOP OF WALL.
11. EXTEND TRUSS ENDS FOR OVERBUILD BEARING.



STRUCTURAL - ROOF PLAN 2

SCALE 1" = 6'

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LOWER WELL IMPROVEMENT PROJECT

STRUCTURAL - PLANS

PROJECT NO: 014-13-0004-028
SHEET ID: S-003
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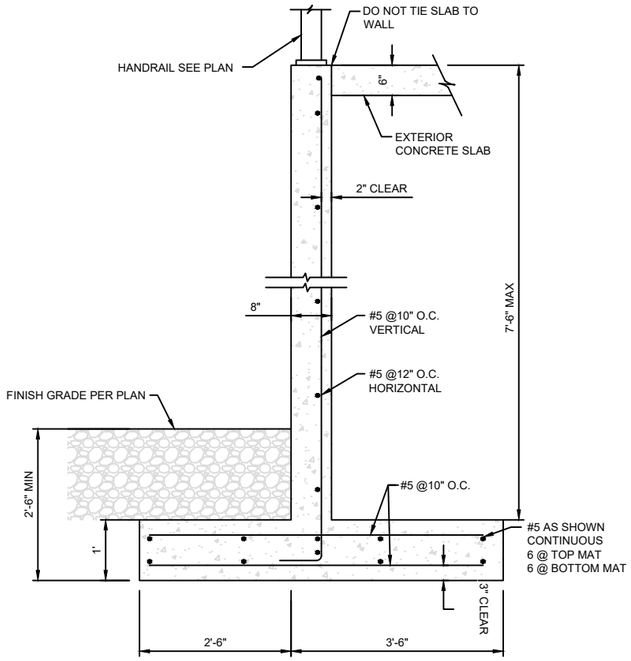
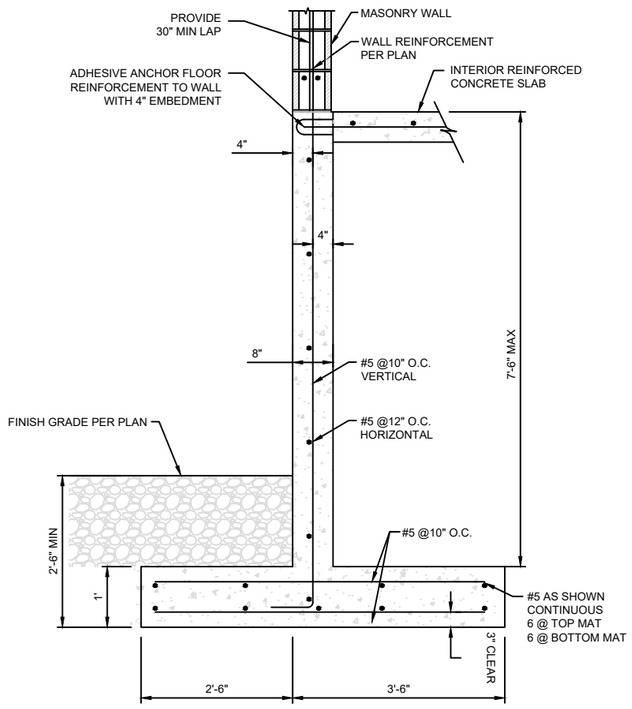
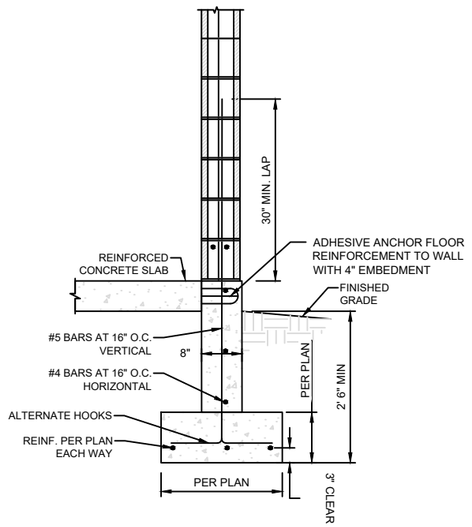


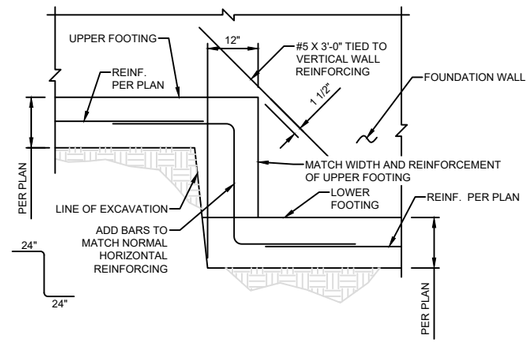
CANTILEVERED WALL
NO SCALE — 1



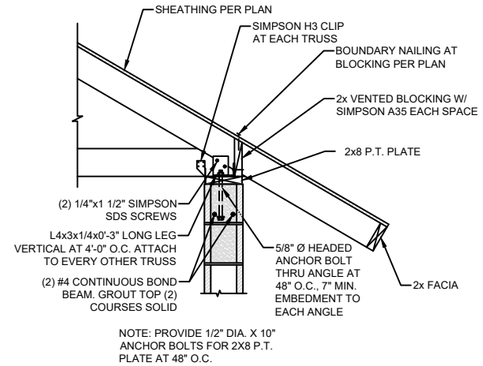
RESTRAINED WALL
NO SCALE — 2



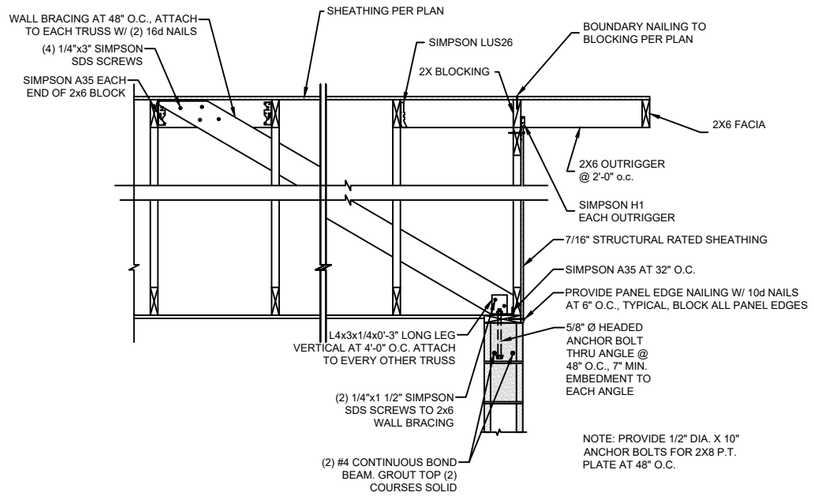
TYPICAL FOUNDATION
NO SCALE — 3



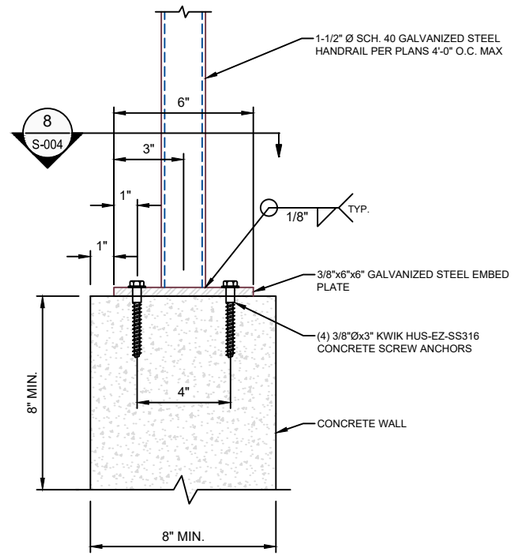
FOOTING STEP
NO SCALE — 4



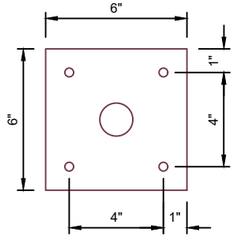
ROOF DETAIL
NO SCALE — 5



ROOF DETAIL
NO SCALE — 6



HAND RAIL EMBED
NO SCALE — 7



3/8" STEEL PLATE
NO SCALE — 8

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STRUCTURAL - DETAILS

PROJECT NO: 014-13-0004-028
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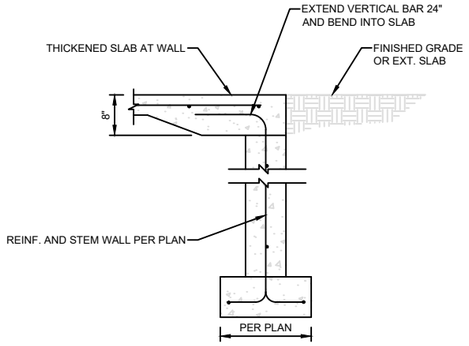
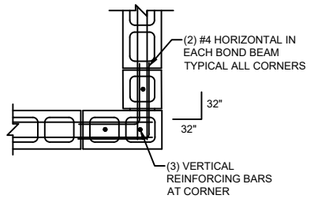
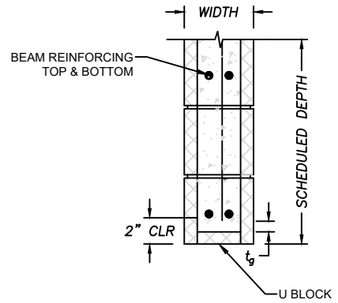
DATE: 5-2022
PAGE NO: 16



