

Grand Water & Sewer Service Agency Holyoak Water Improvements 2025

Spanish Valley, UT

2025

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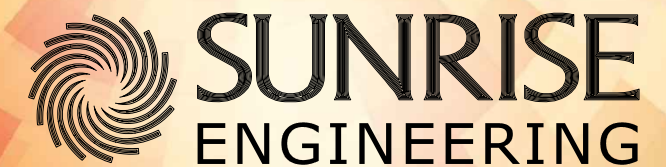
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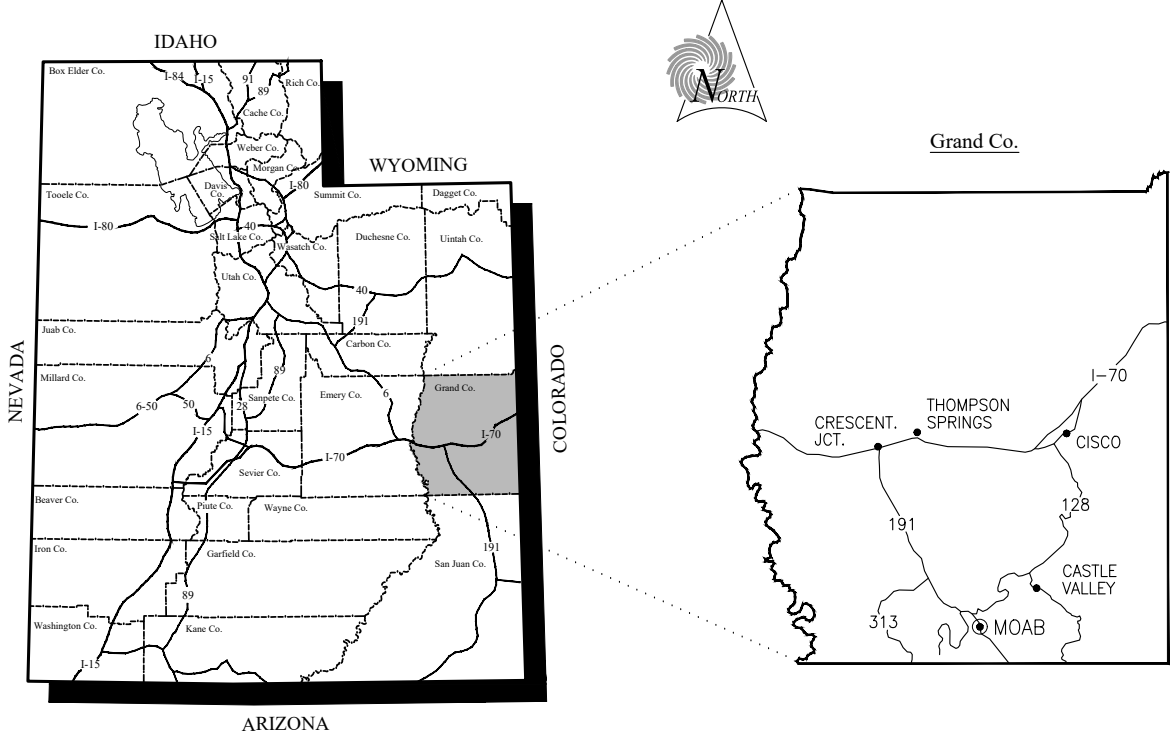
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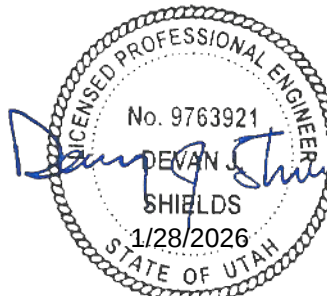
AREA MAP



SHEET INDEX

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LOCATION MAP



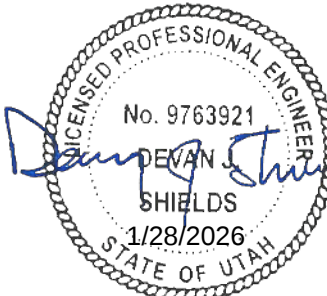
REV NO.	COMMENT	DATE
	SUNRISE ENGINEERING	
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GWSSA		
HOLYOAK WATER IMPROVEMENTS 2025 MAPS & SHEET INDEX		
SET NO. 12550	DESIGNED [Signature]	DRAWN ML
CHECKED DS	SHEET NO. 2	G2

LEGEND

CROSS REFERENCING	DETAIL DESIGNATION	DRAWING NUMBER
EXIST. MAJOR CONTOURS	— — — — —	— — — — —
EXIST. MINOR CONTOURS	— — — — —	— — — — —
EXIST. 6" CULINARY WATER PIPELINE	— — — — — 6" w — — — — —	— — — — —
EXIST. 8" CULINARY WATER PIPELINE	— — — — — 8" w — — — — —	— — — — —
NEW 6" CULINARY WATER PIPELINE	— — — — — 6" W — — — — —	— — — — —
NEW 8" CULINARY WATER PIPELINE	— — — — — 8" W — — — — —	— — — — —
EXIST. SEWER PIPELINE	— — — — — s — — — — —	— — — — —
EXIST. GAS PIPELINE	— — — — — g — — — — —	— — — — —
EXIST. FIBER OPTIC	— — — — — fo — — — — —	— — — — —
EXIST. UTILITY POLE		— — — — —
EXIST. LIGHT POLE		— — — — —
EXIST. SEWER CLEANOUT		— — — — —
EXIST. SEWER MANHOLE		— — — — —
NEW COMBINATION AIR VALVE 		— — — — —
NEW TEE		— — — — —
EXIST. TEE		— — — — —
NEW ELBOW		— — — — —
EXIST ELBOW		— — — — —
NEW RESTRAINED BLIND FLANGE		— — — — —
EXIST. CAP OR PLUG		— — — — —
NEW REDUCER		— — — — —
EXIST. REDUCER		— — — — —
NEW GATE VALVE 		— — — — —
EXIST. GATE VALVE		— — — — —
EXIST. CABLEBOX		— — — — —
EXIST. ELECTRICAL JUNCTION BOX		— — — — —
EXIST. WATER SERVICE CONNECTION	— — — — — 	— — — — —
RECONNECT EXIST. SERVICE LATERAL 	— — — — — 	— — — — —
NEW METER SETTER ASSEMBLY 	— — — — — 	— — — — —
EXIST. FIRE HYDRANT	— — — — — 	— — — — —
RECONNECT EXIST. FIRE HYDRANT 	— — — — — 	— — — — —
NEW FIRE HYDRANT ASSEMBLY 	— — — — — 	— — — — —

ABBREVIATIONS

Ⓐ	— AT (MEASUREMENTS)	FL	— FLOW LINE	PL	— PROPERTY LINE
AB	— ANCHOR BOLT	F.D.	— FLOOR DRAIN	PE	— POLYETHYLENE
ABS	— ACRYLONITRILE BUTADIENE STYRENE PIPE	FF	— FINISH FLOOR	PERP	— PERPENDICULAR
AC	— ACRES	FG	— FINISH GRADE	PG	— PRESSURE GAUGE
ACI	— AMERICAN CONCRETE INSTITUTE	FLEX	— FLEXIBLE	PL	— PLATE
ADDNL	— ADDITIONAL	FLG/FLNG	— FLANGE	POB	— POINT OF BEGINNING
AISC	— AMERICAN INSTITUTE OF STEEL CONSTRUCTION	FND	— FOUNDATION	PROP	— PROPERTY
ALT	— ALTERNATE	FRP	— FIBRE—REINFORCED PLASTIC	PRV	— PRESSURE REDUCING VALVE
ALUM	— ALUMINUM	FT OR '	— FEET	PSI	— POUNDS PER SQUARE INCH
APPD. EQ.	— APPROVED EQUAL	FTG	— FOOTING	PV	— PLUG VALVE
APPROX	— APPROXIMATELY			PVC	— POLYVINYL—CHLORIDE PIPE
ASSY	— ASSEMBLY	G	— GAS	R	— RADIUS/RANGE
ASTM	— AMERICAN SOCIETY FOR TESTING MATERIALS	GA	— GAGE/GAUGE	RWD	— REDWOOD
AVG	— AVERAGE	GALV	— GALVANIZED	REBAR	— REINFORCING BARS
		GM	— GAS METER	RED	— REDUCER
BD	— BOARD	GPM	— GALLONS PER MINUTE	REINF	— REINFORCING
BDRY	— BOUNDARY	GSN	— GENERAL STRUCTURAL NOTES	REM	— REMOVE
BEG	— BEGINNING	GSP	— GALVANIZED STEEL PIPE	REQ'D	— REQUIRED
B.F.	— BLIND FLANGE	G.V.	— GATE VALVE	REV	— REVISION
BLDG	— BUILDING	GYP	— GYPSUM	R/W	— RIGHT—OF—WAY
BLM	— BUREAU OF LAND MANAGEMENT	HDWD	— HARDWOOD	S	— SOUTH/SEWER
B.M.	— BENCH MARK	HM	— HOLLOW METAL	SCH	— SCHEDULE
BOT/BTM	— BOTTOM	HORIZ	— HORIZONTAL	SD	— STORM DRAIN
BSC	— BITUMINOUS SURFACE COURSE	HV	— HOSE VALVE	SEC	— SECTION
BTU	— BRITISH THERMAL UNITS	H.W.L.	— HIGH WATER LEVEL	SHT	— SHEET
BTV	— BUTTERFLY VALVE	HWY	— HIGHWAY	SL	— SLOPE
BV	— BALL VALVE	ID	— INSIDE DIAMETER	SLM	— SALT LAKE MERIDIAN
B.W.	— BOTH WAYS	IN OR "	— INCH	SPEC	— SPECIFICATION
		INFO	— INFORMATION	SQ	— SQUARE
CL	— CENTER LINE	INSUL	— INSULATION	SQ. IN.	— SQUARE INCHES
C	— CHANNEL (STRUCTURAL)	INV	— INVERT	SQ. FT.	— SQUARE FEET
CALC	— CALCULATED	IRR	— IRRIGATION	SQ. YD.	— SQUARE YARDS
CFM	— CUBIC FEET PER MINUTE	J.B.	— JUNCTION BOX	STA	— STATION
CFS	— CUBIC FEET PER SECOND	JT	— JOINT	STD	— STANDARD
C&G	— CURB AND GUTTER	L	— LENGTH	ST. STL.	— STAINLESS STEEL
CI	— CAST IRON	LB	— POUND	STL	— STEEL
CIP	— CAST IRON PIPE	LF/LN FT	— LINEAL FEET	SYM	— SYMMETRICAL
CLR	— CLEAR	LN	— LINEAL/LINEAR	T	— TELEPHONE/TOWNSHIP
CMP	— CORRUGATED METAL PIPE	LWL	— LOW WATER LEVEL	TBC	— TOP BACK OF CURB
CMU	— CONCRETE MASONRY UNIT	MATL	— MATERIAL	TOC	— TOP OF CONCRETE
CO	— CLEAN OUT	MAX	— MAXIMUM	TOW	— TOP OF WALL
CONC	— CONCRETE	MECH	— MECHANICAL	TP	— TEST PIT
CONT	— CONTINUOUS	MFG	— MANUFACTURING	TRANS	— TRANSITION
CONTR	— CONTRACTOR	MFR	— MANUFACTURER	TYP	— TYPICAL
COR	— CORNER	MGD	— MILLIONS OF GALLONS PER DAY	UBC	— UNTREATED BASE COURSE
CPLG	— COUPLING	MH	— MANHOLE	UDOT	— UTAH DEPARTMENT OF TRANSPORTATION
CU FT	— CUBIC FEET	MI	— MILE	U.N.O.	— UNLESS NOTED OTHERWISE
CU YD	— CUBIC YARDS	MIN	— MINIMUM	VERT	— VERTICAL
CV	— CHECK VALVE	MISC	— MISCELLANEOUS	VOL	— VOLUME
		MJ	— MECHANICAL JOINT	W	— WEST/WATER
DEG OR °	— DEGREE	MPH	— MILES PER HOUR	WI	— WROUGHT IRON
DET	— DETAIL	N	— NORTH	WM	— WATER METER
DIA OR Ø	— DIAMETER	NO. OR #	— NUMBER	W/	— WITH
DIAG	— DIAGONAL	NTS OR N.T.S.	— NOT TO SCALE	W/O	— WITHOUT
DIM	— DIMENSION	OC	— ON CENTER	W/REQ'D	— WHERE REQUIRED
DIP	— DUCTILE IRON PIPE	O.D.	— OUTSIDE DIAMETER	WS	— WATER SURFACE
DIST	— DISTRIBUTION	OHE	— OVERHEAD ELECTRIC	WT	— WEIGHT
DN	— DOWN	OSB	— ORIENTED STRAND BOARD	XING	— CROSSING
D.O.E.	— DEPARTMENT OF ENERGY			X—SEC	— CROSS SECTION
DWG	— DRAWING				
E	— EAST				
EA	— EACH				
E.F.	— EACH FACE				
EL/ELEV	— ELEVATION				



