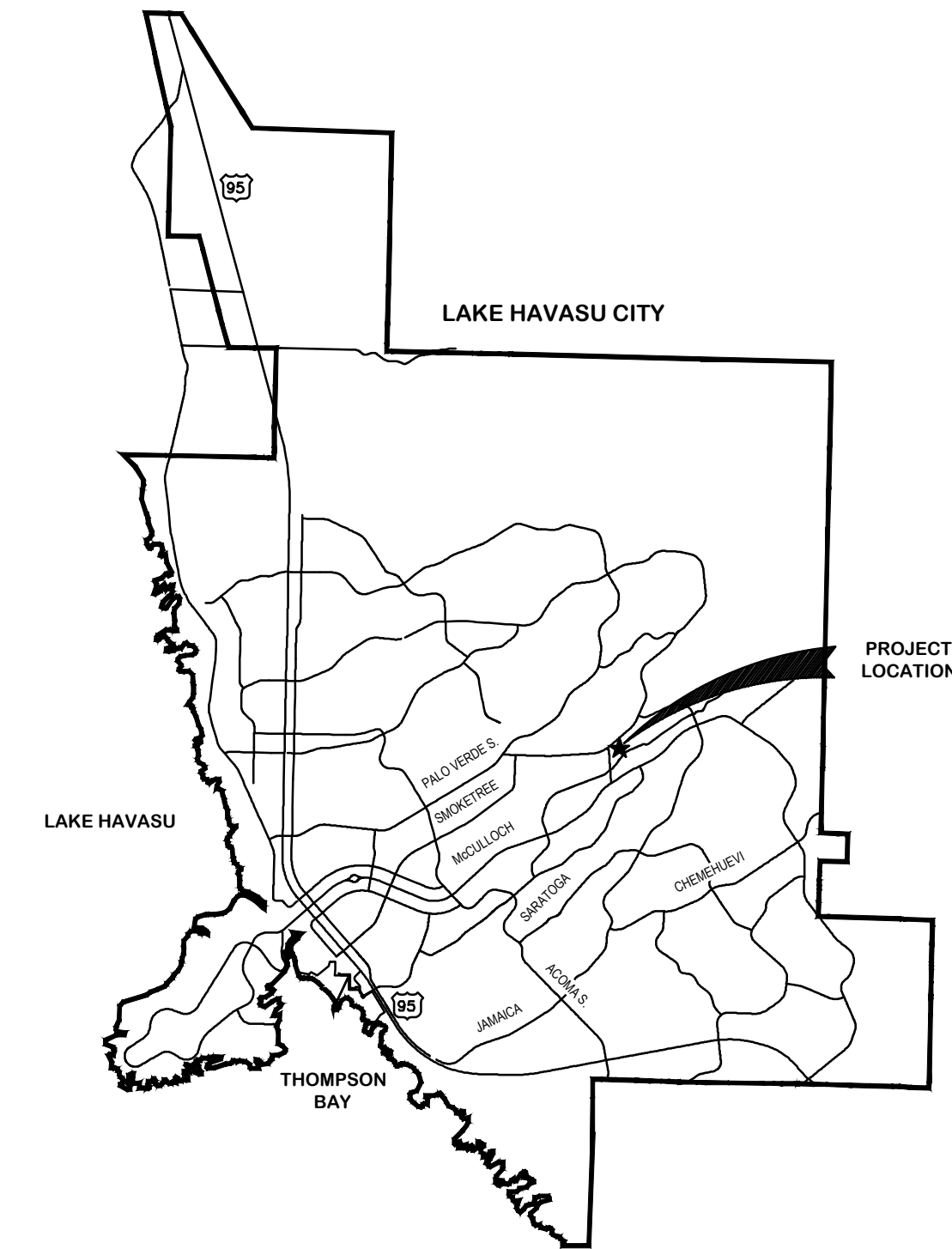


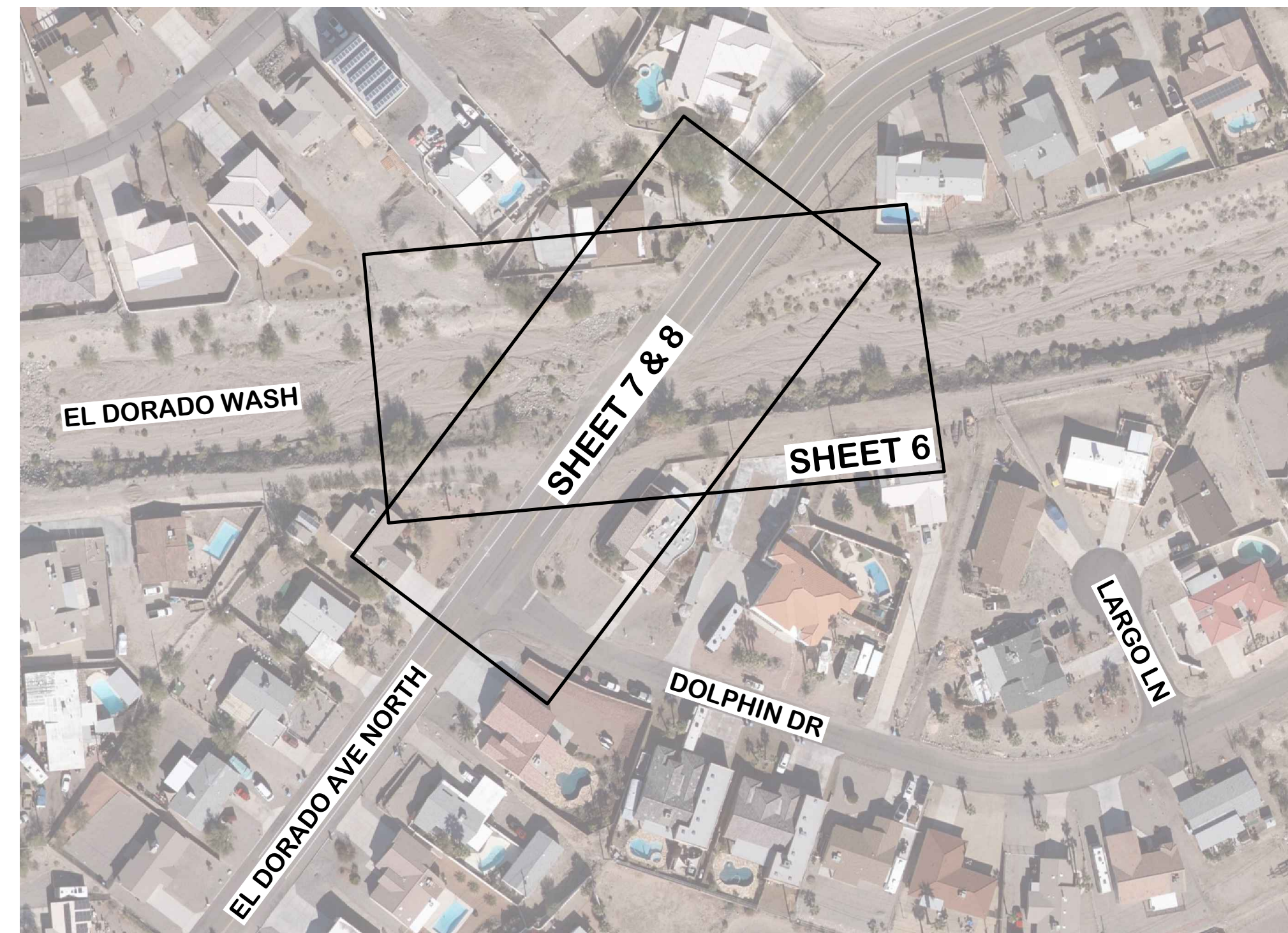
# LAKE HAVASU CITY, AZ

## WASH CROSSING IMPROVEMENTS EL DORADO AVENUE N. PROJECT NUMBER 105007

A PORTION OF SECTION 6, TOWNSHIP 13N, RANGE 19W  
GILA AND SALT RIVER BASE AND MERIDIAN, MOHAVE COUNTY, ARIZONA



**VICINITY MAP**  
NOT TO SCALE



**INDEX MAP**  
1"=100'

SHEET INDEX		
SHEET NO.	DWG NO.	DESCRIPTION
1	G-01	COVER
2	G-02	ABBREVIATIONS & SYMBOLS
3	G-03	GENERAL NOTES
4	G-04	GENERAL NOTES
5	G-05	GEOMETRIC DATA
6	C-01	CHANNEL PLAN & PROFILE
7	C-02	ROAD PLAN & PROFILE
8	C-03	WATER PLAN & PROFILE
9	C-04	PROFILES & STAKING
10	C-05	SIGNAGE & STRIPING PLAN
11	C-06	LANDSCAPE PLAN
12	D-01	ADOT DETAILS
13	D-02	ADOT DETAILS
14	D-03	MAG DETAILS
15	D-04	LHC DETAILS
16	D-05	CHANNEL DETAILS
17	D-06	DETAILS

**CITY COUNCIL**

CAL SHEEHY	MAYOR
DAVID LANE	VICE MAYOR
JIM DOLAN	COUNCIL MEMBER
NANCY CAMPBELL	COUNCIL MEMBER
MICHELE LIN	COUNCIL MEMBER
CAMERON MOSES	COUNCIL MEMBER
JENI COKE	COUNCIL MEMBER

**OWNER**

LAKE HAVASU CITY  
ENGINEERING DIVISION  
900 LONDON BRIDGE ROAD  
LAKE HAVASU CITY, AZ 86404  
MIKE WOLFE, PE  
INTERIM ASSISTANT CITY ENGINEER  
P: 928.680.5480 EXT 4330  
WOLFEM@LHCAZ.GOV

**SURVEYOR**

CIVILTEC ENGINEERING, INC  
9299 W. OLIVE AVE., SUITE 405  
PEORIA, AZ 85345  
P: 623.582.0970  
F: 623.582.1973  
BEN TILMAN, R.L.S.  
BTILMAN@CIVILTEC.COM

**BENCHMARK**

POINT 703  
MAG NAIL AND SHINER  
1,775' NORTHEAST OF INTERSECTION OF  
EL DORADO AVE N & JAMAICA BLVD N  
ELEV = 1300.22 NAVD88

**ENGINEER**

WILSON & COMPANY, INC  
410 N. 44TH ST., SUITE 460  
PHOENIX, AZ 85008  
P: 602.732.3817  
BRIAN SCHALK, P.E.  
BRIAN.SCHALK@WILSONCO.COM

**ENGINEER**

CIVILTEC ENGINEERING, INC  
9299 W. OLIVE AVE., SUITE 405  
PEORIA, AZ 85345  
P: 623.582.0970  
F: 623.582.1973  
ANDREW R. SHROADS, P.E. CFM  
ASHROADS@CIVILTEC.COM

**FLOOD ZONE NOTE**

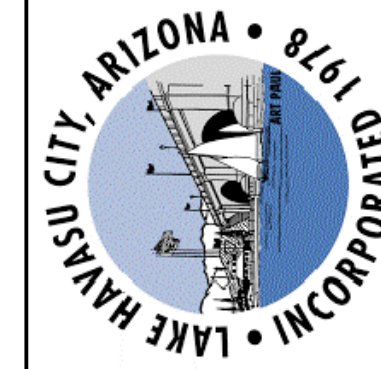
ACCORDING TO THE NATIONAL FLOOD INSURANCE PROGRAM, FLOOD INSURANCE RATE MAP (FIRM) NUMBER 04015C6181G REVISED 11/18/2009, THIS PROJECT IS LOCATED IN A ZONE AE SPECIAL FLOOD HAZARD AREA (SFHA) AND FLOODWAY AREA. ZONE AE SFHA IS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD. FLOODWAY AREA IS THE CHANNEL OF A STREAM PLUS ANY ADJACENT FLOODPLAIN AREAS THAT MUST BE KEPT FREE OF ENCROACHMENT SO THAT THE 1% ANNUAL CHANCE FLOOD CAN BE CARRIED WITHOUT SUBSTANTIAL INCREASES IN FLOOD HEIGHTS.

**FLOOD ZONE CERTIFICATION**

COMMUNITY NUMBER	PANEL NUMBER	SUFFIX	DATE OF FIRM	BASE FLOOD ELEVATION
040116	6181	G	11/18/2009	1060 - 1062

**UTILITY CONTACTS**

UTILITY	CONTACT NAME	PHONE	EMAIL
LAKE HAVASU CITY (WASTEWATER)	THILAK FERNANDO	928.854.4308	FERNANDOT@LHCAZ.GOV
LAKE HAVASU CITY (WATER)	BILL GANE	928.854.4305	GANE@LHCAZ.GOV
SUDDENLINK	JAY RODRIGUEZ	928.201.7227	JAY.RODRIGUEZ@ALTICEUSA.COM
FRONTIER COMMUNICATION	ALLEN COX	928.716.0928	ALLEN.COX@FTR.COM
UNISOURCE ENERGY SERVICES (GAS)	CHRISTOPHER FEE	928.715.8468	CJ.FEE@UESAZ.COM
UNISOURCE ENERGY SERVICES (ELECTRIC)	PETER SKUSE	928.505.7034	PSKUSE@UESAZ.COM
FATBEAM LLC (FIBER OPTICS)	BRUCE HATHAWAY	509.344.1008	BRUCE@FATBEAM.COM

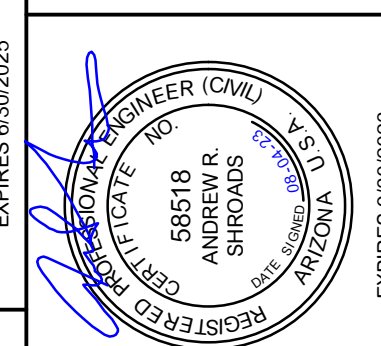


NO.	REVISIONS / SUBMITTALS	DATE
	FINAL SUBMITTAL	

**LAKE HAVASU CITY, AZ  
WASH CROSSING IMPROVEMENTS  
EL DORADO AVENUE N.**

Designed by:	ARS	Drawn by:	RAM
Checked by:	CJD	Date:	8/4/2023
Dwg. scale:	SEE PLAN		

