

CONSTRUCTION DRAWINGS FOR

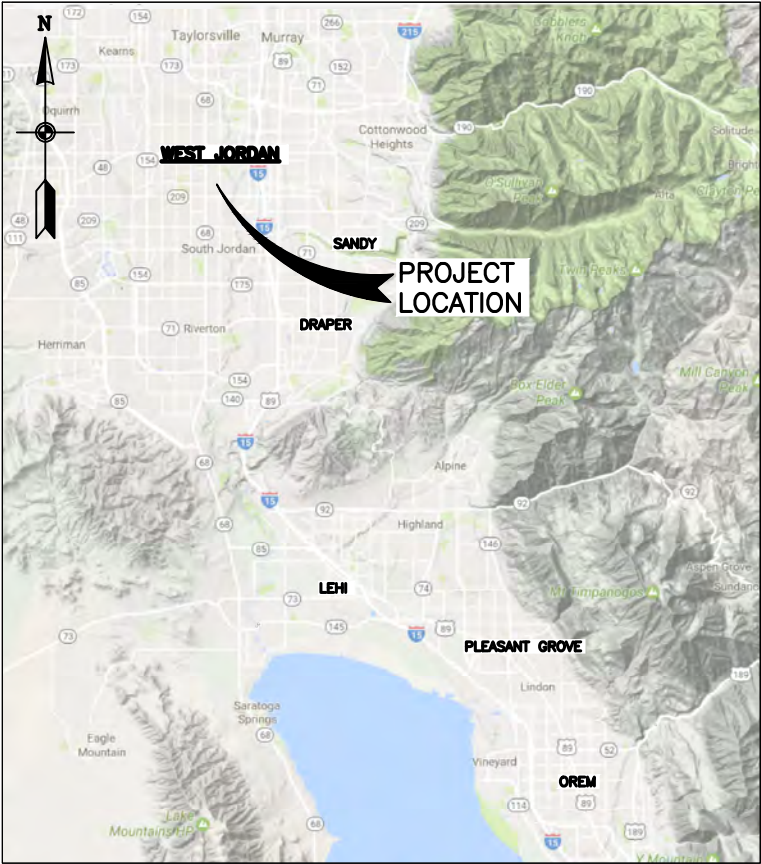
SOUTH VALLEY WATER RECLAMATION FACILITY

2021 YARD PIPING IMPROVEMENTS PROJECT

AT BIOREACTORS

WEST JORDAN

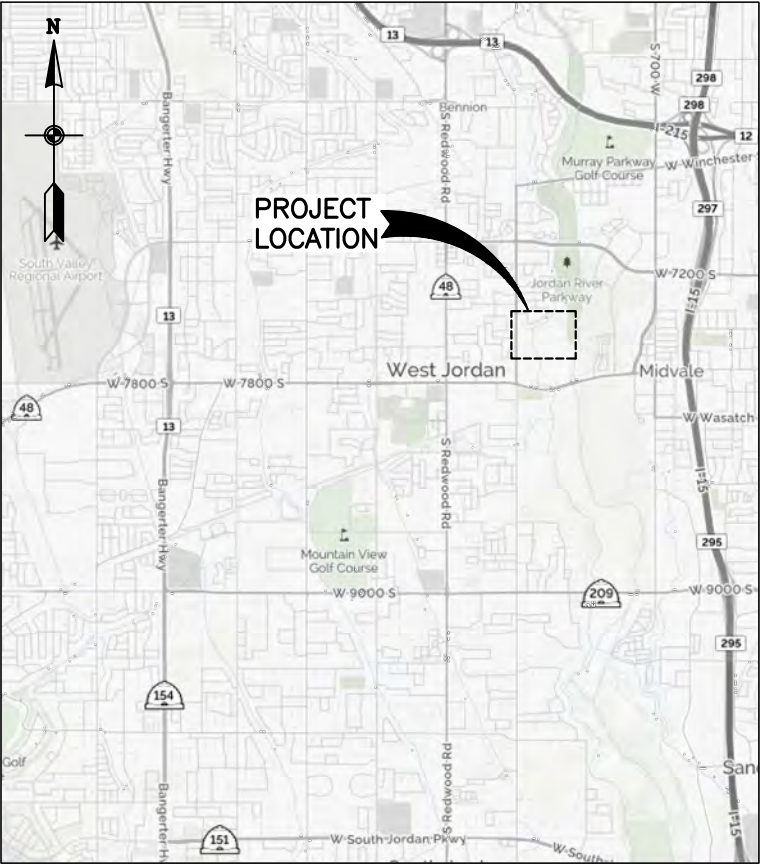
NOVEMBER 2020



PROJECT LOCATION MAP


NTS

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GENERAL		
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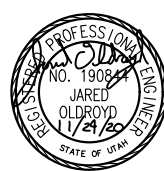