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	GWSSA	
HOLYOAK WATER IMPROVEMENTS 2025 LEGEND & ABBREVIATIONS		
SET NO. 12520	DESIGNED [Signature]	DRAWN ML
CHECKED DS	SHEET NO. 3	G3

GENERAL CONSTRUCTION NOTES

1. THE COMPLETED INSTALLATION SHALL CONFORM TO ALL APPLICABLE FEDERAL, STATE AND LOCAL CODE ORDINANCES AND REGULATIONS. CONTRACTOR SHALL OBTAIN NECESSARY BUILDING AND OTHER PERMITS AND SPECIAL INSPECTIONS REQUIRED BY THE GOVERNING AUTHORITIES. ALL WORK SHALL BE DONE IN A NEAT, WORKMANLIKE, FINISHED AND SAFE MANNER.
2. ALL CONSTRUCTION WORK SHALL BE PERFORMED WITHIN EXISTING RIGHTS-OF-WAY OR RIGHTS-OF-WAY OBTAINED BY THE OWNER FOR CONSTRUCTION PURPOSES.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SAFETY AND PROTECTION WITHIN AND ADJACENT TO THE JOBSITE. THE CONTRACTOR IS RESPONSIBLE TO ADHERE TO ALL PROVISIONS OF "OSHA SAFETY AND HEALTH STANDARDS FOR THE CONSTRUCTION INDUSTRY".
4. ALL COSTS ASSOCIATED WITH THIS PROJECT SHALL BE INCLUDED IN THE PRICES INDICATED IN THE BID SCHEDULE FOR THE VARIOUS ITEMS OF WORK.
5. BID ITEM QUANTITIES ARE ESTIMATED BY THE ENGINEER. ACTUAL QUANTITIES MAY VARY AND PAYMENT WILL BE BASED ON ACTUAL QUANTITIES INSTALLED.
6. THE CONTRACTOR SHALL PROVIDE, INSTALL, AND MAINTAIN ALL ROAD CONSTRUCTION, BARRICADES, CHANNELING DEVICES, AND CONSTRUCTION SIGNS IN ACCORDANCE WITH THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND AS REQUIRED BY THE OWNER AND ENGINEER TO ENSURE TRAFFIC AND PUBLIC SAFETY.
7. TRAFFIC ACCESS SHALL BE MAINTAINED FOR LOCAL RESIDENTS AND EMERGENCY VEHICLES TO PROPERTIES ALONG CONSTRUCTION BOUNDARIES. THE CONTRACTOR SHALL PROVIDE RESIDENTS AT LEAST ONE DAY NOTICE BEFORE ANY WORK IS TO BE PERFORMED IN FRONT OF THEIR PROPERTY.
8. ALL DAMAGE TO EXISTING ROADWAYS OTHER THAN THAT REPLACED AS PART OF THE CONSTRUCTION PROCESS SHALL BE REPLACED OR REPAIRED AT THE CONTRACTOR'S EXPENSE.
9. ALL ASPHALT PATCHES SHALL BE PLACED TO PROVIDE A SMOOTH TRANSITION FROM THE EXISTING ASPHALT TO THE PATCH. THE NEW SURFACE SHALL MATCH EXISTING GRADE. DEVIATION FROM THIS SHALL BE IN ACCORDANCE WITH SECTION 02500.3.4.3 OF THE CONTRACT SPECIFICATIONS.
10. THE CONTRACTOR SHALL PROVIDE MEANS OF MANAGING ANY STORM WATER, GROUNDWATER, OR NUISANCE WATER FROM INTERFERING WITH THE CONSTRUCTION OPERATION. THE COST OF CONTROLLING ALL WATER SHALL BE INCLUDED IN THE CONTRACT PRICE FOR RELATED BID ITEMS.
11. THE CONTRACTOR SHALL INCLUDE THE COST FOR ALL EXCAVATION AND DISPOSAL OF EXCESS AND UNSUITABLE MATERIAL IN THE CONTRACT UNIT PRICE FOR THE RELATED BID ITEMS. ALL OTHER COSTS ASSOCIATED WITH THIS PROJECT SHALL BE INCLUDED IN THE PRICES INDICATED IN THE BID SCHEDULE FOR THE VARIOUS APPURTENANT ITEMS OF WORK.
12. ALL DEBRIS RESULTING FROM WORK ON THE PROJECT SHALL BE DISPOSED OF BY THE CONTRACTOR. THE CONTRACTOR SHALL MAKE APPROPRIATE ARRANGEMENTS FOR DISPOSAL SITES AT WHICH DEBRIS MAY BE LAWFULLY DISPOSED OF. NO CONSTRUCTION DEBRIS WILL BE BURIED IN ANY PIPELINE TRENCH OR OTHER PROJECT EXCAVATED SITE.
13. THE CONTRACTOR SHALL PROTECT VENDOR SUPPLIED EQUIPMENT AND COMPONENTS FROM DAMAGE DUE TO WEATHER OR OTHER CAUSE. SENSITIVE INSTRUMENTATION AND ELECTRICAL AND ELECTRONIC EQUIPMENT SHALL BE STORED INDOORS IN A CLEAN DRY ENVIRONMENT UNTIL THEY ARE INSTALLED IN THE PROJECT.
14. DURING CONSTRUCTION, SITE WATERING SHALL BE PERFORMED BY THE CONTRACTOR AS REQUIRED TO MINIMIZE FUGITIVE DUST. THE CONTRACTOR IS REQUIRED TO METER ALL WATER TAKEN OUT OF THE EXISTING CULINARY WATER SYSTEM FOR CONSTRUCTION. THE OWNER WILL NOT CHARGE THE CONTRACTOR FOR WATER REQUIRED FOR CONSTRUCTION AND TESTING.
15. DURING CLEANUP ALONG CONSTRUCTION RIGHTS-OF-WAY, ROAD DRAINAGE PROFILES SHALL BE GRADED AND RESTORED. ALL ROCKS LARGER THAN 2" SHALL BE RAKED OUT AND REMOVED OR BURIED.
16. DISCOVERY AND NOTIFICATION OF CULTURAL RESOURCES AND HISTORICAL/ARCHAEOLOGICAL OBJECTS – IF A SUSPECTED OR UNSUSPECTED HISTORICAL, ARCHAEOLOGICAL, OR PALEONTOLOGICAL ITEM, FEATURE, SITE OR OTHER CULTURAL RESOURCE IS ENCOUNTERED, CONSTRUCTION OPERATIONS SHALL BE IMMEDIATELY STOPPED IN THE VICINITY OF THE DISCOVERY AND THE ENGINEER AND OWNER SHALL BE NOTIFIED OF THE NATURE AND EXACT LOCATION OF THE FINDING. THE CONTRACTOR SHALL NOT DAMAGE THE DISCOVERED OBJECTS AND SHALL PROVIDE WRITTEN CONFIRMATION OF THE DISCOVERY TO THE ENGINEER WITHIN TWO (2) CALENDAR DAYS. THE OWNER AND ENGINEER ARE REQUIRED TO IMMEDIATELY NOTIFY THE STATE HISTORICAL PRESERVATION OFFICE (SHPO) AND THE UTAH GEOLOGICAL SURVEY (UGS). THE SHPO AND UGS WILL INVESTIGATE THE FINDING AND DETERMINE IF THE RESOURCE REQUIRES PROTECTION.
17. THE CONTRACTOR SHALL REVEGETATE AREAS OF DISTURBANCE OF FEDERAL, STATE, AND PRIVATE LANDS OUTSIDE OF ROADS AS REQUESTED BY THE PROPERTY OWNER. REVEGETATION OF PRIVATE LANDS SHALL INCLUDE CERTIFIED WEED FREE SEEDS OF THE PLANT SPECIES THAT WERE PRESENT ON THE PROPERTY BEFORE CONSTRUCTION BEGAN, UNLESS OTHERWISE APPROVED BY THE OWNER AND PRIVATE PROPERTY OWNER IN WRITING.

GENERAL CONSTRUCTION NOTES (CONTINUED)

18. ANY OMISSIONS OR CONFLICTS BETWEEN THE CONSTRUCTION DRAWINGS AND THE ACTUAL CONDITIONS ENCOUNTERED IN THE VARIOUS ELEMENTS OF THE PROJECT SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND RESOLVED BY THE SAME BEFORE PROCEEDING WITH ANY WORK INVOLVED. PRIOR TO MAKING ANY CHANGES IN THE PROJECT ALIGNMENT, THE ENGINEER SHALL CONTACT THE OWNER TO ENSURE THAT THE NEW WORK IS CONSISTENT WITH THE FINAL ENVIRONMENTAL ASSESSMENT AND THAT SUBSEQUENT ENVIRONMENTAL OR CULTURAL EVALUATION AND DOCUMENTATION ARE NOT REQUIRED.
19. AN EFFORT HAS BEEN MADE TO SHOW EXISTING UTILITIES AND THE PROPOSED IMPROVEMENTS AS ACCURATELY AS POSSIBLE. ALL PIPELINE LOCATIONS AND SIZES ARE SHOWN ACCORDING TO THE INFORMATION AVAILABLE TO THE ENGINEER. THE LOCATIONS ARE NOT EXACT AND SHOULD ONLY BE USED FOR REFERENCE. IN ADDITION, OTHER UTILITIES MAY BE PRESENT, AND THE UTILITIES SHOWN MAY NOT ACTUALLY EXIST AT THE LOCATIONS SHOWN. ADDITIONAL WORK MAY BE REQUIRED, AND LIKEWISE, PROPOSED WORK MAY BE ELIMINATED BASED ON ACTUAL FIELD CONDITIONS. THE ADDITION OR ELIMINATION OF WORK SHALL BE DETERMINED BY THE OWNER. MINOR VARIATIONS IN ACTUAL FIELD CONDITIONS WITHIN THE PROJECT SCOPE ARE TO BE EXPECTED AND SHALL NOT WARRANT A COST INCREASE.
20. WITHIN THE PROJECT LIMITS THERE ARE COMPONENTS OF A CULINARY WATER SYSTEM AND OTHER EXISTING UTILITIES. THE CONTRACTOR HAS THE ULTIMATE RESPONSIBILITY TO LOCATE ALL UTILITIES (ABOVE & UNDERGROUND) PRIOR TO CONSTRUCTION. ANY EXISTING UTILITIES SHALL BE PROTECTED, RELOCATED, OR RESTORED TO ORIGINAL CONDITION AND SERVICEABILITY, IF DISTURBED AS A RESULT OF THE CONSTRUCTION ACTIVITIES, AT THE CONTRACTOR'S EXPENSE UNLESS PAYMENT IS PROVIDED IN SEPARATE ITEMS OF WORK. THE CONTRACTOR MUST CALL BLUE STAKES PRIOR TO ANY WORK REQUIRING EXCAVATION OF ANY TYPE.
21. COMPACTION OF ALL TRENCH MATERIALS SHALL BE IN ACCORDANCE WITH SPECIFICATION REQUIREMENTS.
22. ALL BENCHMARKS AND SURVEY CONTROL STAKES PROVIDED BY THE OWNER'S ENGINEER FOR THE CONSTRUCTION OF THE PROJECT SHALL BE PROTECTED FROM DISTURBANCE. IF CONTROL STAKES ARE DISTURBED OR REMOVED PREMATURELY, THE WORK OF RE-STAKING SHALL BE DONE BY THE OWNER'S ENGINEER AT THE CONTRACTOR'S EXPENSE.
23. OBSERVATION VISITS TO THE SITE BY THE ENGINEER SHALL NOT BE CONSTRUED AS APPROVAL OF CONSTRUCTION.