**COVER**



Sheet Number:  
**G-01**  
Sheet 1 of 17

**WILSON & COMPANY**  
HIGHER RELATIONSHIPS

9299 W. Olive Ave. Ste. 405  
Peoria, AZ 85345  
Phone: 623.582.0970  
Fax: 623.582.1973  
Web: www.civiltec.com

**CIVILTEC**  
engineering inc

Civil, Water, Wastewater, Drainage,  
and Transportation Engineering  
Construction Management • Surveying  
California • Arizona

CALL AT LEAST TWO FULL WORKING DAYS  
BEFORE YOU BEGIN EXCAVATION

ARIZONA  
DIAL 8-1-1 OR 1-800-STAKE-IT (782-5348)  
MARICOPA COUNTY: (602) 699-1500



**LAKE HAVASU CITY GENERAL NOTES**

- ALL STRUCTURES ARE DESIGNED TO ACT AS A STRUCTURAL UNIT UPON COMPLETION. CONTRACTOR SHALL DESIGN AND PROVIDE NECESSARY BRACING, TEMPORARY SUPPORTS, AND SHORING TO RESIST FORCES ON THE STRUCTURE DURING CONSTRUCTION.
- VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO STARTING WORK. NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
- VERIFY LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO STARTING WORK.
- CONTRACTOR SHALL EXERCISE EXTREME CARE DURING THE EXCAVATION AND CONSTRUCTION FOR NEW STRUCTURE TO AVOID DAMAGE TO EXISTING STRUCTURES AND EXISTING UTILITIES. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL MEANS AND METHODS REQUIRED TO FACILITATE CONSTRUCTION OF THE WORK AND ENSURING THE SAFETY, STABILITY AND INTEGRITY OF ADJACENT STRUCTURES AND FACILITIES.
- THE ENGINEER SHALL BE NOTIFIED A MINIMUM OF 24 HOURS PRIOR TO BEGINNING ANY CONSTRUCTION.
- ANY WORK PERFORMED WITHOUT THE KNOWLEDGE AND APPROVAL BY THE ENGINEER AND/OR ALL WORK MATERIAL NOT IN CONFORMANCE WITH THE PLANS AND SPECIFICATIONS IS SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.
- NO JOB WILL BE CONSIDERED COMPLETE UNTIL ALL CURBS, PAVEMENT AND SIDEWALKS (NEW AND EXISTING) HAVE BEEN SWEEPED CLEAN OF ALL DIRT AND DEBRIS.
- ALL QUANTITIES SHOWN ON PLANS ARE APPROXIMATE, ARE NOT VERIFIED BY THE ENGINEER, AND ARE FURNISHED SOLELY FOR THE CONTRACTOR'S CONVENIENCE. THEY DO NOT NECESSARILY CORRESPOND TO BID SCHEDULE ITEMS. PAYMENT WILL BE BASED ON BID SCHEDULE ITEMS. THE CONTRACTOR SHALL NOT BE RELIEVED OF HIS RESPONSIBILITY FOR INDEPENDENTLY ESTIMATING WORK QUANTITIES PRIOR TO BIDDING.
- BACKFILL COMPACTION SHALL BE PER MAG 301, UNLESS OTHERWISE NOTED.
- REMOVAL OF STRUCTURES AND OBSTRUCTIONS AS NECESSARY TO COMPLETE THE WORK, OTHER THAN SPECIALLY SCHEDULED IN THE BID, IS INCIDENTAL TO THE CONTRACT. NO SEPARATE MEASUREMENT OF PAYMENT FOR UNSCHEDULED REMOVAL ITEMS WILL BE MADE.
- CONSTRUCTION STAKING SHALL BE BY THE CONTRACTOR'S SURVEYOR WITH CONTROL PROVIDED BY THE DESIGN ENGINEER WHO STAMPED THE PLANS.
- THE LAKE HAVASU CITY MAY ORDER ANY OR ALL WORKMANSHIP AND MATERIALS TO BE TESTED ACCORDING TO APPLICABLE STANDARDS.
- THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL REWORK AND/OR REMOVAL AND REPLACEMENT OF ALL MATERIALS AND/OR WORKMANSHIP REPRESENTED BY A FAILING TEST.
- THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL COSTS OF TESTING AND QUALITY ASSURANCE/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 CITY INSPECTION TIME IF THE CONTRACTOR'S WORK IS BEING PERFORMED IN OVERTIME, AT NIGHT, OR ON WEEKENDS.
- 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.
- THE LAKE HAVASU CITY 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.
- 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. THE CONTRACTOR MUST SATISFY HIMSELF REGARDING THE CHARACTER AND AMOUNT OF LOAM, CLAY, SAND, QUICKSAND, HARDPAN, GRAVEL, ROCK, WATER, AND ALL OTHER MATERIAL TO BE ENCOUNTERED AND WORK TO BE PERFORMED.
- THE LOCATIONS OF ALL EXISTING UTILITIES SHOWN ARE APPROXIMATE AND ARE BASED ON FIELD DATA AND MAP RECORDS. THE CONTRACTOR SHALL CONTACT 1-800-STAKE-IT PRIOR TO ANY CONSTRUCTION ACTIVITY TO VERIFY THE ACTUAL LOCATION OF ALL UTILITIES. THE CONTRACTOR SHALL DETERMINE WHICH UTILITIES DO NOT PARTICIPATE IN 1-800-STAKE-IT AND CONTACT THEM DIRECTLY TO VERIFY THE LOCATION OF THOSE UTILITIES. 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 CITY. IN CASES WHEN THE EXISTING UTILITIES ARE NOT AS DEPICTED ON THE PLANS SOME MINOR DEVIATION TO THE PROPOSED ALIGNMENT MAY BE ALLOWED TO MAINTAIN MINIMUM SEPARATION DISTANCES BETWEEN UTILITIES. ANY PROPOSED TO MAINTAIN MINIMUM SEPARATION DISTANCES BETWEEN UTILITIES. ANY PROPOSED TO CHANGES TO THE ALIGNMENT MUST BE SUBMITTED TO THE CITY'S REPRESENTATIVE FOR REVIEW. NO CHANGES WILL BE ALLOWED WITHOUT PRIOR APPROVAL.
- THE CONTRACTOR SHALL LIMIT THE WORK AREA TO PUBLIC RIGHT-OF-WAY AND PERMANENT EASEMENTS AS SHOWN FOR CONSTRUCTION OF THE PROJECT. TEMPORARY CONSTRUCTION EASEMENTS EXIST AS SHOWN AND INDICATED IN THE PLANS.
- 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.
- THE CONTRACTOR SHALL GRADE AND RESURFACE ALL AREAS DISTURBED BY CONSTRUCTION, INCLUDING LANDSCAPE ROCK, IN ACCORDANCE WITH THE SPECIFICATIONS AND TO A CONDITION EQUAL TO, OR BETTER THAN, THE PRE-CONSTRUCTION CONDITION.
- THE CONTRACTOR SHALL PROTECT ALL CONCRETE STRUCTURES TO REMAIN. ALL CONCRETE REPLACEMENT SHALL BE FROM JOINT TO JOINT (WALLS, SIDEWALK) AND SHALL BE REPLACED WITH 4000 PSI CONCRETE. ALL DAMAGED CONCRETE PANELS MUST BE REPLACED AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- THE CONTRACTOR SHALL PROVIDE PROTECTION TO PREVENT UNDERMINING OR DAMAGING THE STRUCTURAL INTEGRITY OF ALL FENCES, RETAINING WALLS, 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 PROJECT SHALL BE SUBSIDIARY TO OTHER BID ITEMS.
- THE CONTRACTOR SHALL REMOVE ALL FENCING, ASPHALT AND CONCRETE ROADS AND DRIVEWAYS, CURB AND GUTTER, RIP-RAP, DRAINAGE CULVERTS AND ASSOCIATED APPURTENANCES AS REQUIRED FOR CONSTRUCTION PURPOSES. ALL ITEMS DAMAGED OR REMOVED 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 TO OTHER BID ITEMS AND SHALL NOT BE PAID FOR SEPARATELY.
- IT IS NOT THE INTENTION OF THE SPECIFICATIONS TO SUPERSEDE ANY FEDERAL, STATE OR LOCAL LAWS, REGULATIONS AND/OR ORDINANCES. THEY SHALL GOVERN IN ALL INSTANCES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SHOW A GOOD FAITH EFFORT AND TO PROTECT ALL EXISTING UTILITY TIES AND STRUCTURES AND TO ABIDE BY ALL FEDERAL, STATE AND LOCAL LAWS AND ORDINANCES IN THIS RESPECT.
- THE CONTRACTOR SHALL PROTECT ALL EXISTING IMPROVEMENTS ON PRIVATE PROPERTY. ALL ITEMS DAMAGED OR REMOVED 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.
- PROPERTY LINES SHOWN ON DRAWINGS ARE APPROXIMATE.
- ALL CONSTRUCTION SHALL CONFORM TO THE LATEST MARICOPA ASSOCIATION OF GOVERNMENTS, UNIFORM STANDARD SPECIFICATIONS AND DETAILS FOR PUBLIC WORKS CONSTRUCTION (MAG), OTHER CITIES, AND ADOPT DETAILS (AS CITED IN PROJECT PLANS AND SPECIFICATIONS). LAKE HAVASU CITY STANDARD DETAILS WILL CONTINUE TO APPLY WHERE SUCH DETAILS WERE NOT ADOPTED OR INCLUDED BY MAG. ALTERNATE DETAILS AND SPECIFICATIONS MAY BE SUBMITTED FOR REVIEW AND ACCEPTANCE BY THE ENGINEERING DIVISION. IF ACCEPTED, ALTERNATE DETAILS WILL BE SHOWN AS PART OF THE APPROVED PLANS/DETAIL SHEETS.

