LAKE HAVASU CITY
2024 WATER MAIN REPLACEMENT PROJECT PHASE 1

PROJECT B24-PW-108019-500441

APRIL 2024

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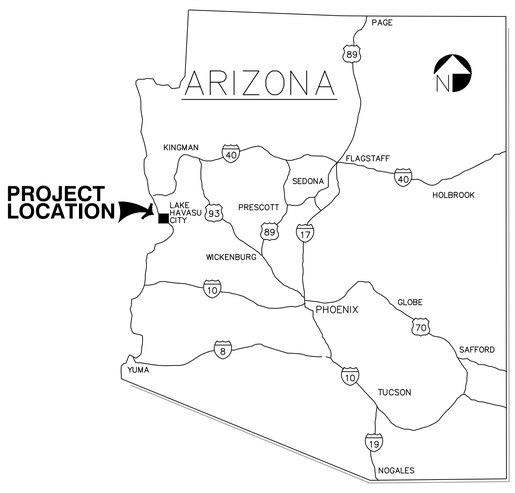
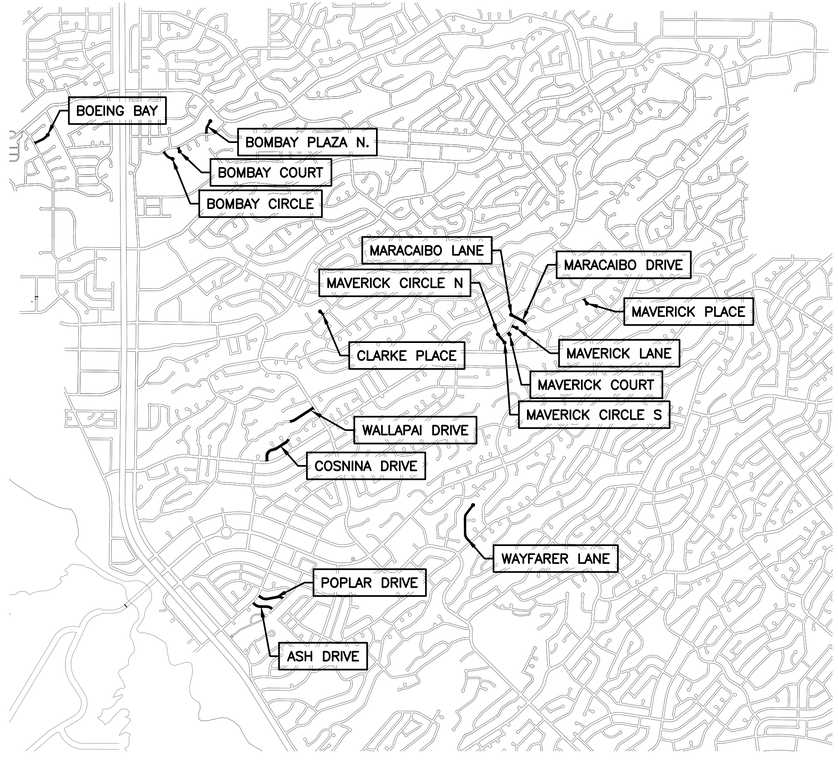
CITY COUNCIL

MAYOR:	CAL SHEEHY
VICE MAYOR:	CAMERON MOSES
CITY COUNCIL:	NANCY CAMPBELL
	DAVID LANE
	MICHELE LIN
	JENNI COKE
	JIM DOLAN
CITY MANAGER:	JESS KNUDSON
INTERIM PW DIRECTOR:	RON FOGGIN
PROJECT MANAGER:	JASON HART



VICINITY MAP
SCALE: N.T.S.



LOCATION MAP
SCALE: N.T.S.

UTILITY CONTACTS:

CITY OF LAKE HAVASU CITY (WASTEWATER)	(928) 855-3999
CITY OF LAKE HAVASU CITY (WATER)	(928) 855-2618
SUDDENLINK (CABLE)	(928) 855-7815
UNISOURCE ENERGY SERVICES (GAS)	(928) 505-7025
UNISOURCE ENERGY SERVICES (ELECTRIC)	(928) 505-7031

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811 BLUE STAKE, INC.
Call 811 or click Arizona811.com

REVISION RECORD

NO	DATE	DESCRIPTION

SIVAN D. PERROTTO 31810 (Civil) Date Signed 4-15-24 ARIZONA U.S.A. EXPIRES 12-31-2025

TRICO ENGINEERING, LLC
LAKE HAVASU CITY 231 S. SMOKE TREE BLVD., STE. 204 LAKE HAVASU CITY, AZ 86403 (928) 505-0880
PRESCOTT 2840 N. HUMBOLDT STREET PRESCOTT, AZ 86301 (928) 541-0555
NOVITIATE, LLC 2840 N. HUMBOLDT STREET PRESCOTT, AZ 86301 (928) 541-0555
NOVITIATE, AZ 85262 (928) 284-0461

2024 WATER MAIN REPLACEMENT PROJECT, PHASE 1
B24-PW-108019-500441
LAKE HAVASU CITY
2330 MCCULLOCH BLVD N.
LAKE HAVASU CITY, AZ 86403
(928) 855-2116

LAKE HAVASU CITY, ARIZONA • INCORPORATED 1978

COVER SHEET

DATE:	APRIL 15, 2024	DRAWN BY:	JWC/CCP
DWG SCALE:	N.T.S.	CHECKED BY:	EJP/SDP
PROJECT NO:			22-034
APPROVED BY:			SDP

DRAWING NO.: C-1
SHEET 1 OF 31

F:\Trico Engineering LLC\Projects\2023\23-034_LHC FY 23-24 Water Main Replacement Design 17\CAD\Improvement Plans\23-034_Cover Sheet.dwg LS:(4/15/2024 - wrigsemsitly) - LP: 4/15/2024 2:50 PM

GENERAL NOTES

1. ALL WATER UTILITY CONSTRUCTION TO CONFORM TO AAC R18-5-502 AND AAC R18-4-119 WATER SYSTEM STANDARDS, ADEQ BULLETIN 10, LAKE HAVASU CITY STANDARDS AND SPECIFICATIONS, MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) STANDARD SPECIFICATIONS AND DETAILS UNLESS SPECIFICALLY MODIFIED ON THE PLANS.
2. THE OWNER SHALL BE NOTIFIED A MINIMUM OF 24 HOURS PRIOR TO BEGINNING ANY CONSTRUCTION.
3. ANY WORK PERFORMED WITHOUT THE KNOWLEDGE AND APPROVAL BY THE OWNER OR ENGINEER AND/OR ALL WORK MATERIAL NOT IN CONFORMANCE WITH THE PLANS AND SPECIFICATIONS IS SUBJECT TO REMOVAL AT THE CONTRACTOR'S EXPENSE.
4. NO JOB WILL BE CONSIDERED COMPLETE UNTIL ALL CURBS, PAVEMENT AND SIDEWALKS (NEW AND EXISTING) HAVE BEEN SWEPT CLEAN OF ALL DIRT AND DEBRIS.
5. THE CONTRACTOR SHALL KEEP SUITABLE EQUIPMENT ON HAND AT THE JOBSITE FOR MAINTENANCE DUST CONTROL, AND SHALL CONTROL DUST IN ACCORDANCE WITH CITY SPECIFICATIONS.
6. ASPHALT CONCRETE SHALL NOT BE PLACED ON SUBGRADE UNTIL SUBGRADE REQUIREMENTS HAVE BEEN COMPLETED PER THE PROJECT SPECIFICATIONS BY THE CONTRACTOR.
7. BACKFILL COMPACTION SHALL BE TYPE 1 (MAG 601) UNLESS OTHERWISE NOTED PER LHC STD DETAILS.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING TRAFFIC CONTROL PLANS AS PART OF THE SUBMITTAL REVIEW REQUEST TO THE ENGINEER FOR APPROVAL NO LATER THAN 30 CALENDAR DAYS PRIOR TO THE PLANNED CONSTRUCTION IN THE AREA OF THE WORK, EXCEPT IN EMERGENCIES. ALL TRAFFIC CONTROL DEVICES SHALL BE WELL MAINTAINED AND COMPLY WITH ALL PERFORMANCE REQUIREMENTS WITHIN THE MUTCD AND THE LATEST REVISIONS THEREOF. NO STREET IS TO BE CLOSED, RESTRICTED, OR CONSTRUCTED UPON UNTIL A TRAFFIC PLAN IS APPROVED. CONTRACTOR SHALL MAINTAIN A MINIMUM ONE LANE OF TRAFFIC IN EACH DIRECTION AT ALL TIMES OR AS NOTED IN THE SPECIFICATIONS.
9. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN COPIES OF MAG AND THE CITY OF LAKE HAVASU STANDARDS, SPECIFICATIONS, AND DETAILS AS WELL AS ALL OTHER STANDARDS AND SPECIFICATIONS NECESSARY TO COMPLETELY AND ACCURATELY INTERPRET THESE PLANS.
10. REMOVAL OF STRUCTURES AND OBSTRUCTIONS AS NECESSARY TO COMPLETE THE WORK, OTHER THAN OR NOT OF SPECIFICALLY SCHEDULED IN THE BID, IS INCIDENTAL TO THE CONTRACT. NO SEPARATE MEASUREMENT OF PAYMENT FOR UNSCHEDULED REMOVAL ITEMS WILL BE MADE.
11. CONSTRUCTION STAKING SHALL BE BY THE CONTRACTOR'S SURVEYOR WITH CONTROL PROVIDED WITHIN THE CONTRACT DOCUMENTS.
12. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO FOLLOW THE MINIMUM COVER SHOWN WITH EXCEPTION TO THE LOCATIONS WHERE CONNECTING TO EXISTING MAIN LINE. ANY CHANGES MUST BE APPROVED BY ENGINEER.
13. THE OWNER RESERVES THE RIGHT TO ORDER ANY OR ALL WORKMANSHIP AND MATERIALS TO BE TESTED ACCORDING TO APPLICABLE STANDARDS.
14. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL REWORK AND/OR REMOVAL AND REPLACEMENT OF ALL MATERIALS AND/OR WORKMANSHIP REPRESENTED BY A FAILING TEST.
15. IN ACCORDANCE WITH SPECIFICATION 00800, THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL COSTS OF TESTING AND QUALITY CONTROL AS DELINEATED IN THE CITY'S PROJECT SPECIFICATIONS. THE COST OF TESTING IS INCIDENTAL TO EACH ITEM OF WORK. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE COST OF ANY CITY INSPECTION, AND TIME ASSOCIATED WITH, IF THE CONTRACTOR'S WORK IS BEING PERFORMED IN OVERTIME, AT NIGHT, OR ON WEEKENDS.
16. APPROVAL OF A PORTION OF THE WORK IN PROGRESS DOES NOT GUARANTEE ITS FINAL ACCEPTANCE. TESTING AND EVALUATION MAY CONTINUE UNTIL WRITTEN FINAL ACCEPTANCE OF A COMPLETE AND WORKABLE UNIT.
17. IN ACCORDANCE WITH SPECIFICATION 00700, THE OWNER MAY SUSPEND THE WORK BY WRITTEN NOTICE WHEN, IN ITS JUDGEMENT, PROGRESS IS UNSATISFACTORY, WORK BEING DONE IS UNAUTHORIZED OR DEFECTIVE, WEATHER CONDITIONS ARE UNSUITABLE, OR THERE IS A DANGER TO THE PUBLIC HEALTH OR SAFETY.
18. CLEARING AND GRUBBING IS CONSIDERED INCIDENTAL TO THE WORK UNLESS SEPARATELY IDENTIFIED IN THE BID SCHEDULE. NO SEPARATE MEASUREMENT OF OR PAYMENT FOR CLEARING, GRUBBING, AND TREE REMOVAL WILL BE MADE. THE SITE OF ALL EXCAVATION, EMBANKMENTS, AND FILLS SHALL FIRST BE CLEARED OF STUMPS, TRASH, WEEDS, RUBBISH, AND LOOSE BOULDERS WHICH SHALL BE REMOVED AND DISPOSED OF.
19. ALL FINISHED EDGES OF CONCRETE SHALL HAVE A ¾" CHAMFER UNLESS OTHERWISE SPECIFIED ON PLANS.
20. IF AC PAVEMENT IS DAMAGED OR CRACKED DURING REMOVAL OF EXISTING CONCRETE DRIVEWAY, THE CONTRACTOR SHALL SAWCUT 12" FROM EDGE OF PAVEMENT. REMOVAL AND REPLACEMENT OF DAMAGED AC PAVEMENT SHALL BE IN KIND AT CONTRACTORS EXPENSE.
21. IF A SECTION OF CONCRETE NOT ADJACENT TO AC PAVEMENT IS REMOVED AND SURROUNDING CONCRETE IS CRACKED OR DAMAGED, CONTRACTOR SHALL REMOVE AND REPLACE IN KIND AT CONTRACTORS EXPENSE.
22. CONCRETE SURFACES TO HAVE A BROOM FINISH UNLESS OTHERWISE NOTED ON THE PLANS.
23. ALL CONCRETE TO BE AT LEAST 4,000 P.S.I. CLASS 'A' PORTLAND CEMENT CONCRETE UNLESS OTHERWISE SPECIFIED ON PLANS.
24. ALL EXPANSION JOINTS SHALL BE FILLED PER MAG STANDARDS.
25. THE LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE AND ARE BASED ON VISIBLE FIELD DATA AND AVAILABLE MAP RECORDS. THE CONTRACTOR SHALL CONTACT ARIZONA 811 PRIOR TO ANY EXCAVATION ACTIVITY TO LOCATE THE ACTUAL LOCATION OF ALL UTILITIES. THE CONTRACTOR SHALL BEAR THE COST TO PROTECT ANY AND ALL UTILITIES LOCATED BY BLUESTAKE AND/OR SHOWN ON THE PLANS. ADDITIONALLY, THE CONTRACTOR SHALL TAKE ALL REASONABLE EFFORT AND ACTION TO SATISFY HIMSELF ON THE HORIZONTAL AND VERTICAL LOCATION OF THE EXISTING UTILITIES PRIOR TO TRENCHING. ANY DAMAGE TO EXISTING UTILITIES CAUSED BY CONTRACTOR'S OPERATION SHALL BE REPORTED TO THE UTILITY OWNER IMMEDIATELY AND REPAIRED OR REPLACED AT NO COST TO THE OWNER.
26. IN ACCORDANCE WITH ARIZONA ADMINISTRATIVE CODE, SECTION R18-5-502, "MINIMUM DESIGN CRITERIA", WATER AND SEWER MAINS SHALL BE SEPARATED IN ORDER TO PROTECT PUBLIC WATER SYSTEMS FROM POSSIBLE CONTAMINATION. ALL DISTANCES ARE MEASURED PERPENDICULARLY FROM THE OUTSIDE OF THE SEWER MAIN TO THE OUTSIDE OF THE WATER MAIN. SEPARATION REQUIREMENTS ARE AS FOLLOWS:
   - 26.1. A WATER MAIN SHALL NOT BE PLACED:
     - 26.1.1. WITHIN 6 FEET, HORIZONTAL DISTANCE, AND BELOW 2 FEET, VERTICAL DISTANCE, ABOVE THE TOP OF A SEWER MAIN UNLESS EXTRA PROTECTION IS PROVIDED. EXTRA PROTECTION SHALL CONSIST OF CONSTRUCTING THE SEWER MAIN WITH MECHANICAL JOINT DUCTILE IRON PIPE WITH SLIP-JOINT DUCTILE IRON PIPE IF JOINT RESTRAINT IS PROVIDED. ALTERNATE EXTRA PROTECTION SHALL CONSIST OF ENCASING BOTH THE WATER AND SEWER MAINS IN AT LEAST 6 INCHES OF CONCRETE FOR AT LEAST 10 FEET BEYOND THE AREA OF COVERED BY THE SUBSECTION (C)(1)(a).
     - 26.1.2. WITHIN 2 FEET HORIZONTALLY AND 2 FEET BELOW THE SEWER MAIN.
     - 26.1.3. NO WATER PIPE SHALL PASS THROUGH OR COME INTO CONTACT WITH ANY PART OF A SEWER MANHOLE. THE MINIMUM HORIZONTAL SEPARATION BETWEEN WATER MAINS AND MANHOLES SHALL BE 6 FEET, MEASURED FROM THE CENTER OF THE MANHOLE.
   - 26.2. THE MINIMUM SEPARATION BETWEEN FORCE MAINS OR PRESSURE SEWER AND WATER MAINS SHALL BE 2 FEET VERTICALLY AND 6 FEET HORIZONTALLY UNDER ALL CONDITIONS. WHERE A SEWER FORCE MAIN CROSSES ABOVE OR LESS THAN 6 FEET BELOW A WATER LINE, THE SEWER MAIN SHALL BE ENCASED IN A T LEAST 6 INCHES OF CONCRETE OR CONSTRUCTED USING MECHANICAL JOINT DUCTILE IRON PIPE FOR 10 FEET ON EITHER SIDE OF THE WATER MAIN.
27. HORIZONTAL DATUM IS BASED ON THE PUBLISHED 2005 LAKE HAVASU AERIAL MAPPING DATUM. COORDINATES ARE NAD83 (1992 ADJUSTMENT) GEODE 03 MODEL, ARIZONA STATE PLANE WEST ZONE, U.S. FOOT (39.37 DIVIDED BY 12), WITH ADDITIONAL INFORMATION LOCATED IN THE PROJECT CONTROL SECTION.
28. THE CONTRACTOR SHALL LIMIT THE WORK AREA TO PUBLIC RIGHT-OF-WAY AND PERMANENT EASEMENTS AS SHOWN FOR CONSTRUCTION OF THE PROJECT.
29. CONTRACTOR SHALL OBTAIN ANY ADDITIONAL TEMPORARY EASEMENTS OR USE AGREEMENTS THAT ARE DEEMED NECESSARY FOR CONSTRUCTION AT NO ADDITIONAL COST TO THE CITY. COPIES OF ALL CONTRACTOR OBTAINED EASEMENTS AND USE AGREEMENTS SHALL BE PROVIDED TO THE CITY'S REPRESENTATIVE PRIOR TO THE UTILIZATION OF THE SITE.
30. THE CONTRACTOR SHALL GRADE AND RESURFACE ALL AREAS DISTURBED BY CONSTRUCTION. IN ACCORDANCE WITH THE SPECIFICATIONS AND TO A CONDITION EQUAL TO, OR BETTER THAN, THE PRE-CONSTRUCTION CONDITION.
31. THE CONTRACTOR SHALL PROVIDE PROTECTION TO PREVENT UNDERMINING OR DAMAGING THE STRUCTURAL INTEGRITY OF ALL POWER POLES, FENCES, BLOCK WALLS, SCREEN WALLS, RETAINING WALLS, HIGHWAY AND STREET SIGNS, OTHER UTILITY POLES, OR OTHER PRIVATE OR PUBLIC IMPROVEMENTS WITHIN THE PROJECT AREA. THE CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE OWNING UTILITY AS NECESSARY TO PROVIDE TEMPORARY SUPPORT OR PROTECTION DURING CONSTRUCTION WORK, AND SHALL NEATLY REMOVE AND PROMPTLY REPLACE NON UTILITY IMPROVEMENTS WITHOUT UNDUE DISRUPTION. THE COST OF ALL SUCH PROTECTION, REMOVAL, AND REPLACEMENT REQUIRED TO COMPLETE THE

GENERAL NOTES (CONT):

PROJECT SHALL BE SUBSIDIARY TO OTHER BID ITEMS.

32. THE CONTRACTOR SHALL TAKE ALL APPROPRIATE STEPS TO MAINTAIN CONTINUOUS UTILITY SERVICE TO RESIDENTS AND BUSINESSES WITHIN THE PROJECT AREA. MANY EXISTING WATER AND GAS LINES ARE MORE THAN 30 YEARS OLD, PROPOSED METHOD OF CROSSING AND/OR SUPPORT OF UTILITIES SHALL BE APPROVED BY UTILITY OWNER IN ADVANCE OF WORK. MANY LOCAL WATER LINES ARE CONSTRUCTED OF ASBESTOS CEMENT. GAS LINES ARE REPORTED TO BE BRITTLE, SO CLOSE COORDINATION WITH THE UTILITY OWNER'S WILL BE NECESSARY TO AVOID DAMAGE. PROTECTION OF ALL UTILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
33. ALL GRAVEL DRIVES AND GRAVEL ROADS DISTURBED DURING CONSTRUCTION SHALL BE REPLACED WITH A MINIMUM OF SIX INCHES (6") OF GRANULAR BACKFILL AS SPECIFIED IN SECTION 02300 AND SHALL BE CONSIDERED SUBSIDIARY TO OTHER PAY ITEMS.
34. THE CONTRACTOR SHALL REMOVE ALL FENCING, ASPHALT AND CONCRETE ROADS AND DRIVEWAYS, CURB AND GUTTER, RIP-RAP, LANDSCAPING, DRAINAGE CULVERTS, MAILBOXES, LANDSCAPING AND ASSOCIATED APPURTENANCES AS REQUIRED FOR CONSTRUCTION PURPOSES. ALL ITEMS DAMAGED, REMOVED, OR DISTURBED SHALL BE RESTORED IN ACCORDANCE WITH THE SPECIFICATION TO A CONDITION EQUAL TO, OR BETTER THAN, THEIR CONDITION PRIOR TO THE START OF THE PROJECT. ITEMS OF WORK NOT SPECIFICALLY INCLUDED IN THE MEASUREMENTS AND PAYMENT SECTION OF THE SPECIFICATIONS SHALL BE CONSIDERED SUBSIDIARY AND INCIDENTAL TO OTHER BID ITEMS AND SHALL NOT BE PAID FOR SEPARATELY.
35. IN ACCORDANCE WITH SPECIFICATION 00800, THE CONTRACTOR SHALL TAKE APPROPRIATE STEPS TO PREVENT EROSION OF MATERIAL FROM THE WORK AREA AND DEPOSITION OF SEDIMENTS INTO WATER COURSES OR DRAINAGE SWALES, THE CONTRACTOR SHALL SUBMIT AN EROSION CONTROL PLAN PRIOR TO THE START OF ANY EXCAVATION. ALL EROSION AND SEDIMENT CONTROL WORK SHALL BE INCIDENTAL TO THE OTHER PAY ITEMS.
36. AERIAL TOPOGRAPHY PERFORMED BY:

    MAPCON DATED: DECEMBER 2019
    ORIGINAL DOCUMENT BOOK ON FILE AT THE OFFICE OF THE CITY ENGINEER.

37. ALL STREET CENTERLINES HAVE EXISTING PINS AT THE INTERSECTION OF THE STREET CENTERLINES AND SHALL BE PROTECTED IN PLACED. IF A PIN IS DISTURBED OR REMOVED, THE CONTRACTOR SHALL ARRANGE AND PAY FOR AN ARIZONA REGISTERED LAND SURVEYOR TO DETERMINE THE COORDINATES FOR EACH PIN PRIOR TO CONSTRUCTION AND TO REPLACE THE PINS WITH 4½" X ⅜" MAG NAIL WITH WASHER AND SURVEYOR INFORMATION STAMPED ON WASHER TO THE SAME LOCATION AFTER RESURFACING. ALL REQUIRED SURVEY WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND WILL BE SUBSIDIARY TO OTHER PAY ITEMS.
38. EXISTING WATER VALVES AND MANHOLES HAVE AN 8-INCH THICK CONCRETE COLLAR AT THE PAVEMENT SURFACE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL NEW CONCRETE COLLARS ON NEW MANHOLES AND VALVE BOXES, ALL EXISTING VALVE BOXES AND MANHOLES THAT ARE DISTURBED DURING CONSTRUCTION, AND WHERE THE NEW ASPHALT SURFACE IS PLACED TO AN ELEVATION HIGHER THAN EXISTING VALVE BOX OR MANHOLE COVER. THIS ITEM OF WORK IS SUBSIDIARY TO OTHER PAY ITEMS. ALL VALVE BOXES WITHIN THE DISTURBED PROJECT AREA SHALL BE ADJUSTED IN ACCORDANCE WITH MAG DETAIL 391-1A.
39. ANY AND ALL SOILS, INCLUDING ROCK, ENCOUNTERED DURING EXCAVATION SHALL BE CONSIDERED UNCLASSIFIED AND SHALL BE INCIDENTAL TO OTHER ITEMS OF WORK.
40. ANY SHORING REQUIRED SHALL BE CONSIDERED MEANS AND METHODS INCIDENTAL TO OTHER ITEMS OF WORK.
41. CONTRACTOR SHALL SCHEDULE WATER SHUTDOWNS AND SEWER WORK SO AS TO NOT DISRUPT SERVICE TO SCHOOLS, HOSPITALS, DAY CARE FACILITIES, ETC. IN ACCORDANCE WITH ARIZONA STATE LAW.
42. RIGHT-OF-WAY AND PROPERTY LINES SHOWN ON DRAWINGS ARE APPROXIMATE. CONTRACTOR WILL NEED TO FIELD VERIFY LINES PERTAINING TO SCOPED WORK PRIOR TO CONSTRUCTION.
43. ALL RESTRAINED PIPE SHALL BE PER SPECIFICATION 02550 2.7. JOINT RESTRAINTS SHALL BE EBAA IRON SERIES 15PF00 OR EQUAL. ALL JOINT RESTRAINTS SHALL BE DOUBLE POLY WRAPPED & TAPED. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTRAINING ANY NECESSARY BENDS USED WITHIN THE PROJECT LIMITS. CONTRACTOR TO PROVIDE JOINT RESTRAINT PLAN.
44. ALL LANDSCAPING DISTURBED SHALL BE REPLACED AT EQUAL OR BETTER CONDITION THAN EXISTING.
45. CONTRACTOR SHALL POTHOLE ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY ALIGNMENT AND DEPTH. THIS WORK SHALL BE INCIDENTAL TO INSTALLATION OF THE WATERLINE.
46. IN ACCORDANCE WITH ADEQ REQUIREMENTS, CONTRACTOR IS RESPONSIBLE FOR PIPE PROTECTION WHERE MINIMUM SEPARATION CANNOT BE MAINTAINED.
47. CONTRACTOR SHALL PERFORM ALL TESTING AND DISINFECTING OF THE WATER LINES PER THE CITY OF LAKE HAVASU SPECIFICATION 02550, PROJECT SPECIFICATION 02666, AND THE ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY (ADEQ) REGULATIONS IN BULLETIN NO. 8.
48. ALL WATER MAINS SHALL BE BURIED WITH 14 GAUGE DIRECT BURY TRACE WIRE.
49. EXACT SLOPES FOR EXISTING PIPES ARE UNKNOWN. CONTRACTOR SHALL ADJUST PIPE ACCORDINGLY TO MATCH EXACT FIELD CONDITIONS. IF THE USE OF FLEX COUPLINGS IS NECESSARY, THIS SHALL BE INCIDENTAL TO THE WATERLINE INSTALLATION BID ITEM.
50. ALL DUCTILE IRON FITTINGS, VALVES, AND PIPE ARE TO BE WRAPPED WITH POLY-ETHYLENE ENCASEMENT.
51. ALL PIPE, FITTINGS, FIRE HYDRANTS & OTHER APPURTENANCES IN DIRECT CONTACT WITH POTABLE WATER SHALL BE NATIONAL SANITATION FOUNDATION (NSF) 61 CERTIFIED. PLASTIC PIPE SHALL BEAR THE NSF SEAL FOR POTABLE WATER USE (NSF-PW).
52. ALL PROJECT LOCATIONS LIE WITHIN FEMA ZONE X.
53. THE CONTRACTOR SHALL TAKE ALL REASONABLE EFFORT AND ACTION TO SATISFY HIMSELF ON THE HORIZONTAL AND VERTICAL LOCATION OF THE EXISTING SEWER LATERALS PRIOR TO TRENCHING MAINLINE.
54. THE CONTRACTOR SHALL VERIFY FIELD CONDITIONS AND SATISFY HIMSELF OF THE EXISTING CONDITIONS AS SHOWN IN THE PLANS PRIOR TO FIRE HYDRANT ASSEMBLY SUBMITTALS. THE CONTRACTOR SHALL INCLUDE SUPPORTING DOCUMENTATION IN A SCHEDULE TYPE FORMAT CONFIRMING THE APPROPRIATE BARREL LENGTH TO MATCH THE FIELD CONDITION. APPROVAL BY OWNER/ENGINEER SHALL BE OBTAINED PRIOR TO THE ORDERING OF MATERIALS. CONTRACTOR IS RESPONSIBLE FOR APPROPRIATE BARREL LENGTH TO ACCOMMODATE ANY CHANGE IN GRADE OR PIPE ELEVATION THAT OCCURS DURING CONSTRUCTION DUE TO AN EXISTING CONDITION. THE CONTRACTOR SHALL BEAR COST OF ANY NECESSARY FITTING TO ACCOMMODATE FIRE LINE ADJUSTMENTS OR ADJUSTED BARREL LENGTHS TO MEET APPROPRIATE GRADE. OWNER SHALL BEAR NO ADDITIONAL COSTS FOR CHANGES IN BARREL AND/OR LINE LENGTH.
55. ENGINEER ASSUMES THAT EACH DEVELOPED LOT ADJACENT TO THE PUBLIC RIGHT-OF-WAY REFLECTED IN THESE PLANS WILL HAVE AT LEAST ONE (1) SANITARY SEWER LATERAL EXTENDING TO THE EXISTING PUBLIC SANITARY SEWER MAIN. A REVIEW OF PUBLIC RECORDS WAS UNABLE TO ASCERTAIN THE EXISTING LATERAL LOCATIONS TO A DEGREE OF CERTAINTY. CONTRACTOR IS ADVISED TO FOLLOW GENERAL NOTE NUMBER 7 ON SHEET 2 OF 24 PRIOR TO CONSTRUCTION. ANCILLARY TO THE REPLACEMENT OF THE EXISTING WATER MAINS, AND SHALL BE PROMPTLY REPAIRED IN KIND BY THE CONTRACTOR AT NO ADDITIONAL COST OR SCHEDULE ESCALATION TO THE OWNER.
56. ALL ASBESTOS CONCRETE PIPE SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH PROJECT SPECIFICATION SECTION 02050.
57. ALL PIPE THAT IS TO BE ABANDONED IN PLACE SHALL BE IN ACCORDANCE WITH PROJECT SPECIFICATION SECTION 02550.

LEGEND:

LINE / SYMBOL	DESCRIPTION
— — T — —	EXISTING TELEPHONE
— — S — —	EXISTING SANITARY SEWER
— — W — —	EXISTING WATER MAIN
— — G — —	EXISTING GAS MAIN
— — OH — —	EXISTING OVERHEAD UTILITY
— — FM — —	EXISTING FORCE MAIN
— — 714 — —	EXISTING CONTOURS
XXXXXXXX	EXISTING PIPE TO BE ABANDONED
— - - — R/W — - - —	RIGHT-OF-WAY
— - - — P/L — - - —	ADJACENT PROPERTY LINE
—— W ——	PROPOSED WATER MAIN
	CONCRETE TO BE REMOVED AND REPLACED
	AC PAVEMENT TO BE REMOVED AND REPLACED
BO	EXISTING BLOW OFF IN METER BOX
W	EXISTING WATER SERVICE METER BOX
MB	EXISTING DECORATIVE MAILBOX
	EXISTING WATER VALVE
	EXISTING FIRE HYDRANT
S	EXISTING MANHOLE (SANITARY)
s	EXISTING CLEANOUT (SANITARY)
	PROPOSED WATER VALVE
	PROPOSED FIRE HYDRANT
●	PROPOSED VACUUM/AIR VALVE
○	PROPOSED BLOW-OFF
	PROPOSED CAP
	POTHOLE LOCATION, WITH NUMBER
▶	THRUST BLOCK

FLOOD INFORMATION:

SAID DESCRIBED PROPERTY IS LOCATED WITHIN AN AREA HAVING A ZONE DESIGNATION "ZONE X" AS SHOWN ON FLOOD INSURANCE RATE MAP NO. 04015C6176G, WITH A DATE OF IDENTIFICATION OF NOVEMBER 18, 2009, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR THE COMMUNITY IN WHICH SAID PROPERTY IS SITUATED.

ABBREVIATIONS:

A	ABANDONED	HDPE	HIGH DENSITY POLYETHYLENE PIPE
ACP	ASBESTOS CEMENT PIPE	LT	LEFT
AGGR	AGGREGATE	LF	LINEAR FEET
APVD	APPROVED	MAX	MAXIMUM
ARCH	ARCHITECTURAL	MH	MANHOLE
AUX	AUXILLARY	MIN	MINIMUM
AVG	AVERAGE	MISC	MISCELLANEOUS
@	AT	N	NORTH
BLDG	BUILDING	NTS	NOT TO SCALE
BOP	BOTTOM OF PIPE	OHP	OVERHEAD POWER
BVCE	BEGINNING OF VERTICAL CURB ELEVATION	P	PRESSURIZED
BVCS	BEGINNING OF VERTICAL CURB STATION	PIV	POST INDICATOR VALVE
B/C	BACK OF CURB	PRCE	POINT OF REVERSE CURVATURE ELEVATION
CONC	CONCRETE	PRCS	POINT OF REVERSE CURVATURE STATION
CONN	CONNECTION	PROP	PROPOSED
CR	CURB RETURN	PSI	POUNDS PER SQUARE INCH
CF	CUBIC FOOT, FEET	PVC	POLYVINYL CHLORIDE
CY	CUBIC YARD	PVMT	PAVEMENT
DDC	DOUBLE-DETECTOR-CHECK VALVE	RT	RIGHT
DI	DUCTILE IRON	R	RADIUS
DIA	DIAMETER	RW / ROW	RIGHT OF WAY
DWG	DRAWING	S	SOUTH
EOP	EDGE OF PAVEMENT	SAN	SANITARY SEWER
EVC	END OF VERTICAL CURB	SF	SQUARE FOOT, FEET
E	EAST	SY	SQUARE YARDS
ESMT	EASEMENT	STA	STATION
EXST	EXISTING	STD	STANDARD
EXT	EXTERIOR	TAN	TANGENT
FF	FINISH FLOOR	TH#	TESTHOLE (NUMBER)
FG	FINISH GRADE	THRU	THROUGH
FH	FIRE HYDRANT	TOP	TOP-OF-PIPE
FIG	FIGURE	TOW	TOP-OF-WALL
FS	FINISH SURFACE	TYP	TYPICAL
GV	GATE VALVE	W	WEST
GFI	GROUND FAULT INTERRUPTER		

PROJECT CONTROL:

PROJECT SETTINGS:

DATUM:	NAD83
PROJECTION:	ARIZONA STATE PLANE (WEST)
LINEAR UNIT:	US FEET
COORDINATE:	GRID
GEOID:	GEOID 2003, UNIT 05

PROJECT CONTROL AND BENCHMARK DATA:

CITY BASE STATION:
N=1265542.33 --- E=528326.69 ---
ELEV=773.83

US HARN POINT - HAVASU:
NGS ORDER A: STAINLESS STEEL ROD IN HANDHOLE MARKED HAVASU 92
N=1298017.10 --- E=515892.32 ---
ELEV=696.75

LAKE HAVASU CITY SURVEY MONUMENT - SARA:
2005 AERIAL CONTROL CAP
N=1254812.07 --- E=550796.23 ---
ELEV=1060.40

LAKE HAVASU CITY SURVEY MONUMENT - CP1:
G.P.S. CONTROL MONUMENT 1997 IN HANDHOLE
N=1267052.09 --- E=544522.51 ---
ELEV=1209.68

REVISION RECORD

NO	DATE	DESCRIPTION

Registered Professional Engineer (Civil) No. 51810 SEAN D. PERROTTO ARIZONA U.S.A. Date Signed 4-15-24
EXPIRES 12-31-2025

TRICO ENGINEERING, LLC
LAKE HAVASU CITY
231 SWANSON AVENUE, STE. 204
LAKE HAVASU CITY, AZ 86403
(928) 208-4661
PHOENIX
28150 N. ALMA SCHOOL ROAD, STE 103 #325
SCOTTSDALE, AZ 85262

2024 WATER MAIN REPLACEMENT PROJECT, PHASE 1
B24-PW-108019-500441
LAKE HAVASU CITY
2330 MCCULLOCH BLVD N.
LAKE HAVASU CITY, AZ 86403
(928) 855-2116

LAKE HAVASU CITY, ARIZONA • 1978 • INCORPORATED

GENERAL NOTES

DATE:	APRIL 15, 2024	DRAWN BY:	JWC/CCP
DWG SCALE:	N.T.S.	CHECKED BY:	EJP/SDP
PROJECT NO:	23-034		
APPROVED BY:	SDP		

DRAWING NO.: C-2

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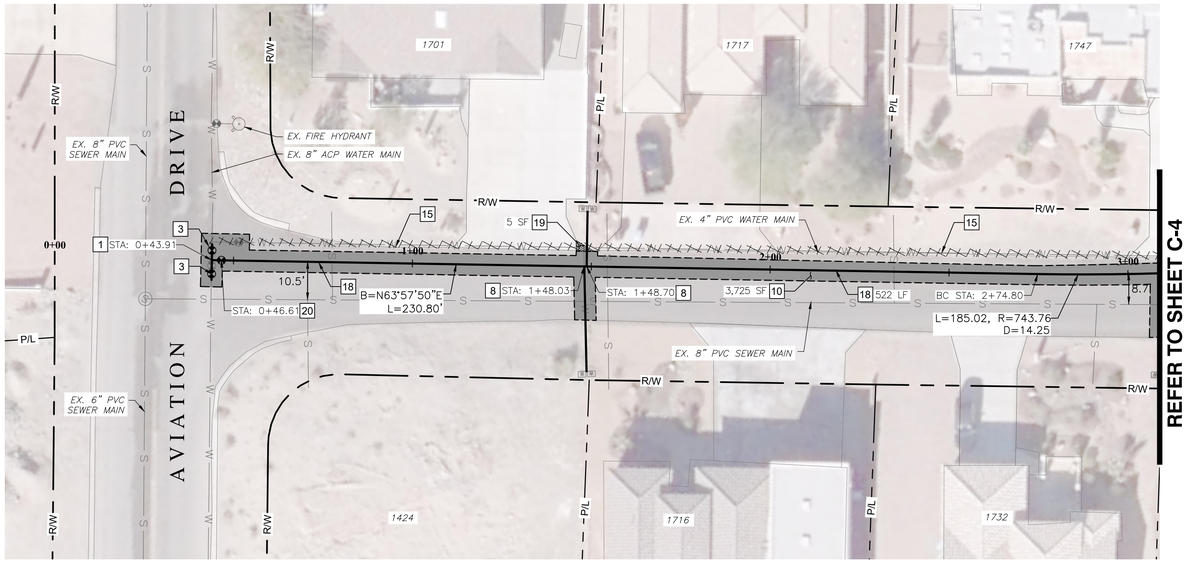
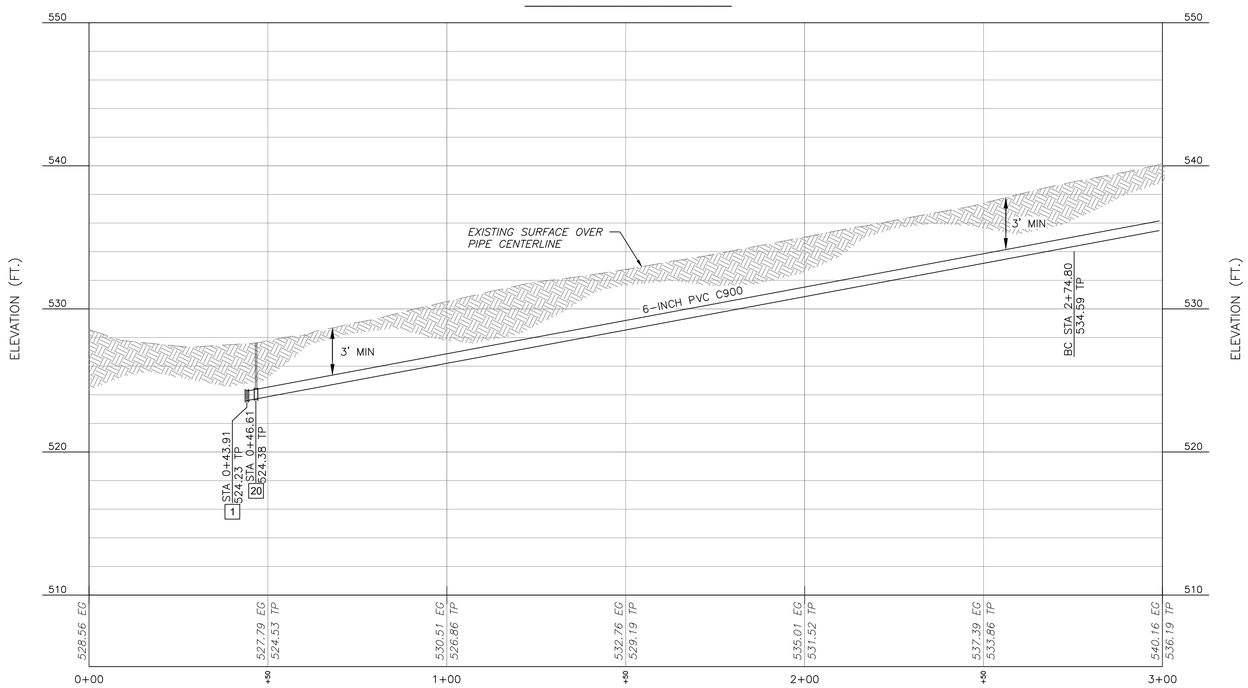


PLAN VIEW

BOEING BAY



PROFILE VIEW

KEY NOTES:

1. INSTALL DI TEE PER LHC SPECIFICATION 02550. USE FLEX COUPLINGS FOR CONNECTION TO EXISTING PIPE. SIZE PER PLAN.
2. INSTALL 8-INCH PVC C900 DR14 PIPE PER LHC STD. DTL. NO. 200. ON SHEET C-29. LENGTH PER PLAN.
3. INSTALL 8-INCH GATE VALVE WITH RISER PER LHC STD. DTL NO. 300. ON SHEET C-29.
4. INSTALL DI FITTING WITH RESTRAINED JOINT PER LHC SPECIFICATION 02550. SIZE AND ANGLE PER PLAN.
5. INSTALL 1" AIR RELEASE / VACUUM VALVE ASSEMBLY PER LHC STD. DTL. NO. 310. ON SHEET C-30.
6. INSTALL FIRE HYDRANT ASSEMBLY PER LHC STD. DTL. NO. 320. ON SHEET C-30.
7. EXISTING WATER APPURTENANCE TO BE REMOVED.
8. INSTALL 1-INCH COPPER SERVICE ASSEMBLY PER DETAIL 3 ON SHEET C-31.
9. DROP WATERLINE UNDER EXISTING PER DTL. 2 ON SHEET C-31.
10. SAWCUT, REMOVE, AND REPLACE (6' WIDE) 2.5" AC PAVEMENT/0"AB. IN KIND. PATCH PER LIMITS SHOWN IN LHC STD. DTL. NO. 200. ON SHEET C-29.
11. REMOVE AND REPLACE 6" CURB PER LHC STD. DTL. NO. 213. ON SHEET C-29.
12. REMOVE AND REPLACE 6" CURB AND GUTTER PER LHC STD. DTL. NO. 214 ON SHEET C-29.
13. REMOVE AND REPLACE ROLLED CURB AND GUTTER PER LHC STD. DTL. NO. 215 ON SHEET C-31.
14. REMOVE AND REPLACE SIDEWALK PER LHC STD. DTL. NO. 216. ON SHEET C-29.
15. ABANDON EXISTING PIPE PER LHC STD. SPECIFICATION 02550 .
16. INSTALL 2-INCH BLOW-OFF ASSEMBLY END OF LINE PER LHC STD. DTL 314 ON SHEET C-30.
17. EXISTING RIM AND/OR WATER VALVE ELEVATION TO BE ADJUSTED TO FINISHED SURFACE.
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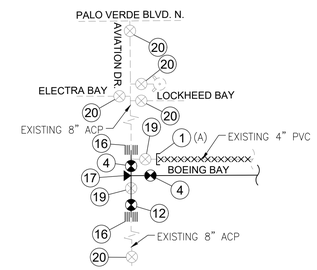
19. CONTRACTOR TO REMOVE EXISTING DRIVEWAY AND APPROACH TO LIMITS SHOWN, AND REPLACE WITH DRIVEWAY PER LHC STD. DTL. NO. 201.
20. INSTALL 6-INCH GATE VALVE WITH RISER PER LHC STD. DTL NO. 300. ON SHEET C-29.
21. VALVE TO REMAIN CLOSED.



