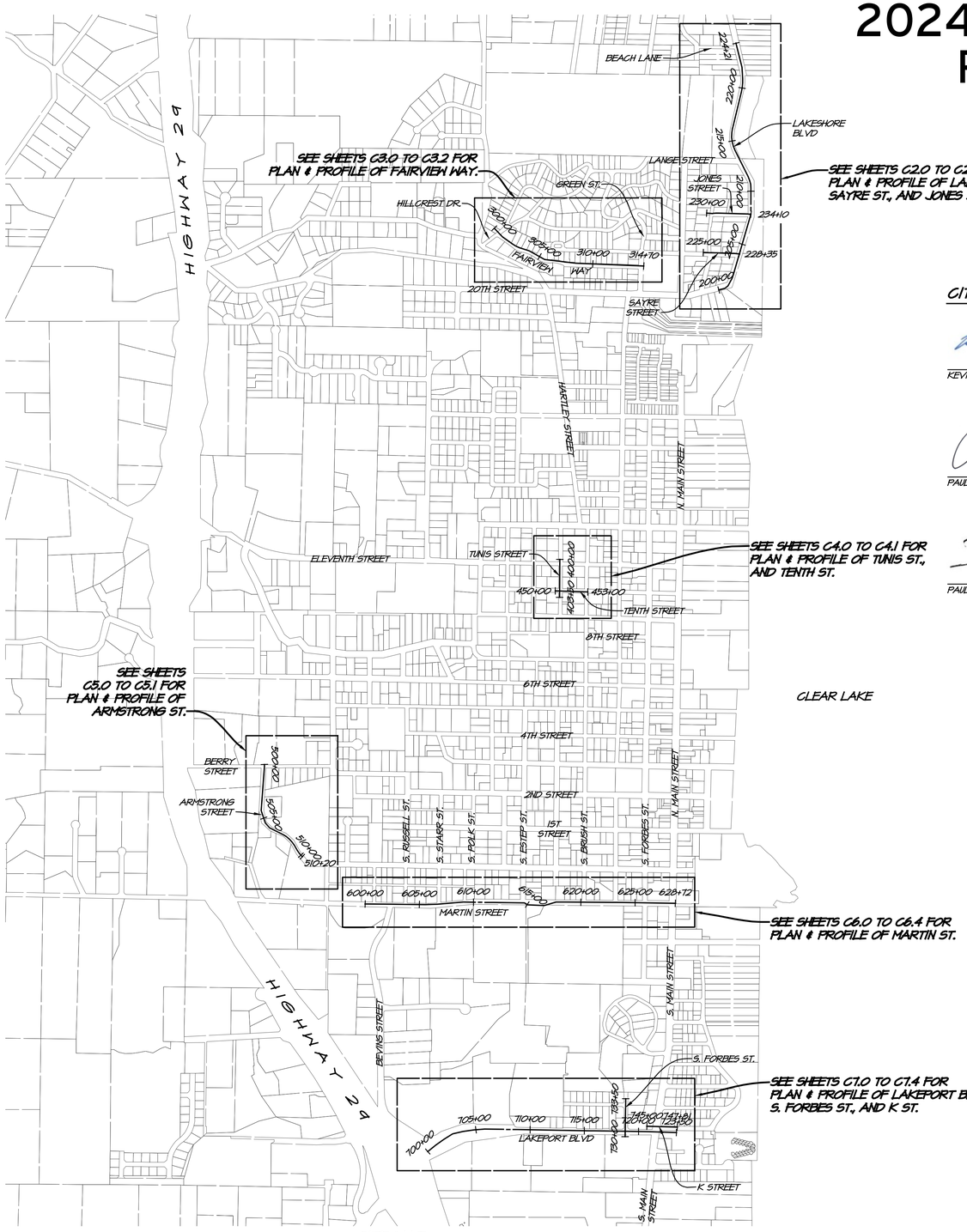
CITY OF LAKEPORT

2024 WATER AND SEWER MAIN REPLACEMENT PLANS

BID NO. 23-05



SITE MAP
SCALE: 1" = 600'

CITY APPROVALS

KEVIN INGRAM, CITY MANAGER

PAUL CURREN P.E., CITY ENGINEER

PAUL HARRIS, CITY OF LAKEPORT UTILITIES DIRECTOR

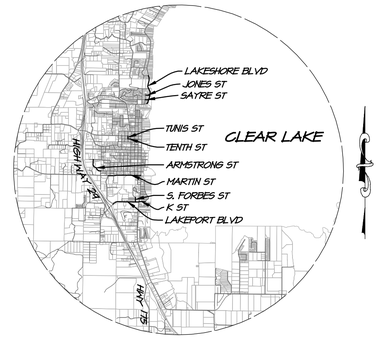
GRAPHIC SCALE
600 0 600 1200
(IN FEET)
1 inch = 600 FT

SYMBOL LEGEND

EXISTING	PROPOSED
SURVEY CONTROL STATION	STORM DRAIN PIPE
FOUND	DRAIN INLET
BRASS PIN	DOWNSPOUT
FLOW LINE	LEVEL SPREADER
FENCE	TOP / TOE DAYLIGHT
TREE (AS NOTED)	RETAINING WALL
WELL	CONSTRUCTION FENCE
SSMH	SILT FENCE
(E) FIRE HYDRANT	FLUSH CURB
(E) GATE VALVE	VERTICAL CURB
(E) LIFM	CURB & GUTTER
(E) SSFM	CURB INLET
(E) SANITARY SEWER	SANITARY SEWER
(E) RECYCLED WATER	SANITARY SEWER FORCED MAIN
(E) WATER	DOMESTIC WATER
	CLEANOUT
	FIRE HYDRANT
	GATE VALVE
	PIV & FDC

ABBREVIATIONS

AB	AGGREGATE BASE ROCK	LLA	LOT LINE ADJUSTMENT
AC	ASPHALTIC CONCRETE	LP	LOW POINT
BGL	BOTTOM OF GRAVEL LAYER	MH	MANHOLE
BOT	BOTTOM	OC	ON CENTER
CB	CATCH BASIN	OR	OFFICIAL RECORD
℄	CENTERLINE	℗	PROPERTY LINE
CI	CURB INLET	(P)	PROPOSED NEW WORK
CO	CLEANOUT	PCC	PORTLAND CEMENT CONCRETE
CONF	CONFORM	PIV	PRESSURE INDICATOR VALVE
DDCV	DOUBLE DETECTOR CHECK VALVE	PUE	PUBLIC UTILITY EASEMENT
DW	DOMESTIC WATER	PW	PROCESS WATER
ELEV	ELEVATION	PWW	PROCESS WASTE WATER
EP	EDGE OF PAVEMENT	R	RADIUS
EV	ELECTRIC VEHICLE	RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
EW	EACH WAY	ROW	RIGHT OF WAY
EX / (E)	EXISTING	RW	RECYCLED WATER
FD	FOUND	S	SLOPE (FEET/FOOT)
FDC	FIRE DEPARTMENT CONNECTION	S.A.D.	SEE ARCHITECTS DRAWINGS
FF	FINISH FLOOR	SD	STORM DRAIN
FG	FINISH GRADE	SDCO	STORM DRAIN CLEANOUT
FH	FIRE HYDRANT	SF	SQUARE FOOT
℉	FLOW LINE	S.L.A.D.	SEE LANDSCAPE ARCHITECTS DRAWINGS
FW	FIRE WATER	SS	SANITARY SEWER
GB	GRADE BREAK	SSCO	SANITARY SEWER CLEANOUT
GV	GATE VALVE	SSFM	SANITARY SEWER FORCED MAIN
HP	HIGH POINT	STA	STATION
HWL	HIGH WATER LEVEL	TC	TOP OF CURB
INV	INVERT	TGL	TOP OF GRAVEL LAYER
IP	IRON PIPE	TSL	TOP OF SOIL LAYER
IW	IRRIGATION WATER	TYP	TYPICAL
LF	LINEAL FEET/FOOT	VCP	VITRIFIED CLAY PIPE
LIFM	LAKE INTAKE FORCE MAIN	WM	WATER METER



VICINITY MAP
SCALE: 1" = 6000'

PROJECT INFORMATION

CLIENT: CITY OF LAKEPORT
225 PARK STREET
LAKEPORT, CA 95453

CONTACT: PAUL HARRIS

SITE ADDRESSES: LAKESHORE BLVD
FAIRVIEW WAY
TENTH & TUNIS STREETS
ARMSTRONG BLVD
MARTIN ST
LAKEPORT BLVD & K ST

CIVIL ENGINEER: RSA+
1515 FOURTH STREET
NAPA, CA 94559

SURVEY NOTES

1. THIS SURVEY WAS PERFORMED BY RSA+ USING MOBILE LIDAR SCANNING JULY, 2023. ANY CRITICAL CONFORM LOCATIONS SHOULD BE CONFIRMED FOR DESIGN AND CONSTRUCTION. CONTOURS ARE SHOWN EVERY ONE FOOT (1'), HIGHLIGHTED EVERY FIVE FEET (5').
2. HORIZONTAL DATUM: NORTH AMERICAN DATUM OF 1983 (NAD83) 2011 EPOCH BASED UPON G.P.S. OBSERVATIONS ON NETWORK UTILIZING CONTINUALLY OPERATING REFERENCE STATION (C.O.R.S.) INFORMATION FROM THE CALIFORNIA SPATIAL REFERENCE CENTER (C.S.R.C.).

   VERTICAL DATUM: NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29), PER THE CITY OF LAKEPORT BENCHMARK MAP POINTS:
   LAKEPORT BLVD, ARMSTRONG BLVD, & MARTIN ST. #24, EL.: 1345.34'
   TENTH & TUNIS ST. #51, EL.: 1348.05'
   LAKESHORE BLVD, FAIRVIEW WAY: #81, EL.: 1338.50'
3. A BOUNDARY SURVEY WAS NOT PERFORMED. PARCEL LINES SHOWN PER LAKE COUNTY GIS, SHOWN FOR REFERENCE ONLY AND ARE TO BE CONSIDERED APPROXIMATE.
4. TREES WERE NOT A PART OF THIS SURVEY.

SHEET INDEX

NO.	DATE	REVISIONS	BY	APPD

RSA+
1515 FOURTH STREET
NAPA, CALIF. 94559
OFFICE | 707 | 252.3301
+ www.RSAcivil.com +
RSA+ | CONSULTING CIVIL ENGINEERS + SURVEYORS + | 1980

2024 WATER AND SEWER MAIN REPLACMENT
COVER SHEET
CITY OF LAKEPORT CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
PAUL SARGENT WARNOCK
No. 82758
Exp. 9-30-24
CIVIL ENGINEERING
STATE OF CALIFORNIA

DATE	MAR. 12, 2024
DRAWN	LMM
DESIGNED	NAH
CHECKED	PSW
JOB NO.	4123018.1

SHEET NO.
C1.0
1 OF 32 SHEETS

CITY OF LAKEPORT GENERAL NOTES

04/2023

1. ALL MATERIALS, WORKMANSHIP, AND CONSTRUCTION SHALL CONFORM TO THE CITY OF LAKEPORT STANDARD DESIGN AND CONSTRUCTION STANDARDS.
2. THE LOCATION OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON THE BEST INFORMATION AVAILABLE; HOWEVER, THE CITY OF LAKEPORT AND THE ENGINEER ASSUME NO RESPONSIBILITY FOR THE ACCURACY OF THE INFORMATION SHOWN, OR FOR THE INADVERTENT OMISSION OF ANY SUCH INFORMATION. THE CONTRACTOR SHALL COOPERATE WITH ALL UTILITY COMPANIES AND OTHER CONTRACTORS WORKING WITHIN THE LIMITS OF THIS PROJECT.
3. N/A (RESERVED)
4. ALL NEW SEWER MAINS ARE TO BE PLUGGED AT THE EXISTING SEWER CONNECTION UNTIL THE NEW SEWER MAINS HAVE BEEN ACCEPTED BY THE CITY OF LAKEPORT.
5. THE CONTRACTOR SHALL SECURE ALL ENCROACHMENT PERMITS FROM THE CITY OF LAKEPORT, COUNTY OF LAKE, AND ANY OTHER APPLICABLE AGENCIES.
6. THE CONTRACTOR SHALL SECURE A TRENCH PERMIT FROM THE CALIFORNIA DIVISION OF INDUSTRIAL SAFETY PRIOR TO EXCAVATION OF ANY TRENCH OVER FIVE FEET IN DEPTH.
7. N/A (RESERVED)
8. NO CONSTRUCTION SHALL COMMENCE WITHOUT PRIOR APPROVAL OF THE CITY ENGINEER.
9. UNDERGROUND SERVICE ALERT (USA) CALL TOLL FREE 800-227-2600 AT LEAST 48 HOURS PRIOR TO EXCAVATION.
10. N/A (RESERVED)

SUPPLEMENTAL GENERAL NOTES

04/2023

1. CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR BEING FAMILIAR WITH THE PROVISIONS AND REQUIREMENTS CONTAINED IN THE CITY STANDARD SPECIFICATIONS. CONTRACTOR SHALL HAVE A COPY AVAILABLE AT THE JOB SITE AT ALL TIMES.
2. CONTRACTOR SHALL PROVIDE AND MAINTAIN SUFFICIENT BARRICADES TO PROVIDE FOR THE SAFETY OF THE GENERAL PUBLIC TO THE SATISFACTION OF THE PUBLIC WORKS DIRECTOR.
3. ALL MATERIAL SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNLESS OTHERWISE NOTED.
4. N/A (RESERVED)
5. CONTRACTOR SHALL CONFORM TO EXISTING ROADS, SURROUNDING LANDSCAPE AND OTHER IMPROVEMENTS WITH A SMOOTH TRANSITION IN PAVING, CURBS, GUTTERS, SIDEWALKS, GRADING, ETC., AND TO AVOID ANY ABRUPT OR APPARENT CHANGES IN GRADES OR CROSS SLOPES, LOW SPOTS OR HAZARDOUS CONDITIONS.
6. CONTRACTOR SHALL CONTACT THE CITY OF LAKEPORT PUBLIC WORKS AND ENGINEERING DEPARTMENT TO ARRANGE A PRE-PROJECT CONFERENCE FOR THE PURPOSE OF REVIEWING JOB REQUIREMENTS AND CITY PROCEDURES.
7. CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN TO THE CITY OF LAKEPORT PUBLIC WORKS AND ENGINEERING DEPARTMENT FOR REVIEW AND APPROVAL PRIOR TO THE START OF CONSTRUCTION.
8. CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE CITY AND THE ENGINEER HARMLESS FROM ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THE PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE CITY OR THE ENGINEER.
9. SHOULD ANY CONTRACTOR OR SUBCONTRACTOR FIND ANY DEFICIENCIES, ERRORS, CONFLICTS OR OMISSIONS IN THESE PLANS AND SPECIFICATIONS OR SHOULD HE BE IN DOUBT AS TO THEIR MEANING OR INTENT, HE SHALL NOTIFY THE ENGINEER FOR A WRITTEN CLARIFICATION, ADDENDUM, ETC. SHOULD HE FAIL TO DO SO BEFORE SUBMITTING A PROPOSAL HE CANNOT CLAIM ADDITIONAL COMPENSATION FOR WORK REQUIRED TO COMPLETE THE PROJECT.
10. IF THERE IS A CONFLICT BETWEEN WRITTEN AND SCALED DIMENSIONS, NOTIFY THE ENGINEER AND OBTAIN A CLARIFICATION. NO DEVIATIONS OR SUBSTITUTIONS SHALL BE ALLOWED WITHOUT OBTAINING WRITTEN APPROVAL FROM THE ENGINEER.
11. ONE WEEK PRIOR TO ANY EXCAVATION IN EXISTING STREET AREAS OUTSIDE OF THE AREAS PREVIOUSLY USED, THE CONTRACTOR SHALL CONTACT AND REQUEST PG&E, TELEPHONE AND CABLE COMPANIES, THE CITY OF LAKEPORT PUBLIC WORKS AND ENGINEERING DEPARTMENT, AND OTHER AGENCIES AS NECESSARY FOR MARKING THE LOCATION OF THEIR RESPECTIVE FACILITIES. COSTS OF REPAIRING ANY INJURIES OR DAMAGES CAUSED BY THE CONTRACTOR SHALL BE BORNE BY THE CONTRACTOR. VARIOUS UNDERGROUND LINES WERE PLOTTED ON THE PLANS FROM THE INFORMATION OBTAINED FROM THE RESPECTIVE UTILITY COMPANIES, THEREFORE, NO WARRANTY, EXPRESSED OR IMPLIED, IS MADE AS TO THE COMPLETENESS OR CORRECTNESS OF THEIR LOCATION.
12. ALL STATIONS (SHOWN ON PLAN AND PROFILE) ARE TAKEN ALONG CENTERLINE OF THE PROPOSED UTILITY TRENCH UNLESS OTHERWISE NOTED ON PLAN, AND SHOW MEASUREMENTS IN A HORIZONTAL PLANE.
13. FADED BACKGROUND REPRESENTS EXISTING TOPOGRAPHIC FEATURES.
14. UTILITIES SHOWN IN COLOR REPRESENT UTILITIES MARKED IN THE FIELD BY USA. UTILITIES SHOWN IN GREY ARE ASSUMED, AND SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION.

CONCRETE CONSTRUCTION NOTES

04/2023

1. THESE NOTES ARE APPLICABLE TO ALL CONCRETE CONSTRUCTION INCLUDING CURB, CURB & GUTTER, SIDEWALKS (STD. PLAN 203), DRIVEWAYS (STD. PLAN 210), CROSS GUTTERS (STD. PLAN 210), BUS PADS (STD. PLAN 211), OR OTHER MISCELLANEOUS SURFACE CONCRETE IMPROVEMENTS IN THE CITY RIGHT OF WAY.
2. ALL CONCRETE SHALL BE JOINTED PER STANDARD PLAN 209. DEEPENING OF JOINTS BY SAW CUTTING SHALL BE PERFORMED AFTER THE CONCRETE HAS SUFFICIENTLY SET TO PREVENT DAMAGE BY PRIOR TO 24 HOURS AFTER PLACEMENT. CONCRETE WHICH HAS UNCONTROLLED CRACKING (WITHIN 1 YEAR OF INSTALLATION) DUE TO FAILURE TO COMPLY WITH JOINTING REQUIREMENTS SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.
3. CONCRETE SHALL CONFORM TO SECTION 90 OF THE 2010 CALTRANS STANDARD SPECIFICATIONS AND AS FOLLOWS:

FACILITY TYPE	MAX. AGGREGATE SIZE	CONCRETE STRENGTH (PSI)	FIBERMESH RATE	MIN. CEMENTITIOUS MATERIAL (LBS)	MAX. SLUMP (INCHES)
SIDEWALK	1"	2500	1.5 LBS/YD (0.018)	470	5
CURB/CURB & GUTTER					
DRIVEWAY		3000	3.0 LBS/YD (0.028)	564	4
CROSS GUTTER					
BUS STOP					3

4. STEEL REINFORCEMENT SHALL CONFORM TO SECTION 52 OF THE 2010 CALTRANS STANDARD SPECIFICATIONS, GRADE 40 OR 60.
5. FIBERMESH SHALL BE POLYPROPYLENE FIBERS OR EQUIVALENT, 3/4" MINIMUM LENGTH, AND THOROUGHLY MIXED INTO THE CONCRETE.
6. UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER OR BUILDING OFFICIAL, CONCRETE SURFACES SHALL RECEIVE A UNIFORM MEDIUM BROOM FINISH.
7. REBAR DOWELS ARE REQUIRED AT ALL COLD JOINT OR TIES TO EXISTING CONCRETE FACILITIES. 18" X 1/2" DEFORMED BAR DOWELS. DOWELS MAY BE WET SET INTO CONCRETE BETWEEN PLACEMENTS OR SHALL BE EMBEDDED A MINIMUM 8 INCHES INTO THE EXISTING CONCRETE SIDEWALKS, CURBS, GUTTER, CROSS GUTTERS, BUS STOPS, ETC. THE DOWEL SHALL BE FULLY INSERTED AND CEMENTED IN PLACE WITH 2-PART EPOXY (SIMPSON SET EPOXY ADHESIVE) OR EQUIVALENT. DOWELS SHALL HAVE A MAXIMUM SPACING OF 18 INCHES WITH 2 MINIMUM PER LOCATION REQUIRED.
8. EXPANSION JOINTS PER STD. DETAIL 209, CONSISTING OF 1/4 INCH THICK PREFORMED JOINT FILLER. FINISH CONCRETE ADJACENT TO EXPANSION JOINTS WITH AN EDGER TOOL. EXPANSION JOINTS SHALL BE PLACED AT CURB RETURNS, INTERIOR CORNERS OF ISLANDS, AND EVER 40 LINEAL FEET. SHAPE FILLER TO MATCH CONCRETE SURFACE.
9. SUBGRADE PREPARATION SHALL CONSIST OF SCARIFYING, MOISTURE CONDITIONING TO +/- 2% OF OPTIMUM AND COMPACTING THE TOP 6 INCHES OF NATIVE MATERIAL TO 90% TO 95% RELATIVE COMPACTION.
10. AGGREGATE BASE SHALL BE PLACED TO THE DEPTH INDICATED ON THE APPLICABLE STANDARD PLAN. AGGREGATE BASE SHALL BE CLASS 2 AGGREGATE BASE PER CALTRANS STANDARD SPECIFICATION SECTION 26. THE AGGREGATE BASE SHALL BE MOISTURE CONDITIONED TO OPTIMUM OR ABOVE AND COMPACTED TO 90% TO 95% RELATIVE COMPACTION. COMPACTION SHALL BE PER ASTM D1557 OR CT 216 LABORATORY DENSITY AND CT 231 OR ASTM D6938.
11. ALL CURB RAMPS SHALL COMPLY WITH MOST CURRENT CALIFORNIA ACCESSIBILITY REQUIREMENTS AND CALTRANS STANDARD PLAN REQUIREMENTS. TRUNCATED DOMES SHALL BE ARMOR-TITLE BRICK RED COLOR UNLESS AN EQUAL PRODUCT IS APPROVED IN WRITING BY THE CITY ENGINEER OR BUILDING OFFICIAL.
12. THE GAP BETWEEN THE SUBGRADE AND BOTTOM OF THE FOAM BOARDS SHALL NOT EXCEED 2 INCHES. MUSHROOM CONCRETE EXCRETED UNDER THE FORMS SHALL BE REMOVED PRIOR TO BACKFILLING.
13. AT TREES OR OTHER OBSTRUCTIONS, A MINIMUM WIDTH OF 42 INCHES SHALL BE MAINTAINED BETWEEN THE EDGE OF THE SIDEWALK AND THE OBSTRUCTION. IF THE OBSTRUCTION IS WIDER THAN 12 INCHES, THE MINIMUM WIDTH SHALL BE 48 INCHES.
14. WHERE THE SIDEWALK IS BEING REPLACED DUE TO TREE ROOT DAMAGE, SPECIAL CONSTRUCTION IS REQUIRED. CONCRETE ELEVATION ADJUSTMENTS SHALL BE APPROVED BY THE CITY ENGINEER OR BUILDING OFFICIAL PRIOR TO THE WORK BEING PERFORMED. AGGREGATE BASE SHALL BE REPLACED WITH COARSE SAND. NO. 3 LONGITUDINAL REINFORCEMENT SHALL BE PLACED ON 16-INCH CENTERS. THE REINFORCEMENT SHALL BE EXTENDED TO A MINIMUM OF 15 FEET TO EACH SIDE OF THE TREE. IN ADDITION, FIBERMESH SHALL BE EXTENDED TO A MINIMUM OF 15 FEET TO EACH SIDE OF THE TREE. THE MAXIMUM LONGITUDINAL SIDEWALK SLOPE SHALL BE 4.5%. EXPANSION JOINTS SHALL BE CENTERED ON THE TREES WITH THE REBAR EXTENDING THROUGH THE EXPANSION JOINT MATERIAL.

WATER MAIN AND SERVICE CONSTRUCTION NOTES

04/2023

1. ALL MATERIAL WORKMANSHIP AND CONSTRUCTION DETAILS SHALL CONFORM TO THE LATEST EDITION OF THE CITY OF LAKEPORT DESIGN AND CONSTRUCTION STANDARDS AND APPLICABLE PROJECT SPECIAL CONDITIONS AND PLAN NOTES.

   THE LATEST EDITION OF THE DESIGN AND CONSTRUCTION STANDARDS CAN BE FOUND ON THE CITY OF LAKEPORT WEBSITE. FOR QUESTIONS CONCERNING WHAT STANDARDS APPLY, CONTACT THE CITY OF LAKEPORT'S WATER DEPARTMENT.
2. THE MINIMUM SIZE FOR ALL WATER MAINS SHALL BE 8 INCH.
3. FOR WATER MAIN REPLACEMENT AND TIE-INS, BEGIN BY EXPOSING THE EXISTING MAIN AT ALL TIE-IN POINTS TO DETERMINE THE LINE AND GRADE OF EXISTING MAINS TO REMAIN. NOTIFY CITY WATER DEPARTMENT A MINIMUM OF 72 HOURS IN ADVANCE FOR INSPECTION OF EXISTING FACILITIES. CITY WATER DEPARTMENT WILL PROVIDE DIRECTION REGARDING TRANSITIONING THE NEW WATER MAINS PLACED AS REQUIRED UNDER ITEM 4 TO THE EXISTING FACILITIES. TYPICAL TRANSITION LENGTH IS 8 TO 10 FEET.
4. MINIMUM DEPTH OF COVER FROM FINISHED GRADES SHALL BE 36 INCHES FOR ALL MAINS.
5. MAIN LINE WATER VALVES UP TO AND INCLUDING 16 INCHES SHALL BE RESILIENT SEAT GATE VALVES. 18 INCH AND LARGER MAINLINE VALVES SHALL BE BUTTERFLY VALVES. BLOW OFF VALVES SHALL BE 2- OR 3-INCH BRASS BALL VALVES WITH ROTATIONAL STOPS.
6. TRACER WIRE CONSISTING OF NO. 10 COPPER WIRE SHALL BE LAID ON TOP OF AND ALONG THE ENTIRE LENGTH OF ALL MAINS AND SERVICES. THE TRACER WIRE SHALL BE EXTENDED TO THE SURFACE AT ALL WATER VALVE LOCATIONS, BLOW OFF VALVE AND METER BOXES. FASTEN TRACER WIRE TO THE TOP OF THE PIPE SUFFICIENT AS TO NOT BE DISPLACED BY BACKFILLING PROCEDURES (EXAMPLE WOULD BE DUCT TAPE OR PLASTIC ZIP TIES AT MAXIMUM 10-FOOT INTERVALS). TRACER WIRES FOR SERVICES SHALL BE CONNECTED TO THE MAIN TRACER WIRE BY WRAPPING THE SERVICE WIRE AROUND THE MAIN WIRE WITH A MINIMUM OF 8 FULL WRAPS.
7. MAINS TO BE CONSTRUCTED WITHIN 10 FEET OF SEWER PIPE REQUIRE SPECIAL INSTALLATION AND DESIGN. DESIGN SHALL BE APPROVED BY THE CITY ENGINEER.
8. ALL TRENCHING, BACKFILL, AND RESURFACING REQUIRED FOR INSTALLATION OF WATER SYSTEM FACILITIES SHALL BE PER CITY STANDARD 222.
9. ONLY CITY PERSONNEL SHALL OPERATE VALVES ON EXISTING WATER MAINS (OR WATER SERVICES).
10. SERVICE LATERALS OTHER THAN THOSE SHOWN OR NOTED ON THE PLANS SHALL NOT BE INSTALLED WITHOUT OBTAINING PRIOR APPROVAL OF THE CITY ENGINEER IN WRITING.
11. SINGLE RESIDENTIAL WATER SERVICES SHALL BE 1 INCH. TWO TO FOUR RESIDENTIAL WATER SERVICES SHALL BE 2 INCHES WITH SERVICE LINES AS INDICATED ON STANDARD PLAN 504. IN LIEU OF THE FITTINGS INDICATED ON STANDARD PLAN 504, THE CONTRACTOR MAY CONSTRUCT A MANIFOLD FROM THREADED BRASS PIPE AND FITTINGS. THE MANIFOLD MAY ONLY SERVICE 4 METERS, TWO ON EITHER SIZE OF THE TEE OFF OF THE SERVICE LINE. THE SERVICE LINE TEE SHALL BE 2" X 1-1/2" AND THE INTERMEDIATE TEE SHALL BE 1-1/2" X 1" X 1".
12. COMMERCIAL SERVICES SHALL BE 2 INCHES OR LARGER.
13. NO MORE THAN ONE WATER SERVICE SHALL BE PLACED WITHIN A TRENCH UNLESS INDICATED ON THE PLANS.
14. WATER SERVICES AND SEWER LATERALS SHALL BE SEPARATED HORIZONTALLY BY A MINIMUM OF 10 FEET (EXCEPT WHERE SHOWN SPECIFICALLY ON THE PLANS).
15. AT THE LOCATION OF EACH WATER SERVICE LATERAL, THE LETTER "W" SHALL BE SCRIBED INTO THE FACE OF THE CURB. THE LETTER "W" SHALL BE 4 INCHES HIGH AND COMPLETELY LEGIBLE.
16. ALL RESIDENTIAL AND COMMERCIAL WATER SERVICE TUBING SHALL BE EITHER 1- OR 2-INCH HDPE, 200 PSI CTS.
17. ALL METER BOXES AND VAULTS SHALL BE BEDDED ON 3 INCHES MINIMUM THICKNESS OF 3/4 INCH DRAIN ROCK, CLASS 2 AGGREGATE BASE, OR OTHER SUITABLE CLEAN MATERIAL. SUITABLE MATERIAL SHALL HAVE A MINIMUM SAND EQUIVALENT OF 20 AND BE APPROVED IN ADVANCE BY THE CITY ENGINEER.

    THE BEDDING MATERIAL SHALL EXTEND A MINIMUM OF 4 INCHES BEYOND THE OUTSIDE EDGES OF THE BOXES OR VAULT. BOXES AND VAULTS SHALL SET FLUSH WITH TOP OF CURB, SIDEWALK, OR GROUND, WHICHEVER IS APPLICABLE. LOT NUMBERS MUST BE NOTED ON THE TOP SIDE OF THE METER BOX WITH A PERMANENT MARKING PEN. METER BOXES AND VAULTS SHALL BE SET SO THAT THE READING LIDS ARE ALIGNED OVER THE METER REGISTERS AS CLOSELY AS POSSIBLE.
18. ITEMS SPECIFIED ON THE STANDARD PLANS OR IN PROJECT SPECIAL PROVISIONS ARE APPROVED FOR USE. ALL OTHER ITEMS SHALL BE SUBMITTED AND APPROVED BY THE CITY ENGINEER PRIOR TO USE.
19. GASKETS FOR FLANGE FITTINGS SHALL CONFORM TO AWWA STANDARD C115.
20. TO ABANDON A WATER SERVICE, EXPOSE AND TURN OFF CORPORATION STOP, THEN SEVER THE LATERAL CONNECTION.
21. THE MINIMUM DISTANCE BETWEEN CORPORATION STOPS SHALL BE 12 INCHES.
22. PRESSURE TESTING AGAINST VALVES SHALL NOT BE ALLOWED.
23. N/A (RESERVED)
24. N/A (RESERVED)
25. ALL FIRE HYDRANT FLOW TESTING PERFORMED ON CITY FIRE HYDRANTS SHALL BE PERFORMED BY THE CITY OF LAKEPORT PUBLIC WORKS DEPARTMENT. PRIOR TO PLACING A FIRE HYDRANT IN SERVICE, A HIGH VELOCITY FLUSHING OF THE HYDRANT SHALL BE WITNESSED AND APPROVED BY CITY PERSONNEL. HIGH VELOCITY FLUSHING SHALL CONSIST OF PLACING A DIFFUSER, INCLUDING DEGLORINATION TABLETS, UNDER CITY SUPERVISION, THE HYDRANT LATERAL IS FLUSHED UNTIL CITY PERSONNEL ARE SATISFIED THAT THE LINES ARE CLEAR OF DEBRIS, PRIOR TO TESTING AND ACCEPTANCE OF HYDRANTS, BURLAP SACKS SHALL BE PLACED OVER HYDRANTS.
26. CONTRACTOR SHALL COORDINATE ALL WATER MAIN CONNECTION WORK WITH THE PUBLIC WORKS DEPARTMENT A MINIMUM OF 72 HOURS PRIOR TO COMMENCING WORK. ALL OTHER WATER MAIN CONSTRUCTION WORK SHALL BE COMPLETED PRIOR TO FINAL CONNECTION. THE FINAL CONNECTION SHALL BE MADE BY THE CONTRACTOR UNDER THE SUPERVISION OF CITY REPRESENTATIVE. THE CONTRACTOR SHALL PROVIDE ALL EXCAVATION, SHORING, BACKFILL, AND RESURFACING PER STANDARD PLAN 222 OR AS SHOWN ON THE PLANS.
27. WHERE A "HOT TAP" CONNECTION IS REQUIRED, THE CONTRACTOR SHALL PROVIDE AND INSTALL THE TAPPING VALVE AND SLEEVE AND ANY OTHER HARDWARE REQUIRED UNDER THE CITY'S SUPERVISION. CONTRACTOR SHALL PROVIDE A COUPON TO THE CITY ENGINEER FOR EACH TAP.
28. WHENEVER A WATER VALVE HAS BEEN COVERED WITH HOT MIX ASPHALT, THE VALVE LOCATION SHALL BE MARKED ON THE SURFACE OF THE NEW PAVEMENT WITH WHITE PAINT PRIOR TO THE END OF THE WORK SHIFT. THE WATER VALVE BOXES SHALL BE ADJUSTED TO GRADE WITHIN 48 HOURS AFTER FINAL PAVING.

WATER MAIN AND SERVICE CONSTRUCTION NOTES (CONT')

04/2023

29. NEW MAINS SHALL BE DISINFECTED IN ACCORDANCE TO AWWA C651-99. A MINIMUM FREE CHLORINE RESIDUAL OF 50 MG/L IS REQUIRED TO REMAIN IN CONTACT WITH PIPE FOR NO LESS THAN 24 HOURS. THE TABLET METHOD MAY BE USED TO ACCOMPLISH THIS AS DESCRIBED BELOW:

    CALCIUM HYPOCHLORITE TABLETS SHALL BE PLACED IN EACH SECTION OF PIPE, HYDRANTS, AND OTHER APPURTENANCES. THE TABLETS SHALL BE ATTACHED BY AN NSF APPROVED ADHESIVE. THE TABLETS ARE TO BE INSTALLED TO THE TOP OF EACH PIPE PRIOR TO BEING PLACED IN DITCH. FILLING THE MAIN WILL BE AT A RATE NOT TO EXCEED 1 CU FT/SEC.