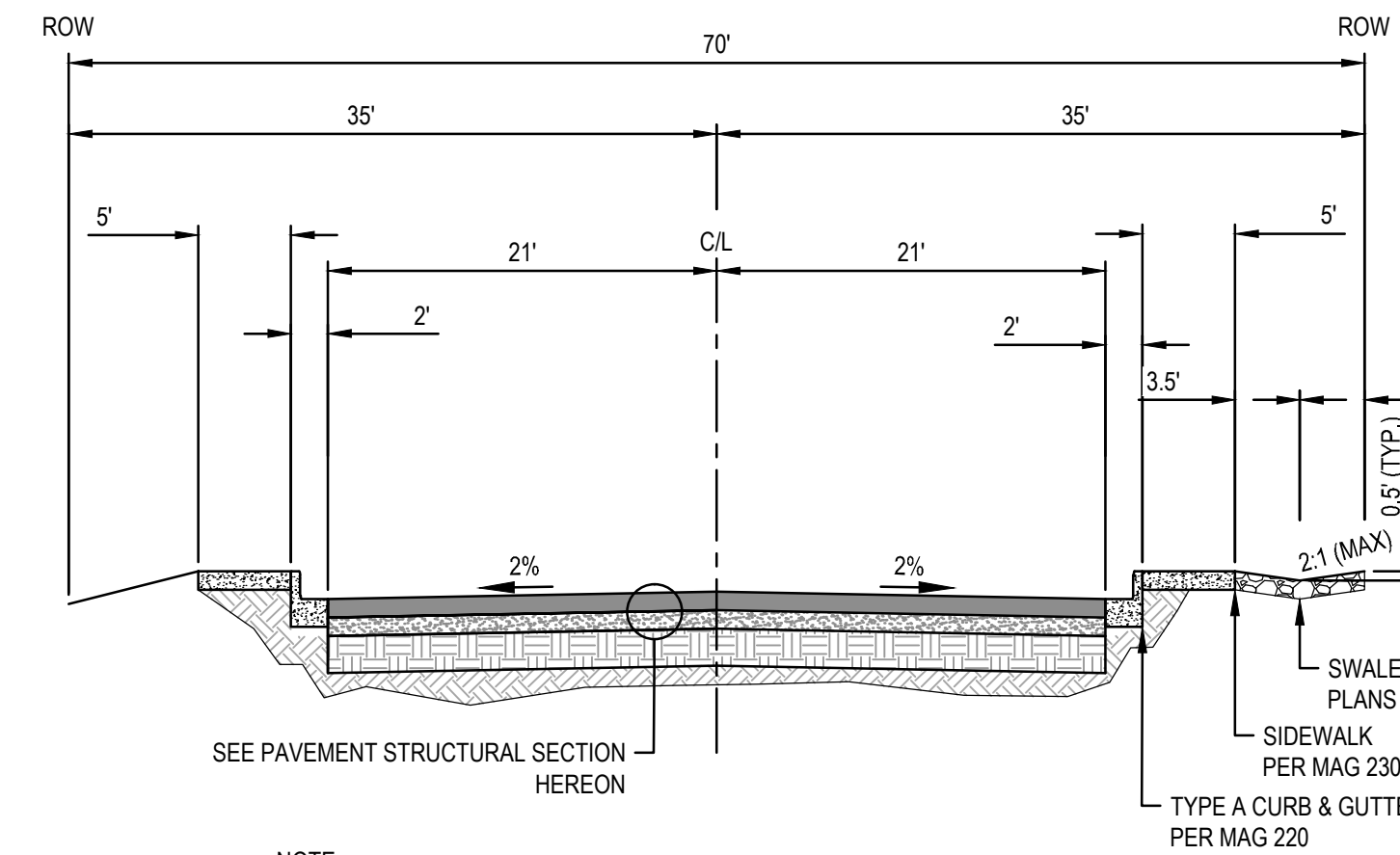
- THIS SET OF PLANS HAS BEEN REVIEWED FOR COMPLIANCE WITH CITY REQUIREMENTS PRIOR TO ISSUANCE OF CONSTRUCTION PERMITS. HOWEVER, SUCH REVIEW SHALL NOT PREVENT THE CITY ENGINEER FROM REQUIRING CORRECTION OF ERRORS OR OMISSIONS IN PLANS FOUND TO BE IN VIOLATION OF ANY LAW OR ORDINANCE.
- APPROVAL BY THE CITY ENGINEER MEANS FOR GENERAL LAYOUT IN RIGHT-OF-WAY ONLY. CONSTRUCTION PERMITS SHALL BE OBTAINED WITHIN THIS PERIOD OR THE PLANS SHALL BE RESUBMITTED FOR APPROVAL. WORK SHALL ALSO BE CONTINUOUSLY PURSUED IN ORDER TO MAINTAIN A VALID PLAN APPROVAL AND PERMIT. APPROVAL IS ONLY FOR WORK WITHIN THE JURISDICTION OF LAKE HAVASU CITY.
- AN APPROVED SET OF PLANS MUST BE AVAILABLE ON THE JOB SITE AT ALL TIMES. THE CONTRACTOR'S REPRESENTATIVE (CAPABLE OF COMMUNICATING WITH THE CITY'S REPRESENTATIVES) SHALL BE ON THE JOB AT ALL TIMES THE WORK IS BEING PURSUED.
- THE CONTRACTOR IS RESPONSIBLE TO PROVIDE EMERGENCY TELEPHONE NUMBERS TO LAKE HAVASU CITY AT TIME OF ISSUANCE OF OFF-SITE/ON-SITE PERMITS AND HAVE PERSONNEL AVAILABLE 24-HOURS A DAY TO RESPOND TO EMERGENCIES. IF THE CITY IS REQUIRED TO RESPOND AND MAKE EMERGENCY REPAIRS ON BEHALF OF THE CONTRACTOR, THE CONTRACTOR IS RESPONSIBLE TO REIMBURSE THE CITY FOR ALL COSTS INCURRED.
- THE CONTRACTOR SHALL TAKE APPROPRIATE STEPS TO PREVENT EROSION AND DEPOSITION OF SEDIMENTS INTO WATER COURSES. THE CONTRACTOR SHALL SUBMIT AN EROSION CONTROL PLAN FOR APPROVAL. PRIOR TO THE START OF ANY EXCAVATION, ALL DRAINAGE PROTECTIVE DEVICES SUCH AS SWALES, INTERCEPTION DITCHES, PIPES, PROTECTIVE BERMS, CONCRETE CHANNELS OR OTHER MEASURES DESIGNED TO PROTECT IMPROVEMENTS, WHETHER EXISTING OR PROPOSED, FROM RUNOFF OR DAMAGE FROM STORM WATER, MUST BE CONSTRUCTED PRIOR TO THE CONSTRUCTION OF ANY IMPROVEMENTS. ALL EROSION AND SEDIMENT CONTROL WORK SHALL BE INCIDENTAL TO OTHER PAY ITEMS.
- 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.
- ALL CONTRACTORS ARE RESPONSIBLE TO OBTAIN AN ARIZONA POLLUTANT DISCHARGE ELIMINATION SYSTEM (AZPDES) PERMIT IN ACCORDANCE WITH FEDERAL AND STATE REGULATIONS, INCLUDING NOTICE OF INTENT (NOI), NOTICE OF TERMINATION, AND STORM WATER POLLUTION PREVENTION PLAN (SWPPP), A COPY OF THE NOI AND SWPPP SHALL BE AVAILABLE ON THE JOB SITE AT ALL TIMES.
- FIRE ACCESS TO BE MAINTAINED DURING ALL PHASES OF CONSTRUCTION AS REQUIRED BY LAKE HAVASU CITY FIRE DEPARTMENT.
- THE CONTRACTOR SHALL KEEP SUITABLE EQUIPMENT ON HAND AT THE JOBSITE FOR MAINTENANCE DUST CONTROL, AND SHALL CONTROL DUST AS DIRECTED BY THE APPROPRIATE AGENCIES.
- ALL EXISTING FLOW LINES SHOWN ARE APPROXIMATE AND SHALL BE FIELD VERIFIED BY CONTRACTOR.
- PROPERTY LINES SHOWN ON DRAWINGS ARE APPROXIMATE.
- THE CONTRACTOR SHALL GRADE AND RESURFACE ALL AREAS DISTURBED BY CONSTRUCTION, INCLUDING LANDSCAPE ROCK, IN ACCORDANCE WITH THE SPECIFICATIONS AND TO A CONDITION EQUAL TO, OR BETTER THAN, THE PRE-CONSTRUCTION CONDITION.
- ANY ROCK ENCOUNTERED DURING EXCAVATION SHALL BE REMOVED AT NO ADDITIONAL COST TO THE CITY. ROCK EXCAVATION COST SHALL BE INCIDENTAL TO OTHER ITEMS OF WORK.
- ANY SHORING REQUIRED SHALL BE CONSIDERED INCIDENTAL TO OTHER ITEMS OF WORK.
- COORDINATE SHUTDOWN AND SEQUENCING REQUIREMENTS WITH OWNER 48-HOURS PRIOR TO CONSTRUCTION. THE CONTRACTOR MUST HAVE AN APPROVED SEQUENCING PLAN PRIOR TO ANY CONSTRUCTION.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING STAGING AREAS FOR THEIR WORK.
- CONTRACTOR SHALL FIELD VERIFY AND REPLACE ALL PROPERTY DRAIN PIPES (6" OR SMALLER, IN KIND) TO BE LAID OVER THE FINISHED GRADE SLOPE & EXTENDED 12" BEYOND TOP OF BANK PROTECTION AS SPECIFIED ON THE TECHNICAL SPECIFICATIONS (ALLOWANCE).

**LAKE HAVASU CITY WATER NOTES**

- 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.
- 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.
- 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:
  - A WATER MAIN SHALL NOT BE PLACED:
    - 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).
    - WITHIN 2 FEET HORIZONTALLY AND 2 FEET BELOW THE SEWER MAIN.
    - 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.
  - 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.
- 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.
- 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 LHC DETAIL 300.
- 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.
- ALL RESTRAINED PIPE SHALL BE PER SPECIFICATION 02550 SECTION 2.7. 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.
- CONTRACTOR SHALL POT-HOLE ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY ALIGNMENT AND DEPTH. THIS WORK SHALL BE INCIDENTAL TO INSTALLATION OF THE WATERLINE.
- IN ACCORDANCE WITH ADEQ REQUIREMENTS, CONTRACTOR IS RESPONSIBLE FOR PIPE PROTECTION WHERE MINIMUM SEPARATION CANNOT BE MAINTAINED.
- CONTRACTOR SHALL PERFORM ALL TESTING AND DISINFECTING OF THE WATER LINES PER THE CITY OF LAKE HAVASU SPECIFICATION 02550 AND THE ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY (ADEQ) REGULATIONS IN BULLETIN NO. 8.
- ALL WATER MAINS SHALL BE BURIED WITH TRACER WIRE PER LAKE HAVASU CITY SPECIFICATION 02550, SECTION 2.10.
- 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.
- ALL DUCTILE IRON FITTINGS, VALVES, AND PIPE ARE TO BE WRAPPED WITH POLYETHYLENE ENCASEMENT.
- 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).
- THE CONTRACTOR SHALL TAKE ALL REASONABLE EFFORT AND ACTION TO SATISFY HIMSELF ON THE HORIZONTAL AND VERTICAL LOCATION OF THE EXISTING SEWER MAINS AND LATERALS PRIOR TO TRENCHING WATER MAIN LINE.
- 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.
- 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 PRECISE EXISTING LATERAL LOCATIONS. CONTRACTOR IS ADVISED TO LOCATE THE LOCATIONS PRIOR TO CONSTRUCTION. DAMAGE TO THE SEWER LATERALS SHALL BE PROMPTLY REPAIRED IN KIND BY THE CONTRACTOR AT NO ADDITIONAL COST OR SCHEDULE ESCALATION TO THE OWNER.
- ALL ASBESTOS CONCRETE PIPE SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH LAKE HAVASU CITY SPECIFICATION SECTION 02050.
- ALL PIPE THAT IS TO BE ABANDONED IN PLACE SHALL BE IN ACCORDANCE WITH LAKE HAVASU CITY SPECIFICATION SECTION 02550 AND 02050.

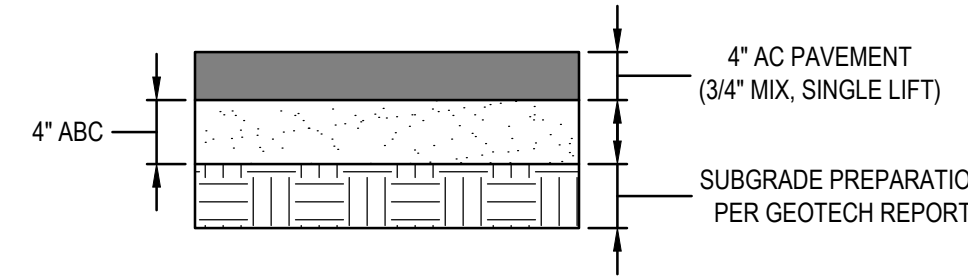
**EARTHWORK QUANTITIES**

GEOMETRIC CUT/FILL QUANTITIES:  
 CUT = 4,270 CY  
 FILL = 2,430 CY  
 ESTIMATED SHRINKAGE = 15%  
 EXPORT = 1,475 CY



NOTE:  
 SEE PLANS FOR LOCATIONS OF NON-TYPICAL SECTIONS, SWALE, AND ADDITIONAL GRADING.  
 PAVEMENT WIDTH TO BE ADJUSTED IN WARP SECTIONS IN ORDER TO MATCH BACK OF CURB LOCATION AT MATCH POINT TIE-INS.

**TYPICAL SECTION - EL DORADO AVE**  
 NOT TO SCALE



**EL DORADO AVE**  
**NEW PAVEMENT STRUCTURAL SECTION**  
 NOT TO SCALE

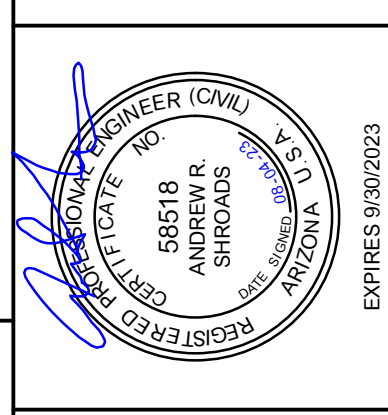


NO.	REVISIONS / SUBMISSIONS	DATE
	FINAL SUBMITTAL	

**LAKE HAVASU CITY, AZ**  
**WASH CROSSING IMPROVEMENTS**  
**EL DORADO AVENUE N.**

Designed by:	ARS
Drawn by:	RAM
Checked by:	CJD
Date:	8/01/2023
Dwg. scale:	SEE PLAN

**GENERAL NOTES**



Sheet Number:	G-03
Sheet	3 of 17

**WILSON & COMPANY**  
 HIGHER RELATIONSHIPS

9299 W. Olive Ave. Ste. 405  
 Peoria, AZ 85345  
 Phone: 623.582.0970  
 Fax: 623.582.1973  
 Web: www.civiltec.com

**CIVILTEC engineering inc.**  
 Civil, Water, Wastewater, Drainage, and Transportation Engineering  
 Construction Management • Surveying  
 California • Arizona