SLAB TO WALL DETAIL 1
NO SCALE



MASONRY CORNER DETAIL 2
NO SCALE



MASONRY BEAM DETAIL 3
NO SCALE

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LOWER WELL IMPROVEMENT PROJECT

STRUCTURAL - DETAILS

PROJECT NO: 014-13-0004-028
SHEET ID: S-005
DATE: 5-2022
PAGE NO: 17

GENERAL PROJECT NOTES

1. ALL ELECTRICAL INSTALLATIONS TO CONFORM TO THE LATEST NEC AND LOCAL CODES.
2. THE ELECTRICAL CONTRACTOR SHALL HAVE A COORDINATION MEETING WITH THE MECHANICAL CONTRACTOR, CONSTRUCTION SUPERINTENDANT AND ANY OTHER TRADES AS REQUIRED WITHIN SEVEN DAYS OF THE START OF THE JOB TO REVIEW CODE CLEARANCE REQUIREMENTS FOR PANELS, SWITCHES, AND OTHER ELECTRICAL GEAR SPECIFICALLY FOR THIS JOB. RECORD THE MEETING IN THE SUPERINDENT'S LOG. REPORT UNRESOLVED CONFLICTS TO THE ARCHITECT IMMEDIATELY.
3. ELECTRICAL CONTRACTOR'S PROJECT MANAGER AND ON-SITE PROJECT FOREMAN SHALL REVIEW VENDOR SUBMITTALS FOR ACCURACY PRIOR TO SUBMITTING TO ENGINEER. INACCURACIES SHALL BE CORRECTED PRIOR TO ENGINEER SUBMITTAL.
4. SUBMITTALS FOR EACH SYSTEM WILL BE REVIEWED BY ENGINEER UP TO TWO TIMES--ONE FULL SUBMITTAL FOR OVERALL COMPLIANCE AND ONE RESUBMITTAL. ADDITIONAL REVIEWS WILL BE CHARGED TO CONTRACTOR AT ENGINEER'S STANDARD BILLING RATE.
5. SUBMITTALS TO ENGINEER SHALL INCLUDE ALL SPECIFIED SYSTEMS IN FIRST SUBMITTAL. PARTIAL SUBMITTALS WILL BE RETURNED TO CONTRACTOR AS INCOMPLETE AND WILL BE CONSIDERED ONE OF TWO INCLUDED SUBMITTAL REVIEWS.
6. THE CLARITY OF RECORD DRAWING CHANGES MADE BY THE CONTRACTOR SHALL BE EQUAL TO THE ORIGINAL DRAWINGS AS JUDGED BY THE ARCHITECT OR THE RECORD SET WILL BE RETURNED TO THE CONTRACTOR FOR CLARIFICATION.
7. WHEN THE GENERAL CONTRACT CALLS FOR "RECORD" OR "AS-BUILT" DRAWINGS TO BE FURNISHED BY THE CONTRACTOR AT JOB COMPLETION, THE ELECTRICAL CONTRACTOR SHALL BE REQUIRED TO FURNISH A COMPLETE SET OF "BLUE-PRINT READY" AUTOCAD ELECTRICAL DRAWINGS FOR ALL CONTRACTOR GENERATED CHANGES FROM THE DRAWINGS OF A CLARITY EQUAL TO THE ORIGINAL DRAWINGS AS JUDGED BY THE ENGINEER. CONTACT ARCHITECT FOR DISKS OR REPRODUCIBLE ORIGINAL MEDIA. PROVIDE DRAWINGS ON CD IN AUTOCAD FORMAT.
8. DO NOT SCALE ELECTRICAL FLOOR AND PLANS. SEE CIVIL DRAWINGS FOR ACCURATE DIMENSIONS AND FLOOR PLANS.
9. ELECTRICAL DEVICES CANNOT BE SHOWN TO SCALE AND SOMETIMES OVERLAP BUILDING AND SITE ELEMENTS. REFER TO CIVIL SECTIONS FOR ACCURATE MOUNTING LOCATIONS
10. ELECTRICAL CONTRACTOR SHALL CONTACT POWER COMPANY WITHIN THE FIRST WEEK OF THE START OF CONSTRUCTION AND NOTIFY THEM OF THE PROBABLE DATE WHEN THE NEW ELECTRICAL SERVICE CONNECTION WILL BE NEEDED.
11. CONTRACTOR SHALL LOCATE AND INSTALL TRANSFORMER PAD PER POWER COMPANY SPECIFICATIONS. VERIFY PROPER CLEARANCES FROM BUILDING AND OTHER EQUIPMENT BEFORE INSTALLATION. THE LOCATION OF THE TRANSFORMER SHOWN ON THE PLANS IS AN APPROXIMATE LOCATION.
12. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY ALL PANEL CLEARANCES PER NEC 110.26 AND NOTIFY ALL OTHER TRADES ON THE JOB OF THESE CODE REQUIREMENTS.
13. PANEL INDEXES SHALL INCLUDE ALL PERTINENT INFORMATION ON THE PANEL SCHEDULES INCLUDING INFORMATION ON LIGHTS AND OUTLETS. DO NOT SIMPLY COPY THE CIRCUIT DESCRIPTION COLUMN. INDEXES TO BE TYPEWRITTEN.
14. CONDUITS ENTERING MAIN PANEL FROM THE BOTTOM SHALL BE ARRANGED IN STRAIGHT ROWS FASTENED TO UNISTRUT. HOLES SHALL BE PUNCHED IN PANEL BOTTOM AND CONDUITS FASTENED BY TWO LOCKNUTS AND A CONDUIT BUSHING. CUTTING OUT THE BOTTOM OF THE PANEL IS NOT PERMITTED.
15. MOUNTING HEIGHT OF GENERAL PURPOSE OUTLETS AND SWITCHES SHALL BE 16" TO BOTTOM AND 48" TO TOP RESPECTIVELY UNLESS OTHERWISE NOTED.
16. DO NOT INSTALL IN-GRADE JUCTION BOXES UNLESS SPECIFICALLY SHOWN ON DRAWINGS. CONDUCTORS SHALL BE RUN CONTINOUS WITHOUT SPLICING FROM SOURCE OR DEVICE TO NEXT DEVICE.
17. CIRCUIT WIRE SIZES MUST MATCH BRANCH CIRCUIT BREAKERS PER NEC. VERIFY WITH PANEL SCHEDULES BEFORE PULLING WIRE.
18. PROVIDE AN EQUIPMENT GROUNDING CONDUCTOR, PULLED INTO THE CONDUIT WITH THE PHASE CONDUCTOR, IN ALL SERVICE, FEEDER, AND BRANCH CIRCUITS.
19. PROVIDE A NEUTRAL CONDUCTOR FOR EACH BREAKER TRIP HANDLE. NEUTRALS SHALL NOT BE SHARED BETWEEN BRANCH CIRCUITS.
20. ALL CIRCUITS TO BE MINIMUM #12 CU IN MINIMUM 3/4" RIGID CONDUIT UNLESS OTHERWISE NOTED.
21. MC CABLE IS NOT AN APPROVED ALTERNATE TO CONDUCTORS IN CONDUIT.
22. DO NOT INSTALL MORE THAN THREE PHASE CONDUCTORS IN ANY HOME-RUN CONDUITS UNLESS SPECIFICALLY INDICATED ON DRAWINGS.
23. A GFI OUTLET SHALL BE INSTALLED AT EACH LOCATION DESIGNATED BY "GFI" ON THE DRAWINGS. DOWNSTREAM PROTECTION BY A GFI OUTLET UPSTREAM IS NOT ALLOWED.
24. ALL CONVENIENCE OUTLETS MUST BE MOUNTED FLUSH WITH THE COVER PLATE AND SECURED FIRMLY TO THE OUTLET BOX.
25. FIXTURE COUNTS SHOWN ON DRAWINGS ARE FOR REFERENCE ONLY. CONTRACTOR IS RESPONSIBLE TO VERIFY FIXTURE COUNTS AS PART OF BIDDING PROCESS.
26. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO REVIEW ALL SWITCH LOCATIONS WITH THE GENERAL CONTRACTOR PRIOR TO ROUGH-IN TO PREVENT ANY SWITCHES FROM BEING LOCATED ON THE WRONG SIDE OF THE DOOR.
27. COORDINATE LOCATION OF LIGHT FIXTURES IN MECHANICAL ROOMS WITH MECHANICAL EQUIPMENT. DETERMINE FINAL FIXTURE LOCATIONS AFTER DUCTWORK INSTALLATION HAS BEEN COMPLETED. CHAIN SUSPEND FIXTURES UNDER DUCTWORK AND CONDUIT RACKS AS REQUIRED.
28. REFER TO MECHANICAL PLANS FOR EXACT LOCATION OF MECHANICAL EQUIPMENT.
29. ELECTRICAL CONTRACTOR SHALL FURNISH ALL MOTOR DISCONNECTS, STARTERS, AND CONTROL STATIONS FOR MECHANICAL EQUIPMENT UNLESS THE SAME IS FURNISHED AS AN INTEGRAL PART OF THE EQUIPMENT. VERIFY WITH MECHANICAL CONTRACTOR PRIOR TO BID.
30. PROVIDE SAFETY DISCONNECTS AS REQUIRED AT ALL CONNECTIONS TO MECHANICAL EQUIPMENT. PROVIDE FUSING AND RATINGS PER NAMEPLATE INFORMATION OF EQUIPMENT SERVED.
31. DISCONNECT SWITCHES ARE SHOWN IN APPROXIMATE LOCATIONS ONLY. CONTRACTOR SHALL FIELD VERIFY LOCATION OF ALL ELECTRICAL SWITCHES AND MOTOR CONTROL FOR PROPER CODE CLEARANCES. NOTIFY ARCHITECT IMMEDIATELY OF ANY CONFLICTS WITH OTHER TRADES REGARDING PROPER EQUIPMENT CLEARANCES.
32. ALL DISCONNECT SWITCHES FOR MOTORS SHALL B ERATED A MINIMUM OF 22000 AIC UNLESS OTHERWISE SHOWN.
33. BEFORE RUNNING CONDUITS, PLACING OUTLETS OR ORDERING EQUIPMENT, THE CONTRACTOR SHALL REVIEW THE SPECIFICATIONS AND DESIGN AND SHOP DRAWINGS OF THE OTHER TRADES SERVED BY THE CONDUIT, OUTLETS, AND/OR EQUIPMENT.
34. PROVIDE NEUTRAL CONNECTION TO 208/240/480V, SINGLE-PHASE EQUIPMENT. RUN SEPARATE GROUND WIRE TO ALL OUTDOOR UNITS AND BOND TO THE EQUIPMENT GROUND LUG.
35. WHERE THERE ARE CONFLICTS IN THE DRAWINGS AND/OR SPECIFICATIONS THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER PRIOR TO BID. WHERE NO NOTIFICATION IS GIVEN THE MORE STRINGENT INTERPRETATION (GENERALLY INTERPRETED TO BE THE MORE COSTLY) WILL BE ENFORCED.