CONNECTION DETAIL
N.T.S.

MATERIAL SCHEDULE:

1. 4" CAP PER DTL 1 ON SHEET C-31 AND IS NOTED WITH AN 'A' OR 'P' ON CONNECTION DETAIL
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3. 6" C-900 PVC PIPE
4. 6" RESILIENT SEAT GATE VALVE W/ NUT OPR & VALVE BOX, PER DTLS ON SHT C-29
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7. 6" DI TEE WITH THRUST BLOCK PER DTL ON SHT C-30
8. 6" DI 90° BEND WITH THRUST BLOCK PER DTL ON SHT C-30
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11. 8" C-900 PVC PIPE
12. 8" RESILIENT SEAT GATE VALVE W/NUT OPR & VALVE BOX, PER DTLS ON SHT C-29
13. 8" DI TEE WITH THRUST BLOCK PER DTL ON SHT C-30
14. 8"x6" DI CONCENTRIC REDUCER
15. 4" C-900 PVC PIPE
16. 8" TRANSITION PIPE COUPLING
17. 8"x8"x6" DI TEE WITH THRUST BLOCK PER DTL ON SHT C-30
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20. EXISTING VALVE TO REMAIN
21. EXISTING WHARF HYDRANT TO BE REMOVED
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23. 6"x4" DI CONCENTRIC REDUCER

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 feet

Contact Arizona 811 at least two full working days before you begin excavation
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REVISION RECORD

NO	DATE	DESCRIPTION

STEVEN D. POTTER 31910 CIVIL ARIZONA U.S.A. EXPIRES 12-31-2025

TRICO ENGINEERING, LLC
LAKE HAVASU CITY
231 S. SMOKE TREE BLVD., STE. 204
LAKE HAVASU CITY, AZ 86403
(928) 453-0403

PHOENIX
2828 N. HAYDEN SCHOOL
ROAD, SUITE 100
SCOTTSDALE, AZ 85251

2024 WATER MAIN REPLACEMENT PROJECT, PHASE 1
B24-PW-108019-500441
LAKE HAVASU CITY
2330 MCCULLOCH BLVD N.
LAKE HAVASU CITY, AZ 86403
(928) 855-2116

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BOEING BAY I

DATE:	APRIL 15, 2024
DRAWN BY:	JWG/CCP
DWG SCALE:	1"=20'
CHECKED BY:	EJP/SDP
PROJECT NO:	23-034
APPROVED BY:	SDP

DRAWING NO.: C-3

SHEET 3 OF 31

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KEY NOTES:

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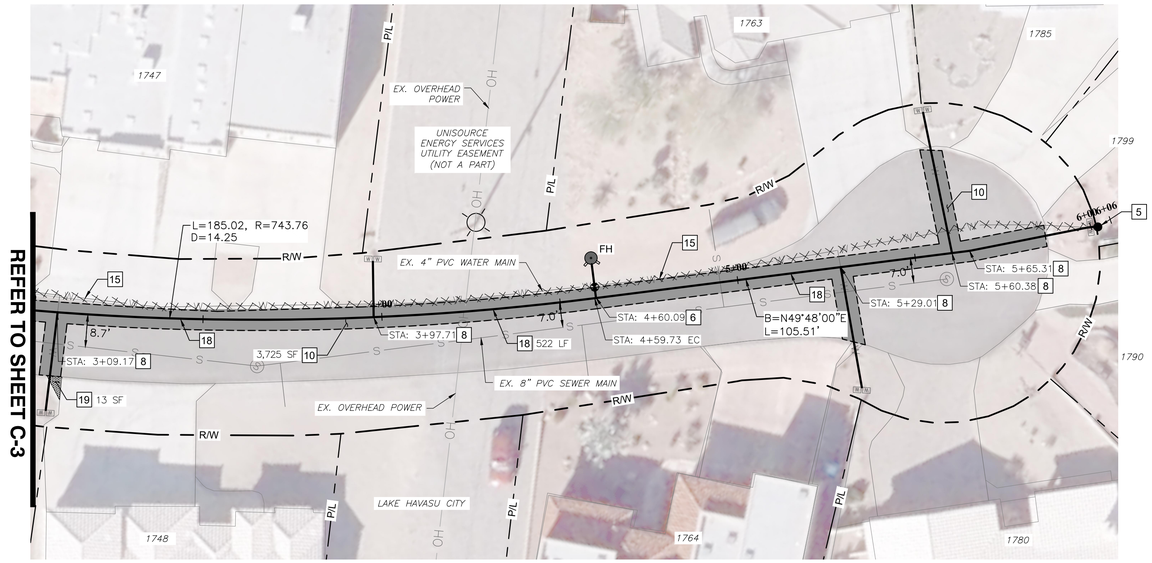
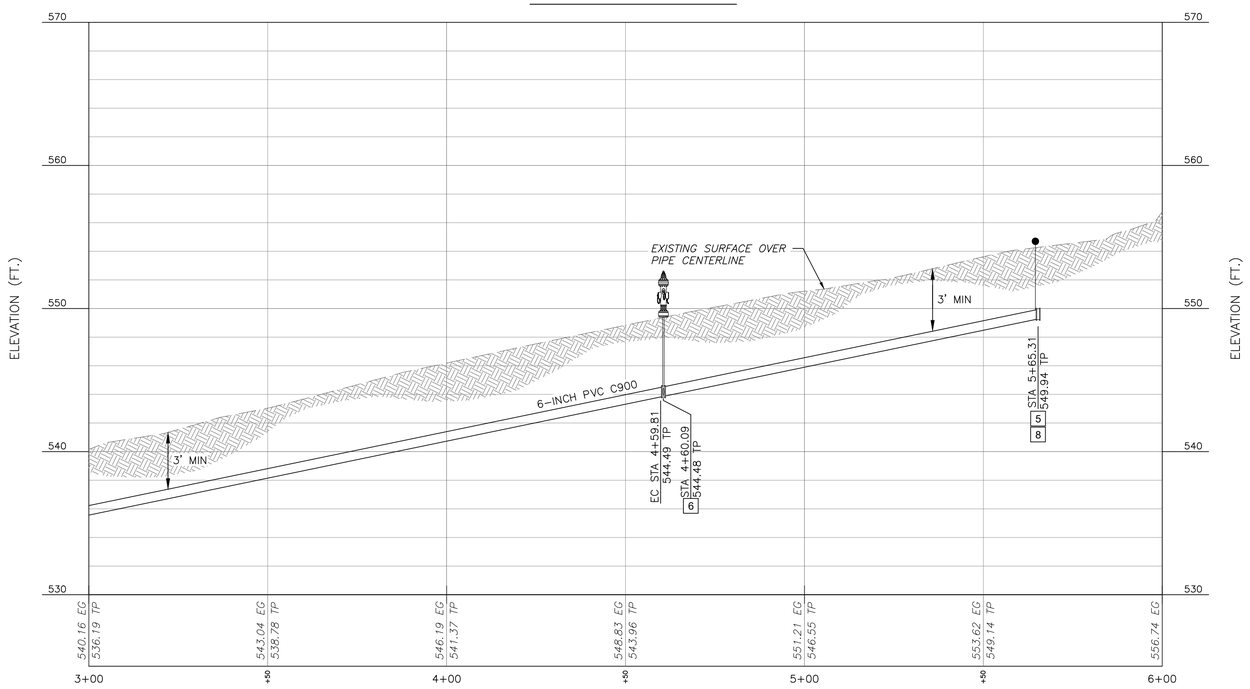


PLAN VIEW

BOEING BAY



PROFILE VIEW

MATERIAL SCHEDULE:

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Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811 BLUE STAKE, INC.
Call 811 or click Arizona811.com

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 feet

NO	DATE	REVISION RECORD DESCRIPTION

STEVEN D. POE (Civil) No. 51810 STATE OF ARIZONA REGISTERED PROFESSIONAL ENGINEER (CIVIL) EXPIRES 12-31-2025

TRICO ENGINEERING, LLC
LAKE HAVASU CITY
231 S. SMOKETREE VILLAGE DR.
LAKE HAVASU CITY, AZ 86403
(928) 453-0591
PHOENIX
2828 N. HIGH SCHOOL
ROAD, STE. 1-PMB 1
SCOTTSDALE, AZ 85251

2024 WATER MAIN REPLACEMENT PROJECT, PHASE 1
B24-PW-108019-500441
LAKE HAVASU CITY
2330 MCCULLOCH BLVD N.
LAKE HAVASU CITY, AZ 86403
(928) 855-2116

LAKE HAVASU CITY, ARIZONA • INCORPORATED 1978

BOEING BAY II

DATE:	APRIL 15, 2024
DRAWN BY:	JWC/CCP
DWG SCALE:	1"=20'
CHECKED BY:	EJP/SDP
PROJECT NO:	23-034
APPROVED BY:	SDP

DRAWING NO.: **C-4**

SHEET 4 OF 31

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KEY NOTES:

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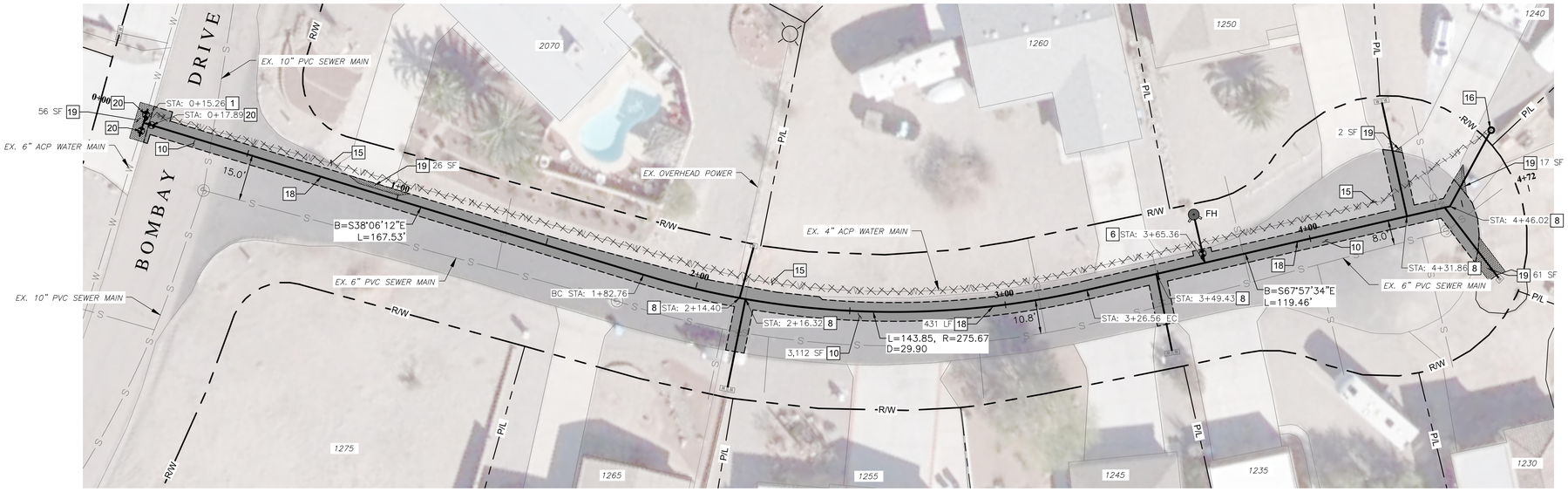
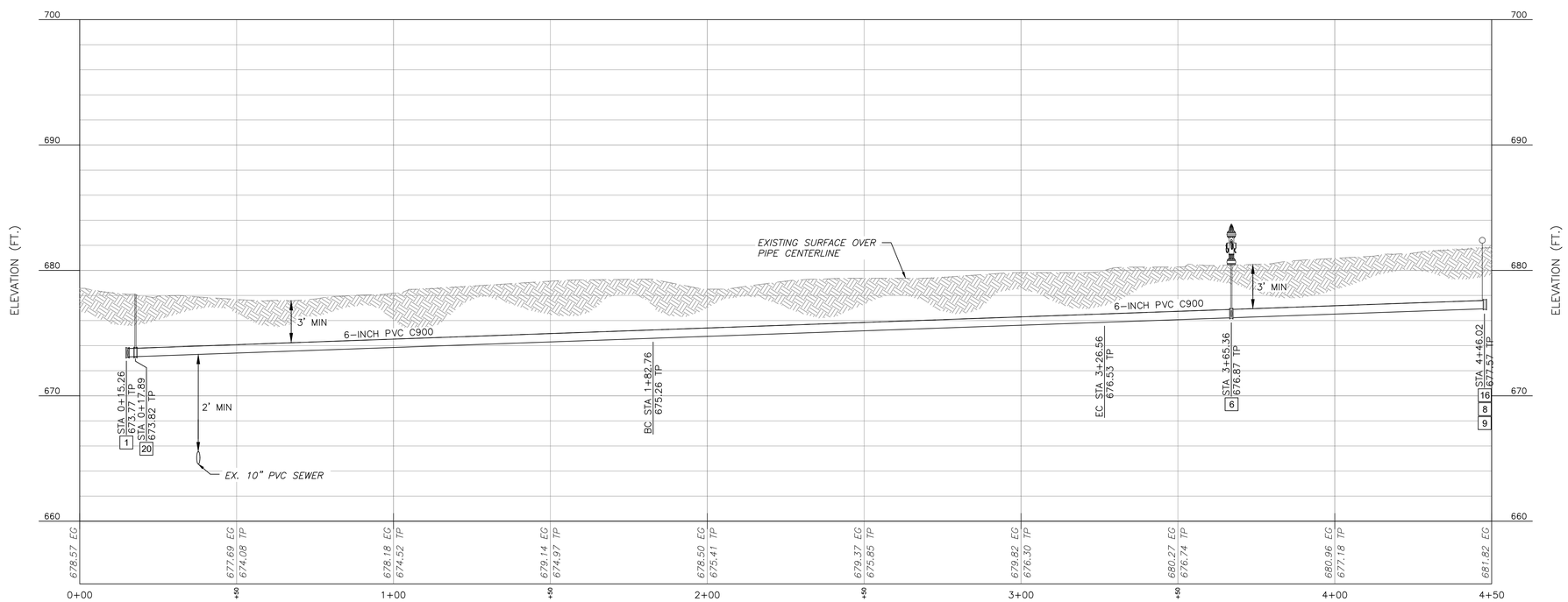
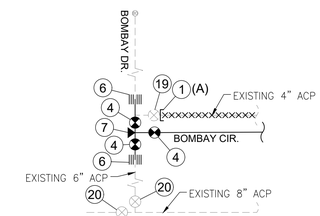


PLAN VIEW

BOMBAY CIRCLE



PROFILE VIEW



CONNECTION DETAIL
N.T.S.

MATERIAL SCHEDULE:

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GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 feet

REVISION RECORD

NO	DATE	DESCRIPTION

STEVEN D. PERROTTO (Civil) 51810 REGISTERED PROFESSIONAL ENGINEER ARIZONA U.S.A. EXPIRES 12-31-2025

TRICO ENGINEERING, LLC
LAKE HAVASU CITY
231 S. SMOKE TREE BLVD., STE. 204
LAKE HAVASU CITY, AZ 86403
(928) 283-4463
PHOENIX
2858 N. GREEN VALLEY PKWY.
BUILDING 2, STE. 1
SCOTTSDALE, AZ 85262

2024 WATER MAIN REPLACEMENT PROJECT, PHASE 1
B24-PW-108019-500441
LAKE HAVASU CITY
2330 MCCULLOCH BLVD N.
LAKE HAVASU CITY, AZ 86403
(928) 855-2116

LAKE HAVASU CITY, ARIZONA • INCORPORATED 1978

BOMBAY CIRCLE

DATE:	APRIL 15, 2024
DRAWN BY:	JVC/CCP
DWG SCALE:	1"=20'
CHECKED BY:	EJP/SDP
PROJECT NO:	22-034
APPROVED BY:	SDP

DRAWING NO.: C-5

SHEET 5 OF 31

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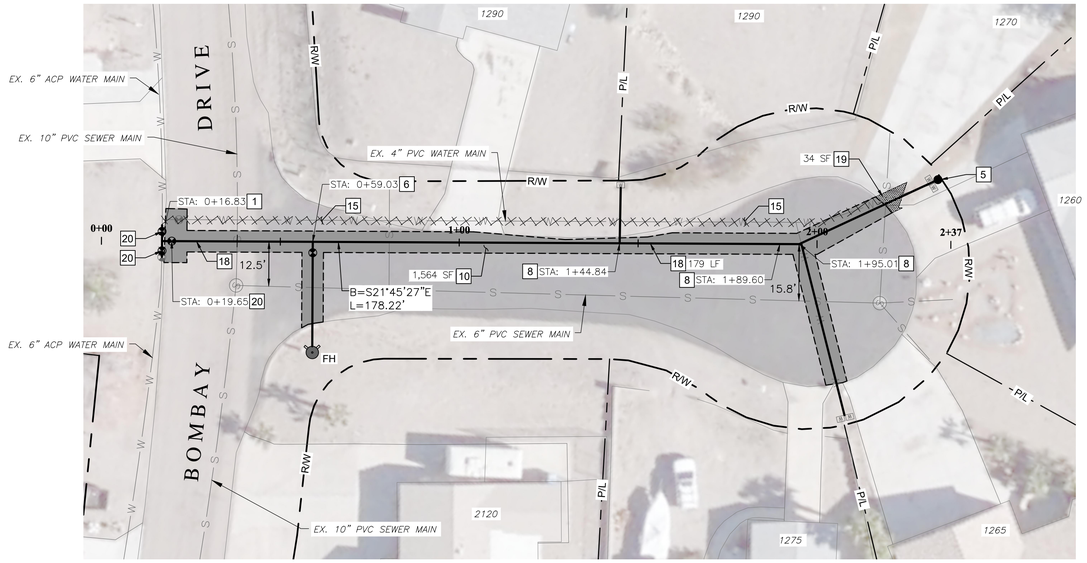
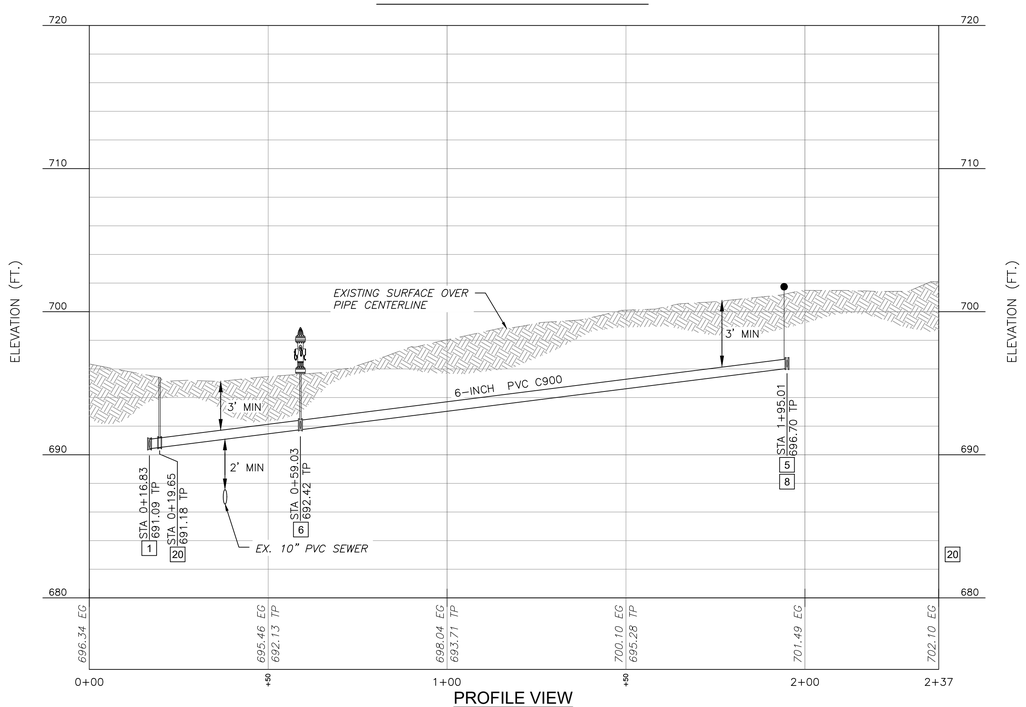


PLAN VIEW

BOMBAY COURT



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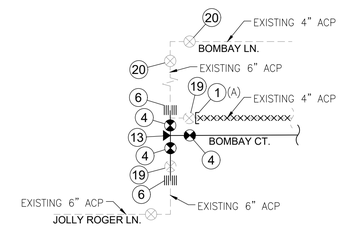

CONNECTION DETAIL
N.T.S.

MATERIAL SCHEDULE:

1. 4" CAP PER DTL 1 ON SHEET C-31 AND IS NOTED WITH AN 'A' OR 'P' ON CONNECTION DETAIL
2. 4" TRANSITION PIPE COUPLING
3. 6" C-900 PVC PIPE
4. 6" RESILIENT SEAT GATE VALVE W/ NUT OPR & VALVE BOX, PER DTLS ON SHT C-29
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6. 6" TRANSITION PIPE COUPLING
7. 6" DI TEE WITH THRUST BLOCK PER DTL ON SHT C-30
8. 6" DI 90° BEND WITH THRUST BLOCK PER DTL ON SHT C-30
9. 8" CAP PER DTL 1 ON SHT C-31 AND IS NOTED WITH AN 'A' OR 'P' ON CONNECTION DETAIL
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Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811 BLUE STAKE, INC.
Call 811 or click Arizona811.com

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 feet

REVISION RECORD

NO	DATE	DESCRIPTION

SITIO SAID PERROTO
REGISTERED PROFESSIONAL ENGINEER (Civil) CERTIFICATE NO. 36184
EXPIRES 12-31-2025

TRICO ENGINEERING, LLC
LAKE HAVASU CITY
231 S. SMOKE TREE BLVD., STE. 204
LAKE HAVASU CITY, AZ 86403
(928) 230-0403
PHOENIX
2828 N. HIGH SCHOOL
ROAD, STE. 1-1000
SCOTTSDALE, AZ 85251

2024 WATER MAIN REPLACEMENT PROJECT, PHASE 1
B24-PW-108019-500441
LAKE HAVASU CITY
2330 MCCULLOCH BLVD N.
LAKE HAVASU CITY, AZ 86403
(928) 855-2116

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BOMBAY COURT

DATE:	APRIL 15, 2024
DRAWN BY:	JWC/CCP
DWG SCALE:	1"=20'
CHECKED BY:	EJP/SDP
PROJECT NO:	23-034
APPROVED BY:	SDP

DRAWING NO.:
C-6
SHEET 6 OF 31

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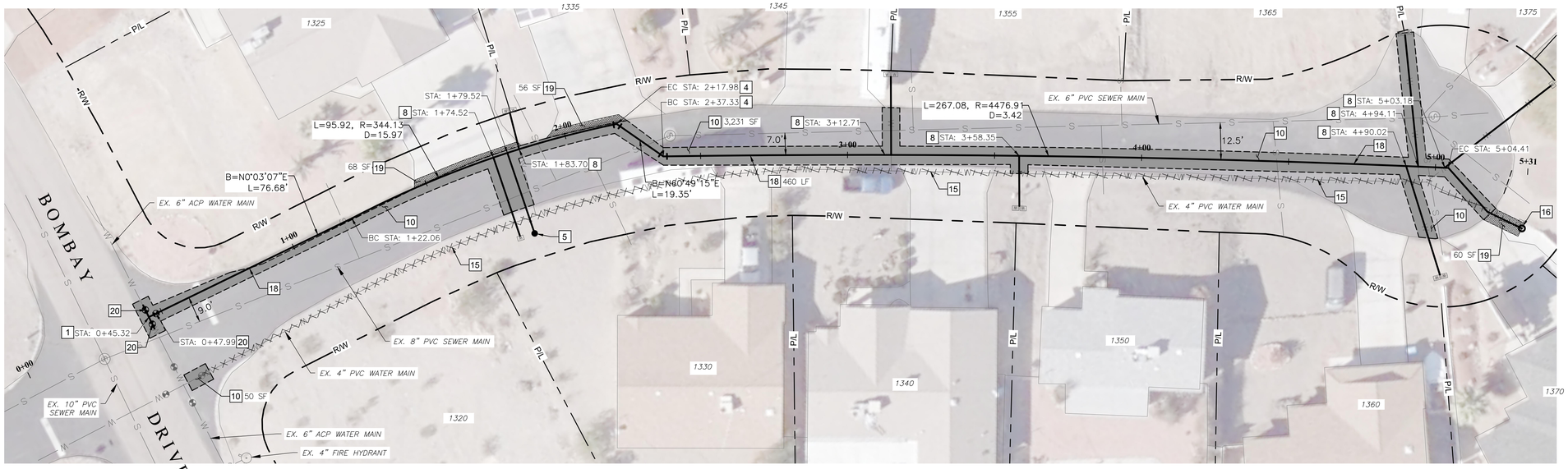
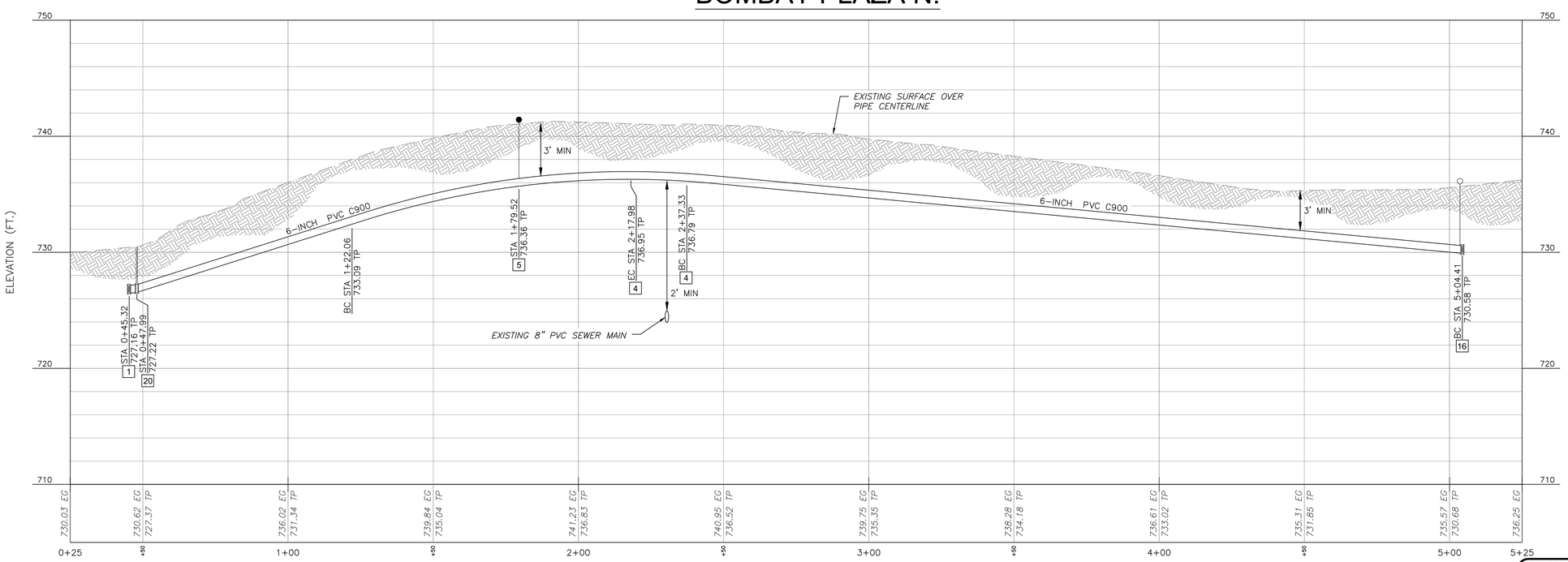
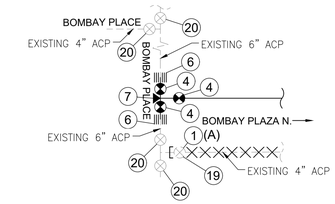


PLAN VIEW

BOMBAY PLAZA N.



PROFILE VIEW



CONNECTION DETAIL
N.T.S.

KEY NOTES:

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6. INSTALL FIRE HYDRANT ASSEMBLY PER LHC STD. DTL. NO. 320. ON SHEET C-30.
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8. INSTALL 1-INCH COPPER SERVICE ASSEMBLY PER DETAIL 3 ON SHEET C-31.
9. DROP WATERLINE UNDER EXISTING PER DTL. 2 ON SHEET C-31.
10. SAWCUT, REMOVE, AND REPLACE (6' WIDE) 2.5" AC PAVEMENT/0"AB. IN KIND. PATCH PER LIMITS SHOWN IN LHC STD. DTL. NO. 200. ON SHEET C-29.
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13. REMOVE AND REPLACE ROLLED CURB AND GUTTER PER LHC STD. DTL. NO. 215 ON SHEET C-31.
14. REMOVE AND REPLACE SIDEWALK PER LHC STD. DTL. NO. 216. ON SHEET C-29.
15. ABANDON EXISTING PIPE PER LHC STD. SPECIFICATION 02550 .
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19. CONTRACTOR TO REMOVE EXISTING DRIVEWAY AND APPROACH TO LIMITS SHOWN, AND REPLACE WITH DRIVEWAY PER LHC STD. DTL. NO. 201.
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ARIZONA811
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GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 feet

REVISION RECORD		
NO	DATE	DESCRIPTION

STEVEN D. PERROTTO, (Civil) No. 31819, REGISTERED PROFESSIONAL ENGINEER, STATE OF ARIZONA
EXPIRES 12-31-2025

TRICO ENGINEERING, LLC
LAKE HAVASU CITY: 231 S. LAKESHORE DRIVE, LAKE HAVASU CITY, AZ 86403 (928) 505-1978
PHOENIX: 2858 N. 73RD PLACE, SCOTTSDALE, AZ 85257 (928) 286-0463

2024 WATER MAIN REPLACEMENT PROJECT, PHASE 1
B24-PW-108019-500441
LAKE HAVASU CITY
2330 MCCULLOCH BLVD N.
LAKE HAVASU CITY, AZ 86403
(928) 855-2116

LAKE HAVASU CITY, ARIZONA • INCORPORATED 1978

BOMBAY PLAZA N

DATE:	APRIL 15, 2024
DRAWN BY:	JWC/CCP
DWG SCALE:	1"=20'
CHECKED BY:	EJP/SDP
PROJECT NO:	23-034
APPROVED BY:	SDP

DRAWING NO.: C-7
SHEET 7 OF 31

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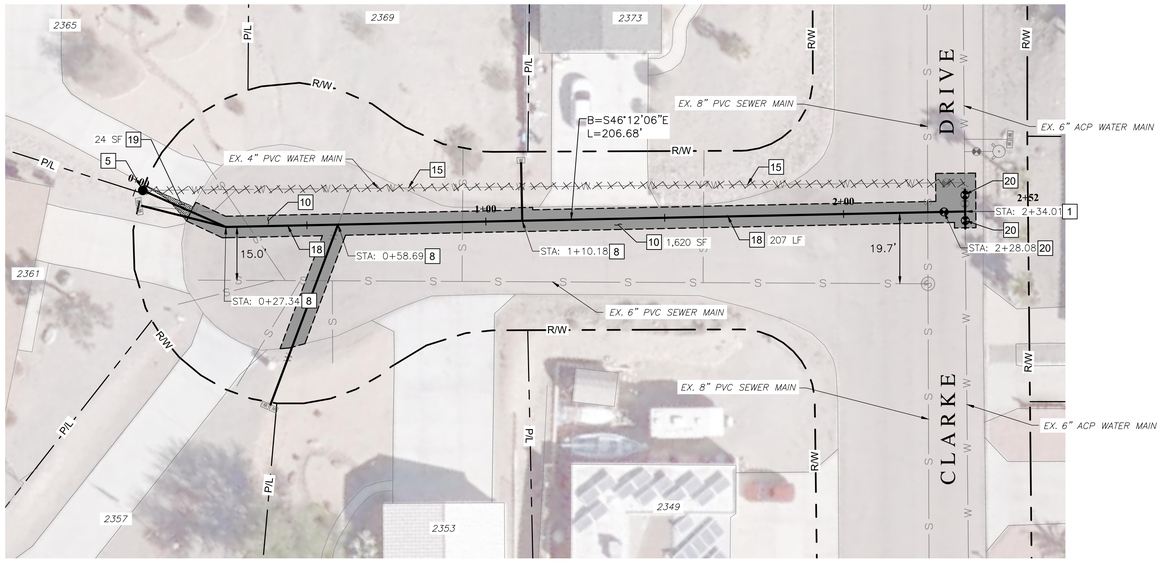
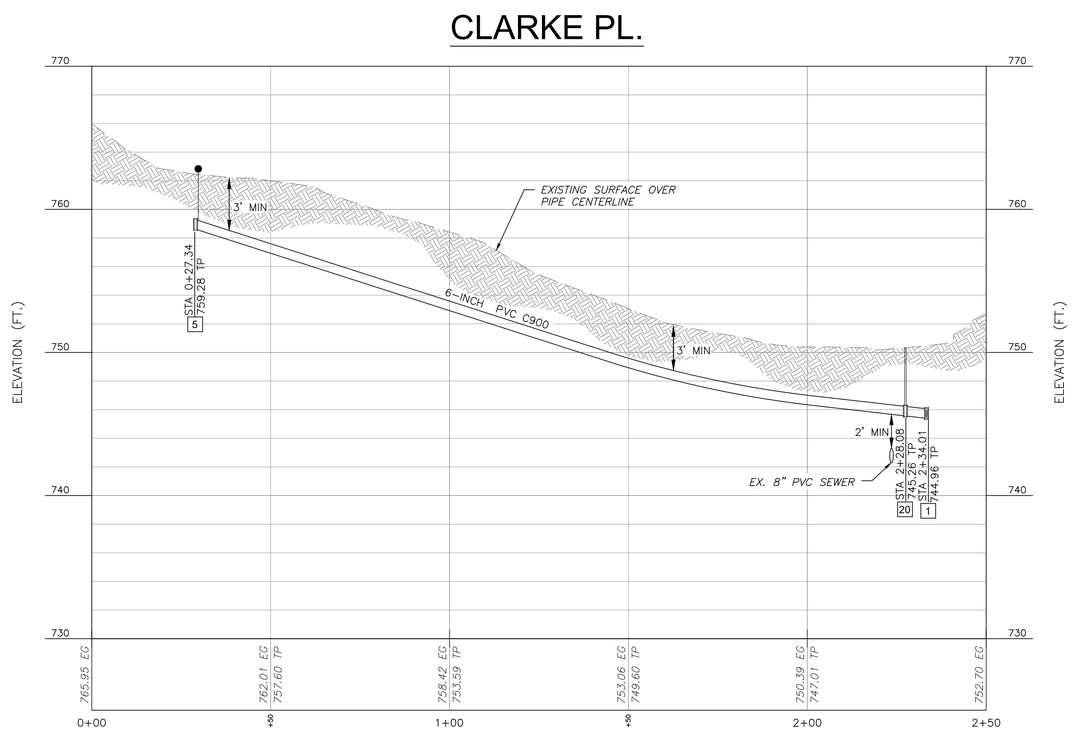