PIPE DIAMETER	# OF 5-G TABS (65%) PER 20' OF PIPE
6"	2
8"	4
10"	6
12"	8
24"	14

30. BACTERIOLOGICAL TESTING IS REQUIRED PRIOR TO ANY TIE-INS TO EXISTING MAINS BY AN APPROVED LABORATORY. THE CITY WILL ANALYZE THE RESULTS AND DETERMINE IF THE CONTRACTOR CAN MOVE FORWARD WITH THE TIE-INS. IN THE EVENT OF A POSITIVE SAMPLE, IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO RESAMPLE AND OR DISINFECT THE MAIN TO OBTAIN THE "ABSENT" RESULTS REQUIRED.
31. PRESSURE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH AWWA C600 ON ALL NEW WATER MAINS. CONTRACTOR SHALL FURNISH ALL EQUIPMENT NECESSARY FOR HYDROSTATIC TESTING INCLUDING A HYDRAULIC FORCE PUMP AND CALIBRATED TEST GAUGE. TEST PRESSURE SHALL NOT BE LESS THAN 150 PSI AT ANY LOCATION FOR A MINIMUM OF TWO HOURS AS OBSERVED BY AN INSPECTOR DESIGNATED BY THE CITY. LEAKAGE SHALL NOT EXCEED ALLOWABLE GALLONS AS CALCULATED IN AWWA C600 BASED ON MATERIAL AND LENGTH OF PIPE. IF PRESSURE TEST EXCEEDS THE ALLOWABLE LEAKAGE, THE CONTRACTOR SHALL AT HIS SOLE EXPENSE LOCATE AND REPAIR THE LEAKING JOINTS. THE PRESSURE PROCESS WILL BE REPEATED AS NECESSARY UNTIL THE NEW MAIN PASSES THE PRESSURE TEST.

NO.	DATE	REVISIONS	BY	APPD

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2024 WATER AND SEWER MAIN REPLACEMENT

NOTES

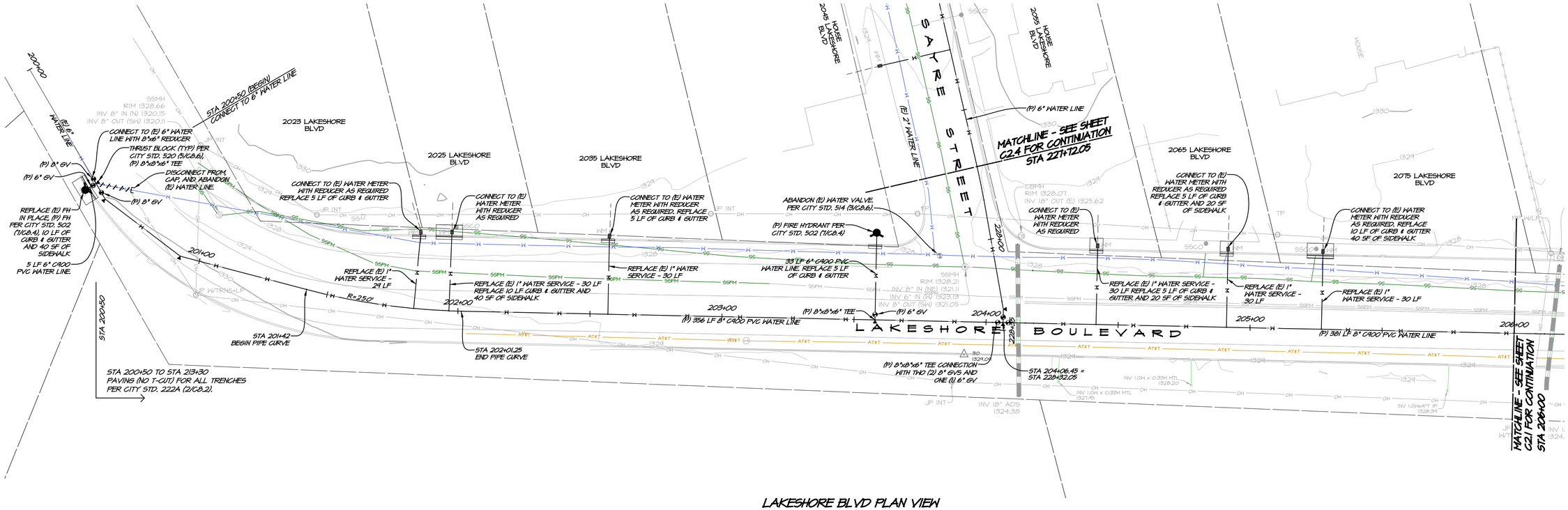
CITY OF LAKEPORT — CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — PAUL SARGENT WARNICK — No. 82758 Exp. 9-30-24 — CIVIL ENGINEER — STATE OF CALIFORNIA

DATE	MAR. 12, 2024	
DRAWN	LMM	
DESIGNED	NAW	
CHECKED	PSW	
JOB NO.	4123018.1	

SHEET NO.
C1.1
2 OF 32 SHEETS

R:\2023\4123018.1_Lakeport_2023_Water_&_Sewer_Main_Replacement_Project_Design\DESIGN\PLANS - cover, Notes, Details\C1-NOTES.dwg 03/12/2024 10:21:39 AM by lmigrom



LAKESHORE BLVD PLAN VIEW

SCALE: 1" = 20'

GRAPHIC SCALE

20 0 20 40

(IN FEET)

1 inch = 20 FT

SEWER NOTES

1. CONNECTIONS TO EXISTING SANITARY SEWER LINE SHALL UTILIZE A CALDER CONNECTION WITH STAINLESS STEEL CLAMPS PER CITY SPECIFICATIONS.
2. REPLACE (E) 55GO FOR ALL SEWER LATERALS.
3. EXISTING SEWER LINES TO BE REMOVED AND REPLACED IN PLACE, UNLESS OTHERWISE NOTED.
4. APPROXIMATE LOCATION OF (E) 55GO AND LATERAL.
5. IF GROUNDWATER IS ENCOUNTERED, INSTALL DEWATERING WELLS PER CITY STD. 225 (4/C8.1). CONTRACTOR SHALL VERIFY PROPOSED LOCATIONS WITH CITY INSPECTOR PRIOR TO INSTALLATION.

WATER NOTES

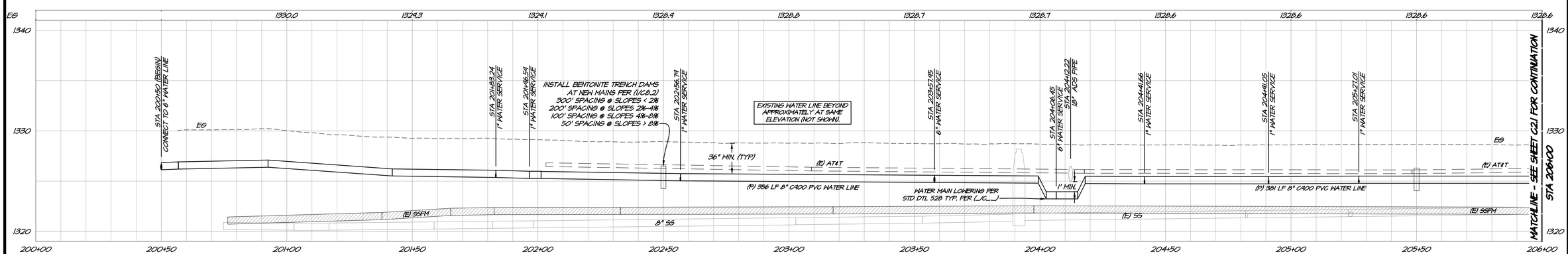
1. CONTRACTOR MAY ROPE PIPE IN LIEU OF HORIZONTAL AND VERTICAL BENDS (TYP), R=250', MIN FOR 10" PIPE.
2. REPLACE EXISTING CHRISTY BOX FOR ALL WATER METERS. METERS 1" AND SMALLER SHALL UTILIZE A CHRISTY B-12 BOX. ALL OTHER METER BOXES SHALL BE PER CITY STANDARDS.
3. EXISTING WATER METERS SHALL BE REUSED IN NEW METER BOXES.
4. EXISTING 3/4" WATER SERVICE LATERALS SHALL BE REPLACED WITH 1" LATERALS WITH 3/4" REDUCER BUSHINGS IN A 1" ANGLE METER STOP.
5. EXISTING FIRE HYDRANTS TO BE REPLACED WITH NEW SERVICE LINES.
6. ABANDON REPLACED WATER MAINS AND FH SERVICE LINES IN PLACE PER CITY STANDARDS.
7. EXISTING 1" AND 2" WATER SERVICE LATERALS TO BE REMOVED AND REPLACED IN PLACE.

AT&T NOTES

1. THIS PROJECT IS NEAR AN AT&T HIGH PROFILE FACILITY.
2. BEFORE DIGGING IN THIS AREA WAIT ON LOCATES TO BE PERFORMED.
3. TAKE CARE TO OBSERVE SITE MARKINGS SUCH AS PAINT AND FLAGS.
4. HAND DIGGING IS MANDATORY WITHIN THE STATUTORY TOLERANCE ZONE.
5. IF A DAMAGE OCCURS, REPORT IT TO 811 AND THEN IMMEDIATELY CALL 800-247-2020 OPTION-3 TO NOTIFY AT&T OF THE DAMAGE.

UTILITY NOTE

1. CONTRACTOR SHALL NOTIFY THE ENGINEER AND CITY INSPECTOR IMMEDIATELY IF UNMAPPED UTILITIES ARE UNCOVERED OR ANY DISCREPANCIES ARE IDENTIFIED BETWEEN THE EXISTING CONDITIONS SHOWN ON THE PLANS AND WHAT IS OBSERVED IN THE FIELD.



LAKESHORE BLVD PROFILE VIEW

HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 5'

NO.	DATE	REVISIONS	BY	APPD

RSA+
1515 FOURTH STREET
NAPA, CALIF. 94559
OFFICE | 707 | 252.3301
+ www.RSAcivil.com +
RSA+ CONSULTING CIVIL ENGINEERS + SURVEYORS + 1980

LAKESHORE BLVD PLAN & PROFILE

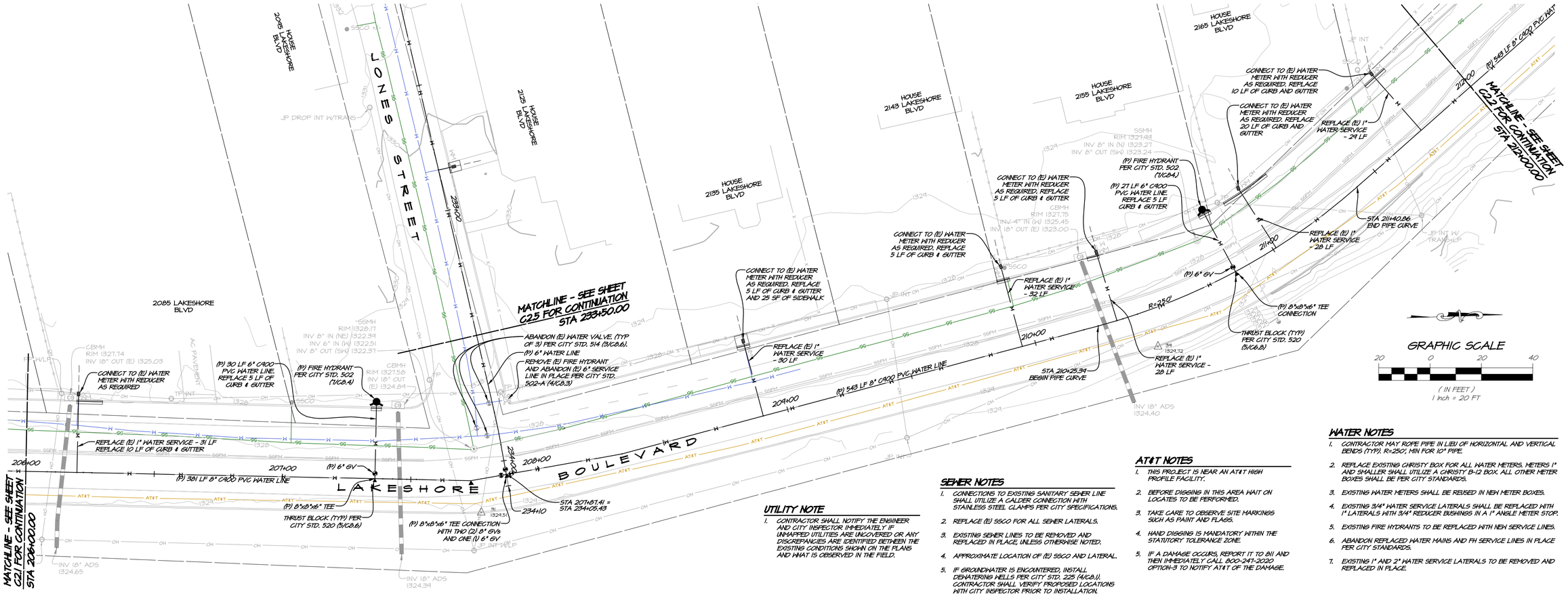
CITY OF LAKEPORT CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER JAMES SARGENT MARCUSE No. 82758 EXP. 9-30-24 CIVIL ENGINEER STATE OF CALIFORNIA

DATE	MAR. 12, 2024
DRAWN	LMM
DESIGNED	NAW
CHECKED	PSW
JOB NO.	4123018.1

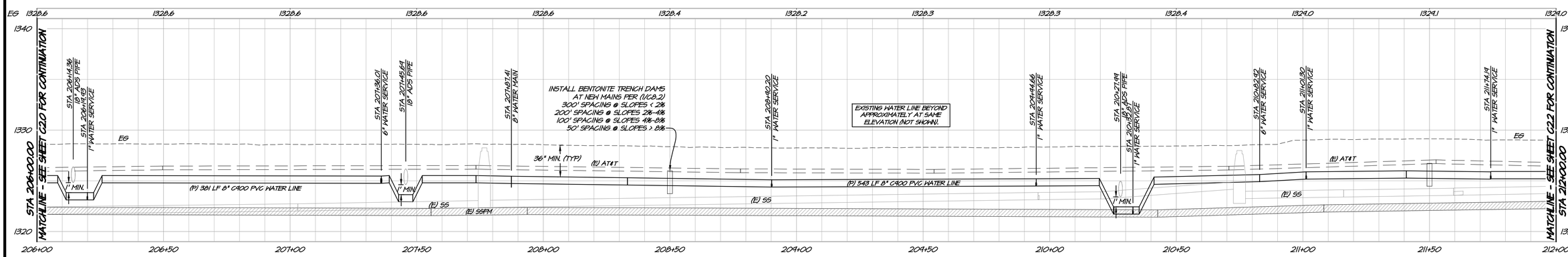
SHEET NO. C2.0

3 OF 32 SHEETS



LAKESHORE BLVD PLAN VIEW

SCALE: 1" = 20'



LAKESHORE BLVD PROFILE VIEW

HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 5'

UTILITY NOTE

1. CONTRACTOR SHALL NOTIFY THE ENGINEER AND CITY INSPECTOR IMMEDIATELY IF UNMAPPED UTILITIES ARE UNCOVERED OR ANY DISCREPANCIES ARE IDENTIFIED BETWEEN THE EXISTING CONDITIONS SHOWN ON THE PLANS AND WHAT IS OBSERVED IN THE FIELD.

SEWER NOTES

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3. EXISTING SEWER LINES TO BE REMOVED AND REPLACED IN PLACE, UNLESS OTHERWISE NOTED.
4. APPROXIMATE LOCATION OF (E) SSCO AND LATERAL.
5. IF GROUNDWATER IS ENCOUNTERED, INSTALL DEWATERING WELLS PER CITY STD. 225 (4/C6.1). CONTRACTOR SHALL VERIFY PROPOSED LOCATIONS WITH CITY INSPECTOR PRIOR TO INSTALLATION.

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WATER NOTES

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NO.	DATE	REVISIONS	BY	APPD

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NAPA, CALIF. 94559
OFFICE | 707 | 252.3301
+ www.RSAcivil.com +

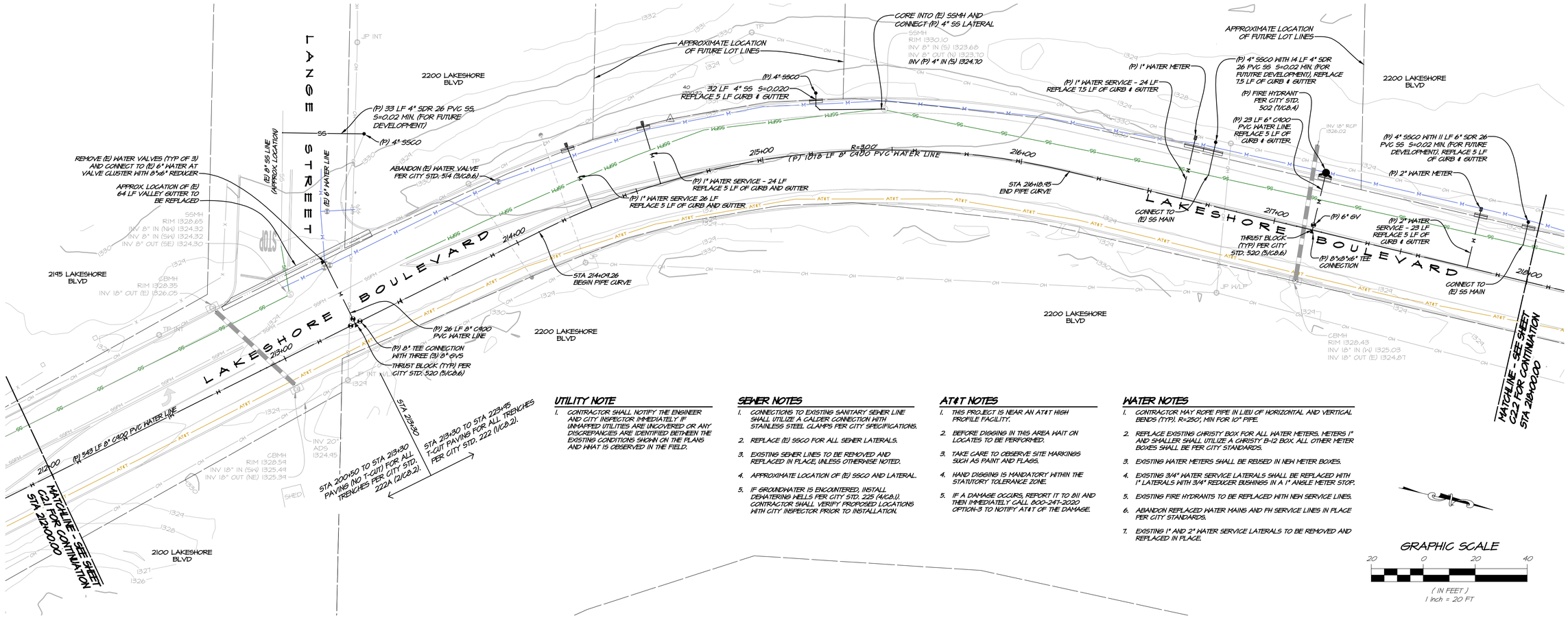
LAKESHORE BLVD PLAN & PROFILE

CITY OF LAKEPORT CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER PAUL SARGENT WARNICK No. 82758 Exp. 9-30-24 CIVIL ENGINEER STATE OF CALIFORNIA

DATE	MAR. 12, 2024
DRAWN	LMM
DESIGNED	NAW
CHECKED	PSW
JOB NO.	412301B.1

SHEET NO. C2.1
4 OF 32 SHEETS



UTILITY NOTE

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3. EXISTING SEWER LINES TO BE REMOVED AND REPLACED IN PLACE, UNLESS OTHERWISE NOTED.
4. APPROXIMATE LOCATION OF (E) SSCO AND LATERAL.
5. IF GROUNDWATER IS ENCOUNTERED, INSTALL DEWATERING WELLS PER CITY STD. 225 (II/C8.1). CONTRACTOR SHALL VERIFY PROPOSED LOCATIONS WITH CITY INSPECTOR PRIOR TO INSTALLATION.

AT&T NOTES

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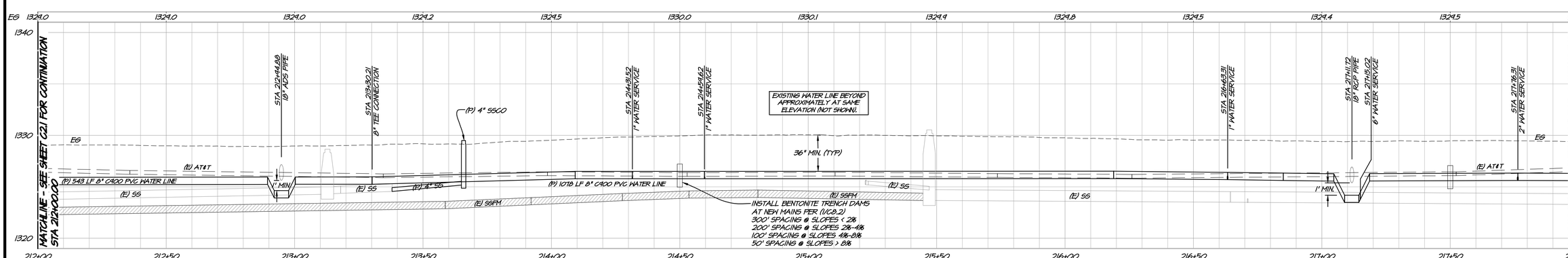
GRAPHIC SCALE

20 0 20 40

(IN FEET)
1 inch = 20 FT

LAKESHORE BLVD PLAN VIEW

SCALE: 1" = 20'



LAKESHORE BLVD PROFILE VIEW

HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 5'

NO.	DATE	REVISIONS	BY	APPD

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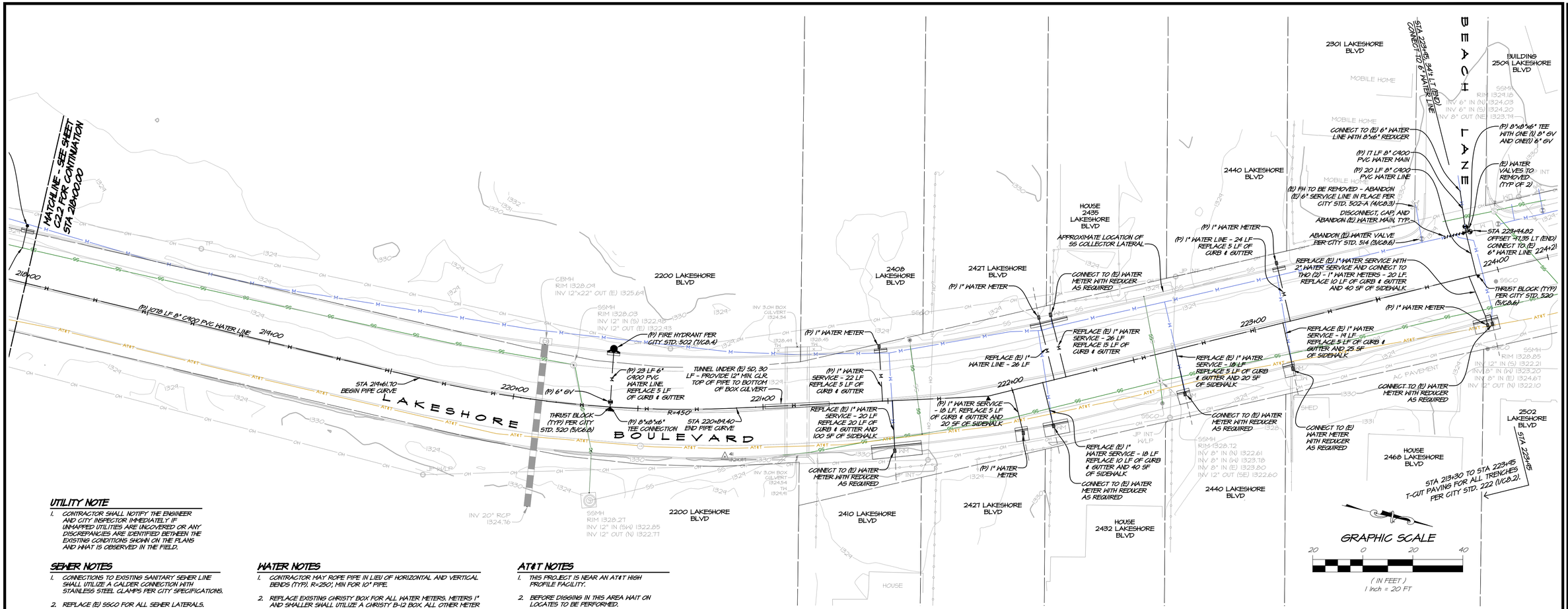
LAKESHORE BLVD PLAN & PROFILE

CITY OF LAKEPORT CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER PAUL SARGENT MARCH No. 82758 Exp. 9-30-24 CIVIL ENGINEERING STATE OF CALIFORNIA

DATE	MAR. 12, 2024
DRAWN	LMM
DESIGNED	NAW
CHECKED	PSM
JOB NO.	4123018.1

SHEET NO.
C2.2
5 OF 32 SHEETS



UTILITY NOTE

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SEWER NOTES

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5. IF GROUNDWATER IS ENCOUNTERED, INSTALL DEWATERING WELLS PER CITY STD. 223 (4/C6.1). CONTRACTOR SHALL VERIFY PROPOSED LOCATIONS WITH CITY INSPECTOR PRIOR TO INSTALLATION.

WATER NOTES

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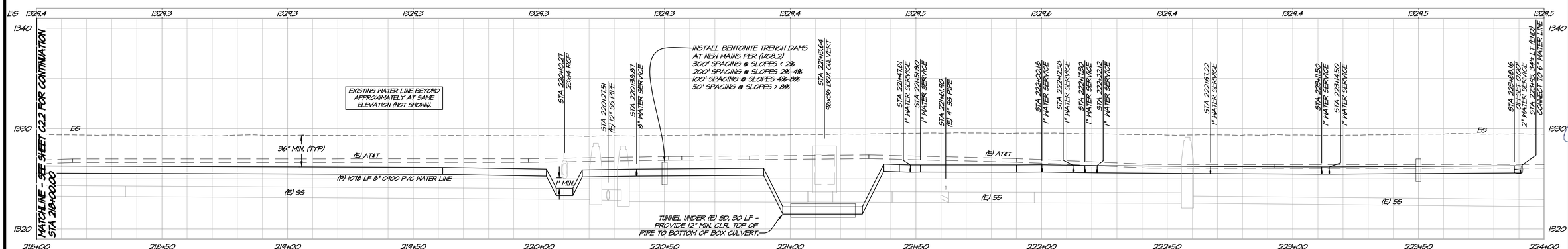
7. EXISTING 1" AND 2" WATER SERVICE LATERALS TO BE REMOVED AND REPLACED IN PLACE.

AT&T NOTES

1. THIS PROJECT IS NEAR AN AT&T HIGH PROFILE FACILITY.
2. BEFORE DIGGING IN THIS AREA WAIT ON LOCATES TO BE PERFORMED.
3. TAKE CARE TO OBSERVE SITE MARKINGS SUCH AS PAINT AND FLAGS.
4. HAND DIGGING IS MANDATORY WITHIN THE STATUTORY TOLERANCE ZONE.
5. IF A DAMAGE OCCURS, REPORT IT TO 811 AND THEN IMMEDIATELY CALL 800-241-2020 OPTION-3 TO NOTIFY AT&T OF THE DAMAGE.

LAKESHORE BLVD PLAN VIEW

SCALE: 1" = 20'



LAKESHORE BLVD PROFILE VIEW

HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 5'

NO.	DATE	REVISIONS	BY	APPD

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NAPA, CALIF. 94559
OFFICE (707) 252-3301
+ www.RSAcivil.com +
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LAKESHORE BLVD PLAN & PROFILE

CITY OF LAKEPORT — CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — SARGENT WARWICK PAUL — No. 82758 Exp. 9-30-25 — CIVIL ENGINEER — STATE OF CALIFORNIA

DATE	MAR. 12, 2024
DRAWN	LMM
DESIGNED	NAH
CHECKED	PSW
JOB NO.	4123018.1

SHEET NO.
C2.3
6 OF 32 SHEETS

SEWER NOTES

1. CONNECTIONS TO EXISTING SANITARY SEWER LINE SHALL UTILIZE A CALDER CONNECTION WITH STAINLESS STEEL CLAMPS PER CITY SPECIFICATIONS.
2. REPLACE (E) SSCO FOR ALL SEWER LATERALS.
3. EXISTING SEWER LINES TO BE REMOVED AND REPLACED IN PLACE, UNLESS OTHERWISE NOTED.
4. APPROXIMATE LOCATION OF (E) SSCO AND LATERAL.
5. IF GROUNDWATER IS ENCOUNTERED, INSTALL DEWATERING WELLS PER CITY STD. 225 (4/C8.1). CONTRACTOR SHALL VERIFY PROPOSED LOCATIONS WITH CITY INSPECTOR PRIOR TO INSTALLATION.

WATER NOTES

1. CONTRACTOR MAY ROPE PIPE IN LIEU OF HORIZONTAL AND VERTICAL BENDS (TYP). R=250', MIN FOR 10" PIPE.
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7. EXISTING 1" AND 2" WATER SERVICE LATERALS TO BE REMOVED AND REPLACED IN PLACE.

AT&T NOTES

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UTILITY NOTE

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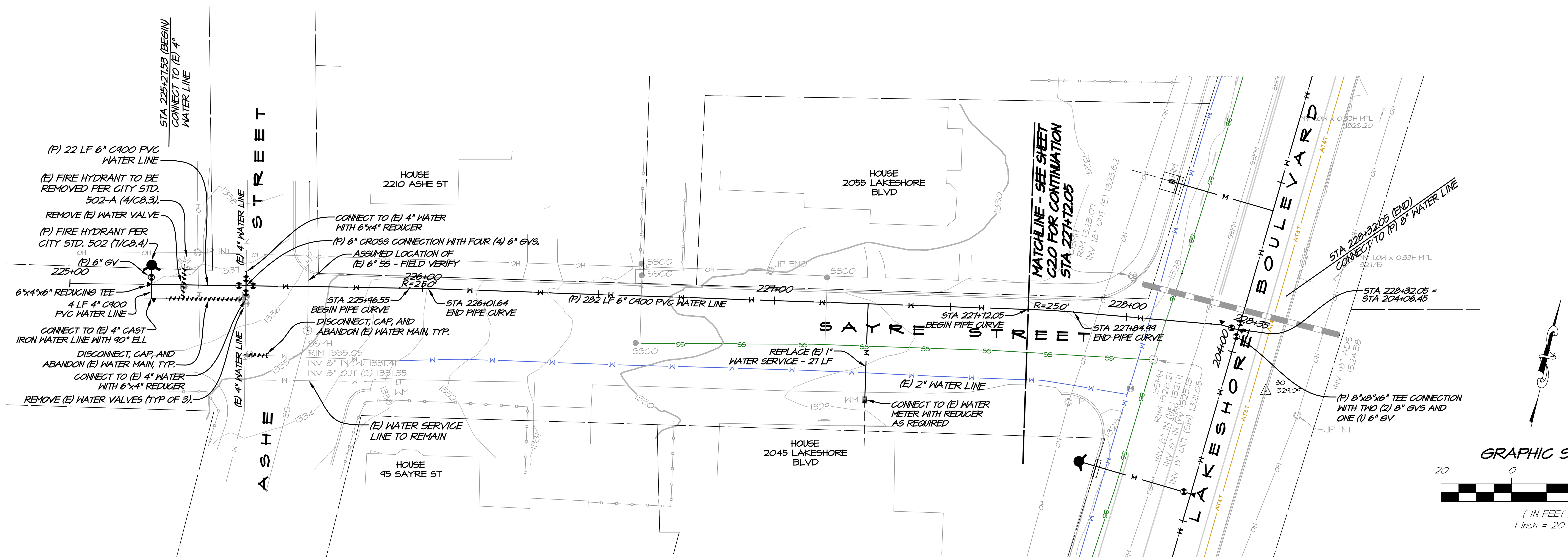


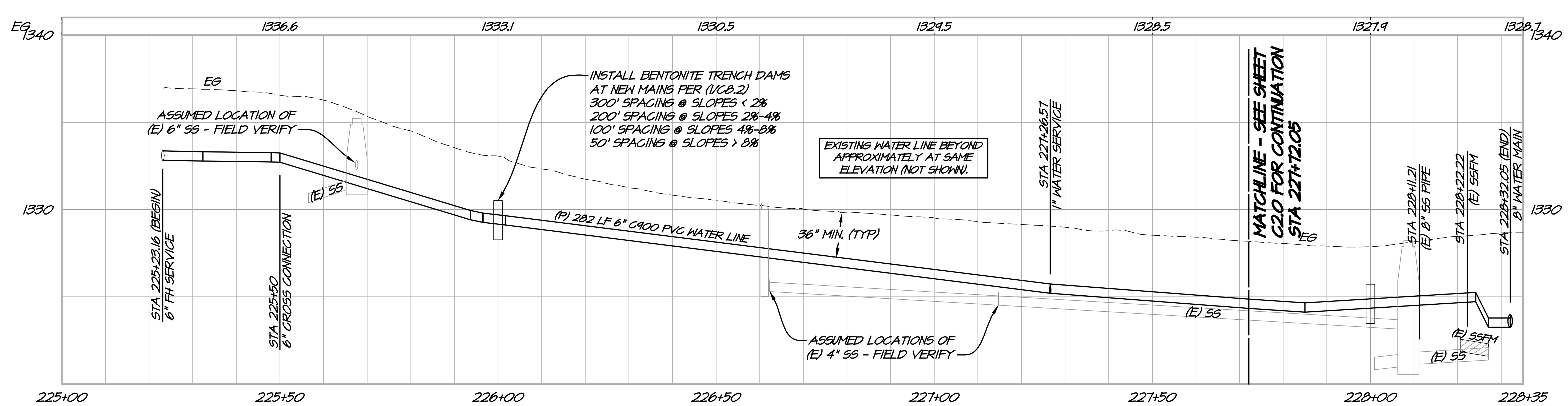
GRAPHIC SCALE

20 0 20 40

(IN FEET)
1 inch = 20 FT

SAYRE ST. PLAN VIEW

SCALE: 1" = 20'



SAYRE ST. PROFILE VIEW

HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 5'

NO.	DATE	REVISIONS	BY	APPD

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+ www.RSAcivil.com +
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LAKESHORE BLVD
SAYRE ST. PLAN & PROFILE
CITY OF LAKEPORT
CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
PAUL SARGENT WARNOCK
No. 82758
Exp. 9-30-24
CIVIL ENGINEER
STATE OF CALIFORNIA

[illegible]