ELECTRICAL ABBREVIATIONS

A	AMPERE	ELEC	ELECTRICAL	MAX	MAXIMUM	SCHED	SCHEDULE
AF	AMP FUSE	ELEV	ELEVATOR	MCB	MAIN CIRCUIT BREAKER	SECT	SECTION
AFF	ABOVE FINISHED FLOOR	EMER, EM	EMERGENCY	MECH	MECHANICAL	SP	SINGLE POLE
AFG	ABOVE FINISHED GRADE	EMT	ELECTRICAL METALLIC TUBING	MFR	MANUFACTURER	SN	SOLID NEUTRAL
AFI	ARC-FAULT CIRCUIT-INTERRUPTER	EOLR	END OF LINE RESISTOR	MIN	MINIMUM	SPEC	SPECIFICATION
AIC	AMPERE INTERRUPTING CAPACITY	EQUIP	EQUIPMENT	MLO	MAIN LUGS ONLY	SW	SWITCH
AL	ALUMINUM	EX, EXIST	EXISTING	MTD	MOUNTED	SWBD	SWITCHBOARD
ARCH	ARCHITECT(URAL)	FBO	FURNISHED BY OTHERS	NEC	NATIONAL ELECTRICAL CODE	SWGR	SWITCH GEAR
AS	AMP SWITCH	FCU	FAN COIL UNIT	NECA	NATIONAL ELECTRICAL CONTRACTOR'S ASSOCIATION	SYS	SYSTEM
AWG	AMERICAN WIRE GAUGE	FF	FINISHED FLOOR	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION	TEMP	TEMPORARY
BLDG	BUILDING	FIXT	FIXTURE	NEUT	NEUTRAL	TELE	TELEPHONE
BKBD	BACKBOARD	FLEX	FLEXIBLE METALLIC CONDUIT (STEEL)	NFC	NATIONAL FIRE CODE	TWP	TWISTED PAIR
C	CONDUIT	FLUOR	FLUORESCENT	NC	NORMALLY CLOSED	TWSP	TWISTED SHEILDED PAIR
CAB	CABINET	FT	FEET OR FOOT	NIC	NOT IN CONTRACT	XFMR	TRANSFORMER
CAT	CATALOG/CATEGORY	GFI	GROUND FAULT INTERRUPTER	NL	NIGHT LITE	T-STAT	THERMOSTAT
C/B	CIRCUIT BREAKER	GND	GROUND	NO	NORMALLY OPEN	TYP	TYPICAL
CKT	CIRCUIT	HP	HORSEPOWER	NTS	NOT TO SCALE	UBC	UNIFORM BUILDING CODE
CLG	CEILING	HVAC	HEATING, VENTILATING & AIR CONDITIONING	OCP	OVERCURRENT PROTECTION	UL	UNDERWRITERS LABORATORY
CO	CONDUIT ONLY	IG	ISOLATED GROUND	P	POLE	UMC	UNIFORM MECHANICAL CODE
COMM	COMMUNICATION	IMC	INTERMEDIATE METAL CONDUIT	PH	PHASE	UNO	UNLESS NOTED OTHERWISE
CONN	CONNECTION	IN	INCH(ES)	PNL	PANEL	V	VOLT OR VOLTAGE
CU	COPPER	ISC	SHORT CIRCUIT AMPERES, KA	PWR	POWER	VA	VOLT AMPERE
DEMO	DEMOLITION/DEMOLISH	JB, J-BOX	JUNCTION BOX	QTY	QUANTITY	W	WATT
DISC	DISCONNECT	KCMIL	THOUSAND CIRCULAR MILS	RECEP	RECEPTACLE	W/	WITH
DN	DOWN	KVA	KILOVOLT AMPERE	REQ'D	REQUIRED	WG	WIRE GUARD
DWG	DRAWING	KW	KILOWATT	RGSC	RIGID GALVANIZED STEEL CONDUIT	WP	UL LISTED WEATHERPROOF, NEMA 3R or 4
EA	EACH	LTG	LIGHTING	RM	ROOM		

ELECTRICAL LEGEND

ANNOTATIONS

X / XXX	DETAIL CALL-OUT; TOP "X" REFERS TO DETAIL NUMBER & BOTTOM "XXX" REFERS TO SHEET NUMBER
#	KEYED NOTE CALLOUT
#-#	EQUIPMENT CALLOUT