PROJECT VICINITY MAP

NTS



PROJECT #
014-2020-002
DATE: 11/20/2020



SVWRF 2021 YARD PIPING
IMPROVEMENTS PROJECT
BIOREACTORS

TITLE AND INDEX

DRAWING
G-01
SHEET
1 OF 9

GENERAL NOTES

- CONTRACTOR SHALL HAVE SOLE RESPONSIBILITY FOR SAFETY OF THE JOBSITE. CONTRACTOR IS SOLELY RESPONSIBLE FOR CONFORMANCE WITH LOCAL AND FEDERAL CODES GOVERNING SAFETY. CONTRACTOR IS RESPONSIBLE FOR THE SAFETY OF THE PUBLIC AND PROTECTION OF PERSONNEL AND WORKERS.
2. CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN ALL NECESSARY PERMITS (INCLUDING PERMIT FEES) AND COMPLY WITH THE REGULATIONS AND REQUIREMENTS OF ALL GOVERNMENTAL ENTITIES HAVING JURISDICTION.
3. CONTRACTOR SHALL TAKE NECESSARY MEASURES TO PRESERVE AND PROTECT EXISTING STRUCTURES, WALLS, DRIVEWAYS, FENCES, LANDSCAPING, TREES, CURB AND GUTTER, SIDEWALK, AND OTHER IMPROVEMENTS. ANY SUCH IMPROVEMENTS REMOVED OR DAMAGED BY CONTRACTOR'S ACTIVITY SHALL BE REPLACED OR REPAIRED TO ORIGINAL OR BETTER CONDITION AT THE SOLE EXPENSE OF THE CONTRACTOR.
4. CONTRACTOR SHALL FIELD VERIFY LOCATIONS AND INVERT ELEVATIONS OF EXISTING BURIED PIPING, PIPE SIZES AND OTHER UTILITIES BEFORE ANY CONSTRUCTION.
5. UTILITIES SHOWN ON THE DRAWINGS ARE BASED ON THE BEST AVAILABLE INFORMATION PROVIDED BY OTHERS, AND SHOULD BE CONSIDERED APPROXIMATE AND FOR GENERAL INFORMATION ONLY. CONTRACTOR IS RESPONSIBLE TO LOCATE AND PROTECT ALL UTILITIES IN THE PROJECT AREA, INCLUDING THOSE THAT MAY NOT BE SHOWN OR THAT MAY BE SHOWN INCORRECTLY. CONTRACTOR IS SOLELY RESPONSIBLE FOR THE REPAIR OF ANY UTILITY DAMAGED AS A RESULT OF THE CONTRACTOR'S OPERATIONS. RELOCATIONS AND/OR REPLACEMENTS OF EXISTING UTILITIES SHALL BE COORDINATED BY THE CONTRACTOR WITH THE UTILITY OWNER. CONTRACTOR SHALL CONTACT, SCHEDULE, AND ESTABLISH ANY REQUIRED UTILITY SHUT DOWN TIMES AND DETERMINE THE RELOCATION AND/OR REPLACEMENT REQUIREMENTS OF EXISTING UTILITIES PRIOR TO THE START OF ANY WORK. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO PROCEEDING CONSTRUCTION FOR NECESSARY PLAN OR GRADE CHANGES. NO EXTRA COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR WORK HAVING TO BE REDONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THESE PLANS. ANY DISCREPANCIES OBSERVED BY THE CONTRACTOR SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
6. CONTRACTORS ACCESS SHALL BE LIMITED TO THE HOURS OF 7:00 AM TO 6:00 PM MONDAY – FRIDAY.
7. CONTRACTOR TO COMPLY WITH WEST JORDAN CITY SWPPP REQUIREMENTS.
8. CONTRACTOR SHALL COORDINATE THE WORK SCHEDULE WITH THE PROJECT 5 CONTRACTOR (RSCI) TO AVOID CONFLICTS.

YARD PIPING IMPROVEMENTS PROJECT NOTES

- ## 1. SVWRF 2020 YARD PIPING IMPROVEMENTS PROJECT

THE WORK OF THIS CONTRACT INCLUDES BUT IS NOT LIMITED TO:

- A. REPLACEMENT OF BIOREACTOR SUPPLY CONNECTION INCLUDING VALVE, VALVE BOX, CONCRETE, AND APPURTENANCES.
- B. BIOREACTOR SUPPLY CONNECTIONS SHALL INCLUDE HYDRANTS, PIPING AND CONNECTIONS AS NOTED.
- C. REPLACEMENT OF VALVES INCLUDING VALVE, VALVE BOX, CONCRETE AND APPURTENANCES.
- D. PIPING REPAIRS AS NOTED.
- E. SITE RESTORATION INCLUDING ASPHALT, CONCRETE, AND LANDSCAPING.
- F. NEW CONCRETE WHERE INDICATED.

2. WORK ITEMS TO BE COORDINATED WITH OWNER. ONLY OWNER MAY CLOSE AND OPEN VALVES.

ITEM	DESCRIPTION	VALVE SIZE	VALVE DEPTH	ISOLATION VALVES TO BE CLOSED
1	CONNECTION 1	4"	82"	
2	CONNECTION 2	4"	68"	
3	CONNECTION 3	4"	118"	
4	CONNECTION 4	4"	100"	
5	CONNECTION 5	4"	104"	
6	CONNECTION 6	4"	61"	
7	CONNECTION 7	4"	46" (STEM)	
8	CONNECTION 8	4"	98"	
9	REPLACE VALVE	2"	ASSUME 6' BURY DEPTH	
10	OTHER VALVE REPLACEMENTS AS DIRECTED BY THE OWNER			