DATE	MAR. 12, 2024
DRAWN	LMM
DESIGNED	NAW
CHECKED	PSW
JOB NO.	4123018.1

SHEET NO.
C2.4
7 OF 32 SHEETS

SEWER NOTES

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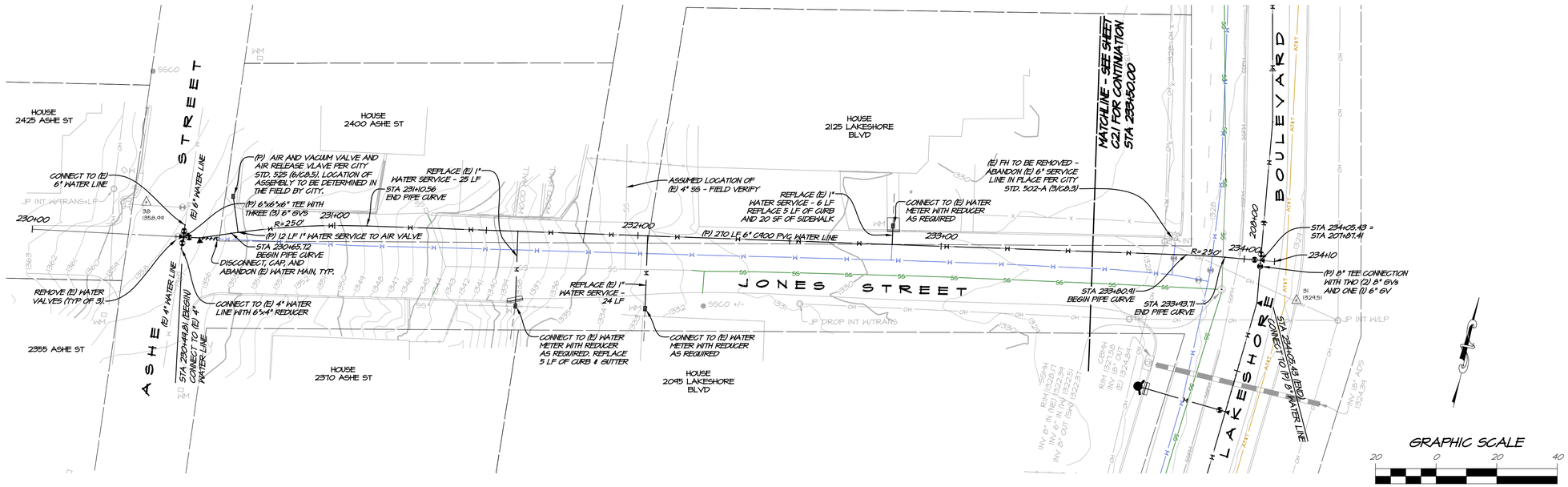
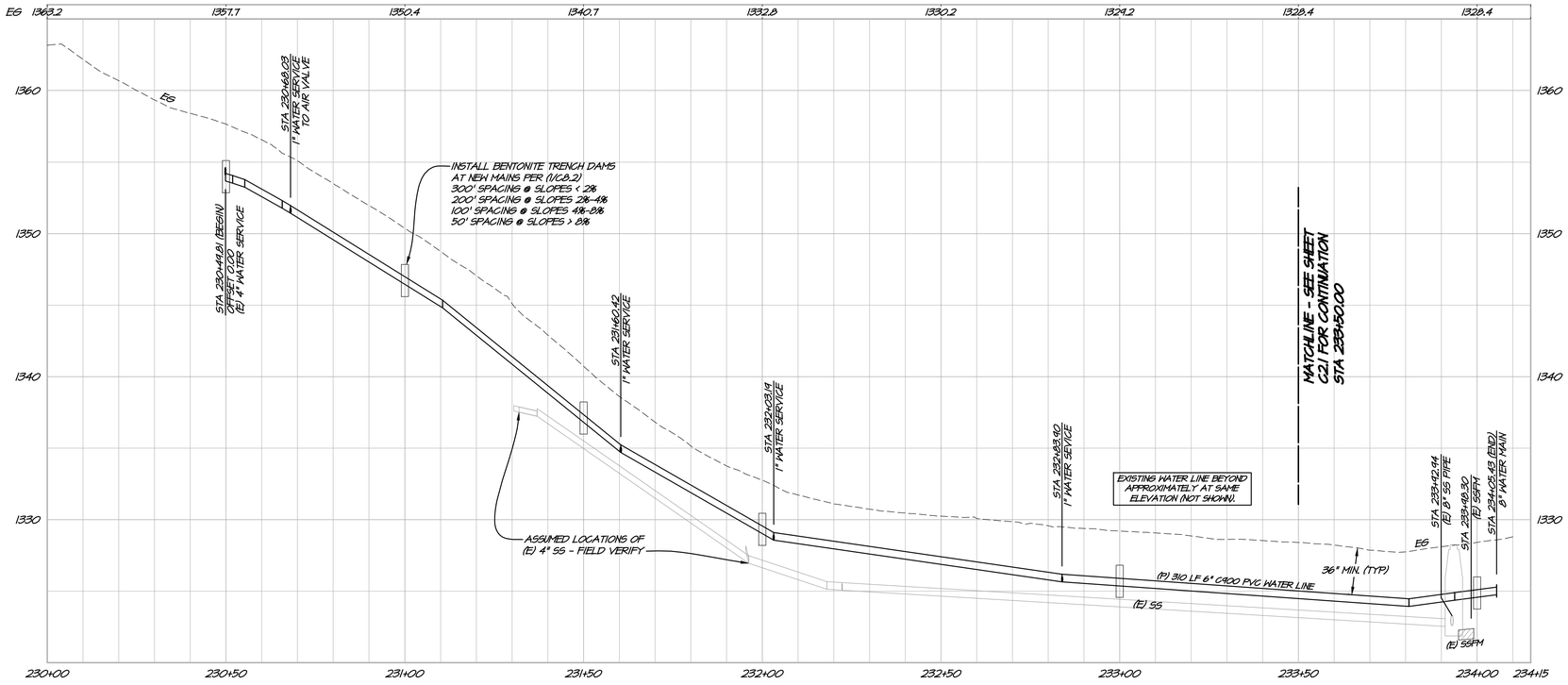


JONES ST. PLAN VIEW

SCALE: 1" = 20'



JONES ST. PROFILE VIEW

HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 5'

NO.	DATE	REVISIONS	BY	APPD

RSA+ CONSULTING CIVIL ENGINEERS + SURVEYORS +
1515 FOURTH STREET
NAPA, CALIF. 94559
OFFICE (707) 252-3301
+ www.RSAcivil.com +
1980

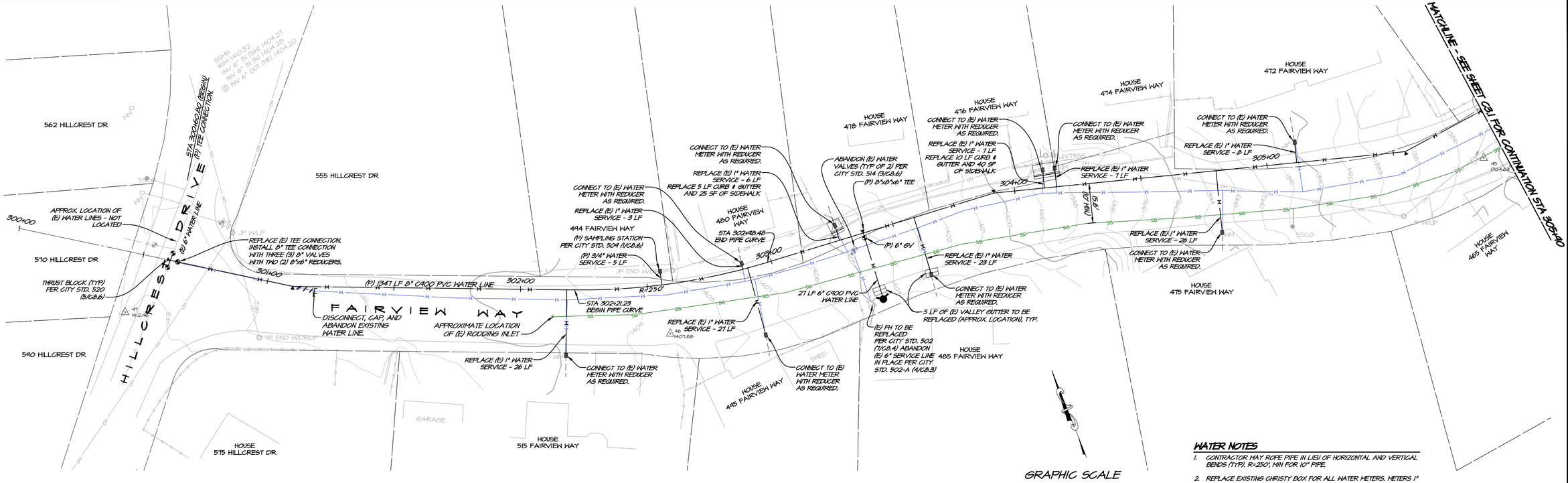
LAKESHORE BLVD
JONES ST. PLAN & PROFILE
CITY OF LAKEPORT
CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER PAUL SARGENT WARWICK No. 82758 Exp. 9-30-24 CIVIL STATE OF CALIFORNIA

DATE	MAR. 12, 2024	
DRAWN	LMM	
DESIGNED	NAH	
CHECKED	PSW	
JOB NO.	41230118.1	

SHEET NO.
C2.5
8 OF 32 SHEETS

R:\2023\41230118 - Lakeport - 2023 - Water + Sewer Main Replacement - Project - Design\DESIGN\PLANS - Lakeshore Blvd\C2.2-PLAN-PROF.dwg 03/12/2024 11:34:19 AM lmigram



FAIRVIEW WAY PLAN VIEW

SCALE: 1" = 20'

GRAPHIC SCALE

20 0 20 40

(IN FEET)
1 inch = 20 FT

UTILITY NOTE

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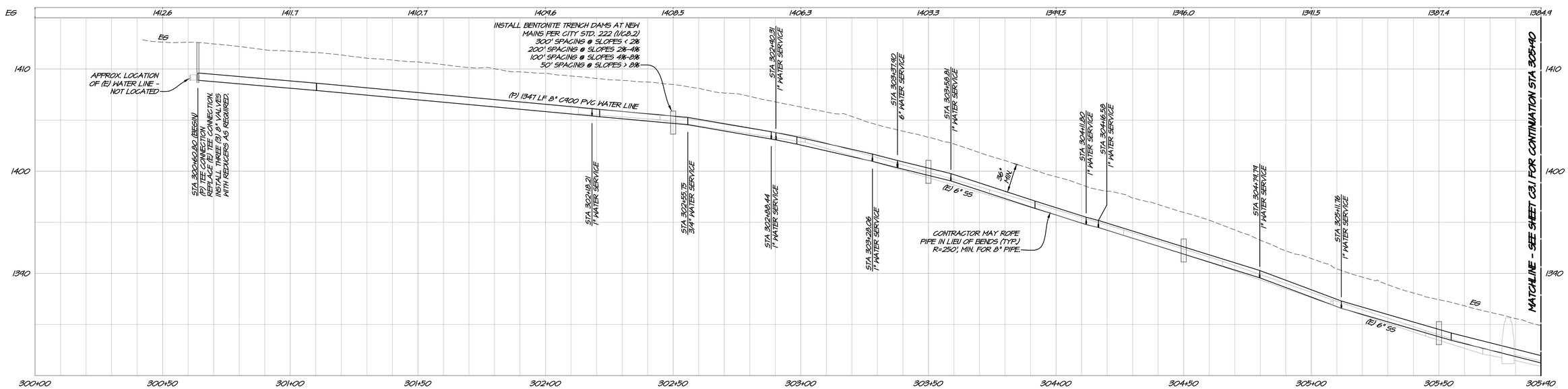
7. EXISTING 1" AND 2" WATER SERVICE LATERALS TO BE REMOVED AND REPLACED IN PLACE.
8. APPROXIMATE LOCATION OF (E) WATER METER AND LATERAL (NOT USA'd).



FAIRVIEW WAY PROFILE VIEW

HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 5'

NO.	DATE	REVISIONS	BY	APPD

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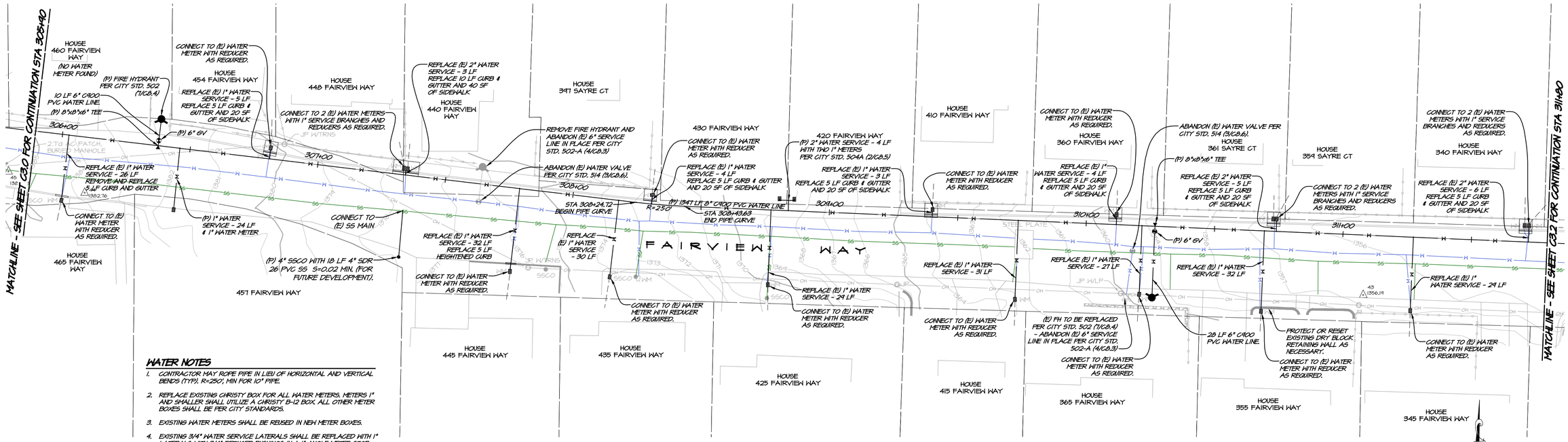
FAIRVIEW WAY PLAN & PROFILE

CITY OF LAKEPORT CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER JAMIE SARGENT WANNOP No. 82758 Exp. 9-30-24 CIVIL ENGINEERING STATE OF CALIFORNIA

DATE	MAR. 12, 2024	
DRAWN	LMM	
DESIGNED	NAW	
CHECKED	PSW	
JOB NO.	4123018.1	

SHEET NO.
C3.0
9 OF 32 SHEETS



FAIRVIEW WAY PLAN VIEW

SCALE: 1" = 20'

GRAPHIC SCALE

20 0 20 40

(IN FEET)
1 inch = 20 FT

WATER NOTES

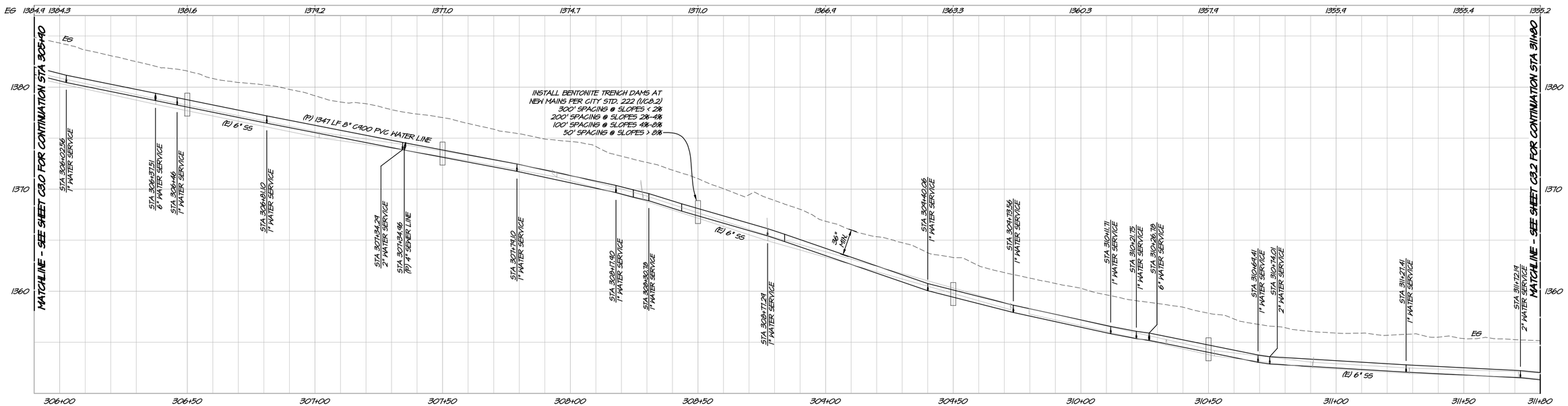
1. CONTRACTOR MAY ROPE PIPE IN LIEU OF HORIZONTAL AND VERTICAL BENDS (TYP). R=250', MIN FOR 10" PIPE.
2. REPLACE EXISTING CHRISTY BOX FOR ALL WATER METERS. METERS 1" AND SMALLER SHALL UTILIZE A CHRISTY B-12 BOX. ALL OTHER METER BOXES SHALL BE PER CITY STANDARDS.
3. EXISTING WATER METERS SHALL BE REUSED IN NEW METER BOXES.
4. EXISTING 3/4" WATER SERVICE LATERALS SHALL BE REPLACED WITH 1" LATERALS WITH 3/4" REDUCER BUSHINGS IN A 1" ANGLE METER STOP.
5. EXISTING FIRE HYDRANTS TO BE REPLACED WITH NEW SERVICE LINES.
6. ABANDON REPLACED WATER MAINS AND FH SERVICE LINES IN PLACE PER CITY STANDARDS.
7. EXISTING 1" AND 2" WATER SERVICE LATERALS TO BE REMOVED AND REPLACED IN PLACE.
8. APPROXIMATE LOCATION OF (E) WATER METER AND LATERAL (NOT USA'd).

UTILITY NOTE

1. CONTRACTOR SHALL NOTIFY THE ENGINEER AND CITY INSPECTOR IMMEDIATELY IF UNMAPPED UTILITIES ARE UNCOVERED OR ANY DISCREPANCIES ARE IDENTIFIED BETWEEN THE EXISTING CONDITIONS SHOWN ON THE PLANS AND WHAT IS OBSERVED IN THE FIELD.

SEWER NOTES

1. CONNECTIONS TO EXISTING SANITARY SEWER LINE SHALL UTILIZE A CALDER CONNECTION WITH STAINLESS STEEL CLAMPS PER CITY SPECIFICATIONS.
2. REPLACE (E) SSCO FOR ALL SEWER LATERALS.
3. EXISTING SEWER LINES TO BE REMOVED AND REPLACED IN PLACE, UNLESS OTHERWISE NOTED.
4. APPROXIMATE LOCATION OF (E) SSCO AND LATERAL.
5. IF GROUNDWATER IS ENCOUNTERED, INSTALL DEWATERING WELLS PER CITY STD. 225 (4/C8.1). CONTRACTOR SHALL VERIFY PROPOSED LOCATIONS WITH CITY INSPECTOR PRIOR TO INSTALLATION.



FAIRVIEW WAY PROFILE VIEW

HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 5'

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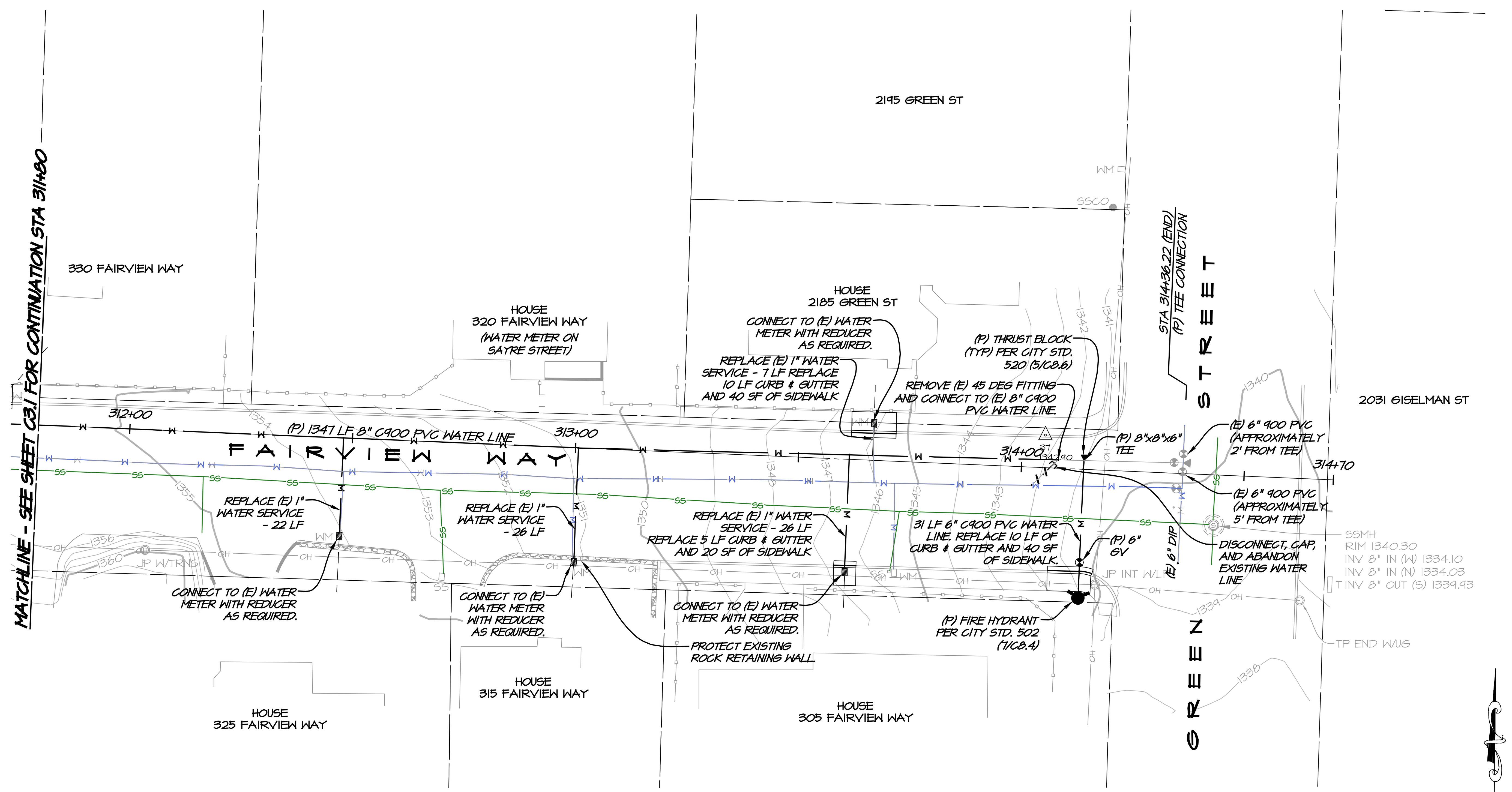
FAIRVIEW WAY PLAN & PROFILE

CITY OF LAKEPORT CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER PAUL SARGENT MARCH No. 82758 Exp. 9-30-24 CIVIL ENGINEER STATE OF CALIFORNIA

DATE	MAR. 12, 2024
DRAWN	LMM
DESIGNED	NAW
CHECKED	PSM
JOB NO.	4123018.1

SHEET NO.
C3.1
10 OF 32 SHEETS



FAIRVIEW WAY PLAN VIEW

SCALE: 1" = 20'

WATER NOTES

1. CONTRACTOR MAY ROPE PIPE IN LIEU OF HORIZONTAL AND VERTICAL BENDS (TYP). R=250', MIN FOR 10" PIPE.
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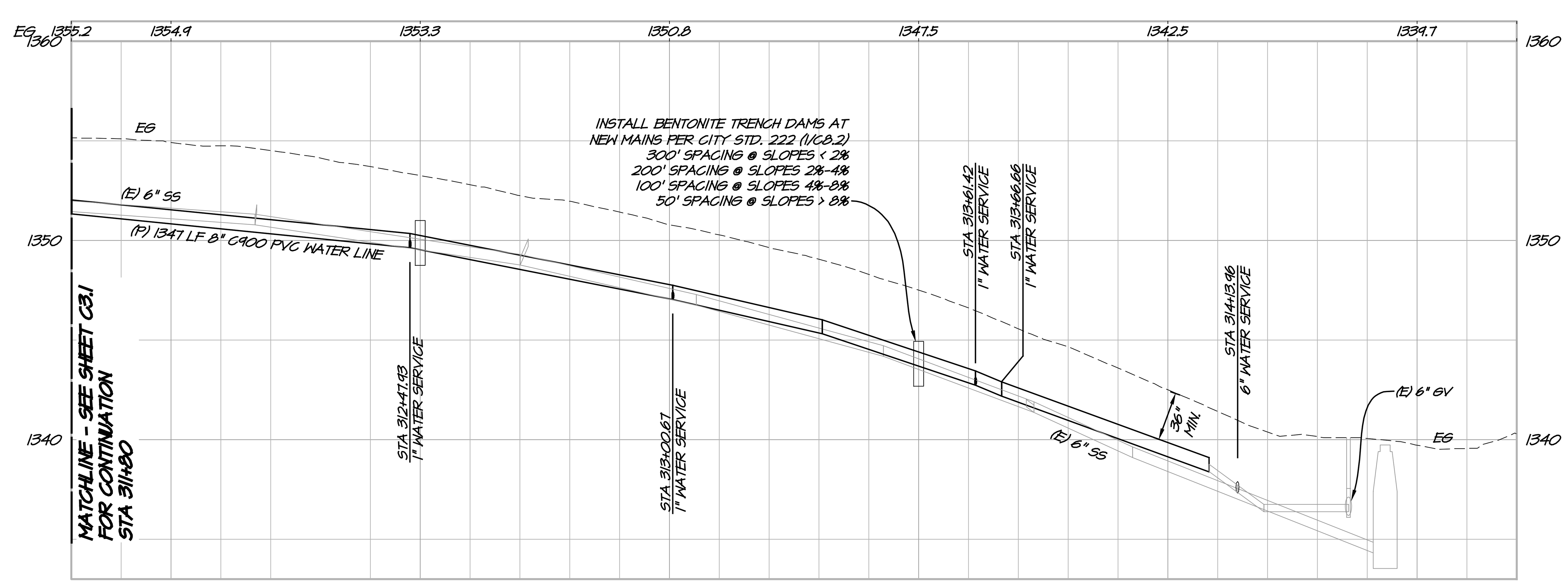
GRAPHIC SCALE

20 0 20 40

(IN FEET)
1 inch = 20 FT



FAIRVIEW WAY PROFILE VIEW

HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 5'

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FAIRVIEW WAY
PLAN & PROFILE

CITY OF LAKEPORT CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
PAUL SARGENT WARNOCK
No. 82758
Exp. 9-30-24
CIVIL ENGINEER
STATE OF CALIFORNIA

[illegible]

DATE	MAR. 12, 2024
DRAWN	LMM
DESIGNED	NAW
CHECKED	PSW
JOB NO.	4123018.1

SHEET NO.
C3.2
11 OF 32 SHEETS

WATER NOTES

1. CONTRACTOR MAY ROPE PIPE IN LIEU OF HORIZONTAL AND VERTICAL BENDS (TYP). R=250', MIN FOR 10" PIPE.
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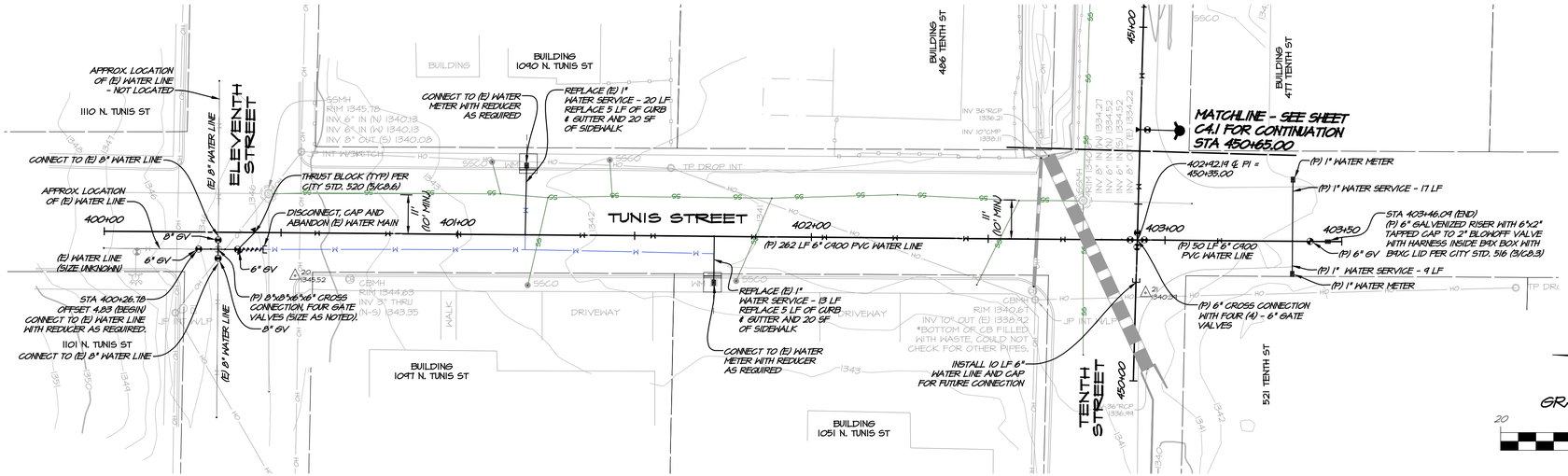


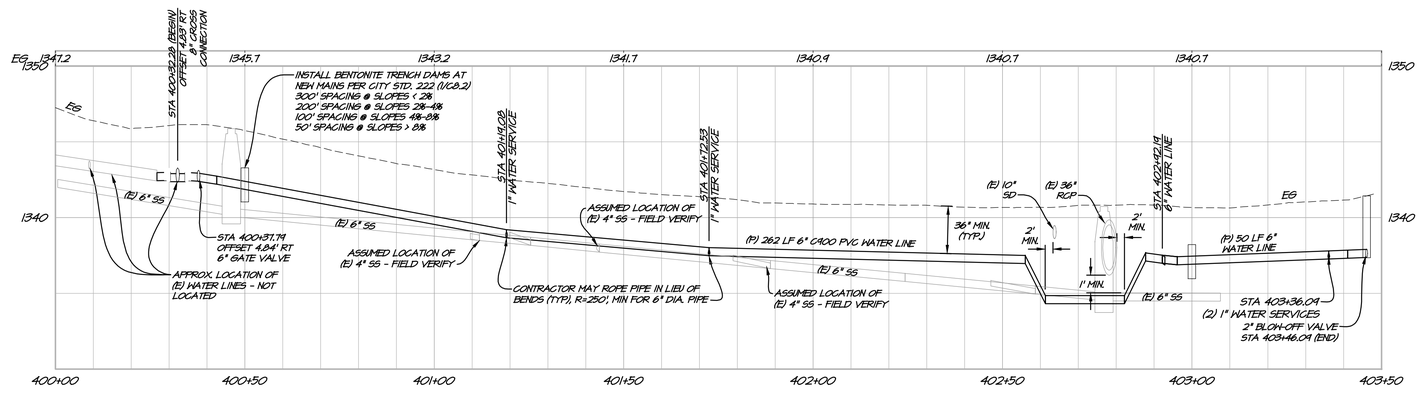
TUNIS STREET PLAN VIEW

SCALE: 1" = 20'

GRAPHIC SCALE

20 0 20 40

(IN FEET)
1 inch = 20 FT



TUNIS STREET PROFILE VIEW

HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 5'

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TENTH ST & TUNIS ST PLAN & PROFILE

CITY OF LAKEPORT CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER PAUL SARGENT MARKHAM No. 82758 Exp. 9-30-24 CIVIL ENGINEER STATE OF CALIFORNIA

DATE	MAR. 12, 2024
DRAWN	LMM
DESIGNED	NAW
CHECKED	PSM
JOB NO.	4123018.1

SHEET NO.
C4.0
12 OF 32 SHEETS

R:\2023\4123018_Lakeport_2023_Water_1_Sewer_Main_Replacement_Project_Design\DESIGN\PLANS - Tenth St & Tunis St\C4.0-PLAN-PROF.dwg 03/12/2024 11:26:56 AM lmigram

WATER NOTES

1. CONTRACTOR MAY ROPE PIPE IN LIEU OF HORIZONTAL AND VERTICAL BENDS (TYP). R=250', MIN FOR 10" PIPE.
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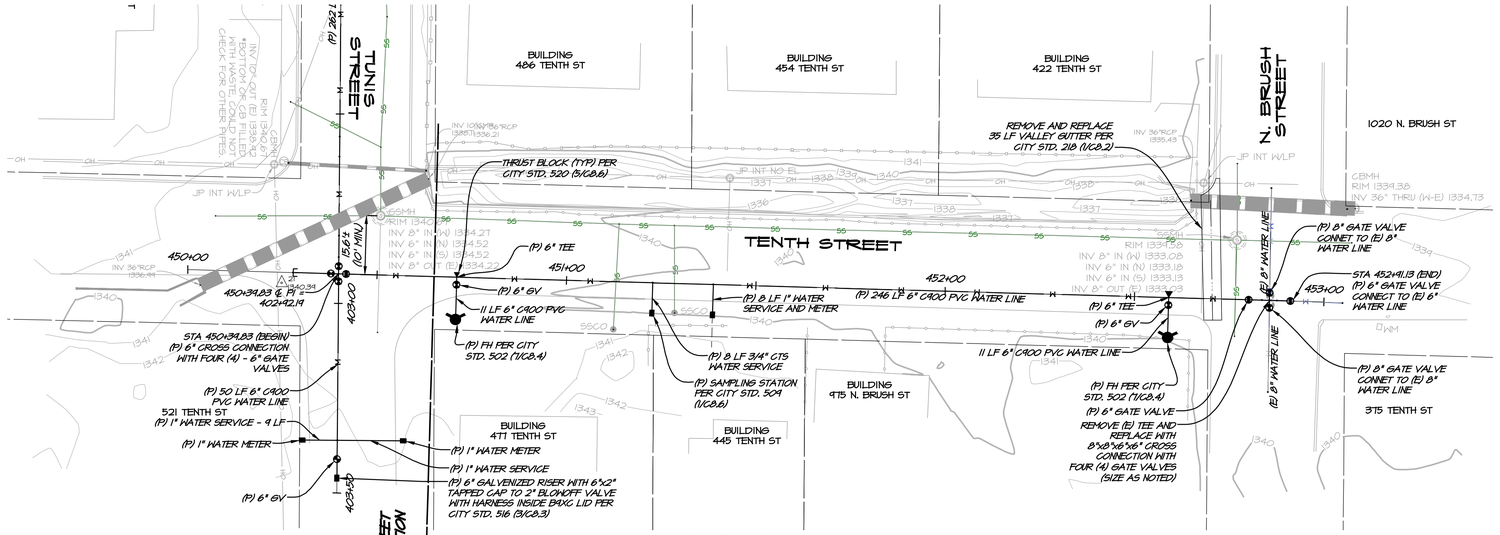


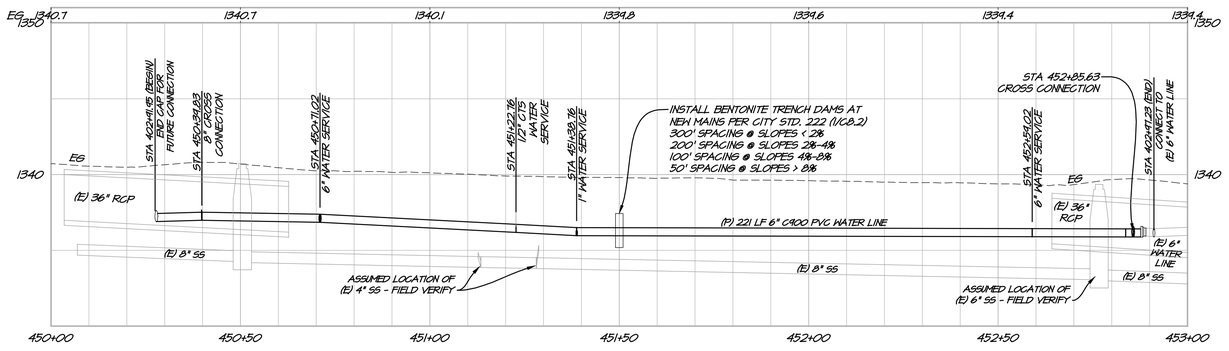
TENTH STREET PLAN VIEW

SCALE: 1" = 20'