PLAN VIEW



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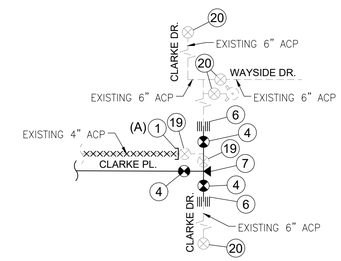

CONNECTION DETAIL
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MATERIAL SCHEDULE:

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N

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 feet

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ARIZONA811 BLUE STAKE, INC.
Call 811 or click Arizona811.com

REVISION RECORD		
NO	DATE	DESCRIPTION

STATE OF ARIZONA
519010
SANDRO PERROTTO
Date Signed 4/15/24
REGISTERED PROFESSIONAL ENGINEER (CIVIL)
EXPIRES 12-31-2025

TRICO ENGINEERING, LLC
LAKE HAVASU CITY
231 LONDON AVENUE, STE. 204
LAKE HAVASU CITY, AZ 86403
(928) 230-0463
PHOENIX
2828 N. HAYDEN SCHOOL
BLDG. 2, STE. 2100
SCOTTSDALE, AZ 85251

2024 WATER MAIN REPLACEMENT PROJECT, PHASE 1
B24-PW-108019-500441
LAKE HAVASU CITY
2330 MCCULLOCH BLVD N.
LAKE HAVASU CITY, AZ 86403
(928) 855-2116

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CLARKE PLACE

DATE:	APRIL 15, 2024	DRAWN BY:	JWC/CCP
DWG SCALE:	1"=20'	CHECKED BY:	EJP/SDP
PROJECT NO:			23-034
APPROVED BY:			SDP

DRAWING NO.: C-8
SHEET 8 OF 31

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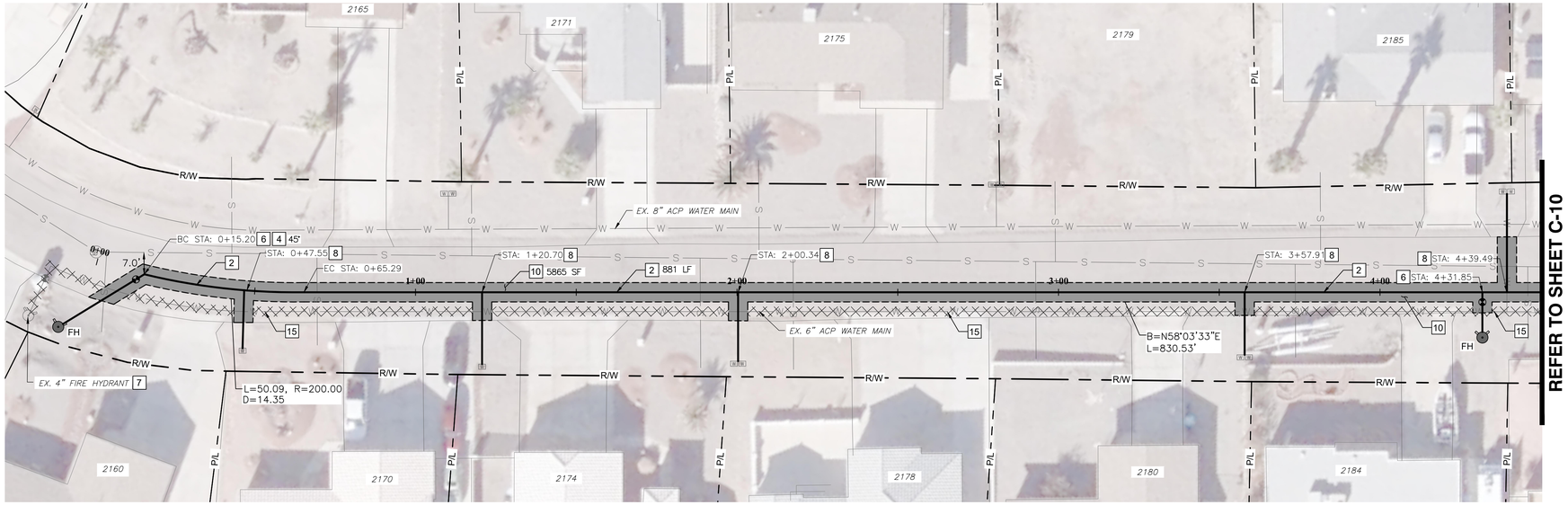
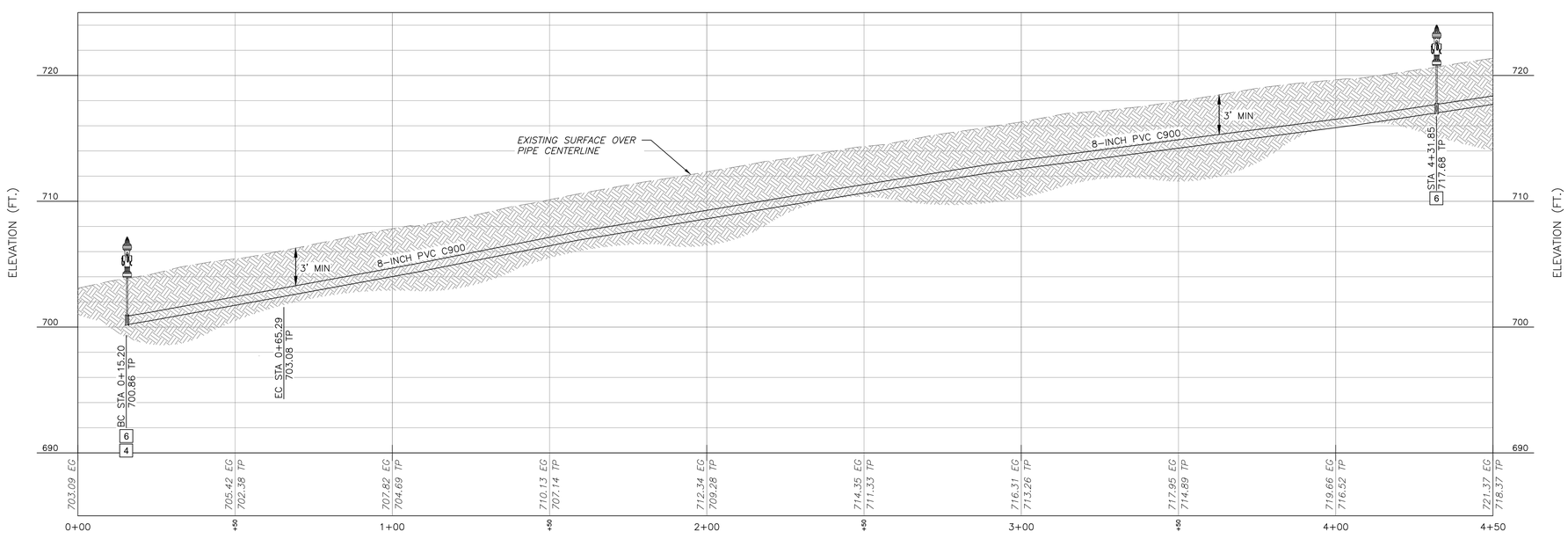


REFER TO SHEET C-10

PLAN VIEW

WALLAPAI DRIVE



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KEY NOTES:

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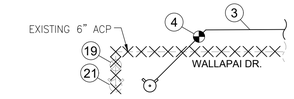

CONNECTION DETAIL
N.T.S.

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GRAPHIC SCALE
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(IN FEET)
1 inch = 20 feet

REVISION RECORD

NO	DATE	DESCRIPTION

STEVEN D. POTTER (Civil) No. 51810 STATE OF ARIZONA REGISTERED PROFESSIONAL ENGINEER
EXPIRES 12-31-2025

TRICO ENGINEERING, LLC
LAKE HAVASU CITY
231 S. SMOKE TREE BLVD., STE. 204
LAKE HAVASU CITY, AZ 86403
(928) 286-0463
PHOENIX
2858 N. GREY HACKLE
SCOTTSDALE, AZ 85262

2024 WATER MAIN REPLACEMENT PROJECT, PHASE I
B24-PW-108019-500441
LAKE HAVASU CITY
2330 MCCULLOCH BLVD N.
LAKE HAVASU CITY, AZ 86403
(928) 855-2116

LAKE HAVASU CITY, ARIZONA • INCORPORATED 1978

WALLAPAI DRIVE I

DATE:	APRIL 15, 2024
DRAWN BY:	JVG/CCP
DWG SCALE:	1"=20'
CHECKED BY:	EJP/SDP
PROJECT NO:	23-034
APPROVED BY:	SDP

DRAWING NO.: C-9

SHEET 9 OF 31

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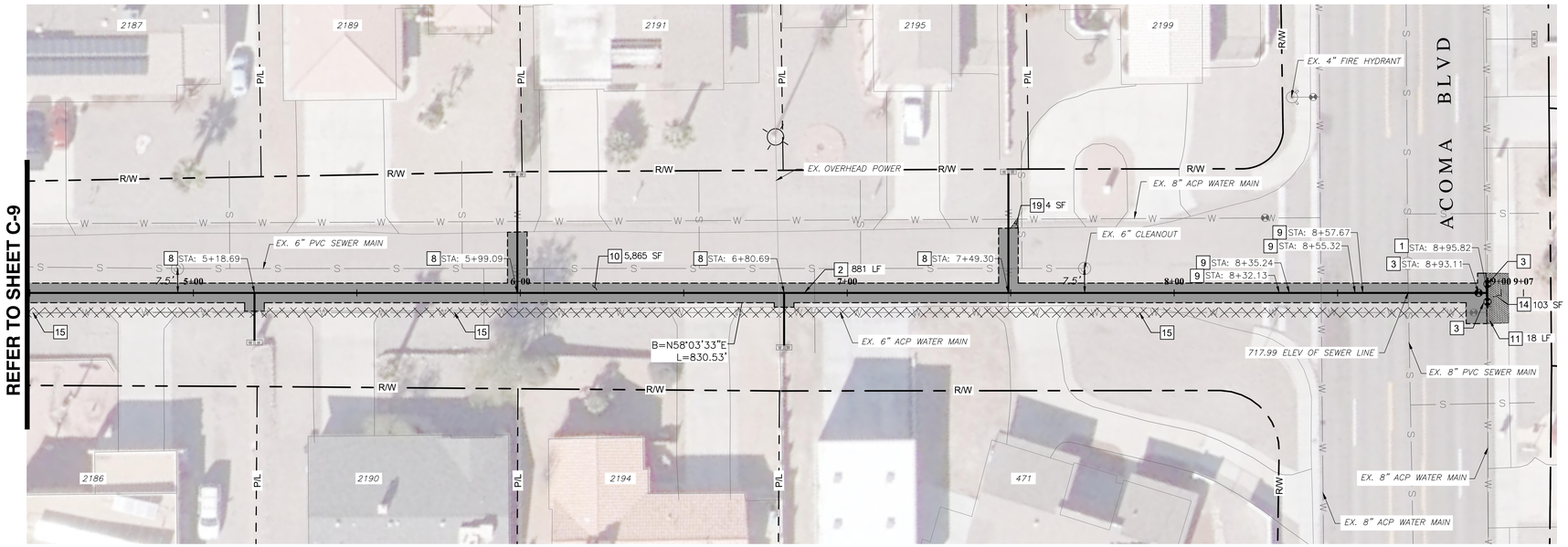
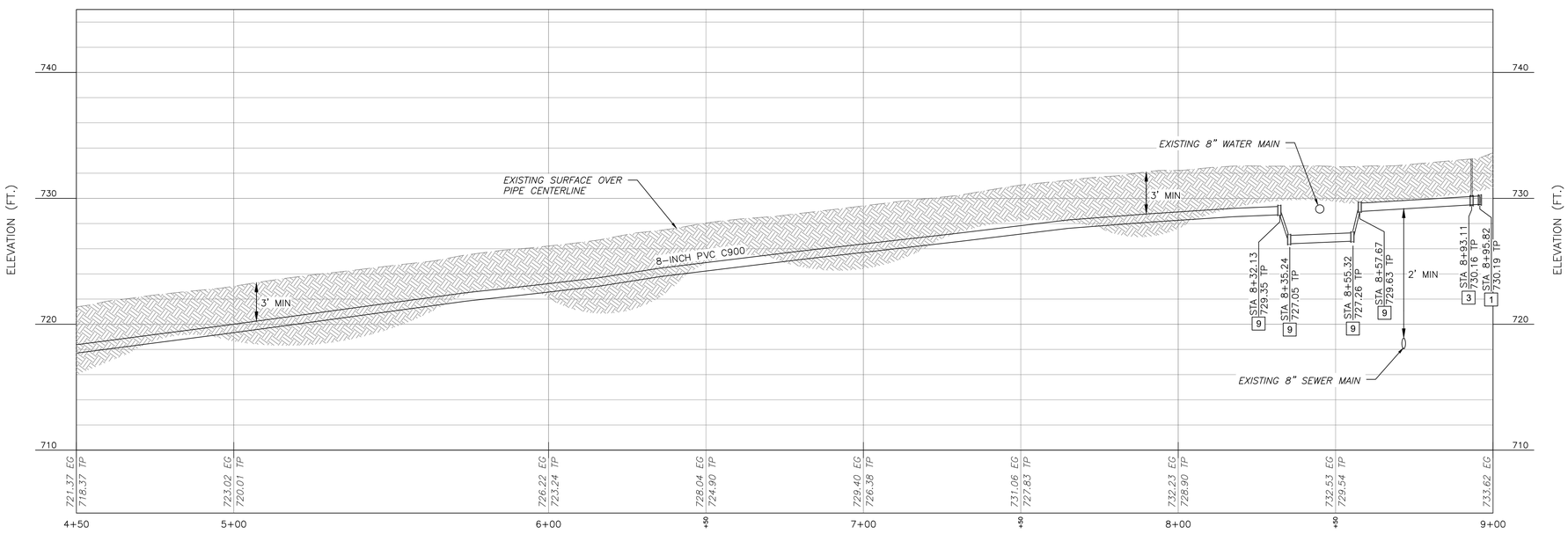


PLAN VIEW

WALLAPAI DRIVE



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KEY NOTES:

1. INSTALL DI TEE PER LHC SPECIFICATION 02550. USE FLEX COUPLINGS FOR CONNECTION TO EXISTING PIPE. SIZE PER PLAN.
2. INSTALL 8-INCH PVC C900 DR14 PIPE PER LHC STD. DTL. NO. 200. ON SHEET C-29. LENGTH PER PLAN.
3. INSTALL 8-INCH GATE VALVE WITH RISER PER LHC STD. DTL NO. 300. ON SHEET C-29.
4. INSTALL DI FITTING WITH RESTRAINED JOINT PER LHC SPECIFICATION 02550. SIZE AND ANGLE PER PLAN.
5. INSTALL 1" AIR RELEASE / VACUUM VALVE ASSEMBLY PER LHC STD. DTL. NO. 310. ON SHEET C-30.
6. INSTALL FIRE HYDRANT ASSEMBLY PER LHC STD. DTL. NO. 320. ON SHEET C-30.
7. EXISTING WATER APPURTENANCE TO BE REMOVED.
8. INSTALL 1-INCH COPPER SERVICE ASSEMBLY PER DETAIL 3 ON SHEET C-31.
9. DROP WATERLINE UNDER EXISTING PER DTL. 2 ON SHEET C-31.
10. SAWCUT, REMOVE, AND REPLACE (6' WIDE) 2.5" AC PAVEMENT/0"AB. IN KIND. PATCH PER LIMITS SHOWN IN LHC STD. DTL. NO. 200. ON SHEET C-29.
11. REMOVE AND REPLACE 6" CURB PER LHC STD. DTL. NO. 213. ON SHEET C-29.
12. REMOVE AND REPLACE 6" CURB AND GUTTER PER LHC STD. DTL. NO. 214 ON SHEET C-29.
13. REMOVE AND REPLACE ROLLED CURB AND GUTTER PER LHC STD. DTL. NO. 215 ON SHEET C-31.
14. REMOVE AND REPLACE SIDEWALK PER LHC STD. DTL. NO. 216. ON SHEET C-29.
15. ABANDON EXISTING PIPE PER LHC STD. SPECIFICATION 02550 .
16. INSTALL 2-INCH BLOW-OFF ASSEMBLY END OF LINE PER LHC STD. DTL 314 ON SHEET C-30.
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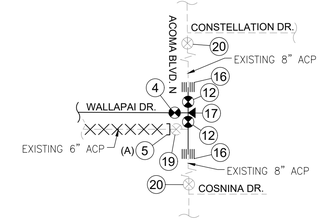
19. CONTRACTOR TO REMOVE EXISTING DRIVEWAY AND APPROACH TO LIMITS SHOWN, AND REPLACE WITH DRIVEWAY PER LHC STD. DTL. NO. 201.
20. INSTALL 6-INCH GATE VALVE WITH RISER PER LHC STD. DTL NO. 300. ON SHEET C-29.
21. VALVE TO REMAIN CLOSED.



CONNECTION DETAIL
N.T.S.

MATERIAL SCHEDULE:

1. 4" CAP PER DTL 1 ON SHEET C-31 AND IS NOTED WITH AN 'A' OR 'P' ON CONNECTION DETAIL
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8. 6" DI 90° BEND WITH THRUST BLOCK PER DTL ON SHT C-30
9. 8" CAP PER DTL 1 ON SHT C-31 AND IS NOTED WITH AN 'A' OR 'P' ON CONNECTION DETAIL
10. 8"x6" DI CONCENTRIC REDUCER
11. 8" C-900 PVC PIPE
12. 8" RESILIENT SEAT GATE VALVE W/NUT OPR & VALVE BOX, PER DTLS ON SHT C-29
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15. 4" C-900 PVC PIPE
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18. 8" DI 90° BEND WITH THRUST BLOCK PER DTL ON SHT C-30
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23. 6"x4" DI CONCENTRIC REDUCER

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811 BLUE STAKE, INC.
Call 811 or click Arizona811.com

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 feet

REVISION RECORD

NO	DATE	DESCRIPTION

STEVEN D. PETRO (Civil) 51810 REGISTERED PROFESSIONAL ENGINEER (CIVIL) STATE OF ARIZONA
EXPIRES 12-31-2025

TRICO ENGINEERING, LLC
LAKE HAVASU CITY
231 S. SMOKE TREE BLVD., STE. 204
LAKE HAVASU CITY, AZ 86403
(928) 453-4484
PRESCOTT
2840 N. HIGH SCHOOL
PRESCOTT, AZ 86305
SCOTTSDALE, AZ 85251

2024 WATER MAIN REPLACEMENT PROJECT, PHASE 1
B24-PW-108019-500441
LAKE HAVASU CITY
2330 MCCULLOCH BLVD N.
LAKE HAVASU CITY, AZ 86403
(928) 855-2116

LAKE HAVASU CITY, ARIZONA • INCORPORATED 1978

WALLAPAI DRIVE II

DATE:	APRIL 15, 2024
DRAWN BY:	JWC/CCP
DWG SCALE:	1"=20'
CHECKED BY:	EJP/SDP
PROJECT NO:	23-034
APPROVED BY:	SDP

DRAWING NO.: C-10
SHEET 10 OF 31

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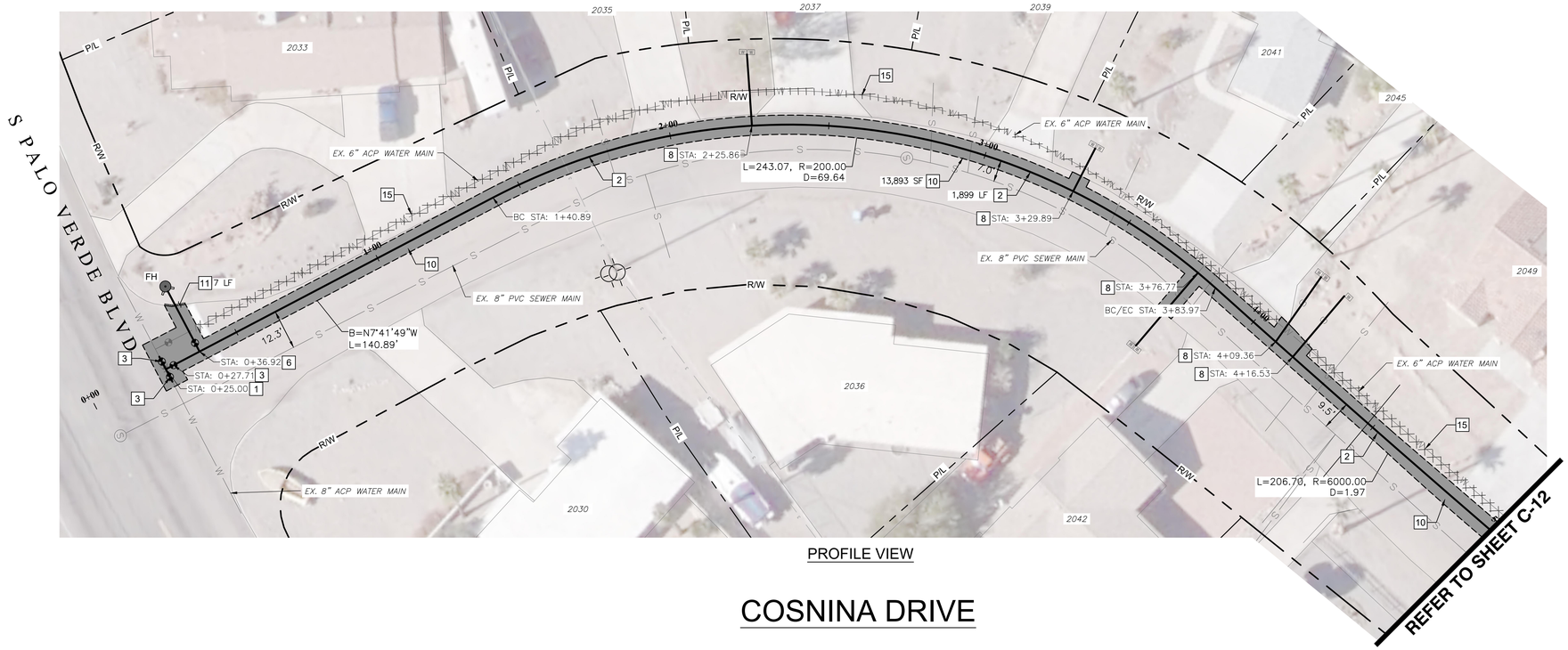
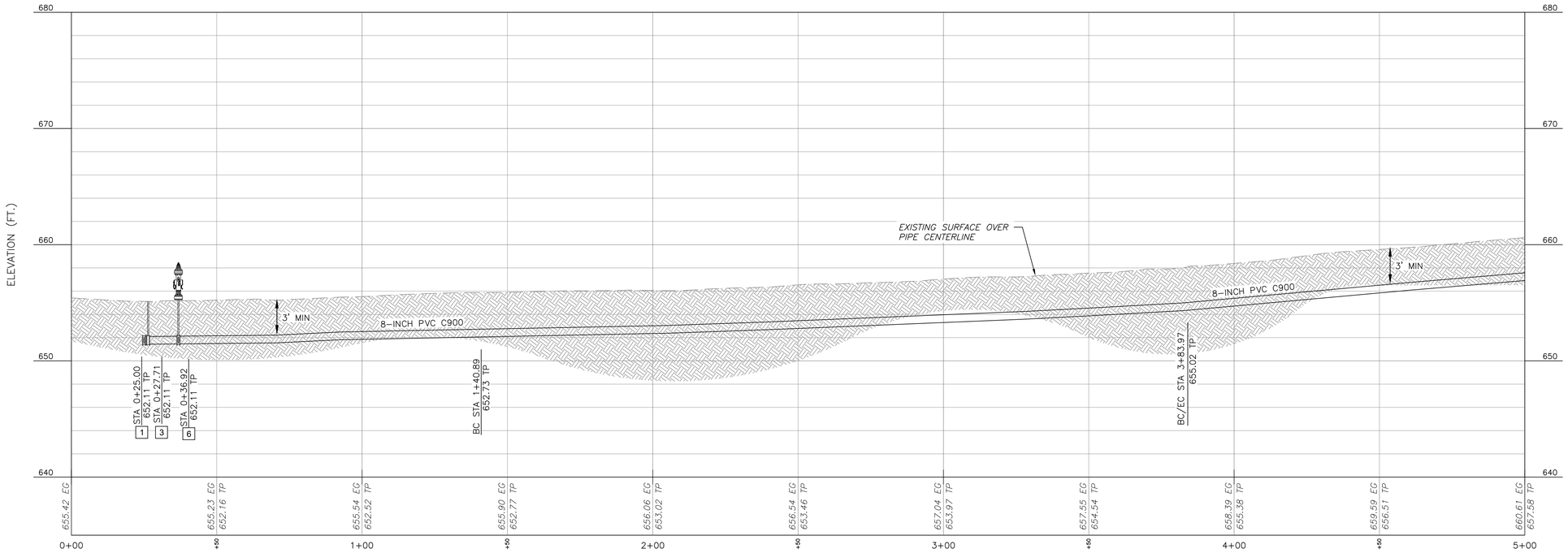


PROFILE VIEW

COSNINA DRIVE



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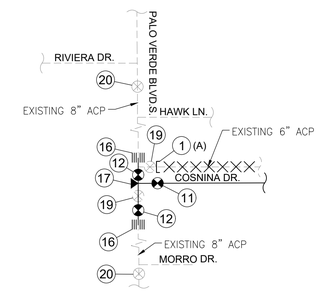

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Call 811 or click Arizona811.com

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 feet

REVISION RECORD

NO	DATE	DESCRIPTION

STEVEN D. PEARCE (Civil) CERTIFICATE NO. 51810 STATE OF ARIZONA REGISTERED PROFESSIONAL ENGINEER
EXPIRES 12-31-2025

TRICO ENGINEERING, LLC
LAKE HAVASU CITY
231 LONDON AVENUE, STE. 204
LAKE HAVASU CITY, AZ 86403
(928) 230-0461
PHOENIX
2858 N. 32ND AVENUE
PHOENIX, AZ 85009
SCOTTSDALE, AZ 85251

2024 WATER MAIN REPLACEMENT PROJECT, PHASE 1
B24-PW-108019-500441
LAKE HAVASU CITY
2330 MCCULLOCH BLVD N.
LAKE HAVASU CITY, AZ 86403
(928) 855-2116

LAKE HAVASU CITY, ARIZONA • INCORPORATED 1978

COSNINA DRIVE 1

DATE:	APRIL 15, 2024
DRAWN BY:	JWC/CCP
DWG SCALE:	1"=20'
CHECKED BY:	EJP/SDP
PROJECT NO:	23-034
APPROVED BY:	SDP

DRAWING NO.: C-11
SHEET 11 OF 31

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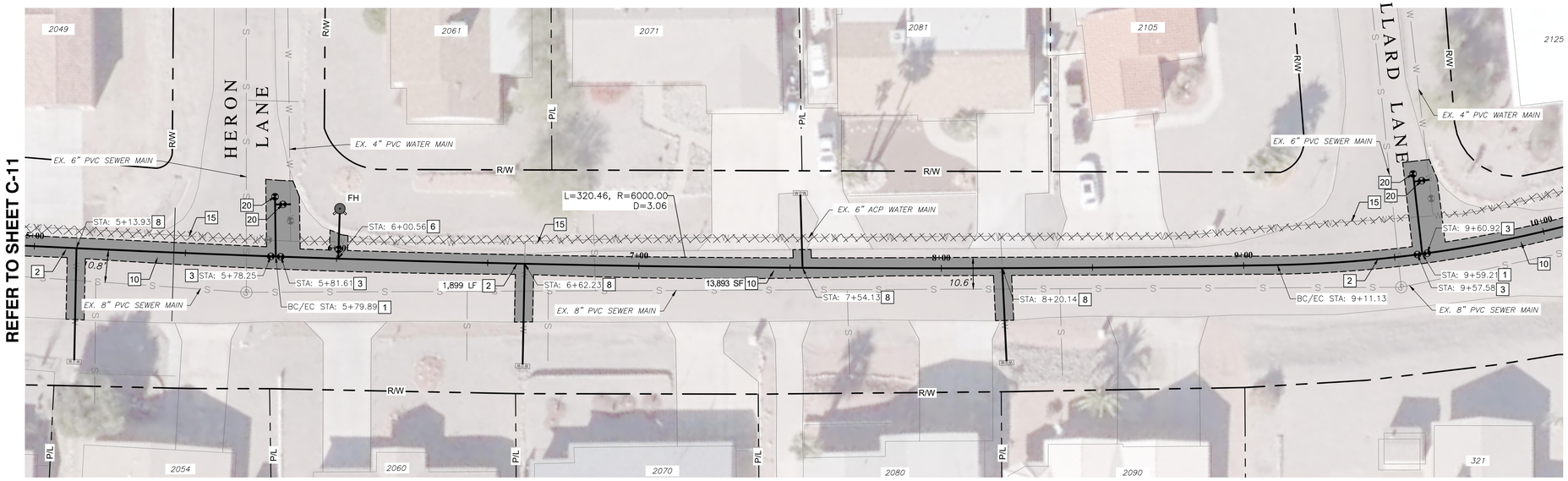
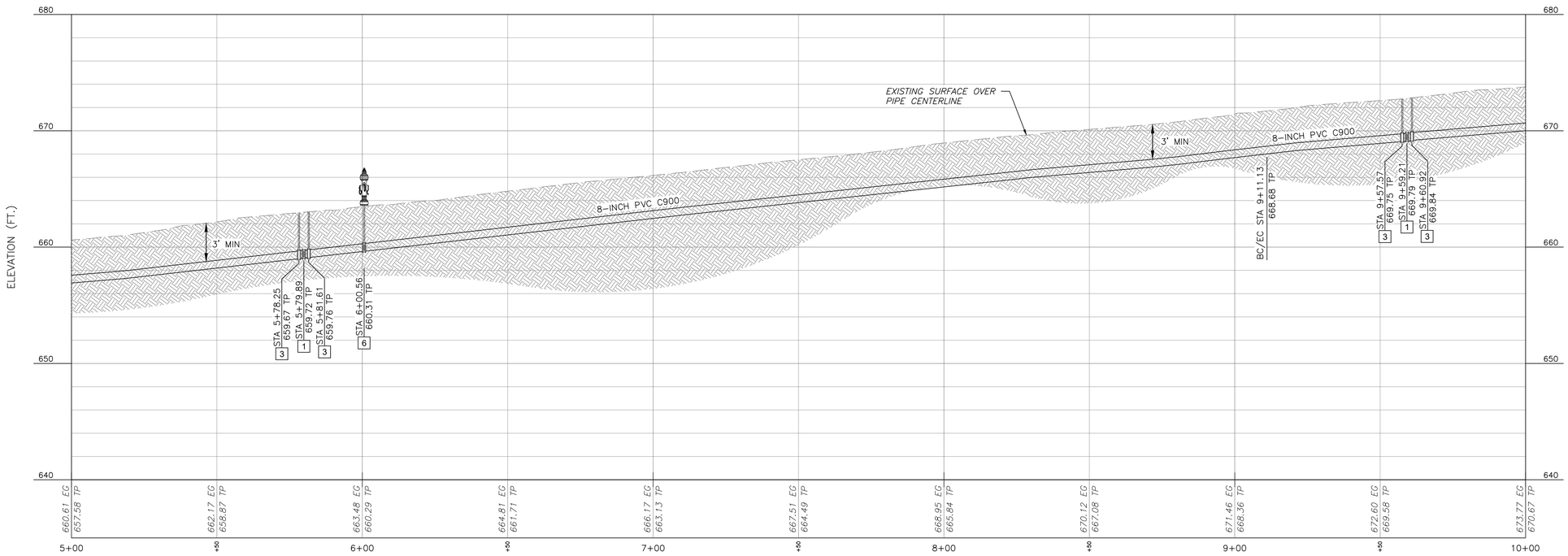


PLAN VIEW

COSNINA DRIVE



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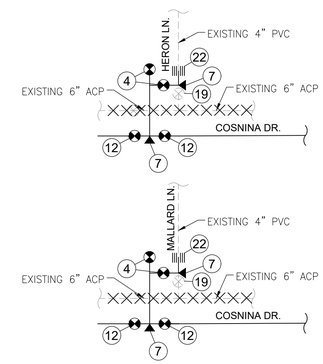

CONNECTION DETAIL
N.T.S.

MATERIAL SCHEDULE:

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GRAPHIC SCALE

20 0 10 20 40

(IN FEET)
1 inch = 20 feet

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NO	DATE	REVISION RECORD DESCRIPTION

STEVEN D. PERROTO, (Civil) 31910 STATE OF ARIZONA REGISTERED PROFESSIONAL ENGINEER
EXPIRES 12-31-2025

TRICO ENGINEERING, LLC
LAKE HAVASU CITY
231 S. SMOKETREE VILLAGE DR., STE. 204
LAKE HAVASU CITY, AZ 86403
(928) 230-0461

PHOENIX
2818 N. SUTTLE ROAD
A-100, PMB 1-1
SCOTTSDALE, AZ 85257

2024 WATER MAIN REPLACEMENT PROJECT, PHASE 1
B24-PW-108019-500441
LAKE HAVASU CITY
2330 MCCULLOCH BLVD N.
LAKE HAVASU CITY, AZ 86403
(928) 855-2116

LAKE HAVASU CITY, ARIZONA • INCORPORATED 1978

COSNINA DRIVE II

DATE:	APRIL 15, 2024	DRAWN BY:	JWC/CCP
DWG SCALE:	1"=20'	CHECKED BY:	EJP/SDP
PROJECT NO:			23-034
APPROVED BY:			SDP

DRAWING NO.:
C-12
SHEET 12 OF 31

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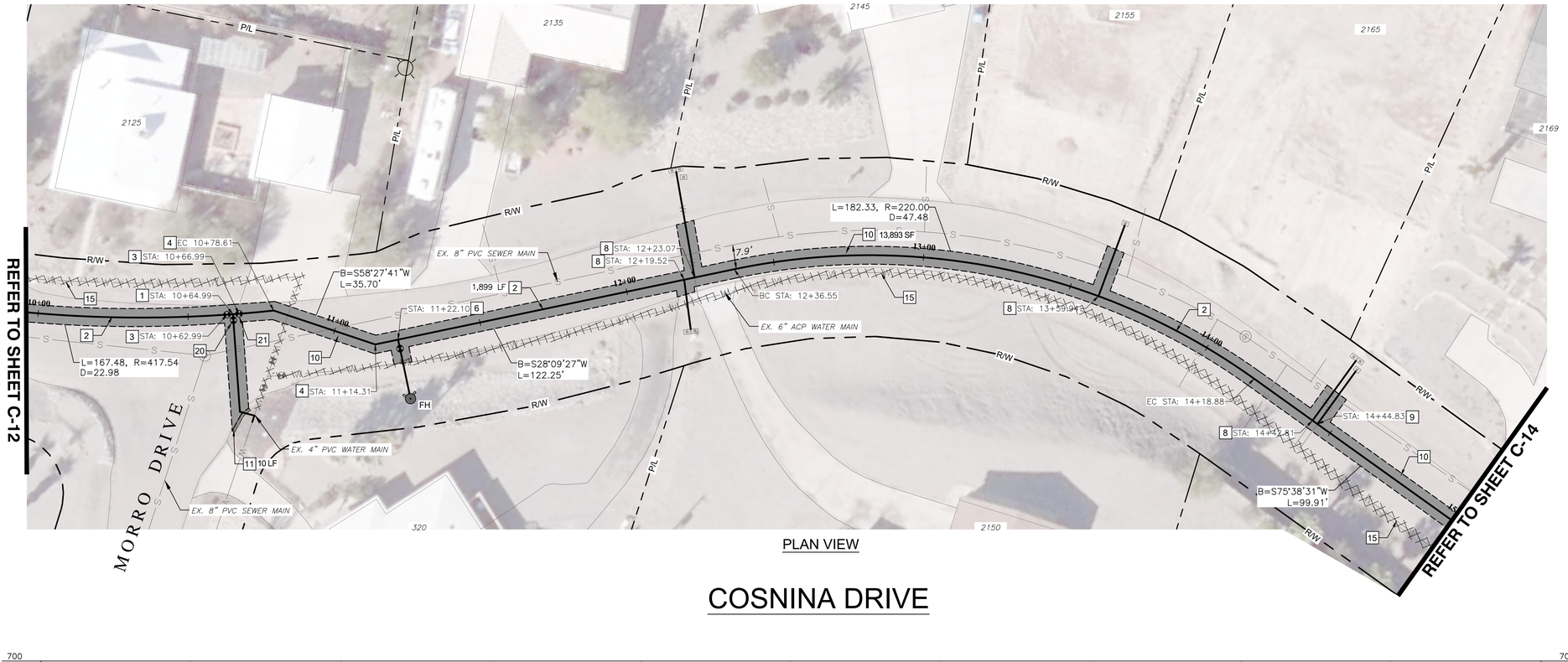
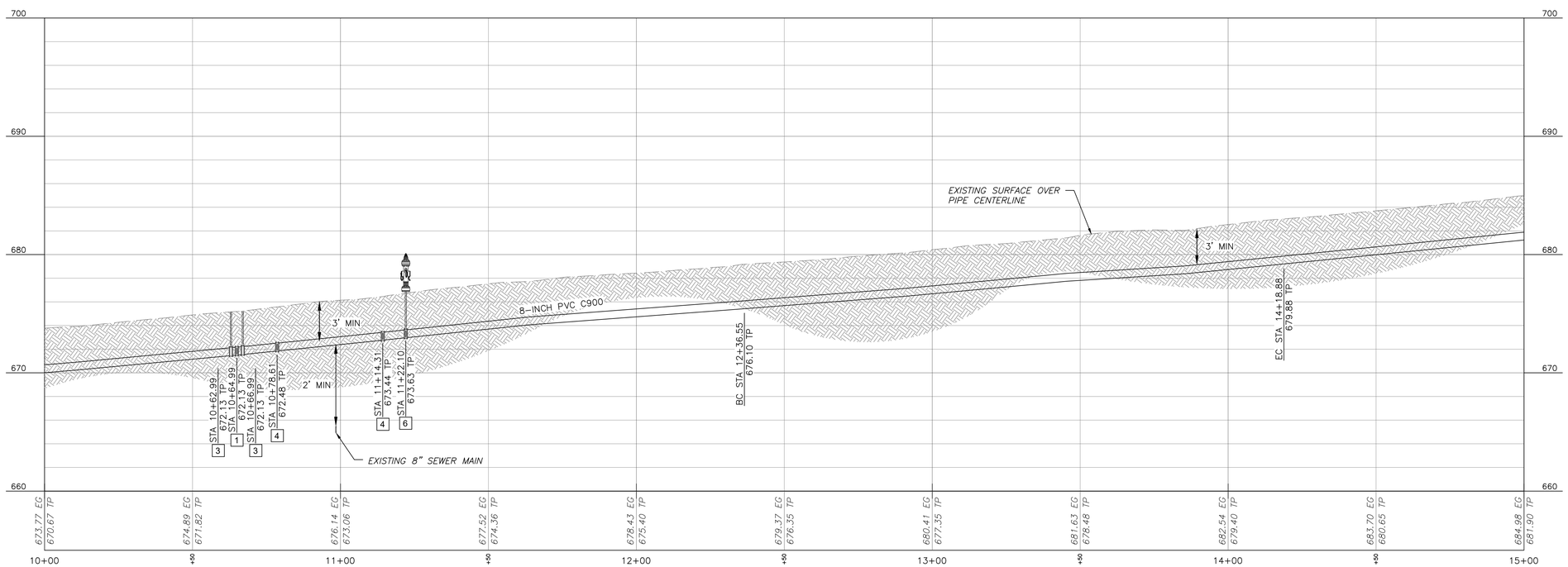