CULINARY WATER CONSTRUCTION NOTES

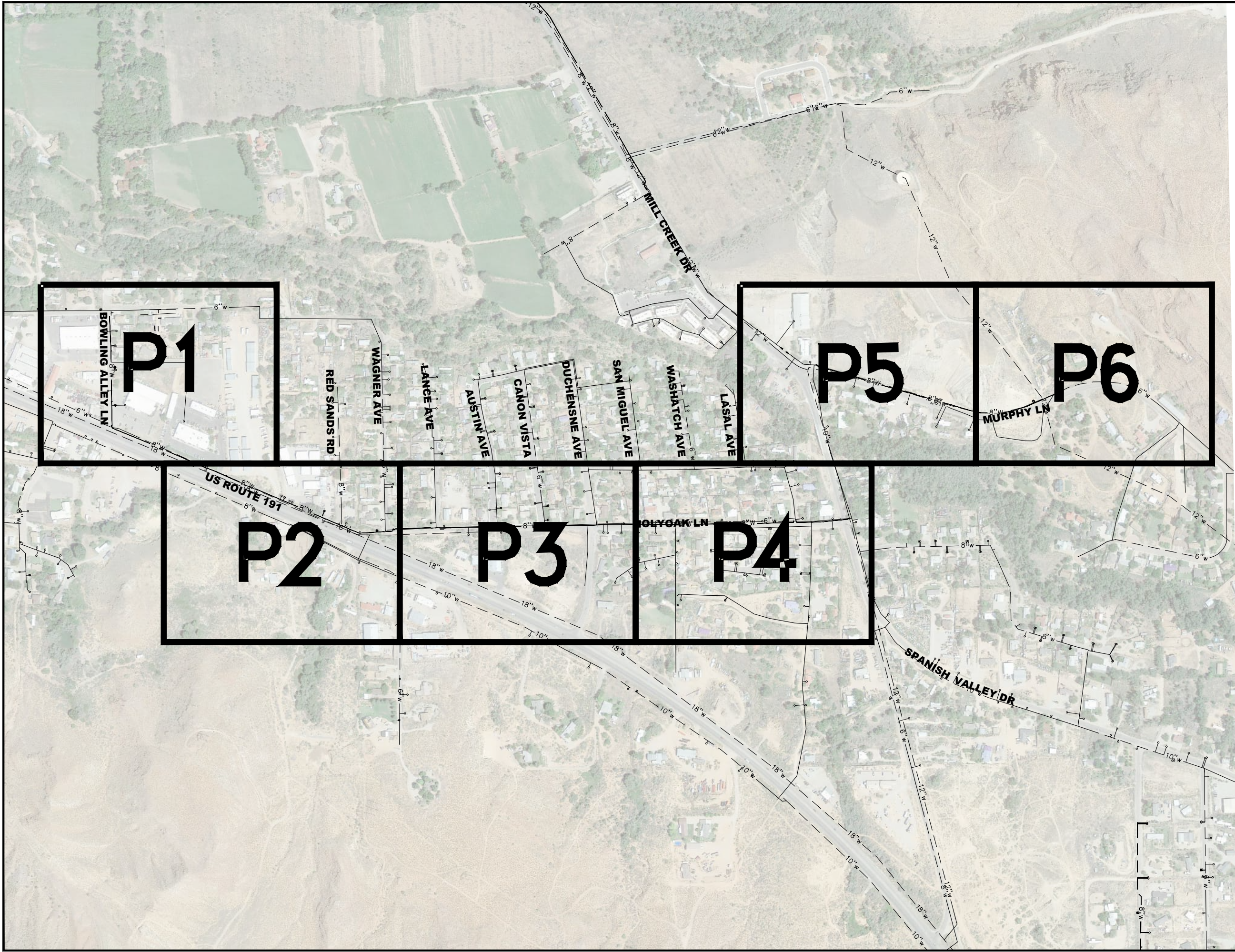
1. ALL PIPELINES SHALL BE INSTALLED AT LOCATIONS AND DEPTHS REQUIRED BY THE CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS OR AS OTHERWISE DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL NOT MOVE THE PLANNED ALIGNMENT OF ANY CULINARY WATER PIPELINE WITHOUT THE WRITTEN CONSENT OF BOTH THE OWNER AND THE ENGINEER.
2. DURING CONSTRUCTION AND TESTING OF THE CULINARY WATER DISTRIBUTION SYSTEM, THE CONTRACTOR SHALL PROVIDE EACH RESIDENT ON THE AFFECTED STREET AT LEAST A ONE DAY NOTICE BEFORE TAKING THE CULINARY WATER SYSTEM ON THAT STREET OUT OF SERVICE.
3. ANY CANAL OR DITCH CROSSINGS NOT SPECIFICALLY CALLED OUT ON THE PLANS AND BID SCHEDULE ARE CONSIDERED INCIDENTAL TO PIPELINE INSTALLATION AND SHALL NOT BE PAID FOR SEPARATELY.
4. ALL PIPING SHALL BE PLACED WITH A MINIMUM OF 4'-0" COVER OVER THE TOP OF THE PIPE UNLESS DIRECTED OTHERWISE BY THE ENGINEER OR SPECIFICALLY SHOWN OTHERWISE ON THE DRAWINGS.
5. ALL BURIED DUCTILE IRON VALVES AND FITTINGS SHALL BE CAREFULLY WRAPPED OR SLEEVED WITH PLASTIC TO PREVENT CONTACT WITH SOIL DURING OR AFTER INSTALLATION, BACKFILL AND AFTER CONSTRUCTION HAS BEEN COMPLETED. BOLTING HARDWARE FOR FITTINGS SHALL BE COATED WITH GREASE AFTER TIGHTENING TO FURTHER PREVENT CORROSION.
6. THE INSTALLATION OF VARIABLE SIZED OPENINGS IN TEES, ELBOWS, CROSSES, ETC. WHERE APPLICABLE IS AN ACCEPTABLE ALTERNATIVE TO THE USE OF REDUCERS. THE INSTALLATION OF TWO TEES IS AN ACCEPTABLE ALTERNATIVE TO THE USE OF A CROSS.
7. FITTINGS REQUIRED FOR NEW PIPELINE CONNECTIONS AND TIE-INS, PIPELINE ABANDONMENT, OR AT OTHER PROJECT LOCATIONS BEYOND THOSE SHOWN ON THE DRAWINGS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
8. THE CONTRACTOR SHALL MAKE ALL CONNECTIONS TO EXISTING LINES WHERE SHOWN ON THE PLANS AND AS NEEDED TO OBTAIN A FULLY FUNCTIONAL SYSTEM.
9. ALL CONNECTIONS TO EXISTING LINES ARE CONSIDERED INCIDENTAL TO THE INSTALLATION OF THE PIPELINE AND SHALL NOT BE PAID FOR SEPARATELY. THE CONTRACTOR IS RESPONSIBLE FOR ALL FITTINGS, THRUST BLOCKS, RESTRAINTS, LABOR, EQUIPMENT, ETC. TO MAKE THE CONNECTION, EVEN IF THE FITTINGS ARE NOT SPECIFICALLY CALLED OUT OR DETAILED ON THE DRAWINGS.

CULINARY WATER CONSTRUCTION NOTES (CONTINUED)

10. PIPELINES THAT ARE TO BE ABANDONED SHALL BE CUT OFF AT THE SUPPLY PIPELINE OR AT THE POINT OF TIE IN TO THE NEW PIPELINES. A SECTION SHALL BE CUT OUT OF THE ABANDONED LINE AND DISPOSED OF. A MECHANICAL JOINT TYPE CAP WITH A MEGALUG RESTRAINT OR A BLIND FLANGE SHALL BE INSTALLED ON BOTH SIDES OF THE ABANDONED PIPE WHERE THE SECTION WAS REMOVED. A TIE-IN CONNECTION TO THE EXISTING PIPELINE MEETS THE REQUIREMENT OF A CAP. UNDER NO CIRCUMSTANCE SHALL A PIPE BE ABANDONED BY SIMPLY SHUTTING VALVES. ALL VALVE BOXES ON THE SECTION OF ABANDONED PIPELINE SHALL BE REMOVED, AND ANY REQUIRED EXCAVATION SHALL BE BACKFILLED AND ASPHALT PATCHED IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS.
11. ALL CONNECTIONS TO POLYETHYLENE SERVICE LATERAL TUBING FROM THE CORPORATION STOP AT THE MAINLINE TO THE METER SETTER AT THE SERVICE METER SETTER, INCLUDING SPLICES TO EXISTING POLYETHYLENE TUBING SHALL BE MADE USING FORD ULTRA-TITE OR APPROVED EQUAL CONNECTORS. THE CONTRACTOR SHALL INSTALL ADAPTERS TO FACILITATE CONNECTION TO SETTERS AND CORPORATION STOPS AS NEEDED.
12. SERVICE LATERAL TUBING SHALL BE INSTALLED UNDER ROADWAYS BY PULLING OR BY MISSLING. ROADWAYS SHALL NOT BE OPEN CUT FOR SERVICE LATERAL INSTALLATION UNLESS APPROVED OTHERWISE BY THE ENGINEER ON A CASE BY CASE BASIS.
13. ALL FITTINGS, NIPPLES, CONNECTORS, ETC. USED IN SERVICE CONNECTIONS SHALL BE BRASS OR BRONZE. NO PVC, BLACK IRON, OR GALVANIZED FITTINGS OR NIPPLES SHALL BE USED.
14. THE CONTRACTOR SHALL INSTALL PIPELINES IN ACCORDANCE WITH ELEVATIONS AND DIMENSIONS AS INDICATED ON THE PLANS AND SHALL NOT USE SCALED ELEVATIONS OR DIMENSIONS.
15. MARKING TAPE AND TRACER WIRE ARE REQUIRED TO BE INSTALLED ABOVE ALL WATER MAINS AND SERVICE LATERALS.
16. EXISTING CULVERTS ARE GENERALLY SHOWN. THE CONTRACTOR IS RESPONSIBLE FOR ALL FITTINGS, THRUST BLOCKS, RESTRAINTS, LABOR, EQUIPMENT, ETC. TO AVOID EXISTING CULVERTS, EVEN IF THE FITTINGS ARE NOT SPECIFICALLY CALLED OUT OR DETAILED ON THE DRAWINGS.



REV NO.		COMMENT			DATE
		 SUNRISE ENGINEERING 25 EAST 500 NORTH FILLMORE, UTAH 84631 TEL 435.743.6151 • FAX 435.743.7900 www.sunrise-eng.com			
		GWSSA			
		HOLYOAK WATER IMPROVEMENTS			
		2025			
CONSTRUCTION NOTES					
SEI NO. 12520	DESIGNED —	DRAWN ML	CHECKED DS	SHEET NO. 4	G4