GRAPHIC SCALE

20 0 20 40

(IN FEET)
1 inch = 20 FT



TENTH STREET PROFILE VIEW

HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 5'

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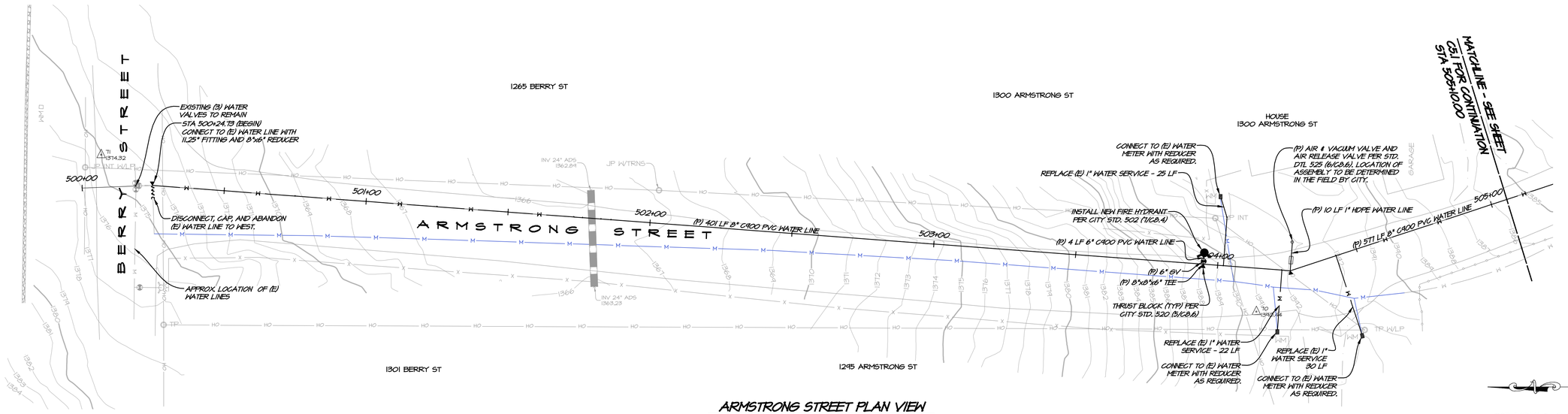
TENTH ST & TUNIS ST PLAN & PROFILE

CITY OF LAKEPORT — CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
PAUL SARGENT WARNOCK
No. 82758
Exp. 9-30-24
CIVIL ENGINEER
STATE OF CALIFORNIA

DATE	MAR. 12, 2024	
DRAWN	LMM	
DESIGNED	NAW	
CHECKED	PSW	
JOB NO.	4123018.1	

SHEET NO.
C4.1
13 OF 32 SHEETS



ARMSTRONG STREET PLAN VIEW

SCALE: 1" = 20'

UTILITY NOTE

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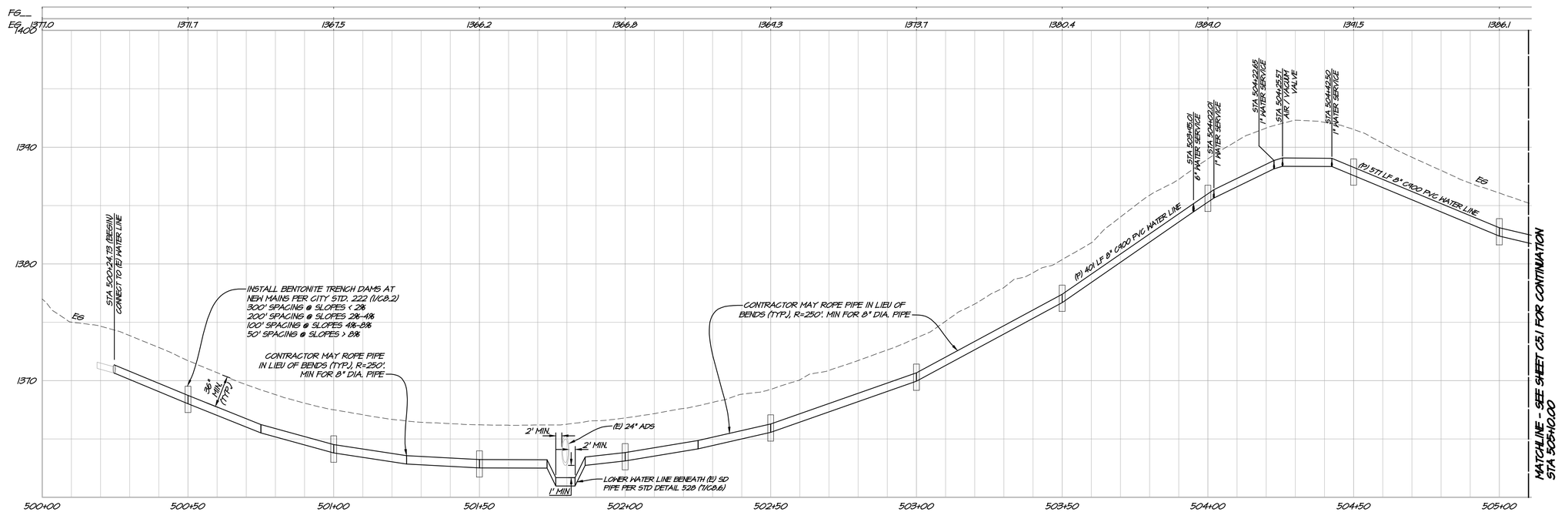
GRAPHIC SCALE

20 0 20 40

(IN FEET)
1 inch = 20 FT



ARMSTRONG STREET PROFILE VIEW

HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 5'

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ARMSTRONG ST PLAN & PROFILE

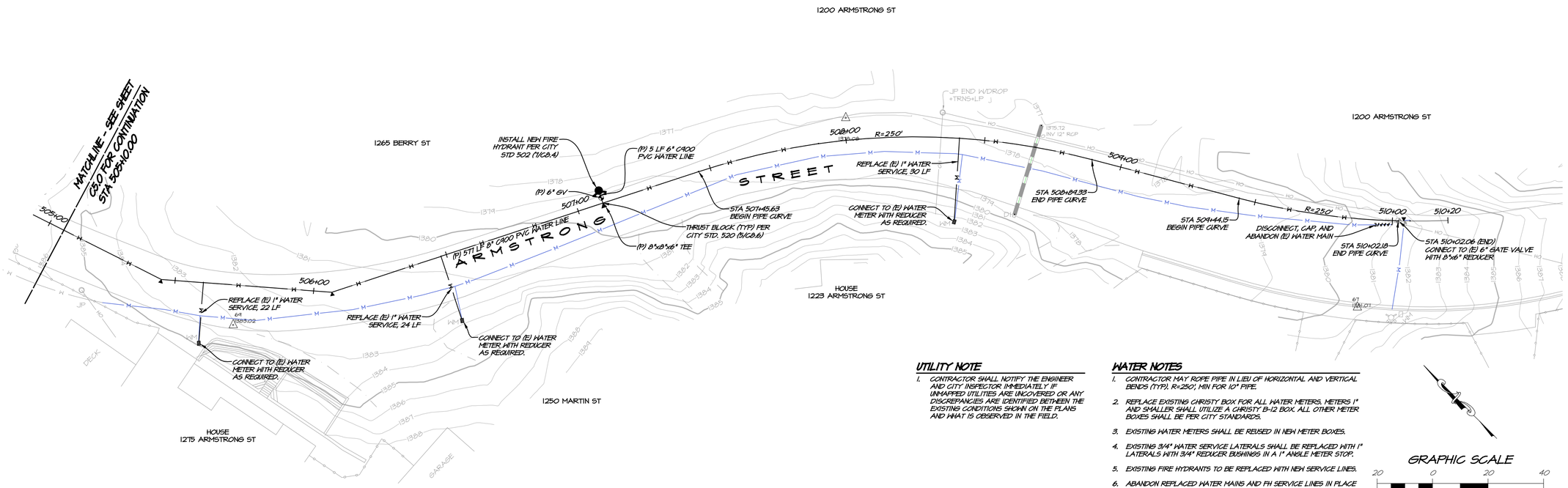
CITY OF LAKEPORT CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER PAUL SARGENT WARWICK No. 82758 Exp. 9-30-24 CIVIL ENGINEER STATE OF CALIFORNIA

DATE	MAR. 12, 2024	
DRAWN	LMM	
DESIGNED	NAH	
CHECKED	PSW	
JOB NO.	4123018.1	

SHEET NO.
C5.0
14 OF 32 SHEETS

R:\2023\4123018 - Lakeport_2023_Water - 1_Sewer - Main_Replacement_Project - Design\DESIGN\PLANS - Armstrong St\C5.0-PLAN-PROF.dwg 03/12/2024 11:23:47AM lmigron



ARMSTRONG STREET PLAN VIEW

SCALE: 1" = 20'

UTILITY NOTE

1. CONTRACTOR SHALL NOTIFY THE ENGINEER AND CITY INSPECTOR IMMEDIATELY IF UNMAPPED UTILITIES ARE UNCOVERED OR ANY DISCREPANCIES ARE IDENTIFIED BETWEEN THE EXISTING CONDITIONS SHOWN ON THE PLANS AND WHAT IS OBSERVED IN THE FIELD.

WATER NOTES

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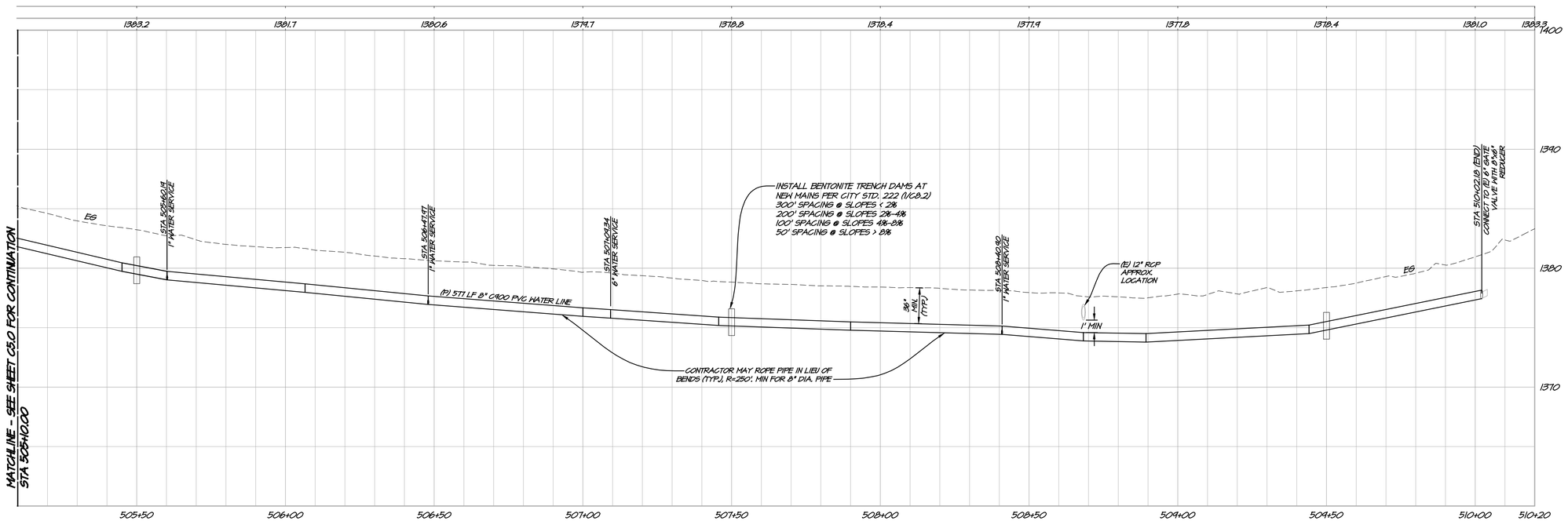
8. APPROXIMATE LOCATION OF (E) WATER METER AND LATERAL (NOT USA'd).

GRAPHIC SCALE

20 0 20 40

(IN FEET)
1 inch = 20 FT



ARMSTRONG STREET PROFILE VIEW

HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 5'

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ARMSTRONG ST PLAN & PROFILE

CITY OF LAKEPORT CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
JAMIE SARGENT WANNOP
No. 82758
Exp. 9-30-24
CIVIL ENGINEERING
STATE OF CALIFORNIA

DATE	MAR. 12, 2024	
DRAWN	LMM	
DESIGNED	NAW	
CHECKED	PSW	
JOB NO.	4123018.1	

SHEET NO.
C5.1
15 OF 32 SHEETS

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MARTIN ST PLAN VIEW

SCALE: 1" = 20'

SSMH TABLE - MARTIN STREET		
STATION	NUMBER	TYPE
602+50.00	1M	REMOVE AND REPLACE
603+85.85	2M	REMOVE AND REPLACE
606+36.74	3M	EXISTING TO REMAIN
606+66.96	4M	REMOVE AND REPLACE
606+87.69	5M	ABANDON
609+06.79	6M	REMOVE AND REPLACE
611+86.34	7M	REMOVE AND REPLACE
614+54.03	8M	REMOVE AND REPLACE
616+68.89	9M	REMOVE AND REPLACE
617+71.79	10M	REMOVE AND REPLACE
617+72.65	11M	ABANDON
620+21.79	12M	NEW
623+25.10	13M	REMOVE AND REPLACE
623+99.32	14M	REMOVE AND REPLACE
625+95.32	15M	NEW
628+52.00	16M	REMOVE AND REPLACE

UTILITY NOTE

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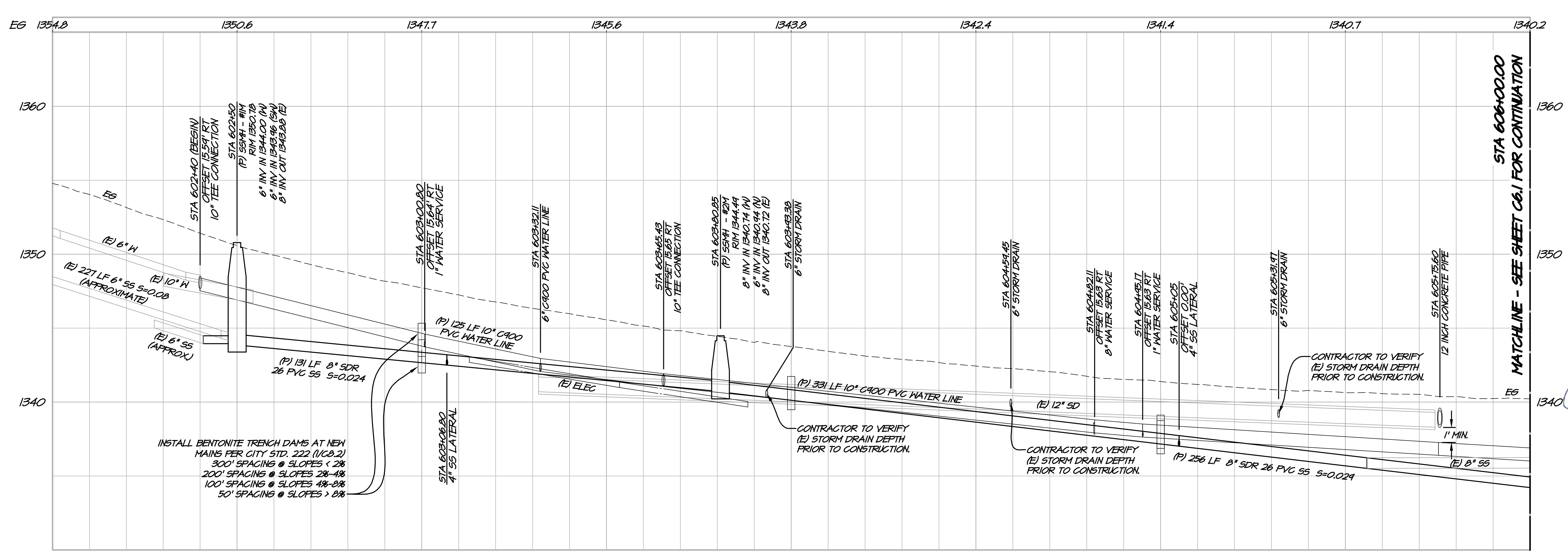
GRAPHIC SCALE

20 0 20 40

(IN FEET)
1 inch = 20 FT



MARTIN ST PROFILE VIEW

HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 5'

NO.	DATE	REVISIONS	BY	APPD

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MARTIN ST PLAN & PROFILE

CITY OF LAKEPORT CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER PAUL SARGENT WARNOCK No. 82758 Exp. 9-30-24 CIVIL ENGINEER STATE OF CALIFORNIA

DATE	MAR. 12, 2024
DRAWN	LMM
DESIGNED	NAW
CHECKED	PSW
JOB NO.	4123018.1

SHEET NO.
C6.0
16 OF 32 SHEETS

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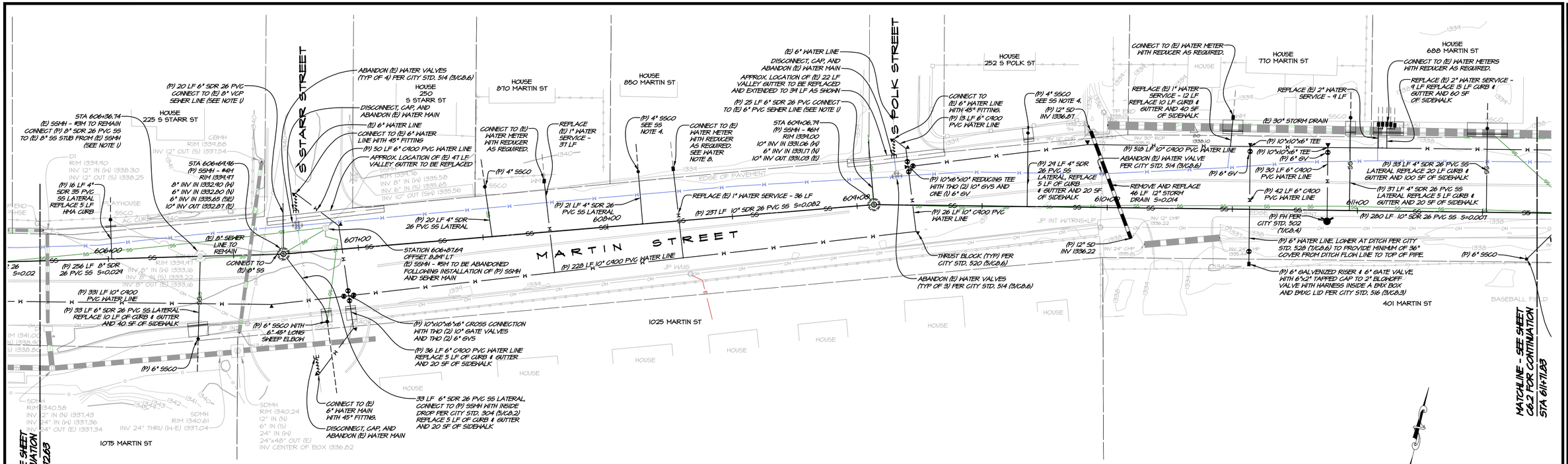

MARTIN ST PLAN VIEW

SCALE: 1" = 20'

SEWER NOTES

1. CONNECTIONS TO EXISTING SANITARY SEWER LINE SHALL UTILIZE A CALDER CONNECTION WITH STAINLESS STEEL CLAMPS PER CITY SPECIFICATIONS.
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UTILITY NOTE

1. CONTRACTOR SHALL NOTIFY THE ENGINEER AND CITY INSPECTOR IMMEDIATELY IF UNMAPPED UTILITIES ARE UNCOVERED OR ANY DISCREPANCIES ARE IDENTIFIED BETWEEN THE EXISTING CONDITIONS SHOWN ON THE PLANS AND WHAT IS OBSERVED IN THE FIELD.

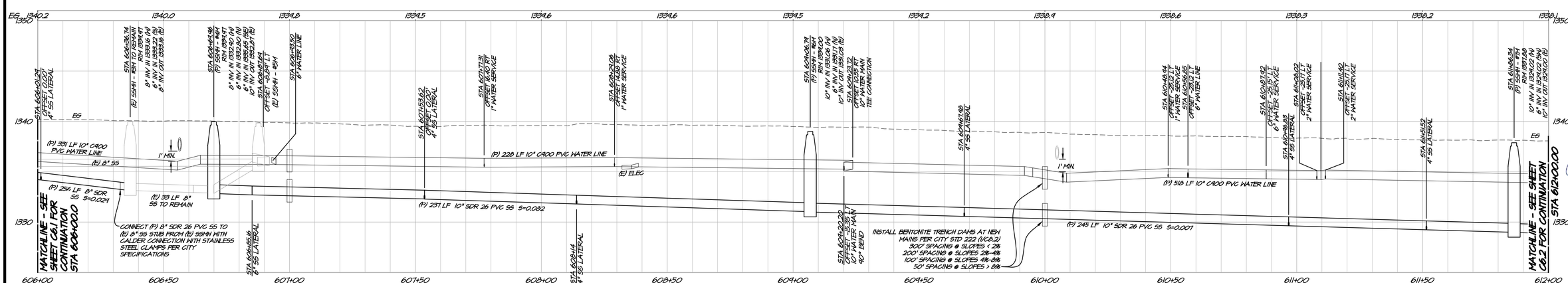
WATER NOTES

1. CONTRACTOR MAY ROPE PIPE IN LIEU OF HORIZONTAL AND VERTICAL BENDS (TYP), R=250', MIN FOR 10" PIPE.
2. REPLACE EXISTING CHRISTY BOX FOR ALL WATER METERS. METERS 1" AND SMALLER SHALL UTILIZE A CHRISTY B-12 BOX. ALL OTHER METER BOXES SHALL BE PER CITY STANDARDS.
3. EXISTING WATER METERS SHALL BE REUSED IN NEW METER BOXES.
4. EXISTING 3/4" WATER SERVICE LATERALS SHALL BE REPLACED WITH 1" LATERALS WITH 3/4" REDUCER BUSHINGS IN A 1" ANGLE METER STOP.
5. EXISTING FIRE HYDRANTS TO BE REPLACED WITH NEW SERVICE LINES.
6. ABANDON REPLACED WATER MAINS AND FH SERVICE LINES IN PLACE PER CITY STANDARDS.
7. EXISTING 1" AND 2" WATER SERVICE LATERALS TO BE REMOVED AND REPLACED IN PLACE.
8. APPROXIMATE LOCATION OF (E) WATER METER AND LATERAL (NOT USA'd).

GRAPHIC SCALE

20 0 20 40

(IN FEET)
1 inch = 20 FT



MARTIN ST PROFILE VIEW

HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 5'

NO.	DATE	REVISIONS	BY	APPD

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MARTIN ST PLAN & PROFILE

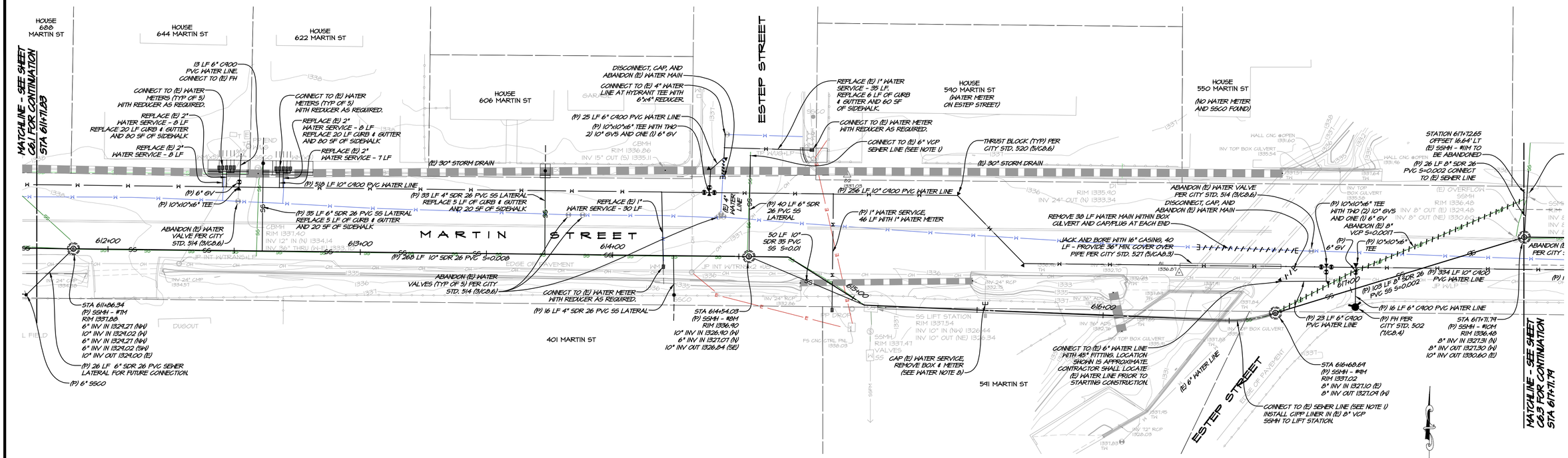
CITY OF LAKEPORT CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER PAUL SARGENT MARKRAY No. 82758 Exp. 9-30-24 CIVIL ENGINEER STATE OF CALIFORNIA

DATE	MAR. 12, 2024
DRAWN	LMM
DESIGNED	NAW
CHECKED	PSM
JOB NO.	412301B.1

SHEET NO.
C6.1
17 OF 32 SHEETS

R:\2023\412301B_Lakeport_2023_Index_1_Sewer_Main_Replacement_Project_Design\12DESIGN\PLANS - Martin St\C6\1-PLAN-PROF.dwg 03/12/2024 11:49:14AM lmilgrim



MARTIN ST PLAN VIEW

SCALE: 1" = 20'

SEWER NOTES

1. CONNECTIONS TO EXISTING SANITARY SEWER LINE SHALL UTILIZE A CALDER CONNECTION WITH STAINLESS STEEL CLAMPS PER CITY SPECIFICATIONS.
2. REPLACE (E) 5560 FOR ALL SEWER LATERALS.
3. EXISTING SEWER LINES TO BE REMOVED AND REPLACED IN PLACE, UNLESS OTHERWISE NOTED.
4. APPROXIMATE LOCATION OF (E) 5560 AND LATERAL.
5. IF GROUNDWATER IS ENCOUNTERED, INSTALL DEWATERING WELLS PER CITY STD. 225 (4/C6.1). CONTRACTOR SHALL VERIFY PROPOSED LOCATIONS WITH CITY INSPECTOR PRIOR TO INSTALLATION.

UTILITY NOTE

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GRAPHIC SCALE

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(IN FEET)
1 inch = 20 FT

MARTIN ST PROFILE VIEW

HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 5'

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MARTIN ST PLAN & PROFILE

CITY OF LAKEPORT CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER PAUL SARGENT WARWICK No. 82758 Exp. 9-30-24 CIVIL ENGINEER STATE OF CALIFORNIA

DATE	MAR. 12, 2024		
DRAWN	LMM		
DESIGNED	NAW		
CHECKED	PSW		
JOB NO.	4123018.1		

SHEET NO.
C6.2
18 OF 32 SHEETS

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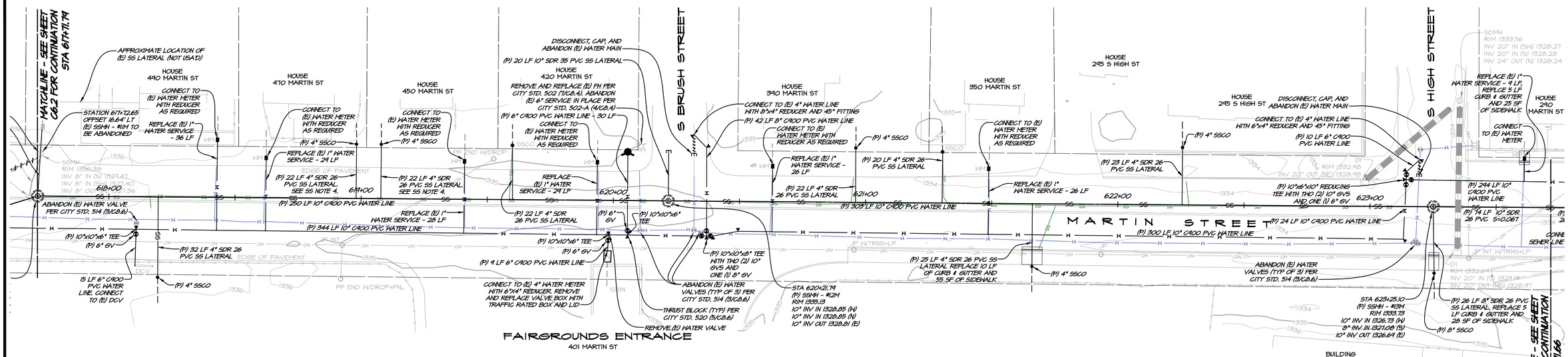

MARTIN ST PLAN VIEW

SCALE: 1" = 20'

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2. REPLACE (E) SSCO FOR ALL SEWER LATERALS.
3. EXISTING SEWER LINES TO BE REMOVED AND REPLACED IN PLACE, UNLESS OTHERWISE NOTED.
4. APPROXIMATE LOCATION OF (E) SSCO AND LATERAL.
5. IF GROUNDWATER IS ENCOUNTERED, INSTALL DEWATERING WELLS PER CITY STD. 229 (4/C8.1). CONTRACTOR SHALL VERIFY PROPOSED LOCATIONS WITH CITY INSPECTOR PRIOR TO INSTALLATION.

UTILITY NOTE

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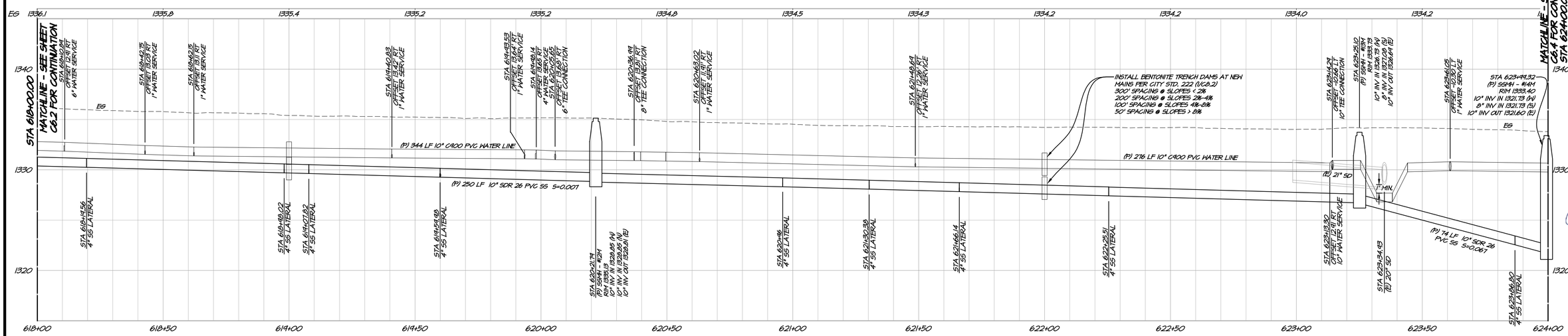
GRAPHIC SCALE

20 0 20 40

(IN FEET)
1 inch = 20 FT



MARTIN ST PROFILE VIEW

HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 5'

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MARTIN ST PLAN & PROFILE

CITY OF LAKEPORT CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER PAUL SARGENT HAMACK No. 82758 exp. 9-30-24 CIVIL ENGINEER STATE OF CALIFORNIA

DATE	MAR. 12, 2024
DRAWN	LMM
DESIGNED	NAW
CHECKED	PSH
JOB NO.	41230181

SHEET NO.
C6.3
19 OF 32 SHEETS

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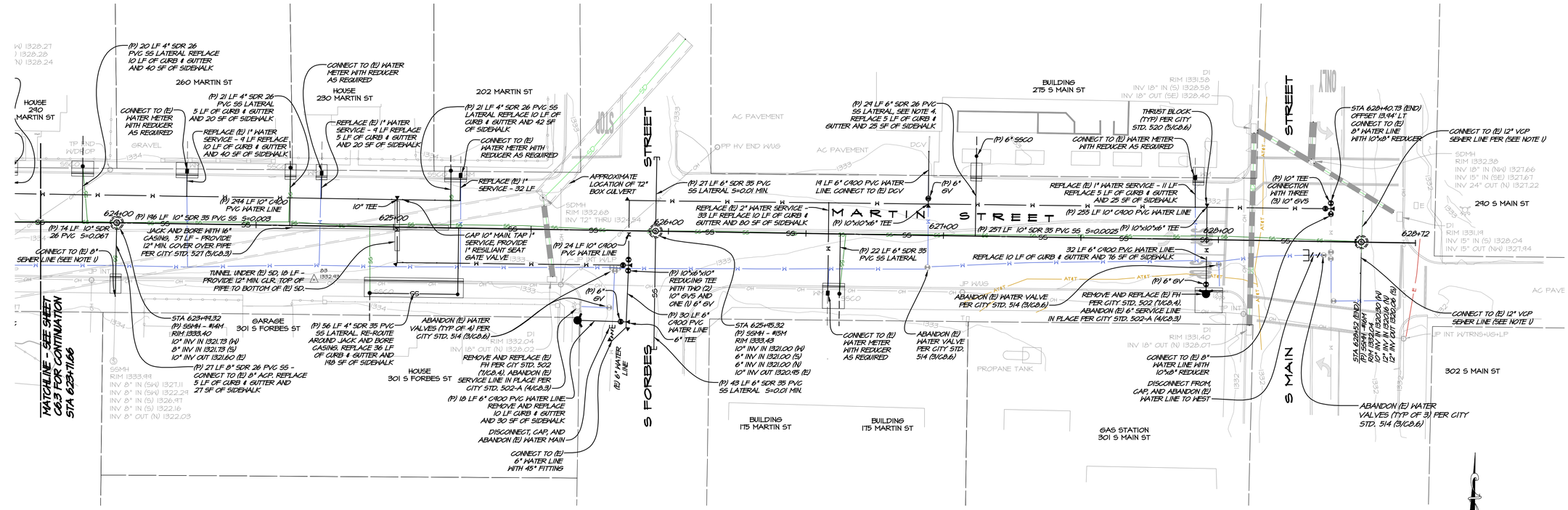

MARTIN ST PLAN VIEW

SCALE: 1" = 20'

WATER NOTES

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GRAPHIC SCALE

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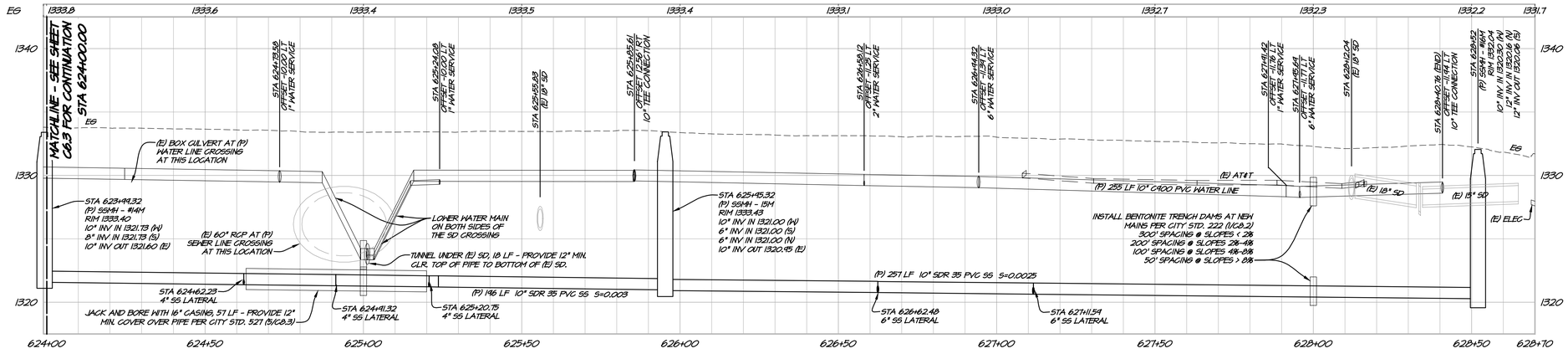
(IN FEET)
1 inch = 20 FT