CALL AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION

**ARIZONA**  
 DIAL 8-1-1 OR 1-800-STAKE-IT (782-5348)  
 MARICOPA COUNTY: (602) 699-1500

**GEOTECHNICAL GENERAL NOTES**

1. A GEOTECHNICAL REPORT HAS BEEN PREPARED FOR THIS PROJECT AND IS INCLUDED IN THE CONTRACT DOCUMENTS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FULLY READ AND COMPLY WITH THE CONTENTS OF THE REPORT. EXCERPTS FROM THE REPORT ARE PROVIDED BELOW.
2. SUBGRADE IMPROVEMENT
  - 2.1. BASED ON OUR TESTING, THE NEAR SURFACE ALLUVIAL SOILS ARE NOT CONSIDERED SUITABLE TO PROVIDE SUPPORT TO THE NEW IMPROVEMENTS IN THEIR IN-SITU CONDITION. WE RECOMMEND THAT NEAR SURFACE FOUNDATIONS ASSOCIATED WITH THE BOX CULVERT STRUCTURE BE SUPPORTED ON 2 FEET OF MOISTURE-CONDITIONED AND COMPACTED ENGINEERED FILL MEASURED FROM THE BOTTOM OF THE FOOTING OR MAT. THIS OVEREXCAVATION ZONE SHOULD EXTEND 2 FEET HORIZONTALLY BEYOND THE EDGES OF THE FOUNDATIONS AND SHOULD BE MOISTURE CONDITIONED AND COMPACTED IN ACCORDANCE WITH THIS REPORT.
  - 2.2. NEW PAVEMENTS, CONCRETE FLATWORK AND ANY ROADWAY FILL CONSTRUCTED OVER NATIVE SOILS SHOULD BE SUPPORTED ON 12 INCHES OF MOISTURE CONDITIONED AND COMPACTED ENGINEERED FILL. THE IMPROVEMENTS IN THESE AREAS SHOULD EXTEND 12 INCHES BEYOND THE EDGES OF THE PAVEMENTS AND FLATWORK. NEW PAVEMENTS AND CONCRETE FLATWORK CONSTRUCTED OVER THE CONCRETE BOX CULVERT SHOULD BE SUPPORTED ON A MINIMUM OF 12 INCHES OF MOISTURE CONDITIONED AND COMPACTED ENGINEERED FILL. THE BOX CULVERT SHOULD BE STRUCTURALLY DESIGNED TO WITHSTAND TRAFFIC LOADING.
  - 2.3. ONCE THE ABOVE-MENTIONED OVEREXCAVATION IS ACHIEVED, AND THE UNDERLYING SOILS ARE EXPOSED, FURTHER EVALUATION SHOULD BE MADE BY THE ON-SITE GEOTECHNICAL REPRESENTATIVE FOR THE PRESENCE OF LOOSE, SOFT, YIELDING, OR UNACCEPTABLE SOILS. BASED ON THIS EVALUATION, ADDITIONAL REMEDIATION MAY BE NEEDED. THIS COULD INCLUDE FURTHER IMPROVEMENT OF THE EXPOSED SURFACE. THIS ADDITIONAL REMEDIATION, IF NEEDED, SHOULD BE ADDRESSED BY THE GEOTECHNICAL CONSULTANT DURING EARTHWORK OPERATIONS.
3. EXCAVATIONS
  - 3.1. OUR EVALUATION OF THE EXCAVATION CHARACTERISTICS OF THE ON-SITE MATERIALS IS BASED ON THE RESULTS OF OUR EXPLORATORY BORINGS, SITE OBSERVATIONS, AND EXPERIENCE WITH SIMILAR MATERIALS. EXCAVATION OF THE MATERIALS CAN GENERALLY BE ACCOMPLISHED WITH HEAVY-DUTY EARTHMOVING EQUIPMENT. HOWEVER, VERY DENSE SOILS, VARYING AMOUNTS OF GRAVEL, COBBLES, AND POSSIBLY BOULDERS WERE ENCOUNTERED IN OUR BORINGS AND MAY BE MORE DIFFICULT TO EXCAVATE AND/OR SLOW THE RATE OF EXCAVATION DEPENDING ON THE DEGREE OF CEMENTATION ENCOUNTERED DURING CONSTRUCTION.
  - 3.2. SIDEWALLS FOR TEMPORARY EXCAVATIONS SHOULD NOT BE ANTICIPATED TO STAND NEAR-VERTICAL WITHOUT SLOUGHING. THEREFORE, THE SIDES OF EXCAVATIONS AND TRENCHES FOR THIS PROJECT SHOULD BE STABILIZED IN ORDER TO REDUCE DAMAGE TO ADJACENT FACILITIES RESULTING FROM VERTICAL OR LATERAL MOVEMENT OF THE SOIL. THE SIDES OF THE EXCAVATION MAY BE STABILIZED BY SLOPING BACK THE SIDES AND/OR BY USING BRACING. HOWEVER, THE TRENCH SIDEWALLS MAY BE DIFFICULT TO STABILIZE DUE TO THE PRESENCE OF LOW COHESION SOILS, WHICH COULD HAVE A POTENTIAL TO CAVING AND SLOUGHING DURING EXCAVATION, ESPECIALLY IF THE SOILS ARE WET OR SATURATED. ADDITIONALLY, VIBRATIONS CAUSED BY NEARBY TRAFFIC OR CONSTRUCTION EQUIPMENT COULD ACCELERATE SLOUGHING.
4. TEMPORARY SLOPES
  - 4.1. THE CONTRACTOR SHOULD PROVIDE SAFELY SLOPED EXCAVATIONS OR AN ADEQUATELY CONSTRUCTED AND BRACED SHORING SYSTEM IN COMPLIANCE WITH OSHA REGULATIONS FOR EMPLOYEES WORKING IN AN EXCAVATION THAT MAY EXPOSE THEM TO THE DANGER OF MOVING GROUND. BASED ON THE SOIL CONDITIONS AT THE SITE, WE RECOMMEND THAT OSHA SOIL "TYPE C" CLASSIFICATION BE USED FOR EXCAVATIONS AT THE SITE. THIS CORRESPONDS TO TEMPORARY SLOPES OF 1.5:1 (HORIZONTAL: VERTICAL). THIS SIDE SLOPE IS FOR EXCAVATIONS THAT ARE LESS THAN 20 FEET DEEP. IF MATERIAL IS STORED OR EQUIPMENT IS OPERATED NEAR AN EXCAVATION, STRONGER SHORING SHOULD BE USED TO RESIST THE EXTRA PRESSURE DUE TO SUPERIMPOSED LOADS. EXCAVATIONS OVER 20 FEET SHOULD BE DESIGNED BY THE CONTRACTOR'S ENGINEER BASED ON ALIGNMENT-SPECIFIC GEOTECHNICAL ANALYSIS.
  - 4.2. UPON MAKING THE EXCAVATIONS, SOIL AND/OR ROCK CLASSIFICATIONS AND EXCAVATION PERFORMANCE SHOULD BE EVALUATED IN THE FIELD BY THE GEOTECHNICAL CONSULTANT IN ACCORDANCE WITH OSHA STANDARDS.
5. PERMANENT SLOPES
  - 5.1. PERMANENT CUT SLOPES AND CONSTRUCTED EMBANKMENT FILL SLOPES SHOULD BE NO STEEPER THAN 2:1 (HORIZONTAL TO VERTICAL). NEW EMBANKMENT FILLS SHOULD BE BENCHED INTO EXISTING EMBANKMENTS, WHERE APPROPRIATE. BENCHES SHOULD BE LEVEL AND WIDE ENOUGH TO ALLOW OPERATION OF AND COMPACTION BY, CONSTRUCTION EQUIPMENT. FILL SLOPES SHOULD BE CONSTRUCTED IN A MANNER (E.G., OVERFILLING AND CUTTING TO GRADE) SUCH THAT THE RECOMMENDED DEGREE OF COMPACTION IS ACHIEVED TO THE FINISHED SLOPE FACE. CUT AND FILL SLOPES SHOULD BE PROTECTED FROM EROSION. THIS SHOULD PROMOTE RE-VEGETATION AND A STABLE SLOPE. PERIODIC MAINTENANCE OF EXPOSED SLOPES SHOULD BE ANTICIPATED.
  - 5.2. UNPROTECTED SLOPES MAY RILL AND ERODE IF EXPOSED TO RUNNING WATER. SILTY SOILS AND SOILS CONTAINING FINE SAND ARE MORE SUSCEPTIBLE IN THIS REGARD. WHILE 2:1 (HORIZONTAL TO VERTICAL) SLOPES ARE ACCEPTABLE FROM A STABILITY STANDPOINT, LAYING SLOPES BACK TO 3:1 (HORIZONTAL TO VERTICAL) WILL DECREASE RUNOFF VELOCITY AND DECREASE THE LIKELIHOOD OF SERIOUS EROSION. STEEPER SLOPES WILL NEED ADDITIONAL MAINTENANCE. ADEQUATE DRAINAGE AND TEMPORARY EROSION PROTECTION COVERING COULD MINIMIZE EROSION PROBLEMS AND PROMOTE POST-CONSTRUCTION VEGETATION. PLATING SLOPES WITH GRAVELLY MATERIAL OR RIPRAP WILL REDUCE THE IMPACTS OF PRECIPITATION AND SLOW THE RATE OF EROSION. IF RIPRAP IS PLACED IN THE CHANNEL IT SHOULD BE ADEQUATELY SIZED TO PREVENT EROSION OF THE EMBANKMENT. ALONG LONGER SLOPES, BROW DITCHES SHOULD BE CONSIDERED TO REDUCE THE AMOUNT OF SURFACE FLOW ON THE SLOPE FACE. WHERE FEASIBLE, THE EXISTING VEGETATION SHOULD BE SALVAGED AND REPLACED.
6. FILL PLACEMENT AND COMPACTION
  - 6.1. SPECIAL CARE SHOULD BE EXERCISED TO AVOID DAMAGING PIPES OR OTHER STRUCTURES DURING THE COMPACTION OF THE BACKFILL. COMPACTION SHOULD BE ACCOMPLISHED IN A MANNER THAT INHIBITS SURFACE WATER INFILTRATION AS WELL AS CONVEYANCE OF SUBSURFACE MOISTURE DUE TO THE INTERSECTION OF NATURAL DRAINAGES ALONG THE ALIGNMENT.
  - 6.2. TRENCH BACKFILL AND ENGINEERED FILL MATERIALS SHOULD BE PLACED IN HORIZONTAL LIFTS APPROXIMATELY 8 INCHES IN LOOSE THICKNESS WHEN COMPACTED BY MECHANICAL METHODS. IF NON-CONVENTIONAL, HAND OPERATED, COMPACTION EQUIPMENT IS EMPLOYED HORIZONTAL LIFTS SHALL NOT EXCEED 4 INCHES IN LOOSE THICKNESS. IT IS RECOMMENDED THAT SOIL BE COMPACTED BY APPROPRIATE MECHANICAL METHODS AT MOISTURE CONTENT AS OUTLINED IN TABLE 1.

TABLE 1 - COMPACTION RECOMMENDATIONS		
ENGINEERED FILL DESCRIPTION	PERCENT COMPACTION PER ASTM D698	MOISTURE CONTENT
BELOW FOUNDATIONS AND EXTERIOR FLATWORK	95 PERCENT	±2 PERCENT OF OPTIMUM
PAVEMENT SUBGRADE AND ROADWAY FILL	95 PERCENT	±2 PERCENT OF OPTIMUM
ABC BENEATH PAVEMENT	100 PERCENT	±3 PERCENT OF OPTIMUM
FINAL BACKFILL UPPER ZONE - WITHIN 2 FEET BELOW PAVEMENT	100 PERCENT	±2 PERCENT OF OPTIMUM
FINAL BACKFILL TRENCH ZONE - DEEPER THAN 2 FEET BELOW PAVEMENT OR IN UNPAVED AREAS	95 PERCENT	±2 PERCENT OF OPTIMUM
PIPE BEDDING	95 PERCENT	±3 PERCENT OF OPTIMUM

- 6.3. AN EARTHWORK (SHRINKAGE) FACTOR OF 10 TO 20 PERCENT IS ESTIMATED. THIS SHRINKAGE FACTOR RANGE REPRESENTS AN AVERAGE OF THE MATERIAL TESTED AND ASSUMES THAT MATERIALS EXCAVATED FROM THE SITE WILL BE PLACED AS FILL. POTENTIAL BIDDERS SHOULD CONSIDER THIS IN PREPARING ESTIMATES AND SHOULD REVIEW THE AVAILABLE DATA TO MAKE THEIR OWN CONCLUSIONS REGARDING EXCAVATION CONDITIONS.
7. PRE-CONSTRUCTION CONFERENCE
  - 7.1. WE RECOMMEND THAT A PRE-CONSTRUCTION CONFERENCE BE HELD. REPRESENTATIVES OF THE OWNER, CIVIL ENGINEER, THE GEOTECHNICAL CONSULTANT, AND THE CONTRACTOR SHOULD BE IN ATTENDANCE TO DISCUSS THE PROJECT PLANS AND SCHEDULE. OUR OFFICE SHOULD BE NOTIFIED IF THE PROJECT DESCRIPTION INCLUDED HEREIN IS INCORRECT, OR IF THE PROJECT CHARACTERISTICS ARE SIGNIFICANTLY CHANGED.

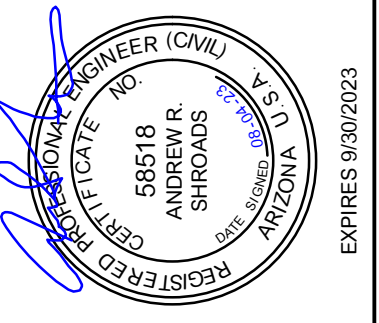


NO.	REVISIONS / SUBMISSIONS	DATE
	FINAL SUBMITTAL	

**LAKE HAVASU CITY, AZ  
WASH CROSSING IMPROVEMENTS  
EL DORADO AVENUE N.**

Designed by: ARS  
 Drawn by: RAM  
 Checked by: CJD  
 Date: 8/1/2023  
 Dwg. scale: SEE PLAN

**GENERAL NOTES**



Sheet Number:  
**G-04**  
Sheet 4 of 17

**WILSON & COMPANY**  
HIGHER RELATIONSHIPS

9299 W. Olive Ave. Ste. 405  
 Peoria, AZ 85345  
 Phone: 623.582.0970  
 Fax: 623.582.1973  
 Web: www.civiltec.com

**CIVILTEC engineering inc.**  
 Civil, Water, Wastewater, Drainage, and Transportation Engineering  
 Construction Management • Surveying  
 California • Arizona

CALL AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION

**ARIZONA**  
 DIAL 8-1-1 OR 1-800-STAKE-IT (782-5348)  
 MARICOPA COUNTY: (602) 699-1500

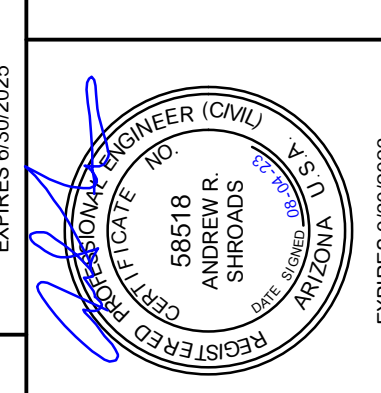


NO.	REVISIONS / SUBMISSIONS	DATE
	FINAL SUBMITTAL	

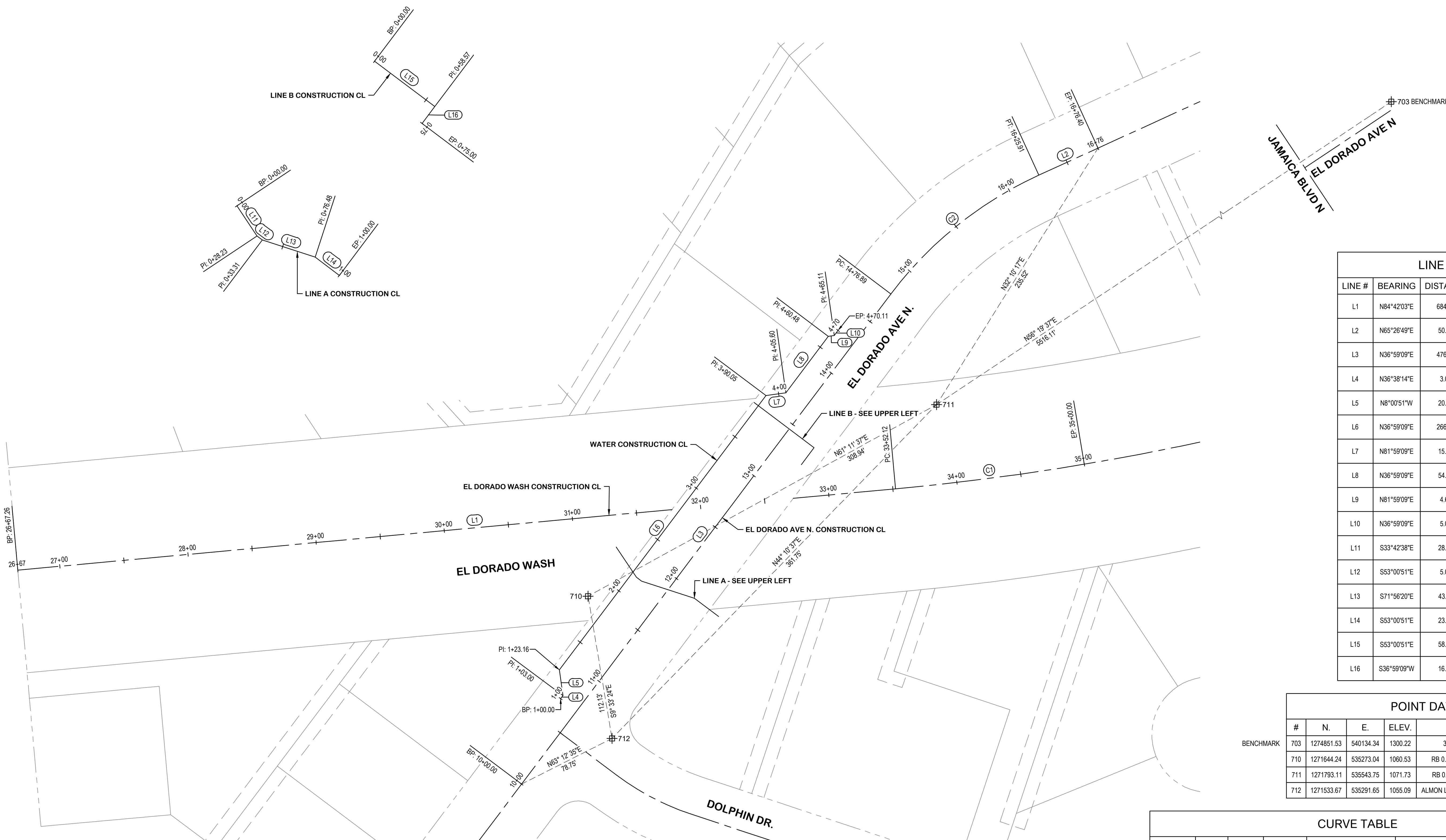
**LAKE HAVASU CITY, AZ  
WASH CROSSING IMPROVEMENTS  
EL DORADO AVENUE N.**

Designed by:	ARS
Drawn by:	RAM
Checked by:	CJD
Date:	8/4/2023
Dwg. scale:	SEE PLAN