3. ALL NEW PIPING SHALL BE SHOWN TO BE FREE OF LEAKS PRIOR TO BACKFILL. COORDINATE PRESSURE TESTING WITH OWNER.

CONTACTS

- OWNER
SOUTH VALLEY WATER RECLAMATION FACILITY
TAIGON WORTHEN P.E. 801-495-5469

DESIGN FIRM

- ENGINEER
JWO ENGINEERING, PLLC
JARED OLDROYD PE 801-828-7805

OTHER CONTACTS

- **GAS QUESTAR GAS (EMERGENCY)**
800-767-1689

ABBREVIATIONS

AB	ANCHOR BOLT	MATL	MATERIAL
ADD'L	ADDITIONAL	MAX	MAXIMUM
AL	ALUMINUM	MFR	MANUFACTURER
APPROX	APPROXIMATE	MH	MANHOLE
ASSY	ASSEMBLY	MIN	MINIMUM
		MISC	MISCELLANEOUS
BLDG	BUILDING	N	NORTH
BOT	BOTTOM	NTS	NOT TO SCALE
BTWN	BETWEEN		
		OC	ON CENTER
C	CONDUIT	OPNG	OPENING
CB	CATCH BASIN		
CFM	CUBIC FEET PER MINUTE	PH	POTHOLE
CL	CENTERLINE	PS	PUMPED SEWER
CLR	CLEAR, CLEARANCE	PT	POINT
CO	CLEAN OUT BOX	PVC	POLYVINYL CHLORIDE
CONC	CONCRETE	PW	POTABLE WATER
CONN	CONNECTION		
CONST	CONSTRUCTION	R	RADIUS
CONT	CONTINUOUS	RCP	REINFORCED CONCRTE PIPE
CPLG	COUPLING	RCB	REINFORCED BOX CULVERT
CTRD	CENTERED	RDCR	REDUCER
CTR	CENTER	REINF	REINFORCED, REINFORCING
CU FT	CUBIC FOOT	REQD	REQUIRED
		RT	RIGHT
DEFL	DEFLECTION	RW	RAW WATER
DI	DUCTILE IRON		
DIA	DIAMETER	SCH	SCHEDULE
DWG	DRAWING	SD	STORM DRAIN
DWL	DOWEL	SIM	SIMILAR
		SLP	SLOPE
EA	EACH	SPD	SUMP PUMP DISCHARGE
EF	EACH FACE	SPEC	SPECIFICATION (S)
EJC	EAST JORDAN CANAL	SQ	SQUARE
EL	ELEVATION	SS	SANITARY SEWER
ELB	ELBOW	SSL	SEWER SERVICE LATERAL
EQ	EQUAL	SST	STAINLESS STEEL
EQL SP	EQUALLY SPACED	STA	STATION
EQUIP	EQUIPMENT	STD	STANDARD
EW	EACH WAY	STL	STEEL
EXIST	EXISTING	STRL	STRUCTURAL
		STRUCT	STRUCTURE
FG	FINISH GRADE		
FL	FLOW LINE	T&B	TOP AND BOTTOM
FLG	FLANGE	TBC	TOP BACK CURB
FLR	FLOOR	TDH	TOTAL DEPTH IN HEAD
FNSH	FINISH	TEL	TELEPHONE
FT	FEET OR FOOT	THK	THICK OR THICKNESS
FTG	FOOTING	TOA	TOP OF ASPHALT
		TOG	TOP OF GRATE
G	GAS	TOW	TOP OF WALL
GA	GAGE OR GAUGE	TYP	TYPICAL
GALV	GALVANIZED	UTBC	UNTREATED BASE COURSE
GE	GROOVED END		
GPM	GALLONS PER MINUTE	VCP	VENT PIPING
GS	GAS SERVICE LATERAL		
		W	WATER OR WEST
HORIZ	HORIZONTAL	W/	WITH
HP	HORSE POWER	W/O	WITHOUT
HSS	HIGH STRENGTH STEEL	WSTP	WATERSTOP
		WS	WATER SERVICE LATERAL
IE	INVERT ELEVATION		
INVT	INVERT		
J&SLC	JORDAN & SALT LAKE CANAL		
JT	JOINT		
LF	LINEAR FEET		
LG	LONG		
LT	LEFT		



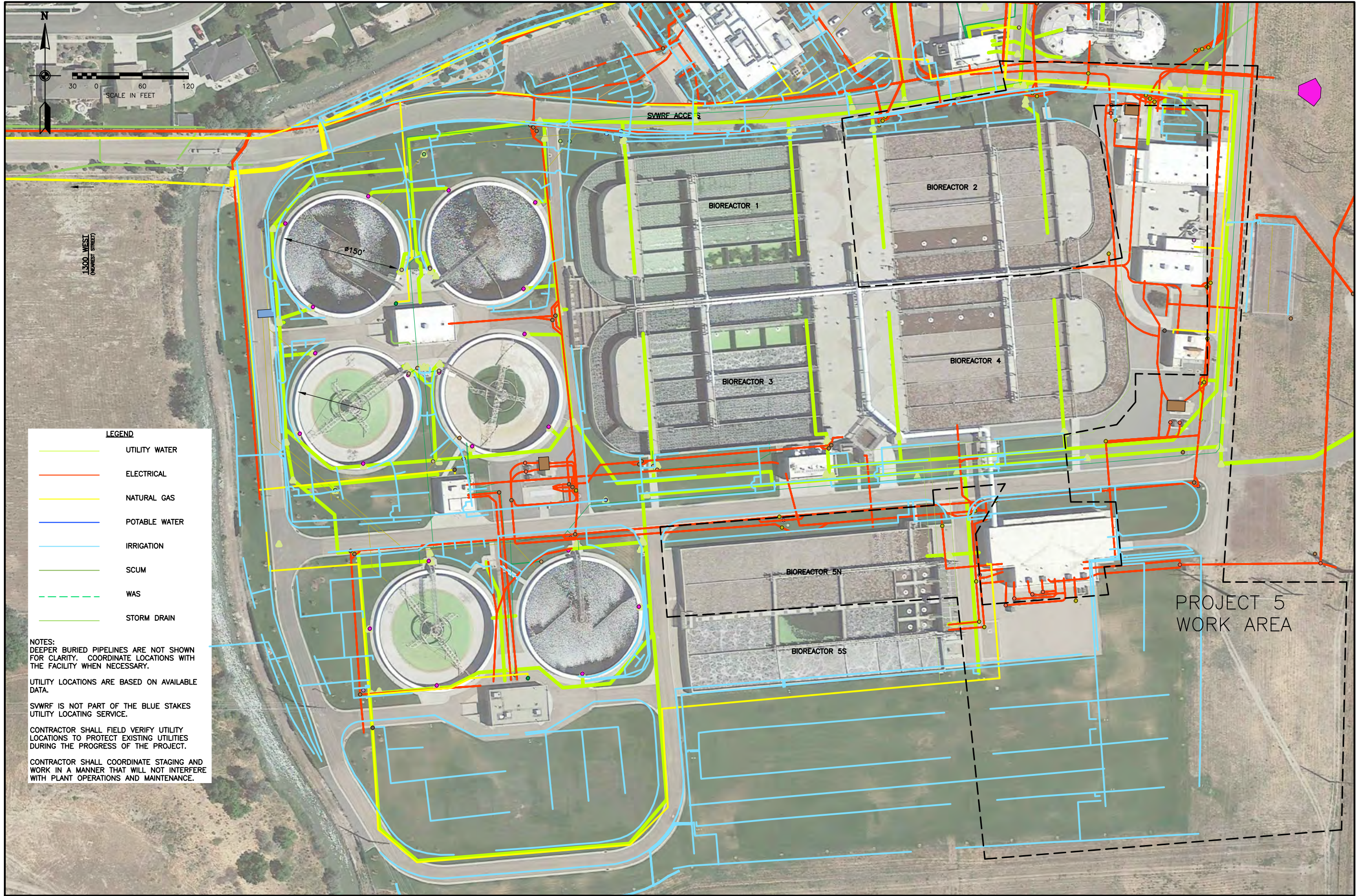
VERIFY SCALE:
BAR IS 1" IN
ORIGINAL DRAWING