PLAN VIEW

COSNINA DRIVE



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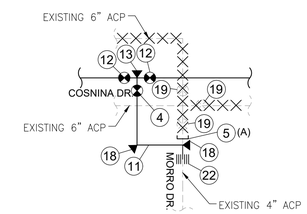

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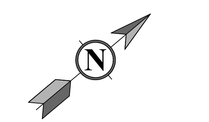
23. 6"x4" DI CONCENTRIC REDUCER



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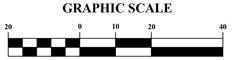
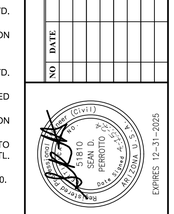


(IN FEET)
1 inch = 20 feet

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

NO	DATE	REVISION RECORD DESCRIPTION



TRICO ENGINEERING, LLC
LAKE HAVASU CITY
231 S. SMOKE TREE BLVD., STE. 204
LAKE HAVASU CITY, AZ 86403
(928) 230-0441
PHOENIX
2858 N. GREY HACKLE
MESA, AZ 85207
SCOTTSDALE, AZ 85255

2024 WATER MAIN REPLACEMENT PROJECT, PHASE 1
B24-PW-108019-500441
LAKE HAVASU CITY
2330 MCCULLOCH BLVD N.
LAKE HAVASU CITY, AZ 86403
(928) 855-2116

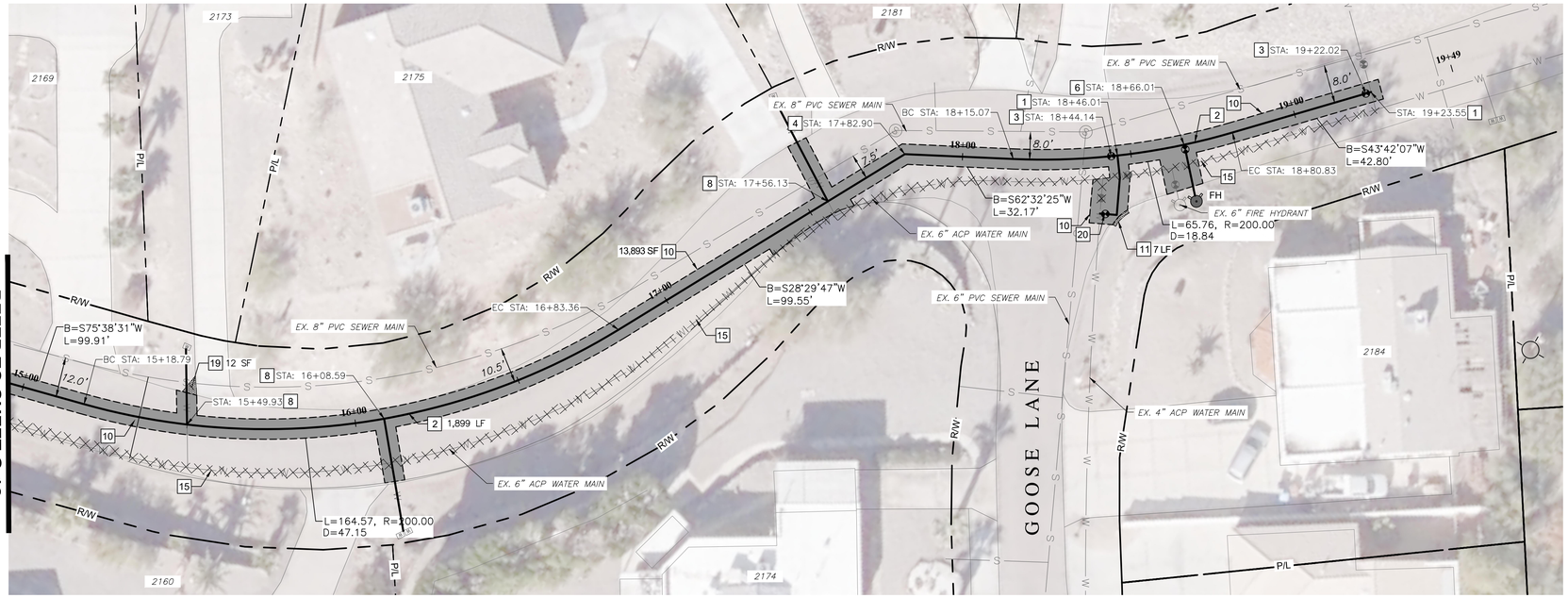
COSNINA DRIVE III

DATE:	APRIL 15, 2024
DRAWN BY:	JWC/CCP
DWG SCALE:	1"=20'
CHECKED BY:	EJP/SDP
PROJECT NO:	21-034
APPROVED BY:	SDP

DRAWING NO.: C-13

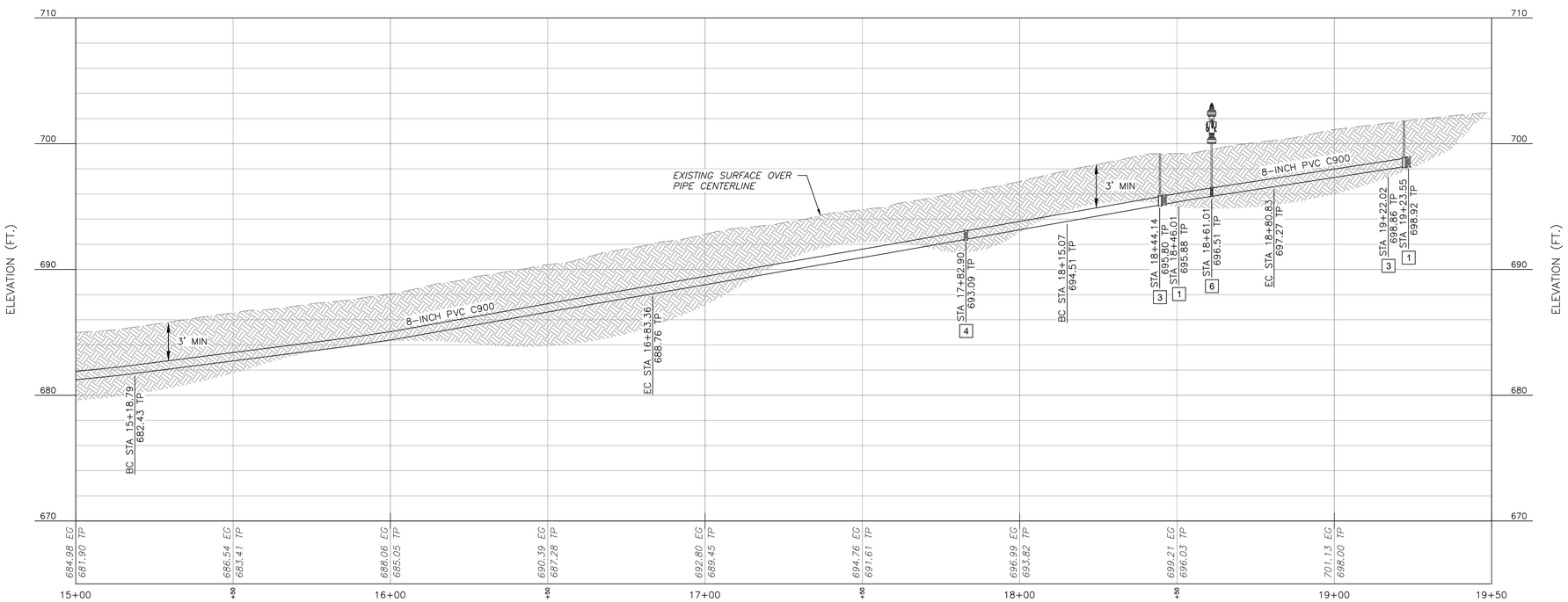
SHEET 13 OF 31

F:\Trico Engineering LLC\Projects\2021\21-034_LHC FY 23-24 Water Main Replacement Design 17\040\Improvement Plans\21-034_Relocation Plans 6.dwg LS\4/15/2024 - engineerlts) - LP, 4/15/2024 2:58 PM



PLAN VIEW

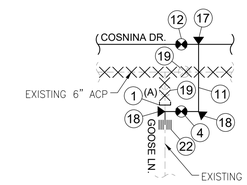
COSNINA DRIVE



PROFILE VIEW

KEY NOTES:

1. INSTALL DI TEE PER LHC SPECIFICATION 02550. USE FLEX COUPLINGS FOR CONNECTION TO EXISTING PIPE. SIZE PER PLAN.
2. INSTALL 8-INCH PVC C900 DR14 PIPE PER LHC STD. DTL. NO. 200. ON SHEET C-29. LENGTH PER PLAN.
3. INSTALL 8-INCH GATE VALVE WITH RISER PER LHC STD. DTL NO. 300. ON SHEET C-29.
4. INSTALL DI FITTING WITH RESTRAINED JOINT PER LHC SPECIFICATION 02550. SIZE AND ANGLE PER PLAN.
5. INSTALL 1" AIR RELEASE / VACUUM VALVE ASSEMBLY PER LHC STD. DTL. NO. 310. ON SHEET C-30.
6. INSTALL FIRE HYDRANT ASSEMBLY PER LHC STD. DTL. NO. 320. ON SHEET C-30.
7. EXISTING WATER APPURTENANCE TO BE REMOVED.
8. INSTALL 1-INCH COPPER SERVICE ASSEMBLY PER DETAIL 3 ON SHEET C-31.
9. DROP WATERLINE UNDER EXISTING PER DTL. 2 ON SHEET C-31.
10. SAWCUT, REMOVE, AND REPLACE (6' WIDE) 2.5" AC PAVEMENT/0"AB. IN KIND. PATCH PER LIMITS SHOWN IN LHC STD. DTL. NO. 200. ON SHEET C-29.
11. REMOVE AND REPLACE 6" CURB PER LHC STD. DTL. NO. 213. ON SHEET C-29.
12. REMOVE AND REPLACE 6" CURB AND GUTTER PER LHC STD. DTL. NO. 214 ON SHEET C-29.
13. REMOVE AND REPLACE ROLLED CURB AND GUTTER PER LHC STD. DTL. NO. 215 ON SHEET C-31.
14. REMOVE AND REPLACE SIDEWALK PER LHC STD. DTL. NO. 216. ON SHEET C-29.
15. ABANDON EXISTING PIPE PER LHC STD. SPECIFICATION 02550 .
16. INSTALL 2-INCH BLOW-OFF ASSEMBLY END OF LINE PER LHC STD. DTL 314 ON SHEET C-30.
17. EXISTING RIM AND/OR WATER VALVE ELEVATION TO BE ADJUSTED TO FINISHED SURFACE.
18. INSTALL 6-INCH PVC C900 DR14 PIPE PER LHC STD. DTL. NO. 200. ON SHEET C-29. LENGTH PER PLAN.
19. CONTRACTOR TO REMOVE EXISTING DRIVEWAY AND APPROACH TO LIMITS SHOWN, AND REPLACE WITH DRIVEWAY PER LHC STD. DTL. NO. 201.
20. INSTALL 6-INCH GATE VALVE WITH RISER PER LHC STD. DTL NO. 300. ON SHEET C-29.
21. VALVE TO REMAIN CLOSED.



CONNECTION DETAIL
N.T.S.

MATERIAL SCHEDULE:

1. 4" CAP PER DTL 1 ON SHEET C-31 AND IS NOTED WITH AN 'A' OR 'P' ON CONNECTION DETAIL
2. 4" TRANSITION PIPE COUPLING
3. 6" C-900 PVC PIPE
4. 6" RESILIENT SEAT GATE VALVE W/ NUT OPR & VALVE BOX, PER DTLS ON SHT C-29
5. 6" CAP PER DTL 1 ON SHEET C-31 AND IS NOTED WITH AN 'A' OR 'P' ON CONNECTION DETAIL
6. 6" TRANSITION PIPE COUPLING
7. 6" DI TEE WITH THRUST BLOCK PER DTL ON SHT C-30
8. 6" DI 90° BEND WITH THRUST BLOCK PER DTL ON SHT C-30
9. 8" CAP PER DTL 1 ON SHT C-31 AND IS NOTED WITH AN 'A' OR 'P' ON CONNECTION DETAIL
10. 8"x6" DI CONCENTRIC REDUCER
11. 8" C-900 PVC PIPE
12. 8" RESILIENT SEAT GATE VALVE W/NUT OPR & VALVE BOX, PER DTLS ON SHT C-29
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14. 8"x6" DI CONCENTRIC REDUCER
15. 4" C-900 PVC PIPE
16. 8" TRANSITION PIPE COUPLING
17. 8"x8"x6" DI TEE WITH THRUST BLOCK PER DTL ON SHT C-30
18. 8" DI 90° BEND WITH THRUST BLOCK PER DTL ON SHT C-30
19. EXISTING VALVE TO BE REMOVED
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22. 8"x4" DI CONCENTRIC REDUCER
23. 6"x4" DI CONCENTRIC REDUCER

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811 BLUE STAKE, INC.
Call 811 or click Arizona811.com

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 feet

REVISION RECORD		
NO	DATE	DESCRIPTION

STEVEN D. PEROTTO (Civil) 51810 ARIZONA REGISTERED PROFESSIONAL ENGINEER
EXPIRES 12-31-2025

TRICO ENGINEERING, LLC
LAKE HAVASU CITY
231 S. SMOKETREE VILLAGE DR. UNIT 4
LAKE HAVASU CITY, AZ 86403
(928) 453-4485
PHOENIX
2828 N. HAYDEN RD.
SCOTTSDALE, AZ 85257
(480) 947-5076

2024 WATER MAIN REPLACEMENT PROJECT, PHASE 1
B24-PW-108019-500441
LAKE HAVASU CITY
2330 MCCULLOCH BLVD N.
LAKE HAVASU CITY, AZ 86403
(928) 855-2116

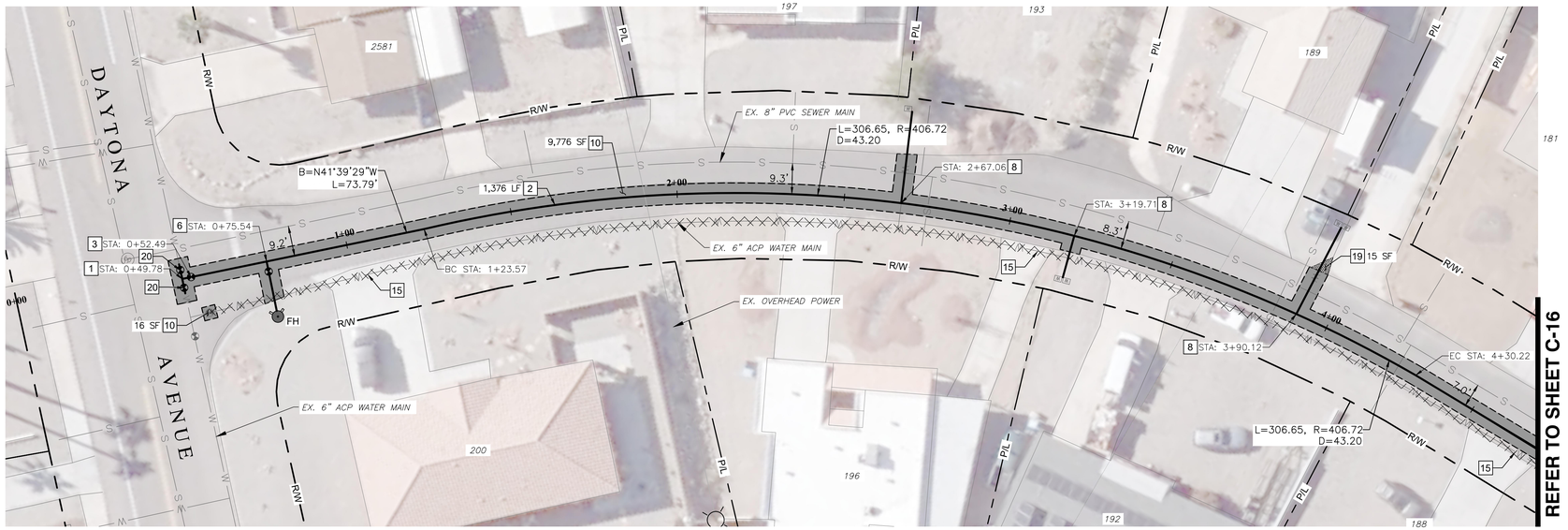
LAKE HAVASU CITY, ARIZONA • INCORPORATED 1978

COSNINA DRIVE IV

DATE:	APRIL 15, 2024
DRAWN BY:	JVG/CCP
DWG SCALE:	1"=20'
CHECKED BY:	EJP/SDP
PROJECT NO:	22-034
APPROVED BY:	SDP

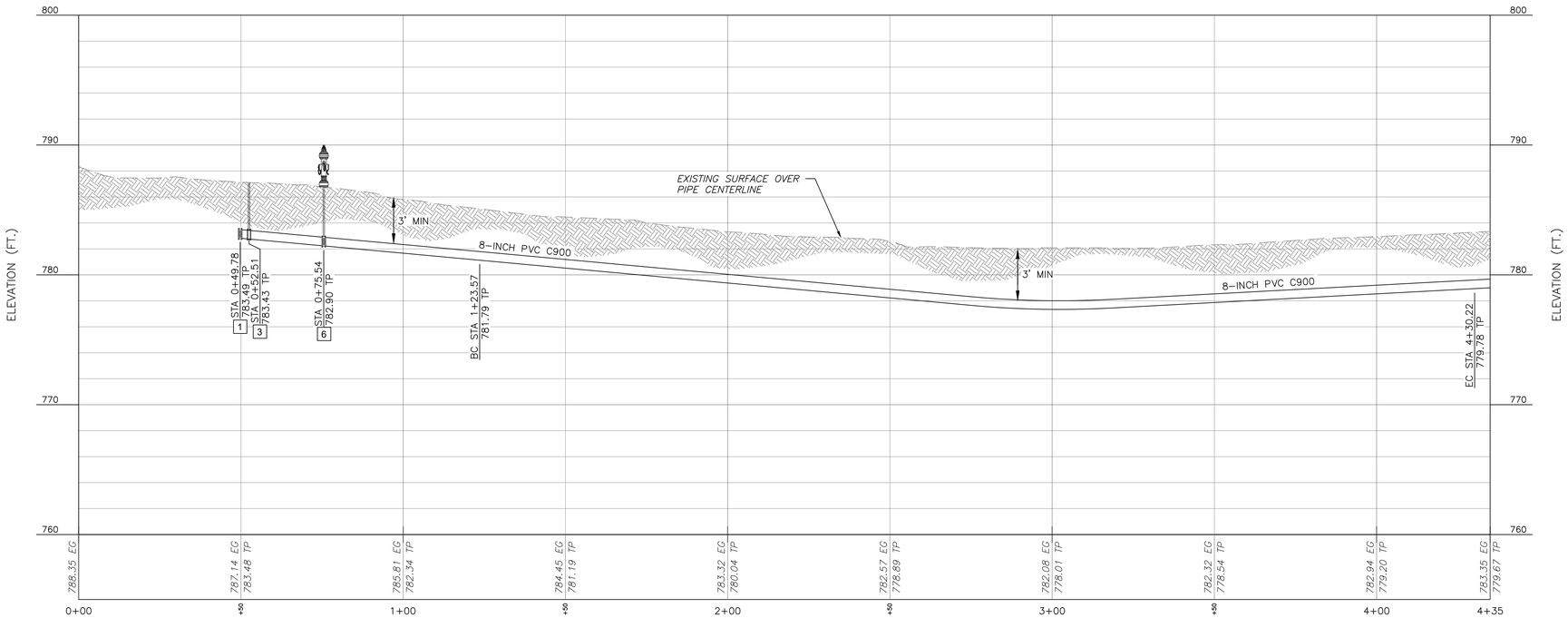
DRAWING NO.: C-14
SHEET 14 OF 31

F:\Trico Engineering LLC\Projects\2022\22-034_LHC FY 23-24 Water Main Replacement Design 17\CAD\Improvement Plans\22-034_Waterline Plans 8.dwg LS:(4/15/2024 - eriquenrotb) - LR: 4/15/2024 2:58 PM



PLAN VIEW

WAYFARER LANE



PROFILE VIEW

KEY NOTES:

1. INSTALL DI TEE PER LHC SPECIFICATION 02550. USE FLEX COUPLINGS FOR CONNECTION TO EXISTING PIPE. SIZE PER PLAN.
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13. REMOVE AND REPLACE ROLLED CURB AND GUTTER PER LHC STD. DTL. NO. 215 ON SHEET C-31.
14. REMOVE AND REPLACE SIDEWALK PER LHC STD. DTL. NO. 216. ON SHEET C-29.
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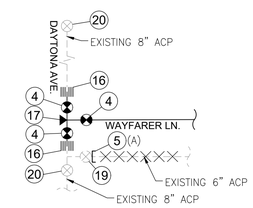

CONNECTION DETAIL
N.T.S.

MATERIAL SCHEDULE:

1. 4" CAP PER DTL 1 ON SHEET C-31 AND IS NOTED WITH AN 'A' OR 'P' ON CONNECTION DETAIL
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GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 feet

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ARIZONA811 BLUE STAKE, INC.
Call 811 or click Arizona811.com

REVISION RECORD

NO	DATE	DESCRIPTION

STATE OF ARIZONA (Civil) REGISTERED PROFESSIONAL ENGINEER 51810 SAMUEL PERROTTO DATE SIGNED 04-15-24 EXPIRES 12-31-2025

TRICO ENGINEERING, LLC
LAKE HAVASU CITY
231 S. SMOKETREE BLVD., STE. 204
LAKE HAVASU CITY, AZ 86403
(928) 236-0461
PHOENIX
2858 N. GREY HACKLE
SCOTTSDALE, AZ 85251

2024 WATER MAIN REPLACEMENT PROJECT, PHASE I
B24-PW-108019-500441
LAKE HAVASU CITY
2330 MCCULLOCH BLVD N.
LAKE HAVASU CITY, AZ 86403
(928) 855-2116

LAKE HAVASU CITY, ARIZONA • INCORPORATED 1978

WAYFARER LANE I

DATE:	APRIL 15, 2024
DRAWN BY:	JWC/CCP
DWG SCALE:	1"=20'
CHECKED BY:	EJP/SDP
PROJECT NO:	23-034
APPROVED BY:	SDP

DRAWING NO.: C-15
SHEET 15 OF 31

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KEY NOTES:

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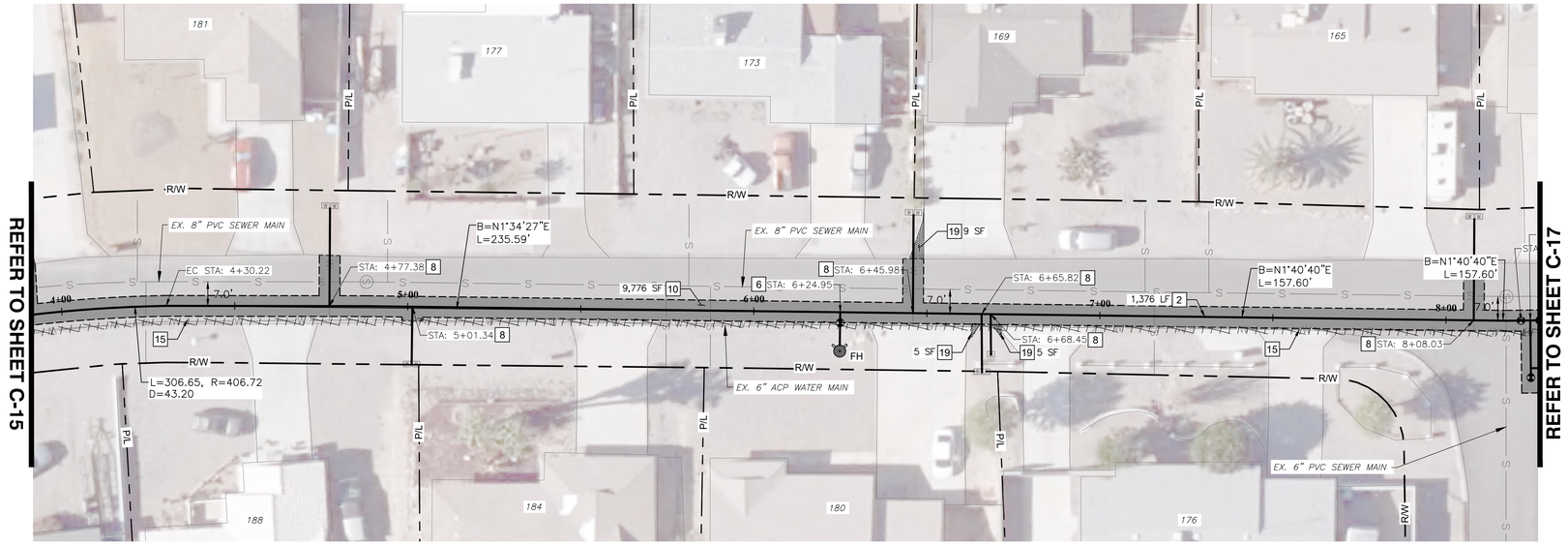
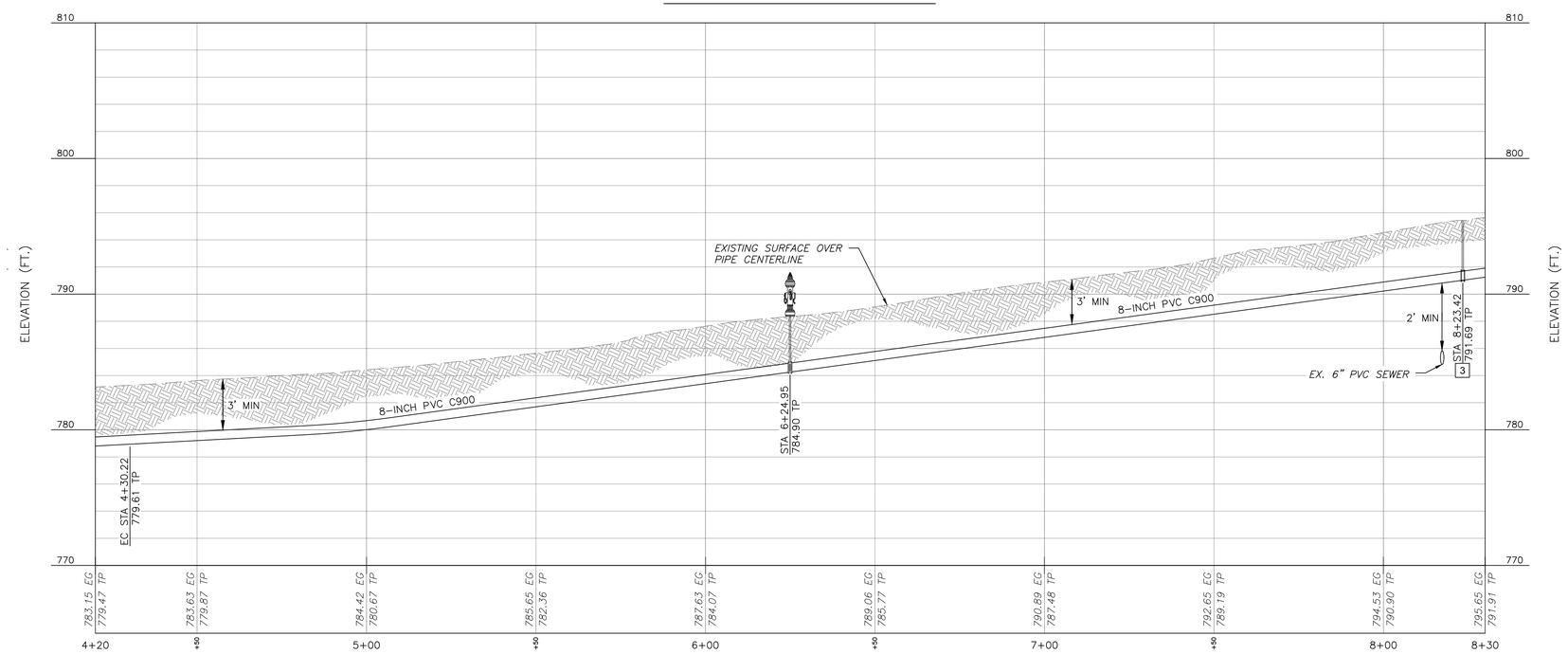


PLAN VIEW

WAYFARER LANE



PROFILE VIEW

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Call 811 or click Arizona811.com

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 feet

REVISION RECORD

NO	DATE	DESCRIPTION

STEVEN D. POTTER (Civil) 31910 STATE OF ARIZONA REGISTERED PROFESSIONAL ENGINEER (CIVIL)
EXPIRES 12-31-2025

TRICO ENGINEERING, LLC
LAKE HAVASU CITY
231 S. SMOKE TREE BLVD., STE. 204
LAKE HAVASU CITY, AZ 86403
(928) 453-0028
PHOENIX
2828 N. HAYDEN SCHOOL
SCOTTSDALE, AZ 85257
(480) 284-0483

2024 WATER MAIN REPLACEMENT PROJECT, PHASE 1
B24-PW-108019-500441
LAKE HAVASU CITY
2330 MCCULLOCH BLVD N.
LAKE HAVASU CITY, AZ 86403
(928) 855-2116

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WAYFARER LANE II

DATE:	APRIL 15, 2024
DRAWN BY:	JW/CCP
DWG SCALE:	1"=20'
CHECKED BY:	EJP/SDP
PROJECT NO:	23-034
APPROVED BY:	SDP

DRAWING NO.: C-16
SHEET 16 OF 31

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KEY NOTES:

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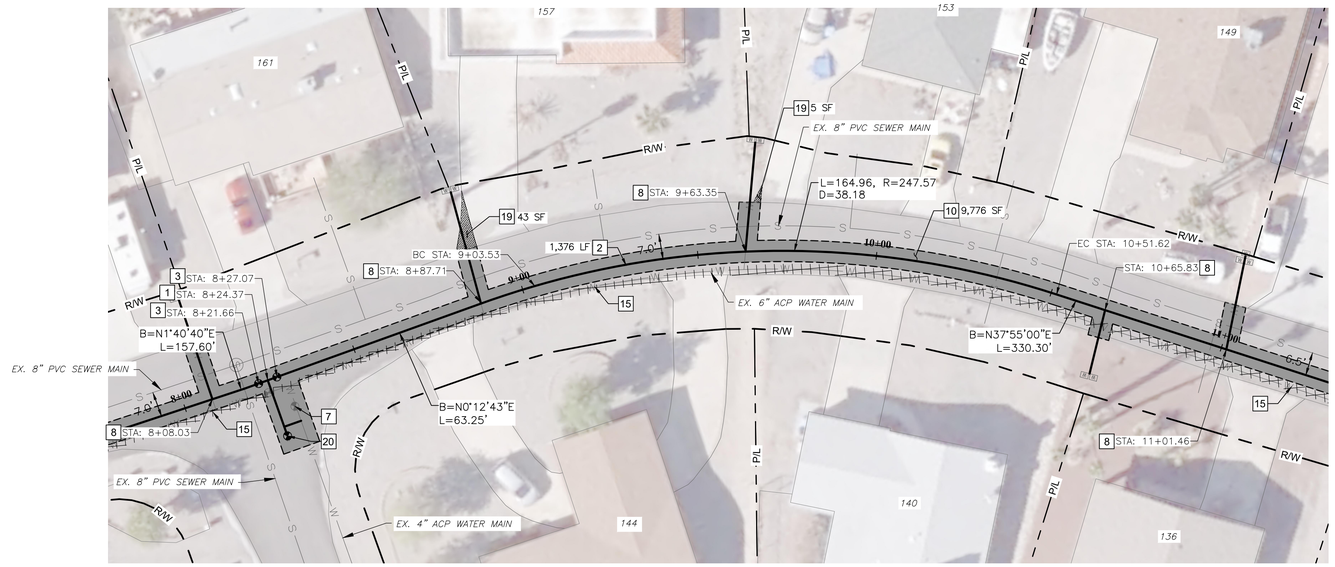
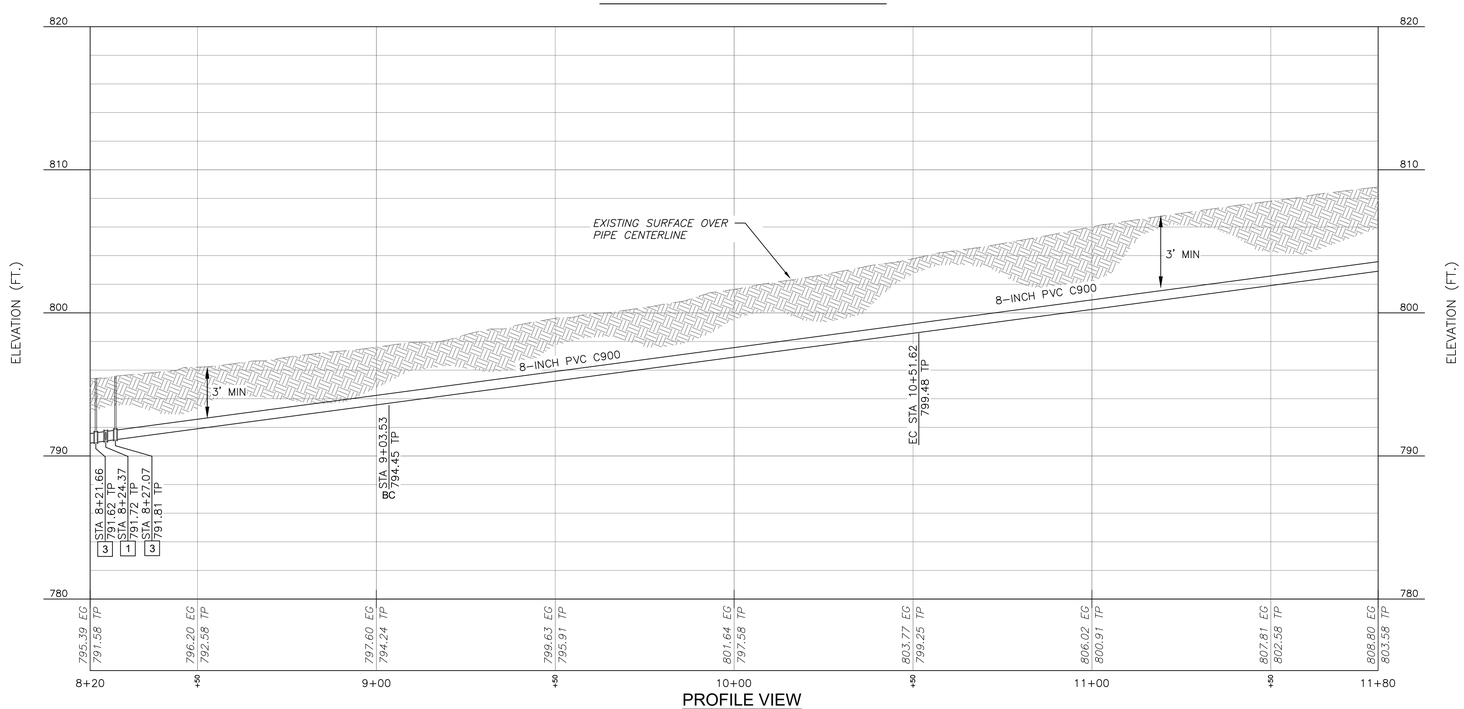
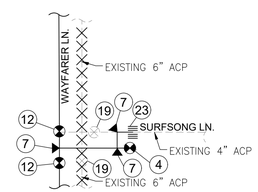


PLAN VIEW

WAYFARER LANE



PROFILE VIEW



CONNECTION DETAIL
N.T.S.