**GEOMETRIC DATA**



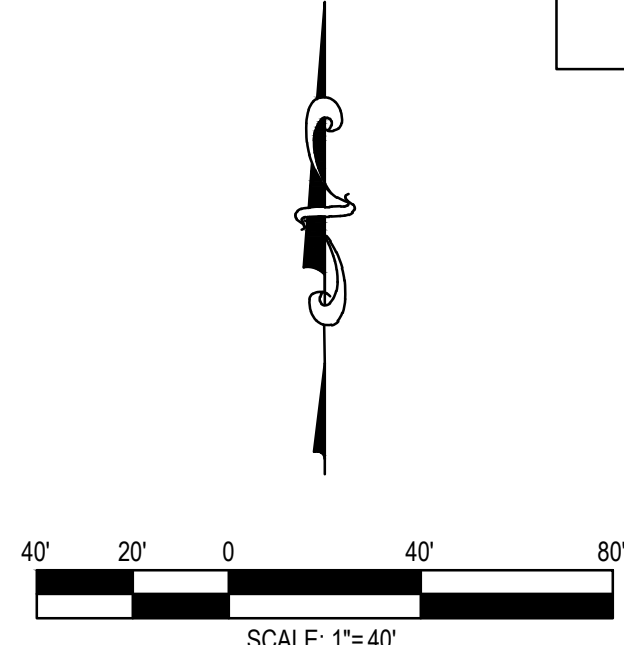
Sheet Number:  
**G-05**  
Sheet 5 of 17



LINE TABLE				
LINE #	BEARING	DISTANCE	START	END
L1	N84°42'03"E	684.86'	N 1271664.43 E 534830.02	N 1271727.68 E 535511.95
L2	N65°26'49"E	50.49'	N 1271971.49 E 535623.23	N 1271992.47 E 535669.15
L3	N36°59'09"E	476.89'	N 1271498.17 E 535221.35	N 1271879.10 E 535508.26
L4	N36°38'14"E	3.00'	N 1271564.59 E 535251.70	N 1271567.00 E 535253.49
L5	N8°00'51"W	20.16'	N 1271567.00 E 535253.49	N 1271586.97 E 535250.68
L6	N36°59'09"E	266.89'	N 1271586.97 E 535250.68	N 1271800.15 E 535411.24
L7	N81°59'09"E	15.56'	N 1271800.15 E 535411.24	N 1271802.32 E 535426.64
L8	N36°59'09"E	54.87'	N 1271802.32 E 535426.64	N 1271846.15 E 535459.65
L9	N81°59'09"E	4.63'	N 1271846.15 E 535459.65	N 1271846.80 E 535464.24
L10	N36°59'09"E	5.00'	N 1271846.80 E 535464.24	N 1271850.79 E 535467.25
L11	S33°42'38"E	28.23'	N 1271682.50 E 535294.91	N 1271659.02 E 535310.58
L12	S53°00'51"E	5.08'	N 1271659.02 E 535310.58	N 1271655.97 E 535314.64
L13	S71°56'20"E	43.17'	N 1271655.97 E 535314.64	N 1271642.58 E 535355.68
L14	S53°00'51"E	23.52'	N 1271642.58 E 535355.68	N 1271628.43 E 535374.47
L15	S53°00'51"E	58.57'	N 1271794.87 E 535401.85	N 1271759.63 E 535448.64
L16	S36°59'09"W	16.43'	N 1271759.63 E 535448.64	N 1271746.51 E 535438.75

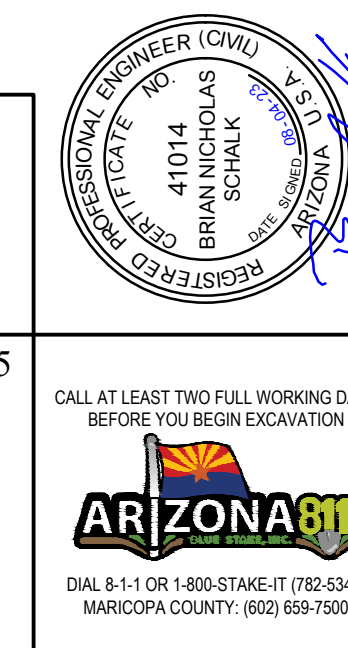
POINT DATA				
#	N.	E.	ELEV.	DESC.
703	1274851.53	540134.34	1300.22	3MIN ON 19 MAG NL AND SHINER
710	1271644.24	535273.04	1060.53	RB 0.5IN SET SW KNOB EL DORADO XING
711	1271793.11	535543.75	1071.73	RB 0.5IN SET NE KNOB EL DORADO XING
712	1271533.67	535291.65	1055.09	ALMON LHC SURVEY MKRR CP5 NAVD88 1054.91

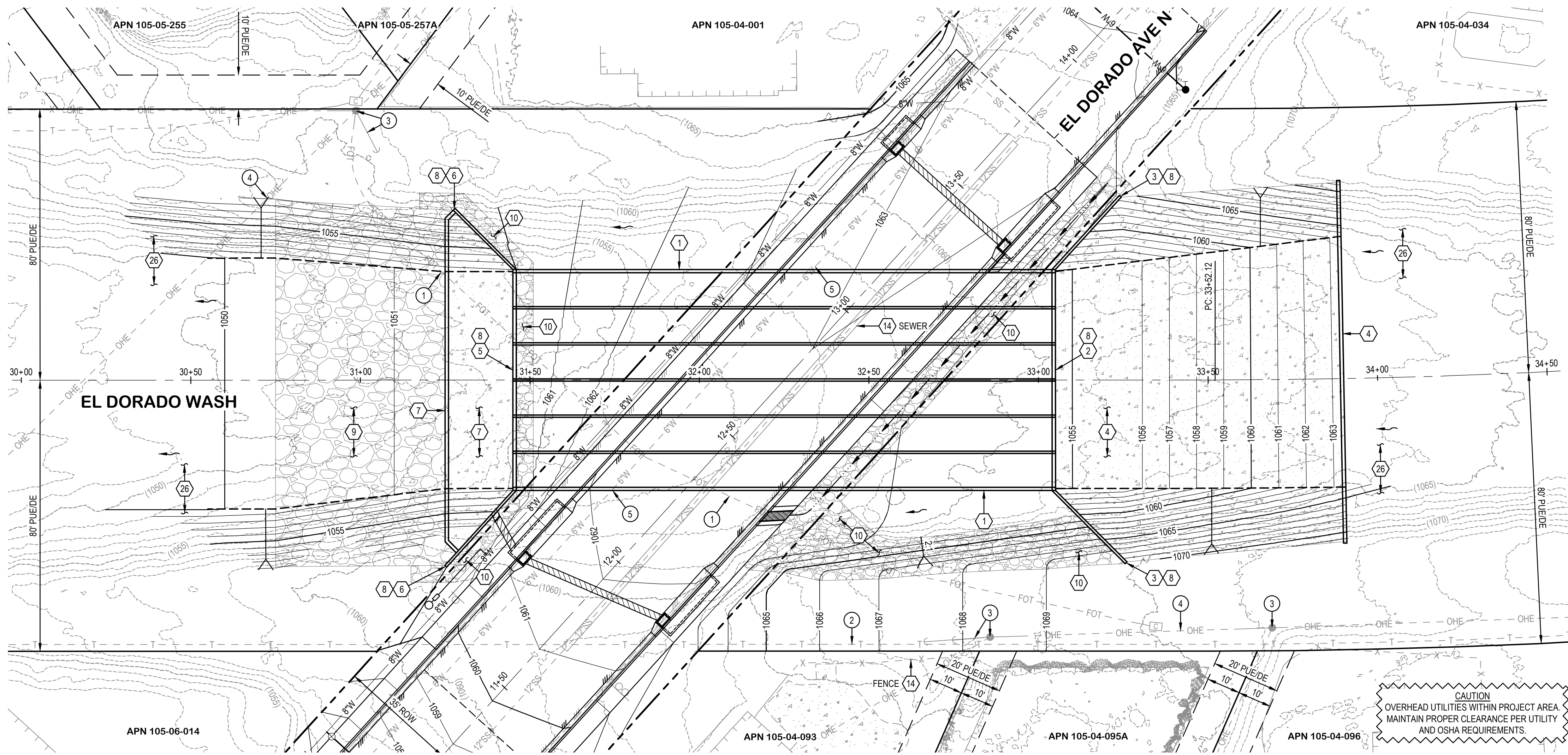
CURVE TABLE							
CURVE #	R	Δ	LENGTH	CHORD DIRECTION	CHORD LENGTH	START	END
C1	2000.00'	4°14'11"	147.88'	N82°34'57"E	147.84'	N 1271727.68 E 535511.95	N 1271746.77 E 535658.56
C2	300.00'	28°27'40"	149.02'	N51°12'59"E	147.49'	N 1271879.10 E 535508.26	N 1271971.49 E 535623.23



**WILSON & COMPANY**  
HIGHER RELATIONSHIPS

9299 W. Olive Ave. Ste. 405  
Peoria, AZ 85345  
Phone: 623.582.0970  
Fax: 623.582.1973  
Web: www.civiltec.com



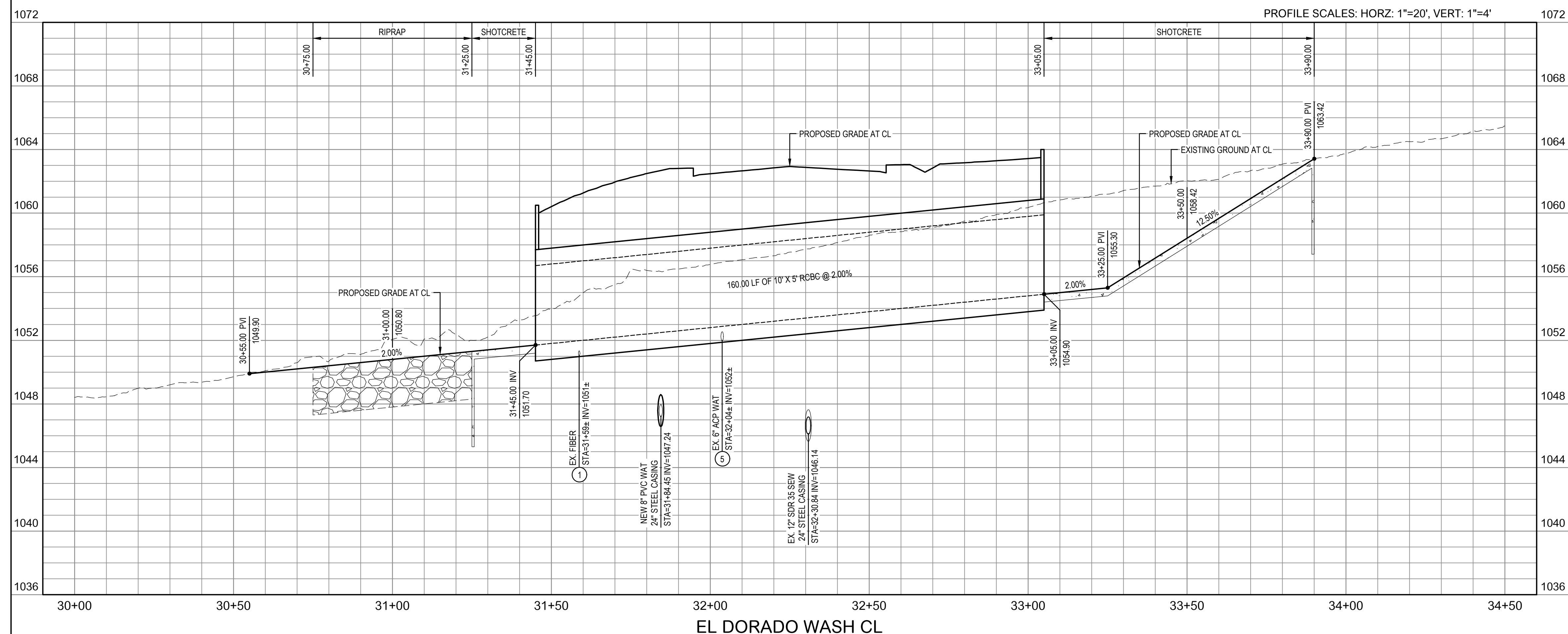


NOTES		
NO.	CONSTRUCTION	EST. QUANTITY THIS SHEET
1	CONSTRUCT SIX BARREL 10' X 5' RCBC PER ADOT SD 6.06. SEE DETAIL ON SHEET 12 & 13.	1 LS
2	CONSTRUCT INLET CONCRETE HEADWALL. SEE DETAIL ON SHEET 17.	1 EA
3	CONSTRUCT INLET CONCRETE WINGWALLS PER ADOT SD 6.10. SEE DETAIL ON SHEET 12.	2 EA
4	CONSTRUCT INLET REINFORCED SHOTCRETE CHANNEL WITH CUTOFF WALL. SEE DETAIL ON SHEET 16.	1 EA
5	CONSTRUCT OUTLET CONCRETE HEADWALL. SEE DETAIL ON SHEET 17.	1 EA
6	CONSTRUCT OUTLET CONCRETE WINGWALLS PER ADOT SD 6.10. SEE DETAIL ON SHEET 12.	2 EA
7	CONSTRUCT OUTLET REINFORCED SHOTCRETE CHANNEL WITH CUTOFF WALL. SEE DETAIL ON SHEET 16.	1 EA
8	FURNISH & INSTALL SAFETY RAIL PER MAG 145. SEE DETAIL ON SHEET 14.	245 LF
9	FURNISH & INSTALL RIPRAP WITH GEOSYNTHETIC FABRIC. D50=18", THICKNESS = 36" PER DETAIL ON SHEET 16.	635 CY
10	FURNISH & INSTALL RIPRAP WITH GEOSYNTHETIC FABRIC. D50=6", THICKNESS = 12" PER DETAIL ON SHEET 17.	124 CY
14	PROTECT IN PLACE.	NPI
26	GRADE TO DRAIN.	NPI
REMOVALS		
NO.	REMOVALS	EST. QUANTITY THIS SHEET
UTILITIES		
NO.	UTILITIES	EST. QUANTITY THIS SHEET
1	EX. FIBER OPTIC LINE. TO BE RELOCATED BY FATBEAM.	NPI
2	EX. COMM LINE. PROTECT IN PLACE.	NPI
3	EX. POWER POLE AND GUY WIRE. PROTECT IN PLACE.	NPI
4	EX. OVERHEAD ELECTRIC. PROTECT IN PLACE.	NPI
5	EX. 6" ACP WATER MAIN. TO BE REMOVED.	SEE SHEET 8
EASEMENTS		

NOTE:  
SEE SHEET 9 FOR HEADWALL AND WINGWALL ELEVATIONS.