PROJECT #
014-2020-002
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BIOWASTE 2021 YARD PIPING
IMPROVEMENTS PROJECT
BIOREACTORS
NOTES, CONTACTS AND
ABBREVIATIONS

DRAWING
G-02
SHEET
2 OF 9



LEGEND

- UTILITY WATER
- ELECTRICAL
- NATURAL GAS
- POTABLE WATER
- IRRIGATION
- SCUM
- WAS
- STORM DRAIN

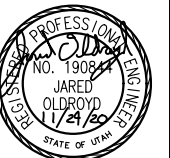
NOTES:
DEEPER BURIED PIPELINES ARE NOT SHOWN FOR CLARITY. COORDINATE LOCATIONS WITH THE FACILITY WHEN NECESSARY.

UTILITY LOCATIONS ARE BASED ON AVAILABLE DATA.

SWRF IS NOT PART OF THE BLUE STAKES UTILITY LOCATING SERVICE.

CONTRACTOR SHALL FIELD VERIFY UTILITY LOCATIONS TO PROTECT EXISTING UTILITIES DURING THE PROGRESS OF THE PROJECT.

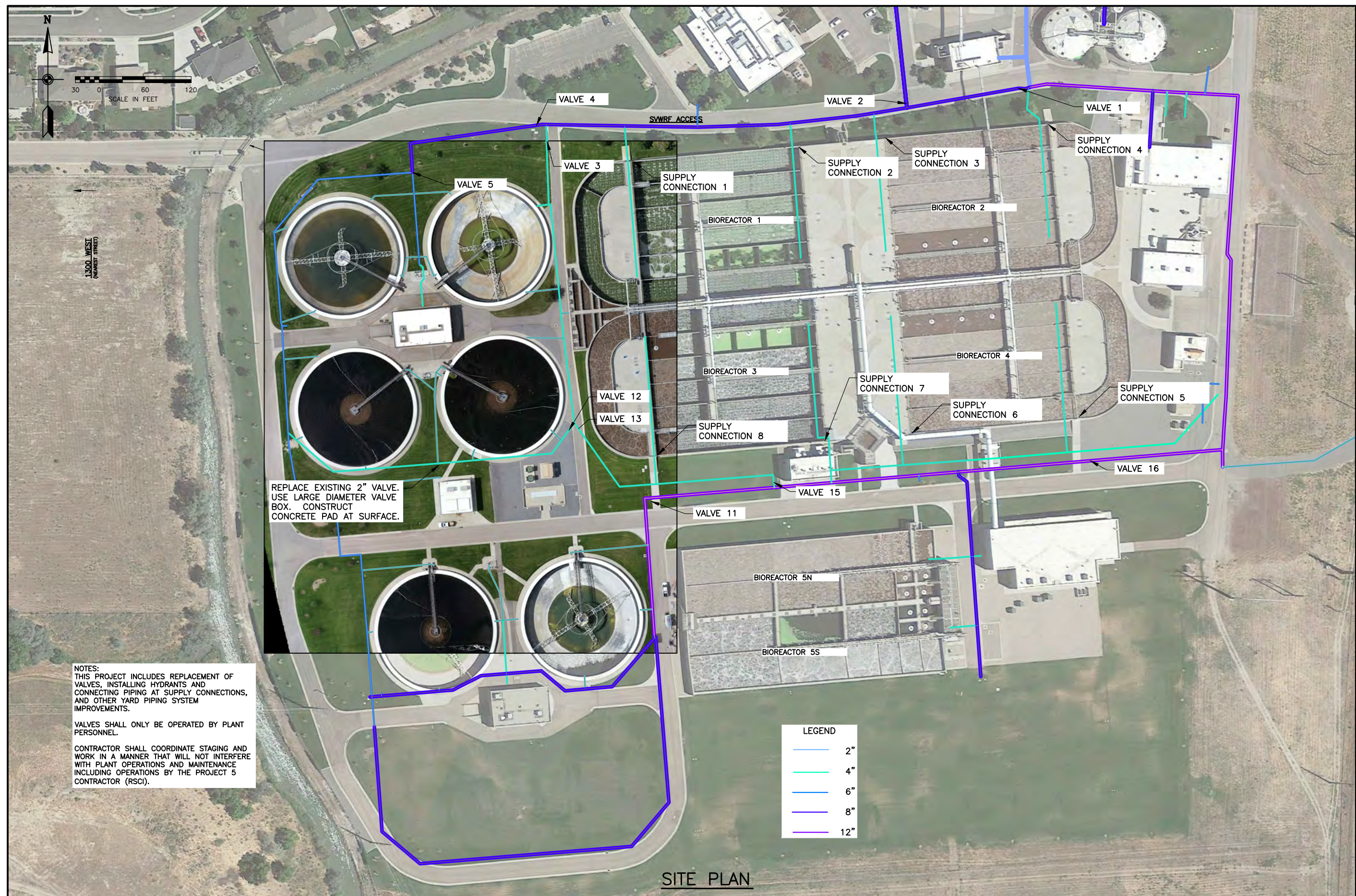
CONTRACTOR SHALL COORDINATE STAGING AND WORK IN A MANNER THAT WILL NOT INTERFERE WITH PLANT OPERATIONS AND MAINTENANCE.