LIGHTING FIXTURES

	EMERGENCY LIGHT
	BATTERY PACK
	EXIT LIGHT: CEILING - FACE(S) AS SHOWN
	EXIT LIGHT: WALL - FACE(S) AS SHOWN
	EXIT LIGHT: FACE SIDE
	EXIT LIGHT: DIRECTIONAL ARROWS, DOUBLE FACE
	RECESSED FIXTURE
	STRIP LIGHT
	LINEAR FIXTURE

LIGHTING CONTROL

$^X	SINGLE POLE SWITCH; "x" INDICATES SWITCH GROUP
$3	THREE WAY SWITCH
$K	SWITCH: KEYED

BRANCH CIRCUITING

	SIMPLEX OUTLET
	SIMPLEX OUTLET: GROUND FAULT INTERRUPTER
	DUPLEX OUTLET
	FACELESS GFCI PROTECTION DEVICE
	DUPLEX OUTLET: GROUND FAULT INTERRUPTER
WP	DUPLEX OUTLET: WEATHERPROOF
WPIU	DUPLEX OUTLET: WEATHERPROOF-IN-USE COVER
	DOUBLE DUPLEX OUTLET
	DOUBLE DUPLEX OUTLET: GROUND FAULT INTERRUPTER
	SPECIAL OUTLET: SEE PANEL SCHEDULE
J	JUNCTION BOX
	DISCONNECT; NO OVER-CURRENT PROTECTION
	DISCONNECT WITH OVER-CURRENT PROTECTION (CIRCUIT BREAKER STYLE OR AS SPECIFIED)
$m	MOTOR PROTECTIVE THERMAL SWITCH
	QUANTITY OF CONDUCTORS: SHORT LINES = PHASE /SWITCH, LONG LINES = NEUTRAL
	HOME-RUN

POWER AND DISTRIBUTION

	DISTRIBUTION PANEL
	PANELBOARD
	METER / METER SOCKET

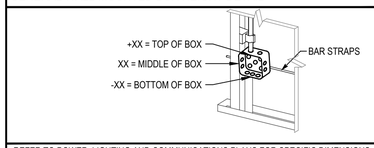
ONE-LINE

XA / YP	BREAKER : "x" = BREAKER AMPERAGE "y" = QUANTITY OF POLES
	BRANCH PANEL
	BRANCH PANEL WITH MAIN BREAKER
	BRANCH PANEL WITH SUB FEED BREAKER
x	FEEDER SIZE (REFER TO CONDUIT AND CONDUCTOR SCHEDULE UNLESS OTHERWISE NOTED)
	GROUND
M	DIRECT METER
M	CT METER
	TRANSFORMER
G	GENERATOR
	TRANSFER SWITCH (AUTOMATIC UNLESS OTHERWISE NOTED)
XA / YP	SWITCH : "x" = SWITCH AMPERAGE, "y" = QUANTITY OF POLES
hp	MOTOR : hp = MOTOR HORSEPOWER

SITE ELECTRICAL

----1ØOP---	1-PHASE OVERHEAD PRIMARY POWER
----1ØOS---	1-PHASE OVERHEAD SECONDARY POWER
----1ØUP---	1-PHASE UNDERGROUND PRIMARY POWER
----1ØUS---	1-PHASE UNDERGROUND SECONDARY POWER
--(E)3ØOP--	3-PHASE OVERHEAD PRIMARY POWER : EXISTING
----3ØOP---	3-PHASE OVERHEAD PRIMARY POWER
----3ØOS---	3-PHASE OVERHEAD SECONDARY POWER
--(E)3ØUP--	3-PHASE UNDERGROUND PRIMARY POWER : EXISTING
--(E)3ØUS--	3-PHASE UNDERGROUND SECONDARY POWER : EXISTING
----3ØUP---	3-PHASE UNDERGROUND PRIMARY POWER
----3ØUS---	3-PHASE UNDERGROUND SECONDARY POWER
-----OT-----	OVERHEAD TELEPHONE
----OTV----	OVERHEAD TV
----(E)UT---	UNDERGROUND TELEPHONE : EXISTING
---(E)UTV---	UNDERGROUND TV : EXISTING
-----UT-----	UNDERGROUND TELEPHONE
----UTV----	UNDERGROUND TV
	POINT OF DISCONNECTION
	POINT OF CONNECTION
	UTILITY POLE

GENERAL WALL-MOUNTED BOX HEIGHT DETAIL



REFER TO POWER, LIGHTING AND COMMUNICATIONS PLANS FOR SPECIFIC DIMENSIONS. SEE GENERAL NOTES AND SPECIFICATIONS WHERE NO HEIGHTS ARE INDICATED.

SHEET INDEX

BID ALTERNATE TABLE

1. BID ALTERNATE #1: PROVIDE A COMPLETE, OPERATIONAL EMERGENCY BACK UP GENERATOR TO SUPPLY PUMP HOUSE DURING POWER OUTAGE.
2. BID ALTERNATE #2: RE-ROUTE UTILITY LINES WHERE CONTRACTOR CAN SAFELY TRENCH HILLSIDE.

SPECIFCATION 263213- ENGINE GENERATORS
- A. 2.1 MANUFACTURERS
  - i. Onan/Cummins Power generation
  - ii. Caterpillar; Engine Div.
  - iii. Kohler Co. Generator Division
  - iv. Generac; Industrial Power
- B. 2.3 Assembly Description
  - i. H- Dimensions: Generator package maximum allowable dimensions
    1. 40" wide
    2. 144" long

SPECIFCATION 263600- Transfer Switches
- A. 2.1 MANUFACTURERS
  - i. Onan/Cummins Power generation
  - ii. Caterpillar; Engine Div.
  - iii. Kohler Co. Generator Division
  - iv. Generac; Industrial Power

NO.	REVISIONS	BY	DATE
1	ADDENDUM #1	SSE	8/26

DRAWN ER
DESIGNED ER
APPROVED ER
QA ER

ATTENTION
LINE IS 2 INCHES
AT 22"X34"
(IF NOT 2"- SCALE ACCORDINGLY)

REGISTERED PROFESSIONAL ENGINEER
No. 6813611
ERIC C. RASMUSSEN
8/26/2022
STATE OF UTAH

CITY OF RIVER HEIGHTS
520 SOUTH 500 EAST
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LOWER WELL IMPROVEMENT PROJECT

ABBREVIATIONS, G.P.N., LEGEND & SHEET INDEX

PROJECT NO: 014-13-0004-028
SHEET NO: E001
DATE: 7-29-2022
PAGE NO: E1 OF E4

T:\Jobs\2022044 River Heights Pump House\01 Drawings\05 Electrical\Sheets\E001 ABBREVIATIONS, G.P.N., LEGEND & SHEET INDEX.dwg ---- 8/26/2022 1:35 PM

SHEET KEYED NOTES

1. ANTICIPATED LOCATION FOR NEW UTILITY POLE. COORDINATE WITH LOCAL UTILITY REP FOR EXACT LOCATION.
2. TRENCH NEW PRIMARY CONDUIT BETWEEN APPROXIMATELY 18" AND 24" FROM EDGE OF ROAD. VERIFY EXACT DISTANCE WITH CITY PRIOR TO TRENCHING.
3. BASE BID: COORDINATE NEW GROUND SLEEVE WITH UTILITY. PROVIDE UTILITY GROUND SLEEVE BASE AND ADDITIONAL CONDUITS AND TRENCHING TO AVOID TRENCHING STEEP HILLSIDE.
4. ALTERNATE BID #2: PROVIDE PRICE DEDUCT TO ELIMINATE NEW GROUND SLEEVE BY TRENCHING DOWN STEEP HILLSIDE. NOTIFY ENGINEER AND ELIMINATE ALTERNATE BID WHERE CONTRACTOR CAN NOT SAFELY TRENCH HILLSIDE FROM FLAT SURFACE AT BASE OF HILL.
5. PROPOSED LOCATION FOR UTILITY TRANSFORMER. COORDINATE WITH UTILITY PRIOR TO ROUGH-IN.
6. BASE BID: STUB CONDUIT FOR FUTURE GENERATOR CONNECTION. SEE ELECTRICAL ONE-LINE DIAGRAM AND SHEET E101.
   ALTERNATE BID #1: PROVIDE NEW GENERATOR. VERIFY GENERATOR'S WORKING CLEARANCES WITH GENERATOR REP AS PART OF BIDDING PROCESS. (1)
7. ALL INSTALLATIONS IN PUMP HOUSE ARE TO BE RATED FOR WET LOCATION.
8. PROVIDE BOLLARD PER ROCKY MOUNTAIN POWER STANDARD TO PROTECT TRANSFORMER
9. POWER POLE TO BE REMOVED BY UTILITY.