MARTIN ST PROFILE VIEW

HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 5'

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MARTIN ST PLAN & PROFILE

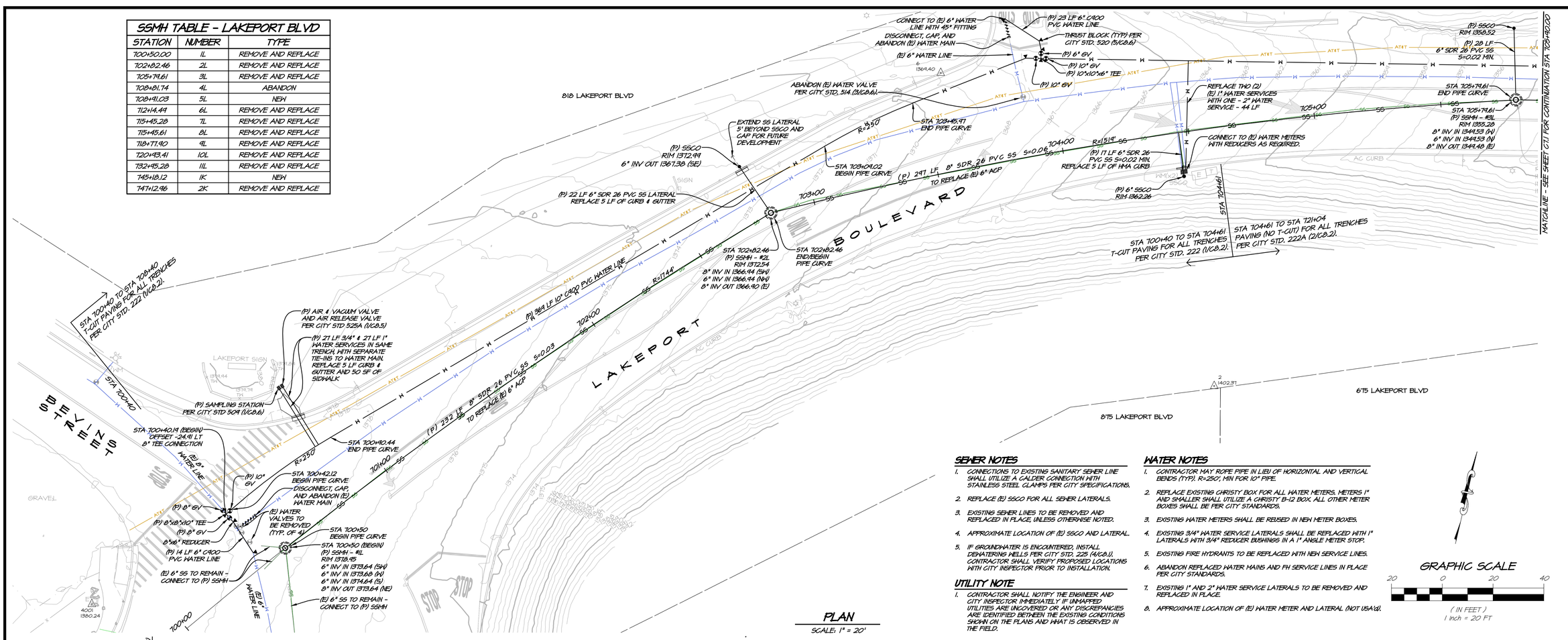
CITY OF LAKEPORT CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER PAUL SARGENT KWIATKOWSKI No. 82758 Exp. 9-30-24 CIVIL ENGINEER STATE OF CALIFORNIA

DATE	MAR. 12, 2024
DRAWN	LMM
DESIGNED	NAH
CHECKED	PSK
JOB NO.	412301B.1

SHEET NO. C6.4
20 OF 32 SHEETS

SSMH TABLE - LAKEPORT BLVD		
STATION	NUMBER	TYPE
700+50.00	1L	REMOVE AND REPLACE
702+82.46	2L	REMOVE AND REPLACE
705+79.61	3L	REMOVE AND REPLACE
700+81.74	4L	ABANDON
708+91.03	5L	NEW
712+14.49	6L	REMOVE AND REPLACE
715+45.28	7L	REMOVE AND REPLACE
715+45.61	8L	REMOVE AND REPLACE
718+77.90	9L	REMOVE AND REPLACE
720+93.41	10L	REMOVE AND REPLACE
732+45.28	11L	REMOVE AND REPLACE
745+18.12	1K	NEW
747+12.96	2K	REMOVE AND REPLACE



PLAN

SCALE: 1" = 20'

SEWER NOTES

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GRAPHIC SCALE

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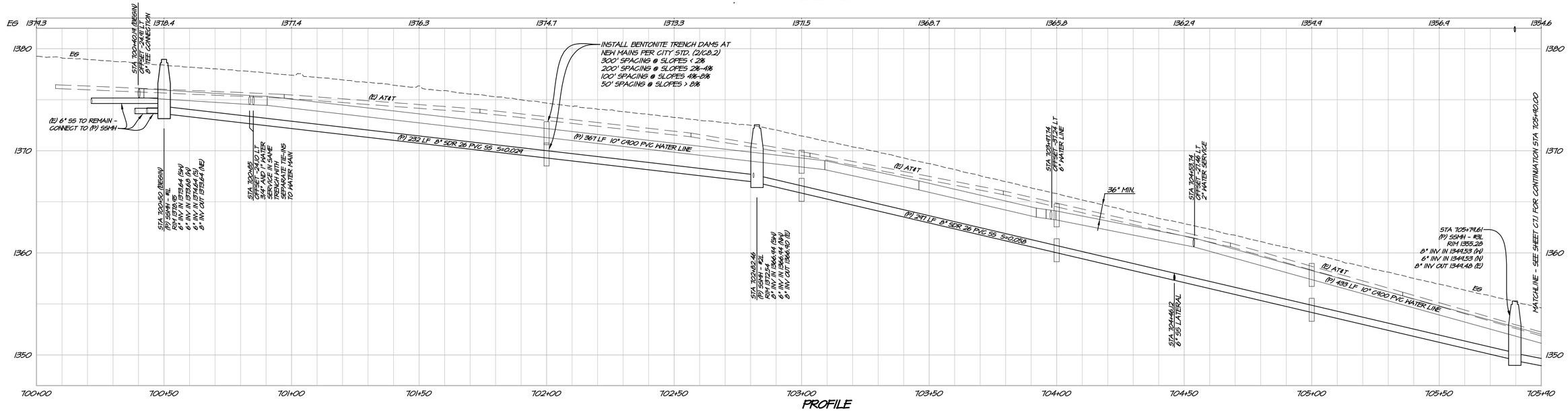
(IN FEET)
1 inch = 20 FT



PROFILE

HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 5'

NO.	DATE	REVISIONS	BY	APPD

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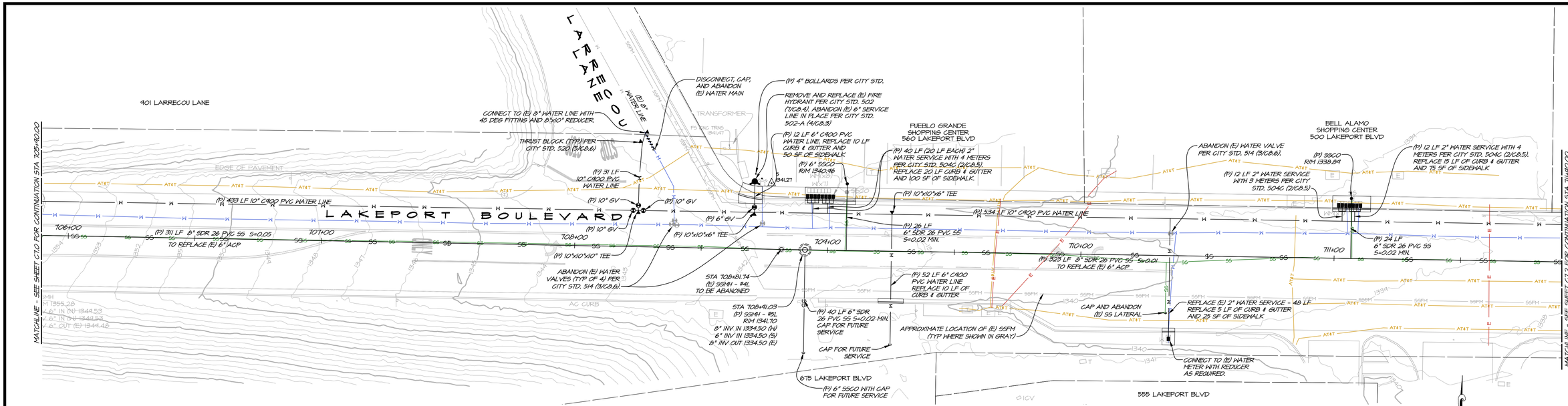
PLAN & PROFILE
CALIFORNIA
CITY OF LAKEPORT

REGISTERED PROFESSIONAL ENGINEER PAUL SARGENT WARNOCK No. 82758 Exp. 9-30-24 CIVIL ENGINEER STATE OF CALIFORNIA

DATE	MAR. 12, 2024
DRAWN	LMM
DESIGNED	NAW
CHECKED	PSW
JOB NO.	4123018.1

SHEET NO.
C7.0
21 OF 32 SHEETS



PLAN

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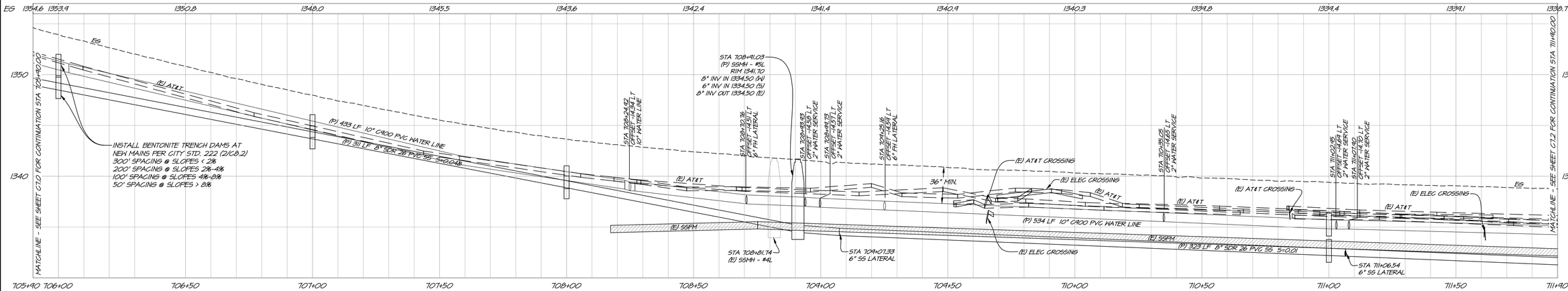

PROFILE

HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 5'

NO.	DATE	REVISIONS	BY	APPD

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LAKEPORT BLVD & K ST
PLAN & PROFILE
CALIFORNIA
CITY OF LAKEPORT

REGISTERED PROFESSIONAL ENGINEER PAUL SARGENT WARNICK No. 82758 Exp. 9-30-24 CIVIL ENGINEER STATE OF CALIFORNIA

DATE	MAR. 12, 2024
DRAWN	LMM
DESIGNED	NAW
CHECKED	PSW
JOB NO.	4123018.1

SHEET NO.
C7.1
22 OF 32 SHEETS

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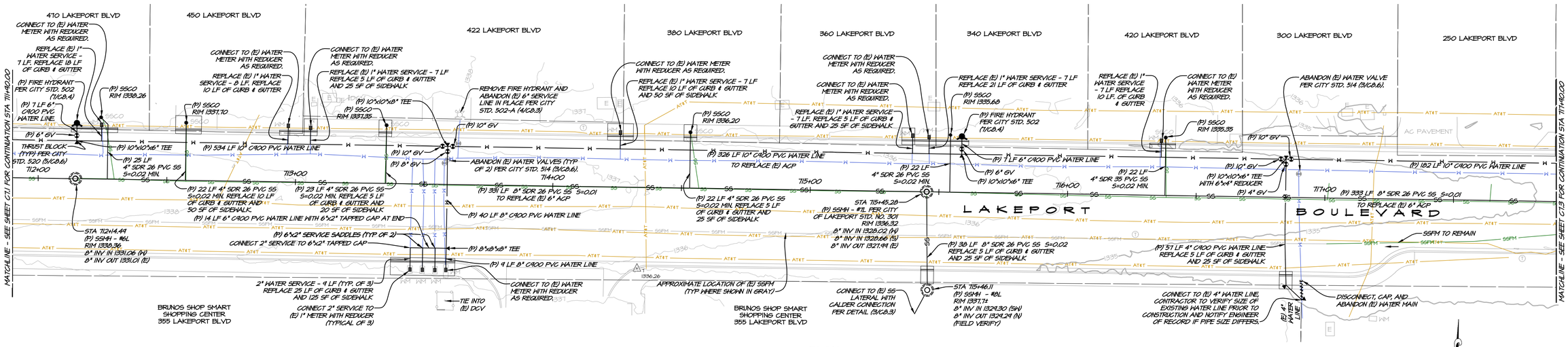

PLAN

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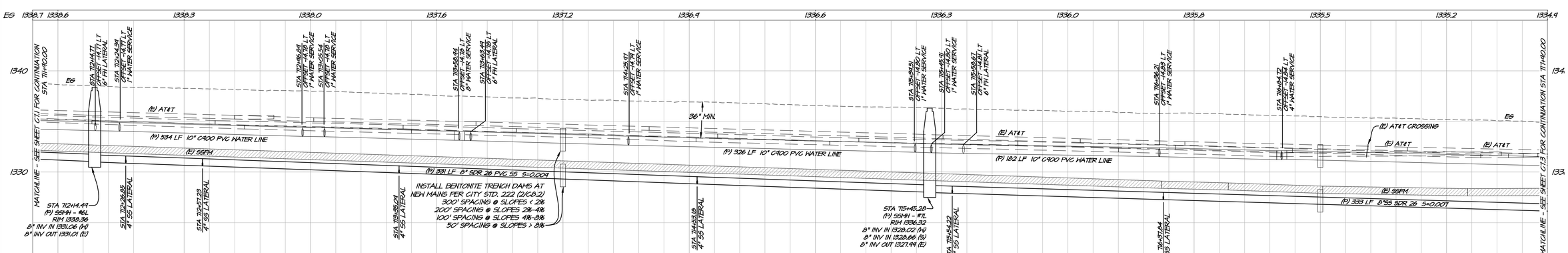

PROFILE

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NO.	DATE	REVISIONS	BY	APPD

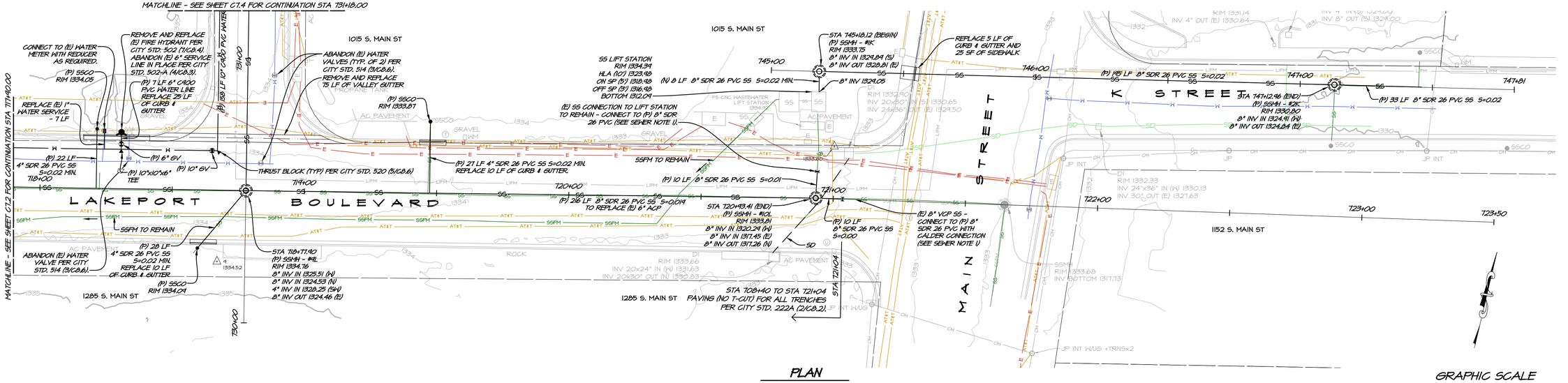
LAKEPORT BLVD & K ST
PLAN & PROFILE
CITY OF LAKEPORT
CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
PAUL SARGENT WARNICK
No. 82758
Exp. 9-30-24
CIVIL ENGINEER
STATE OF CALIFORNIA

DATE	MAR. 12, 2024	
DRAWN	LMM	
DESIGNED	NAH	
CHECKED	PSW	
JOB NO.	4123018.1	

SHEET NO.
C7.2
23 OF 32 SHEETS

R:\2023\4123018.1_Lakeport_2023_Holder - 1_Sewer - Main_Replacement_Project_Design\DESIGN\PLANS - Lakeport Blvd & St. & Forbes St\C12-PLAN-PROF.dwg 03/12/2024 12:26:18PM lmigram



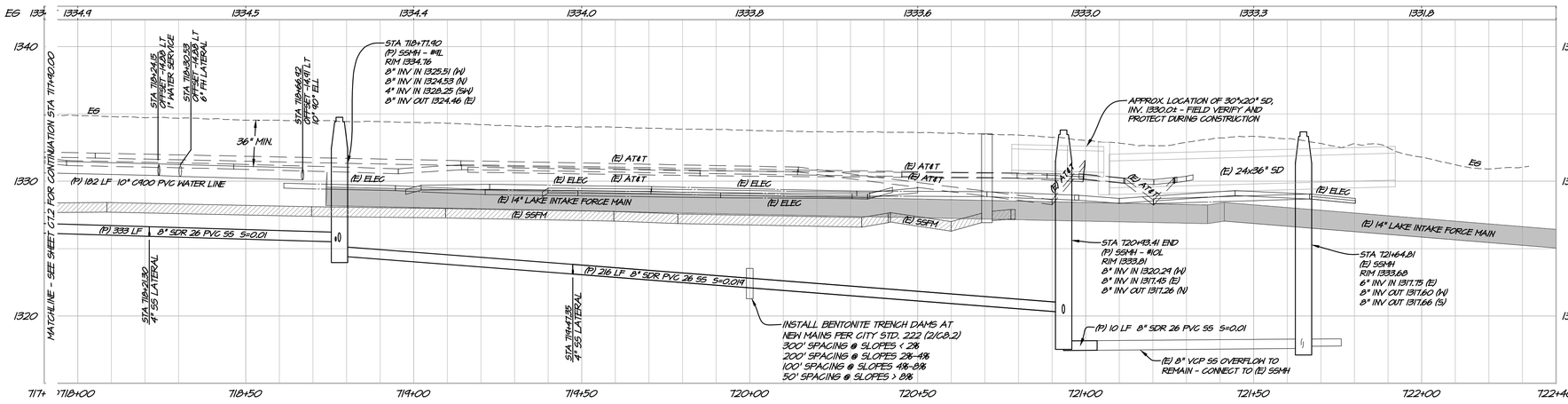
PLAN

SCALE: 1" = 20'

GRAPHIC SCALE

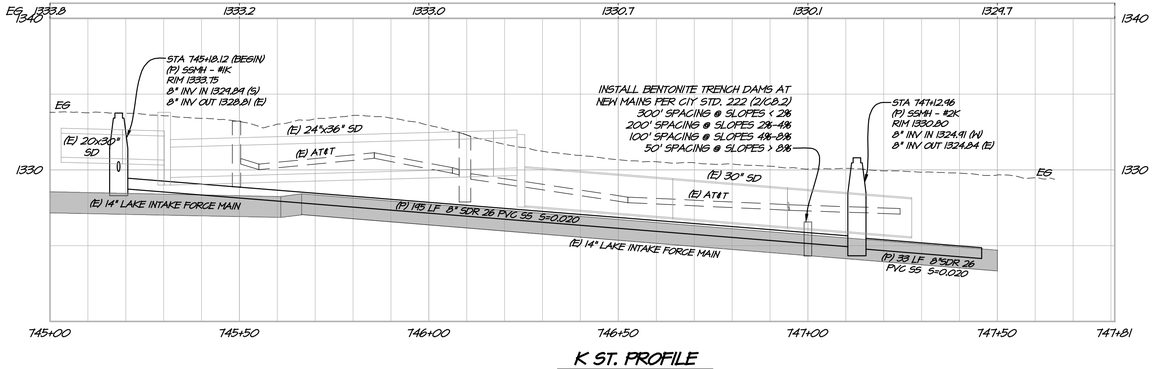
20 0 20 40

(IN FEET)
1 inch = 20 FT



LAKEPORT BLVD PROFILE

HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 5'



K ST. PROFILE

HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 5'

WATER NOTES

1. CONTRACTOR MAY ROPE PIPE IN LIEU OF HORIZONTAL AND VERTICAL BENDS (TYP). R=250', MIN FOR 10" PIPE.
2. REPLACE EXISTING CHRISTY BOX FOR ALL WATER METERS. METERS 1" AND SMALLER SHALL UTILIZE A CHRISTY B-12 BOX. ALL OTHER METER BOXES SHALL BE PER CITY STANDARDS.
3. EXISTING WATER METERS SHALL BE REUSED IN NEW METER BOXES.
4. EXISTING 3/4" WATER SERVICE LATERALS SHALL BE REPLACED WITH 1" LATERALS WITH 3/4" REDUCER BUSHINGS IN A 1" ANGLE METER STOP.
5. EXISTING FIRE HYDRANTS TO BE REPLACED WITH NEW SERVICE LINES.
6. ABANDON REPLACED WATER MAINS AND FH SERVICE LINES IN PLACE PER CITY STANDARDS.
7. EXISTING 1" AND 2" WATER SERVICE LATERALS TO BE REMOVED AND REPLACED IN PLACE.
8. APPROXIMATE LOCATION OF (E) WATER METER AND LATERAL (NOT USA'd).

SEWER NOTES

1. CONNECTIONS TO EXISTING SANITARY SEWER LINE SHALL UTILIZE A CALDER CONNECTION WITH STAINLESS STEEL CLAMPS PER CITY SPECIFICATIONS.
2. REPLACE (E) 55CO FOR ALL SEWER LATERALS.
3. EXISTING SEWER LINES TO BE REMOVED AND REPLACED IN PLACE, UNLESS OTHERWISE NOTED.
4. APPROXIMATE LOCATION OF (E) 55CO AND LATERAL.
5. IF GROUNDWATER IS ENCOUNTERED, INSTALL DEWATERING WELLS PER CITY STD. 225 (4/C/8.1). CONTRACTOR SHALL VERIFY PROPOSED LOCATIONS WITH CITY INSPECTOR PRIOR TO INSTALLATION.

UTILITY NOTE

1. CONTRACTOR SHALL NOTIFY THE ENGINEER AND CITY INSPECTOR IMMEDIATELY IF UNMAPPED UTILITIES ARE UNCOVERED OR ANY DISCREPANCIES ARE IDENTIFIED BETWEEN THE EXISTING CONDITIONS SHOWN ON THE PLANS AND WHAT IS OBSERVED IN THE FIELD.

NO.	DATE	REVISIONS	BY	APPD

1515 FOURTH STREET
NAPA, CALIF. 94559
OFFICE | 707 | 252.3301
+ www.RSAcivil.com +
RSA+ CONSULTING CIVIL ENGINEERS + SURVEYORS + 1980

LAKEPORT BLVD & K ST PLAN & PROFILE

CITY OF LAKEPORT CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER PAUL SARGENT KEMPKER No. 82758 Exp. 9-30-24 CIVIL ENGINEER STATE OF CALIFORNIA

DATE	MAR. 12, 2024
DRAWN	LMM
DESIGNED	NAW
CHECKED	PSW
JOB NO.	412301B.1

SHEET NO.
C7.3
24 OF 32 SHEETS

R:\2023\412301B_Lakeport_2023_Index_Sewer_Main_Replacement_Project_Design\CES\SHEETS\412301B-LAKEPORT BLVD & K ST - Lakeport Blvd, K St, & Forbes SVC\C3-PLAN-PROF.dwg 03/12/2024 12:29:48PM lmgrom

WATER NOTES

1. CONTRACTOR MAY ROPE PIPE IN LIEU OF HORIZONTAL AND VERTICAL BENDS (TYP). R=250', MIN FOR 10" PIPE.
2. REPLACE EXISTING CHRISTY BOX FOR ALL WATER METERS. METERS 1" AND SMALLER SHALL UTILIZE A CHRISTY B-12 BOX. ALL OTHER METER BOXES SHALL BE PER CITY STANDARDS.
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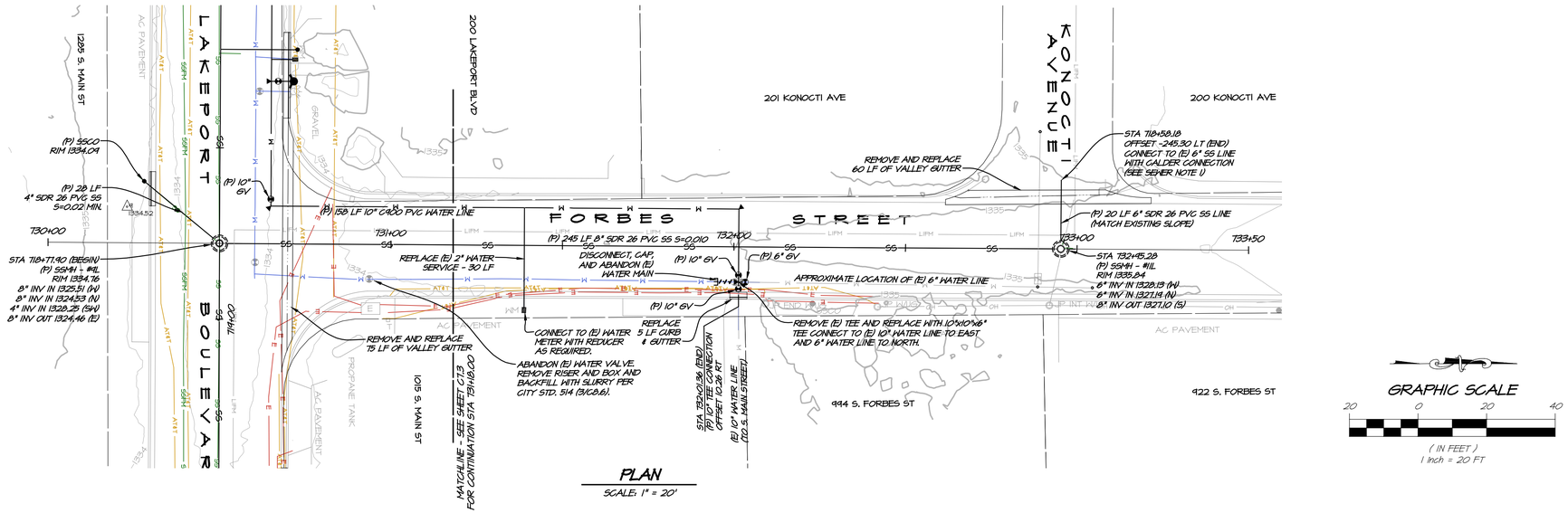
8. APPROXIMATE LOCATION OF (E) WATER METER AND LATERAL (NOT USA'd).

SEWER NOTES

1. CONNECTIONS TO EXISTING SANITARY SEWER LINE SHALL UTILIZE A CALDER CONNECTION WITH STAINLESS STEEL CLAMPS PER CITY SPECIFICATIONS.
2. REPLACE (E) SSCO FOR ALL SEWER LATERALS.
3. EXISTING SEWER LINES TO BE REMOVED AND REPLACED IN PLACE, UNLESS OTHERWISE NOTED.
4. APPROXIMATE LOCATION OF (E) SSCO AND LATERAL.
5. IF GROUNDWATER IS ENCOUNTERED, INSTALL DEWATERING WELLS PER CITY STD. 225 (4/C8.1). CONTRACTOR SHALL VERIFY PROPOSED LOCATIONS WITH CITY INSPECTOR PRIOR TO INSTALLATION.

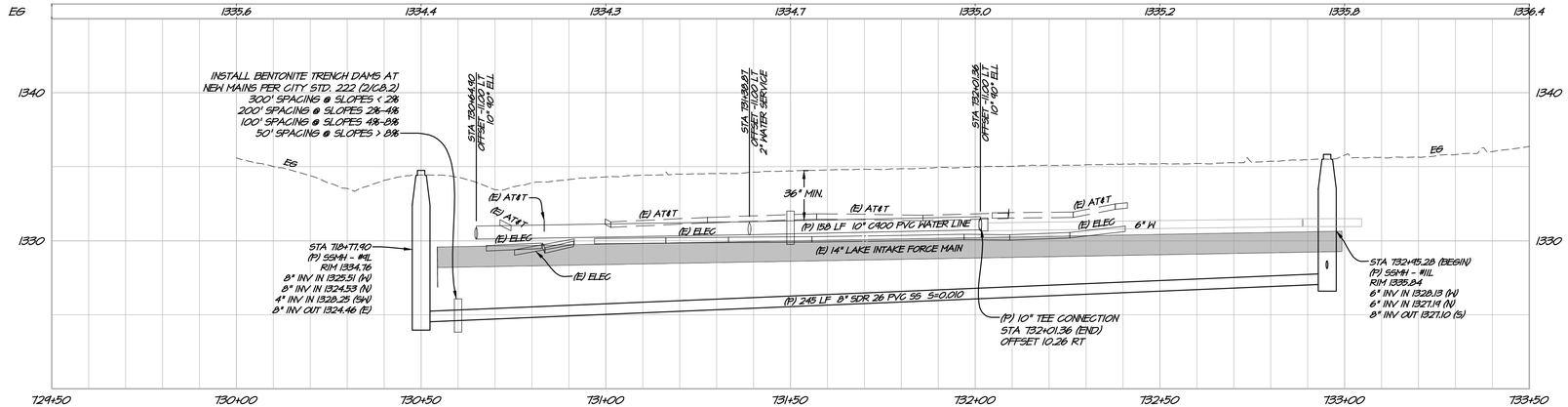
UTILITY NOTE

1. CONTRACTOR SHALL NOTIFY THE ENGINEER AND CITY INSPECTOR IMMEDIATELY IF UNMAPPED UTILITIES ARE UNCOVERED OR ANY DISCREPANCIES ARE IDENTIFIED BETWEEN THE EXISTING CONDITIONS SHOWN ON THE PLANS AND WHAT IS OBSERVED IN THE FIELD.



PLAN

SCALE: 1" = 20'



FORBES ST. PROFILE

HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 5'

GRAPHIC SCALE
20 0 20 40
(IN FEET)
1 inch = 20 FT

NO.	DATE	REVISIONS	BY	APPD

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FORBES STREET PLAN & PROFILE

CITY OF LAKEPORT CALIFORNIA

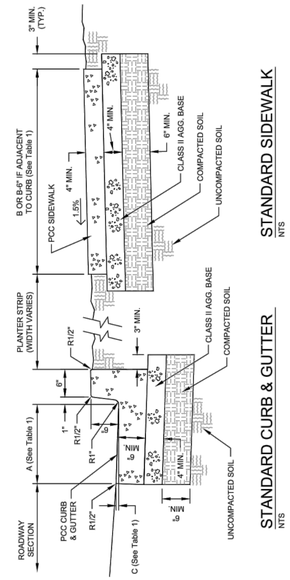
REGISTERED PROFESSIONAL ENGINEER PAUL SARGENT KENNEDY No. 82758 Exp. 9-30-24 CIVIL ENGINEER STATE OF CALIFORNIA

DATE	MAR. 12, 2024
DRAWN	LMM
DESIGNED	NAH
CHECKED	PSK
JOB NO.	4123018.1

SHEET NO.
C7.4
25 OF 32 SHEETS

TABLE NO. 1

DIMENSION	EXISTING	RESIDENTIAL	ALL OTHERS
A	MATCH	18"	24"
B	MATCH	5' (60")	8' (96") MINIMUM
C	MATCH	1-1/4" MIN / 1-3/8" MAX.	1-5/8" MIN / 1-3/4" MAX.



STANDARD CURB & GUTTER
NTS

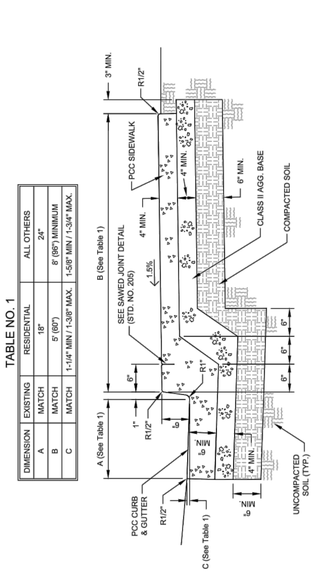
SHEET 1 OF 2

CURB, GUTTER & SIDEWALK	STD. NO. 205	
SCALE: NONE	DRAWN: MPW	CHK: PRC	APPVD:	DATE: FEB 2018

Images: Lakeport-1.jpg, Lakeport-2.jpg Xrefs: TB1.DGN-TEMPLATE.dwg
Plots: By Matthew Rackliffe Services\Projects\Lakeport Roadways\UPDATED PLANS\FINAL UPDATED SETS\Lakeport_Standard_209.dwg Layout Name: 209 (1) Plot Date: Feb 07, 2018 at 08:49

TABLE NO. 1

DIMENSION	EXISTING	RESIDENTIAL	ALL OTHERS
A	MATCH	18"	24"
B	MATCH	5' (60")	8' (96") MINIMUM
C	MATCH	1-1/4" MIN / 1-3/8" MAX.	1-5/8" MIN / 1-3/4" MAX.