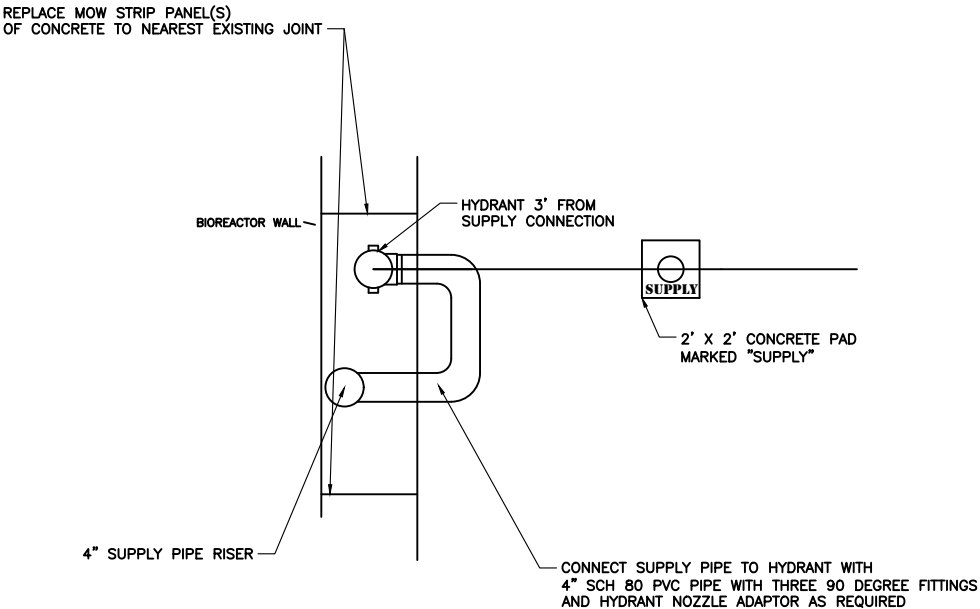


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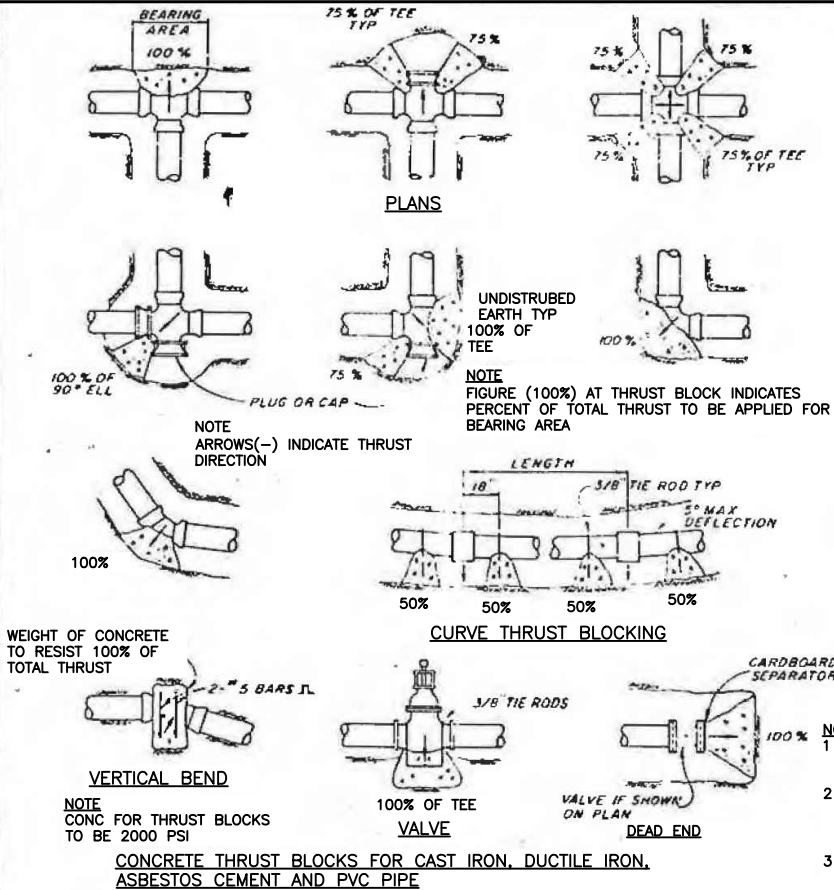
SWRF 2021 YARD PIPING
IMPROVEMENTS PROJECT
BIOREACTORS

UTILITY PLAN





HYDRANT INSTALLATION PLAN – NTS



THRUST PER POUND OF WATER PRESSURE AT VARIOUS FITTINGS				
PIPE SIZE	DEAD END OR TEE	90° ELBOW	45° ELBOW	22-1/2° ELBOW
4	19	27	15	7
6	39	55	30	15
8	67	94	51	26
10	109	154	84	43
12	155	218	119	61
14	210	296	161	82
16	272	383	209	106
8	351	494	269	137
20	434	611	333	169
24	623	878	478	244