MATERIAL SCHEDULE:

1. 4" CAP PER DTL 1 ON SHEET C-31 AND IS NOTED WITH AN 'A' OR 'P' ON CONNECTION DETAIL
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3. 6" C-900 PVC PIPE
4. 6" RESILIENT SEAT GATE VALVE W/ NUT OPR & VALVE BOX, PER DTLS ON SHT C-29
5. 6" CAP PER DTL 1 ON SHEET C-31 AND IS NOTED WITH AN 'A' OR 'P' ON CONNECTION DETAIL
6. 6" TRANSITION PIPE COUPLING
7. 6" DI TEE WITH THRUST BLOCK PER DTL ON SHT C-30
8. 6" DI 90° BEND WITH THRUST BLOCK PER DTL ON SHT C-30
9. 8" CAP PER DTL 1 ON SHT C-31 AND IS NOTED WITH AN 'A' OR 'P' ON CONNECTION DETAIL
10. 8"x6" DI CONCENTRIC REDUCER
11. 8" C-900 PVC PIPE
12. 8" RESILIENT SEAT GATE VALVE W/NUT OPR & VALVE BOX, PER DTLS ON SHT C-29
13. 8" DI TEE WITH THRUST BLOCK PER DTL ON SHT C-30
14. 8"x6" DI CONCENTRIC REDUCER
15. 4" C-900 PVC PIPE
16. 8" TRANSITION PIPE COUPLING
17. 8"x8"x6" DI TEE WITH THRUST BLOCK PER DTL ON SHT C-30
18. 8" DI 90° BEND WITH THRUST BLOCK PER DTL ON SHT C-30
19. EXISTING VALVE TO BE REMOVED
20. EXISTING VALVE TO REMAIN
21. EXISTING WHARF HYDRANT TO BE REMOVED
22. 8"x4" DI CONCENTRIC REDUCER
23. 6"x4" DI CONCENTRIC REDUCER

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811 BLUE STAKE, INC.
Call 811 or click Arizona811.com

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 feet

REVISION RECORD

NO	DATE	DESCRIPTION

STATE OF ARIZONA Registered Professional Engineer (Civil) CERTIFICATE NO. 51810 SAMUEL PERROTTO Date Signed 4/15/24 EXPIRES 12-31-2025

TRICO ENGINEERING, LLC
LAKE HAVASU CITY: 231 S. LAKESHORE DR. LAKE HAVASU CITY, AZ 86403 (928) 505-0505
PHOENIX: 28338 N. 32ND AVENUE PHOENIX, AZ 85083 SCOTTSDALE, AZ 85262

2024 WATER MAIN REPLACEMENT PROJECT, PHASE 1
B24-PW-108019-500441
LAKE HAVASU CITY
2330 MCCULLOCH BLVD N.
LAKE HAVASU CITY, AZ 86403
(928) 855-2116

LAKE HAVASU CITY, ARIZONA • INCORPORATED 1978

WAYFARER LANE III

DATE:	APRIL 15, 2024
DRAWN BY:	JWC/CCP
DWG SCALE:	1"=20'
CHECKED BY:	EJP/SDP
PROJECT NO:	23-034
APPROVED BY:	SDP

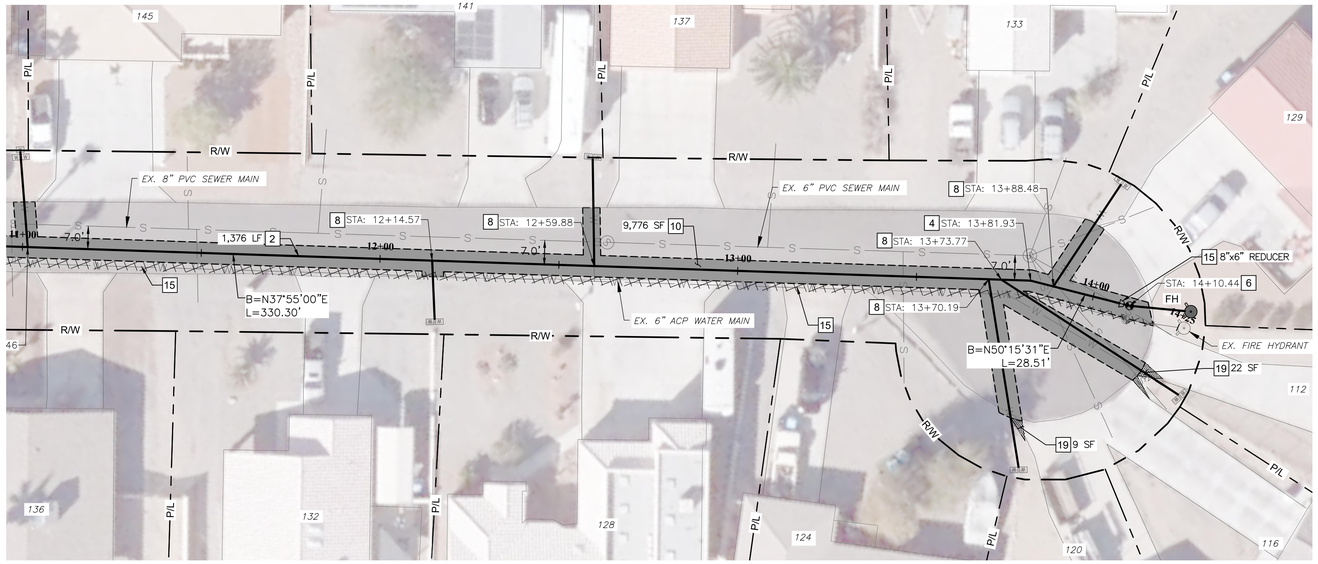
DRAWING NO.: C-17

SHEET 17 OF 31

F:\Trico Engineering LLC\Projects\2023\23-034_LHC FY 23-24 Water Main Replacement Design 17\CAD\Improvement Plans\23-034_Waterline Plans 15.dwg (15/4/15/2024 - entpermitto) - LP, 4/15/2024 3:51 PM

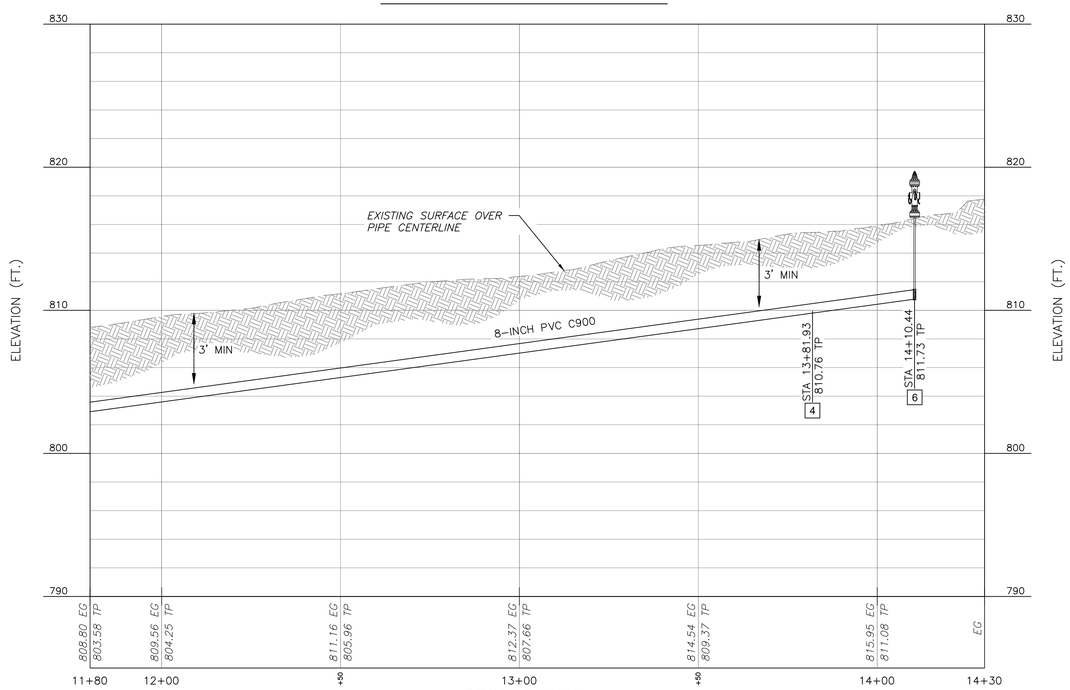
KEY NOTES:

1. INSTALL DI TEE PER LHC SPECIFICATION 02550. USE FLEX COUPLINGS FOR CONNECTION TO EXISTING PIPE. SIZE PER PLAN.
2. INSTALL 8-INCH PVC C900 DR14 PIPE PER LHC STD. DTL. NO. 200. ON SHEET C-29. LENGTH PER PLAN.
3. INSTALL 8-INCH GATE VALVE WITH RISER PER LHC STD. DTL NO. 300. ON SHEET C-29.
4. INSTALL DI FITTING WITH RESTRAINED JOINT PER LHC SPECIFICATION 02550. SIZE AND ANGLE PER PLAN.
5. INSTALL 1" AIR RELEASE / VACUUM VALVE ASSEMBLY PER LHC STD. DTL. NO. 310. ON SHEET C-30.
6. INSTALL FIRE HYDRANT ASSEMBLY PER LHC STD. DTL. NO. 320. ON SHEET C-30.
7. EXISTING WATER APPURTENANCE TO BE REMOVED.
8. INSTALL 1-INCH COPPER SERVICE ASSEMBLY PER DETAIL 3 ON SHEET C-31.
9. DROP WATERLINE UNDER EXISTING PER DTL. 2 ON SHEET C-31.
10. SAWCUT, REMOVE, AND REPLACE (6' WIDE) 2.5" AC PAVEMENT/0"AB. IN KIND. PATCH PER LIMITS SHOWN IN LHC STD. DTL. NO. 200. ON SHEET C-29.
11. REMOVE AND REPLACE 6" CURB PER LHC STD. DTL. NO. 213. ON SHEET C-29.
12. REMOVE AND REPLACE 6" CURB AND GUTTER PER LHC STD. DTL. NO. 214 ON SHEET C-29.
13. REMOVE AND REPLACE ROLLED CURB AND GUTTER PER LHC STD. DTL. NO. 215 ON SHEET C-31.
14. REMOVE AND REPLACE SIDEWALK PER LHC STD. DTL. NO. 216. ON SHEET C-29.
15. ABANDON EXISTING PIPE PER LHC STD. SPECIFICATION 02550 .
16. INSTALL 2-INCH BLOW-OFF ASSEMBLY END OF LINE PER LHC STD. DTL 314 ON SHEET C-30.
17. EXISTING RIM AND/OR WATER VALVE ELEVATION TO BE ADJUSTED TO FINISHED SURFACE.
18. INSTALL 6-INCH PVC C900 DR14 PIPE PER LHC STD. DTL. NO. 200. ON SHEET C-29. LENGTH PER PLAN.
19. CONTRACTOR TO REMOVE EXISTING DRIVEWAY AND APPROACH TO LIMITS SHOWN, AND REPLACE WITH DRIVEWAY PER LHC STD. DTL. NO. 201.
20. INSTALL 6-INCH GATE VALVE WITH RISER PER LHC STD. DTL NO. 300. ON SHEET C-29.
21. VALVE TO REMAIN CLOSED.



PLAN VIEW

WAYFARER LANE



PROFILE VIEW

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811 BLUE STAKE, INC.
Call 811 or click Arizona811.com

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 feet

REVISION RECORD

NO	DATE	DESCRIPTION

STEVEN D. PERROTO (Civil) 31910 STATE OF ARIZONA REGISTERED PROFESSIONAL ENGINEER CERTIFICATE NO.
EXPIRES 12-31-2025

TRICO ENGINEERING, LLC
LAKE HAVASU CITY
231 S. SMOKETREE VILLAGE DR. UNIT 284
LAKE HAVASU CITY, AZ 86403
(928) 208-0463
PHOENIX
2828 N. SPRINGER BLVD.
SUITE 115
SCOTTSDALE, AZ 85251

2024 WATER MAIN REPLACEMENT PROJECT, PHASE 1
B24-PW-108019-500441
LAKE HAVASU CITY
2330 MCCULLOCH BLVD N.
LAKE HAVASU CITY, AZ 86403
(928) 855-2116

LAKE HAVASU CITY, ARIZONA • INCORPORATED 1978

WAYFARER LANE IV

DATE:	APRIL 15, 2024
DRAWN BY:	JWC/CCP
DWG SCALE:	1"=20'
CHECKED BY:	EJP/SDP
PROJECT NO:	23-034
APPROVED BY:	SDP

DRAWING NO.: C-18

SHEET 18 OF 31

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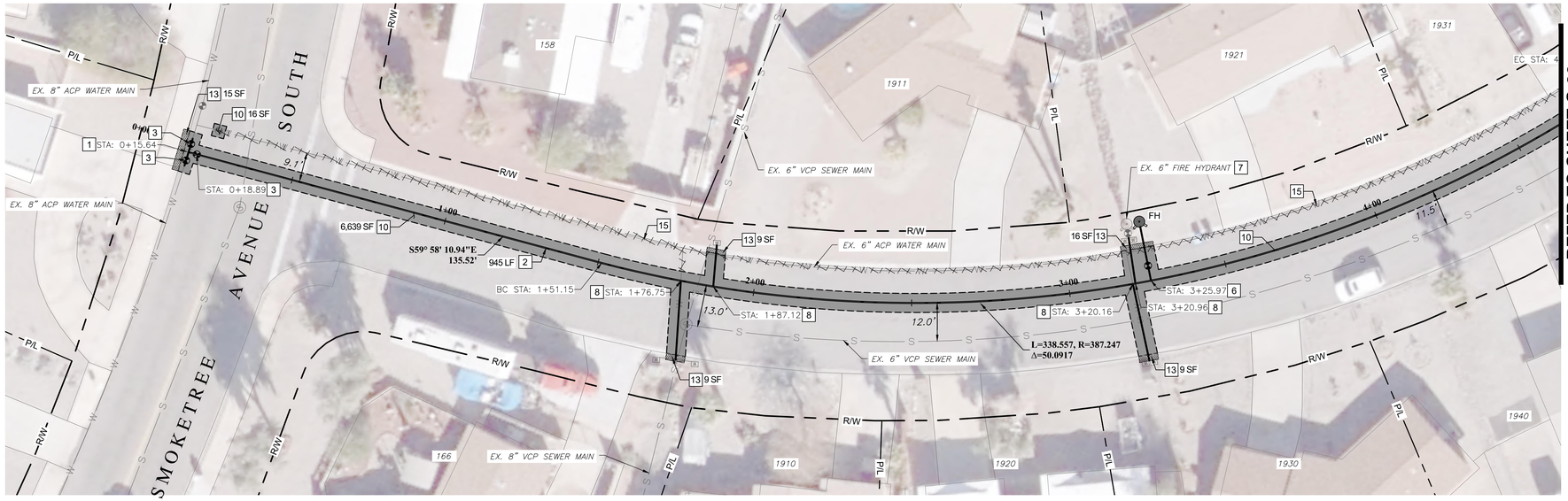
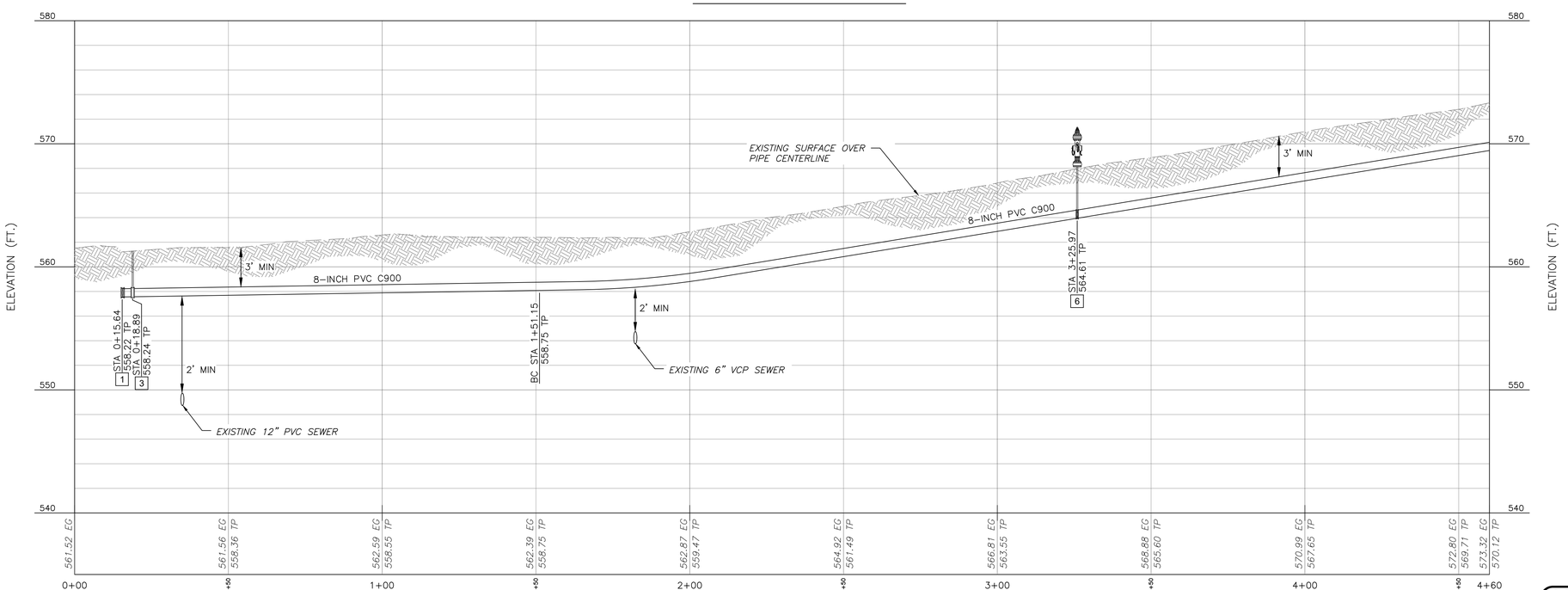


REFER TO SHEET C-20

PLAN VIEW

POPLAR DRIVE



PROFILE VIEW

KEY NOTES:

1. INSTALL DI TEE PER LHC SPECIFICATION 02550. USE FLEX COUPLINGS FOR CONNECTION TO EXISTING PIPE. SIZE PER PLAN.
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6. INSTALL FIRE HYDRANT ASSEMBLY PER LHC STD. DTL. NO. 320. ON SHEET C-30.
7. EXISTING WATER APPURTENANCE TO BE REMOVED.
8. INSTALL 1-INCH COPPER SERVICE ASSEMBLY PER DETAIL 3 ON SHEET C-31.
9. DROP WATERLINE UNDER EXISTING PER DTL. 2 ON SHEET C-31.
10. SAWCUT, REMOVE, AND REPLACE (6' WIDE) 2.5" AC PAVEMENT/0"AB. IN KIND. PATCH PER LIMITS SHOWN IN LHC STD. DTL. NO. 200. ON SHEET C-29.
11. REMOVE AND REPLACE 6" CURB PER LHC STD. DTL. NO. 213. ON SHEET C-29.
12. REMOVE AND REPLACE 6" CURB AND GUTTER PER LHC STD. DTL. NO. 214 ON SHEET C-29.
13. REMOVE AND REPLACE ROLLED CURB AND GUTTER PER LHC STD. DTL. NO. 215 ON SHEET C-31.
14. REMOVE AND REPLACE SIDEWALK PER LHC STD. DTL. NO. 216. ON SHEET C-29.
15. ABANDON EXISTING PIPE PER LHC STD. SPECIFICATION 02550 .
16. INSTALL 2-INCH BLOW-OFF ASSEMBLY END OF LINE PER LHC STD. DTL 314 ON SHEET C-30.
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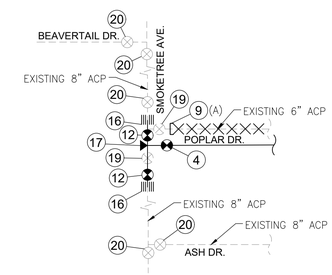
19. CONTRACTOR TO REMOVE EXISTING DRIVEWAY AND APPROACH TO LIMITS SHOWN, AND REPLACE WITH DRIVEWAY PER LHC STD. DTL. NO. 201.
20. INSTALL 6-INCH GATE VALVE WITH RISER PER LHC STD. DTL NO. 300. ON SHEET C-29.
21. VALVE TO REMAIN CLOSED.



CONNECTION DETAIL
N.T.S.

MATERIAL SCHEDULE:

1. 4" CAP PER DTL 1 ON SHEET C-31 AND IS NOTED WITH AN 'A' OR 'P' ON CONNECTION DETAIL
2. 4" TRANSITION PIPE COUPLING
3. 6" C-900 PVC PIPE
4. 6" RESILIENT SEAT GATE VALVE W/ NUT OPR & VALVE BOX, PER DTLS ON SHT C-29
5. 6" CAP PER DTL 1 ON SHEET C-31 AND IS NOTED WITH AN 'A' OR 'P' ON CONNECTION DETAIL
6. 6" TRANSITION PIPE COUPLING
7. 6" DI TEE WITH THRUST BLOCK PER DTL ON SHT C-30
8. 6" DI 90° BEND WITH THRUST BLOCK PER DTL ON SHT C-30
9. 8" CAP PER DTL 1 ON SHT C-31 AND IS NOTED WITH AN 'A' OR 'P' ON CONNECTION DETAIL
10. 8"x6" DI CONCENTRIC REDUCER
11. 8" C-900 PVC PIPE
12. 8" RESILIENT SEAT GATE VALVE W/NUT OPR & VALVE BOX, PER DTLS ON SHT C-29
13. 8" DI TEE WITH THRUST BLOCK PER DTL ON SHT C-30
14. 8"x6" DI CONCENTRIC REDUCER
15. 4" C-900 PVC PIPE
16. 8" TRANSITION PIPE COUPLING
17. 8"x8"x6" DI TEE WITH THRUST BLOCK PER DTL ON SHT C-30
18. 8" DI 90° BEND WITH THRUST BLOCK PER DTL ON SHT C-30
19. EXISTING VALVE TO BE REMOVED
20. EXISTING VALVE TO REMAIN
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22. 8"x4" DI CONCENTRIC REDUCER
23. 6"x4" DI CONCENTRIC REDUCER

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GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 feet

REVISION RECORD		
NO	DATE	DESCRIPTION

STEVEN D. PERROTTO (Civil) 51910 REGISTERED PROFESSIONAL ENGINEER ARIZONA U.S.A. EXPIRES 12-31-2025

TRICO ENGINEERING, LLC
LAKE HAVASU CITY 231 S. SMOKETREE AVENUE, STE. 204 LAKE HAVASU CITY, AZ 86403 (928) 230-0461
PHOENIX 2828 N. 32ND AVENUE, SUITE 100 SCOTTSDALE, AZ 85251

2024 WATER MAIN REPLACEMENT PROJECT, PHASE I
B24-PW-108019-500441
LAKE HAVASU CITY
2330 MCCULLOCH BLVD N.
LAKE HAVASU CITY, AZ 86403
(928) 855-2116

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POPLAR DRIVE I

DATE:	APRIL 15, 2024	DRAWN BY:	JWG/CCP
DWG SCALE:	1"=20'	CHECKED BY:	EJP/SDP
PROJECT NO:		23-034	
APPROVED BY:			SDP

DRAWING NO.: C-19
SHEET 19 OF 31

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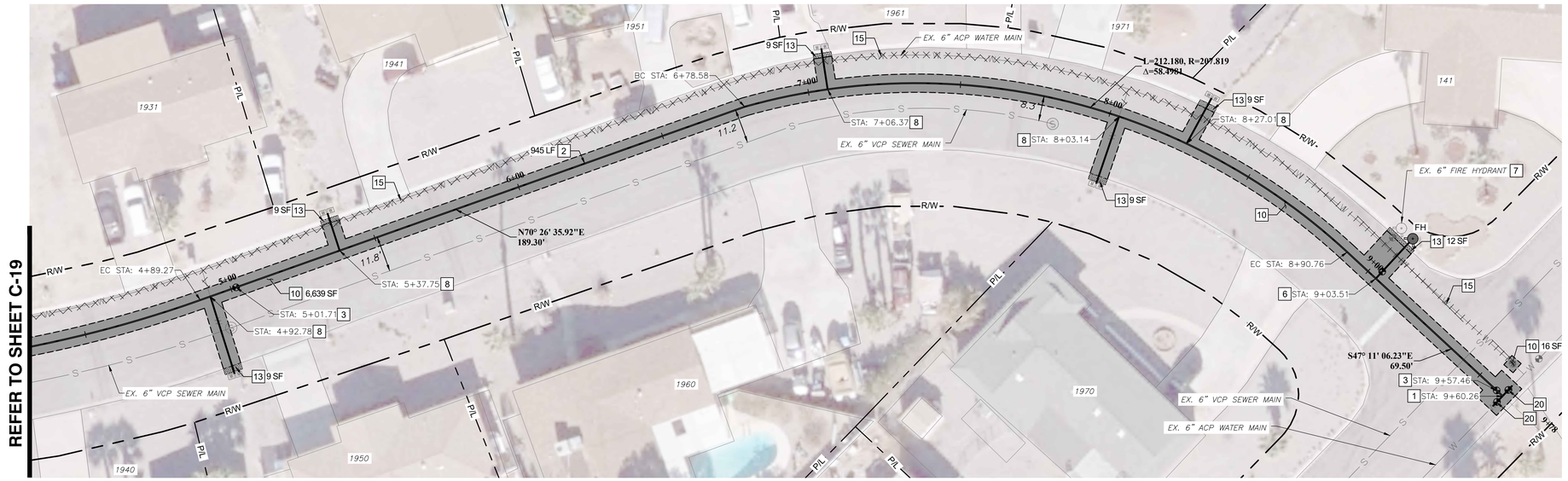
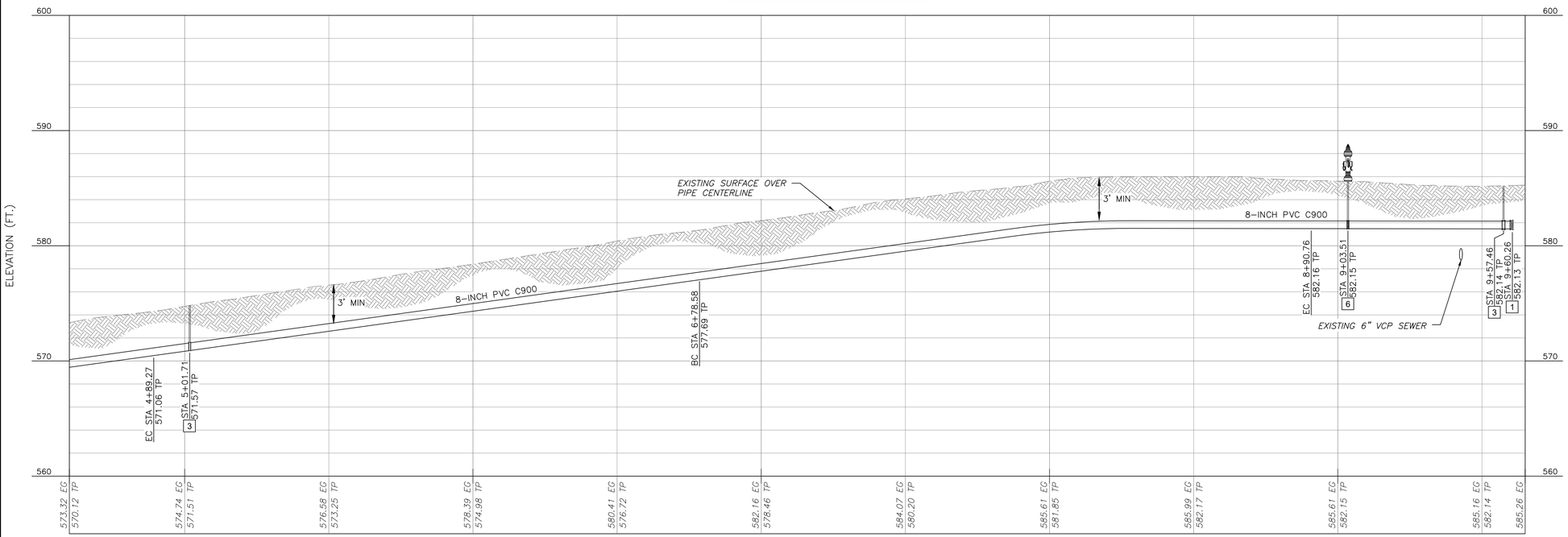


PLAN VIEW

POPLAR DRIVE



PROFILE VIEW

KEY NOTES:

1. INSTALL DI TEE PER LHC SPECIFICATION 02550. USE FLEX COUPLINGS FOR CONNECTION TO EXISTING PIPE. SIZE PER PLAN.
2. INSTALL 8-INCH PVC C900 DR14 PIPE PER LHC STD. DTL. NO. 200. ON SHEET C-29. LENGTH PER PLAN.
3. INSTALL 8-INCH GATE VALVE WITH RISER PER LHC STD. DTL NO. 300. ON SHEET C-29.
4. INSTALL DI FITTING WITH RESTRAINED JOINT PER LHC SPECIFICATION 02550. SIZE AND ANGLE PER PLAN.
5. INSTALL 1" AIR RELEASE / VACUUM VALVE ASSEMBLY PER LHC STD. DTL. NO. 310. ON SHEET C-30.
6. INSTALL FIRE HYDRANT ASSEMBLY PER LHC STD. DTL. NO. 320. ON SHEET C-30.
7. EXISTING WATER APPURTENANCE TO BE REMOVED.
8. INSTALL 1-INCH COPPER SERVICE ASSEMBLY PER DETAIL 3 ON SHEET C-31.
9. DROP WATERLINE UNDER EXISTING PER DTL. 2 ON SHEET C-31.
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11. REMOVE AND REPLACE 6" CURB PER LHC STD. DTL. NO. 213. ON SHEET C-29.
12. REMOVE AND REPLACE 6" CURB AND GUTTER PER LHC STD. DTL. NO. 214 ON SHEET C-29.
13. REMOVE AND REPLACE ROLLED CURB AND GUTTER PER LHC STD. DTL. NO. 215 ON SHEET C-31.
14. REMOVE AND REPLACE SIDEWALK PER LHC STD. DTL. NO. 216. ON SHEET C-29.
15. ABANDON EXISTING PIPE PER LHC STD. SPECIFICATION 02550 .
16. INSTALL 2-INCH BLOW-OFF ASSEMBLY END OF LINE PER LHC STD. DTL 314 ON SHEET C-30.
17. EXISTING RIM AND/OR WATER VALVE ELEVATION TO BE ADJUSTED TO FINISHED SURFACE.
18. INSTALL 6-INCH PVC C900 DR14 PIPE PER LHC STD. DTL. NO. 200. ON SHEET C-29. LENGTH PER PLAN.
19. CONTRACTOR TO REMOVE EXISTING DRIVEWAY AND APPROACH TO LIMITS SHOWN, AND REPLACE WITH DRIVEWAY PER LHC STD. DTL. NO. 201.
20. INSTALL 6-INCH GATE VALVE WITH RISER PER LHC STD. DTL NO. 300. ON SHEET C-29.
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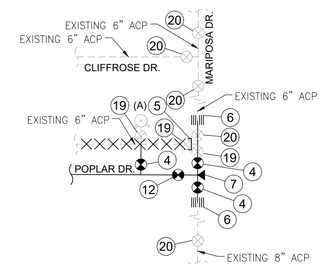

CONNECTION DETAIL
N.T.S.

MATERIAL SCHEDULE:

1. 4" CAP PER DTL 1 ON SHEET C-31 AND IS NOTED WITH AN 'A' OR 'P' ON CONNECTION DETAIL
2. 4" TRANSITION PIPE COUPLING
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7. 6" DI TEE WITH THRUST BLOCK PER DTL ON SHT C-30
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9. 8" CAP PER DTL 1 ON SHT C-31 AND IS NOTED WITH AN 'A' OR 'P' ON CONNECTION DETAIL
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11. 8" C-900 PVC PIPE
12. 8" RESILIENT SEAT GATE VALVE W/NUT OPR & VALVE BOX, PER DTLS ON SHT C-29
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14. 8"x6" DI CONCENTRIC REDUCER
15. 4" C-900 PVC PIPE
16. 8" TRANSITION PIPE COUPLING
17. 8"x8"x6" DI TEE WITH THRUST BLOCK PER DTL ON SHT C-30
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GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 feet

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ARIZONA811 BLUE STAKE, INC.
Call 811 or click Arizona811.com

NO	DATE	DESCRIPTION

REVISION RECORD

STEVEN D. PEROTTO, (Civil) No. 51810, Date Signed 4/15/24, REGISTERED PROFESSIONAL ENGINEER, STATE OF ARIZONA
EXPIRES 12-31-2025

TRICO ENGINEERING, LLC
LAKE HAVASU CITY: 231 S. SMOKE TREE BLVD., SUITE 204, LAKE HAVASU CITY, AZ 86403, (928) 505-0786
PHOENIX: 2858 N. 32ND STREET, PHOENIX, AZ 85008, (928) 453-0786
SCOTTSDALE: 7669 E. PAPAGO ROAD, SCOTTSDALE, AZ 85255, (928) 453-0786

2024 WATER MAIN REPLACEMENT PROJECT, PHASE I
B24-PW-108019-500441
LAKE HAVASU CITY
2330 MCCULLOCH BLVD N.
LAKE HAVASU CITY, AZ 86403
(928) 855-2116

LAKE HAVASU CITY, ARIZONA • INCORPORATED 1978

POPLAR DRIVE II

DATE:	APRIL 15, 2024
DRAWN BY:	JWC/CCP
DWG SCALE:	1"=20'
CHECKED BY:	EJP/SDP
PROJECT NO:	23-034
APPROVED BY:	SDP

DRAWING NO.: C-20
SHEET 20 OF 31

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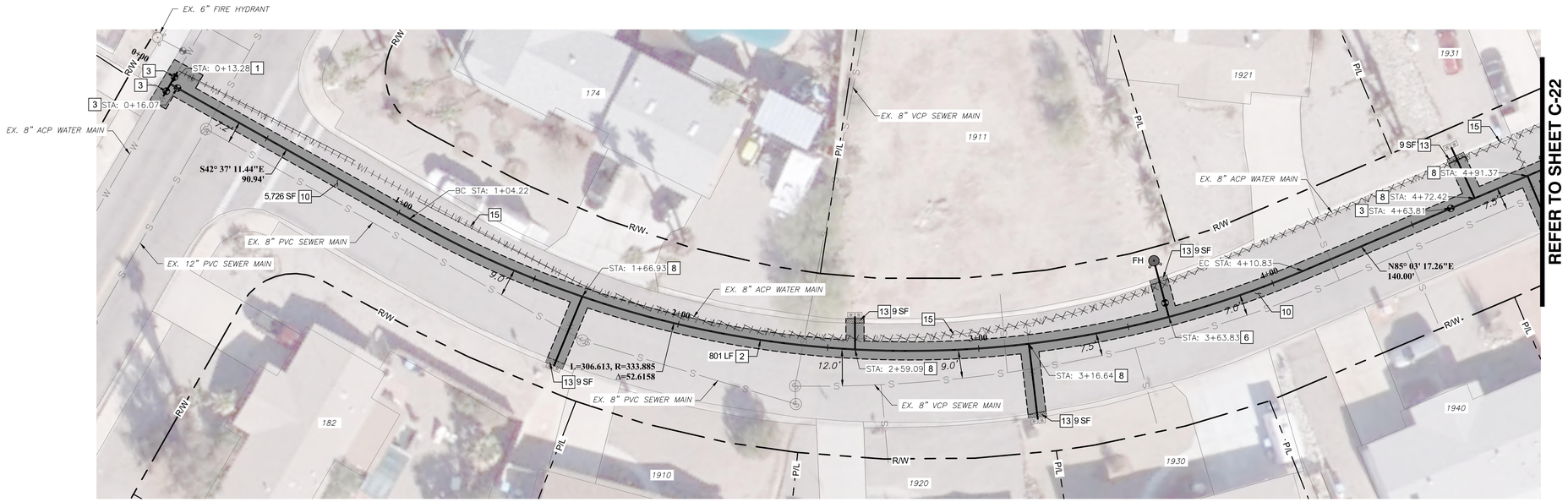
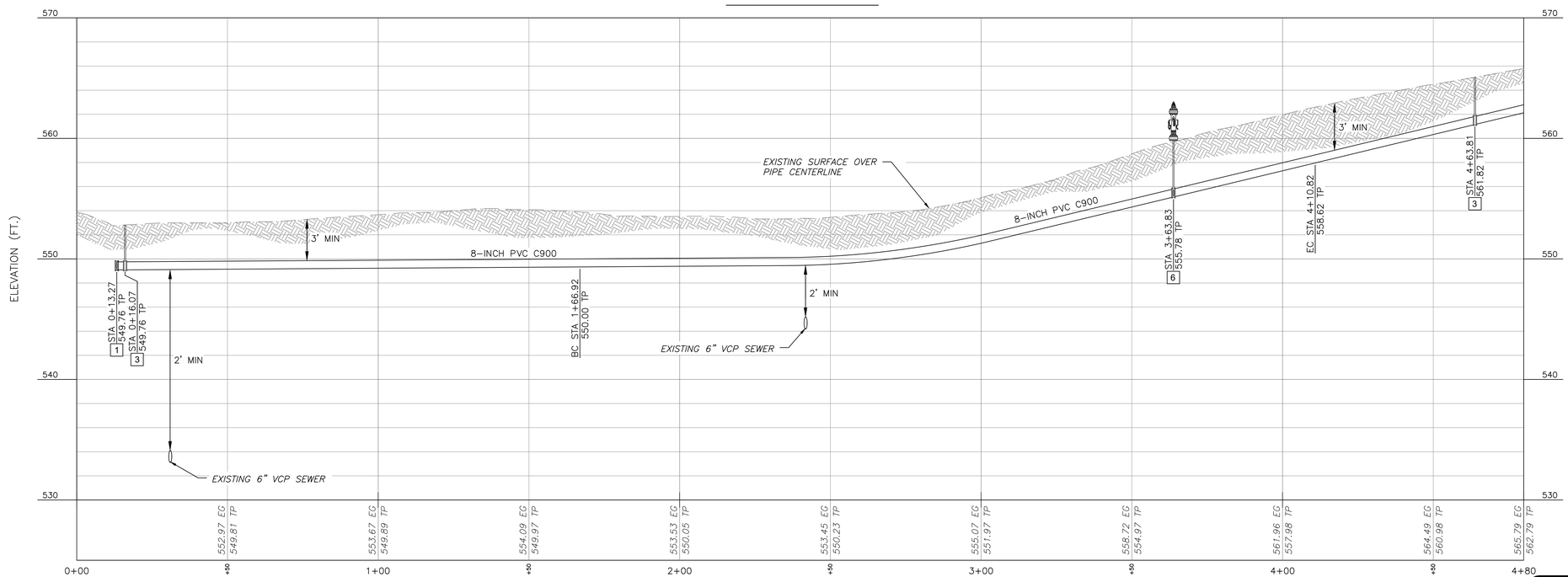


REFER TO SHEET C-22

PLAN VIEW

ASH DRIVE



PROFILE VIEW

KEY NOTES:

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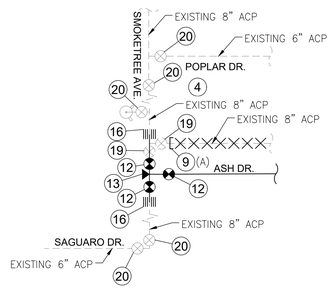

CONNECTION DETAIL
N.T.S.