GENERAL SHEET NOTES

1. COORDINATE ALL UTILITY INSTALLATIONS WITH LOCAL UTILITY REP.
2. COMPLY WITH ALL UTILITY REQUIREMENTS FOR NEW UTILITY INSTALLATIONS.

1 ELECTRICAL SITE PLAN

Scale: 1"=10'-0"

NO.	REVISIONS	BY	DATE
1	ADDENDUM #1	SSE	8/26

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LOWER WELL IMPROVEMENT PROJECT

ELECTRICAL SITE PLAN

PROJECT NO: 014-13-0004-028
SHEET NO: ES101
DATE: 7-29-2022
PAGE NO: E2 OF E4

PANEL PH1 | TYPE NQOD | 3 Ø 4 WIRE | 120/208 VOLTS

[X] NEW
[ ] EXISTING
[3R] NEMA RATING
[ ] BOLT ON BREAKERS
[ ] ISOLATED GROUND BUS
[ ] SURGE PROTECT (SPD)

REMARKS

LOCATION: PUMP HOUSE

MOUNTING: [ ] FLUSH [X] SURFACE

[100] AMP MAIN
[ ] LUGS
[60] BREAKER

No.	BRKR A	BRKR P	CIRCUIT DESCRIPTION	L	O	M	WIRE/CND P	WIRE/CND N	WIRE/CND G	WIRE/CND C	CIRC. LOAD	A	B	C	CIRC. LOAD	WIRE/CND P	WIRE/CND N	WIRE/CND G	WIRE/CND C	L	O	M	CIRCUIT DESCRIPTION	BRKR A	BRKR P	No.
1	20	1	SPARE									1248			1248	10	10	10	3/4			1	HEATER- CHLORINE ROOM	30H	2	2
3	20	1	SCADA			1	12S	12S	12S	3/4S	480		1728		1248	10						1	-	-	-	4
5	20H	1	SPARE											1872	1872	12S	12S	12S	3/4S			1	HEATER- WELL ROOM	20H	2	6
7	20	1	SPARE									0											SPARE	20	1	8
9	20	1	LIGHTS	4			12S	12S	12S	3/4S	200		200										SPARE	20	1	10
11	20	1	SPARE											0									SPARE	20	1	12
13	20	1	SPARE									0											SPARE	20	1	14
15	20	1	EXHAUST FAN			2	12S	12S	12S	3/4S	480		660		180	12S	12S	12S	3/4S			1	CHLORINE CONTROL	20	1	16
17	20	1	SPARE											180	180	12S	12S	12S	3/4S			1	SERVICE OUTLET	20	1	18
19	20	1	ADD ALT #1- CHARGER				10	10	10	1	1600	2800			1200	12S	12S	12S	3/4S			1	OVERHEAD DOOR MOTOR	20	1	20
21	20	1	ADD ALT #1- BLOCK HEATER				10	10	10	1	1600		1600										SPARE	20	1	22
23	20	1	ADD ALT #1- COOLANT HEATER				10	10	10	1	1600			1600									SPARE	20	1	24

PANEL SECTION 2

TOTALS 4048 4188 3652

AIC 10000
SCCR 10000

FEEDER SEE ONE-LINE

AMPS/PHASE 34 35 30

PARALLEL RUNS SEE ONE-LINE

BREAKER CODES
A=ARC-FAULT; G=GROUND FAULT; H=HACR; L=LOCKING HANDLE; S=SHUNT TRIP; R=RED PAINTED HANDLE
WIRE CODES
I=ADD'L ISO GROUND TO MATCH SAFETY GROUND; S=UNLESS OTHERWISE SPECIFIED
GENERAL CODES
1LIN=SEE ONE-LINE DIAGRAM

MECHANICAL EQUIPMENT SCHEDULE

SYM	DESCRIPTION	LOAD	VOLTS	PHASE	CONTROL CIRCUITS BY	* STARTER BY	SAFETY DISCONNECT BY	REMARKS
EF- 1	EXHAUST FAN - CHLORINE RM	TBD	120V	1	ELEC	EQUIP	ELEC	FAN BY OTHERS, WIRE BY ELECTRICIAN. ROUTE CIRCUIT THROUGH WALL MOUNTED SWITCH ADJACENT TO DOOR.
EF- 2	EXHAUST FAN - NON-CHLORINE RM	TBD	120V	1	ELEC	EQUIP	ELEC	FAN BY OTHERS, WIRE BY ELECTRICIAN. ROUTE CIRCUIT THROUGH WALL MOUNTED SWITCH ADJACENT TO DOOR.
HTR- 1	HEATER - CHLORINE RM	30 MOCP	208	1	ELEC	EQUIP	ELEC	PROVIDE HEATER (QMARK MUH35 PHCS1B OR EQUIVALENT) MOUNT ON CEILING. PROVIDE CORD AND PLUG- SET TO LOW
HTR- 2	HEATER - NON-CHLORINE RM (NATURAL GAS)	1 HP	120	1	INTEGRAL T-STAT	EQUIP	ELEC	PROVIDE MOTOR RATED DISCONNECT SWITCH.
P- 1	BOOSTER PUMP	200 HP	480	3	ELEC - CONDUIT	CONTROL CONTR.	CONTROL CONTR.	PROVIDE 1.25" CONDUIT FROM PUMP TO VFD FOR CONTROL CABLING.

* ELECTRICAL CONTRACTOR VERIFY SINGLE SPEED OR TWO SPEED STARTERS WITH MECHANICAL DRAWINGS.

LIGHT FIXTURE SCHEDULE

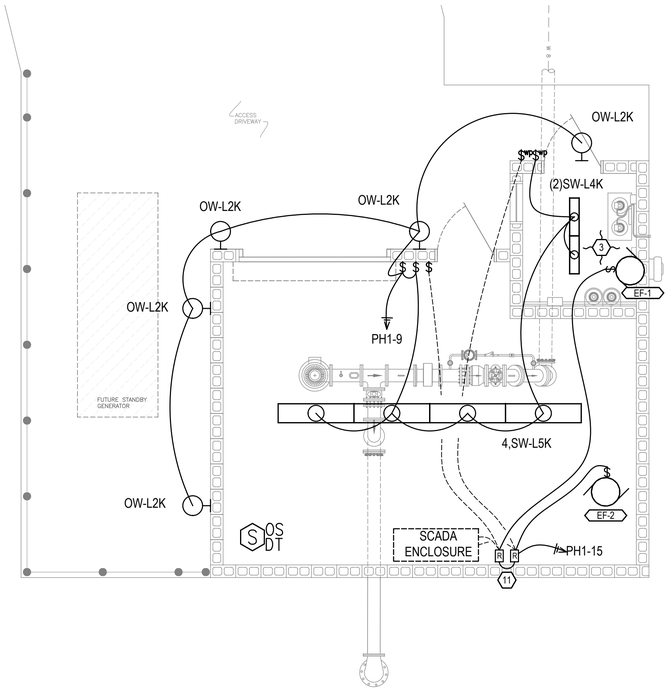
TYPE	MANUFACTURER/CATALOG NO.	DESCRIPTION	MOUNTING	POWER	LAMPS
SW- L4K	LITHONIA DMW2-L24-4000LM-AFL-MD-MVOLT-GZ10-40K-80CRI-ENTRY OR EQUIVALENT	2' SURFACE; WET LOCATION, CORROSION RESISTANT; LOW PROFILE LED FIXTURE; MULTI-VOLT, ELECTRONIC, DIMMABLE DRIVER; FROSTED ACRYLIC LENS	CEILING	40 W	4000 LUMEN NOMINAL LED 4000K
SW- L5K	LITHONIA CSVT-L48-ALO3-MVOLT-SWW3-80CRI-STSL OR EQUIVALENT	4' SURFACE; WET LOCATION LED FIXTURE MULTI-VOLT, ELECTRONIC, DIMMABLE DRIVER; POLYCARBONATE LENS, STAINLESS STEEL LATCHES SWITCHABLE LUMENS SET TO 5000 LUMEN SWITCHABLE CCT SET TO 40K	CEILING	42 W	5000 LUMEN NOMINAL LED 4000K
OW- L2K	LITHONIA WPX1-LED-P1-30K-MVOLT-PE-DDBXD OR EQUIVALENT	EXTERIOR LED WALLPACK INTEGRAL PHOTOCEL	WALL	11 W	1500 LUMEN NOMINAL LED 3000K