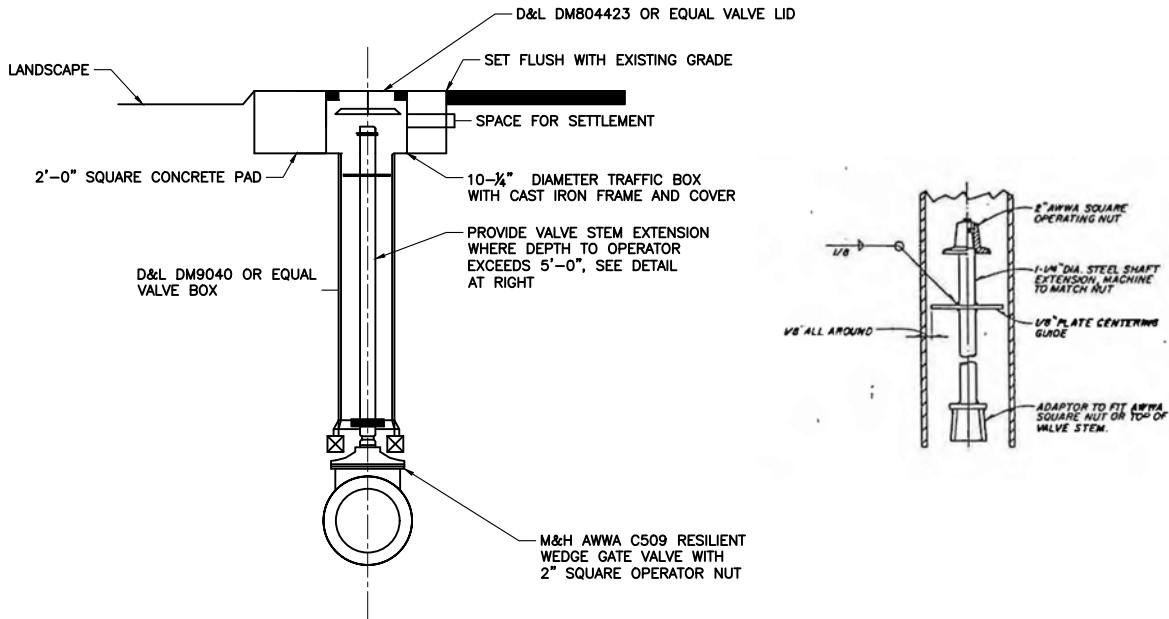
EXAMPLE:
8-INCH 90° ELBOW AT 200 LB MAXIMUM PRESSURE.
FROM TABLE THRUST = 94 * 200 = 18,800 LB.
ASSUME BEARING STRENGTH OF SOIL = 2000 LB/ SQ FT
18,800/2000 = 94 SQ FT = AREA OF BEARING REQUIRED FOR THRUST BLOCK

SIDE THRUST PER 100 LB/SQ IN PRESSURE PER DEGREE OF DEFLECTION			
PIPE SIZE	SIDE THRUST-LB	PIPE SIZE	SIDE THRUST-LB
4	35	14	377
6	72	16	486
8	122	18	665
10	197	20	790
12	278	24	1150

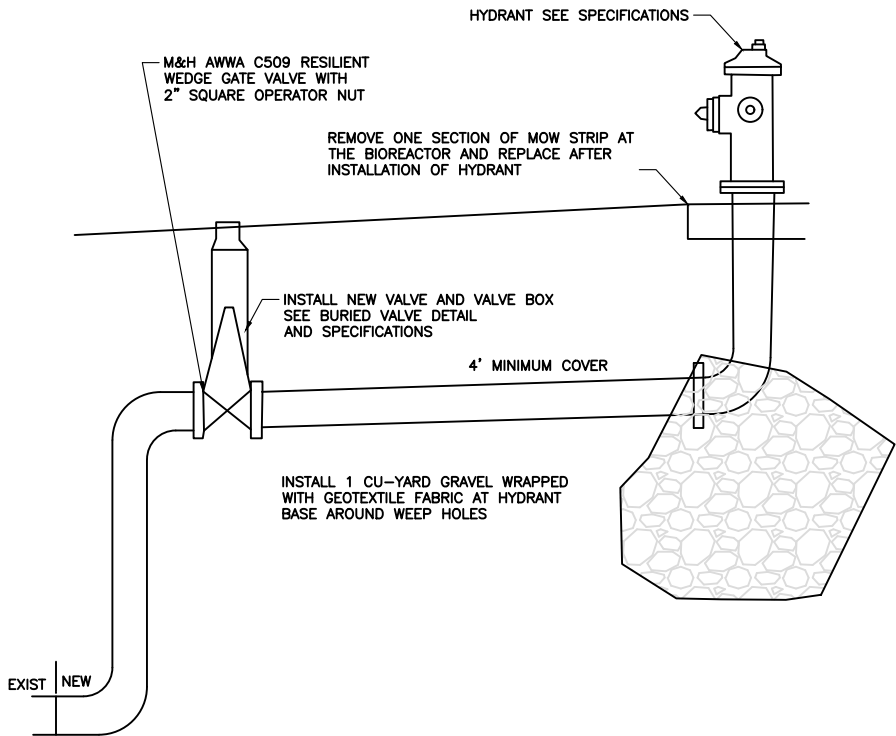
MULTIPLY THRUST BY DEGREE OF DEFLECTION TO OBTAIN TOTAL THRUST

NOTES:
1 IN USING THE ABOVE TABLES, USE THE MAXIMUM PRESSURE ANTICIPATED I.E. HYDROSTATIC TEST PRESSURE, POSSIBLE SURGE PRESSURE DUE TO PUMP SHUT-OFF, ETC.
2 SEE SOILS REPORT FOR BEARING STRENGTH OF SOIL. IN THE ABSENCE OF A SOILS REPORT, AN AVERAGE SOIL (SPADABLE MEDIUM CLAY) CAN BE ASSUMED TO HAVE A BEARING STRENGTH OF 2000 PSI.
3 THRUST BLOCKS ARE NOT REQUIRED ON PVC PIPE WITH SOLVENT MELDED JOINTS