**LAKE HAVASU CITY, AZ  
WASH CROSSING IMPROVEMENTS  
EL DORADO AVENUE N.**

NO.	REVISIONS / SUBMISSIONS	DATE
	FINAL SUBMITTAL	



**CHANNEL PLAN & PROFILE**

Designed by: ARS  
Drawn by: RAM  
Checked by: CJD  
Date: 8/4/2023  
Dwg. scale: SEE PLAN

**WILSON & COMPANY**  
HIGHER RELATIONSHIPS

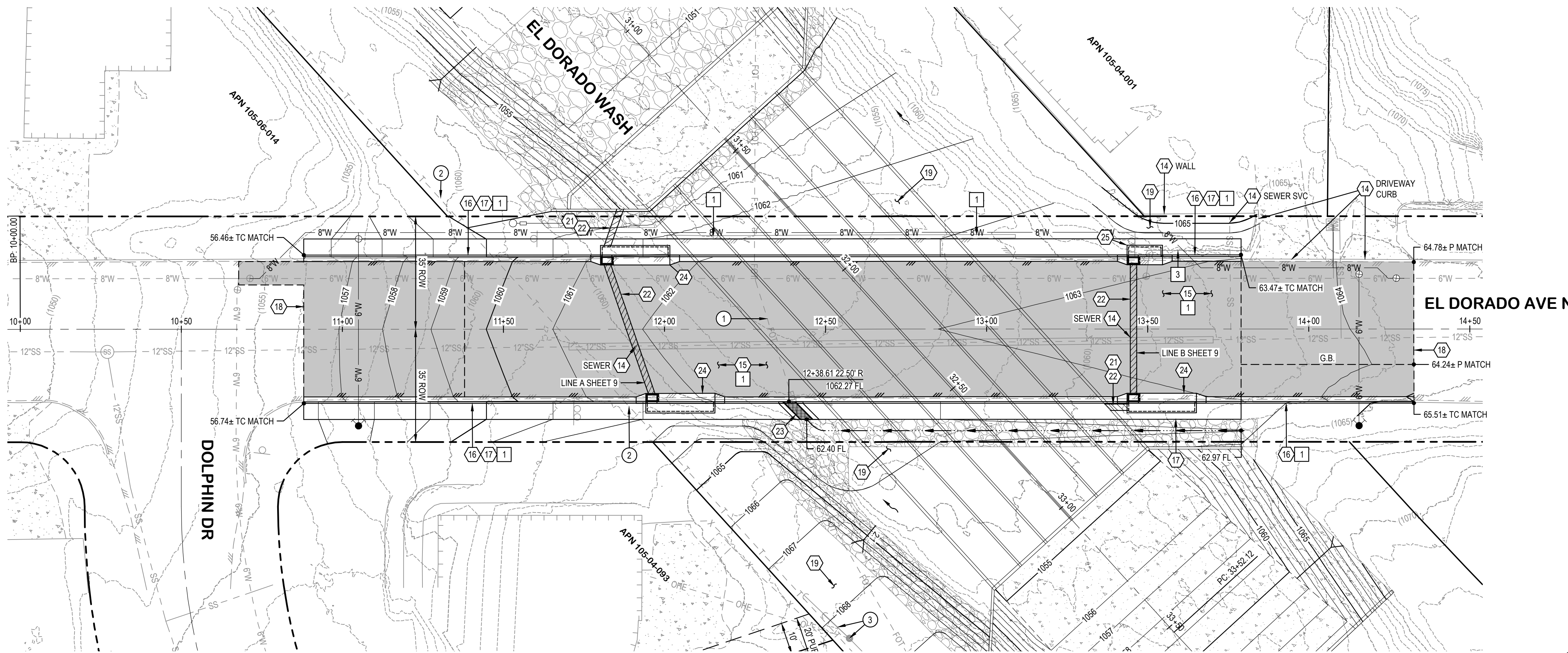
9299 W. Olive Ave. Ste. 405  
Peoria, AZ 85345  
Phone: 623.582.0970  
Fax: 623.582.1973  
Web: www.civiltec.com

**CIVILTEC engineering inc.**  
Civil, Water, Wastewater, Drainage, and Transportation Engineering  
Construction Management • Surveying  
California • Arizona

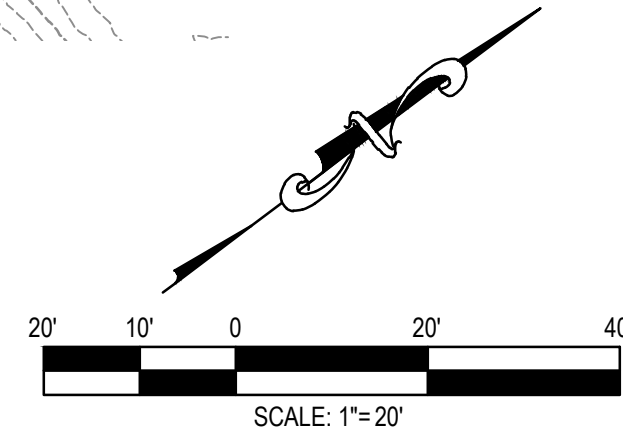
REGISTERED PROFESSIONAL ENGINEER (CIVIL) V. E. D. # 41014  
BRUCE J. SCHALK  
ARIZONA  
EXPIRES 6/30/2025

REGISTERED PROFESSIONAL ENGINEER (CIVIL) V. E. D. # 58518  
ANDREW R. SHRODS  
ARIZONA  
EXPIRES 9/30/2023

Sheet Number: **C-01**  
Sheet 6 of 17



**CAUTION**  
OVERHEAD UTILITIES WITHIN PROJECT AREA  
MAINTAIN PROPER CLEARANCE PER UTILITY  
AND OSHA REQUIREMENTS.



NOTES		
CONSTRUCTION	EST. QUANTITY THIS SHEET	
14 PROTECT IN PLACE.	NPI	
15 CONSTRUCT ROADWAY. SEE TYPICAL SECTION AND PAVEMENT STRUCTURAL SECTION ON SHEET 3.	1,615 SY	
16 CONSTRUCT TYPE A VERTICAL CURB AND GUTTER PER MAG 220-1. SEE DETAIL ON SHEET 14.	536 LF	
17 CONSTRUCT SIDEWALK PER MAG 230. SEE DETAIL ON SHEET 14.	2,873 SF	
18 SAWCUT EXISTING PAVEMENT TO NEAT EDGE AND JOIN.	NPI	
19 GRADE AREA AS SHOWN.	SHEET 3 CY	
21 PIPE PENETRATION. SEE DETAIL ON SHEET 17.	NPI	
22 FURNISH & INSTALL 24\"/>		

REMOVALS	EST. QUANTITY THIS SHEET	
1 SAWCUT AND REMOVE EX. ASPHALT, CURB, AND CONCRETE.	1 LS	
3 REMOVE EX. WALL WITHIN CITY ROW.	1 LS	

UTILITIES	EST. QUANTITY THIS SHEET	
1 EX. FIBER OPTIC LINE. TO BE RELOCATED BY FATBEAM.	NPI	
2 EX. COMM LINE. PROTECT IN PLACE.	NPI	
3 EX. POWER POLE AND GUY WIRE. PROTECT IN PLACE.	NPI	

EASEMENTS	EST. QUANTITY THIS SHEET	
-----------	--------------------------	--

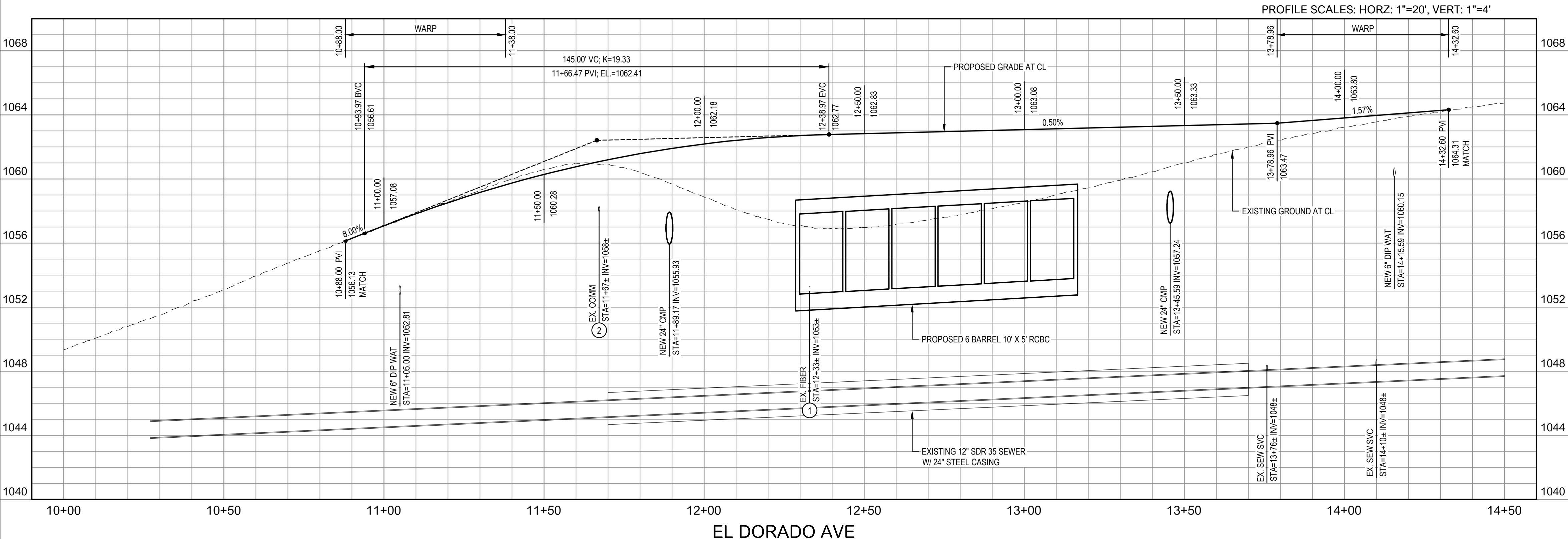


NO.	REVISIONS / SUBMISSIONS	DATE
	FINAL SUBMITTAL	

LAKE HAVASU CITY, AZ  
WASH CROSSING IMPROVEMENTS  
EL DORADO AVENUE N.