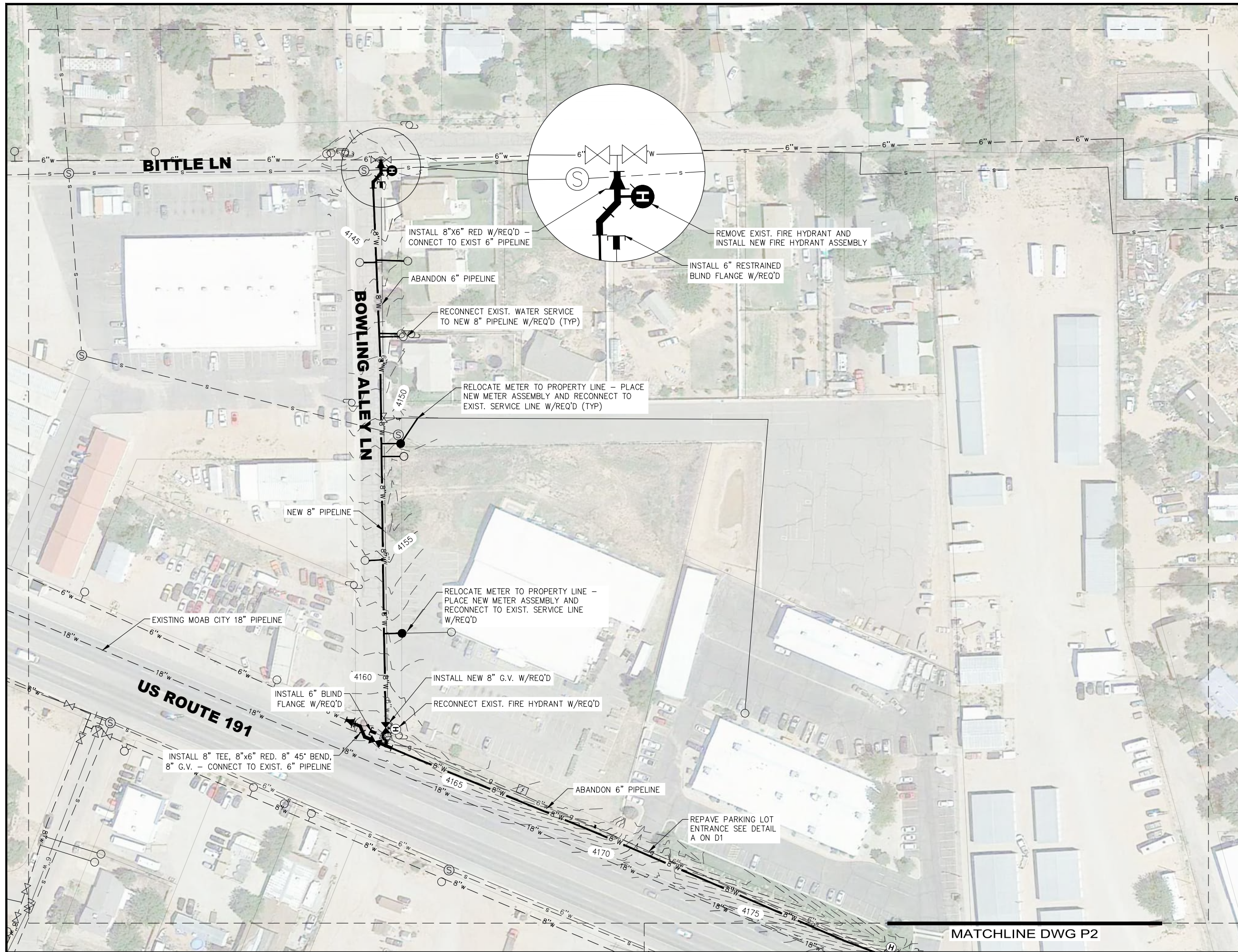
Professional Engineer Seal:
No. 9763921
DEVAN J. SHIELDS
1/28/2026
STATE OF UTAH

Scale:
0 250' 500'
HORIZ: (11x17) 1" = 500'

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GWSSA		
HOLYOAK WATER IMPROVEMENTS 2025 PLAN SHEET		
SEI NO. 12520	DESIGNED —	DRAWN ML
CHECKED DS	SHEET NO. 5	G5

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- NOTES:
1. ALL SEWER UTILITIES ARE ESTIMATED. CONTRACTOR MUST VERIFY LOCATION OF UTILITIES.
 2. OWNER WILL NOT ALLOW SERVICE LINES SPLICES WITHIN THE ROW. CONTRACTOR SHALL REPLACE SERVICE LINES THAT ARE FURTHER FROM THE NEW MAIN UP TO THE METER YOKE.
 3. VERIFY THAT ALL METER PITS CONTAIN THE DUAL CHECK WATER METER. NOTIFY THE WATER SYSTEM IF IT DOES NOT AND INSTALL A NEW DUAL CHECK METER YOKE.
 4. ANY PIPE INSTALLED WITHIN 20 FEET OF THE SHOULDER OF HWY 191 MUST BE INSTALLED AT A MINIMUM DEPTH OF 60 INCHES.
 5. WHERE FEASIBLE, CONTRACTOR SHALL RELOCATE METER PITS TO THE PROPERTY LINE.
 6. IF AN EXISTING FIRE HYDRANT IS THE SCISSOR STYLE HYDRANT, REPLACE THE EXISTING HYDRANT WITH NEW HYDRANT ASSEMBLY.

PROFESSIONAL ENGINEER

No. 9763921

DEVAN J. SHIELDS

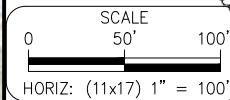
1/28/2026

STATE OF UTAH

811

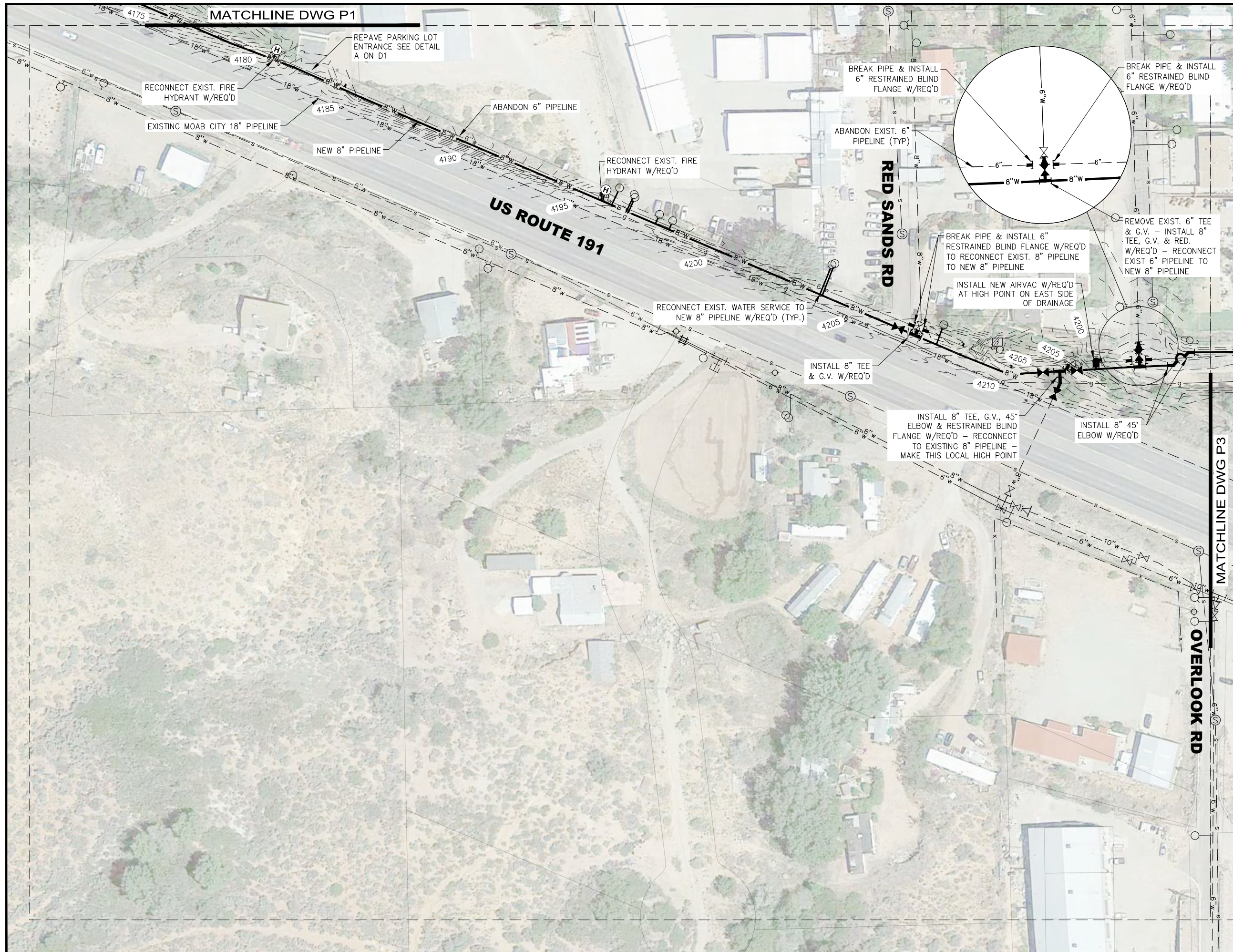
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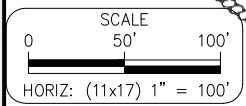
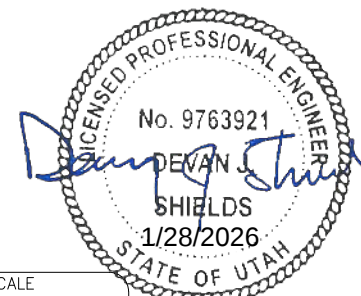


REV NO.	COMMENT	DATE
SUNRISE ENGINEERING 25 EAST 500 NORTH FILLMORE, UTAH 84631 TEL 435.743.6151 • FAX 435.743.7900 www.sunrise-eng.com		
GWSSA		
HOLYOAK WATER IMPROVEMENTS 2025 PLAN SHEET		
SEI NO. 12520	DESIGNED —	DRAWN ML
CHECKED DS	SHEET NO. 6	P1

MATCHLINE DWG P2

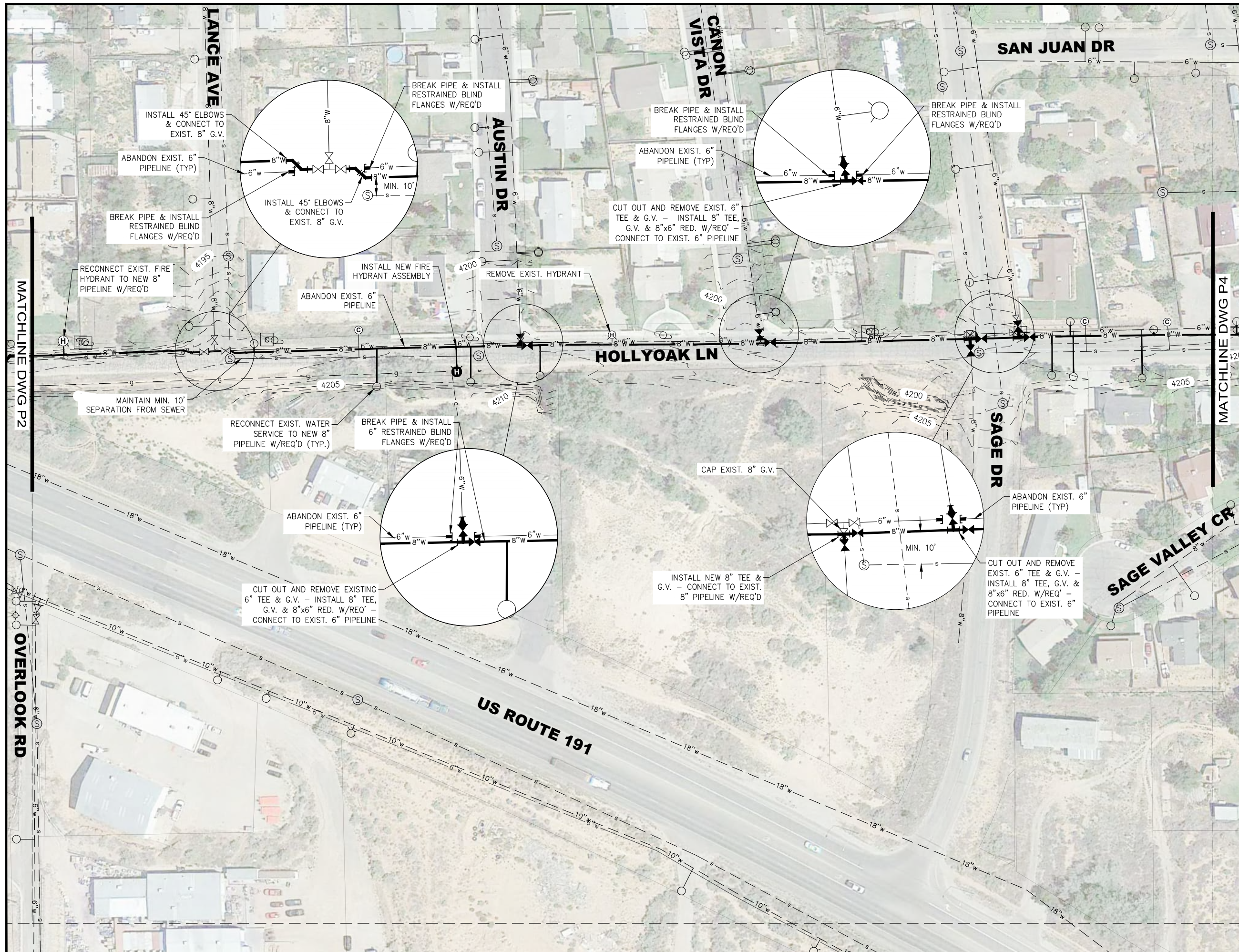


- NOTES:
1. ALL SEWER UTILITIES ARE ESTIMATED. CONTRACTOR MUST VERIFY LOCATION OF UTILITIES.
 2. OWNER WILL NOT ALLOW SERVICE LINES SPLICES WITHIN THE ROW. CONTRACTOR SHALL REPLACE SERVICE LINES THAT ARE FURTHER FROM THE NEW MAIN UP TO THE METER YOKE.
 3. VERIFY THAT ALL METER PITS CONTAIN THE DUAL CHECK WATER METER. NOTIFY THE WATER SYSTEM IF IT DOES NOT AND INSTALL A NEW DUAL CHECK METER YOKE.
 4. ANY PIPE INSTALLED WITHIN 20 FEET OF THE SHOULDER OF HWY 191 MUST BE INSTALLED AT A MINIMUM DEPTH OF 60 INCHES.
 5. WHERE FEASIBLE, CONTRACTOR SHALL RELOCATE METER PITS TO THE PROPERTY LINE.
 6. IF AN EXISTING FIRE HYDRANT IS THE SCISSOR STYLE HYDRANT, REPLACE THE EXISTING HYDRANT WITH NEW HYDRANT ASSEMBLY.