MATERIAL SCHEDULE:

1. 4" CAP PER DTL 1 ON SHEET C-31 AND IS NOTED WITH AN 'A' OR 'P' ON CONNECTION DETAIL
2. 4" TRANSITION PIPE COUPLING
3. 6" C-900 PVC PIPE
4. 6" RESILIENT SEAT GATE VALVE W/ NUT OPR & VALVE BOX, PER DTLS ON SHT C-29
5. 6" CAP PER DTL 1 ON SHEET C-31 AND IS NOTED WITH AN 'A' OR 'P' ON CONNECTION DETAIL
6. 6" TRANSITION PIPE COUPLING
7. 6" DI TEE WITH THRUST BLOCK PER DTL ON SHT C-30
8. 6" DI 90° BEND WITH THRUST BLOCK PER DTL ON SHT C-30
9. 8" CAP PER DTL 1 ON SHT C-31 AND IS NOTED WITH AN 'A' OR 'P' ON CONNECTION DETAIL
10. 8"x6" DI CONCENTRIC REDUCER
11. 8" C-900 PVC PIPE
12. 8" RESILIENT SEAT GATE VALVE W/NUT OPR & VALVE BOX, PER DTLS ON SHT C-29
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14. 8"x6" DI CONCENTRIC REDUCER
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17. 8"x8"x6" DI TEE WITH THRUST BLOCK PER DTL ON SHT C-30
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19. EXISTING VALVE TO BE REMOVED
20. EXISTING VALVE TO REMAIN
21. EXISTING WHARF HYDRANT TO BE REMOVED
22. 8"x4" DI CONCENTRIC REDUCER
23. 6"x4" DI CONCENTRIC REDUCER

N

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 feet

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811 BLUE STAKE, INC.
Call 811 or click Arizona811.com

REVISION RECORD

NO	DATE	DESCRIPTION

STEVEN D. POLIDORE, RLS 36192 (Civil) ARIZONA U.S.A.
EXPIRES 12-31-2025

TRICO ENGINEERING, LLC
LAKE HAVASU CITY
231 S. SMOKETREE AVENUE, STE. 204
LAKE HAVASU CITY, AZ 86403
(928) 230-0441
2810 N. 73RD STREET
SUITE 103
SCOTTSDALE, AZ 85251

2024 WATER MAIN REPLACEMENT PROJECT, PHASE I
B24-PW-108019-500441
LAKE HAVASU CITY
2330 MCCULLOCH BLVD N.
LAKE HAVASU CITY, AZ 86403
(928) 855-2116

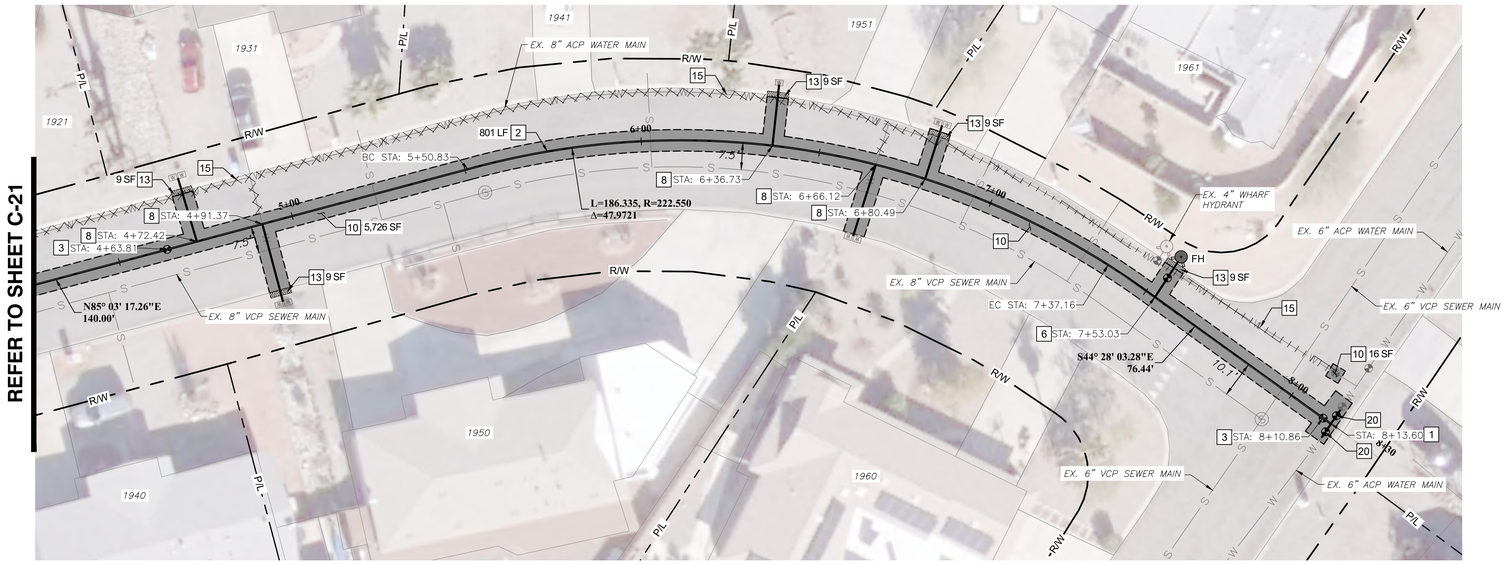
LAKE HAVASU CITY, ARIZONA • INCORPORATED 1978

ASH DRIVE I

DATE:	APRIL 15, 2024
DRAWN BY:	JWC/CCP
DWG SCALE:	1"=20'
CHECKED BY:	EJP/SDP
PROJECT NO:	21-034
APPROVED BY:	SDP

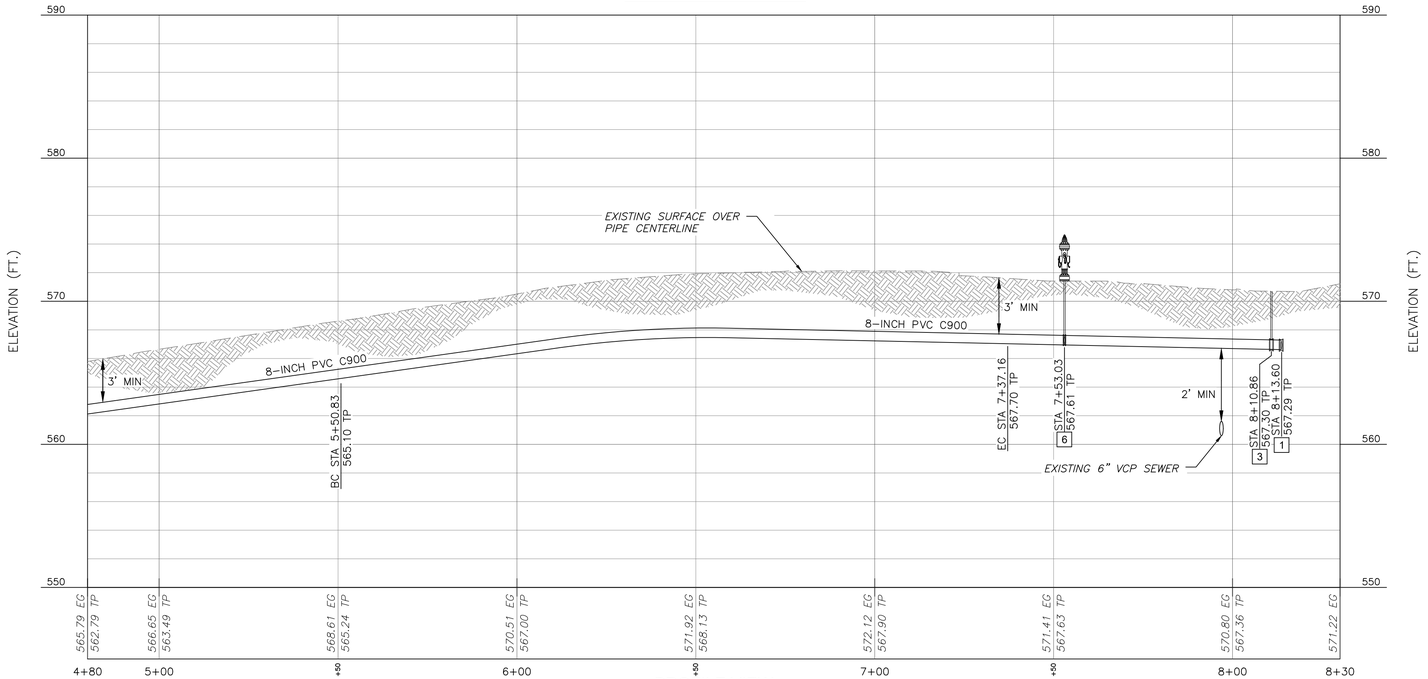
DRAWING NO.: C-21
SHEET 21 OF 31

F:\Trico Engineering LLC\Projects\2021\21-034_LHC FY 23-24 Water Main Replacement Design 17\040\Improvement Plans\21-034_Relocation Plans R1.dwg LS:(4/15/2024 - eriqueroitis) - LP: 4/15/2024 3:04 PM



PLAN VIEW

ASH DRIVE



PROFILE VIEW

KEY NOTES:

1. INSTALL DI TEE PER LHC SPECIFICATION 02550. USE FLEX COUPLINGS FOR CONNECTION TO EXISTING PIPE. SIZE PER PLAN.
2. INSTALL 8-INCH PVC C900 DR14 PIPE PER LHC STD. DTL. NO. 200. ON SHEET C-29. LENGTH PER PLAN.
3. INSTALL 8-INCH GATE VALVE WITH RISER PER LHC STD. DTL NO. 300. ON SHEET C-29.
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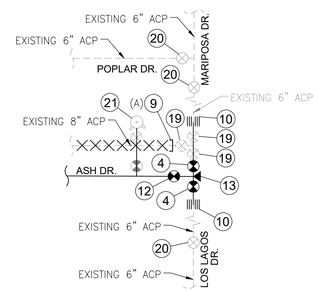
5. INSTALL 1" AIR RELEASE / VACUUM VALVE ASSEMBLY PER LHC STD. DTL. NO. 310. ON SHEET C-30.
6. INSTALL FIRE HYDRANT ASSEMBLY PER LHC STD. DTL. NO. 320. ON SHEET C-30.
7. EXISTING WATER APPURTENANCE TO BE REMOVED.
8. INSTALL 1-INCH COPPER SERVICE ASSEMBLY PER DETAIL 3 ON SHEET C-31.
9. DROP WATERLINE UNDER EXISTING PER DTL. 2 ON SHEET C-31.
10. SAWCUT, REMOVE, AND REPLACE (6' WIDE) 2.5" AC PAVEMENT/0"AB. IN KIND. PATCH PER LIMITS SHOWN IN LHC STD. DTL. NO. 200. ON SHEET C-29.
11. REMOVE AND REPLACE 6" CURB PER LHC STD. DTL. NO. 213. ON SHEET C-29.
12. REMOVE AND REPLACE 6" CURB AND GUTTER PER LHC STD. DTL. NO. 214 ON SHEET C-29.
13. REMOVE AND REPLACE ROLLED CURB AND GUTTER PER LHC STD. DTL. NO. 215 ON SHEET C-31.
14. REMOVE AND REPLACE SIDEWALK PER LHC STD. DTL. NO. 216. ON SHEET C-29.
15. ABANDON EXISTING PIPE PER LHC STD. SPECIFICATION 02550 .
16. INSTALL 2-INCH BLOW-OFF ASSEMBLY END OF LINE PER LHC STD. DTL 314 ON SHEET C-30.
17. EXISTING RIM AND/OR WATER VALVE ELEVATION TO BE ADJUSTED TO FINISHED SURFACE.
18. INSTALL 6-INCH PVC C900 DR14 PIPE PER LHC STD. DTL. NO. 200. ON SHEET C-29. LENGTH PER PLAN.
19. CONTRACTOR TO REMOVE EXISTING DRIVEWAY AND APPROACH TO LIMITS SHOWN, AND REPLACE WITH DRIVEWAY PER LHC STD. DTL. NO. 201.
20. INSTALL 6-INCH GATE VALVE WITH RISER PER LHC STD. DTL NO. 300. ON SHEET C-29.
21. VALVE TO REMAIN CLOSED.



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GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 feet

REVISION RECORD

NO	DATE	DESCRIPTION

STEVEN D. POLIDORE 31910 ARIZONA (Civil) EXPIRES 12-31-2025

TRICO ENGINEERING, LLC
LAKE HAVASU CITY
231 S. SMOKETREE VILLAGE DR., STE. 204
LAKE HAVASU CITY, AZ 86403
(928) 453-4485
PHOENIX
2828 N. HIGH SCHOOL
MESA, AZ 85213
SCOTTSDALE, AZ 85251

2024 WATER MAIN REPLACEMENT PROJECT, PHASE I
B24-PW-108019-500441
LAKE HAVASU CITY
2330 MCCULLOCH BLVD N.
LAKE HAVASU CITY, AZ 86403
(928) 855-2116

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ASH DRIVE II

DATE:	APRIL 15, 2024
DRAWN BY:	JWC/CCP
DWG SCALE:	1"=20'
CHECKED BY:	EJP/SDP
PROJECT NO:	23-034
APPROVED BY:	SDP

DRAWING NO.: C-22
SHEET 22 OF 31

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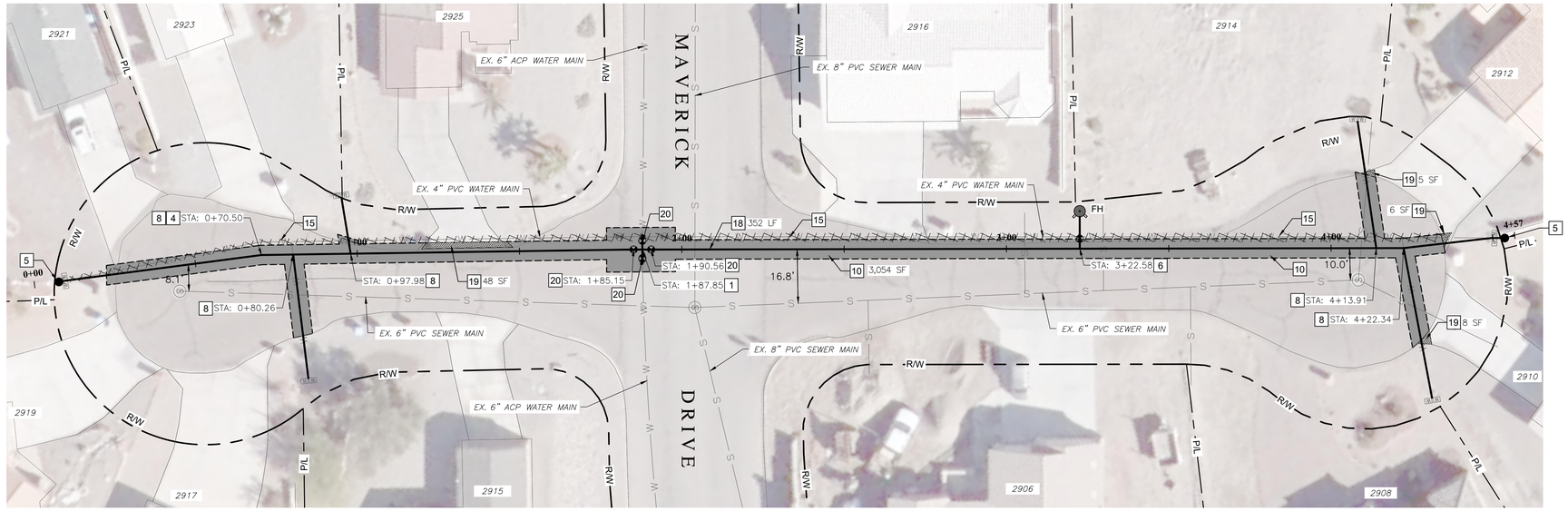
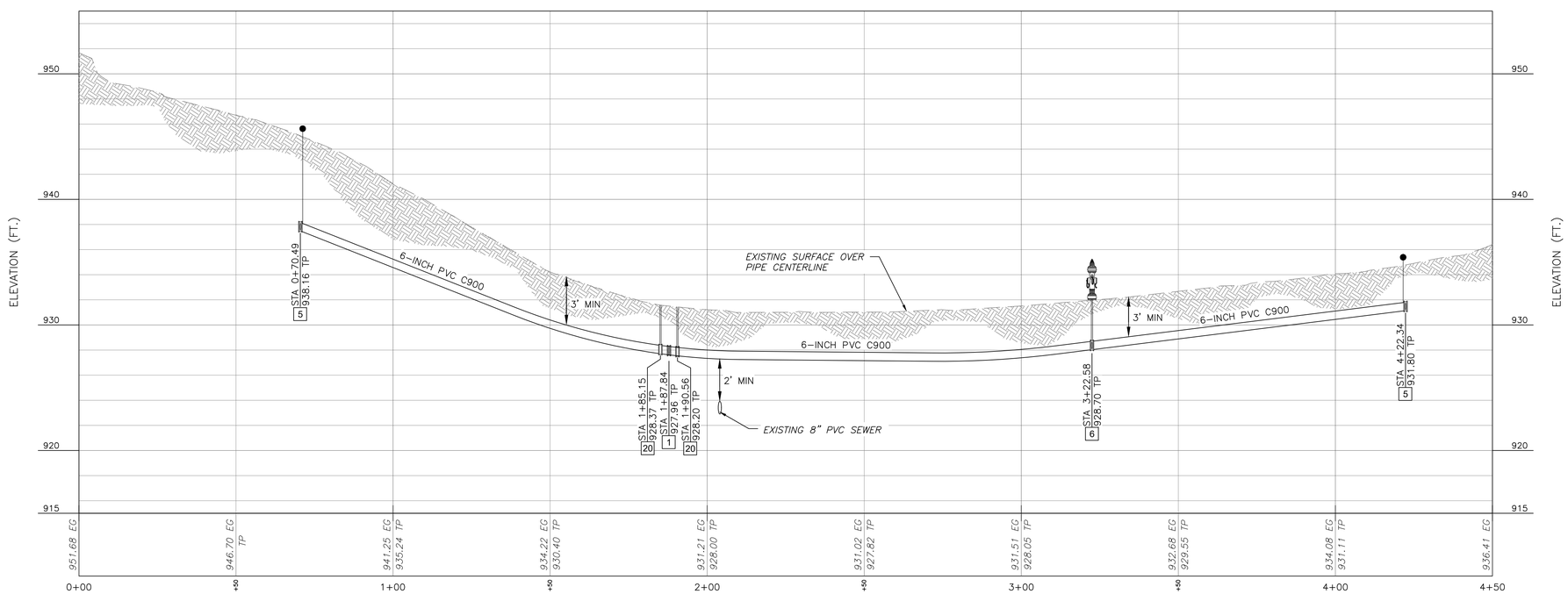


PLAN VIEW

MAVERICK CIRCLE N. & S.



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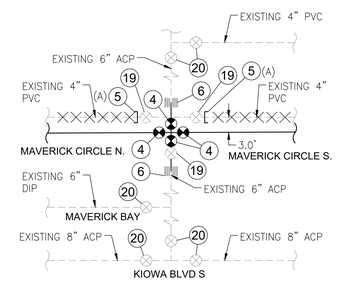

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ARIZONA811
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GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 feet

REVISION RECORD

NO	DATE	DESCRIPTION

STEVEN D. PEARCE (Civil) No. 31780 STATE OF ARIZONA REGISTERED PROFESSIONAL ENGINEER
EXPIRES 12-31-2025

TRICO ENGINEERING, LLC
LAKE HAVASU CITY: 231 S. LAKESHORE DR., STE. 204, LAKE HAVASU CITY, AZ 86403, (928) 505-0480
PHOENIX: 2038 N. 32ND STREET, PHOENIX, AZ 85008, (602) 326-1928
SCOTTSDALE: 8777 E. VIA DE VENTURA, STE. F-2155, SCOTTSDALE, AZ 85258, (480) 483-8851

2024 WATER MAIN REPLACEMENT PROJECT, PHASE 1
B24-PW-108019-500441
LAKE HAVASU CITY
2330 MCCULLOCH BLVD N.
LAKE HAVASU CITY, AZ 86403
(928) 855-2116

LAKE HAVASU CITY, ARIZONA • INCORPORATED 1978

MAVERICK CIRCLE N. & S.

DATE:	APRIL 15, 2024
DRAWN BY:	JWC/CCP
DWG SCALE:	1"=20'
CHECKED BY:	EJP/SDP
PROJECT NO:	23-034
APPROVED BY:	SDP

DRAWING NO.: C-23
SHEET 23 OF 31

F:\Trico Engineering LLC\Projects\2023\23-034_LHC FY 23-24 Water Main Replacement Design 17\CAD\Improvement Plans\23-034_Waterline Plans V.dwg LS:(4/15/2024 - enlgsmith) - LP: 4/15/2024 3:06 PM

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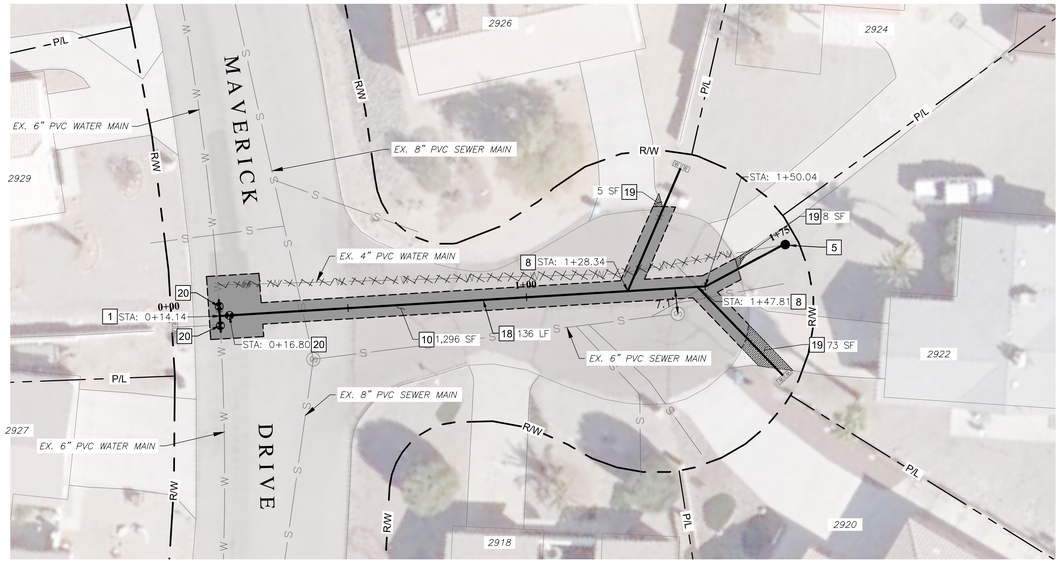
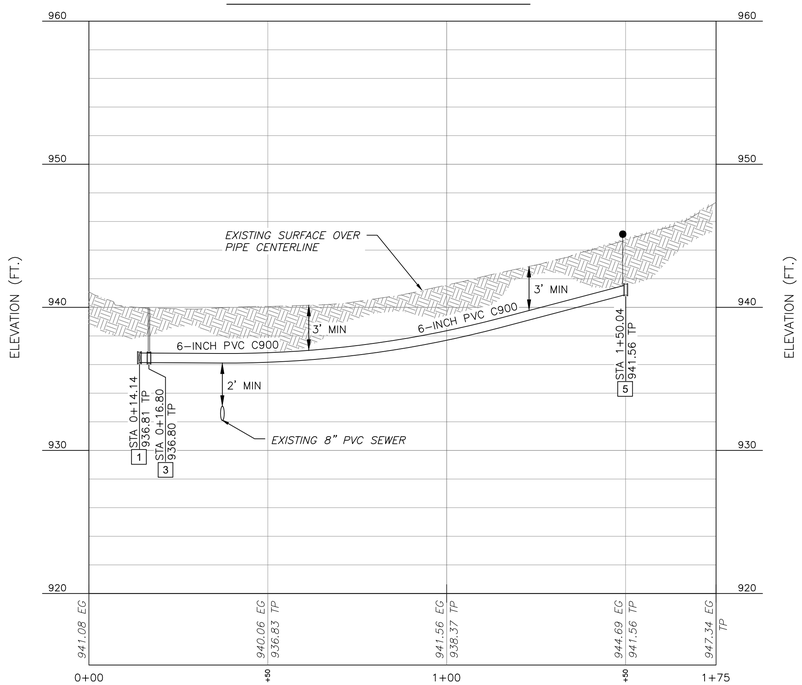
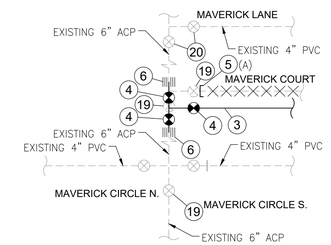


PLAN VIEW

MAVERICK COURT



PROFILE VIEW



CONNECTION DETAIL
N.T.S.

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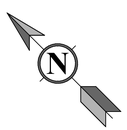

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ARIZONA811 BLUE STAKE, INC.
Call 811 or click Arizona811.com

REVISION RECORD

NO	DATE	DESCRIPTION

519 10 SAMUEL PERROTTO REGISTERED PROFESSIONAL ENGINEER (Civil) CERTIFICATE NO. 36 EXPIRES 12-31-2025

TRICO ENGINEERING, LLC
LAKE HAVASU CITY 231 LONDON AVENUE, STE. 204 LAKE HAVASU CITY, AZ 86403 (928) 230-0461
PHOENIX 2858 N. 32ND STREET PHOENIX, AZ 85008 SCOTTSDALE, AZ 85251

2024 WATER MAIN REPLACEMENT PROJECT, PHASE 1
B24-PW-108019-500441
LAKE HAVASU CITY
2330 MCCULLOCH BLVD N.
LAKE HAVASU CITY, AZ 86403
(928) 855-2116

LAKE HAVASU CITY, ARIZONA • INCORPORATED 1978

MAVERICK COURT

DATE:	APRIL 15, 2024
DRAWN BY:	JWC/CCP
DWG SCALE:	1"=20'
CHECKED BY:	EJP/SDP
PROJECT NO:	23-034
APPROVED BY:	SDP

DRAWING NO.: C-24

SHEET 24 OF 31

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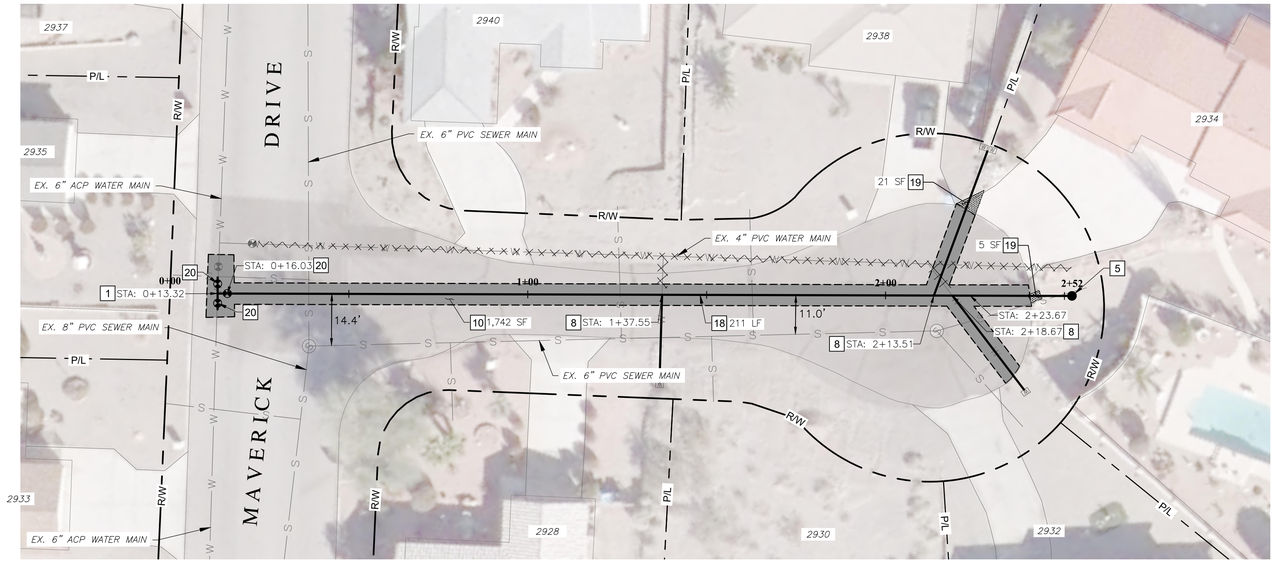
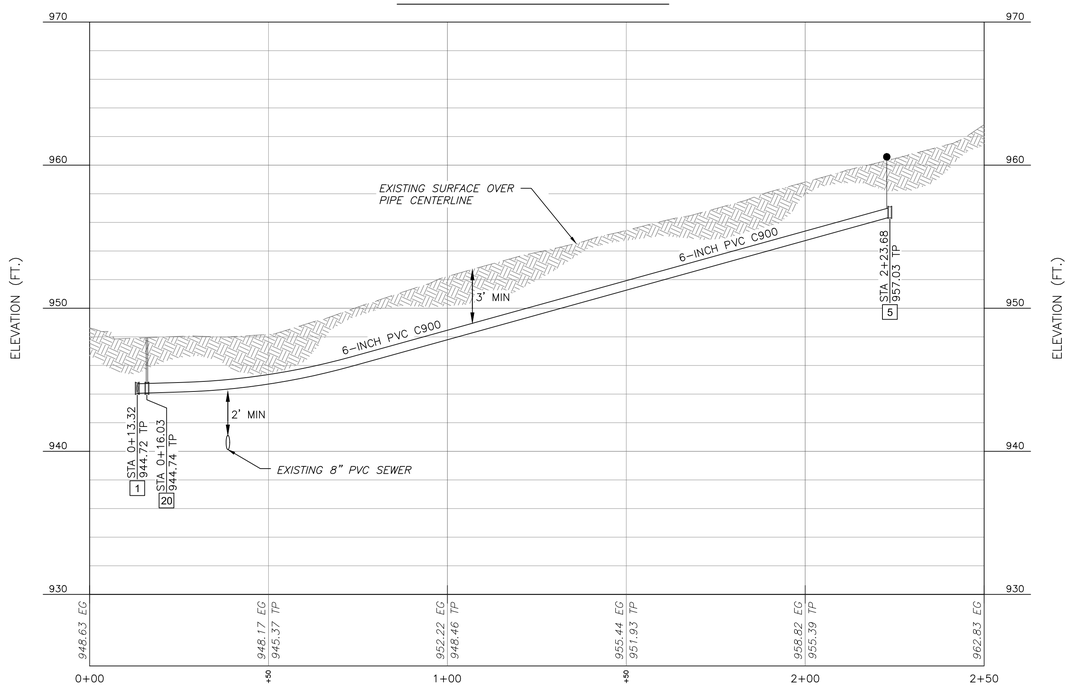


PLAN VIEW

MAVERICK LANE



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3. INSTALL 8-INCH GATE VALVE WITH RISER PER LHC STD. DTL NO. 300. ON SHEET C-29.
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5. INSTALL 1" AIR RELEASE / VACUUM VALVE ASSEMBLY PER LHC STD. DTL. NO. 310. ON SHEET C-30.
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7. EXISTING WATER APPURTENANCE TO BE REMOVED.
8. INSTALL 1-INCH COPPER SERVICE ASSEMBLY PER DETAIL 3 ON SHEET C-31.
9. DROP WATERLINE UNDER EXISTING PER DTL. 2 ON SHEET C-31.
10. SAWCUT, REMOVE, AND REPLACE (6' WIDE) 2.5" AC PAVEMENT/0"AB. IN KIND. PATCH PER LIMITS SHOWN IN LHC STD. DTL. NO. 200. ON SHEET C-29.
11. REMOVE AND REPLACE 6" CURB PER LHC STD. DTL. NO. 213. ON SHEET C-29.
12. REMOVE AND REPLACE 6" CURB AND GUTTER PER LHC STD. DTL. NO. 214 ON SHEET C-29.
13. REMOVE AND REPLACE ROLLED CURB AND GUTTER PER LHC STD. DTL. NO. 215 ON SHEET C-31.
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15. ABANDON EXISTING PIPE PER LHC STD. SPECIFICATION 02550 .
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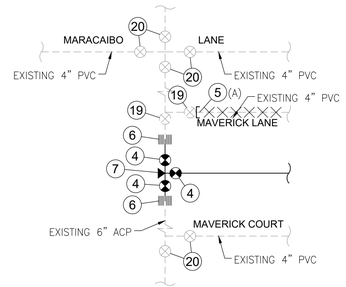
20. INSTALL 6-INCH GATE VALVE WITH RISER PER LHC STD. DTL NO. 300. ON SHEET C-29.
21. VALVE TO REMAIN CLOSED.



CONNECTION DETAIL
N.T.S.

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N

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 feet

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811 BLUE STAKE, INC.
Call 811 or click Arizona811.com

REVISION RECORD

NO	DATE	DESCRIPTION

STEVEN D. PERROTTO (Civil) 51810 STATE OF ARIZONA REGISTERED PROFESSIONAL ENGINEER
EXPIRES 12-31-2025

TRICO ENGINEERING, LLC
LAKE HAVASU CITY
231 S. SMOKETREE VILLAGE DR., STE. 204
LAKE HAVASU CITY, AZ 86403
(928) 453-4485

PHOENIX
2828 N. SPRINGER BLVD.
MESA, AZ 85215
SCOTTSDALE, AZ 85251

2024 WATER MAIN REPLACEMENT PROJECT, PHASE 1
B24-PW-108019-500441
LAKE HAVASU CITY
2330 MCCULLOCH BLVD N.
LAKE HAVASU CITY, AZ 86403
(928) 855-2116

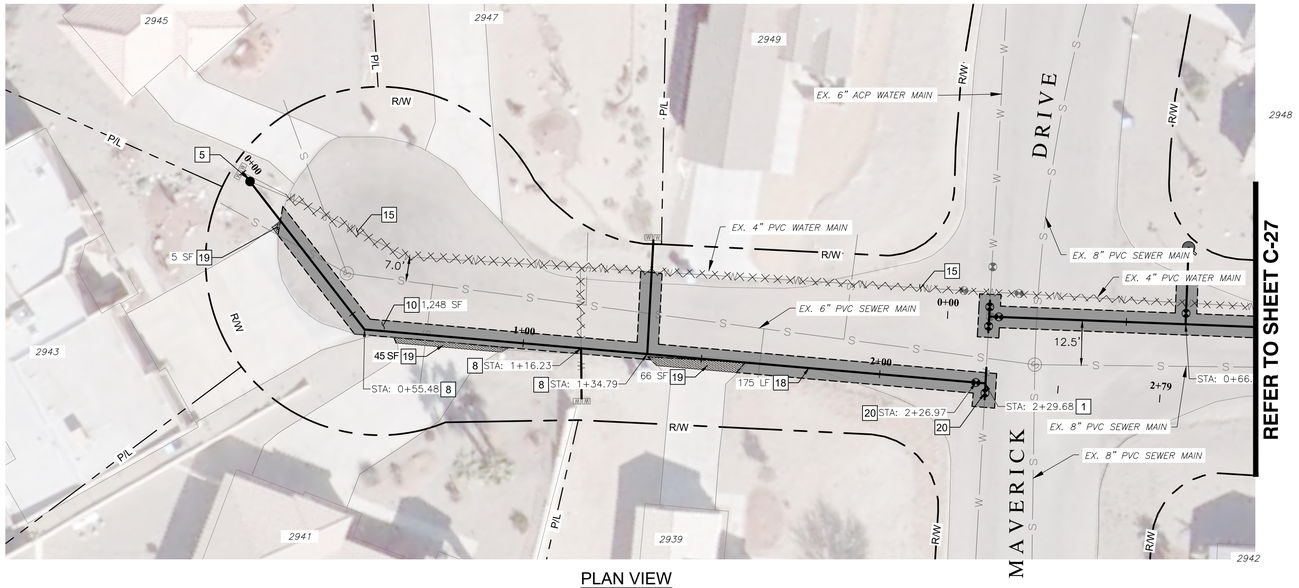
LAKE HAVASU CITY, ARIZONA • INCORPORATED 1978

MAVERICK LANE

DATE:	APRIL 15, 2024
DRAWN BY:	JWC/CCP
DWG SCALE:	1"=20'
CHECKED BY:	EJP/SDP
PROJECT NO:	23-034
APPROVED BY:	SDP

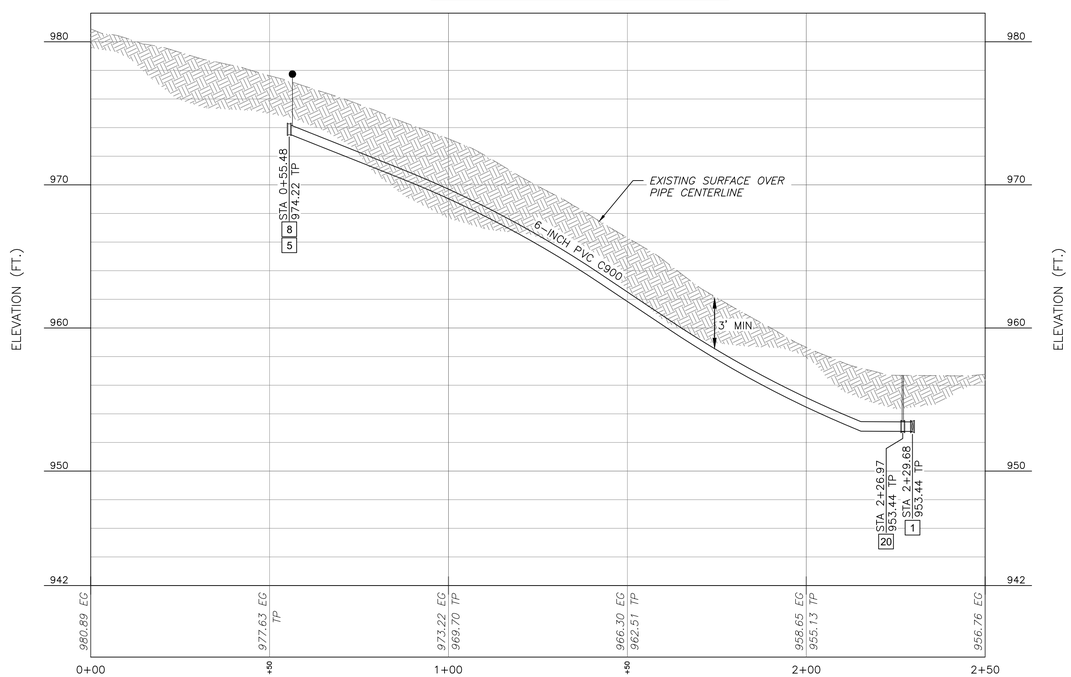
DRAWING NO.: C-25
SHEET 25 OF 31

F:\Trico Engineering LLC\Projects\2023\23-034_LHC FY 23-24 Water Main Replacement Design 17\CAD\Improvement Plans\23-034_Waterline Plans V.dwg LS:(4/15/2024 - eriganmitis) - LP: 4/15/2024 3:07 PM



PLAN VIEW

MARACAIBO LANE



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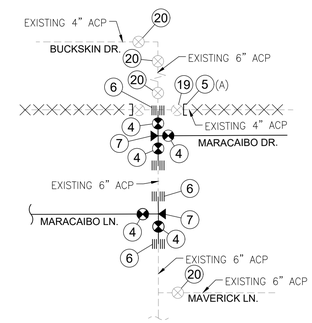

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REVISION RECORD		
NO	DATE	DESCRIPTION

STEVEN D. PERROTTO, RLS 36910, STATE OF ARIZONA, REGISTERED LAND SURVEYOR
EXPIRES 12-31-2025

TRICO ENGINEERING, LLC
LAKE HAVASU CITY
231 S. SMOKETREE LN., STE. 204
LAKE HAVASU CITY, AZ 86403
(928) 230-0441
PHOENIX
2858 N. GREY HACKLE
MESA, AZ 85215
SCOTTSDALE, AZ 85262

2024 WATER MAIN REPLACEMENT PROJECT, PHASE 1
B24-PW-108019-500441
LAKE HAVASU CITY
2330 MCCULLOCH BLVD N.
LAKE HAVASU CITY, AZ 86403
(928) 855-2116