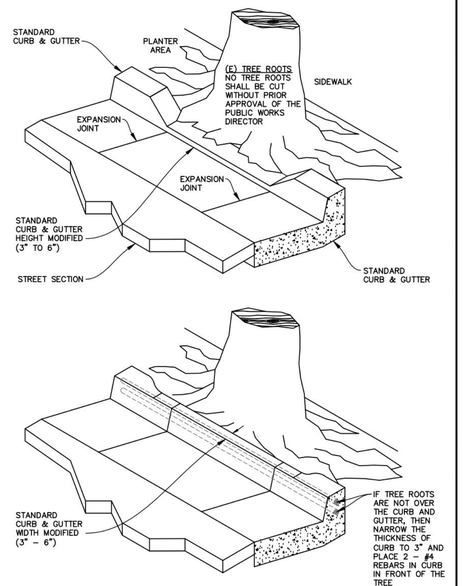


INTEGRAL CURB, GUTTER & SIDEWALK DETAIL
NTS

SHEET 2 OF 2

CURB, GUTTER & SIDEWALK	STD. NO. 205	
SCALE: NONE	DRAWN: MPW	CHK: PRC	APPVD:	DATE: FEB 2018

Images: Lakeport-1.jpg, Lakeport-2.jpg Xrefs: TB1.DGN-TEMPLATE.dwg
Plots: By Matthew Rackliffe Services\Projects\Lakeport Roadways\UPDATED PLANS\FINAL UPDATED SETS\Lakeport_Standard_209.dwg Layout Name: 209 (2) Plot Date: Feb 07, 2018 at 08:49



CURB AND GUTTER NEAR TREE DETAILS

	STD. NO. 206	
SCALE: NONE	DRAWN: CFB	CHK: MGK	APPVD:	DATE: JUN 2012

Images: Lakeport-1.jpg, Lakeport-2.jpg Xrefs: TB1.DGN-TEMPLATE.dwg
Plots: By Matthew Rackliffe Services\Projects\Lakeport Roadways\UPDATED PLANS\FINAL UPDATED SETS\Lakeport_Standard_209.dwg Layout Name: 209 (3) Plot Date: Feb 07, 2018 at 14:22

CONCRETE CONSTRUCTION NOTES:

1. These notes are applicable to all concrete construction including curb; curb & gutter; sidewalks (Std. Plan 205); driveways (Std Plan 210) cross gutters (Std Plan 218); bus pads (Std. Plan 211) or other miscellaneous surface concrete improvements in the City right of way.
2. All concrete shall be jointed per Standard Plan 209. Deepening of joints by saw cutting shall be performed after the concrete has sufficiently set to prevent damage by prior to 24 hours after placement. Concrete which has uncontrolled cracking (within 1 year of installation) due to failure to comply with jointing requirements shall be removed and replaced at the contractor's expense.
3. Concrete shall conform to Section 90 of the latest edition of the Caltrans Standard Specifications and as follows:

Facility Type	Max. Aggregate Size	Concrete Strength (PSI)	Fibermesh Rate	Min. Cementitious Material (lbs)	Max. Slump (inches)
Sidewalk	1"	2500	1.5 lbs/yd (0.01%)	470	5
Curb/Curb & Gutter					
Driveway		3000	3.0 lbs/yd (0.02%)	564	4
Cross Gutter					
Bus Stop					3

4. Steel reinforcement shall conform to Section 52 of the latest edition of the Caltrans Standard Specifications, Grade 40 or 60.
5. Fibermesh shall be polypropylene fibers or equivalent, 3/4" minimum length, and thoroughly mixed into the concrete.
6. Unless otherwise approved in writing by the City Engineer or Building Official, concrete surfaces shall receive a uniform medium broom finish.
7. Rebar dowels are required at all cold joint or ties to existing concrete facilities. 18" x 1/2" deformed bar dowels. Dowels may be wet set into concrete between placements or shall be embedded a minimum 8 inches into the existing concrete sidewalks, curbs, gutter, cross gutters, bus stops, etc. The dowel shall be fully inserted and cemented in place with 2 part epoxy (Simpson SET Epoxy Adhesive) or equivalent. Dowels shall have a maximum spacing of 18 inches with 2 minimum per location required.
8. Expansion joints consisting of 1/4 inch thick preformed joint filler. Finish concrete adjacent to expansion joints with an edger tool. Expansion joints shall be placed at curb returns, interior corners of islands, and every 40 lineal feet. Shape filler to match concrete surface.
9. Subgrade preparation shall consist of scarifying: moisture conditioning to +/– 2% of optimum, and compacting the top 6 inches of native material to 90% to 95% relative compaction.

NOTES CONTINUE ON SHEET 2

SHEET 1 OF 5

CONCRETE CONSTRUCTION NOTES & JOINTING DETAILS	STD. NO. 209	
SCALE: NONE	DRAWN: MPW	CHK: PRC	APPVD:	DATE: FEB 2018

Images: Lakeport-1.jpg, Lakeport-2.jpg Xrefs: TB1.DGN-TEMPLATE.dwg
Plots: By Matthew Rackliffe Services\Projects\Lakeport Roadways\UPDATED PLANS\FINAL UPDATED SETS\Lakeport_Standard_209.dwg Layout Name: 209 (5) Plot Date: Feb 07, 2018 at 14:05

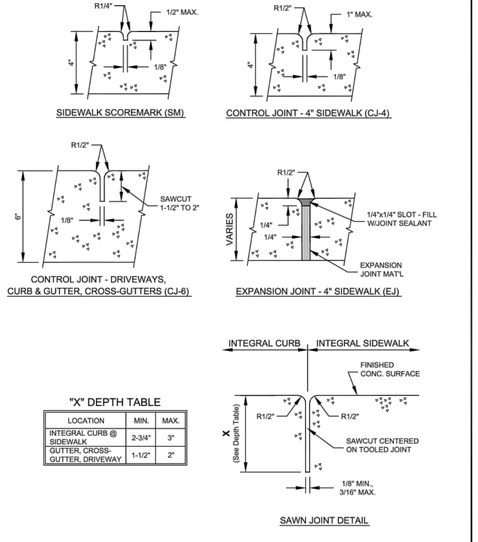
CONCRETE CONSTRUCTION NOTES (Continued):

10. Aggregate base shall be placed to the depth indicated on the applicable Standard Plan. Aggregate base shall be Class 2 aggregate base per Caltrans Standard Specification Section 26. The aggregate base shall be moisture conditioned to optimum or above and compacted to 90% to 95% relative compaction. Compaction shall be per ASTM D1557 or CT 216 laboratory density and CT 231 or ASTM D6938.
11. All curb ramps shall comply with most current California accessibility requirements and Caltrans Standard Plan requirements. Truncated domes shall be Armor–Tile brick red color unless an equal product is approved in writing by the City Engineer or Building Official.
12. The gap between the subgrade and bottom of the form boards shall not exceed 2 inches. Mushroom concrete excreted under the forms shall be removed prior to backfilling.
13. At trees or other obstructions, a minimum width of 42 inches shall be maintained between the edge of the sidewalk and the obstruction. If the obstruction is wider than 12 inches, the minimum width shall be 48 inches.
14. Where the sidewalk is being replaced due to tree root damage, special construction is required. Concrete elevation adjustments shall be approved by the City Engineer or Building Official prior to the work being performed. Aggregate base shall be replaced with coarse sand. No. 3 longitudinal reinforcement shall be placed on 16 inch centers. The reinforcement shall be extended to a minimum of 15 feet to each side of the tree. In addition, fibermesh shall be used in the concrete. The maximum longitudinal sidewalk slope shall be 4.5%. Expansion joints shall be centered on the trees with the rebar extending through the expansion joint material.

SHEET 2 OF 5

CONCRETE CONSTRUCTION NOTES & JOINTING DETAILS	STD. NO. 209	
SCALE: NONE	DRAWN: MPW	CHK: PRC	APPVD:	DATE: FEB 2018

Images: Lakeport-1.jpg, Lakeport-2.jpg Xrefs: TB1.DGN-TEMPLATE.dwg
Plots: By Matthew Rackliffe Services\Projects\Lakeport Roadways\UPDATED PLANS\FINAL UPDATED SETS\Lakeport_Standard_209.dwg Layout Name: 209 (3) Plot Date: Feb 07, 2018 at 14:05



"X" DEPTH TABLE

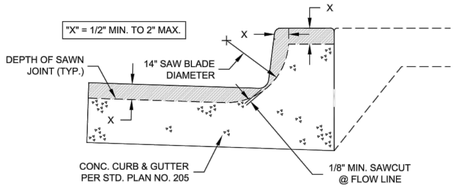
LOCATION	MIN.	MAX.
INTEGRAL CURB @ SIDEWALK	2-3/4"	3"
GUTTER, CROSS-GUTTER, DRIVEWAY	1-1/2"	2"

CONTROL SCOREMARKS / CONTROL JOINTS
NTS

SHEET 3 OF 5

CONCRETE CONSTRUCTION NOTES & JOINTING DETAILS	STD. NO. 209	
SCALE: NONE	DRAWN: MPW	CHK: PRC	APPVD:	DATE: FEB 2018

Images: Lakeport-1.jpg, Lakeport-2.jpg Xrefs: TB1.DGN-TEMPLATE.dwg
Plots: By Matthew Rackliffe Services\Projects\Lakeport Roadways\UPDATED PLANS\FINAL UPDATED SETS\Lakeport_Standard_209.dwg Layout Name: 209 (4) Plot Date: Feb 07, 2018 at 14:05

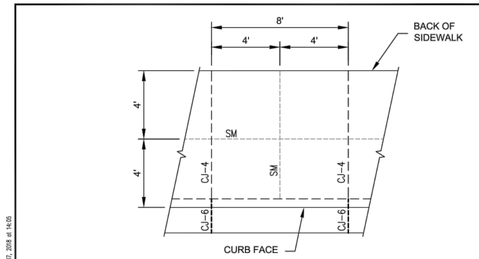


SAWN CONTROL JOINT @ GUTTER DETAIL
NTS

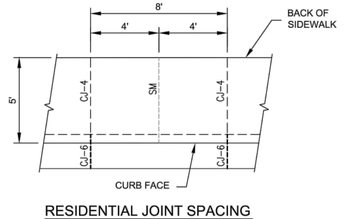
SHEET 4 OF 5

CONCRETE CONSTRUCTION NOTES & JOINTING DETAILS	STD. NO. 209	
SCALE: NONE	DRAWN: MPW	CHK: PRC	APPVD:	DATE: FEB 2018

Images: Lakeport-1.jpg, Lakeport-2.jpg Xrefs: TB1.DGN-TEMPLATE.dwg
Plots: By Matthew Rackliffe Services\Projects\Lakeport Roadways\UPDATED PLANS\FINAL UPDATED SETS\Lakeport_Standard_209.dwg Layout Name: 209 (5) Plot Date: Feb 07, 2018 at 14:05



COMMERCIAL/INDUSTRIAL JOINT SPACING



RESIDENTIAL JOINT SPACING

KEY
- CJ-4 = CONTROL JOINT (4" DEPTH)
- CJ-6 = CONTROL JOINT (6" DEPTH)
- SM = SCORE MARK

NOTE: SEE STANDARD PLAN 209, SHEET NOS. 3 & 4 FOR JOINTING DEPTH DETAILS.

SHEET 5 OF 5

CONCRETE CONSTRUCTION NOTES & JOINTING DETAILS	STD. NO. 209	
SCALE: NONE	DRAWN: MPW	CHK: PRC	APPVD:	DATE: FEB 2018

NO.	DATE	REVISIONS	BY	APPD

RSA+
1515 FOURTH STREET
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OFFICE (707) 252-3301
+ www.RSAcivil.com +
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2024 WATER AND SEWER MAIN REPLACEMENT
DETAILS
CITY OF LAKEPORT CALIFORNIA

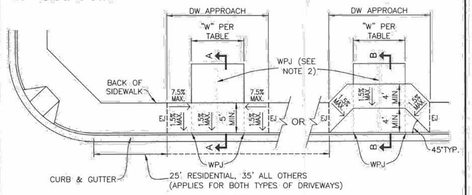
DATE	MAR. 12, 2024
DRAWN	LMM
DESIGNED	NAH
CHECKED	PSW
JOB NO.	4123018.1

SHEET NO.
C8.0
26 OF 32 SHEETS

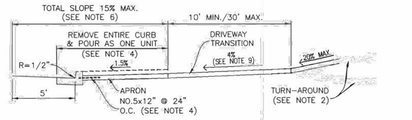
R:\2023\4123018.1_Lakeport_2023_Water - 1_Sewer _Main_Replacement_Project_Design\DESIGN\PLANS - cover, Notes, Details\C8.0 DETAILS.dwg 03/12/2024 2:46:11PM Image: COPYRIGHT RSA+

TABLE 1: DRIVEWAY WIDTH			
USE	TYPE	"W" MIN.	"W" MAX.
RESIDENTIAL	SINGLE	10'	14'
	DOUBLE	20'	24'
COMMERCIAL	SINGLE	12'	14'
	DOUBLE	24'	28'

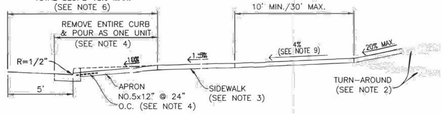
ABBREVIATIONS:
EJ = EXPANSION JOINT
WPJ = WEAKENED PLANE JOINT



PLAN



SECTION A-A



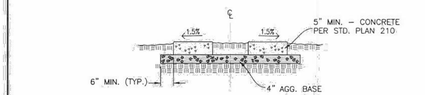
SECTION B-B

SEE DRIVEWAY NOTES ON SHEET 3

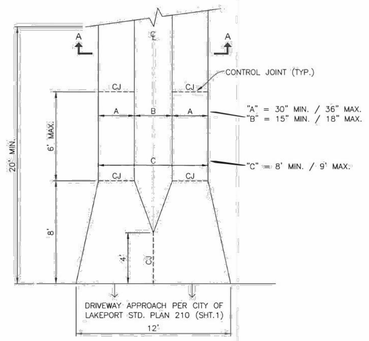
SHEET 1 OF 3

DRIVEWAY DETAILS	STD. NO. 210
SCALE: NONE | DRAWN: MPW | CHK: PRC | APPVD:	DATE: APR 2022

1



SECTION A-A



PLAN

SEE DRIVEWAY NOTES ON SHEET 3

SHEET 2 OF 3

RESIDENTIAL RIBBON DRIVEWAY (USED WITH PLANNING DEPT. APPROVAL ONLY)	STD. NO. 210
SCALE: NONE | DRAWN: MPW | CHK: PRC | APPVD:	DATE: APR 2022

2

DRIVEWAY NOTES:

1. ALL CONCRETE WORK SHALL CONFORM TO CITY OF LAKEPORT STANDARD PLAN NO. 209.
2. PROVIDE TURN-AROUND IN ACCORDANCE WITH FIRE DEPARTMENT REQUIREMENTS.
3. SIDEWALKS BEHIND DRIVEWAY APPROACHES SHALL HAVE THE SAME AGGREGATE BASE AND CONCRETE THICKNESS AS THE REQUIRED DRIVEWAY APPROACH THICKNESS.
4. IF CURB AND GUTTER ARE PLACED INDEPENDENT OF DRIVEWAY APPROACH, THE CURB SHALL BE DOWELLED AT 24 INCH CENTERS USING A 5/8"X12" REBAR DOWEL. THE DOWEL SHALL EXTEND 3 INCHES INTO THE CURB AND 9 INCHES INTO THE DRIVEWAY APPROACH CONCRETE. THE DOWEL SHALL BE PLACED AT THE MIDPOINT OF THE REQUIRED CONCRETE THICKNESS BUT IN NO CASE CLOSER THAN 2 INCHES TO THE TOP OF THE CURB.
5. BUILDING ADDRESS SHALL BE CAST IN FACE OF CURB (3" TALL DIGITS) IN ALL NEW AND RECONSTRUCTED RESIDENTIAL AND COMMERCIAL DRIVEWAY. THE ADDRESS SHALL BE LOCATED AT THE INTERSECTION OF THE FULL CURB FACE WITH THE APRON TAPER.
6. AT THE CENTERLINE OF THE DRIVEWAY, THE SLOPE BETWEEN THE ROADWAY SURFACE AT A POINT 5 FEET FROM THE GUTTER FLOWLINE TO A POINT 10 FEET FROM THE SAME POINT IN THE GUTTER FLOWLINE INTO THE DRIVEWAY APPROACH, SIDEWALK OR DRIVEWAY APRON SHALL NOT EXCEED 15%.
7. WIDEN OR MEANDER SIDEWALK AT OBSTRUCTIONS (INCLUDING DRIVEWAYS) TO MAINTAIN 5 FOOT MINIMUM CLEARANCE TO ANY PEDESTRIAN OBSTRUCTION SUCH AS A SIGN, FIRE HYDRANT, UTILITY POLE OR OTHER VERTICAL CONSTRUCTION.
8. DRIVEWAY CONCRETE THICKNESS & REINFORCEMENT SHALL CONFORM TO TABLES 2 & 3 BELOW:

TABLE 2: DRIVEWAY APPROACH CONCRETE THICKNESS			
TYPE	PCC THICK.	REINFORCEMENT SEE TABLE 3	AB THICK.
RESIDENTIAL	5"	A	4"
COMMERCIAL	6"	B	6"
INDUSTRIAL	7"	C	6"

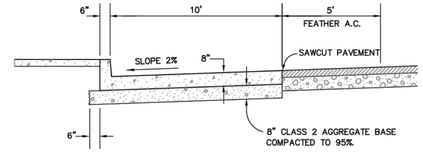
TABLE 3: DRIVEWAY REINFORCEMENT	
TYPE	SIZE & SPACING
A	FIBERMESH (SEE NOTE 11)
B	#4 BARS @ 12" O.C. MAX. EACH WAY
C	#5 BARS @ 12" O.C. MAX. EACH WAY

9. ON RECONSTRUCTION PROJECTS SLOPE MAY BE UP TO 10%.

SHEET 3 OF 3

DRIVEWAY NOTES	STD. NO. 210
SCALE: NONE | DRAWN: MPW | CHK: PRC | APPVD:	DATE: APR 2022

3



SECTION A-A

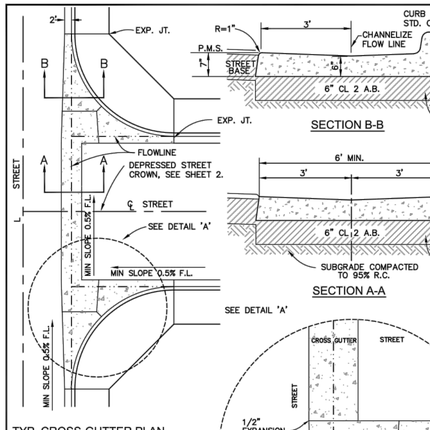
NOTES:

1. EXPANSION JOINTS & SCORE MARKS TO MATCH EXISTING CURB, GUTTER, & SIDEWALK.
2. USE NOT LESS THAN 6 SACKS OF CEMENT PER CUBIC YARD.
3. CONSTRUCT SUBDRAINS WHEN REQUIRED BY CITY ENGINEER.
4. REINFORCING STEEL REQUIRED IN CONC. #4 @ 12" O.C. EACH WAY, OR #5 @ 16" O.C. EACH WAY.
5. DESIGN SHALL CONFORM TO THESE REQUIREMENTS EXCEPT AS OTHERWISE APPROVED BY THE CITY ENGINEER.

SHEET 4 OF 4

CONCRETE BUS PAD DETAIL	STD. NO. 211
SCALE: NONE | DRAWN: CFB | CHK: MGK | APPVD:	DATE: JUN 2012

4



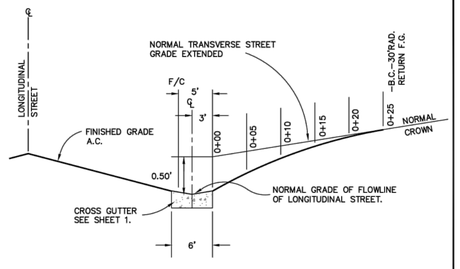
NOTE:
ALL CONCRETE TO HAVE A MINIMUM OF 6 SACK PER CUBIC YARD.

LEGEND:
EXP. JOINT
1/2" EXPANSION JOINT
AREA OF APRON & CROSS GUTTER

SHEET 1 OF 2

STANDARD P.C.C. CROSS GUTTER	STD. NO. 218
SCALE: NONE | DRAWN: CFB | CHK: MGK | APPVD:	DATE: JUN 2012

3



PROFILE ALONG ℄ TRANSVERSE STREET

NOTES:

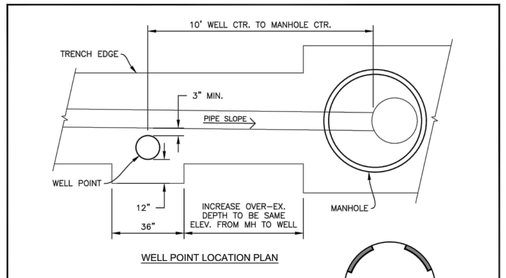
ORDINATES, IN DECIMAL PARTS OF A FOOT, ESTABLISH THE DISTANCE OF THE PAVEMENT SURFACE OF THE TRANSVERSE STREET BELOW THE NORMAL STREET GRADE, FROM STA 0+00 TO 0+25.

A.C. SURFACING						
STA	0+00	0+05	0+10	0+15	0+20	0+25
ORDIN	0.42	0.31	0.20	0.09	0.02	0.00

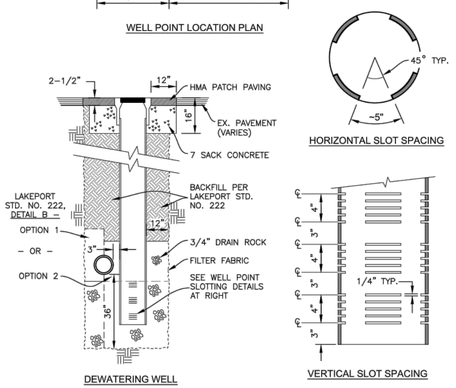
SHEET 2 OF 2

STANDARD STREET PROFILE AT P.C.C. CROSS GUTTER	STD. NO. 218
SCALE: NONE | DRAWN: CFB | CHK: MGK | APPVD:	DATE: JUN 2012

4



WELL POINT LOCATION PLAN

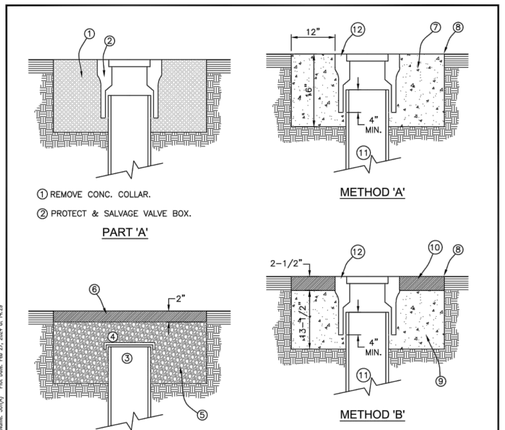


DEWATERING WELL

SEE DRIVEWAY NOTES ON SHEET 3

WELL POINT INSTALLATION	STD. NO. 225
SCALE: NONE | DRAWN: MPW | CHK: PRC | APPVD:	DATE: FEB 2024

4



LOWERING WATER VALVE, CLEAN OUT, ETC. & RAISING TO FINISH GRADE	STD. NO. 301A
SCALE: NONE | DRAWN: MPW | CHK: PRC | APPVD:	DATE: FEB. 2024

5

NO.	DATE	REVISIONS	BY	APPD

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OFFICE (707) 252-3301
+ www.RSAcivil.com +
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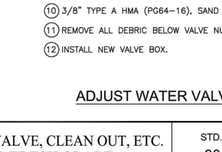
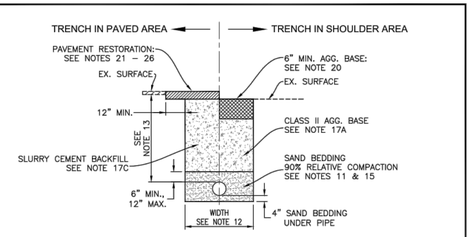
2024 WATER AND SEWER MAIN REPLACEMENT
DETAILS
CITY OF LAKEPORT — CALIFORNIA

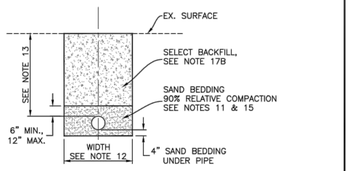


DATE	MAR. 12, 2024
DRAWN	LMM
DESIGNED	NAH
CHECKED	PSW
JOB NO.	4123018.1

SHEET NO.
C8.1
27 OF 32 SHEETS



DETAIL 'A': TRENCH IN ROADWAY, SHOULDER OR DRIVEWAY AREAS



DETAIL 'B': TRENCH OUTSIDE ROADWAY, SHOULDER OR DRIVEWAY AREAS

TRENCH MATERIAL REQUIREMENTS

1. SAND SLURRY OR CONTROLLED LOW STRENGHT MATERIALS (CLSM)
   A. CONTAINS A MINIMUM OF 94 LBS AND MAXIMUM OF 188 LBS OF CEMENTATEOUS MATERIAL
   B. COMPRESSIVE STRENGTH BETWEEN 75 AND 150 PSI AT 28 DAYS
   C. AIR ENTRAINMENT ADDITIVES FOR WORKABILITY
   D. PROVIDE MIX DESIGN WITH TEST RESULTS
2. AGGREGATE BASE
   A. 3/4" INCH CLASS 2 AGGREGATE BASE PER CALTRANS SECTION 26 OF THE 2010 CALTRANS STANDARD SPECIFICATIONS.
   B. MINIMUM DRY UNIT WEIGHT BASED ON ASTM D1557 OF 125 PCF.
   C. PROVIDE CERTIFICATE OF COMPLIANCE WITH TEST RESULTS

(Continued on Sheet 2)

SHEET 1 OF 5

STANDARD TRENCH DETAIL TRENCH BACKFILL	STD. NO. 222
SCALE: NONE | DRAWN: MPW | CHK: PRC | APPVD:	DATE: FEB 2024

3. SAND BEDDING
   A. FREE FROM CLAY OR ORGANIC MATERIAL
   B. MEET THE FOLLOWING GRADING REQUIREMENT:

SIEVE SIZE	PERCENT PASSING
1/2"	100
NO. 4	90 – 100
NO. 200	0 – 5

   C. PROVIDE CERTIFICATE OF COMPLIANCE
4. SELECT BACKFILL
   A. FREE OF CONTAMINANTS, ORGANICS AND OTHER DELETERIOUS MATERIAL
   B. NO ROCKS GREATER THAN 6 INCHES
   C. PRIOR APPROVAL BY CITY ENGINEER TO ASSURE PROPOSED BACKFILL FIT FOR PURPOSE. OBTAIN WRITTEN APPROVAL PRIOR TO USE.
5. HOT MIX ASPHALT (HMA)
   A. COMPLY WITH CALTRANS STANDARD SPECIFICATIONS, SECTION 39, 2010 OR 2015.
   B. ½ INCH TYPE A GRADING FOR ALL LIFTS
   C. PG 64–16 BINDER
   D. PROVIDE JOB MIX FORMULA ON CEM 3511 AND 3512 FORMS
6. CONCRETE (PCC)
   A. 4000 PSI AT 28 DAYS
   B. 3 INCH MAXIMUM SLUMP
   C. 1 INCH MAXIMUM COMBINED GRADATION
   D. COMPLY WITH CALTRANS STANDARD SPECIFICATIONS SECTION 90 FOR MATERIALS QUALITY, EITHER 2010 OR 2015 EDITION.
   E. PROVIDE MIX DESIGN WITH TEST RESULTS

TRENCH CONSTRUCTION REQUIREMENTS

7. CONTRACTOR RESPONSIBLE FOR COORDINATION WITH PRIVATE SOILS ENGINEER AND CITY INSPECTOR 48 HOURS PRIOR TO EXCAVATION AND SUBSEQUENT WORK.
8. ALL TRENCH EDGES SHALL EITHER BE SAWCUT OR COLD PLANED.
9. DAMAGED EDGES SHALL BE RESAWCUT TO PROVIDE SQUARE EDGES AND LAYOUT IMMEDIATELY PRIOR TO PAVING.
10. NO SOLID BLOCKING PERMISSIBLE BENEATH PIPE.
11. SAND BEDDING SHALL BE PLACED, COMPACTED AND SHAPED PRIOR TO PLACING PIPE. FOR SAND BEDDING USED ON HDPE PIPE, SAND SHALL BE HAND TAMPED INTO CORRUGATION VOIDS USING A SHOVEL HANDLE OR OTHER IMPLEMENT
12. MINIMUM TRENCH WIDTHS SHALL BE AS FOLLOWS WITH PIPES CENTERED IN TRENCH:

PIPE TYPE & USE	BACKFILL TYPE	TRENCH WIDTH (MINIMUM)
Miscellaneous electrical, irrigation, communication & PVC pipe (excludes HDPE) 6" or less inside diameter	Sand Slurry /CLSM	Outside of pipe or conduit plus 6", 12" minimum.
Water lines, sanitary sewer, and storm drain pipes 6" to 24" diameter	Sand Slurry /CLSM	Outside of pipe or conduit plus 12"; plus 18" minimum for HDPE
Water lines, sanitary sewer, and storm drain pipes greater than 24" up to 48" diameter	Sand Slurry /CLSM	Outside of pipe plus 24" for all pipe types
	Aggregate Base	Outside of pipe plus 36" for all pipe types
	Native Soils	Outside of pipe plus 48" for all pipe types
Sanitary sewer and storm drain pipes greater than 48" diameter	Sand Slurry /CLSM	Outside of pipe plus 24" for all pipe types
	Aggregate Base	Outside of pipe plus 48" for all pipe types
	Native Soils	Outside of pipe plus 48" for all pipe types

(Continued on Sheet 3)

SHEET 2 OF 5

STANDARD TRENCH NOTES	STD. NO. 222
SCALE: NONE | DRAWN: MPW | CHK: PRC | APPVD:	DATE: FEB 2024

13. MINIMUM DEPTHS TO TOP OF PIPE FROM SURFACE:

PIPE TYPE & USE	MINIMUM DEPTH
Communication conduits and sleeves with 24 volts or less, irrigation water, sewer and other pipes or conduits.	24 INCHES
Communication conduits and sleeves with voltages greater than 24 volts	30 INCHES
Water service lines	30 INCHES
All water line mains	36 INCHES

14. SAND SLURRY OR OTHER CITY ENGINEER PRE–APPROVED MATERIAL CUT OFF DAMS SHALL BE PLACED IN PERMEABLE BACKFILL TO PREVENT WATER MIGRATION. SAND SLURRY DAMS SHALL BE CONSTRUCTED SUCH THAT THERE IS A MINIMUM OF 12 INCHES (MAXIMUM OF 30 INCHES) OF SAND SLURRY DIVIDING THE SAND BEDDING. CUT OFF DAMS SHALL BE PLACED EVERY 100 FEET FOR TRENCH SLOPES OF 2 % TO 5% AND EVERY 50 FEET FOR TRENCH SLOPES ABOVE 5%. TRENCH SLOPES LESS THAN 2% DO NOT REQUIRE CUT OFF DAMS.

BACKFILL COMPACTION AND TESTING REQUIREMENTS

15. SAND BEDDING SHALL BE COMPACTED USING A VIBRAPLATE TYPE COMPACTOR. SAND BEDDING SHALL BE FULLY WETTED BUT NOT FLOODED PRIOR TO COMPACTION. 90% RELATIVE COMPACTION REQUIRED.
16. NO JETTING ALLOWED FOR ANY BACKFILL OR BEDDING TYPE.
17. COMPACTION TESTING REQUIREMENTS:
   A. UNDER UNPAVED SHOULDERS: 95% RELATIVE COMPACTION FROM BEDDING TO SURFACE FOR ALL MATERIAL TYPES.
   B. UNIMPROVED AREAS: 90% RELATIVE COMPACTION TO WITHIN 12 INCHES OF SURFACE. 85% RELATIVE COMPACTION IN TOP 12 INCHES OF LANDSCAPE AREAS, 90% FOR OTHER AREAS.
   C. UNDER ROADWAY AREAS: SAND SLURRY REQUIRES CONSOLIDATION BUT NOT COMPACTION. NO COMPACTION TESTING REQUIRED.
18. AGGREGATE BASE AND SELECT BACKFILL REQUIRES CONTINUOUS MONITORING AND TESTING BY A SOILS ENGINEER HIRED BY THE DEVELOPER OR CONTRACTOR.
19. TRENCH COMPACTION TESTING DETAILS
   A. LABORATORY DENSITY: ASTM D1557 (DRY) OR CTM216G (WET)
   B. FIELD DENSITY: ASTM D6398
   C. ONE TEST FOR EACH 200 LINEAL FEET OF TRENCH FOR EACH VERTICAL 12 INCHES OF TRENCH DEPTH OR PORTION THEREOF. 3 TEST LOCATIONS PER LIFT MINIMUM.
   D. PROVIDE TEST RESULTS PRIOR TO HMA PAVING.

PAVEMENT RESTORATION

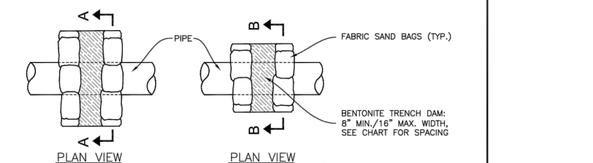
20. UNPAVED SHOULDERS SHALL HAVE AN AGGREGATE BASE MINIMUM THICKNESS OF 6 INCHES.
21. CONCRETE STREETS SHALL BE REPLACED TO MATCH THE EXISTING THICKNESS PLUS 1 INCH. CONCRETE SHALL BE 4000 PSI. PLACE 18 INCH LONG X 5/8 INCH DIAMETER REBAR DOWELS AT 24 INCH ON CENTER ALONG ALL EDGES. PROTECT CONCRETE AFTER PLACEMENT WITH 1 INCH MINIMUM STEEL PLATES FOR A MINIMUM OF 10 CALENDAR DAYS. PROVIDE COARSE BROOM FINISH PERPENDICULAR TO TRAFFIC.
22. WHERE EXISTING STREET IS CONCRETE OVERLAID WITH ASPHALT, THE CONCRETE SECTION SHALL BE REPLACED TO MATCH THE EXISTING THICKNESS PLUS 1 INCH. CONCRETE SHALL BE 4000 PSI. PLACE 18 INCH LONG X 5/8 INCH DIAMETER REBAR DOWELS AT 24 INCH ON CENTER ALONG ALL EDGES. PROTECT CONCRETE AFTER PLACEMENT WITH 1 INCH MINIMUM STEEL PLATES FOR A MINIMUM OF 10 CALENDAR DAYS PRIOR TO PAVING. HMA PAVING THICKNESS SHALL MATCH EXISTING ASPHALT THICKNESS.