SHEET KEYED NOTES

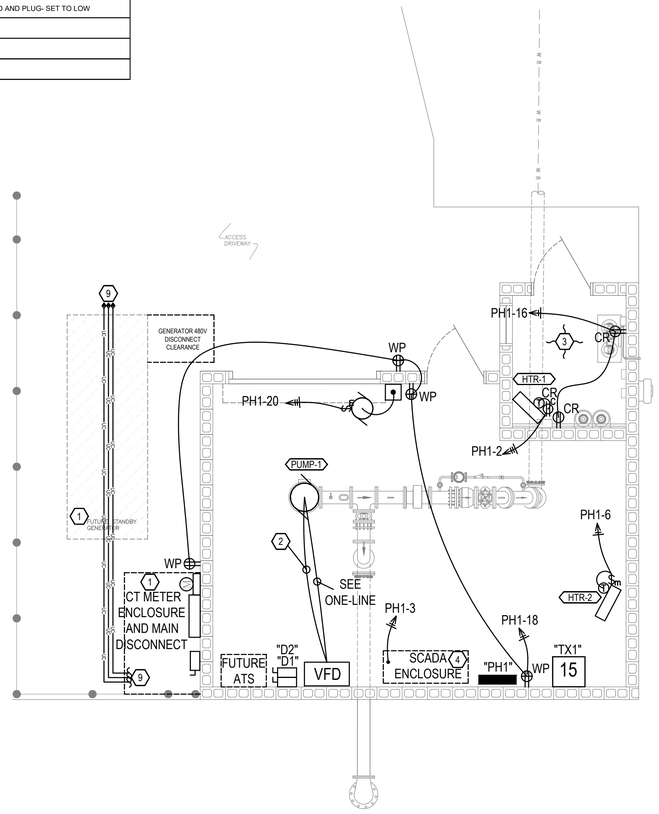
1. BASE BID: FUTURE GENERATOR LOCATION. LOCATE ELECTRICAL SERVICE TO MAINTAIN WORKING CLEARANCES AROUND FUTURE GENERATOR AND SERVICE EQUIPMENT. ADD ALTERNATE #1: GENERATOR LOCATION. LOCATE ELECTRICAL SERVICE TO MAINTAIN WORKING CLEARANCES AROUND GENERATOR AND SERVICE EQUIPMENT.
2. PROVIDE CONTROL CONDUIT AND CABLING FROM PUMP VFD AS REQUIRED. COORDINATE WITH PUMP CONTROL CONTRACTOR PRIOR TO ROUGH-IN.
3. ALL ELECTRICAL INSTALLATIONS IN CHLORINE ROOM SHALL BE RATED FOR LOCATION. THIS INCLUDES FIXTURES, OUTLETS, DEVICE COVERS, AND RACEWAYS (PVC SCHEDULE 40) ,ETC.
4. PROPOSED SCADA LOCATION. VERIFY EXACT LOCATION WITH SCADA INSTALLER PRIOR TO SCADA CONDUIT ROUGH-IN.
5. PROVIDE J-BOX ABOVE DOOR AND PROVIDE 1" RACEWAY TO SCADA ENCLOSURE.
6. PROVIDE EXTERIOR WEATHERPROOF J-BOX FOR CHLORINE LIGHT AT HEIGHT INDICATED BY CONTROLS CONTRACTOR AND PROVIDE 1" CONDUIT TO SCADA ENCLOSURE.
7. LOCATE EXTERIOR WEATHER PROOF JBOX BELOW EAVE. PROVIDE 1" RIGID CONDUIT THRU EAVE TO 3' ABOVE ROOF FOR CONTROL CONTRACTOR PROVIDED ANTENNA. SEAL CONDUIT PENETRATION.
8. PROVIDE WEATHERPROOF J-BOX FOR PUMP HOUSE CONTROL EQUIPMENT AS INDICATED BY CONTROLS CONTRACTOR. PROVIDE 1" CONDUIT FROM J-BOX TO SCADA ENCLOSURE. CONTRACTOR MAY COMBINE MULTIPLE J-BOXES INTO SAME CONDUIT WHERE ALLOWED BY SCADA CONTRACTOR.
9. BASE BID: FUTURE GENERATOR LOCATION. ROUTE CONDUIT FOR FUTURE GENERATOR UNDER PAD FROM EQUIPMENT INDICATED ON SHEET E601. REFER TO SHEET E601 ONE-LINE DIAGRAM FOR CONDUIT QUANTITIES AND SIZES. RED-LINE EXACT LOCATION AND DEPTH ON FIELD SET OF DRAWINGS.
   ALTERNATE BID #1: ROUTE CONDUIT TO GENERATOR PAD PER MANUFACTURER'S REQUIREMENTS. REFER TO GENERATOR SHOP DRAWINGS FOR STUB-UP LOCATIONS. REFER TO SHEET E601 ONE-LINE DIAGRAM FOR CONDUITS, CONDUCTORS, AND SIZES.
10. PROVIDE (3) 1" CONDUITS FROM BOOSTER PUMP TO CHLORINE ROOM EQUIPMENT.
11. PROVIDE RELAY(S) IN WEATHERPROOF ENCLOSURE AND ROUTE CIRCUIT THROUGH RELAY. CONTROL RELAY SO FANS ARE ON WHEN ACTIVATED BY WALL SWITCHES OR SCADA.

GENERAL SHEET NOTES

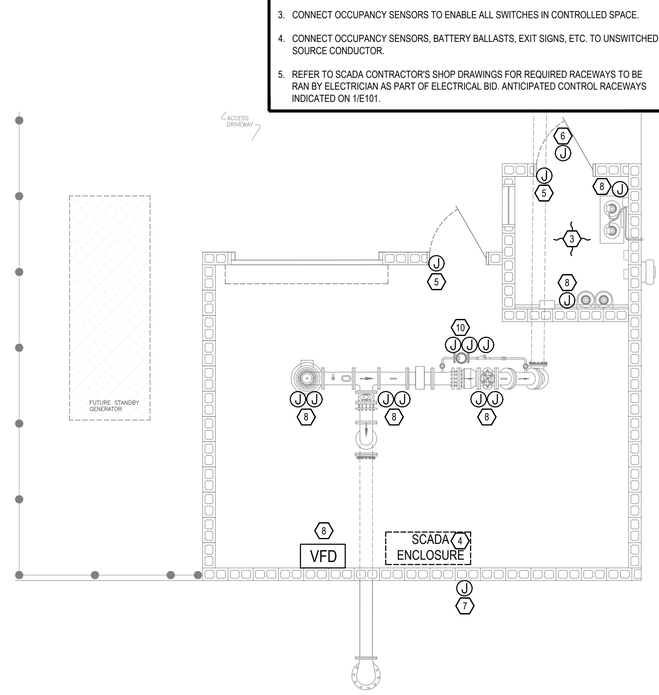
1. ALL INSTALLATIONS IN PUMP HOUSE ARE TO BE RATED FOR WET LOCATION.
2. CONTRACTOR TO FURNISH OCCUPANCY SENSORS WITH COVERAGE PATTERNS APPROPRIATE FOR THEIR INSTALLED LOCATIONS. COORDINATE WITH EQUIPMENT SUPPLIER PRIOR TO BID.
3. CONNECT OCCUPANCY SENSORS TO ENABLE ALL SWITCHES IN CONTROLLED SPACE.
4. CONNECT OCCUPANCY SENSORS, BATTERY BALLASTS, EXIT SIGNS, ETC. TO UNSWITCHED SOURCE CONDUCTOR.
5. REFER TO SCADA CONTRACTOR'S SHOP DRAWINGS FOR REQUIRED RACEWAYS TO BE RAN BY ELECTRICIAN AS PART OF ELECTRICAL BID. ANTICIPATED CONTROL RACEWAYS INDICATED ON 1/E101.