NOTES: INSTALL 2' SQUARE BY 6" THICK CONCRETE PAD AT VALVE BOX COVER. MATCH GRADE SLOPE. OPERATOR STEM EXTENSION WHERE PROVIDED SHALL EXTEND TO 12" BELOW VALVE COVER SUPPORT VALVE BOX ON 2"x2"x12" REDWOOD BLOCKS ON CRUSHED ROCK

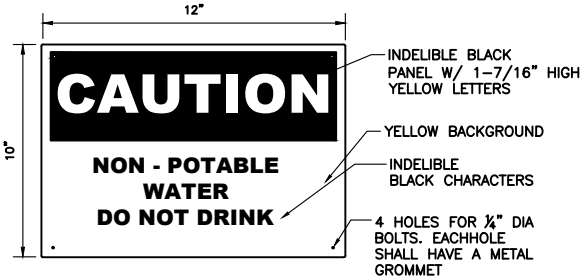


BURIED VALVE DETAIL – NTS



NOTES:
1 ALL FERROUS SURFACES OF PIPE AND APPURTENANCES TO BE PROVIDED WITH PROTECTIVE COATINGS PER SPECS
2 PROVIDE STAINLESS STEEL NUTS, BOLTS AND WSHRS TO BURIED FLANGES AND COUPLINGS, EXCEPT FOR NON-METALLIC WASHERS TO BE PROVIDED AS PART OF INSULATING FLANGE SET.
3 PROVIDE THRUST BLOCKING OR RESTRAINT FOR ALL PIPING
4 ALL M/J'S SHALL BE RESTRAINED W/MEGA-LUGS AND THRUST BLOCKS

TYPICAL HYDRANT SECTION – NTS



NOTES: MATERIAL TO BE SEMI-RIGID BUTYRATE OR APPROVED EQUAL, AS MANUFACTURED BY SETON NAME PLATE CORP, NEW HAVEN, CONN, 06500, W.H. BRADY CO, MILWAUKEE, WIS 53201 OR EQUAL
COLORS & LETTER SIZES TO BE PER OSHA STANDARDS FOR CAUTION SIGNS
PROVIDE THIS SIGN AT ALL HYDRANTS WHERE WATER IS NON-POTABLE