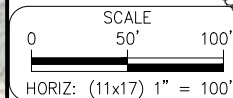
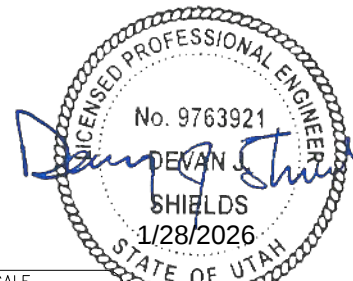
REV NO.	COMMENT	DATE
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HOLYOAK WATER IMPROVEMENTS 2025 PLAN SHEETS		
SEI NO. 12520	DESIGNED —	DRAWN ML
CHECKED DS	SHEET NO. 7	P2

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REV NO.	COMMENT	DATE
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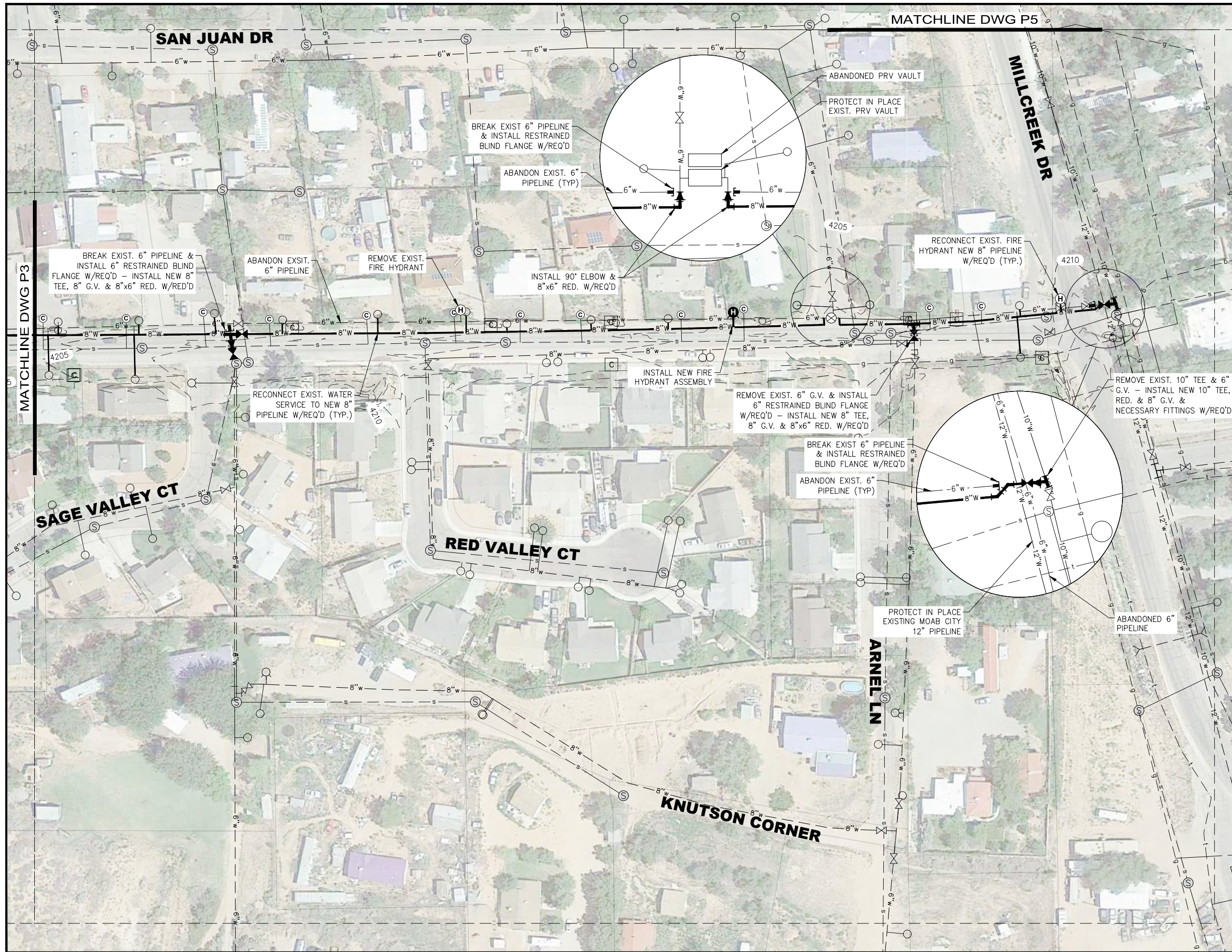


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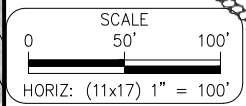
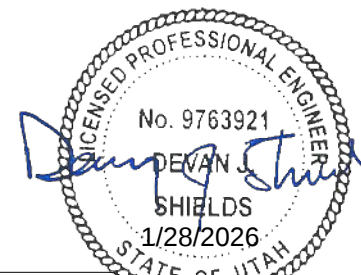
GWSSA

HOLYOAK WATER IMPROVEMENTS
2025
PLAN SHEETS

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	P3
12520	-	ML	DS	8	



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REV NO.	COMMENT	DATE
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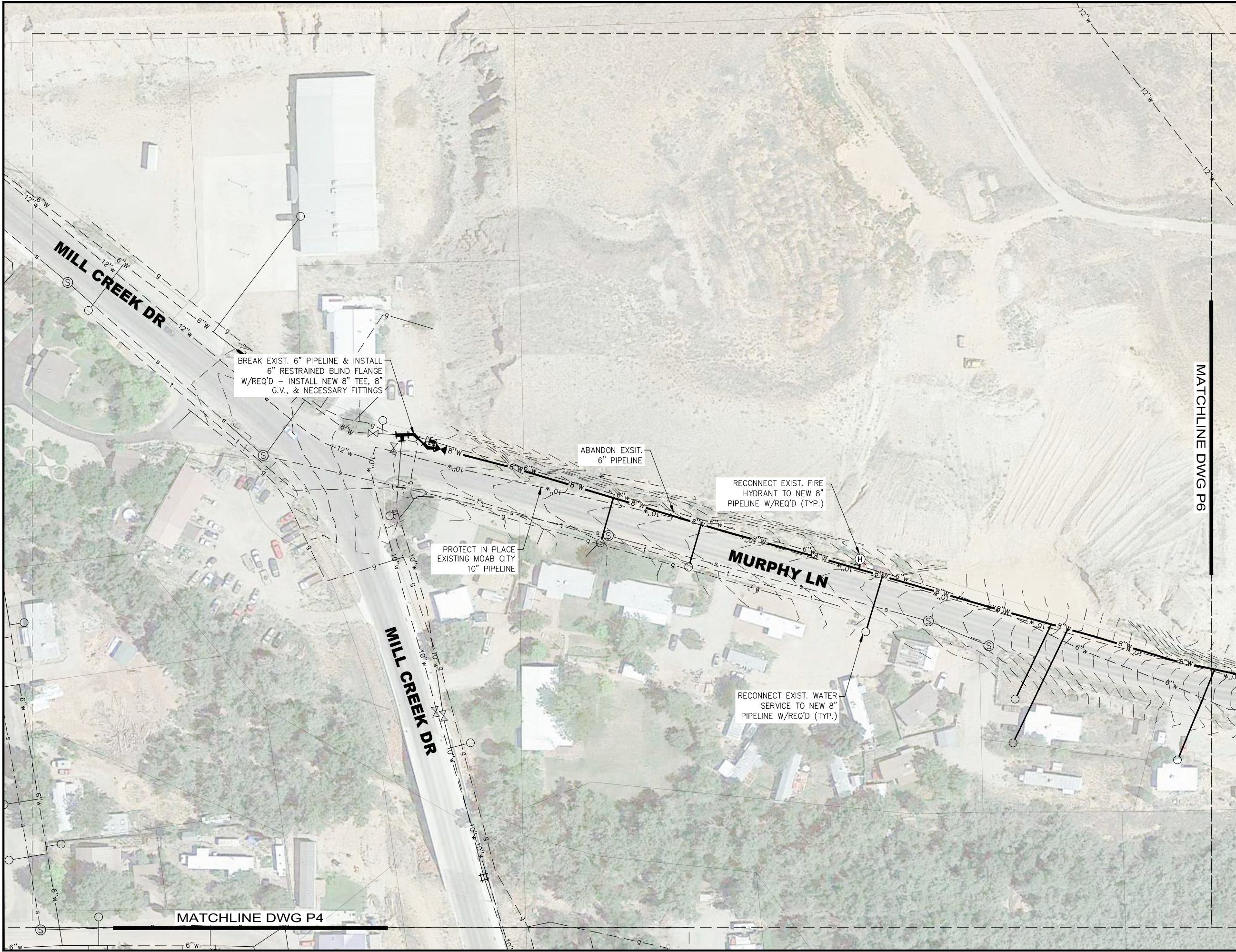
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HOLYOAK WATER IMPROVEMENTS
2025
PLAN SHEETS

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
12520	-	ML	DS	9	P4

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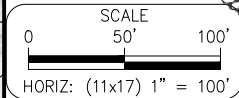
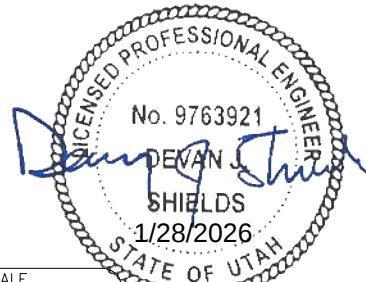


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MATCHLINE DWG P6

MATCHLINE DWG P4



REV NO.	COMMENT	DATE
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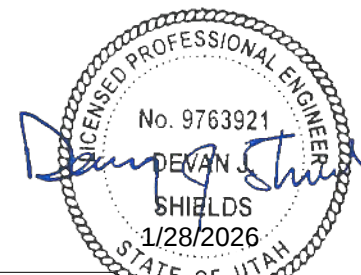
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HOLYOAK WATER IMPROVEMENTS
2025
PLAN SHEETS

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	P5
12520	-	ML	DS	10	



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SCALE
0 50' 100'
HORIZ: (11x17) 1" = 100'

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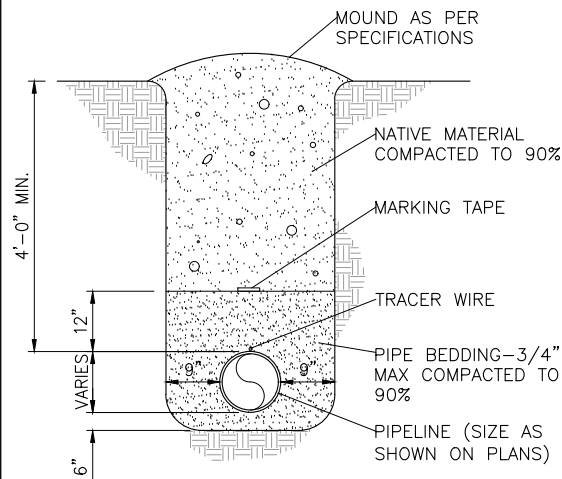
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2025
PLAN SHEETS