3 LIGHTING PLAN - PUMP HOUSE
Scale: 1/4"=1'-0"



2 POWER PLAN - PUMP HOUSE
Scale: 1/4"=1'-0"



1 CONTROL RACEWAY PLAN - PUMP HOUSE
Scale: 1/4"=1'-0"

NO.	REVISIONS	BY	DATE
1	ADDENDUM #1	SSE	8/26

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DESIGNED ER
APPROVED ER
QA ER

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(IF NOT 2"- SCALE ACCORDINGLY)

REGISTERED PROFESSIONAL ENGINEER
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ERIC C. RASMUSSEN
8/26/2022
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LOWER WELL IMPROVEMENT PROJECT

ELECTRICAL PLANS

PROJECT NO: 014-13-0004-028
SHEET NO: E101
DATE: 7-29-2022
PAGE NO: E3 OF E4

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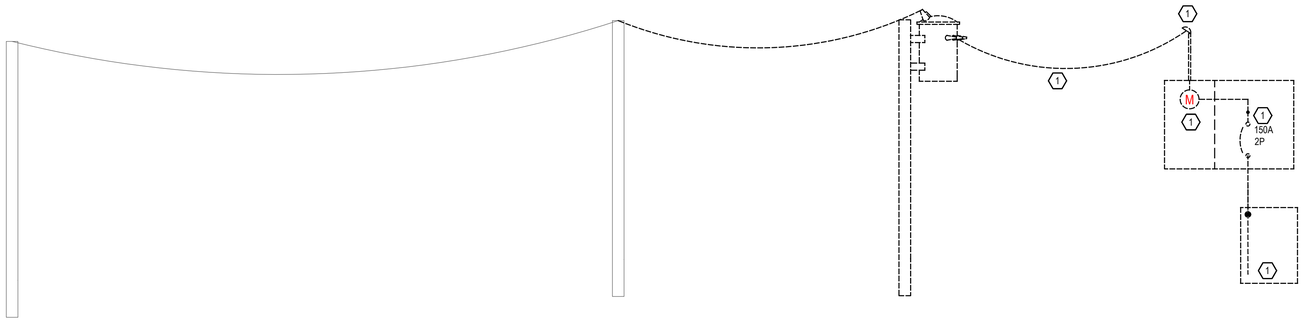
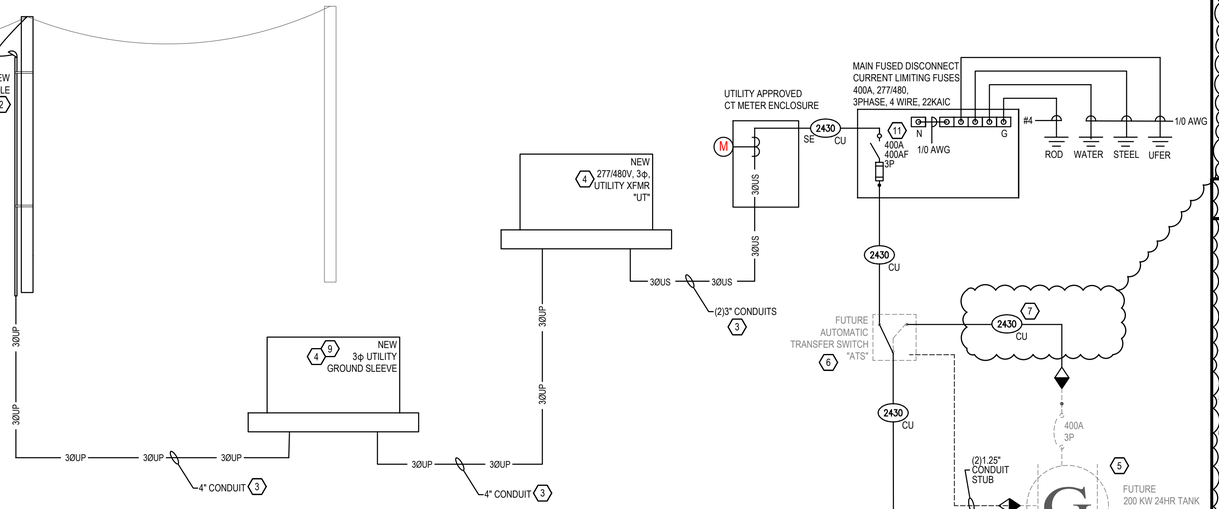


1 ELECTRICAL ONE-LINE DIAGRAM: DEMO

Scale: NO SCALE



2 ELECTRICAL ONE-LINE DIAGRAM: NEW

Scale: NO SCALE

SHEET KEYED NOTES

1. DEMO EXISTING ELECTRICAL SERVICE AND COORDINATE REMOVAL OF SERVICE LATERAL CONDUCTORS AND UTILITY POLE WITH LOCAL UTILITY REP.
2. COORDINATE NEW UTILITY POLE LOCATION WITH LOCAL UTILITY REP. SUPPLY RIGID CONDUIT RISER FOR UTILITY INSTALLATION ON POLE PER UTILITY REQUIREMENTS.
3. PRIMARY AND SECONDARY CONDUIT, TRENCHING, AND BACKFILL BY CONTRACTOR. CONDUCTORS BY UTILITY.
4. EQUIPMENT PAD BY CONTRACTOR PER UTILITY REQUIREMENTS. EQUIPMENT BY UTILITY.
5. BASE BID: FUTURE GENERATOR. STUB CONDUITS INDICATED TO FUTURE GENERATOR LOCATION SHOWN ON SHEET ES101.
   ALTERNATE BID #1: PROVIDE NEW GENERATOR FOR A COMPLETE OPERATIONAL BACK UP EMERGENCY SYSTEM.
6. BASE BID: PROVIDE 24"x24" PULL BOX WITH 5' EXTRA CABLE COILED FOR FUTURE CONNECTION TO TRANSFER SWITCH.
   ADD ALTERNATE #1: PROVIDE ATS
7. BASE BID: STUB CONDUIT FROM FUTURE ATS LOCATION TO FUTURE GENERATOR LOCATION. CAP CONDUIT AND MARK LOCATION ON FIELD REDLINES SET.
   ADD ALTERNATE #1: PROVIDE CONDUIT AND CABLING FROM ATS TO GENERATOR PER MANUFACTURER'S REQUIREMENTS.
8. INSTALL VFD ENCLOSURE. VFD, AND CONTROLS FURNISHED BY OTHERS. REFER TO SCADA CONTRACTOR'S SHOP DRAWINGS FOR REQUIRED RACEWAYS TO BE RAN BY ELECTRICIAN AS PART OF ELECTRICAL BID. ANTICIPATED CONTROL RACEWAYS INDICATED ON SHEET E101.
9. BASE BID: PROVIDE GROUND SLEEVE AND ADDITIONAL PRIMARY UTILITY CONDUIT TO AVOID HILL SIDE.
   ALTERNATE BID #2: PROVIDE PRICE DEDUCT TO TRENCH HILLSIDE AND ELIMINATE GROUND SLEEVE.
10. PROVIDE ADDITIONAL LUGS ON LOAD SIDE OF DISCONNECT "D1" FOR FEEDER TAP. TAP SHALL COMPLY WITH NEC 240.21(1). LOCATE FUSED DISCONNECT "D2" WITHIN SIGHT AND LESS THEN 10' OF CONDUCTOR LENGTH FROM TAP LOCATION.
11. PROVIDE CURRENT LIMITING FUSES. PEAK LET THROUGH CURRENT SHALL NOT EXCEED 10,000 AMPS.
12. BASE BID: STUB CONDUIT FROM PANEL TO FUTURE GENERATOR LOCATION. CAP CONDUIT AND MARK LOCATION ON FIELD REDLINES SET.
    ADD ALTERNATE #1: PROVIDE CIRCUITS FOR BATTERY CHARGER, BLOCK HEATER, AND COOLANT HEATER. REFER TO PANEL SCHEDULE FOR CONDUCTOR SIZES.