LAKE HAVASU CITY, ARIZONA • INCORPORATED 1978

MARACAIBO LANE

DATE:	APRIL 15, 2024	DRAWN BY:	JW/CCP
DWG SCALE:	1"=20'	CHECKED BY:	EJP/SDP
PROJECT NO:			23-034
APPROVED BY:			SDP

DRAWING NO.:
C-26
SHEET 26 OF 31

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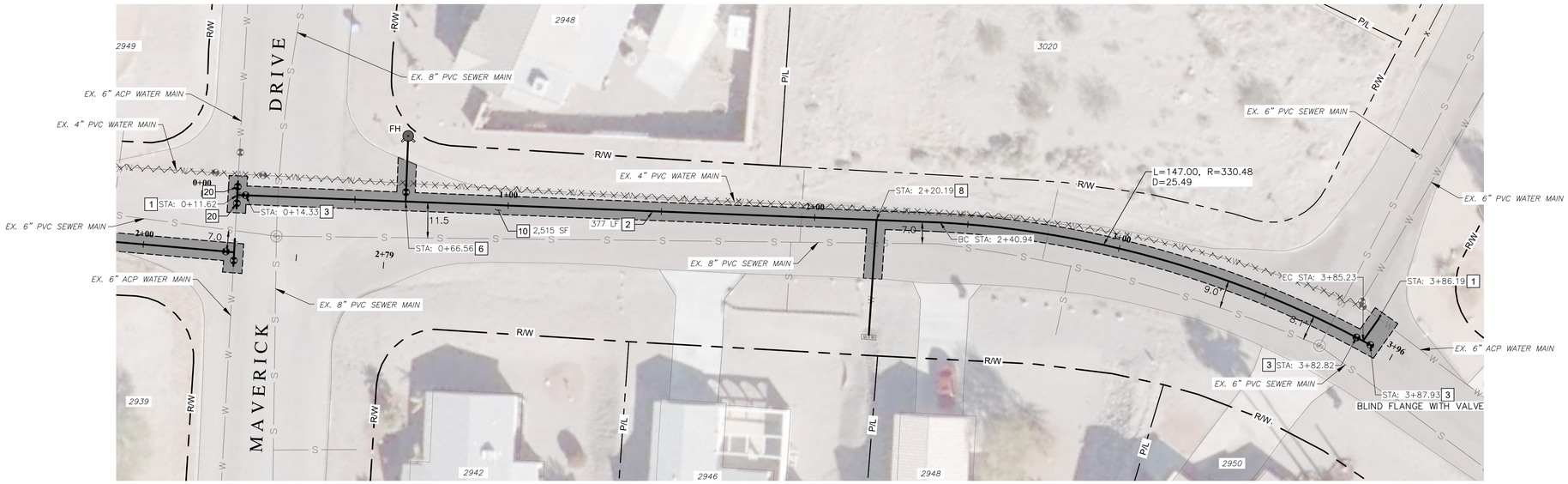
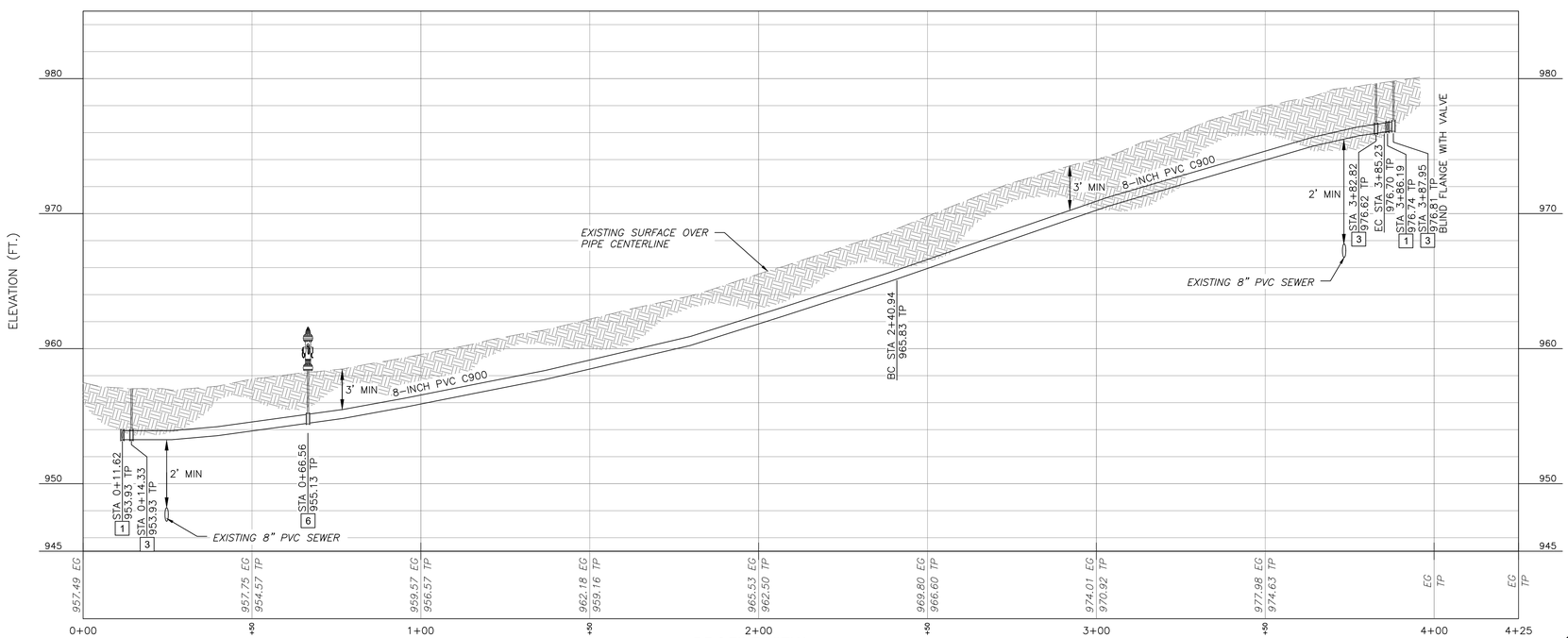


PLAN VIEW

MARACAIBO DRIVE



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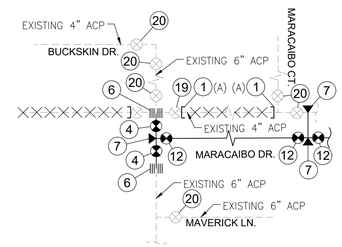

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N

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REVISION RECORD

NO	DATE	DESCRIPTION

STEVEN D. POTTER (Civil) 51810 REGISTERED PROFESSIONAL ENGINEER ARIZONA U.S.A. EXPIRES 12-31-2025

TRICO ENGINEERING, LLC
LAKE HAVASU CITY
231 LONDON AVENUE, STE. 204
LAKE HAVASU CITY, AZ 86403
(928) 230-0483
PHOENIX
2858 N. 32ND AVENUE
PHOENIX, AZ 85009
SCOTTSDALE, AZ 85251

2024 WATER MAIN REPLACEMENT PROJECT, PHASE I
B24-PW-108019-500441
LAKE HAVASU CITY
2330 MCCULLOCH BLVD N.
LAKE HAVASU CITY, AZ 86403
(928) 855-2116

LAKE HAVASU CITY, ARIZONA • INCORPORATED 1978

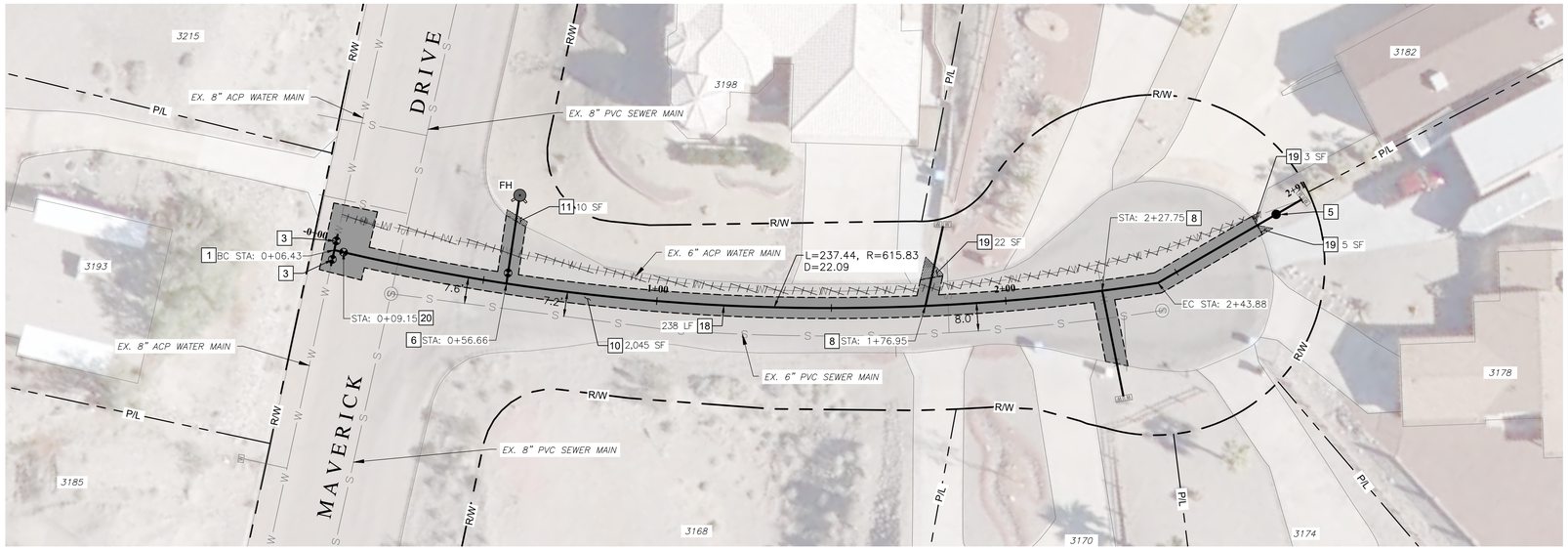
MARACAIBO DRIVE

DATE:	APRIL 15, 2024
DRAWN BY:	JWC/CCP
DWG SCALE:	1"=20'
CHECKED BY:	EJP/SDP
PROJECT NO:	23-034
APPROVED BY:	SDP

DRAWING NO.: C-27

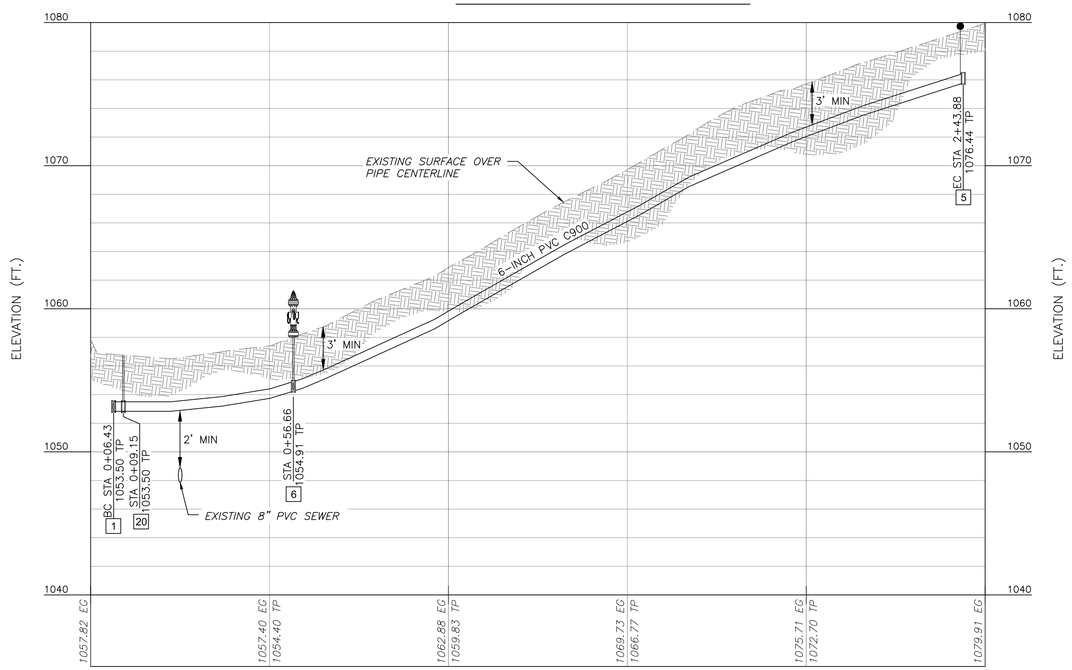
SHEET 27 OF 31

F:\Trico Engineering LLC\Projects\2023\23-034_LHC FY 23-24 Water Main Replacement Design 17\CAD\Improvement Plans\23-034_Waterline Plans V.dwg LS:(14/15/2024 - ericperrotti) - LP: 4/15/2024 3:08 PM



PLAN VIEW

MAVERICK PLACE



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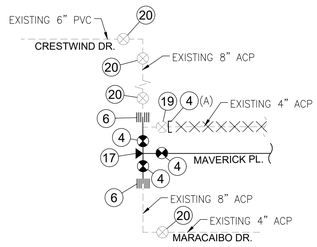

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STEVEN D. POTTER (Civil) 31910 STATE OF ARIZONA REGISTERED PROFESSIONAL ENGINEER
EXPIRES 12-31-2025

TRICO ENGINEERING, LLC
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LAKE HAVASU CITY, AZ 86403
(928) 230-0461

PHOENIX
20410 N. 19TH AVENUE, SUITE 201
SUITE 201
SCOTTSDALE, AZ 85255

2024 WATER MAIN REPLACEMENT PROJECT, PHASE I
B24-PW-108019-500441
LAKE HAVASU CITY
2330 MCCULLOCH BLVD N.
LAKE HAVASU CITY, AZ 86403
(928) 855-2116

LAKE HAVASU CITY, ARIZONA • INCORPORATED 1978

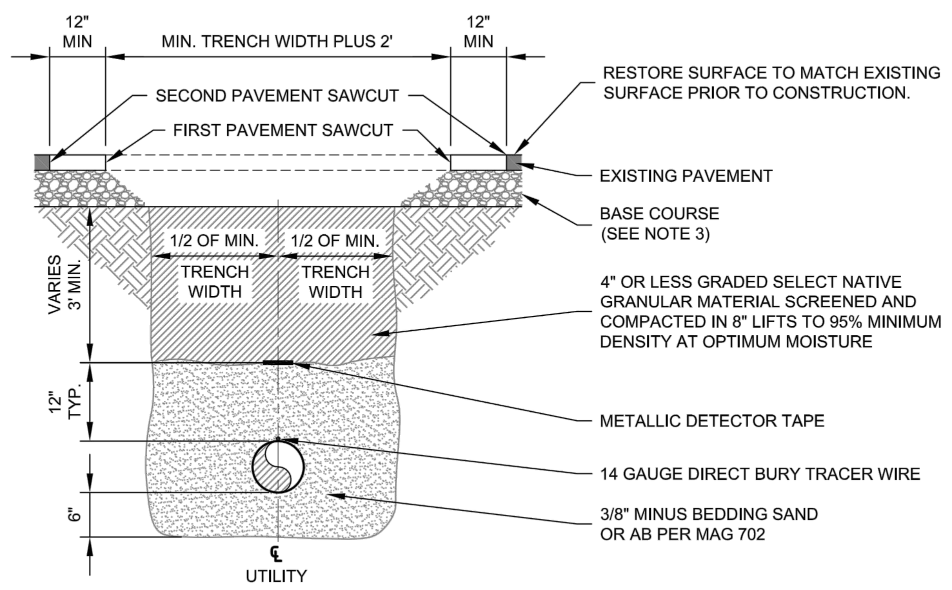
MAVERICK PLACE

DATE:	APRIL 15, 2024
DRAWN BY:	JWC/CCP
DWG SCALE:	1"=20'
CHECKED BY:	EJP/SDP
PROJECT NO:	23-034
APPROVED BY:	SDP

DRAWING NO.: C-28
SHEET 28 OF 31

F:\Trico Engineering LLC\Projects\2023\23-034_LHC FY 23-24 Water Main Replacement Design 17\CAD\Improvement Plans\23-034_Waterline Plans V.dwg LS:(14/15/2024 - ericjperrotto) - LP: 4/15/2024 3:09 PM

Issued: 02/01/2019



MINIMUM TRENCH WIDTH TABLE				
PIPE DIAMETER	MINIMUM WIDTH	MINIMUM BETWEEN FIRST SAWCUTS	MINIMUM BETWEEN SECOND SAWCUTS	CONCRETE PAVEMENT
<8 IN.	24"	4'	6'	SECOND SAWCUT SHALL BE AT EXISTING JOINTS, SEE NOTE #5
8IN.-12IN.	30"	4'-6"	6'-6"	
14IN.-18IN.	36"	5'	7'	
20IN.-24IN.	42"	5'-6"	7'-6"	
24IN.-36IN.	1.25 (PIPE OD) PLUS 12IN.	MIN. WIDTH PLUS 2'	MIN. WIDTH PLUS 4'	
>36IN.	PER PLANS	MIN. WIDTH PLUS 2'	MIN. WIDTH PLUS 4'	

NOTES:

1. ALL SAWCUTS TO BE FULL DEPTH OF PAVEMENT.
2. PATCH MATERIAL SHALL MATCH THE EXISTING PAVEMENT MATERIAL (eg CONCRETE PAVEMENT SHALL BE PATCHED WITH CONCRETE AND EXISTING ASPHALT PAVEMENT WITH ASPHALT).
3. FOR ASPHALT PATCHES, BASE COURSE & ASPHALT CONCRETE THICKNESS IS TO MATCH EXISTING BUT IN NO CASE LESS THAN 0" BASE 2" ASPHALT CONCRETE.
4. ALL EXISTING VERTICAL ASPHALT JOINTS SHALL BE TACK COATED.
5. FINAL CONCRETE PAVEMENT REMOVALS SHALL BE TO THE NEAREST EXISTING JOINT (eg FULL PANEL REMOVAL AND REPLACEMENT).
6. TRENCHES ARE SHOWN TO DIAGRAM PATCHING REQUIREMENTS. TRENCHES SHALL BE CONSTRUCTED TO MEET OSHA REQUIREMENTS.
7. PAVEMENT REMOVAL BETWEEN FIRST AND SECOND SAW CUT SHALL BE REMOVED AT TIME OF HOT MIX PATCHING . DENSITY TESTING SHALL BE AT THE EXPENSE OF THE CONTRACTOR AND A COPY OF RESULTS SHALL BE PROVIDED TO THE CITY.
9. MONITOR & MAINTAIN SURFACE CONDITION AND PERFORM ASPHALT REPAIRS UNDER 1-YEAR WARRANTY PROVIDED THROUGH PERMIT.
10. ALL PATCH JOINTS SHOULD BE HENRY ASPHALT RESURFACER SEALED OR APPROVED EQUAL.

LAKE HAVASU CITY | Standard Details | Roadway Improvements | Utility Trench Patch | Scale: N.T.S. | Detail No. 200

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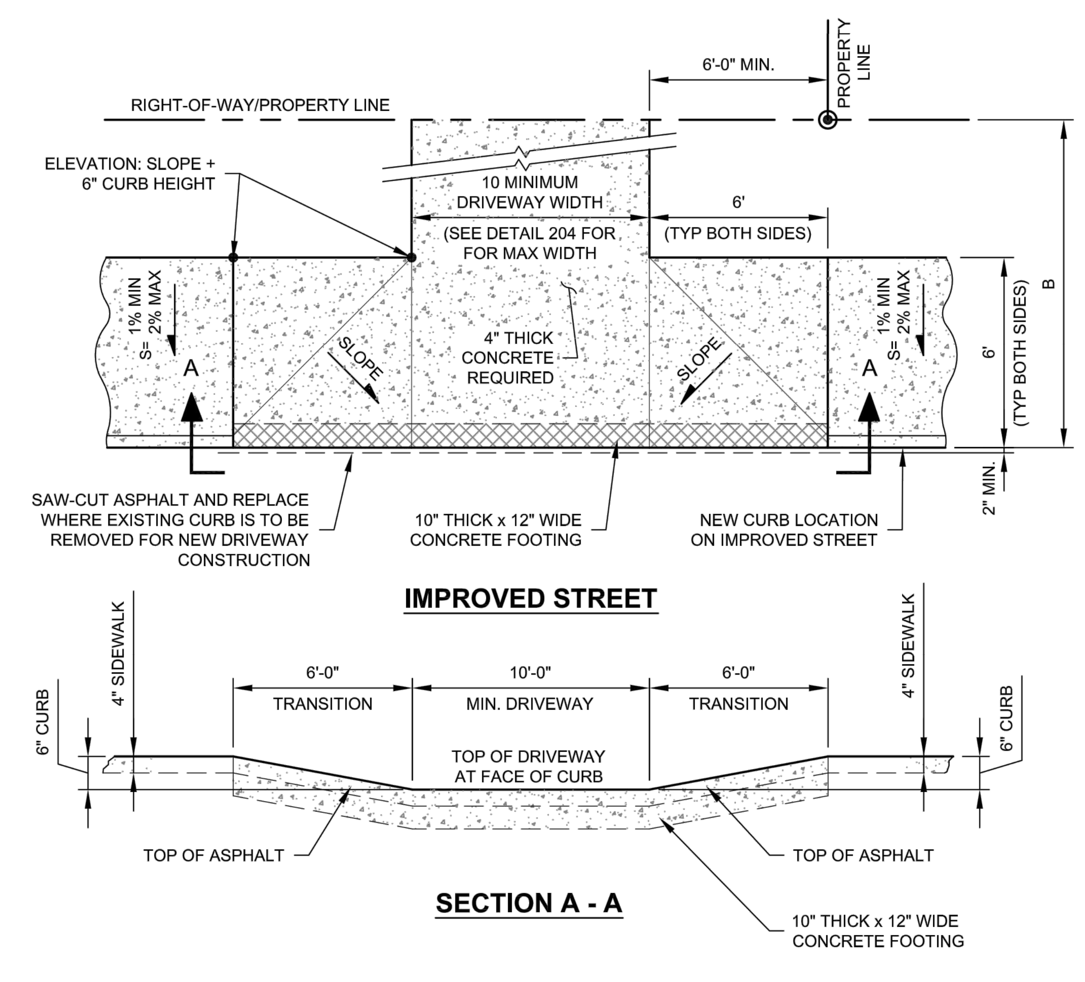

DISTANCE & ELEVATION TABLE ('W' SECTION) ABOVE EXISTING EDGE OF PAVEMENT AT 2% SLOPE (BASED ON 12" EXISTING ASPHALT LANE)		
STREET	RISE	DISTANCE B
BOULEVARD	4"	15 FEET
AVENUE	3"	13 FEET
DRIVE	3"	9 FEET

NOTES:

1. ELEVATION AT PROPERTY LINE TO REMAIN 11" ABOVE EDGE OF STREET ON 'W' SECTIONS.
2. CONCRETE FOR STRUCTURES IN RIGHT-OF-WAY SHALL BE A 6 SACK PER CUBIC YARD MIX WITH A 4" MAXIMUM SLUMP AND BE ABLE TO PASS A 3,000 PSI COMPRESSIVE STRENGTH TEST AT 28 DAYS.
3. SIDEWALK CROSS-SLOPE (BACK OF SIDEWALK TO CURB) TO BE 1.5% MIN / 2% MAX.

LAKE HAVASU CITY | Standard Details | Roadway Improvements | Driveway Improved Street | Scale: N.T.S. | Detail No. 201

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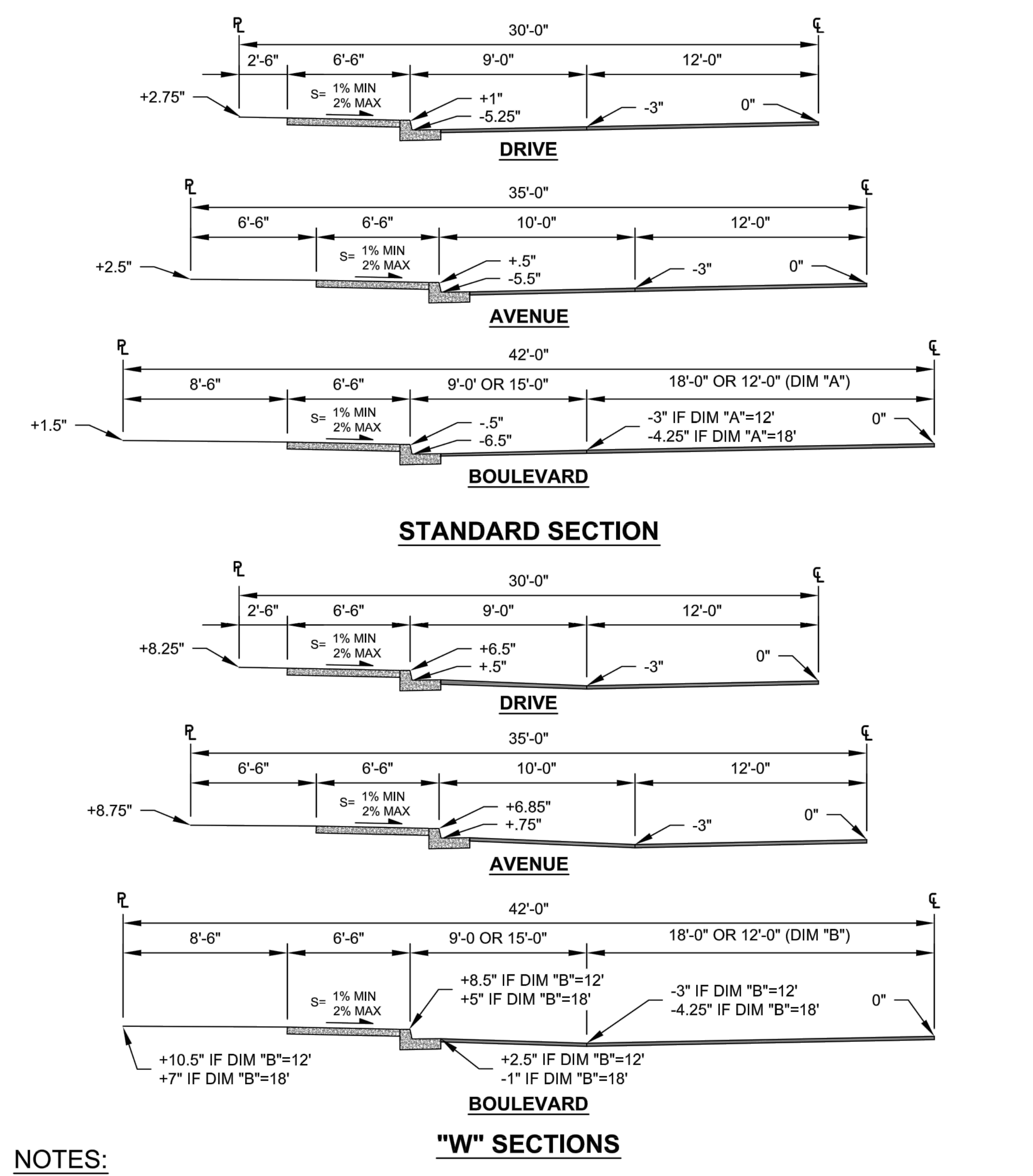

NOTES:

1. ALL ELEVATIONS SHOWN IN INCHES.
2. ABOVE (+) AND BELOW (-) CENTERLINE ELEVATION.
3. SIDEWALK CROSS-SLOPE (BACK OF SIDEWALK TO CURB) TO BE 1% MIN / 2% MAX.
4. ELEVATION AT PROPERTY LINE TO REMAIN 11" ABOVE EDGE OF STREET ON 'W' SECTIONS.

LAKE HAVASU CITY | Standard Details | Roadway Improvements | Street & Sidewalk Cross Sections Elevations (all zones) | Scale: N.T.S. | Detail No. 203A

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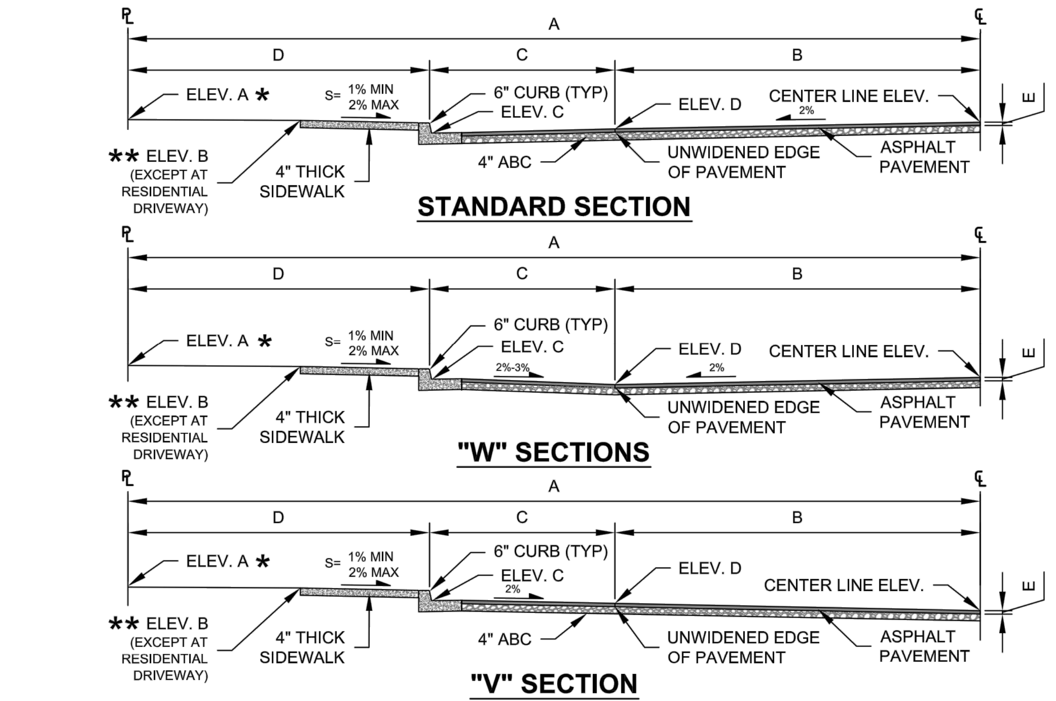

FINISHED ELEVATION (SHOWN IN INCHES ABOVE (+) OR BELOW (-) CENTER LINE)	STANDARD SECTION				'W' SECTION				'V' SECTION			
STREET	A (MIN)	B	C	D	A (MIN)	B	C	D	A (MIN)	B	C	D
BOULEVARD	+1.5"	+1"	-6.5"	-4.25"	+7"	+6.5"	-1"	-4.25"	+14.5"	+14"	+6.5"	+4.25"
AVENUE	+2.5"	+2"	-5.5"	-3"	+8.75"	+8.25"	+0.75"	-3"	+13.5"	+13	+5.5"	+3"
DRIVE	+2.75"	+2.75"	-5.25"	-3"	+8.25"	+8"	+0.5"	-3"	+13.25"	+12.75"	+5.25"	+3"
CUL-DE-SAC	+3.5"	+3"	-4.5"	-3"	N/A	N/A	N/A	N/A	+12.5"	+12"	+4.5	+3

DIMENSIONS						
STREET	R/W	A	B	C	D	E
BOULEVARD	84'	42'★	18'★	9'	15'	2"
AVENUE	70'	35'	12'	10'	13'	2"
DRIVE	60'	30'	12'	9'	9'	2"
CUL-DE-SAC	50'	25'	12'	6'	7'	2"

* UNLESS OTHERWISE APPROVED BY ENGINEERING DIVISION.
** ELEVATION 'B' AT RESIDENTIAL DRIVEWAY TO BE. ELEVATION 'C' + 6" OR EQUAL TO TOP OF CURB ELEVATION.
★ FIELD-VERIFY UNWIDENED PAVEMENT WIDTH. ADJUST DIMENSION 'B' AND 'C' ACCORDINGLY TO EQUAL 27' TOTAL.

NOTES:

1. ALL PAVEMENT WIDENING MUST INCLUDE CURBS.
2. SEE DETAIL 213-216 FOR APPLICABLE CURB DETAIL.
3. "V" SECTION ONLY ALLOWED WITH PRIOR APPROVAL BY THE ENGINEERING DIVISION.
4. INDICATED CURBS, SIDEWALKS AND WIDENING MAY BE EITHER EXISTING OR FUTURE.
5. SIDEWALK CROSS-SLOPE (BACK OF SIDEWALK TO CURB) TO BE 1% MIN / 2% MAX.

SPECIAL NOTES:

1. ENGINEERING DIVISION TO DETERMINE STREET CROSS-SECTION.
2. MINIMUM ELEVATION AT PROPERTY LINE ALONG ENTIRE FRONTAGE OF LOT TO BE IN ACCORDANCE WITH ELEVATION 'A'.

LAKE HAVASU CITY | Standard Details | Roadway Improvements | Standard Sections of Streets & Sidewalks | Scale: N.T.S. | Detail No. 203B

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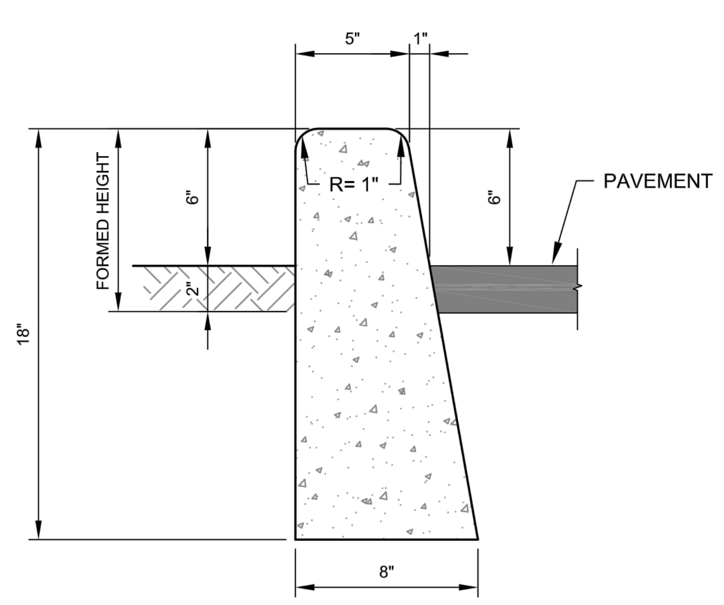

NOTES:

1. ALL VERTICAL SURFACES TO BE FORMED.
2. CLASS 'B' CONCRETE 2500 PSI.
3. ALL EXPOSED SURFACES TO BE TROWEL FINISHED EXCEPT AS SHOWN.
4. CONTRACTION JOINT SPACING 10' MAX.
5. H=6" OR AS SPECIFIED ON PLANS.
6. EXPANSION JOINTS PLACED AT INTERVALS NOT TO EXCEED 100 FEET.

LAKE HAVASU CITY | Standard Details | Roadway Improvements | Vertical Curb | Scale: N.T.S. | Detail No. 213

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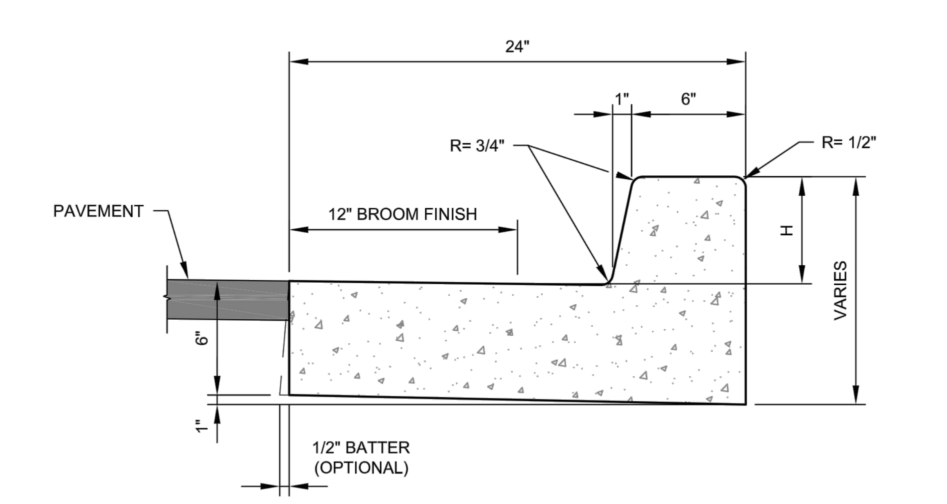

NOTES:

1. CLASS 'B' CONCRETE 2500 PSI.
2. ALL EXPOSED SURFACES TO BE TROWEL FINISHED EXCEPT AS SHOWN.
3. CONTRACTION JOINT SPACING 10' MAX.
4. H=6" OR AS SPECIFIED ON PLANS.
5. EXPANSION JOINTS PLACED AT INTERVALS NOT TO EXCEED 100 FEET.

LAKE HAVASU CITY | Standard Details | Roadway Improvements | Vertical Curb and Gutter | Scale: N.T.S. | Detail No. 214

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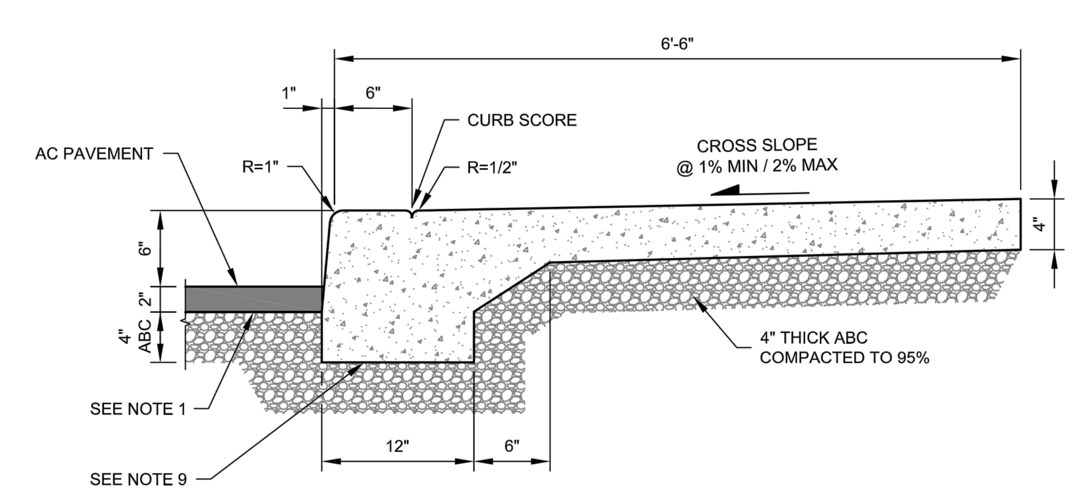

NOTES:

1. FOR NEW INSTALLATION, ASPHALT SHALL BE PLACED AGAINST CONCRETE.
2. CONSTRUCTION JOINTS SHALL BE DEPRESSED ONE INCH.
3. SIDEWALK AND CURB PLACED MONOLITHICALLY.
4. APPROVED CLASS 'A' 3000 PSI CONCRETE.
5. APPROVED CURING PRACTICES, NO DIESEL.
6. EXPANSION JOINTS PLACED AT INTERVALS NOT TO EXCEED 100 FEET.
7. CURB CONTRACTION JOINTS CONSTRUCTED TO DEPTH OF ONE INCH AT 12-FOOT MAX INTERVALS. SIDEWALK CONTRACTION JOINTS REQUIRED AT 6-FOOT INTERVALS.
8. ANY ABOVE-GROUND APPURTENANCE SHALL BE LOCATED OR RELOCATED OUT OF SIDEWALK.
9. BOTTOM OF SIDEWALK CURB SHALL BE PLACED TO SAME SUB-BASE ELEVATION AS ROADWAY.