Designed by: ARS  
Drawn by: RAM  
Checked by: CJD  
Date: 8/4/2023  
Dwg. scale: SEE PLAN

ROAD PLAN & PROFILE



**WILSON & COMPANY**  
HIGHER RELATIONSHIPS

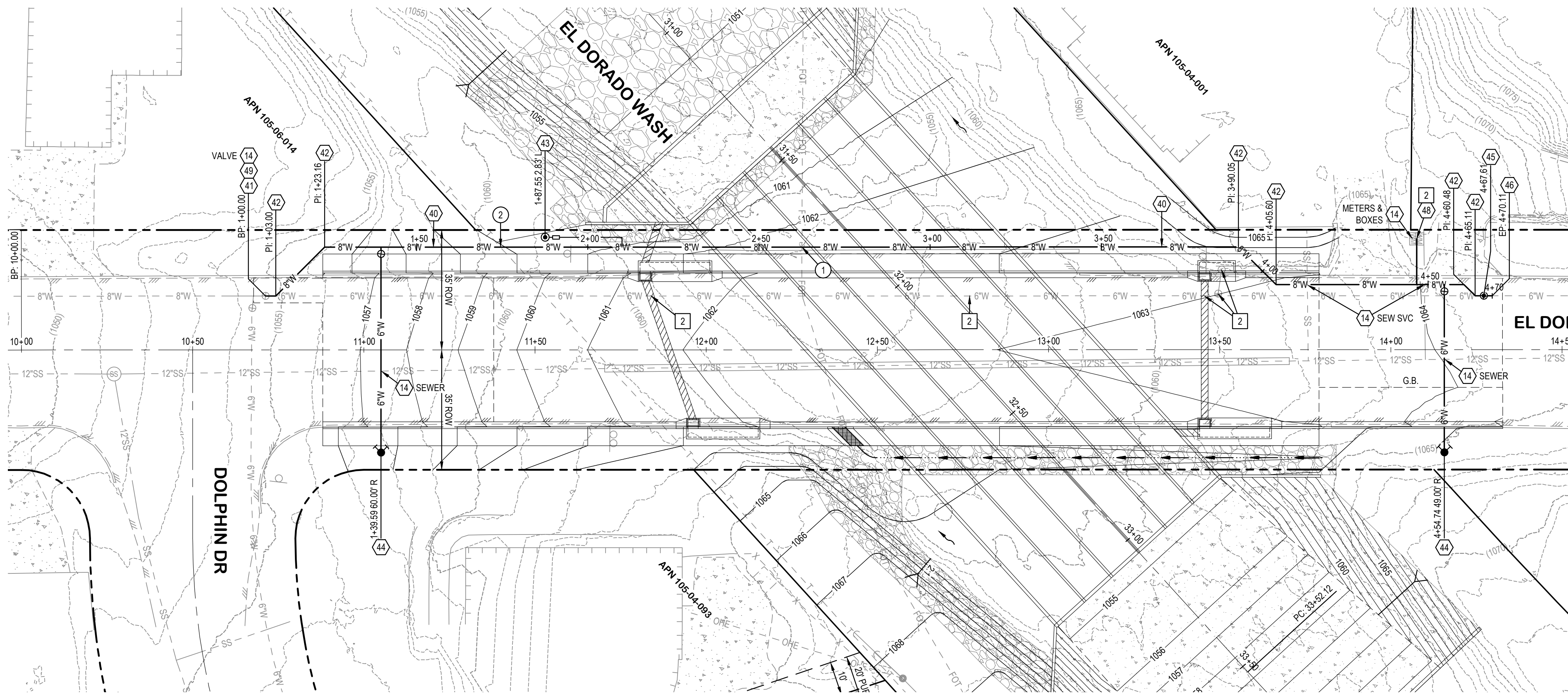
9299 W. Olive Ave. Ste. 405  
Peoria, AZ 85345  
Phone: 623.582.0970  
Fax: 623.582.1973  
Web: www.civiltec.com

**CIVILTEC engineering inc.**  
Civil, Water, Wastewater, Drainage, and Transportation Engineering  
Construction Management • Surveying  
California • Arizona

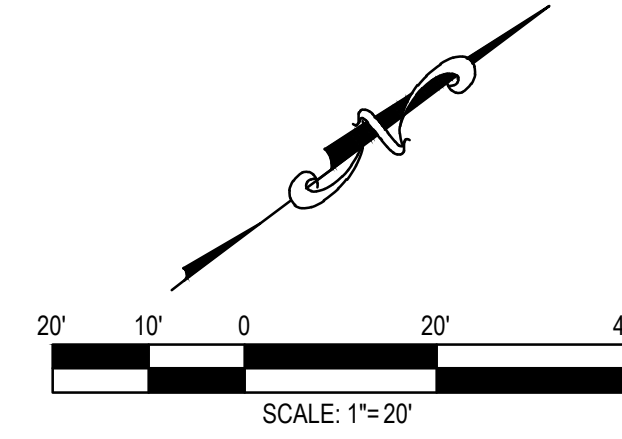
REGISTERED PROFESSIONAL ENGINEER (CIVIL) V. E. D. #1014  
BRUCE SCHALK  
ARIZONA  
EXPIRES 6/30/2025

REGISTERED PROFESSIONAL ENGINEER (CIVIL) V. E. D. #58518  
ANDREW R. SHROADS  
ARIZONA  
EXPIRES 9/30/2023

Sheet Number:  
**C-02**  
Sheet 7 of 17



**CAUTION**  
OVERHEAD UTILITIES WITHIN PROJECT AREA  
MAINTAIN PROPER CLEARANCE PER UTILITY  
AND OSHA REQUIREMENTS.



NOTES		
<input type="checkbox"/>	<b>CONSTRUCTION</b>	<b>EST. QUANTITY THIS SHEET</b>
14	PROTECT IN PLACE.	NPI
40	INSTALL 8" C-900 DR-14 PVC WATER MAIN WITH RESTRAINED JOINTS.	370 LF
41	INSTALL 8" X 6" REDUCER MJ X MJ AND CONNECT TO EXISTING GATE VALVE.	1 EA
42	INSTALL 8" 45" DIP BEND MJ X MJ WITH RESTRAINED JOINTS.	10 EA
43	INSTALL COMBINATION AIR/VACUUM VALVE PER LHC 310. SEE DETAIL ON SHEET 15.	1 EA
44	INSTALL FIRE HYDRANT ASSEMBLY PER LHC 320. SEE DETAIL ON SHEET 15.	2 EA
45	INSTALL 8" GATE VALVE MJ X MJ, VALVE BOX, LID, AND CONCRETE COLLAR PER LHC 300. SEE DETAIL ON SHEET 15.	1 EA
46	INSTALL 8" X 6" PVC TO ACP REDUCING COUPLING.	1 EA
47	INSTALL 24" STEEL CASING PER LHC 400 MODIFIED. SEE DETAIL ON SHEET 15.	110 LF
48	INSTALL SERVICE PER LHC 301. SEE DETAIL ON SHEET 15.	1 EA
49	INSTALL NEW VALVE BOX, LID, AND CONCRETE COLLAR PER LHC 300. SEE DETAIL ON SHEET 15.	1 EA
<input type="checkbox"/>	<b>REMOVALS</b>	<b>EST. QUANTITY THIS SHEET</b>
2	REMOVE EX. FIRE HYDRANT, WATER MAIN, WATER SERVICE AND ASSOCIATED APPURTENANCES.	1 LS
<input type="checkbox"/>	<b>UTILITIES</b>	<b>EST. QUANTITY THIS SHEET</b>
1	EX. FIBER OPTIC LINE. TO BE RELOCATED BY FATBEAM.	NPI
2	EX. COMM LINE. PROTECT IN PLACE.	NPI
<input type="checkbox"/>	<b>EASEMENTS</b>	

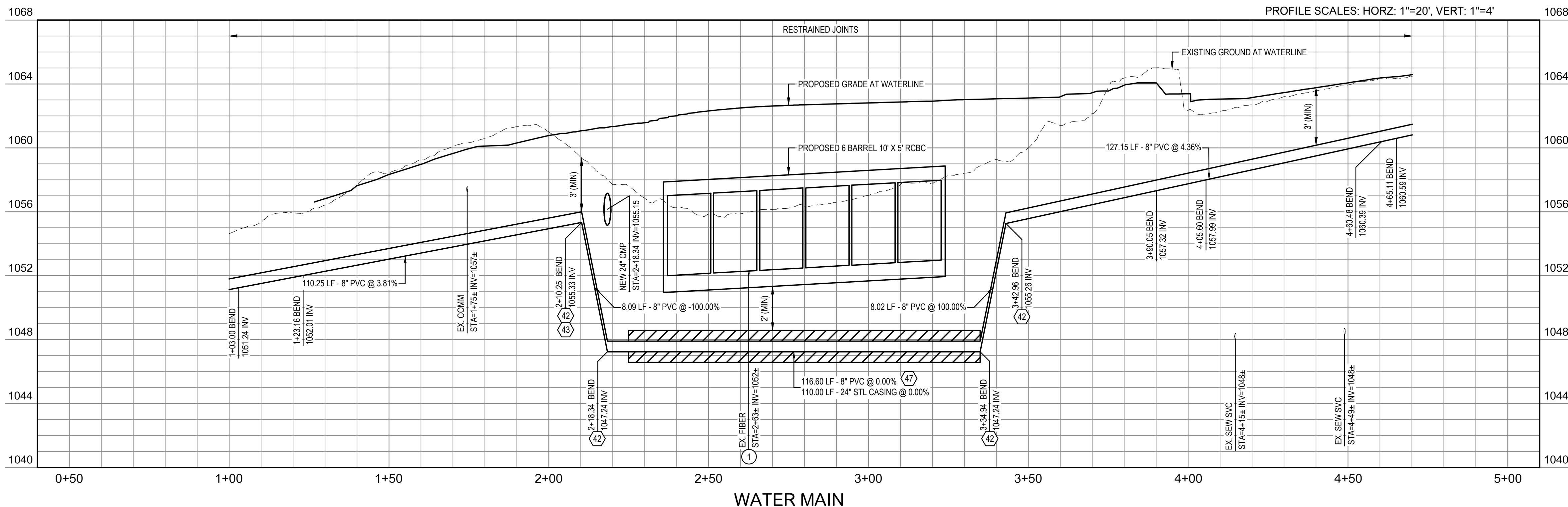


NO.	REVISIONS / SUBMISSIONS	DATE

**LAKE HAVASU CITY, AZ**  
**WASH CROSSING IMPROVEMENTS**  
**EL DORADO AVENUE N.**

Designed by: ARS  
Drawn by: RAM  
Checked by: CJD  
Date: 8/4/2023  
Dwg. scale: SEE PLAN

**WATER PLAN & PROFILE**



**WILSON & COMPANY**  
HIGHER RELATIONSHIPS

9299 W. Olive Ave. Ste. 405  
Peoria, AZ 85345  
Phone: 623.582.0970  
Fax: 623.582.1973  
Web: www.civiltec.com

**CIVILTEC engineering inc.**  
Civil, Water, Wastewater, Drainage, and Transportation Engineering  
Construction Management • Surveying  
California • Arizona

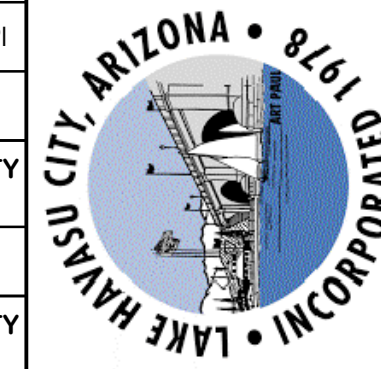
CALL AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION

**ARIZONA**  
DIAL 8-1-1 OR 1-800-STAKE-IT (782-5348)  
MARICOPA COUNTY: (602) 689-7500

Sheet Number: **C-03**

Sheet 8 of 17

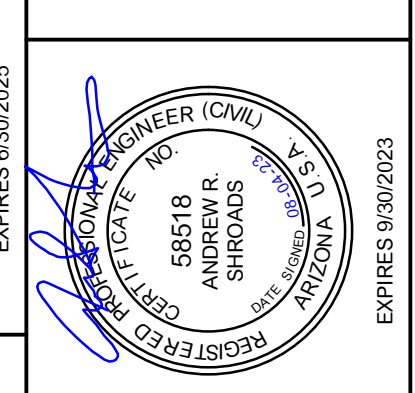




LAKE HAVASU CITY, AZ  
WASH CROSSING IMPROVEMENTS  
EL DORADO AVENUE N.

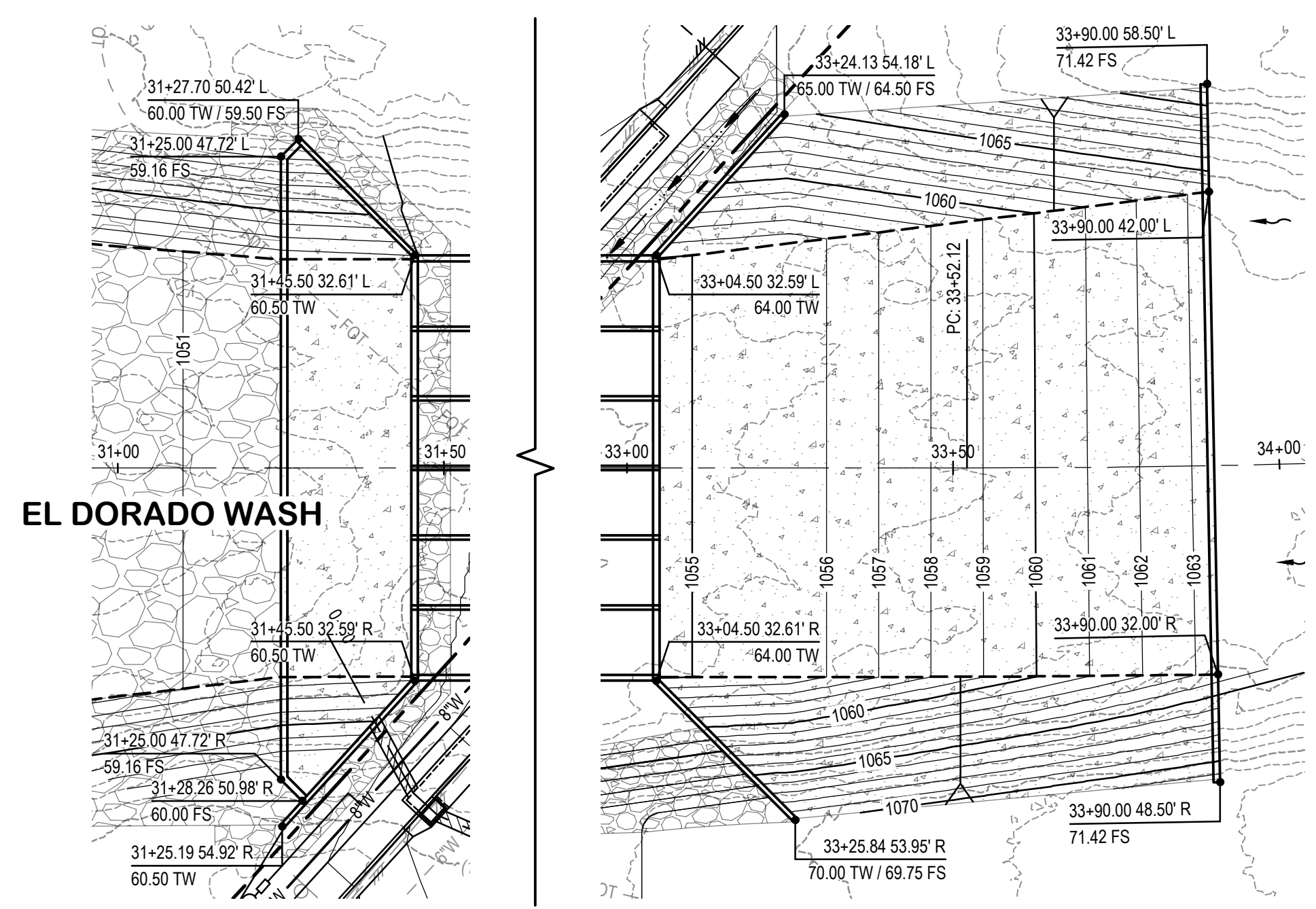
Designed by: ARS  
Drawn by: RAM  
Checked by: CJD  
Date: 8/4/2023  
Dwg. scale: SEE PLAN