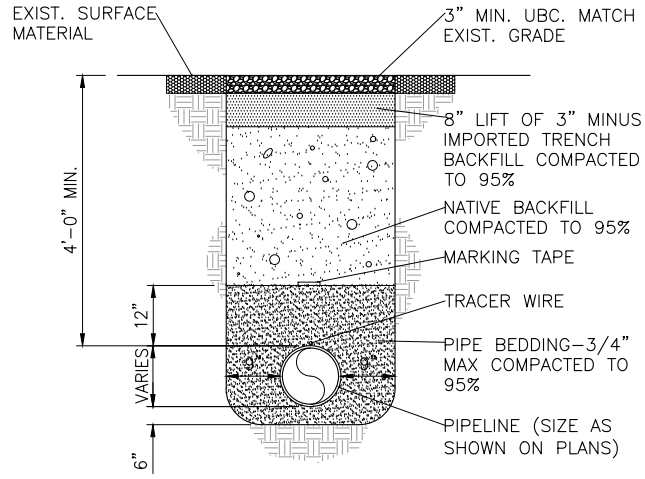
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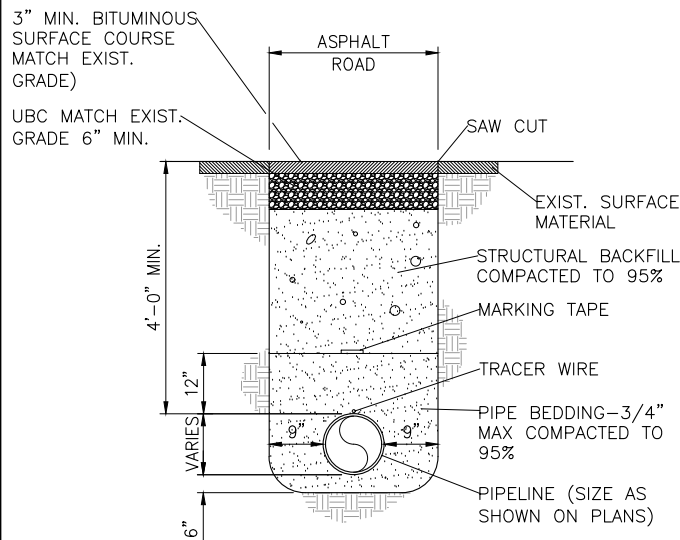
NOTE:
TRENCH DETAIL OUTSIDE OF TRAVELED ROADWAY
OR DESIGNATED ROAD RIGHT-OF-WAY.

DETAIL - TYPICAL TRENCH
N.T.S.



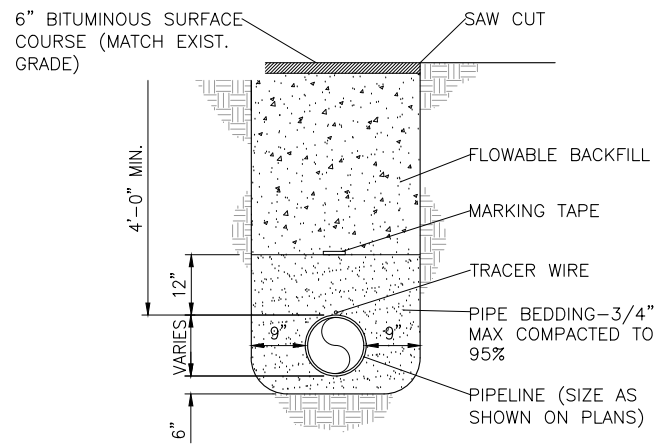
NOTE:
TRENCH DETAIL INSIDE OF GRAVEL ROADWAYS.

DETAIL - UNPAVED ROADWAY TRENCH
N.T.S.



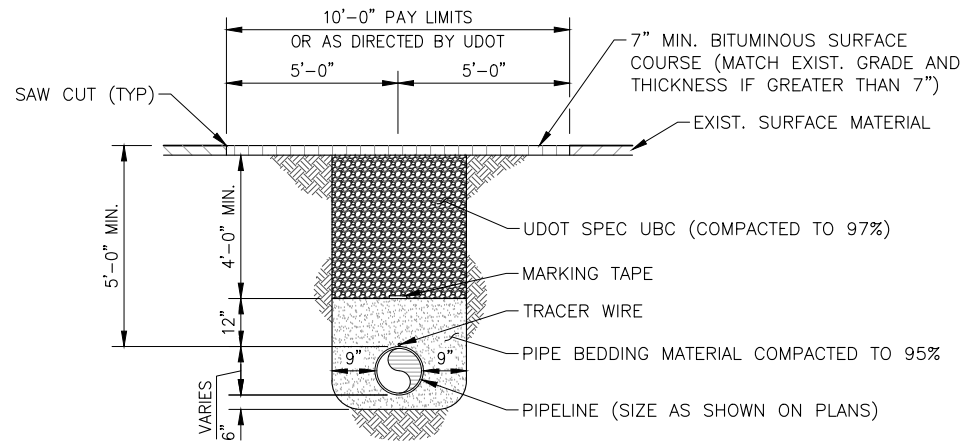
NOTES:
1. TRENCH DETAILS INSIDE OF ROADWAYS
ASPHALT/GRAVEL ROADS.
2. ASPHALT ROADS SHALL BE SAW CUT.
3. MAX PAY WIDTH SHALL BE 5'-0".

DETAIL - PAVED ROADWAY TRENCH
N.T.S.



NOTE:
THIS SHALL BE USED ON ALL COUNTY AND STATE HIGHWAY CROSSINGS
AND WHERE SPECIFICALLY CALLED FOR. CONTRACTOR SHALL OBTAIN
PERMIT FROM UDOT OR COUNTY PRIOR TO CONSTRUCTION

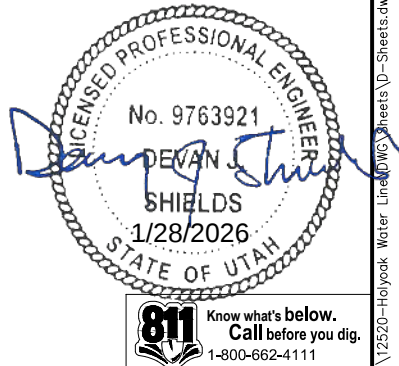
DETAIL - TRENCH W/ FLOWABLE BACKFILL
N.T.S.



NOTE:

1. THIS DETAIL SHALL BE USED ON ALL TRENCHES WITHIN STATE HIGHWAY PARKING LANES RUNNING PARALLEL TO TRAFFIC LANES AND WHERE SPECIFICALLY CALLED FOR. CONTRACTOR SHALL REFER TO SPECIFICATION 02501SP FOR DESCRIPTION OF TRENCHING REQUIREMENTS.
2. REPAIRS OF BORE PITS OR OTHER NON-TRENCHING EXCAVATIONS NOT ENCRDACHING INTO TRAFFIC LANES SHALL COMPLY WITH THIS DETAIL UNLESS OTHERWISE REQUIRED BY UDOT OR THE PROJECT ENGINEER.
3. WHERE TRENCHES IN THE PARKING LANES CROSS CITY STREETS ENTERING THE STATE HIGHWAY, DETAIL C IS REQUIRED AT THE CROSSING.
4. TACK COAT REQUIRED AT ALL PAVEMENT JOINTS.

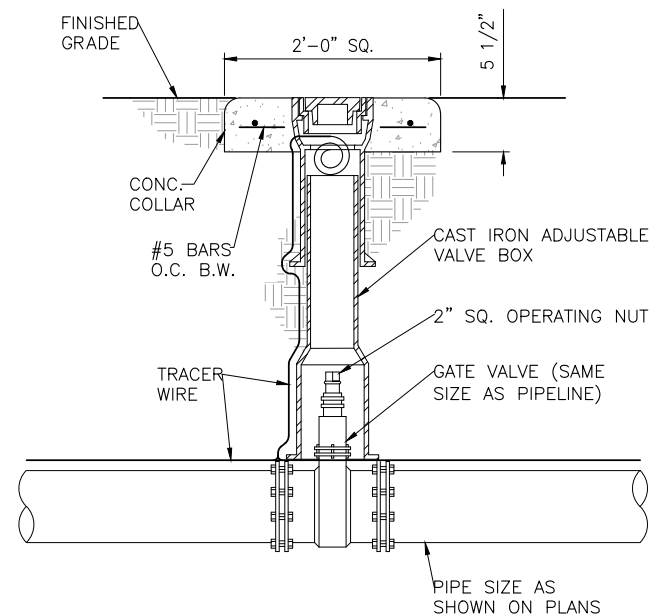
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DETAIL - UDOT TRENCH
TYP PARALLEL TO TRAFFIC LANES
NTS



REV NO.	COMMENT	DATE	Grand Water & Sewer Service Agency					
			STANDARD DETAILS					
			ROADWAY - TRENCH DETAILS					
			DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.	R-01
			2/14/2026	DJS	TRB	RWW		



REV NO.	COMMENT	DATE
SUNRISE ENGINEERING		
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GWSSA		
HOLYOAK WATER IMPROVEMENTS 2025 TYPICAL DETAILS		
SEI NO. 12520	DESIGNED -	DRAWN ML
CHECKED DS	SHEET NO. 12	D1



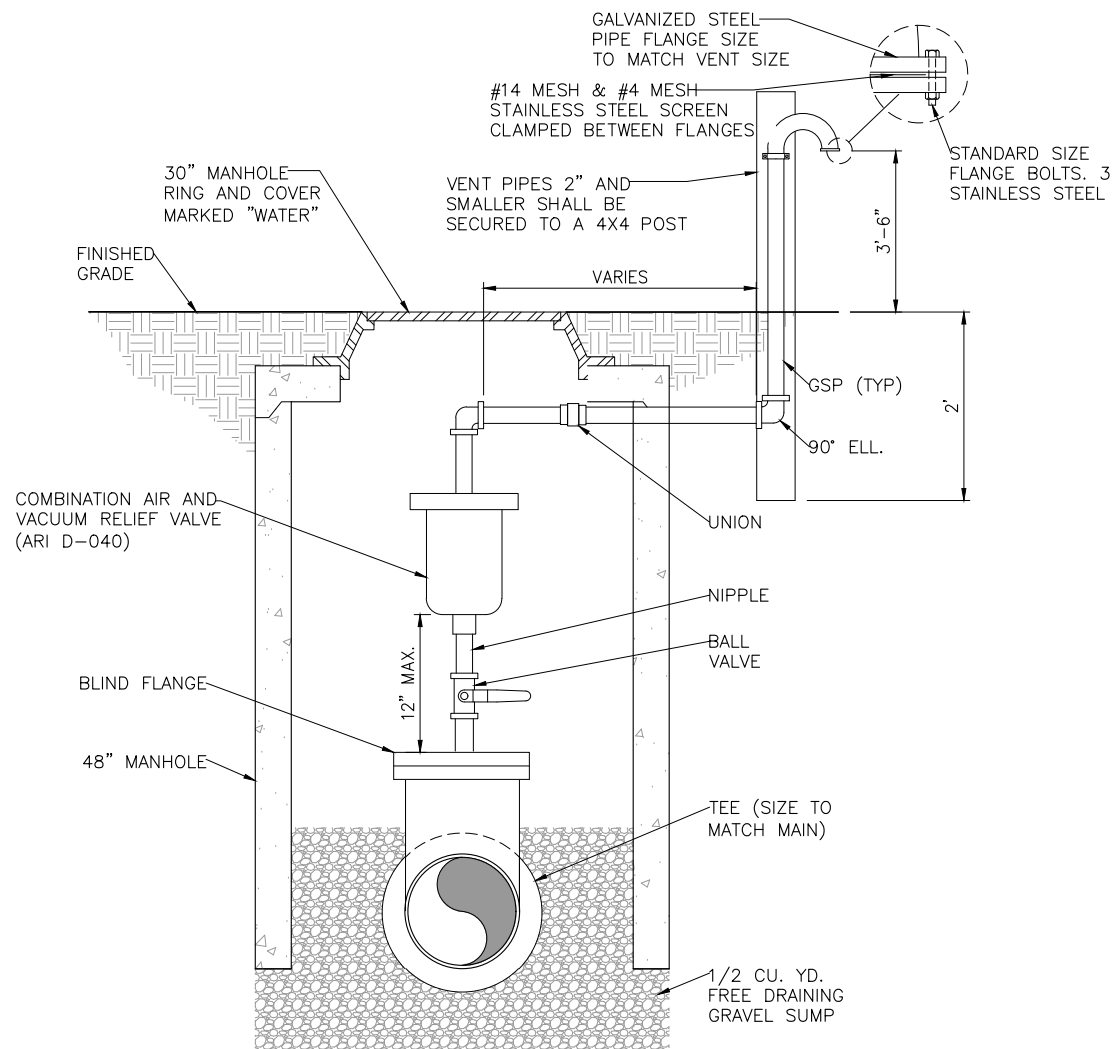
NOTES:

1. ALL VALVES SHALL BE RESTRAINED ACCORDING TO DETAILS W-06 AND W-07 AND SHALL BE TREATED AS A DEAD END IN BOTH DIRECTIONS.
2. PIPE, JOINTS, FITTINGS, VALVES, AND FIRE HYDRANTS SHALL CONFORM TO ANSI/NSF STANDARD 61 AND APPLICABLE SECTIONS OF AWWA STANDARDS C104-AZ14-08 THROUGH C550-05 AND C900-07 THROUGH C950-07. BLOCKING OR MECHANICAL RESTRAINT SHALL BE PROVIDED PER DETAILS W-06 AND W-07.
3. FOR VALVES OVER 48" DEEP ADD VALVE STEM AND VALVE BOX EXTENSIONS AS NECESSARY FOR NORMAL OPERATION OF VALVE KEY.
4. TRACER WIRE SHALL BE BROUGHT INTO THE VALVE BOX THROUGH HOLE AT BELL. COIL 12" OF TRACER WIRE INSIDE VALVE BOX BELL SECTION.
5. VALVES SMALLER THAN 16" SHALL BE GATE VALVES. MAINLINE VALVES 16" AND LARGER SHALL BE SHORT-BODY BUTTERFLY VALVES.
6. ALL NEW MAINS SHALL BE PVC C900 OR C905 DR-18 PIPE UNLESS OTHERWISE APPROVED.