GENERAL SHEET NOTES

1. COMPLY WITH POWER UTILITY'S REQUIREMENTS FOR ALL UTILITY RELATED INSTALLATIONS. REVIEW CURRENT UTILITY STANDARDS MANUAL PRIOR TO BID. NOTIFY ENGINEER OF CONFLICTS PRIOR TO BID.
2. AIC RATINGS SHOWN INDICATE MINIMUM REQUIRED VALUES. USE MANUFACTURER'S NEXT STANDARD RATING WHICH MEETS OR EXCEEDS VALUE SHOWN.
3. ALL CONDUCTORS ARE CONSIDERED TO BE COPPER UNLESS SPECIFICALLY NOTED OTHERWISE.
4. A FULL SIZE EQUIPMENT GROUNDING CONDUCTOR SIZED FOR THE OVERCURRENT PROTECTIVE DEVICE PROTECTING THE CIRCUIT IS REQUIRED IN EACH RACEWAY OR CABLE FOR PARALLELED CIRCUITS.
5. FIELD MARK SERVICE EQUIPMENT WITH AVAILABLE FAULT CURRENT AND CALCULATION DATE PER NEC 110.24(A).
6. ALL SERVICE ENTRANCE EQUIPMENT (PANELBOARDS, SWITCHBOARDS, ETC.) SHALL BE UL LISTED OR USE AS SERVICE ENTRANCE EQUIPMENT.
7. BOND BUILDING STRUCTURAL STEEL, METALLIC WATER PIPES, AND CONCRETE-ENCASED ELECTRODES (REBAR) TO EACH OTHER AND TO THE ENCLOSURE GROUNDING BUS INSIDE THE ENCLOSURE CONTAINING THE SERVICE DISCONNECT SWITCH. THE CONCRETE INSTALLATION CONTRACTOR SHALL BE INSTRUCTED TO LEAVE AT LEAST 1 FT. OF REBAR EXPOSED AT THE SERVICE ENTRANCE PANEL FOR BONDING.
8. ALL BONDING SHALL BE EFFECTED BY MEANS OF UL LISTED DEVICES SPECIFICALLY TESTED AND APPROVED FOR THE PURPOSE.

CONDUCTOR AND CONDUIT SCHEDULE

SIZE OF CONDUCTORS
QUANTITY OF PHASE/NEUTRAL CONDUCTORS
QUANTITY OF PARALLEL RUNS
SCHEDULE NUMBER
CONDUCTOR MATERIAL
SUBSCRIPTS (SEE NOTE 5)

SYM	AMP CU	AMP AL	CONDUIT QTY	CONDUIT SIZE	CONDUCTOR (NOTE 1,6,7) QTY	SIZE	G P/N	G CU	G AL	IG CU	IG AL	SE (NOTE 4) CU	SE (NOTE 4) AL	NOTES
1 2 12	20	N/A	1	3/4"	2	12	12	N/A	12	N/A	8	N/A	2	
1 3 12					3									2,3
1 4 12					4									2,3
1 2 0	30				2	10	10		10					2
1 3 0					3									2
1 4 0					4									2
1 2 8	40			1"	2	8			8					2
1 3 8					3									2
1 4 8					4									2
1 2 6	55				2	6			6					2
1 3 6					3									2
1 4 6				1.25"	4									2
1 2 4	70	55			2	4	8	6	4	4				2
1 3 4					3									2
1 4 4					4									2
1 2 3	85	65			2	3			3	3				2
1 3 3					3									2
1 4 3					4									2
1 3 2	95	75			3	2			2	2		6		2
1 4 2				1.5"	4									2
1 3 1	130	100			3	1	6				6			2
1 4 1					4									2,8
1 3 10	150	120		2"	3	1/0		4		1				2
1 4 10					4									2
1 3 20	175	135			3	2/0					4	4		2
1 4 20					4									2
1 3 30	200	155			3	3/0								2
1 4 30				2.5"	4									2
1 3 40	230	180			3	4/0	4		1		2	2		2
1 4 40					4									2
1 3 25	255	205			3	250		2		2/0				2
1 4 25				3"	4									2,8
1 3 3K	285	230			3	300							1/0	2,8
1 4 3K					4									2
1 3 35	310	250			3	350	3		1/0					2
1 4 35					4									2,8
1 3 4K	335	270		3.5"	3	400					1/0			2
1 4 4K					4									2
1 3 5K	380	310		4"	3	500		1		3/0				2,4
1 4 5K					4									2,4
1 3 75	475	385			3	750	2		2/0		2/0	3/0		2,4
1 4 75					4									2,4
2 4 30	400	310	2	2"	4	3/0	3	1	1/0	3/0	2	1/0		2,4

CONDUIT AND CONDUCTOR SCHEDULE NOTES

1. CONDUCTORS SHOWN ARE SHOWN FOR EACH CONDUIT WITH MODIFICATIONS AS NOTED IN NOTE #5. ALL CONDUCTORS SHOWN ARE THWN FOR CU OR THWN OR XHHW FOR AL UNLESS OTHERWISE NOTED.
2. PROVIDE EQUIPMENT GROUNDING CONDUCTORS PER NEC TABLE 250-122 WHEN CIRCUIT BREAKERS ARE SIZED GREATER THAN AMPERE RATING SHOWN IN TABLE.
3. PROVIDE #10 NEUTRALS FOR MULTIWIRE BRANCH CIRCUITS SERVING COMPUTERS.
4. GROUND (G) CONDUCTOR MAY BE DELETED ON SERVICE ENTRANCE CONDUCTORS.
5. SYMBOL SUBSCRIPTS:
   - "IG": INCLUDE IG (INSULATED/ISOLATED GROUND CONDUCTOR) SCHEDULED ALONG WITH THE GROUND OF EQUIPMENT GROUND CONDUCTOR.
   - "SE": SUBSTITUTE "SE" CONDUCTOR FOR "G" CONDUCTOR SHOWN, WHICH IS SIZED FOR THE GROUNDING OF THE SECONDARY OF THE SEPARATELY DERIVED SYSTEM.
   - "2N": INCLUDE TWO NEUTRAL CONDUCTORS, SIZED AS SCHEDULED FOR PHASED AND NEUTRAL CONDUCTORS.
   - "R": RACEWAY ONLY. CONDUCTORS PROVIDED BY UTILITY.
   - "V(#)": PHASE AND NEUTRAL CONDUCTORS UPSIZED FOR VOLTAGE DROP. UPSIZE GROUNDING CONDUCTOR(G) TO SIZE INDICATED BY (#) PER NEC 250.122(B).
   - "A": ALUMINUM CONDUCTORS ALLOWED FOR FEEDER INDICATED. ALUMINUM CONDUCTORS ARE NOT TO BE USED FOR CONNECTIONS TO MOTORS OR MOTOR DRIVEN EQUIPMENT.
6. A FULL SIZE GROUNDING CONDUCTOR (SE OR G AND/OR IG) SHALL BE INSTALLED IN EACH RACEWAY OR CABLE FOR PARALLELED CIRCUITS.
7. GROUNDING CONDUCTORS (G, IG, AND SE) SHALL BE OF THE SAME CONDUCTOR MATERIAL AS THE CORRESPONDING PHASE CONDUCTORS TO KEEP TABLE CALCULATIONS IN 7 . ACCORDANCE WITH NEC REQUIREMENTS.
8. INCREASE CONDUIT TO NEXT LARGEST STANDARD CONDUIT SIZE WHEN IG IS USED.

*-CONDUIT SIZED FOR COMPACT ALUMINUM CONDUCTORS. USE COPPER CONDUIT SIZE FOR STANDARD SIZE CONDUCTORS

NO.	REVISIONS	BY	DATE
1	ADDENDUM #1	SSE	8/26

DRAWN ER
DESIGNED ER
APPROVED ER
QA ER

ATTENTION
LINE IS 2 INCHES
AT 22"X34"
(IF NOT 2"- SCALE ACCORDINGLY)

REGISTERED PROFESSIONAL ENGINEER
No. 6013611
ERIC C. RASMUSSEN
8/26/2022
STATE OF UTAH

CITY OF RIVER HEIGHTS
520 SOUTH 500 EAST
RIVER HEIGHTS, UT 84321

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811 Know what's below. Call before you dig.

LOWER WELL IMPROVEMENT PROJECT

ELECTRICAL ONE-LINE DIAGRAM

PROJECT NO: 014-13-0004-028
SHEET NO: E601
DATE: 7-29-2022
PAGE NO: E4 OF E4