WARNING SIGN FOR NON-POTABLE WATER

JWOENGINEERING

VERIFY SCALE:
BAR IS 1" IN
ORIGINAL DRAWING

PROJECT #
014-2020-002

DATE: 11/20/2020

REGISTERED PROFESSIONAL ENGINEER
NO. 1908
JARED
OLDROYD
1/21/20

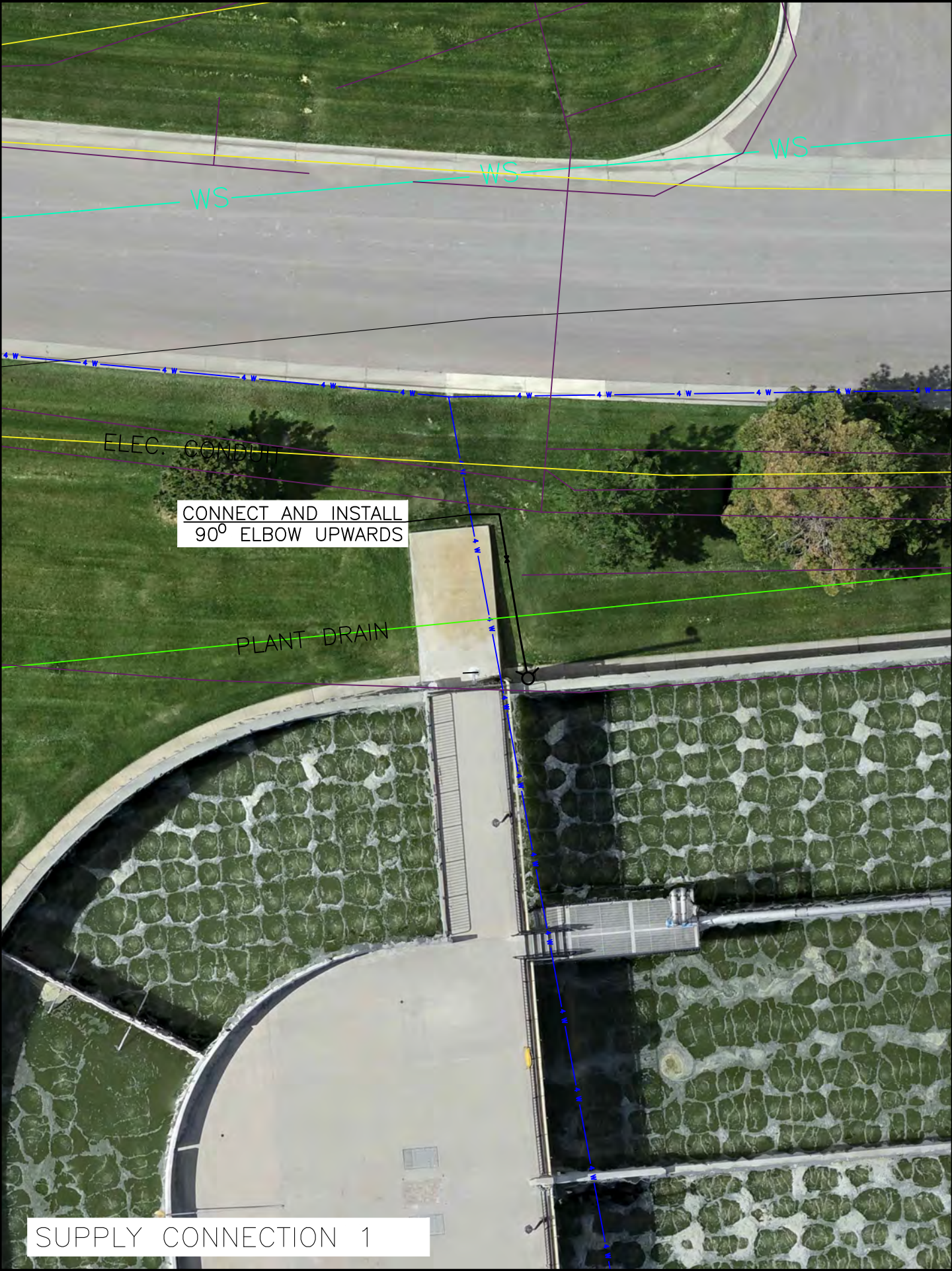
STATE OF UTAH

REVISION	DATE	DRAWN BY	CHECKED BY	DESCRIPTION

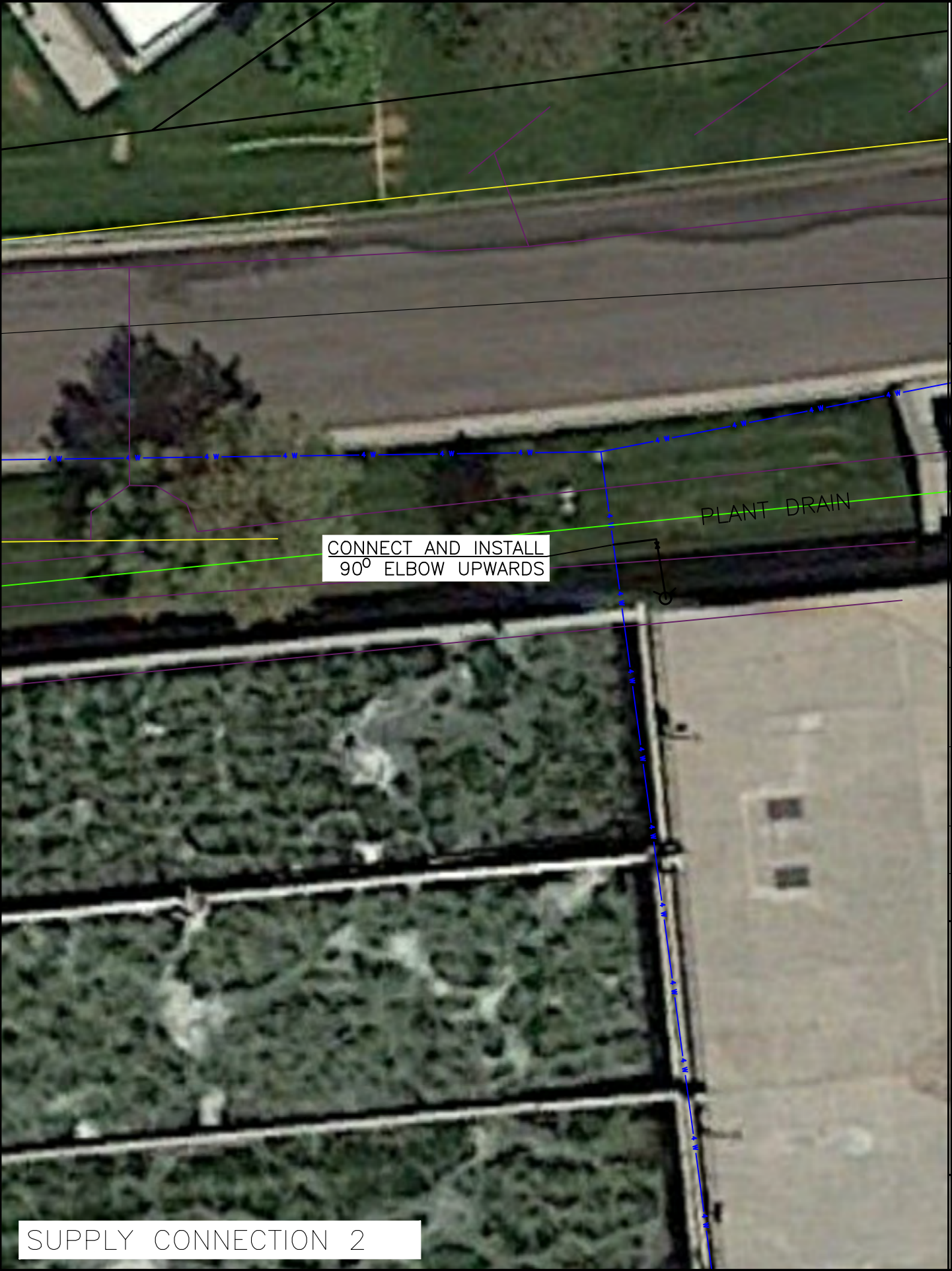
SWRFR 2021 YARD PIPING
IMPROVEMENTS PROJECT
BIOREACTORS

DETAILS

DRAWING
D-01
SHEET
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SUPPLY CONNECTION 1



SUPPLY CONNECTION 2

JWOENGINEERING

PROJECT #014-2020-002

DATE: 11/20/2020

VERIFIED SCALE: 1" = 10'

BAR IS 1" IN ORIGINAL DRAWING

PROFESSIONAL ENGINEER

JARED OLDROYD

1/24/20

STATE OF UTAH

REVISION	DATE	DRAWN BY	CHECKED BY	DESCRIPTION

SWWRF 2021 YARD PIPING IMPROVEMENTS PROJECT BIOREACTORS

DETAILS 2


DRAWING D-02

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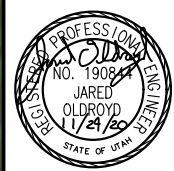


SUPPLY CONNECTION 3

SUPPLY CONNECTION 4



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SWWRF 2021 YARD PIPING
IMPROVEMENTS PROJECT
BIOREACTORS

DETAILS 3

DRAWING
D-03
SHEET
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VERIFY SCALE:
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ORIGINAL DRAWING