DETAIL - TYPICAL GATE VALVE

N.T.S.

REV NO.	COMMENT	DATE	 SUNRISE ENGINEERING 25 EAST 500 NORTH FILLMORE, UTAH 84631 TEL 435.743.6151 • FAX 435.743.7900 www.sunrise-eng.com	Grand Water & Sewer Service Agency				
				STANDARD DETAILS				
				WATER – GATE VALVE				
				DATE 2/14/2025	DESIGNED DJS	DRAWN TRB	CHECKED RWW	SHEET NO. W-02



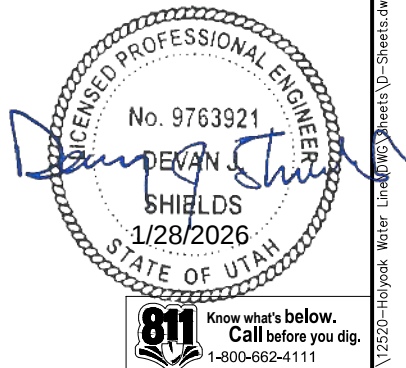
NOTES:

1. COMBINATION AIR VALVES SHALL BE NO LESS THAN 1/8" THE SIZE OF THE MAIN.
2. PIPE, JOINTS, FITTINGS, VALVES, AND FIRE HYDRANTS SHALL CONFORM TO ANSI/NSF STANDARD 61 AND APPLICABLE SECTIONS OF AWWA STANDARDS C104-A214-08 THROUGH C550-05 AND C900-07 THROUGH C950-07. BLOCKING OR MECHANICAL RESTRAINT SHALL BE PROVIDED PER DETAILS W-06 AND W-07.
3. ALL PIPE FITTINGS SHALL BE GALVANIZED STEEL 300lb. CLASS THREADED.
4. ALL AIR VALVE COMPONENT CONNECTING NIPPLES SHALL BE GSP SCHEDULE 40.
5. ALL PIPE PENETRATIONS SHALL BE SEALED WITH PORTLAND CEMENT GROUT.
6. PIPE NIPPLES, FITTINGS, GOOSENECK, & BALL VALVE SHALL BE SIZED TO MATCH SIZE OF AIR VALVE.
7. ALL NEW MAINS SHALL BE PVC C900 OR C905 DR-18 PIPE UNLESS OTHERWISE APPROVED.

DETAIL - COMBINATION AIR VALVE

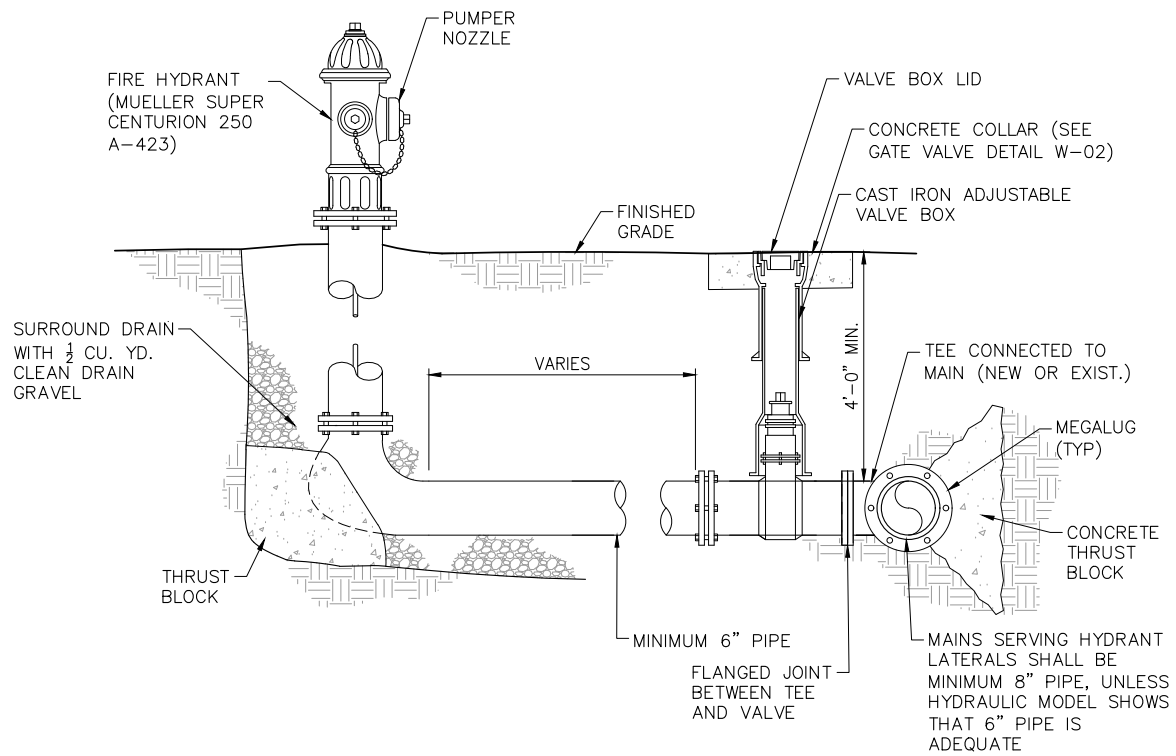
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REV NO.	COMMENT	DATE	 SUNRISE ENGINEERING	Grand Water & Sewer Service Agency				
				STANDARD DETAILS				
				WATER - COMBINATION AIR VALVE				
				DATE 2/14/2025	DESIGNED DJS	DRAWN TRB	CHECKED RWW	SHEET NO. W-04
				25 EAST 500 NORTH FILLMORE, UTAH 84631 TEL 435.743.6151 • FAX 435.743.7900 www.sunrise-eng.com				



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		GWSSA	
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SET NO. 12520	DESIGNED —	DRAWN ML	CHECKED DS
		SHEET NO. 13	D2

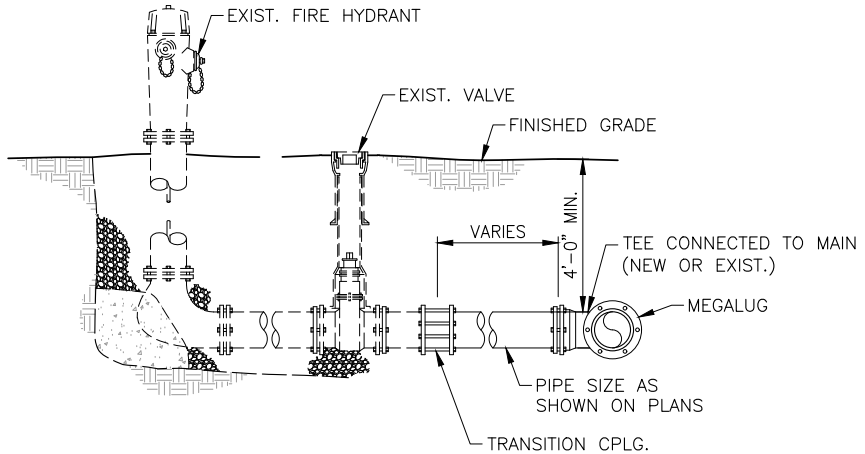
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- NOTES:
1. FIRE HYDRANT BREAKAWAY FLANGE SHALL BE NO GREATER THAN 5in. ABOVE FINISHED GRADE OR 1in. BELOW FINISHED GRADE
 2. PIPE, JOINTS, FITTINGS, VALVES, AND FIRE HYDRANTS SHALL CONFORM TO ANSI/NSF STANDARD 61 AND APPLICABLE SECTIONS OF AWWA STANDARDS C104-AZ14-08 THROUGH C550-05 AND C900-07 THROUGH C950-07. BLOCKING AND MECHANICAL RESTRAINT SHALL BE PROVIDED PER DETAILS W-06 AND W-07.
 3. HYDRANT DRAINS SHALL NOT BE LOCATED WITHIN 10 FEET OF SANITARY SEWERS.
 4. ALL NEW MAINS SHALL BE PVC C900 OR C905 DR-18 PIPE UNLESS OTHERWISE APPROVED.

DETAIL - FIRE HYDRANT
N.T.S.

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			Grand Water & Sewer Service Agency						
			STANDARD DETAILS						
			WATER – FIRE HYDRANT						
			DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.	W-01	
			2/14/2025	DJS	TRB	RWW	.		



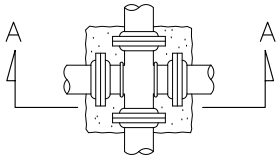
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DETAIL - RECONNECT EXIST. FIRE HYDRANT
N.T.S.



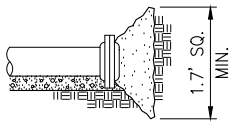
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GWSSA		
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SEI NO.	DESIGNED	DRAWN
12520	-	ML
	CHECKED	SHEET NO.
	DS	14
		D3

CONCRETE THRUST BLOCK
RESTRAINING SYSTEM DETAILS

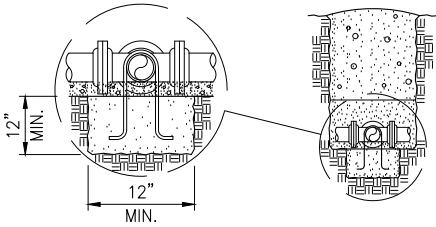
NOTE:
CONTRACTOR SHALL USE EITHER MECHANICAL
RESTRAINTS OR CONCRETE THRUST RESTRAINING
SYSTEM FOR WATERLINE INSTALLATION.



PLAN-THRUST BLOCK



DETAIL-DEAD END
THRUST BLOCK



SECTION A-A

THRUST BLOCK BEARING AREA IN SQ. FT.