(Continued on Sheet 4)

SHEET 3 OF 5

STANDARD TRENCH NOTES	STD. NO. 222
SCALE: NONE | DRAWN: MPW | CHK: PRC | APPVD:	DATE: FEB 2024

23. FINAL TRENCH PAVING IS REQUIRED TO BE EXPANDED TO A PAINTED LINE STRIPE, EXISTING PAVEMENT PATCH, LIP OF GUTTER OR EDGE OF PAVEMENT WHERE SUCH STREET FEATURE IS WITHIN 3 FEET OF THE FINAL SAWCUT.
24. PERMANENT PAVING MUST BE COMPLETED WITHIN 30 DAYS. HMA OR CUTBACK (1 INCH MINIMUM THICKNESS) SHALL BE PLACED AS A TEMPORARY SURFACE IN ROADWAY AREAS AND SHALL BE MAINTAINED UNTIL PERMANENT PAVING IS COMPLETED. AT THE SOLE DISCRETION OF THE CITY ENGINEER, TRENCH PLATES MAY BE USED FOR UP TO 2 WEEKS. TRENCH PLATES SHALL HAVE A SKID RESISTANT SURFACE, SHALL BE PLACED SUCH THAT THERE IS NO ROCKING OR MOVEMENT, AND SECURED WITH 24–INCH WIDE TAPERED TEMPORARY PAVING ON ALL SIDES OF THE PLATE TO PROVIDE A SMOOTH TRANSITION. ALL TEMPORARY PAVING INCLUDING STEEL PLATE TRANSITIONS SHALL BE MAINTAINED DAILY, INCLUDING WEEKENDS AND HOLIDAYS.
25. PERMANENT HMA PAVING SHALL BE A MINIMUM OF 3 INCHES THICKNESS OR MATCH THE EXISTING PAVEMENT THICKNESS (WHICHEVER IS GREATER). HMA TO BE PLACE IN LIFTS NOT TO EXCEED 3 INCHES. INSTALL PER 2010 CALTRANS STANDARD SPECIFICATION SECTION 39 INCLUDING TACK COAT PROVISIONS.
26. COMPACT HMA TO MINIMUM OF 90% OF CTM 309. IF TOTAL SQUARE FOOTAGE IS OVER 2000 SF, PROVIDE CORE TEST RESULTS AND CTM 309 FOR EACH 750 SQUARE FEET OF SURFACE AREA PRIOR TO PROJECT ACCEPTANCE.
27. TRENCH DAMS, IF REQUIRED, SHALL CONFORM TO THE FOLLOWING REQUIREMENTS AND DETAIL. THE TRENCH DAM SHALL CONSIST OF A BENTONITE TYPE MATERIAL SUCH AS AQUABLOK POND SEAL OR EQUIVALENT.



TRENCH DAM SPACING CHART	
PIPE SLOPE	MAX. DISTANCE
<2%	300 FT
2 – 4%	200 FT
4 – 8%	100 FT
>8%	50 FT

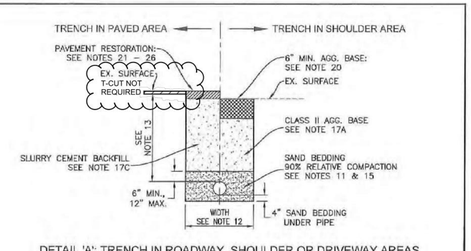
SECTION A–A
METHOD 'A'
(W/BASE ROCK BACKFILL)

SECTION B–B
METHOD 'B'
(W/CLSM BACKFILL)

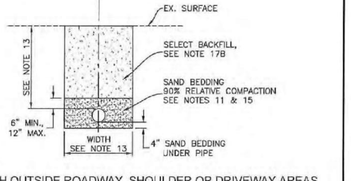
DETAIL 'C' - TRENCH DAM

SHEET 4 OF 5

STANDARD TRENCH NOTES BENTONITE TRENCH DAM DETAIL	STD. NO. 222
SCALE: NONE | DRAWN: MPW | CHK: PRC | APPVD:	DATE: FEB 2024



DETAIL 'A': TRENCH IN ROADWAY, SHOULDER OR DRIVEWAY AREAS



DETAIL 'B': TRENCH OUTSIDE ROADWAY, SHOULDER OR DRIVEWAY AREAS

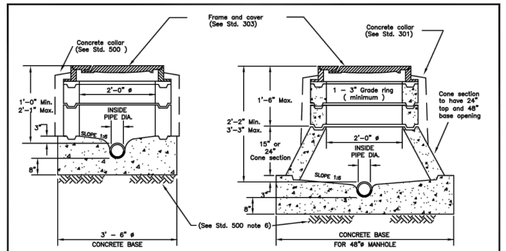
TRENCH MATERIAL REQUIREMENTS

1. SAND SLURRY OR CONTROLLED LOW STRENCHT MATERIALS (CLSM)
   A. CONTAINS A MINIMUM OF 94 LBS AND MAXIMUM OF 188 LBS OF CEMENTATEOUS MATERIAL
   B. COMPRESSIVE STRENGTH BETWEEN 75 AND 150 PSI AT 28 DAYS
   C. AIR ENTRAINMENT ADDITIVES FOR WORKABILITY
   D. PROVIDE MIX DESIGN WITH TEST RESULTS
2. AGGREGATE BASE
   A. INCH CLASS 2 AGGREGATE BASE PER CALTRANS SECTION 39, LATEST VERSION
   B. MINIMUM DRY UNIT WEIGHT BASED ON ASTM D1557 OF 125 PCF.
   C. PROVIDE CERTIFICATE OF COMPLIANCE WITH TEST RESULTS

(Continued on Sheet 2)

SHEET 1 OF 4

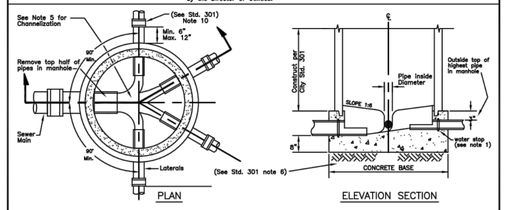
STANDARD TRENCH DETAIL TRENCH BACKFILL	STD. NO. 222 A
SCALE: NONE | DRAWN: MPW | CHK: PRC | APPVD:	DATE: NOV 2018



TYPE "A" MANHOLE — TYPE "B" MANHOLE

SHALLOW MANHOLE DETAILS

NOTE – See Std. 301 for typical construction details
NOTE – Type "A" Manhole to be installed only where specifically approved by the Director of Utilities.

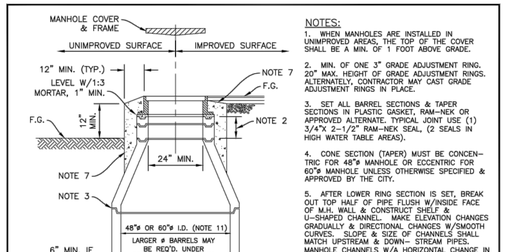


PLAN — ELEVATION SECTION

JUNCTION STRUCTURE FOR MULTIPLE LATERALS

NOTES:
1. An approved water stop shall be installed on all pipe entering or leaving a manhole and centered under manhole wall as shown.
2. Generally, the elevations of the top of all pipes entering the manhole base block shall be the same.
3. The maximum number of laterals to be connected to a manhole is (4) four.
4. See Stds. 301 for manhole construction details.
5. The channels shall be formed to provide smooth flow through the manhole to the satisfaction of the City Engineer.
6. Channels and laterals through the exterior of the base shall be constructed radially.

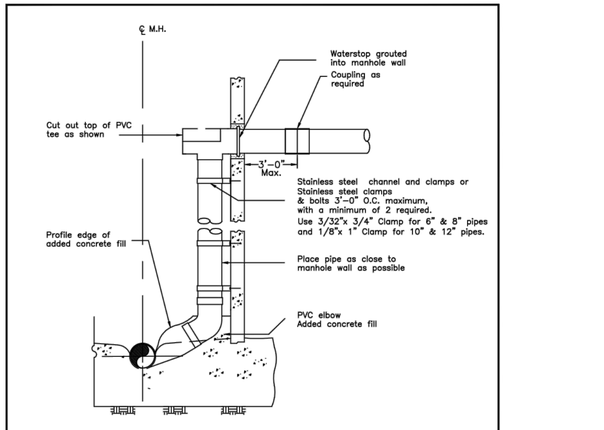
JUNCTION STRUCTURES FOR MULTIPLE LATERALS	STD. NO. 300
SCALE: NONE | DRAWN: CFB | CHK: MGK | APPVD:	DATE: JUN 2012



MANHOLE BASE
CHANNELIZATION PLAN AND LOCATION OF ECCENTRIC MANHOLE COVER

NOTES:
1. WHEN MANHOLES ARE INSTALLED IN UNIMPROVED AREAS, THE TOP OF THE COVER SHALL BE A MIN. OF 1 FOOT ABOVE GRADE.
2. MIN. OF ONE 3" GRADE ADJUSTMENT RING. 20" MAX. HEIGHT OF GRADE ADJUSTMENT RINGS. ALTERNATELY, CONTRACTOR MAY CAST GRADE ADJUSTMENT RINGS IN PLACE.
3. SET ALL BARREL SECTIONS & TAPER SECTIONS IN PLASTIC GASKET, RAM–NEK OR APPROVED ALTERNATE. TYPICAL JOINT USE (1) 3/4"X 2–1/2" RAM–NEK SEAL, (2 SEALS IN HIGH WATER TABLE AREAS).
4. CONE SECTION (TAPER) MUST BE CONCENTRIC FOR 48"ø MANHOLE OR ECCENTRIC FOR 60"ø MANHOLE UNLESS OTHERWISE SPECIFIED & APPROVED BY THE CITY.
5. AFTER LOWER RING SECTION IS SET, BREAK OUT TOP HALF OF PIPE FLUSH W/INSIDE FACE OF M.H. WALL & CONSTRUCT SHELF & U–SHAPED CHANNEL. MAKE ELEVATION CHANGES GRADUALLY & DIRECTIONAL CHANGES W/SMOOTH CURVES. SLOPE & SIZE OF CHANNELS SHALL MATCH UPSTREAM & DOWN– STREAM PIPES. MANHOLE CHANNELS W/A HORIZONTAL CHANGE IN DIRECTION OF 30° OR MORE SHALL HAVE A MINIMUM DROP OF 0.1' ACROSS THE MANHOLE OR SHALL MATCH THE SLOPE OF THE PIPE, WHICHEVER IS GREATER.
6. POURED–IN–PLACE BASE SHALL BE PLACED FULL THICKNESS ON 8" OR MORE INCHES OF COMPACTED 3/4" DRAIN ROCK. IN WET CONDITIONS, EXCAVATE 12 OR MORE INCHES & PLACE STABILIZATION FABRIC TO CREATE A STABLE FOUNDATION FOR MANHOLE. PRECAST BASES SHALL BE MANUFACTURED BY OLD CASTLE, JENSEN PRECAST, COOK PRODUCTS OR APPROVED EQUAL BY CITY.
7. 7 SACK CONC. COLLAR SHALL BE FLUSH W/FINISHED GRADE.
8. STANDARD MANHOLE BARREL SECTION PER ASTM C478.
9. 48"ø I.D. M.H. TO BE USED FOR SEWER MAINS LESS THAN 18"ø. 60"ø I.D. M.H. TO BE USED FOR ALL TRUNK & COLLECTOR SEWERS 18"ø TO 48"ø OR WHERE DROP FITTINGS ARE USED.
10. FLEXIBLE PIPE COUPLING IS REQUIRED ON ALL PIPE OTHER THAN SDR 35 PVC PIPE. FLEX COUPLING TO BE INSTALLED IN MAINLINE TRENCH & OUT OF MANHOLE EXCAVATION.
11. 60" DIA. MANHOLES ARE REQUIRED FOR MAIN LINES 18" OR LARGER IN DIAMETER.

STANDARD PRECAST CONCRETE SANITARY SEWER MANHOLE	STD. NO. 301
SCALE: NONE | DRAWN: MPW | CHK: PRC | APPVD:	DATE: FEB 2024



NOTES:
1. Manholes constructed using this standard shall be 60" in diameter and installed in conformance with City Standard. Use 72" MH where there are two drop connections.
2. Enclose elbow in concrete. Form smooth channel with sweep to manhole flowline.
3. Install waterstop in accordance with manufacturer's instructions as shown.
4. PVC pipe and fittings shall have same nominal size and SDR rating as incoming pipes.

INSIDE DROP MANHOLE	STD. NO. 304
SCALE: NONE | DRAWN: CFB | CHK: MGK | APPVD:	DATE: JUN 2012

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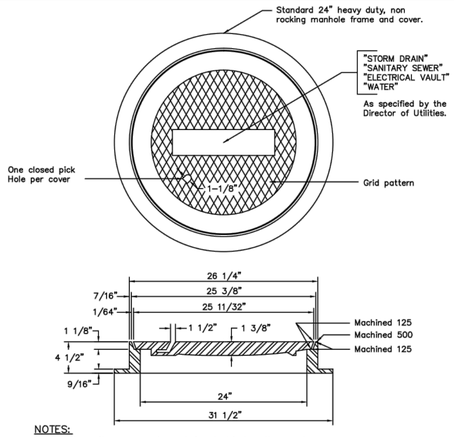
NO.	DATE	REVISIONS	BY	APPD

2024 WATER AND SEWER MAIN REPLACEMENT
DETAILS
CITY OF LAKEPORT CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER PAUL SARGENT WARNOCK No. 82758 Exp. 9-30-24 CIVIL ENGINEER STATE OF CALIFORNIA

DATE	MAR. 12, 2024
DRAWN	LMM
DESIGNED	NAH
CHECKED	PSW
JOB NO.	4123018.1

SHEET NO. C8.2
28 OF 32 SHEETS



NOTES:

1. Specify sanitary sewer, storm drain, electrical vault, or water when ordering. All castings shall be dipped in approved ASPHALTUM or BITUMINOUS Paint.
2. All material used in manufacturing shall conform to A.S.T.M. designation A-48 Class 35 B, or of United States Government Specifications QQ1-652b.
3. Minimum weight components: Cover – 130 pounds Frame – 135 pounds
4. Bolt down or locking covers are required on all sewer mains located in easements, on school grounds, through parks, and on any trunk sewers larger than 12" in diameter. Coat the bolt threads on the final bolt up with "never cease" or teflon based pipe dope.
5. Manhole located in areas designated by the City Engineer as subject to inundation or inflow shall be provided with hinged gasketed covers, as shown on sheet 2 of this standard detail.

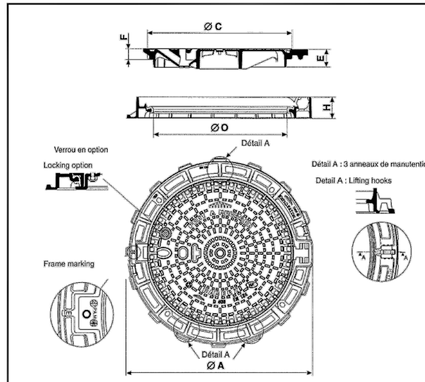
APPROVED MANHOLE FRAME & COVER

See Engineer's Approved List. Hinged gasketed covers shall be PAMREX or approved equal.

SHEET 1 OF 3

MANHOLE FRAME AND COVER	STD. NO. 303
SCALE: NONE | DRAWN: CFB | CHK: MGK | APPVD:	DATE: JUN 2012

1



NOTES:

1. Specify sanitary sewer, storm drain, electrical vault, or water for labeling of cover when ordering. All castings shall be dipped in approved ASPHALTUM or BITUMINOUS Paint.
2. All material used in manufacturing shall conform to A.S.T.M. designation A-48 Class 35 B, or of United States Government Specifications QQ1-652b.
3. Minimum weight components: Cover – 122 pounds Frame – 73 pounds
4. Lockable covers are required on all sewer mains located in easements, on school grounds, through parks, and on any trunk sewers larger than 12" in diameter. Coat threads on locking bolt with never cease or Teflon based pipe dope upon installation of lock.
5. Covers shall be one-man operable using standard tools.

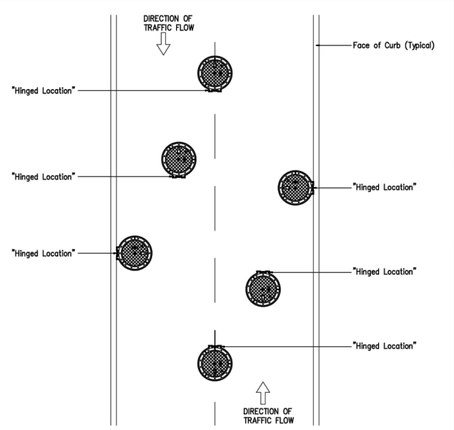
APPROVED MANHOLE FRAME & COVER

See Engineer's Approved List.

SHEET 2 OF 3

MANHOLE FRAME AND COVER	STD. NO. 303
SCALE: NONE | DRAWN: CFB | CHK: MGK | APPVD:	DATE: JUN 2012

2



NOTES:

1. Specify sanitary sewer, storm drain, electrical vault, or water when ordering. All castings shall be dipped in approved ASPHALTUM or BITUMINOUS Paint.
2. All material used in manufacturing shall conform to A.S.T.M. designation A-48 Class 35 B, or of United States Government Specifications QQ1-652b.
3. Minimum weight components: Cover – 122 pounds Frame – 73 pounds
4. Lockable covers are required on all sewer mains. Locks will be required on all manholes not located in a paved City maintained street. Coat the lock bolt threads with never cease or Teflon based pipe dope upon installation of lock.
5. Covers shall be one-man operable using standard tools.

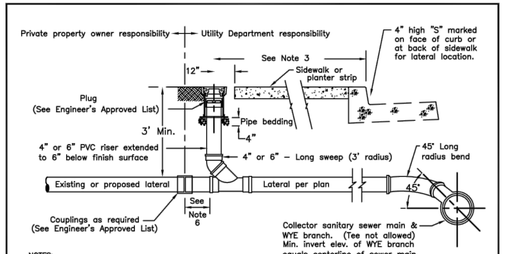
APPROVED MANHOLE FRAME & COVER

See Engineer's Approved List.

SHEET 3 OF 3

MANHOLE FRAME AND COVER	STD. NO. 303
SCALE: NONE | DRAWN: CFB | CHK: MGK | APPVD:	DATE: JUN 2012

3



NOTES:

1. The sewer service lateral shall be of sufficient depth to adequately serve the building site, and in no case shall be less than 3 FT. deep at the cleanout unless otherwise authorized by the Director of Public Works.
2. Where problems are anticipated in providing sewer service to a given building site, the lateral invert at the cleanout shall be staked by the owner's engineer.
3. Cleanout must be installed within the Public Right of Way or P.U.E. Cleanout to be installed 18" from face of curb or 12" maximum behind sidewalk. Where service is in driveway, install cleanout 18" behind apron.
4. In cases where the cleanout installation conflicts with existing facilities, the contractor shall verify any alternate location with the Director of Public Works prior to installation.
5. Minimum 2% slope for 4" laterals and a min. 1% slope for 6" laterals are required unless a variance is specifically approved by the Director of Public Works.
6. A minimum of 12" when connecting to existing sewer lateral or extend to 1' behind P.U.E. or sidewalk for new construction.
7. For new construction, install gripper plug at end of service lateral.
8. Lateral material shall be PVC SDR 26 or SDR 35, Ductile Iron pipe.
9. Cleanout components shall be the same size as the lateral.
10. Tap fittings on mains smaller than 12" may only be used under the approval of the Director of Public Works.

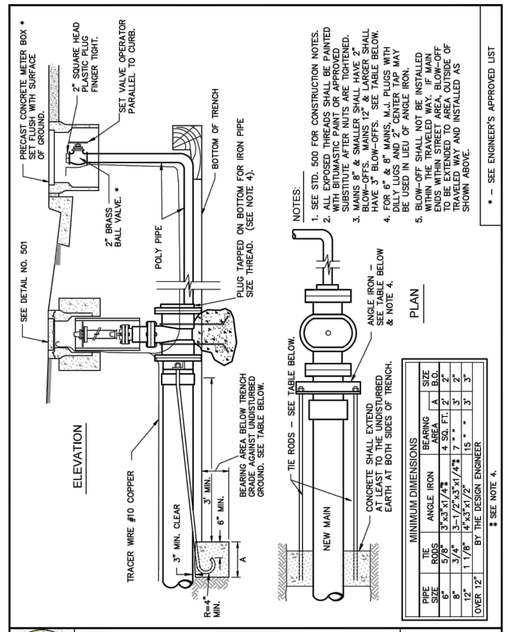
LATERAL CONNECTIONS TO EXISTING MAINS:

Main Size & Material	Connection Type	Couplings
6–10" ACP, VCP	Cut In PVC wye w/12" spools each end	Rubber w/Steel shear bands
6–10" PVC	Cut In PVC wye w/12" spools each end	Rigid slip couplings
6–10" DIP	Cut In DIP wye w/12" spools each end	DIP couplings
12" and larger	Tap fitting see Engineer's approved list	NA

CLEANOUT BOX
(See Engineer's Approved List)

4" & 6" SEWER SERVICE LATERAL AND CLEANOUT	STD. NO. 309
SCALE: NONE | DRAWN: CFB | CHK: MGK | APPVD:	DATE: JUN 2012

2



NOTES:

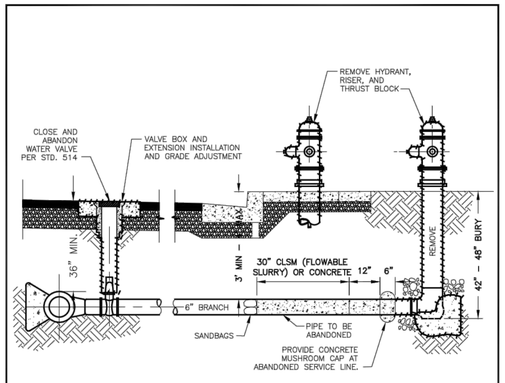
1. SEE STD. 500 FOR CONSTRUCTION NOTES.
2. ALL EXPOSED THREADS SHALL BE PAINTED WITH RED LEAD PAINT AND OIL MIXTURE OR SUBSTITUTE AFTER NUTS ARE TIGHTENED.
3. MAINS 8" & SMALLER SHALL HAVE 2" BLOW-OFFS. MAINS 12" & LARGER SHALL HAVE 4" BLOW-OFFS. SEE TABLE BELOW.
4. FOR 6" & 8" MAINS, M.J. PLUGS WITH DILLY LUGS AND 2" CENTER TAP MAY BE USED IN LIEU OF ANGLE IRON.
5. SERVICE LINE SHALL BE INSTALLED WITHIN THE TRAVELED WAY. IF MAIN ENDS WITHIN STREET AREA, BLOW-OFF TO BE INSTALLED AT END OF TRAVELED WAY AND INSTALLED AS SHOWN ABOVE.

MINIMUM DIMENSIONS

PIPE SIZE	TIE RODS	ANGLE IRON	BEARING AREA sq. FT.	A	SIZE B.O.
4"	3/4"	3"x3"x1/4"	4	3"	2"
6"	3/4"	3-1/2"x3"x1/4"	7	3"	2"
8"	3/4"	4"x3"x1/4"	11	3"	3"
12"	1 1/8"	4"x3"x1/2"	15	3"	3"
OVER 12"	BY THE DESIGN ENGINEER				

BLOWOFF WITH HARNESS	STD. NO. 516
SCALE: NONE | DRAWN: CFB | CHK: MGK | APPVD:	DATE: JUN 2012

3

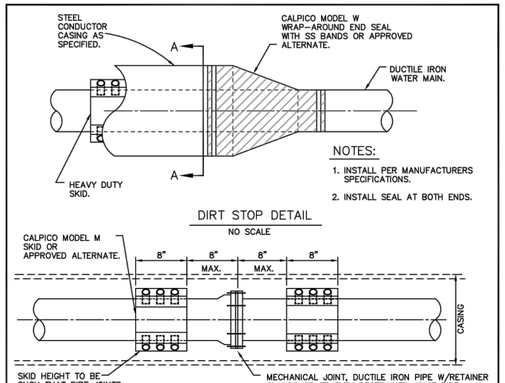


NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF LAKEPORT CONSTRUCTION STANDARDS AND STANDARDS FOR PUBLIC WORKS CONSTRUCTION (GREEN BOOK, LATEST EDITION).
2. JOINTS ARE TO BE MECHANICAL WITH MEGALUG RESTRAINTS, OR APPROVED EQUAL.
3. CONCRETE 18" MUSHROOM CAP PLACED IN PIPE TO PLUG & CAP OFF.

REMOVE FIRE HYDRANT & ABANDON SERVICE LINE IN PLACE	STD. NO. 502-A
SCALE: NONE | DRAWN: LMM | CHK: PRC | APPVD:	DATE: FEB 2024

4



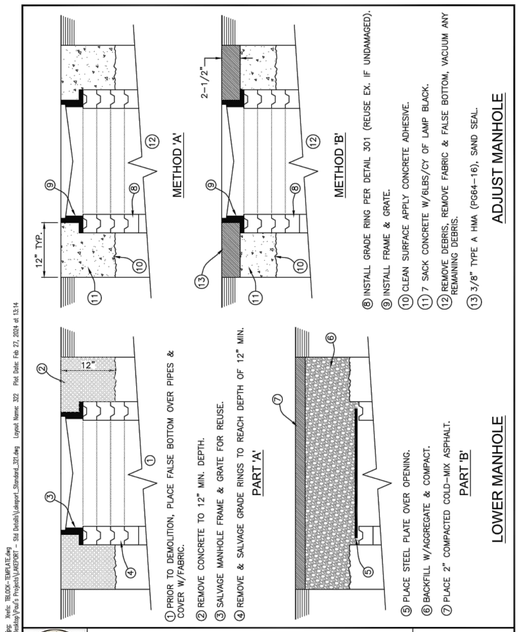
MINIMUM SIZE CASING REQUIRED							
PIPE SIZE	6"	8"	12"	14"	16"	18"	20"
CASING SIZE (INSIDE DIA.)	16"	16"	20"	24"	30"	36"	36"
CASING WALL THICKNESS	.375	.375	.375	.375	.500	.560	.560

NOTES:

1. INSTALL PER MANUFACTURERS SPECIFICATIONS.
2. SEE GENERAL CONST. NOTES.
3. WHERE CONDUCTOR CASING IS EXISTING R.C.P., REDWOOD SKIDS MAY BE INSTALLED IN LIEU OF POLYETHYLENE SKIDS WITH CITY APPROVAL.

DIRT STOP AND WATER MAIN ENCASEMENT	STD. NO. 527
SCALE: NONE | DRAWN: CFB | CHK: MGK | APPVD:	DATE: JUN 2012

5



LOWERING MANHOLE COVER & RAISING TO FINISH GRADE	STD. NO. 322
SCALE: NONE | DRAWN: MPW | CHK: PRC | APPVD:	DATE: FEB. 2024

6

Image1: Lakeport-Logo.jpg Date: 11/20/24 11:09:00 AM
Image2: Lakeport-Logo-Blue.jpg Date: 11/20/24 11:09:00 AM
Xref: C:\Users\Chris\Documents\Projects\Lakeport\Standard_Details\Standard_Details.dwg Layout Name: 322 Plot Date: Feb 27, 2024 at 13:14
Xref: C:\Users\Chris\Documents\Projects\Lakeport\Standard_Details\Standard_Details.dwg Layout Name: 309 Plot Date: Feb 27, 2024 at 13:14

NO.	DATE	REVISIONS	BY	APPD

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NAPA, CALIF. 94559
OFFICE (707) 252-3301
+ www.RSAcivil.com +
RSA+ CONSULTING CIVIL ENGINEERS + SURVEYORS + (1980)

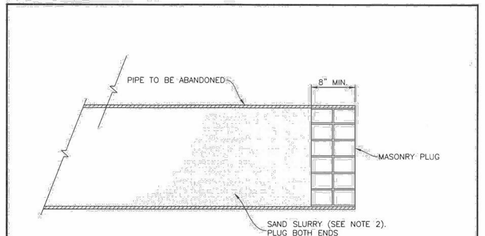
2024 WATER AND SEWER MAIN REPLACEMENT
DETAILS
CITY OF LAKEPORT — CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — TIMOTHY SARGENT WANNOP — No. 82758 Exp. 9-30-24 — CIVIL ENGINEER — STATE OF CALIFORNIA

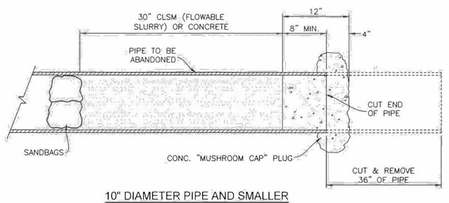
DATE	MAR. 12, 2024	
DRAWN	LMM	
DESIGNED	NAH	
CHECKED	PSH	
JOB NO.	4123018.1	

SHEET NO.
C8.3
29 OF 32 SHEETS

R:\2023\4123018.1_Lakeport_2023_Water_&_Sewer_Main_Replacement_Project_Design\DESIGN\PLANS - Cover, Notes, Details\C8.3-DETAILS.dwg 03/12/2024 2:52:01PM lmigrom COPYRIGHT RSA+



12" DIAMETER PIPE AND LARGER

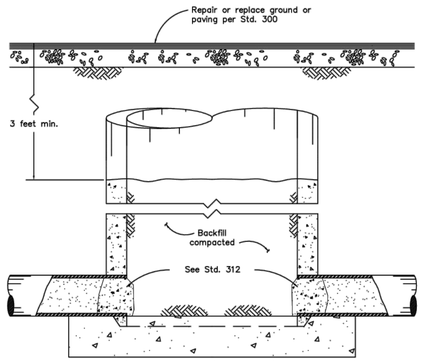


10" DIAMETER PIPE AND SMALLER

NOTES:
1. PIPE PLUGS SHALL BE INSTALLED TO THE SATISFACTION OF THE CITY ENGINEER.
2. ABANDONED PIPES 12" AND LARGER SHALL BE BROKEN INTO AT 50' INTERVALS AND FILLED COMPLETELY WITH SAND SLURRY.

ABANDONED PIPE PLUG DETAIL	STD. NO. 312
SCALE: NONE | DRAWN: MPW | CHK: PRC | APPVD:	DATE: FEB 2024

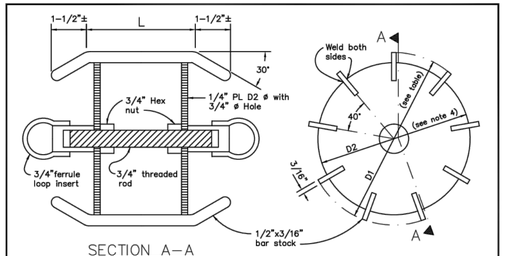
1



NOTES:
1. Remove frame, cover, taper and barrel sections as required to a minimum of 3' below finished grade.
2. After plugging all pipes in manhole, the remaining portion of the barrel section and all voids created by the removal off the upper portions of the manhole, shall be backfilled and compacted to 90% relative density. Use trench backfill or pipe bedding material per Std. 222.

ABANDONED MANHOLE	STD. NO. 313
SCALE: NONE | DRAWN: CFB | CHK: MGK | APPVD:	DATE: JUN 2012

2



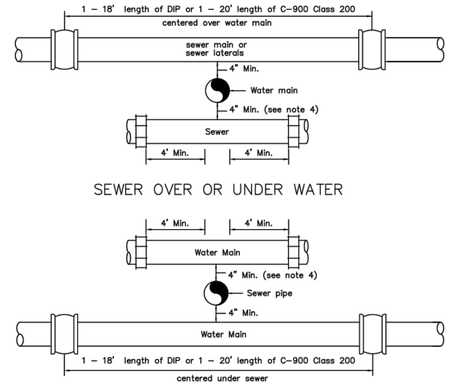
SECTION A–A

Nom. Pipe Dia.	L	MANDREL DIAMETER (D–1) SEE NOTE 3 5% DEFLECTION SDR 35	SDR 26
6	6"	5.619	5.503
8	8"	7.524	7.366
10	10"	9.405	9.207
12	12"	11.191	10.961
15	15"	13.849	13.559

NOTES:
1. Mark all materials with ASTM specification number, SDR number and deflection.
2. The 1/2" Bar Stock on edge provides clearance to pass small amounts of soil which may be in pipe.
3. Mandrel diameter has been calculated based on section 306–1.2.12 of the "Greenbook" Standard Specifications for Public Works Construction and or dimensions given in Table 1 of ASTM Standard D3034.
4. Plate diameter shall be 1" less than the mandrel diameter.

PVC SEWER PIPE DEFLECTION MANDRELL	STD. NO. 314
SCALE: NONE | DRAWN: CFB | CHK: MGK | APPVD:	DATE: JUN 2012

3



SEWER OVER OR UNDER WATER

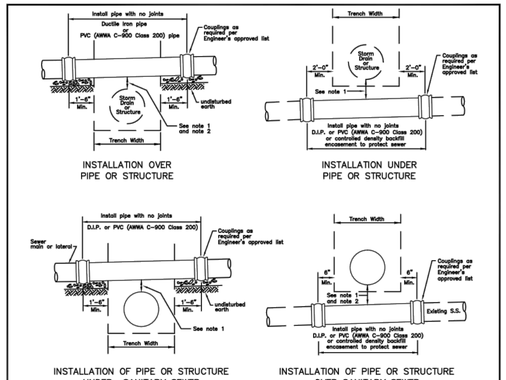
WATER OVER OR UNDER SEWER

NOTES:
1. All installations shall conform to the State of California Dept. of Health Services "Criteria For The Separation of Water Mains & Sanitary Sewers".
2. This Standard applies to pipes less than 24" in diameter. All crossings of larger diameter shall be as approved by the Director of Utilities.
3. All new Ductile iron shall be wrapped in polyethylene per City of Santa Rosa Construction Specifications.
4. Per State Std.'s, a min. 4" clearance is required where sewer crosses below a water main. Where there is 1' or more vertical clearance, no special installation is required.
5. Any pipe / pipe crossings with less than 6" vertical clearance shall be padded with styrofoam, felt expansion joint material, or other expansive materials between pipes as approved by the Director of Utilities.

APPROVED COUPLINGS
See Engineer's Approved List

SEWER–WATER MAIN CROSSING DETAILS	STD. NO. 315
SCALE: NONE | DRAWN: CFB | CHK: MGK | APPVD:	DATE: JUN 2012

4



INSTALLATION OVER PIPE OR STRUCTURE

INSTALLATION UNDER PIPE OR STRUCTURE

INSTALLATION OF PIPE OR STRUCTURE UNDER SANITARY SEWER

INSTALLATION OF PIPE OR STRUCTURE OVER SANITARY SEWER

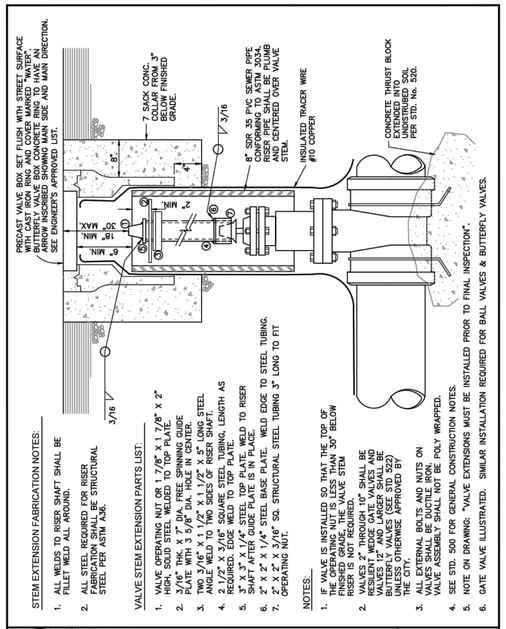
DETAIL OF BUILDING SETBACK FROM UNDERGROUND UTILITY

NOTES:
1. 1" minimum vertical clearance is required between pipes. Where clearance is less than 6", install felt expansion material or styrofoam between pipes.
2. This installation detail is required only if clearance is less than 1'.
3. Ductile iron pipe shall be encased in polyethylene film per AWWA standards.