LAKE HAVASU CITY | Standard Details | Roadway Improvements | Alternate Sidewalk/Curb | Scale: N.T.S. | Detail No. 216

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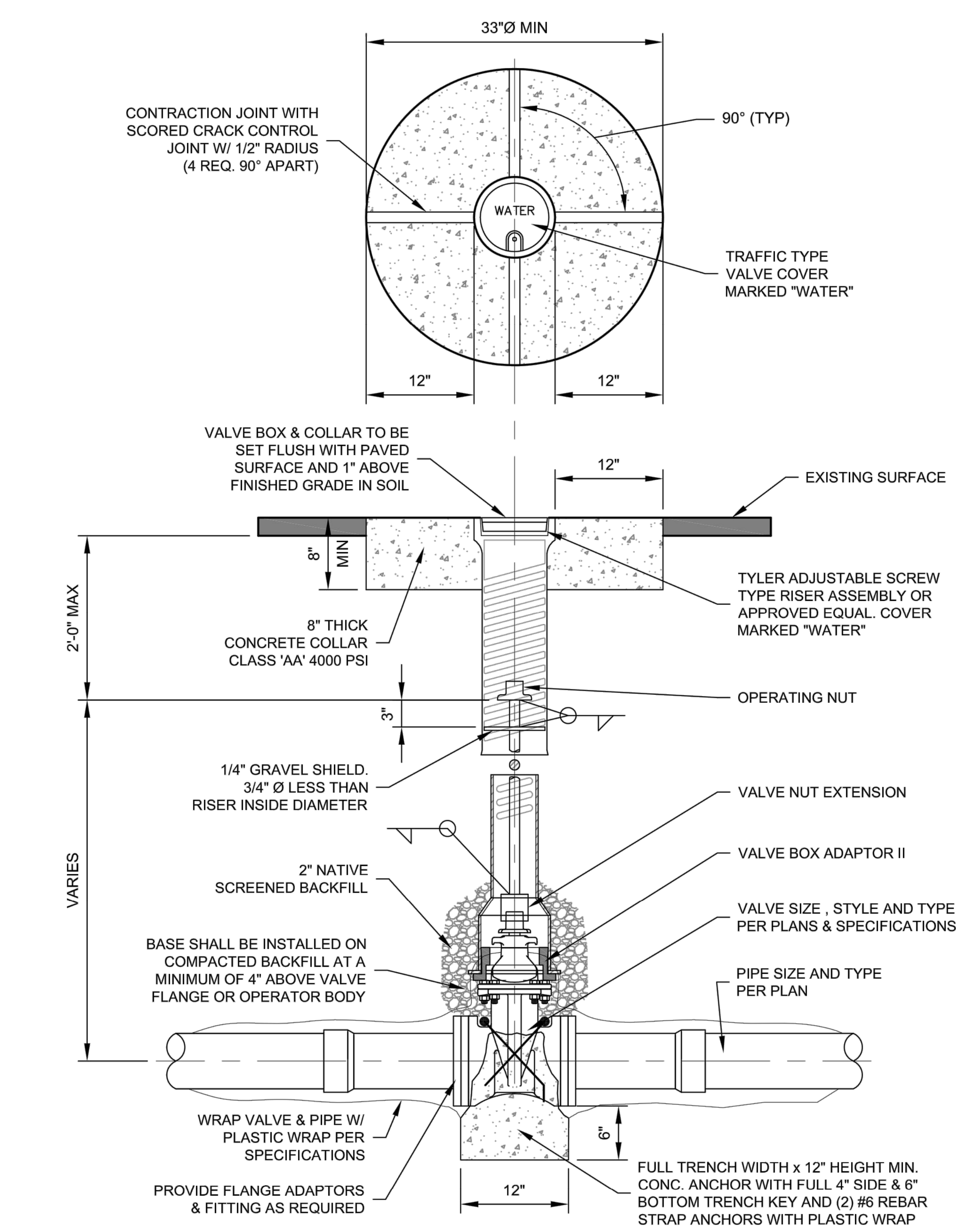

LAKE HAVASU CITY | Standard Details | Water Improvements | Valve / Valve Riser | Scale: N.T.S. | Detail No. 300

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REVISION RECORD

NO	DATE	DESCRIPTION

Registered Professional Engineer (Civil) No. 51810 SEAN D. PERROTTO Date Signed 4-15-24 ARIZONA U.S.A.

EXPIRES 12-31-2025

TRICO ENGINEERING, LLC
LAKE HAVASU CITY 231 SWANSON AVENUE, STE. 204 LAKE HAVASU CITY, AZ 86403 (928) 208-4661
PHOENIX 28150 N. ALMA SCHOOL ROAD, STE 103 #325 SCOTTSDALE, AZ 85262

2024 WATER MAIN REPLACEMENT PROJECT, PHASE 1
B24-PW-108019-500441

LAKE HAVASU CITY
2330 MCCULLOCH BLVD N.
LAKE HAVASU CITY, AZ 86403
(928) 855-2116

LAKE HAVASU CITY, ARIZONA • INCORPORATED 1978

GENERAL DETAILS I

DATE:	APRIL 15, 2024	DRAWN BY:	JWC/CCP
DWG SCALE:	1"=20'	CHECKED BY:	EJP/SDP
PROJECT NO:	23-034		
APPROVED BY:	SDP		

DRAWING NO.: C-29

SHEET 29 OF 31

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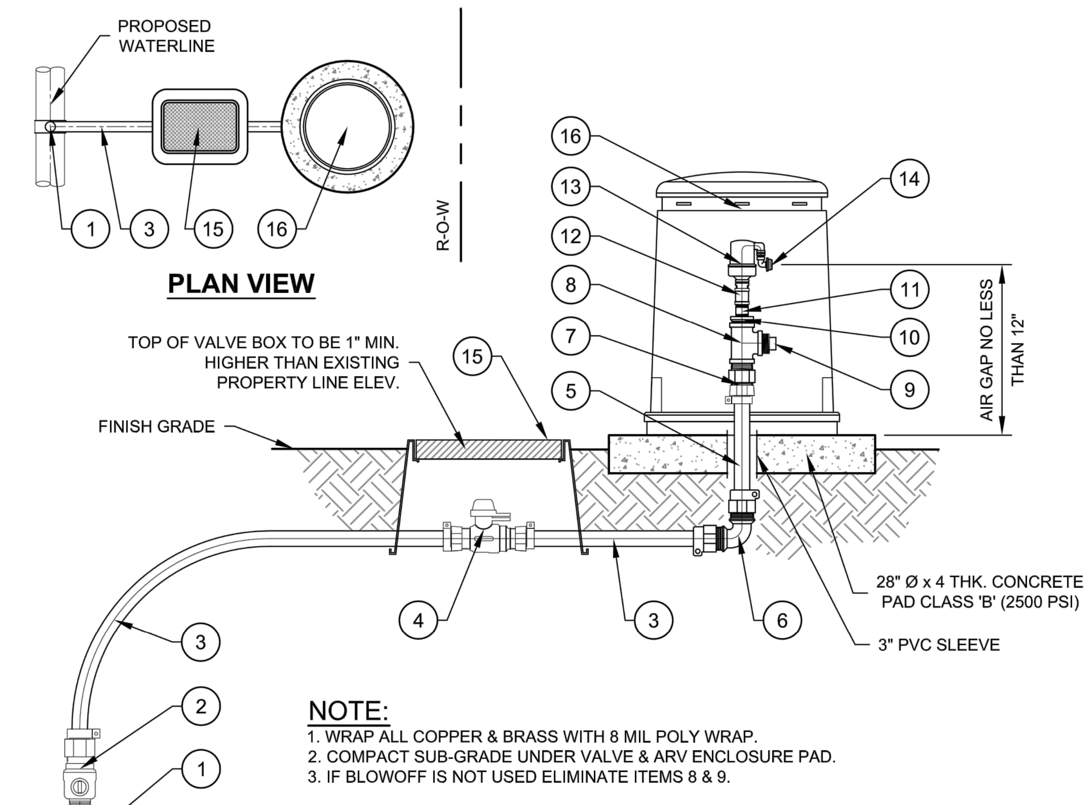

NOTE:
1. WRAP ALL COPPER & BRASS WITH 8 MIL POLY WRAP.
2. COMPACT SUB-GRADE UNDER VALVE & ARV ENCLOSURE PAD.
3. IF BLOWOFF IS NOT USED ELIMINATE ITEMS 8 & 9.

1" COMBINATION AIR/VAC - 2" BLOW OFF DETAIL TABLE

ITEM NO.	SIZE AND DESCRIPTION	MATERIAL SPECIFICATIONS
1	2" x MAIN SIZE BRASS SADDLE	FORD 202B-xxx-IP4 (AC) OR S91-xx4 (C900) SADDLE WITH IP THREAD
2	2" CORP STOP	FORD FB1100-7-NL
3	2" POLY TUBING	POLYETHYLENE PLASTIC TUBING (CTS)(200 PSI) STAINLESS STEEL INSERTS (2" FORD INSERT #55)
4	2" CURB STOP	FORD B44-777-NL
5	2" COPPER TUBE	COPPER TYPE "K" SLEEVED WITH 8 MIL. POLY WRAP
6	2" PACK JOINT ELL COUPLING	FORD L44-77-NL
7	2" PACK JOINT COUPLING	FORD C84-77-NL
8	2" TEE	BRASS TEE
9	2" PLUG	BRASS PLUG MIPT
10	2"x1" REDUCING BUSHING	BRASS REDUCING BUSHING 2" MIPT x 1" FIPT
11	1" NIPPLE	BRASS NIPPLE 1x2
12	1" COUPLING	BRASS COUPLING 1" FIPT x FIPT
13	1" ARV	ARI D-040 COMBINATION AIR/VACUUM RELEASE VALVE
14	3/8 " SCREEN	BUG SCREEN 40 MESH
15	VALVE BOX	CARSON 1419 VALVE BOX (20 7/8"x15 3/4"x12") TRAFFIC RATED BOX USE CHRISTY MAG 2 (25 1/2"x 17 3/4"x12")
16	POLYETHYLENE ENCLOSURE	PIPELINE PRODUCTS ADVANTAGE SERIES ENCLOSURE (VCAS-1830)

LAKE HAVASU CITY	Standard Details / Water Improvements	1" Combination Air/Vacuum Valve & 2" Blow-Off	Scale: N.T.S. Detail No. 310

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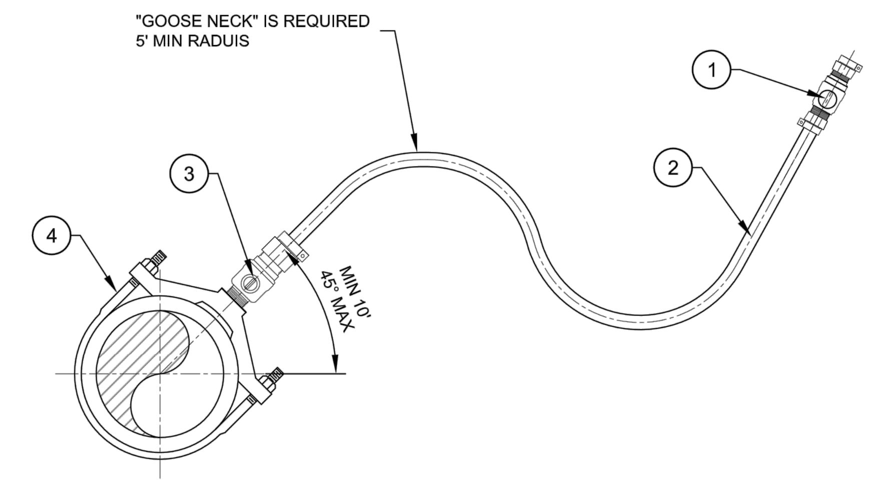

SERVICE TAP

SERVICE TAP DETAIL TABLE

ITEM NO.	SIZE AND DESCRIPTION	MATERIAL SPECIFICATIONS	REMARKS
1	1" CURB STOP	FORD B44-444-NL	OR EQUAL
2	1" COPPER TUBE	TYPE - "K" SOFT COPPER	
3	1" CORP STOP	FORD FB1100-4-NL	OR EQUAL
4	1" x MAIN SIZE BRASS SADDLE	FORD 202B-xxx-IP4 (AC) OR S91-xx4 (C900) SADDLE W/ 1" IP THREAD	OR EQUAL

NOTE:

1. ALL PARTS ARE FROM FORD METER BOX COMPANY, EXCEPT THE COPPER PIPING.
2. ALL COPPER PIPE ENDS SHALL BE ROUNDED WITH A COPPER ROUNDING TOOL AND SHALL BE REAMED WITH A COPPER REAMING TOOL.
3. ALL COPPER TUBING WILL BE SLEEVED WITH MINIMUM 8 MIL. POLYWRAP.
4. ALL ASSEMBLIES TO BE LOCATED WITHIN CITY RIGHT-OF-WAY.

LAKE HAVASU CITY	Standard Details / Water Improvements	1" Service Tap	Scale: N.T.S. Detail No. 303

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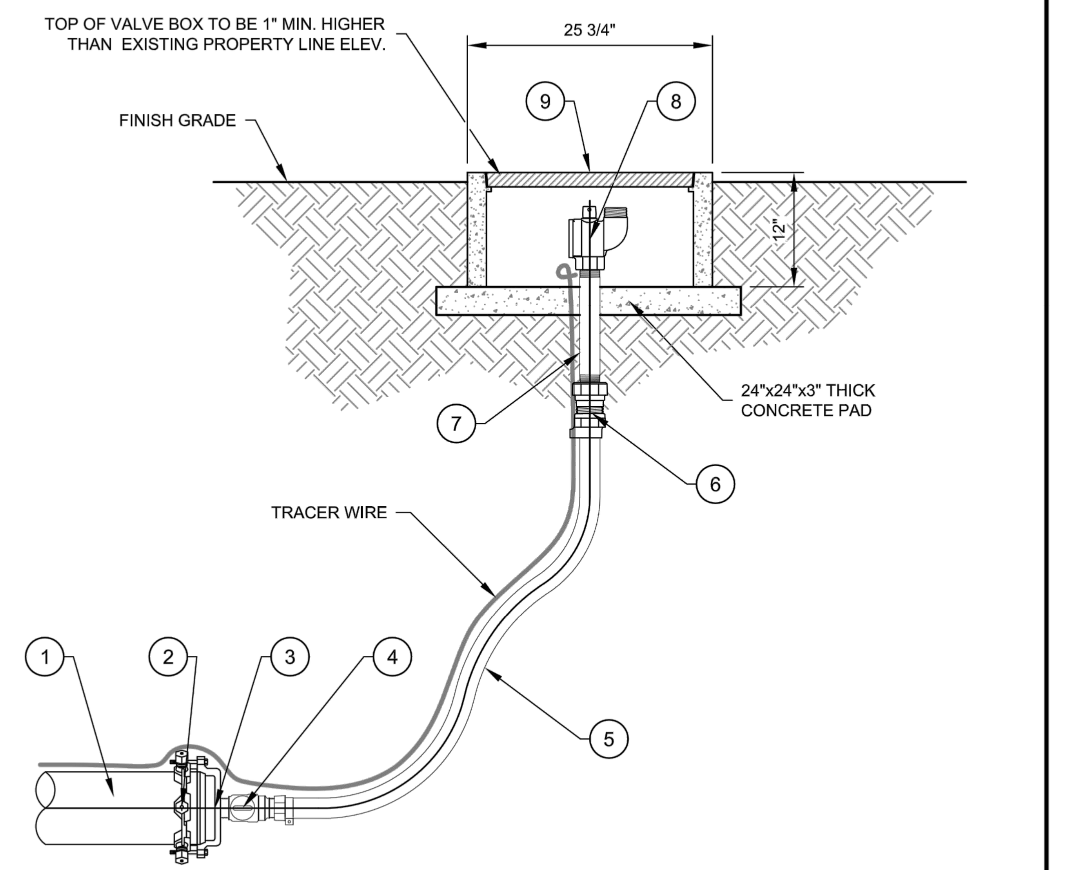

NOTE: S = SIZE IN INCHES

BLOW-OFF ASSEMBLY DETAIL TABLE

ITEM NO.	SIZE AND DESCRIPTION	MATERIAL SPECIFICATIONS
1	S" PVC PIPE	C900 PVC PIPE (S= SIZE IN INCHES)
2	S" JOINT RESTRAINT	EBAA 2000PV JOIST RESTRAINT OR EQUAL (S= SIZE IN INCHES)
3	S" MECHANICAL JOINT CAP	US PIPE MECHANICAL JOINT CAP WITH CENTER THREADED OPENING (S= SIZE IN INCHES)
4	2" CORP STOP	FORD 2" FB1100-7-NL OR EQUAL
5	2" POLY TUBING	POLYETHYLENE PLASTIC TUBING (CTS)(200 PSI) STAINLESS STEEL INSERTS (2" FORD INSERT #55)
6	2" PACK JOINT COUPLING	2" PACK JOINT COUPLING
7	2"x12" NIPPLE	2"x12" BRASS NIPPLE
8	2" BLOW-OFF VALVE	FORD 2" BLA18-777-TA-NL OR EQUAL
9	METER BOX	MAG SPEC 320 CONCRETE METER BOX (25 3/4" x 18" x 12")

LAKE HAVASU CITY	Standard Details / Water Improvements	2" Blow-Off Assembly End of Line	Scale: N.T.S. Detail No. 314

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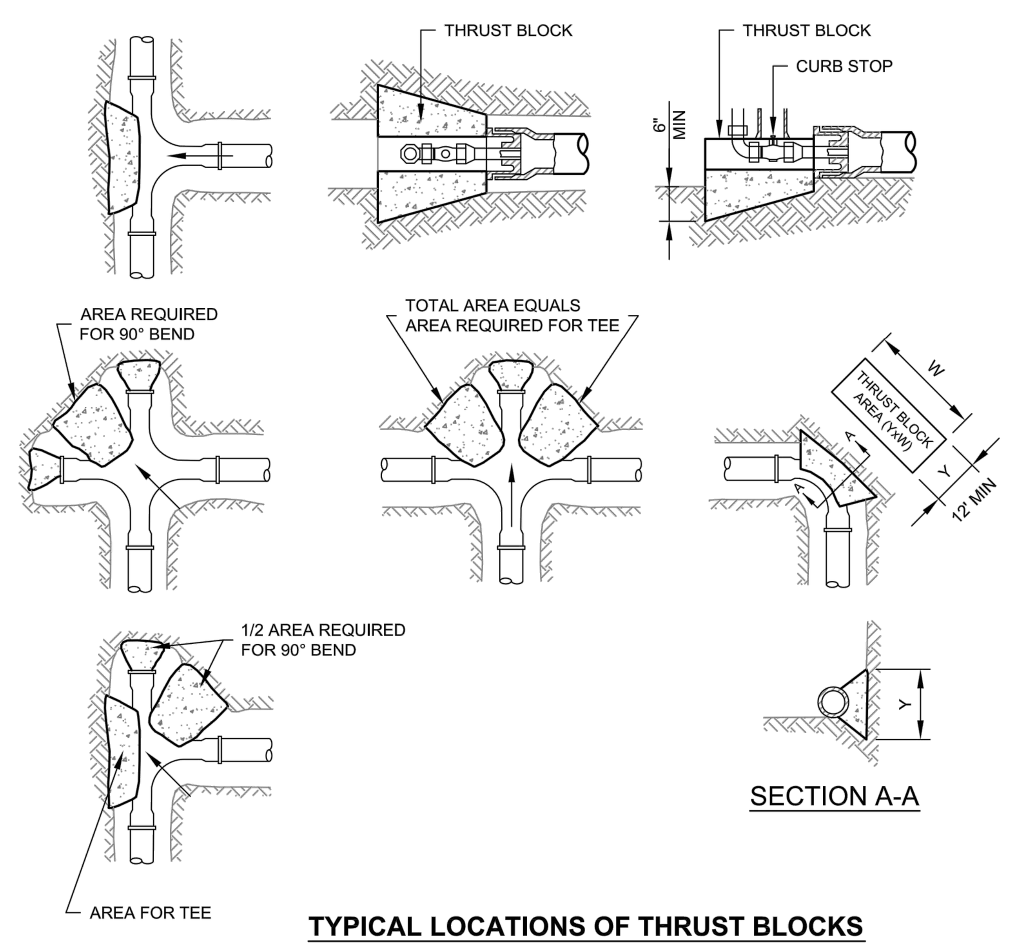

TYPICAL LOCATIONS OF THRUST BLOCKS

NOTES:

1. TABLE IS BASED ON 2,000 P.S.I. TEST PRESSURE AND 3,000 LBS/SQ FT. SOIL. IF CONDITIONS ARE FOUND TO INDICATE SOIL BEARING IS LESS, THE AREAS SHALL BE INCREASED ACCORDINGLY.
2. AREAS FOR PIPES LARGER THAN 16" SHALL BE CALCULATED FOR EACH PROJECT.
3. FORM ALL NON-BEARING VERTICAL SURFACES.
4. THRUST BLOCKS ARE TO EXTEND TO UNDISTURBED GROUND. CONCRETE TO BE CLASS 'AA' 4000 PSI. FORM AS REQUIRED TO KEEP CLEAR OF JOINTS
5. ALL DI PIPE AND FITTINGS TO BE DOUBLE POLY WRAPPED BEFORE THRUST BLOCK INSTALLATION.

MINIMUM TRUST BLOCK AREA REQUIRED (YxW) (SQ. FT.)

PIPE SIZE	WATER PIPE	
	TEE, DEAD END, 90° BEND	45° & 22 1/2" BENDS
4" OR LESS	3	3
6"	4	3
8"	6	3
10"	10	5
12"	14	7
16"	24	12

LAKE HAVASU CITY	Standard Details / Water Improvements	Thrust Blocks For Water Lines	Scale: N.T.S. Detail No. 317

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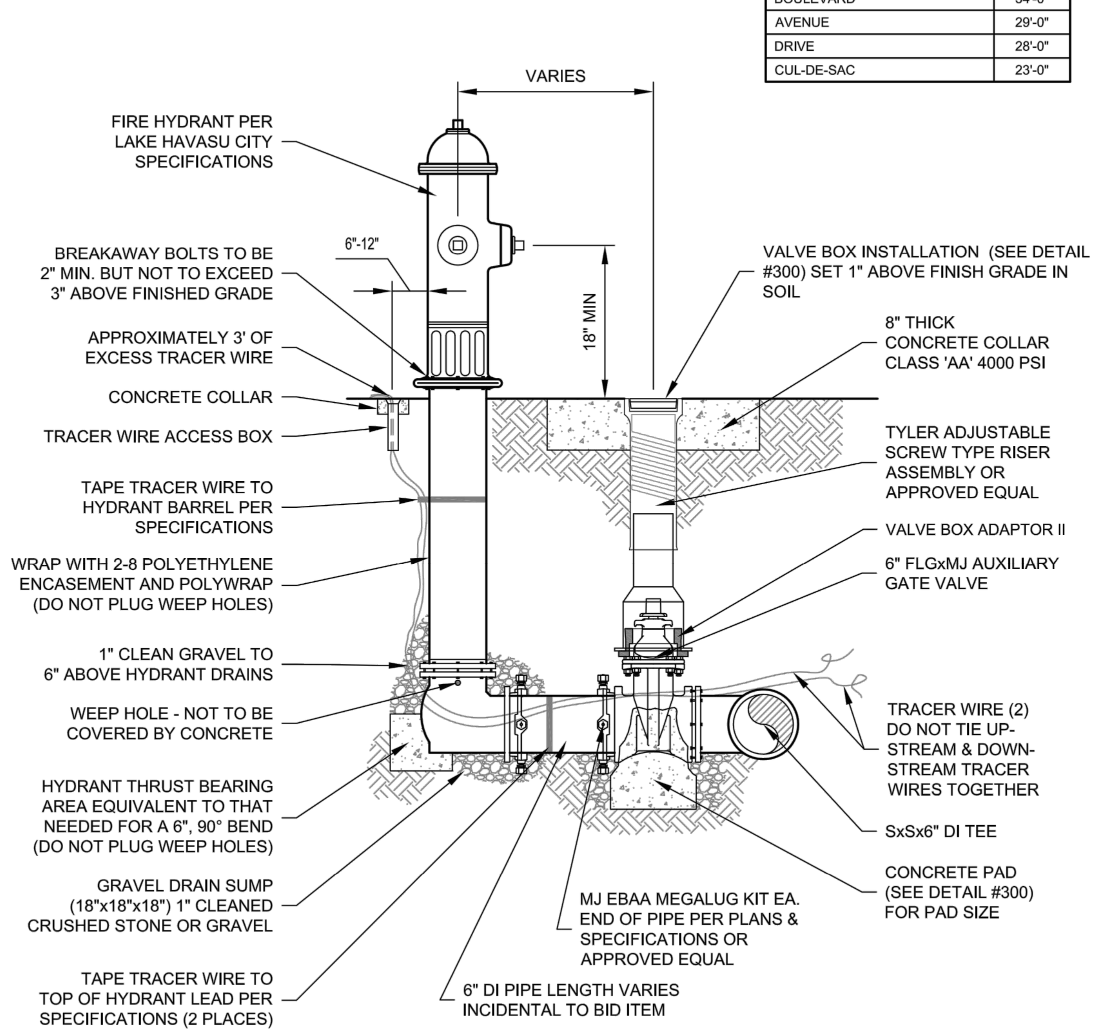
STREET TYPE	'D'
BOULEVARD	34'-0"
AVENUE	29'-0"
DRIVE	28'-0"
CUL-DE-SAC	23'-0"



NOTE:

1. THE CONTRACTOR SHALL VERIFY FIELD CONDITIONS PRIOR TO SUBMITTAL. APPROVAL SHALL BE OBTAINED PRIOR TO ORDERING OF PARTS. CONTRACTOR IS RESPONSIBLE FOR APPROPRIATE BARREL LENGTH TO ACCOMMODATE ANY CHANGE IN GRADE OR PIPE ELEVATION.
2. PUMPER CONNECTIONS TO FACE BUILDINGS OR STREET.
3. S = MAIN SIZE.

LAKE HAVASU CITY	Standard Details / Water Improvements	6" Fire Hydrant	Scale: N.T.S. Detail No. 320

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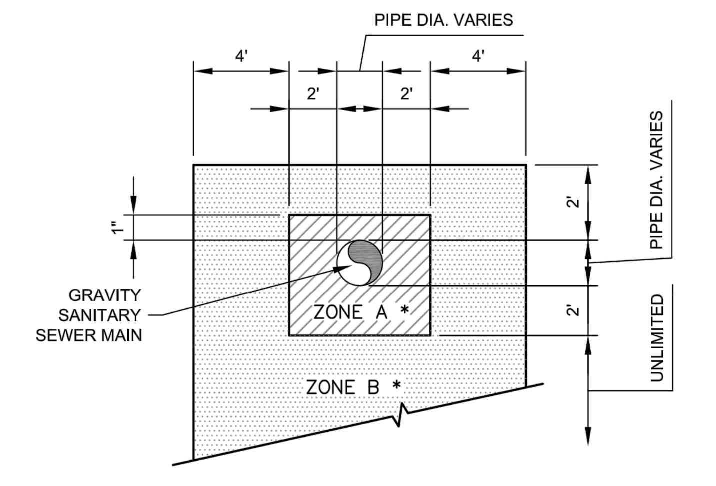
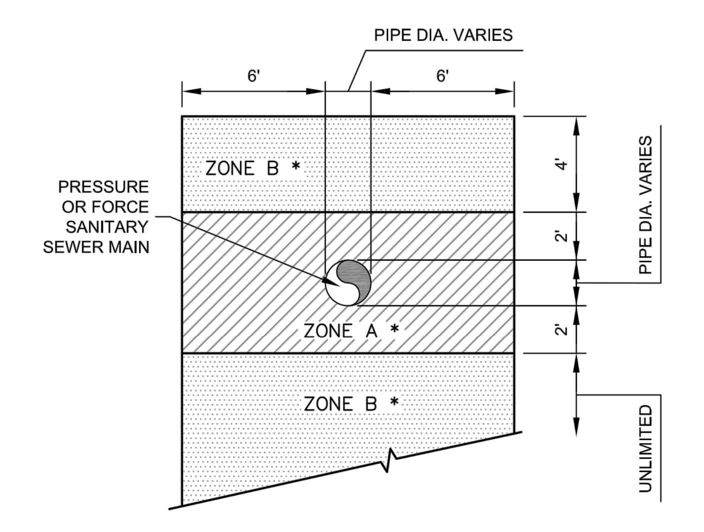


GRAVITY SANITARY SEWER MAIN



PRESSURE OR FORCE SANITARY SEWER MAIN

LAKE HAVASU CITY	Standard Details / Wastewater Improvements	Water/Sewer Zone Separation	Scale: N.T.S. Detail No. 401A

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NOTES:

1. CONTRACTOR SHALL MAINTAIN SEPARATION DISTANCES OR PROVIDE OTHER EXTRA PROTECTION TO PROTECT WATER MAINS FROM CONTAMINATION BY SANITARY SEWER MAINS.
2. CRITERIA FOR SEPARATION AND/OR EXTRA PROTECTION APPLIES TO PARALLEL MAINS AS WELL AS CROSSINGS WITHIN ZONE B. (SEE DETAIL 401A)
3. SEE CROSS SECTION STANDARD DETAIL 401A FOR LIMITS OF SEPARATION/EXTRA PROTECTION. ALL DISTANCES ARE MEASURED PERPENDICULARLY FROM THE OUTSIDE OF THE PIPES.
   A. NO WATER MAINS SHALL FALL WITHIN ZONE A. (SEE DETAIL 401A)
   B. EXTRA PROTECTION WILL BE REQUIRED WHEN THE WATER MAIN FALLS WITHIN ZONE B EXTRA PROTECTION SHALL CONSIST OF CONSTRUCTING THE SANITARY SEWER MAIN WITH MECHANICAL JOINT OR RESTRAINED JOINT DUCTILE IRON PIPE FOR A DISTANCE OF TEN FEET EITHER SIDE OF THE WATER MAIN. THE DUCTILE IRON PIPE SHALL COMPLY WITH THE AGENCY'S REQUIREMENTS FOR SEWER INSTALLATION. IN THE CASE OF A CROSSING, THE NUMBER OF JOINTS SHALL BE HELD TO A MINIMUM, WITH ONE FULL JOINT OF PIPE CENTERED OVER/UNDER THE OTHER. AN ALTERNATE PROTECTION MAY CONSIST OF ENCASING BOTH PIPES IN CONCRETE AS SHOWN IN STANDARD DETAIL 401A.
   C. NO ADDITIONAL PROTECTION WILL BE REQUIRED OUTSIDE ZONES A AND B. (SEE DETAIL 401A)
4. SEPARATION REQUIREMENTS FOR 4" OR 6" INDIVIDUAL SERVICE CONNECTIONS SHALL COMPLY WITH THE UNIFORM PLUMBING CODE.
5. RECLAIMED WATER SHALL BE CONSIDERED AS POTABLE WATER WHEN PLACED NEXT TO A SANITARY SEWER AND CONSIDERED A SANITARY SEWER WHEN PLACED NEXT TO A POTABLE WATER MAIN UNLESS APPROVED IN WRITING BY THE CITY ENGINEER.

LAKE HAVASU CITY	Standard Details / Wastewater Improvements	Water/Sewer Zone Separation Notes	Scale: N.T.S. Detail No. 401B

A:\City Operations and Development\Engineering\Programs\Standards\Developing Public Works Standards\LHC Standard Details\LHC Series 400 Wastewater\DWG\DETAIL 401B.dwg

F:\Trico Engineering LLC\Projects\2023\23-034_LHC FY 23-24 Water Main Replacement Design 17\CAD\Improvement Plans\23-034_General Details.dwg LS:(4/3/2024 - ericperrotto) - LP: 4/15/2024 3:10 PM

REVISION RECORD

NO	DATE	DESCRIPTION

Registered Professional Engineer (Civil) No. 51810 SEAN D. PERROTTO Date Signed 4-15-24 ARIZONA U.S.A.
EXPIRES 12-31-2025

TRICO ENGINEERING, LLC
LAKE HAVASU CITY 231 SWANSON AVENUE, STE. 204 LAKE HAVASU CITY, AZ 86403 (928) 208-4661
PHOENIX 28150 N. ALMA SCHOOL ROAD, STE 103 #325 SCOTTSDALE, AZ 85262

2024 WATER MAIN REPLACEMENT PROJECT, PHASE 1
B24-PW-108019-500441
LAKE HAVASU CITY
2330 MCCULLOCH BLVD N.
LAKE HAVASU CITY, AZ 86403
(928) 855-2116

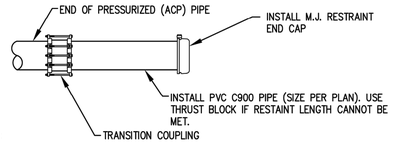
LAKE HAVASU CITY, ARIZONA • 1978 • INCORPORATED

GENERAL DETAILS II

DATE:	APRIL 15, 2024	DRAWN BY:	JWC/CCP
DWG SCALE:	1"=20'	CHECKED BY:	EJP/SDP
PROJECT NO:	23-034		
APPROVED BY:	SDP		

DRAWING NO.: C-30

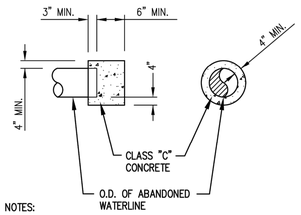
SHEET 30 OF 31



NOTES:

1. ALL WORK INCLUDING MATERIAL, EXCAVATION, CUTTING & PLUGGING OF EXISTING WATERLINE(S), COMPACTION, AND PAVEMENT REMOVAL AND REPLACEMENT SHALL BE INCIDENTAL TO THE WATERLINE INSTALLATION BID ITEM.

PRESSURIZED WATERLINE (P)



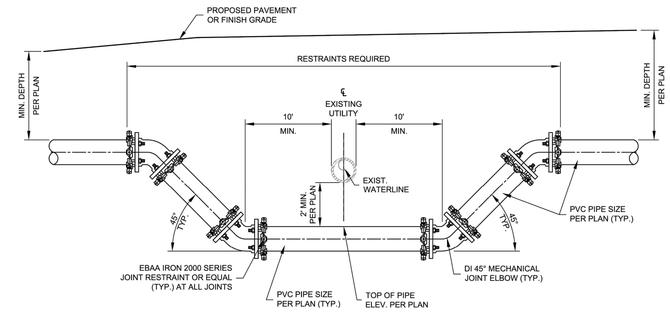
NOTES:

1. ALL WORK INCLUDING MATERIAL, EXCAVATION, CUTTING & PLUGGING OF EXISTING WATERLINE(S), COMPACTION, AND PAVEMENT REMOVAL AND REPLACEMENT SHALL BE INCIDENTAL TO THE WATERLINE INSTALLATION BID ITEM.

ABANDONED WATERLINE (A)

DETAIL 1
WATERLINE PIPE PLUG

NOT TO SCALE



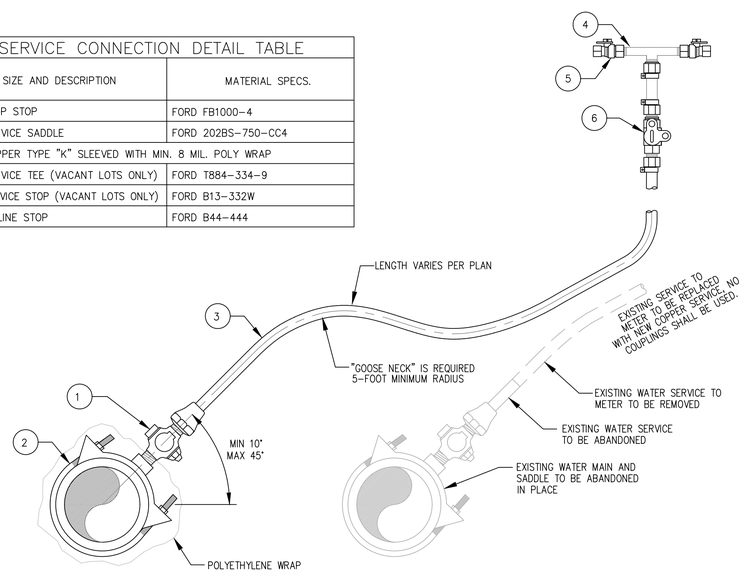
NOTES:

1. CONTRACTOR SHALL FIELD VERIFY WATERLINE LOCATION.
2. ALL PIPE FITTINGS SHALL BE PVC, SIZE TO MATCH PLANS.
3. ALL PVC PIPE SHALL BE CONSTRUCTED WITH FLANGE RESTRAINTS.
4. ELBOWS ONLY REQUIRED IF SHOWN ON PLANS.
5. S = SIZE IN INCHES.

DETAIL 2
TYPICAL DROP UNDER EXISTING WATERLINE

NOT TO SCALE

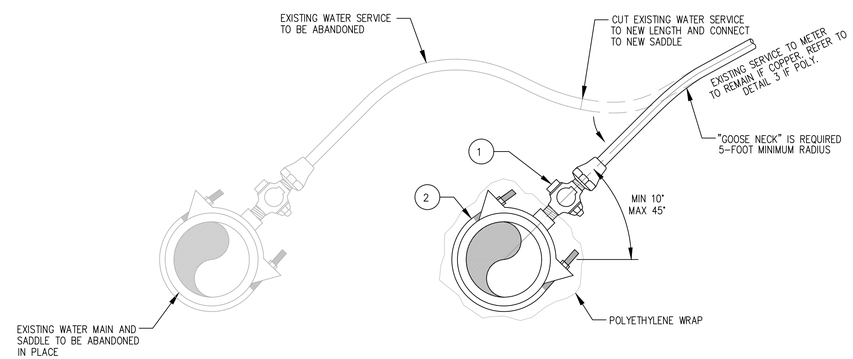
1" SERVICE CONNECTION DETAIL TABLE		
ITEM NO.	SIZE AND DESCRIPTION	MATERIAL SPECS.
1	1" CORP STOP	FORD FB1000-4
2	1" SERVICE SADDLE	FORD 202BS-750-CC4
3	1" COPPER TYPE "K" SLEEVED WITH MIN. 8 MIL. POLY WRAP	
4	1" SERVICE TEE (VACANT LOTS ONLY)	FORD T884-334-9
5	1" SERVICE STOP (VACANT LOTS ONLY)	FORD B13-332W
6	1" IN LINE STOP	FORD B44-444



DETAIL 3
WATER SERVICE ASSEMBLY

NOT TO SCALE

1" SERVICE CONNECTION DETAIL TABLE		
ITEM NO.	SIZE AND DESCRIPTION	MATERIAL SPECS.
1	1" CORP STOP	FORD FB1000-4
2	1" SERVICE SADDLE	FORD 202BS-750-CC4



DETAIL 4
WATER SERVICE CONNECTION

NOT TO SCALE

REVISION RECORD

NO	DATE	DESCRIPTION

TRICO ENGINEERING, LLC
LAKE HAVASU CITY
231 S. SMOKE TREE BLVD., STE. 204
LAKE HAVASU CITY, AZ 86403
(928) 680-0463
PHOENIX
2828 N. HAYDEN RD.
SUITE 256 PMB 1020
SCOTTSDALE, AZ 85257

2024 WATER MAIN REPLACEMENT PROJECT, PHASE 1
B24-PW-108019-500441
LAKE HAVASU CITY
2330 MCCULLOCH BLVD N.
LAKE HAVASU CITY, AZ 86403
(928) 855-2116

LAKE HAVASU CITY, ARIZONA • INCORPORATED 1978

GENERAL DETAILS III

DATE:	APRIL 15, 2024
DRAWN BY:	JWC/CCP
DWG SCALE:	NTS
CHECKED BY:	EJP/SDP
PROJECT NO:	23-034
APPROVED BY:	SDP

DRAWING NO.:
C-31

SHEET 31 OF 31

F:\Trico Engineering LLC\Projects\2023\23-034_LHC FY 23-24 Water Main Replacement Design 17\CAD\Improvement Plans\23-034_General Details.dwg LS:(4/3/2024 - engsmrotto) - LP: 4/15/2024 5:10 PM