PIPE SIZE	CROSS	TEE	WYE	DEAD END	VALVE	90° BEND	45° BEND	22.5° BEND	11.25° BEND
4	2.4	1.7	1.7	1.7	—	2.4	1.3	1.0	1.0
6	5.4	3.8	3.8	3.8	—	5.4	2.9	1.5	1.0
8	9.6	6.8	6.8	6.8	—	9.6	5.2	2.7	1.4
10	15.0	10.6	10.6	10.6	—	15.0	8.1	4.2	2.1
12	21.5	15.2	15.2	15.2	15.2	21.5	11.7	6.0	3.0
14	29.3	20.7	20.7	20.7	20.7	29.3	15.9	8.1	4.1
16	38.2	27.0	27.0	27.0	27.0	38.2	20.7	10.6	5.3
18	48.4	34.2	34.2	34.2	34.2	48.4	26.2	13.4	6.7
20	59.7	42.2	42.2	42.2	42.2	59.7	32.3	16.5	8.3
24	85.9	60.8	60.8	60.8	60.8	85.9	46.5	23.7	11.9

REDUCER

D1 D2	6	8	10	12	14	16	18	20	24
4	2.1	5.1	8.8	13.4	—	—	—	—	—
6	—	3.0	6.7	11.3	16.8	23.1	—	—	—
8	—	—	3.8	8.4	13.8	20.1	27.2	—	—
10	—	—	—	4.6	10.1	16.3	23.5	31.4	—
12	—	—	—	—	5.5	11.7	18.8	26.8	45.2
14	—	—	—	—	—	6.3	13.4	21.3	39.8
16	—	—	—	—	—	—	7.1	15.1	33.5
18	—	—	—	—	—	—	—	8.0	26.3
20	—	—	—	—	—	—	—	—	18.4

NOTES:

1. ALL THRUST BLOCK BEARING FACES SHALL BE PLACED AGAINST UNDIS-
TURBED SOIL OR APPROVED COMPACTED BACKFILL.
2. SQUARE ALL EDGES TO RECEIVE CONCRETE.
3. CONCRETE SHALL BE CLASS C.
4. CALCULATED ON 200 PSI TEST PRESSURE AND ALLOWABLE BEARING
PRESSURE OF 1500 LBS. PER SQ. FT.
5. IN POORER SOILS SPECIAL DESIGN IS REQUIRED.
6. ALL FITTINGS AND VALVES SHALL BE ANCHORED WITH TWO EPOXY COATED
#5 REBAR. ONLY ONE REQ'D FOR REDUCER
7. CENTER ALL FITTINGS OVER THRUST BLOCKS.

PVC DEAD END RESTRAINED LENGTHS L, IN FT.

PIPE SIZE									
4	6	8	10	12	14	16	18	20	24
39	55	73	88	104	119	134	149	163	192

1. ALL JOINTS WITHIN THE "L" DISTANCE SHALL BE RESTRAINED
2. VALVES SHALL BE CONSIDERED AS "DEAD END"

MECHANICAL
THRUST RESTRAINING SYSTEM DETAILS

* CALCULATIONS DERIVED FROM EBAA IRON SALES

PVC VERTICAL BEND RESTRAINED LENGTHS IN FT. (L ₁ —BEFORE CONNECTION/L ₂ AFTER CONNECTION)										
BEND ANGLE	PIPE SIZE									
11.25	4/1	5/2	7/2	9/3	10/3	12/4	13/4	15/5	16/5	19/6
22.5	8/3	11/4	15/5	17/6	21/7	24/8	27/9	30/9	33/10	38/12
45	16/5	23/8	30/10	36/12	43/14	49/16	56/18	62/20	68/21	79/25

CALCULATIONS BASED ON THE ELEVATION OF THE PIPE REMAINING CONSTANT
WITH THE CONTOUR OF THE GROUND.
FOR TWO WAY FLOW, SUCH AS FOUND IN DISTRIBUTION SYSTEMS, USE
L₁ ON BOTH SIDES OF FITTING.

PVC HORIZONTAL BEND RESTRAINED LENGTHS L, IN FT.

BEND ANGLE	PIPE SIZE									
11.25	1	2	2	3	3	4	4	5	5	6
22.5	3	4	5	6	7	8	9	9	10	12
45	5	8	10	12	14	16	18	20	21	25
90	13	18	24	29	34	38	43	47	52	60

1. ALL JOINTS WITHIN THE "L" DISTANCE SHALL BE RESTRAINED

PVC TEE RESTRAINED LENGTHS L, IN FT.

BRANCH SIZE DIA.	RUN SIZE DIAMETER									
	4	6	8	10	12	14	16	18	20	24
4	*	*	*	*	*	*	*	*	*	*
6	—	*	*	*	*	*	*	*	*	*
8	—	—	*	*	*	*	*	*	*	*
10	—	—	—	*	*	*	*	*	*	*
12	—	—	—	—	*	*	*	*	*	*
14	—	—	—	—	—	*	*	*	*	*
16	—	—	—	—	—	—	7	*	*	*
18	—	—	—	—	—	—	—	20	4	*
20	—	—	—	—	—	—	—	—	34	3
24	—	—	—	—	—	—	—	—	—	60

* = FOR THIS CONDITION NEED ONLY RESTRAIN THE OUTLETS OF TEE
NOTES:

1. RESTRAIN THE THREE MECHANICAL JOINTS ON THE TEE.
2. ALL JOINTS WITHIN THE "L" DISTANCE ON THE BRANCH SIDE OF TEE SHALL
BE RESTRAINED AND ALL JOINTS WITHIN 18' ON THE RUN SIDE OF THE TEE
SHALL BE RESTRAINED.

PVC REDUCER RESTRAINED LENGTHS L, IN FT.
(SMALL SIDE/LARGE SIDE)

D1 D2	6	8	10	12	14	16	18	20	24
4	42/29	100/52	171/71	258/90	—	—	—	—	—
6	—	40/31	88/54	147/75	217/95	297/113	—	—	—
8	—	—	37/29	82/55	135/77	197/98	266/117	—	—
10	—	—	—	36/30	79/56	128/80	183/100	244/120	—
12	—	—	—	—	36/30	77/57	123/80	174/102	293/142
14	—	—	—	—	—	35/30	74/57	118/81	219/124
16	—	—	—	—	—	—	34/30	73/57	161/104
18	—	—	—	—	—	—	—	34/30	111/82
20	—	—	—	—	—	—	—	—	70/57

1. ALL JOINTS WITHIN THE "L" DISTANCE SHALL BE RESTRAINED

DIP DEAD END RESTRAINED LENGTHS L, IN FT.

PIPE SIZE									
4	6	8	10	12	14	16	18	20	24
25	36	47	57	67	76	86	95	105	123

1. ALL JOINTS WITHIN THE "L" DISTANCE SHALL BE RESTRAINED

DIP VERTICAL BEND RESTRAINED LENGTHS IN FT. (L ₁ BEFORE CONNECTION/L ₂ AFTER CONNECTION)										
BEND ANGLE	PIPE SIZE									
11.25	2/1	4/2	5/2	6/2	7/3	8/3	8/4	9/4	10/4	12/5
22.5	5/2	7/3	9/4	11/5	13/6	15/6	17/7	19/8	21/9	24/10
45	11/5	15/6	20/8	23/10	28/12	32/13	36/15	40/17	43/18	51/21

CALCULATIONS BASED ON THE ELEVATION OF THE PIPE REMAINING CONSTANT
WITH THE CONTOUR OF THE GROUND.

DIP HORIZONTAL BEND RESTRAINED LENGTHS L, IN FT.

BEND ANGLE	PIPE SIZE									
11.25	1	2	2	2	3	3	4	4	4	5
22.5	2	3	4	5	6	6	7	8	9	10
45	5	6	8	10	12	13	15	17	18	21
90	11	15	20	24	28	32	36	40	44	51

1. ALL JOINTS WITHIN THE "L" DISTANCE SHALL BE RESTRAINED

DIP TEE RESTRAINED LENGTHS L, IN FT.

BRANCH SIZE DIA.	RUN SIZE DIAMETER									
	4	6	8	10	12	14	16	18	20	24
4	*	*	*	*	*	*	*	*	*	*
6	—	*	*	*	*	*	*	*	*	*
8	—	—	*	*	*	*	*	*	*	*
10	—	—	—	*	*	*	*	*	*	*
12	—	—	—	—	*	*	*	*	*	*
14	—	—	—	—	—	*	*	*	*	*
16	—	—	—	—	—	—	12	2	*	*
18	—	—	—	—	—	—	—	21	12	*
20	—	—	—	—	—	—	—	—	30	12
24	—	—	—	—	—	—	—	—	—	47

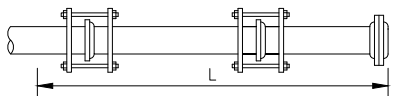
* = FOR THIS CONDITION NEED ONLY RESTRAIN THE OUTLETS OF TEE
NOTES:

1. RESTRAIN THE THREE MECHANICAL JOINTS ON THE TEE.
2. ALL JOINTS WITHIN THE "L" DISTANCE ON THE BRANCH SIDE OF TEE SHALL
BE RESTRAINED AND ALL JOINTS WITHIN 18' ON THE RUN SIDE OF THE TEE
SHALL BE RESTRAINED.

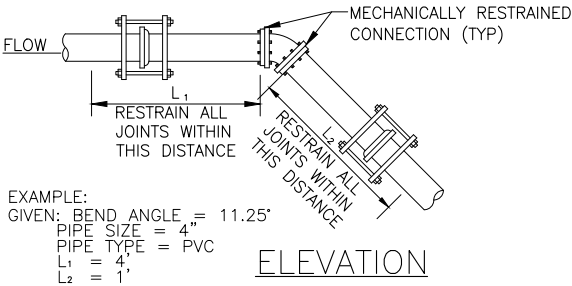
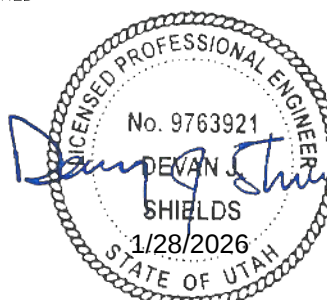
DIP REDUCER RESTRAINED LENGTHS L, IN FT.
(SMALL SIDE/LARGE SIDE)

D1 D2	6	8	10	12	14	16	18	20	24
4	27/18	65/34	110/46	166/58	—	—	—	—	—
6	—	26/20	57/35	95/48	140/61	192/73	—	—	—
8	—	—	24/19	53/35	87/50	127/63	171/75	—	—
10	—	—	—	23/20	51/36	82/51	118/64	158/77	—
12	—	—	—	—	23/20	49/37	79/52	112/66	188/91
14	—	—	—	—	—	22/20	48/37	76/52	141/80
16	—	—	—	—	—	—	22/19	47/37	103/67
18	—	—	—	—	—	—	—	22/19	72/53
20	—	—	—	—	—	—	—	—	45/37

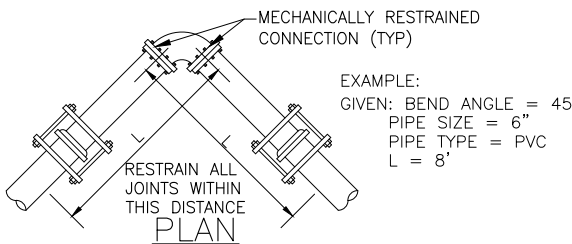
1. ALL JOINTS WITHIN THE "L" DISTANCE SHALL BE RESTRAINED



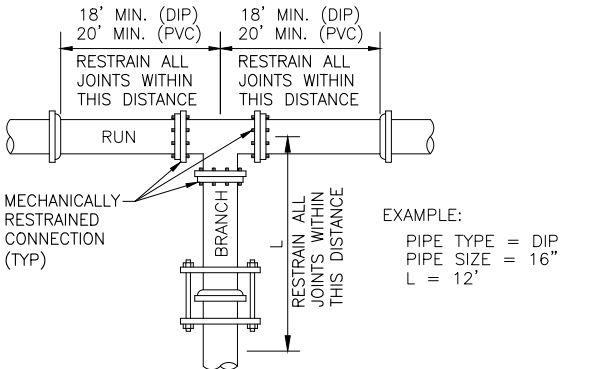
EXAMPLE:
PIPE TYPE = DIP
PIPE SIZE = 10"
L = 57'



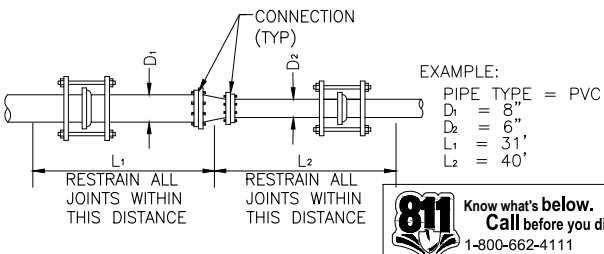
ELEVATION



PLAN



PLAN



REV NO.	COMMENT	DATE
 SUNRISE ENGINEERING 25 EAST 500 NORTH FILLMORE, UTAH 84631 TEL 435.743.6151 · FAX 435.743.7900 www.sunrise-eng.com		
GWSSA		
HOLYOAK WATER IMPROVEMENTS 2025 TYPICAL DETAILS		
SEI NO. 12520	DESIGNED —	DRAWN ML
CHECKED DS	SHEET NO. 16	D5