* NOTE: REQUIRED PER UNIFORM PLUMBING CODE SECTION 315.1

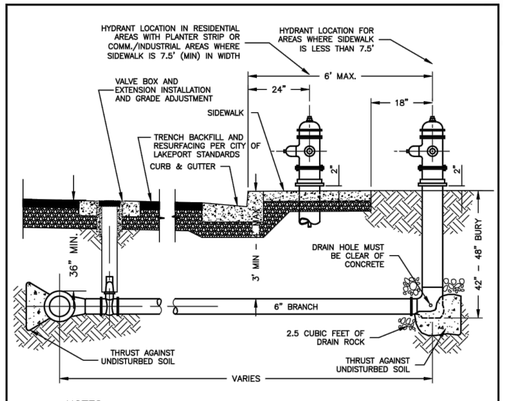
MISCELLANEOUS PIPE INSTALLATION DETAILS	STD. NO. 316
SCALE: NONE | DRAWN: CFB | CHK: MGK | APPVD:	DATE: JUN 2012

5



GATE VALVE AND VALVE BOX WITH RISER	STD. NO. 501
SCALE: NONE | DRAWN: CFB | CHK: MGK | APPVD:	DATE: JUN 2012

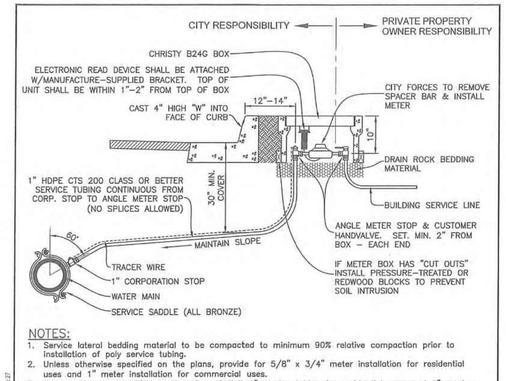
6



NOTES:
1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF LAKEPORT CONSTRUCTION STANDARDS AND STANDARDS FOR PUBLIC WORKS CONSTRUCTION (GREEN BOOK, LATEST EDITION).
2. JOINTS ARE TO BE MECHANICAL WITH MEGALUG RESTRAINTS, OR APPROVED EQUAL.
3. FIRE HYDRANTS ARE TO BE 5¼" DRY BARREL WITH (1) 4½" & (2) 2½" NOZZLES.
4. APPROVED HYDRANTS:
   A. AMERICAN DARLING B-62-B
   B. CLOW – MEDALLION
   C. KENNEDY – GUARDIAN
   D. WATEROUS
5. HYDRANT BURY DEPTH MAY VARY WITH PRIOR APPROVAL OF THE CITY ENGINEER.
6. PRIVATE ON SITE HYDRANT LOCATIONS TO BE APPROVED BY THE GOVERNING FIRE DISTRICT.
7. ISOLATION VALVE SHALL BE LOCATED AT PROPERTY LINE ON ALL PRIVATE HYDRANTS.
8. PROVIDE MINIMUM 4' CLEARANCE BEHIND HYDRANTS INSTALLED IN SIDEWALKS.

FIRE HYDRANT DETAIL	STD. NO. 502
SCALE: NONE | DRAWN: CFB | CHK: MGK | APPVD:	DATE: JUN 2012

7



NOTES:
1. Service lateral bedding material to be compacted to minimum 90% relative compaction prior to installation of poly service tubing.
2. Unless otherwise specified on the plans, provide for 5/8" x 3/4" meter installation for residential uses and 1" meter installation for commercial uses.
3. Unless otherwise specified on the plans, install 1" service tubing for residential uses and 1" service tubing for commercial uses.
4. The City of Lakeport requires a minimum of 10 ft of separation between potable water and sewer lines.
5. Meter box must be set flush with top of curb or sidewalk, if applicable.
6. Prior to meter set, address to be clearly marked on topside lip of meter box with permanent felt marker.
7. For 5/8" x 3/4" meter installation on a 1" water service lateral, use a reducing adapter.
8. Traffic lid to be installed in all drive approaches and locations where vehicular traffic may occur, and where specified on plans.
9. #10 tracer wire required.

METER SETTING ASSEMBLY PARTS LIST

METER SIZE	ANGLE METER STOP	HAND VALVE
5/8"x3/4"	Ford KV43–341W–NL or equal	Ford GA13–332–NL or equal, w/handle Ford GA23–332–NL or equal, w/handle Ford GA43–332–NL or equal, w/handle
1"	Ford KV43–444W–NL or equal	Ford GA13–444–NL or equal, w/handle Ford GA23–444–NL or equal, w/handle Ford GA43–444–NL or equal, w/handle

WATER SERVICE LATERAL FOR 5/8" x 3/4" & 1" METERS	STD. NO. 503
SCALE: NONE | DRAWN: MPW | CHK: PRC | APPVD:	DATE: MAR 2017

8

NO.	DATE	REVISIONS	BY	APPD

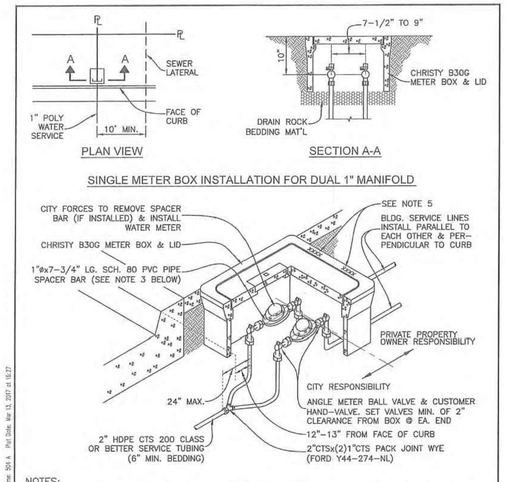
RSA+ CONSULTING CIVIL ENGINEERS + SURVEYORS +
1515 FOURTH STREET
NAPA, CALIF. 94559
OFFICE (707) 252-3301
+ www.RSAcivil.com +

2024 WATER AND SEWER MAIN REPLACEMENT
DETAILS
CITY OF LAKEPORT — CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — PHILIP GARGENT WANNOP — No. 82758 — Exp. 9-30-24 — CIVIL ENGINEER — STATE OF CALIFORNIA

DATE	MAR. 12, 2024
DRAWN	LMM
DESIGNED	NAH
CHECKED	PSW
JOB NO.	4123018.1

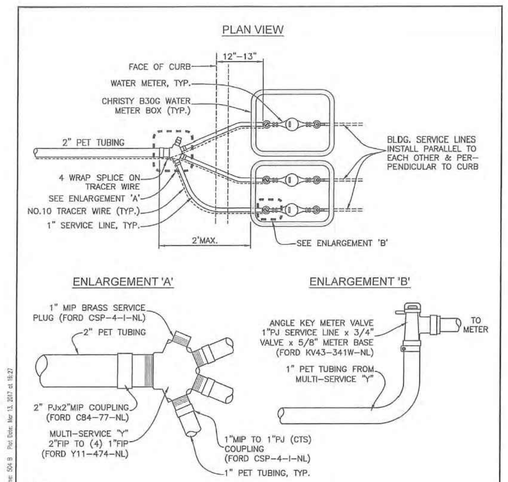
SHEET NO.
C8.4
30 OF 32 SHEETS



NOTES:
1. Service lateral bedding material to be compacted to minimum 90% relative compaction prior to installation of poly service tubing.
2. Unless otherwise specified on the plans, provide for 5/8" x 3/4" meter installation for residential uses and 1" meter installation for commercial uses.
3. Unless otherwise specified on the plans, install 1" service tubing for residential uses and 1" service tubing for commercial uses.
4. The City of Lakeport requires a minimum of 10 ft of separation between potable water and sewer lines.
5. Meter box must be set flush with top of curb or sidewalk, if applicable.
6. Prior to meter set, address to be clearly marked on topside lip of meter box with permanent felt marker.
7. For 5/8" x 3/4" meter installation on a 1" water service lateral, use a reducing adapter.
8. Traffic lid to be installed in all drive approaches and locations where vehicular traffic may occur, and where specified on plans.
9. #10 tracer wire required.

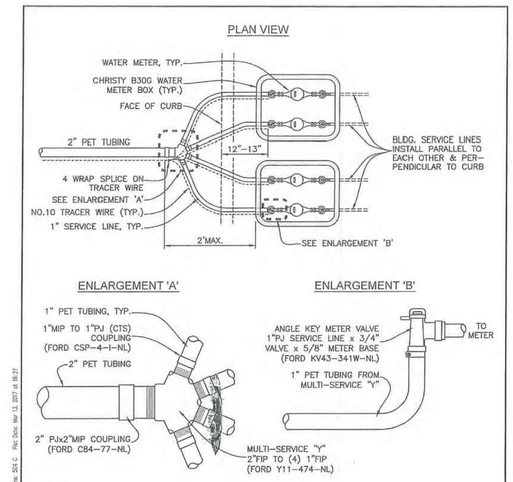
2" SERVICE WITH DUAL METER	STD. NO. 504 A
SCALE: NONE | DRAWN: MPW | CHK: PRC | APPVD:	DATE: MAR 2017

1



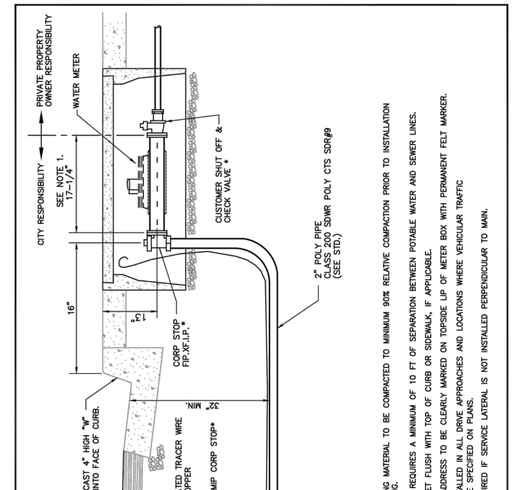
NOTES:
1. Service lateral bedding material to be compacted to minimum 90% relative compaction prior to installation of poly service tubing.
2. Unless otherwise specified on the plans, provide for 5/8" x 3/4" meter installation for residential uses and 1" meter installation for commercial uses.
3. Unless otherwise specified on the plans, install 1" service tubing for residential uses and 1" service tubing for commercial uses.
4. The City of Lakeport requires a minimum of 10 ft of separation between potable water and sewer lines.
5. Meter box must be set flush with top of curb or sidewalk, if applicable.
6. Prior to meter set, address to be clearly marked on topside lip of meter box with permanent felt marker.
7. For 5/8" x 3/4" meter installation on a 1" water service lateral, use a reducing adapter.
8. Traffic lid to be installed in all drive approaches and locations where vehicular traffic may occur, and where specified on plans.
9. #10 tracer wire required.

2" WATER SERVICE WITH 3 METERS	STD. NO. 504 B
SCALE: NONE | DRAWN: MPW | CHK: PRC | APPVD:	DATE: MAR 2017



NOTES:
1. Service lateral bedding material to be compacted to minimum 90% relative compaction prior to installation of poly service tubing.
2. Unless otherwise specified on the plans, provide for 5/8" x 3/4" meter installation for residential uses and 1" meter installation for commercial uses.
3. Unless otherwise specified on the plans, install 1" service tubing for residential uses and 1" service tubing for commercial uses.
4. The City of Lakeport requires a minimum of 10 ft of separation between potable water and sewer lines.
5. Meter box must be set flush with top of curb or sidewalk, if applicable.
6. Prior to meter set, address to be clearly marked on topside lip of meter box with permanent felt marker.
7. For 5/8" x 3/4" meter installation on a 1" water service lateral, use a reducing adapter.
8. Traffic lid to be installed in all drive approaches and locations where vehicular traffic may occur, and where specified on plans.
9. #10 tracer wire required.

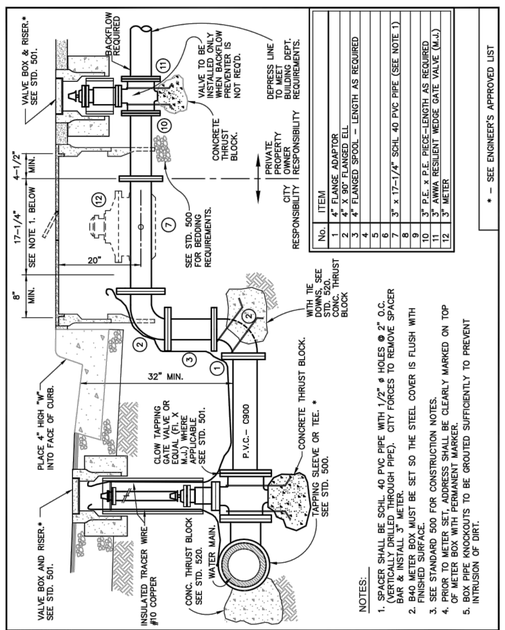
2" WATER SERVICE WITH 4 METERS	STD. NO. 504 C
SCALE: NONE | DRAWN: MPW | CHK: PRC | APPVD:	DATE: MAR 2017



NOTES:
1. SERVICE LATERAL BEDDING MATERIAL TO BE COMPACTED TO MINIMUM 90% RELATIVE COMPACTION PRIOR TO INSTALLATION OF POLY SERVICE TUBING.
2. THE CITY OF LAKEPORT REQUIRES A MINIMUM OF 10 FT OF SEPARATION BETWEEN POTABLE WATER AND SEWER LINES.
3. METER BOX MUST BE SET FLUSH WITH TOP OF CURB OR SIDEWALK, IF APPLICABLE.
4. PRIOR TO METER SET, ADDRESS TO BE CLEARLY MARKED ON TOPSIDE LIP OF METER BOX WITH PERMANENT FELT MARKER.
5. TRAFFIC LID TO BE INSTALLED IN ALL DRIVE APPROACHES AND LOCATIONS WHERE VEHICULAR TRAFFIC MAY OCCUR, AND WHERE SPECIFIED ON PLANS.
6. #10 TRACER WIRE REQUIRED IF SERVICE LATERAL IS NOT INSTALLED PERPENDICULAR TO MAIN.

2" DOMESTIC WATER SERVICE LATERAL	STD. NO. 505
SCALE: NONE | DRAWN: CFB | CHK: MGK | APPVD:	DATE: JUN 2012

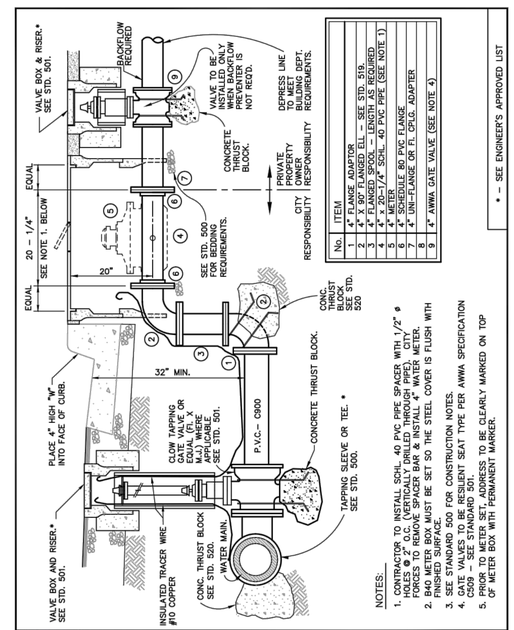
2



NOTES:
1. SPACER SHALL BE SCHL. 40 PVC PIPE WITH 1/2" ø HOLES @ 2" O.C. (VERTICALLY DRILLED THROUGH PIPE). CITY FORCES TO REMOVE SPACER BAR AND INSTALL METER.
2. B40 METER BOX MUST BE SET SO THE STEEL COVER IS FLUSH WITH FINISHED SURFACE.
3. SEE STANDARD 500 FOR CONSTRUCTION NOTES.
4. PRIOR TO METER SET, ADDRESS TO BE CLEARLY MARKED ON TOP OF METER BOX WITH PERMANENT MARKER.
5. BOX PIPE KNOCKOUTS TO BE GROUTED SUFFICIENTLY TO PREVENT INTRUSION OF DIRT.

4" WATER SERVICE LATERAL INSTALLATION FOR 3" METER	STD. NO. 506
SCALE: NONE | DRAWN: CFB | CHK: MGK | APPVD:	DATE: JUN 2012

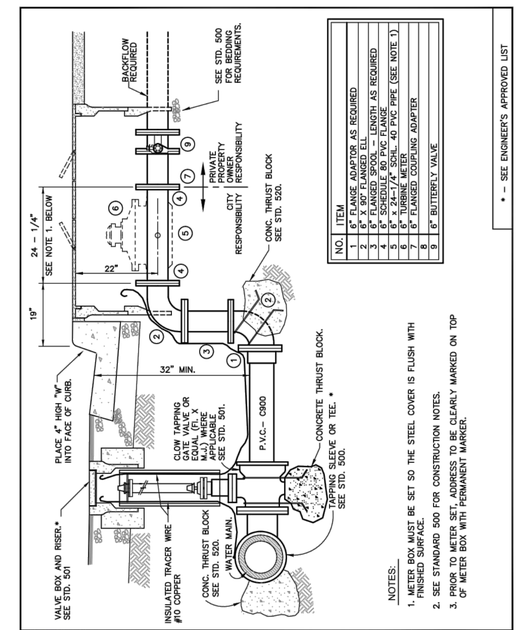
3



NOTES:
1. CONTRACTOR TO INSTALL SCHL. 40 PVC PIPE SPACER WITH 1/2" ø HOLES @ 2" O.C. (VERTICALLY DRILLED THROUGH PIPE). CITY FORCES TO REMOVE SPACER BAR AND INSTALL METER.
2. B40 METER BOX MUST BE SET SO THE STEEL COVER IS FLUSH WITH FINISHED SURFACE.
3. SEE STANDARD 500 FOR CONSTRUCTION NOTES.
4. ALL VALVES TO BE RESILIENT SEAT TYPE PER AWWA SPECIFICATION C509 OR C515 STANDARD.
5. PRIOR TO METER SET, ADDRESS TO BE CLEARLY MARKED ON TOP OF METER BOX WITH PERMANENT MARKER.

4" WATER SERVICE LATERAL INSTALLATION FOR 4" METER	STD. NO. 507
SCALE: NONE | DRAWN: CFB | CHK: MGK | APPVD:	DATE: JUN 2012

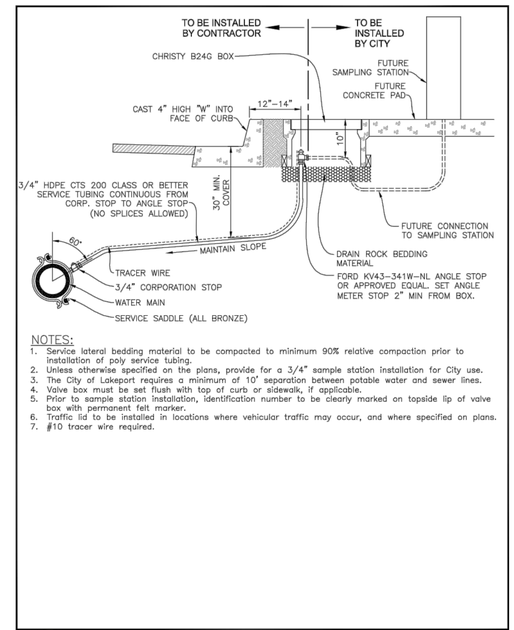
4



NOTES:
1. METER BOX MUST BE SET SO THE STEEL COVER IS FLUSH WITH FINISHED SURFACE.
2. SEE STANDARD 500 FOR CONSTRUCTION NOTES.
3. PRIOR TO METER SET, ADDRESS TO BE CLEARLY MARKED ON TOP OF METER BOX WITH PERMANENT MARKER.

6" WATER SERVICE LATERAL INSTALLATION FOR 6" METER	STD. NO. 508
SCALE: NONE | DRAWN: CFB | CHK: MGK | APPVD:	DATE: JUN 2012

5



NOTES:
1. Service lateral bedding material to be compacted to minimum 90% relative compaction prior to installation of poly service tubing.
2. Unless otherwise specified on the plans, provide for a 3/4" sample station installation for City use.
3. The City of Lakeport requires a minimum of 10' separation between potable water and sewer lines.
4. Valve box must be set flush with top of curb or sidewalk, if applicable.
5. Prior to sample station installation, identification number to be clearly marked on topside lip of valve box with permanent felt marker.
6. Traffic lid to be installed in locations where vehicular traffic may occur, and where specified on plans.
7. #10 tracer wire required.

WATER SERVICE LATERAL FOR 3/4" SAMPLING STATION	STD. NO. 509
SCALE: NONE | DRAWN: LMM | CHK: PRC | APPVD:	DATE: DEC 2023

6

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OFFICE (707) 252-3301
+ www.RSAcivil.com +

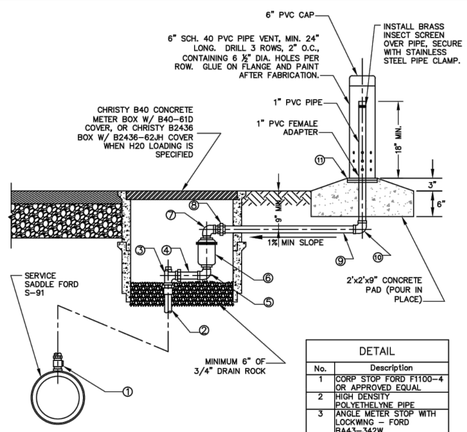
NO.	DATE	REVISIONS	BY	APPD

2024 WATER AND SEWER MAIN REPLACEMENT
DETAILS
CITY OF LAKEPORT — CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — PAUL SARGENT WARNOCK — No. 82758 Exp. 9-30-24 — CIVIL ENGINEER — STATE OF CALIFORNIA

DATE	MAR. 12, 2024	
DRAWN	LMM	
DESIGNED	NAH	
CHECKED	PSW	
JOB NO.	4123018.1	

SHEET NO.
C8.5
31 OF 32 SHEETS



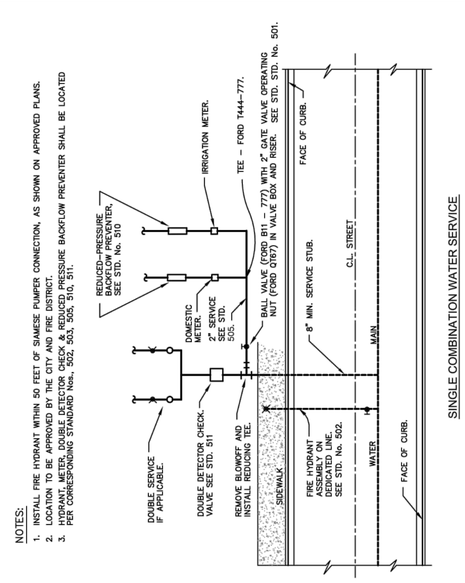
DETAIL	
No.	Description
1	CORP STOP FORD F1100-4 OR APPROVED EQUAL
2	HIGH DENSITY POLYETHELYNE PIPE
3	ANGLE METER STOP WITH LOCKWING - FORD BA43-342W
4	RED BRASS NIPPLE, N.P.T.
5	90 DEG. BRONZE STREET ELBOW
6	COMBINATION AIR RELEASE VALVE
7	90 DEG. IRON STREET ELBOW
8	GALV. IRON UNION, MALE - FEMALE, N.P.T.
9	GALV. IRON PIPE OR HDPE\
10	90 DEG. GALV IRON ELBOW
11	GLUED PVC FLANGES (2) WITH BOLTS (4 MINIMUM)

NOTES:
1. AIR RELEASE VALVES SHALL BE 1" UNLESS SHOWN OTHERWISE ON THE PLANS.
2. INSIDE DIAMETER OF PIPE AND FITTINGS SHALL NOT BE LESS THAN A.R.V. SIZE.
3. CAST COMPANION FLANGE IN CONCRETE.
4. VENT TO BE LOCATED IN THE FIELD.
5. VENT PIPE SHALL BE LOCATED ABOVE THE FLOOD LEVEL.
6. SET THE BOX FLUSH WITH THE PAVED SURFACE, SLOPE GROUND AWAY FROM BOX.
7. BURIED METAL PIPE SHALL BE TAPE WRAPPED.

AIR RELEASE VALVE DETAIL — STD. NO. 512

SCALE: NONE | DRAWN: CFB | CHK: MGK | APPVD: | DATE: JUN 2012

1

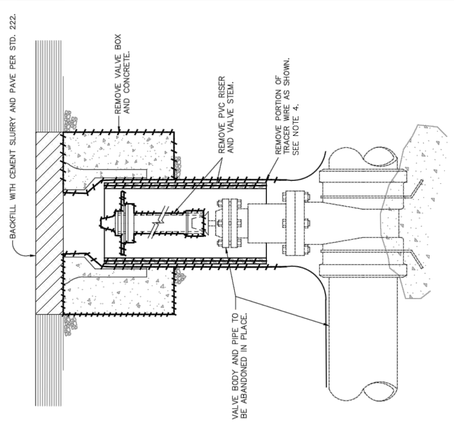


NOTES:
1. INSTALL FIRE HYDRANT WITHIN 50 FEET OF SIAMESE PUMPER CONNECTION, AS SHOWN ON APPROVED PLANS.
2. LOCATION TO BE APPROVED BY THE CITY AND FIRE DISTRICT.
3. HYDRANT, METER, DOUBLE DETECTOR CHECK & REDUCED PRESSURE BACKFLOW PREVENTER SHALL BE LOCATED PER CORRESPONDING STANDARD Nos. 502, 503, 505, 510, 511.

SINGLE COMBINATION WATER SERVICE — STD. NO. 513

SCALE: NONE | DRAWN: CFB | CHK: MGK | APPVD: | DATE: JUN 2012

2

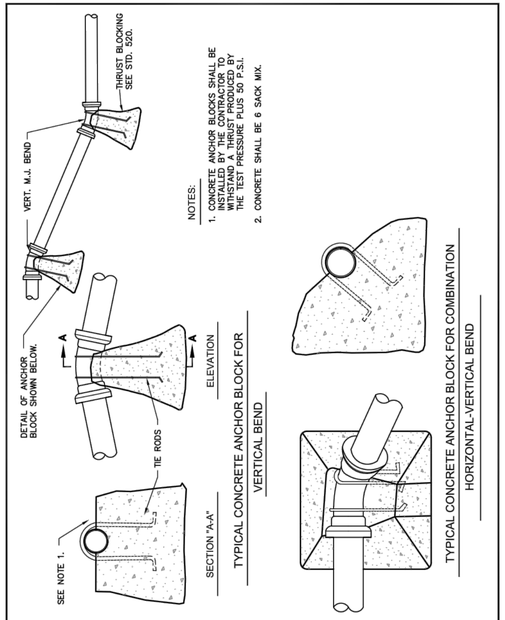


NOTES:
1. Remove valve box, riser, stem, and tracer wire extensions.
2. Backfill with slurry cement and restore pavement per Std. 222.
3. Pavement restoration per Std. 222A (no T-cut) may be substituted with prior approval by City Engineer.
4. EXISTING TRACER WIRE SHALL BE FULLY CONNECTED ACROSS ABANDONED VALVE, TO ENSURE CONTINUITY FROM PIPE TO PIPE. IF WIRE IS CUT, CONTRACTOR SHALL SPLICE TWISTED ENDS TOGETHER AND WRAP WITH 3M PIPE TAPE.

ABANDONED WATER VALVE — STD. NO. 514

SCALE: NONE | DRAWN: LMM | CHK: PRC | APPVD: | DATE: DEC 2023

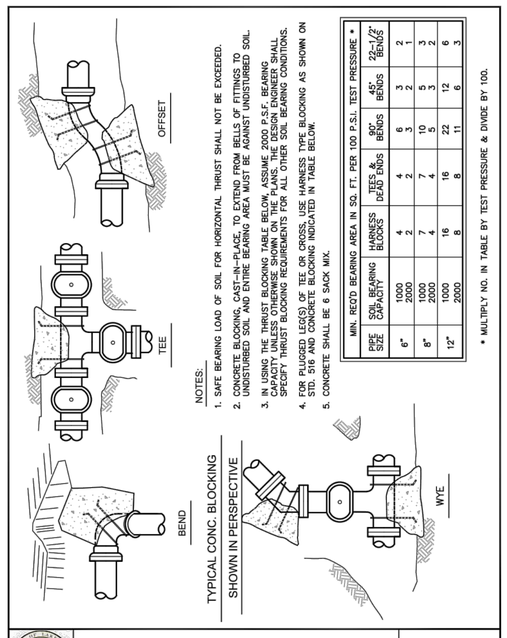
3



CONCRETE ANCHOR BLOCK FOR VERTICAL BENDS — STD. NO. 519

SCALE: NONE | DRAWN: CFB | CHK: MGK | APPVD: | DATE: JUN 2012

4



NOTES:
1. SAFE BEARING LOAD OF SOIL FOR HORIZONTAL THRUST SHALL NOT BE EXCEEDED.
2. CONCRETE BLOCKING, CAST-IN-PLACE, TO EXTEND FROM BELLS OF FITTINGS TO UNDISTURBED SOIL AND ENTIRE BEARING AREA MUST BE AGAINST UNDISTURBED SOIL.
3. IN USING THE THRUST BLOCKING TABLE BELOW, ASSUME 2000 P.S.F. BEARING CAPACITY UNLESS OTHERWISE SHOWN ON THE PLANS. THE DESIGN ENGINEER SHALL SPECIFY THRUST BLOCKING REQUIREMENTS FOR ALL OTHER SOIL BEARING CONDITIONS.
4. FOR PLUGGED LEG(S) OF TEE OR CROSS, USE HARNESS TYPE BLOCKING AS SHOWN ON STD. 516 AND CONCRETE BLOCKING INDICATED IN TABLE BELOW.
5. CONCRETE SHALL BE 6 SACK MIX.

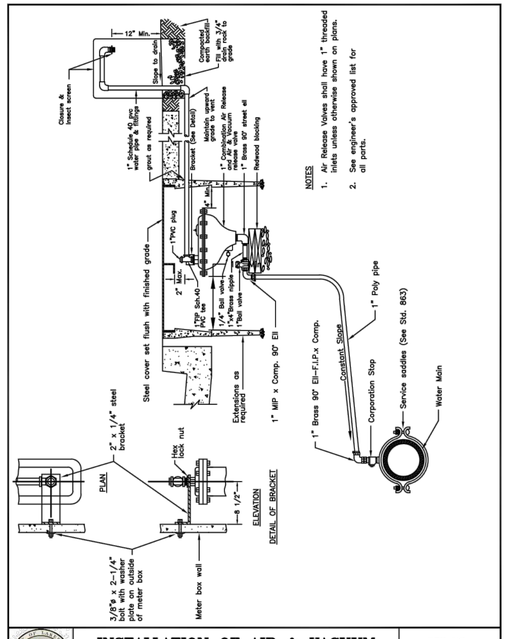
MIN. REQ'D BEARING AREA IN SQ. FT. PER 100 P.S.I. TEST PRESSURE *					
PIPE SIZE	SOIL BEARING CAPACITY	HARNESS BLOCKS	TEES & DEAD ENDS	90° BENDS	22-1/2° BENDS
6"	1000	4	4	6	3
	2000	2	2	3	2
8"	1000	7	7	10	5
	2000	4	4	5	3
12"	1000	16	16	22	12
	2000	8	8	11	6

* MULTIPLY NO. IN TABLE BY TEST PRESSURE & DIVIDE BY 100.

CONCRETE THRUST BLOCKS — STD. NO. 520

SCALE: NONE | DRAWN: CFB | CHK: MGK | APPVD: | DATE: JUN 2012

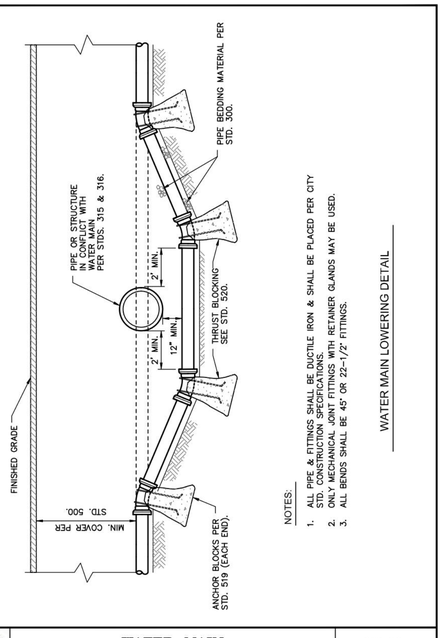
5



INSTALLATION OF AIR & VACUUM AND AIR RELEASE VALVE — STD. NO. 525

SCALE: NONE | DRAWN: CFB | CHK: MGK | APPVD: | DATE: JUN 2012

6

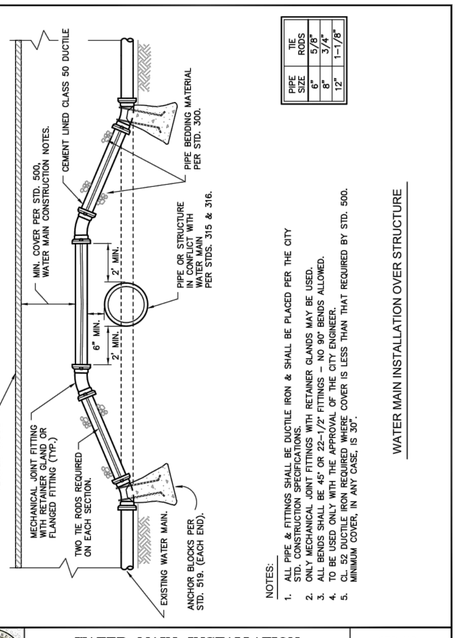


NOTES:
1. ALL PIPE & FITTINGS SHALL BE DUCTILE IRON & SHALL BE PLACED PER CITY STD. CONSTRUCTION SPECIFICATIONS.
2. ONLY MECHANICAL JOINT FITTINGS WITH RETAINER GLANDS MAY BE USED.
3. ALL BENDS SHALL BE 45° OR 22-1/2° FITTINGS.

WATER MAIN LOWERING DETAIL — STD. NO. 528

SCALE: NONE | DRAWN: CFB | CHK: MGK | APPVD: | DATE: JUN 2012

7



PIPE SIZE	TIE RODS
6"	5/8"
8"	3/4"
12"	1-1/8"

NOTES:
1. ALL PIPE & FITTINGS SHALL BE DUCTILE IRON & SHALL BE PLACED PER THE CITY STD. CONSTRUCTION SPECIFICATIONS.
2. ONLY MECHANICAL JOINT FITTINGS WITH RETAINER GLANDS MAY BE USED.
3. ALL BENDS SHALL BE 45° OR 22-1/2° FITTINGS. 11.25° BENDS ARE NOT ALLOWED.
4. TWO TIE RODS REQUIRED ON EACH SIDE OF THE CITY ENGINEER.
5. CL. 52 DUCTILE IRON REQUIRED WHERE COVER IS LESS THAN THAT REQUIRED BY STD. 500. MINIMUM COVER, IN ANY CASE, IS 30".

WATER MAIN INSTALLATION OVER STRUCTURE

WATER MAIN INSTALLATION OVER STRUCTURE — STD. NO. 529

SCALE: NONE | DRAWN: CFB | CHK: MGK | APPVD: | DATE: JUN 2012

7

NO.	DATE	REVISIONS	BY	APPD

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2024 WATER AND SEWER MAIN REPLACEMENT
DETAILS
CITY OF LAKEPORT — CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — PAUL GARDNER WARNOCK — No. 82758 Exp. 9-30-24 — CIVIL ENGINEER — STATE OF CALIFORNIA

DATE	MAR. 12, 2024
DRAWN	LMM
DESIGNED	NAH
CHECKED	PSW
JOB NO.	4123018.1

SHEET NO. C8.6
32 OF 32 SHEETS

R:\2023\4123018.1_Lakeport_2023_Water_&_Sewer_Main_Replacement_Project_Design\DESIGN\PLANS - Cover Notes, Details\C8.6-DETAILS.dwg 03/12/2024 2:56:45PM lmigrom