PROFILES & STAKING

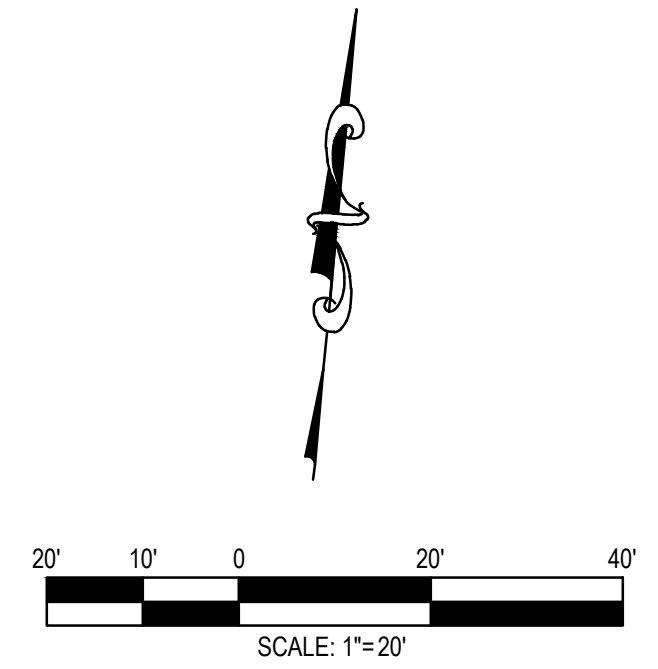
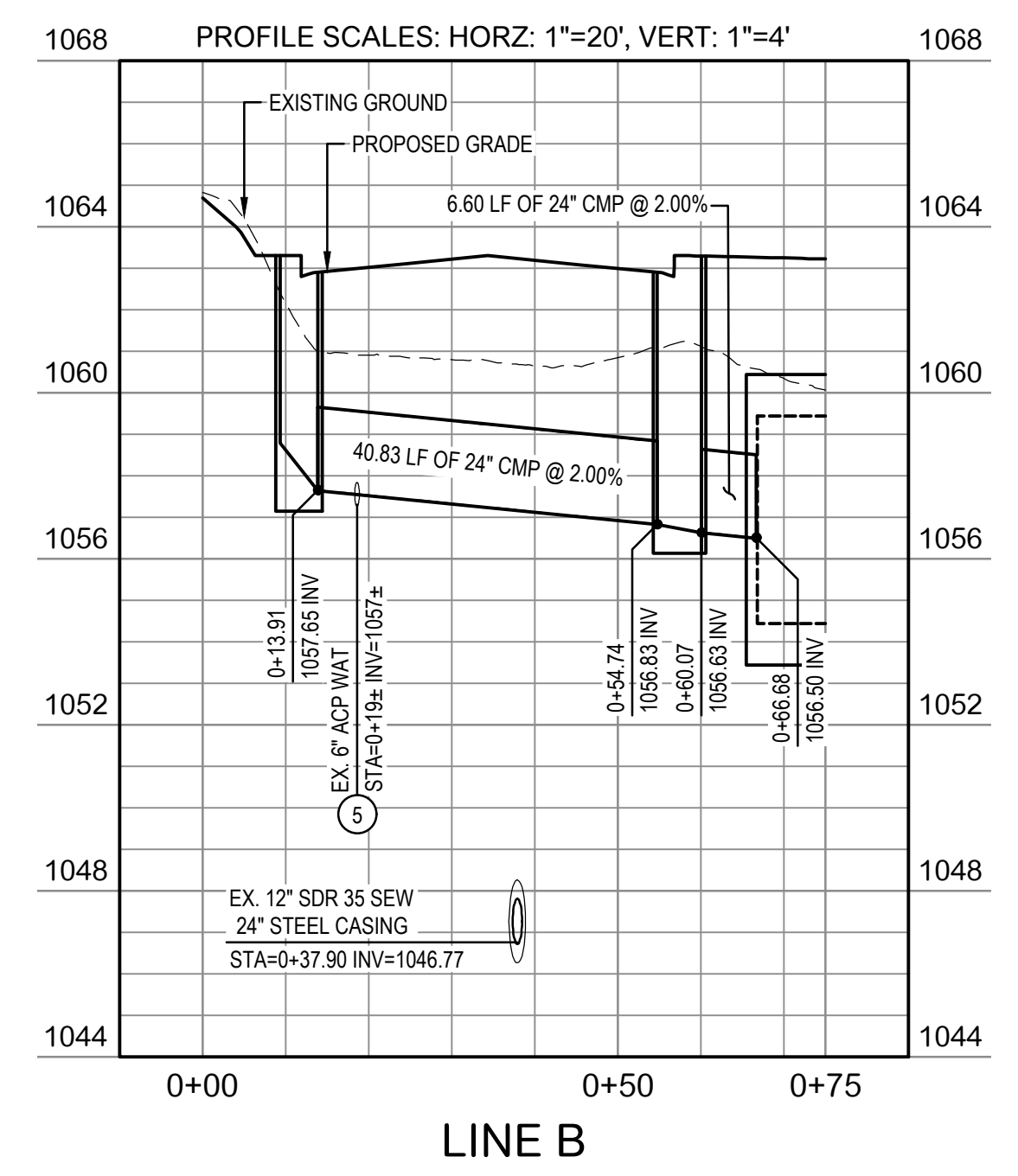
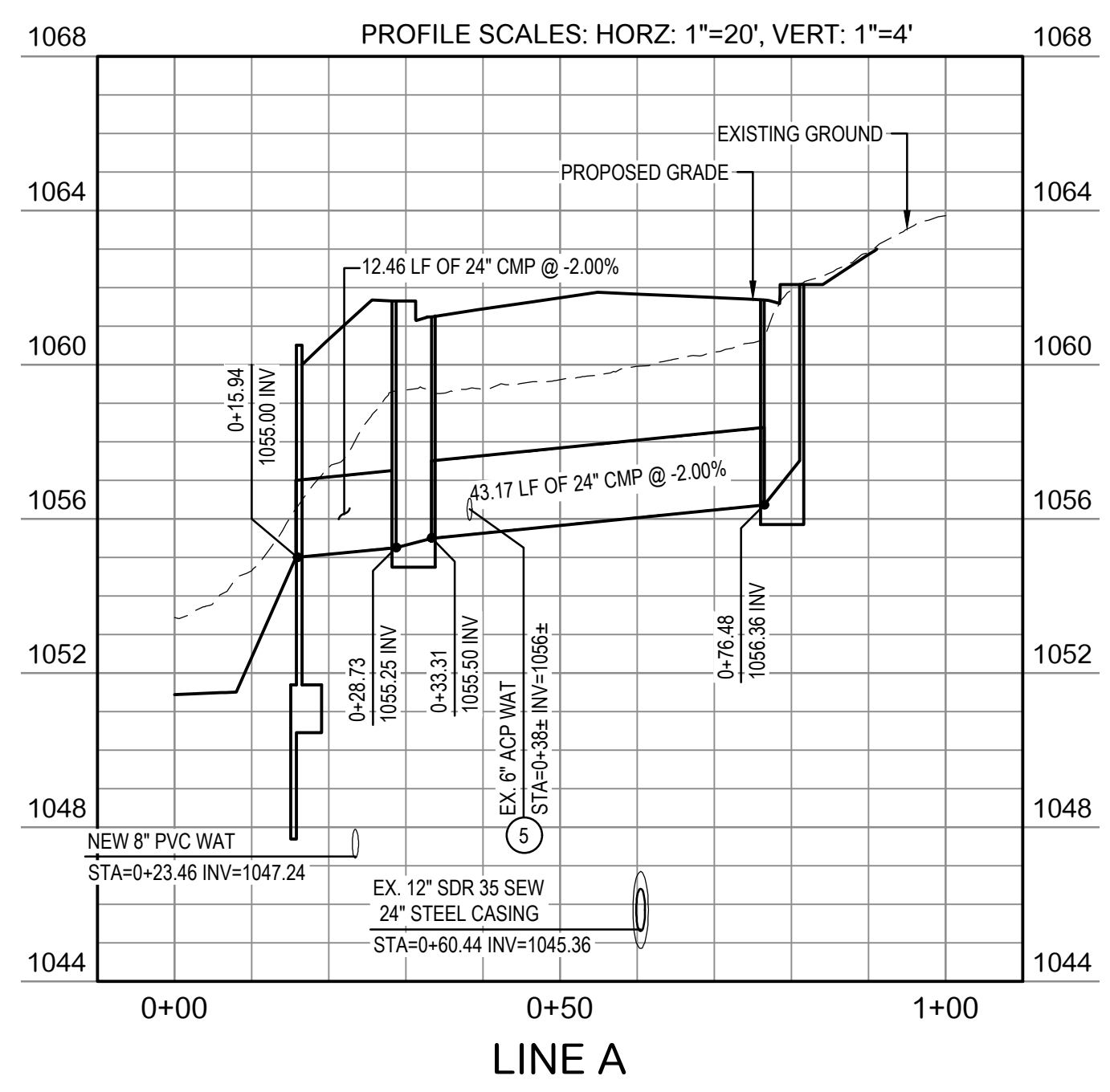
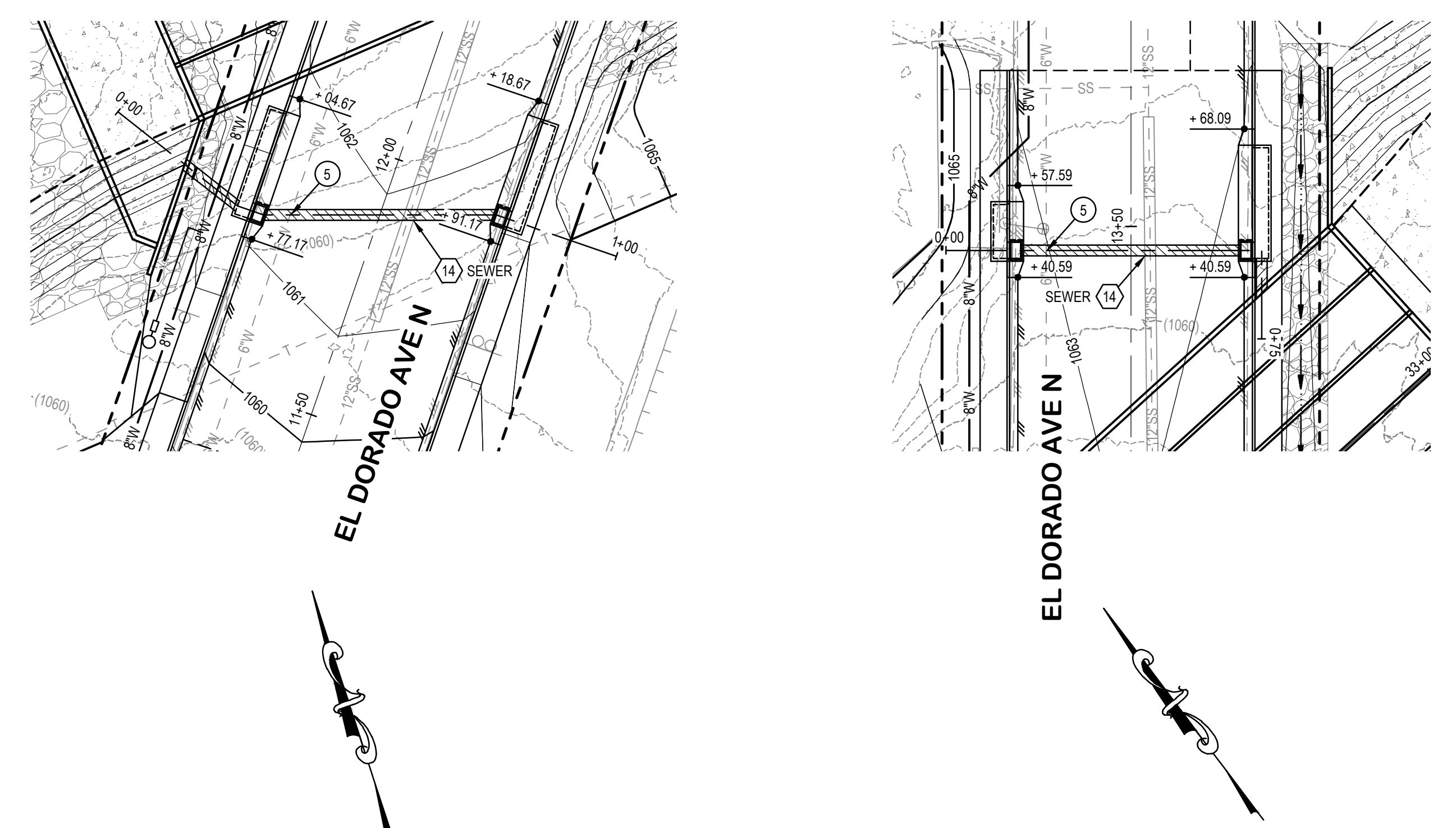


Sheet Number:  
**C-04**  
Sheet 9 of 17

NOTES		
CONSTRUCTION	EST. QUANTITY THIS SHEET	
14 PROTECT IN PLACE.	NPI	
REMOVALS	EST. QUANTITY THIS SHEET	
UTILITIES	EST. QUANTITY THIS SHEET	
5 EX. 6" ACP WATER MAIN. TO BE REMOVED.	SEE SHEET 8	
EASEMENTS		



WINGWALL / HEADWALL ELEVATION DETAIL



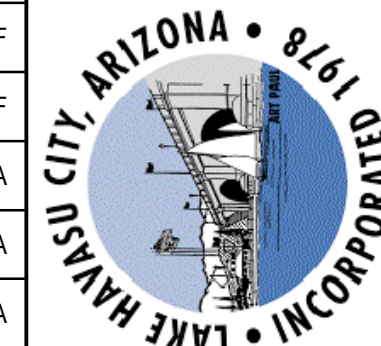
**WILSON & COMPANY**  
HIGHER RELATIONSHIPS

9299 W. Olive Ave. Ste. 405  
Peoria, AZ 85345  
Phone: 623.582.0970  
Fax: 623.582.1973  
Web: www.civiltec.com

CALL AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION

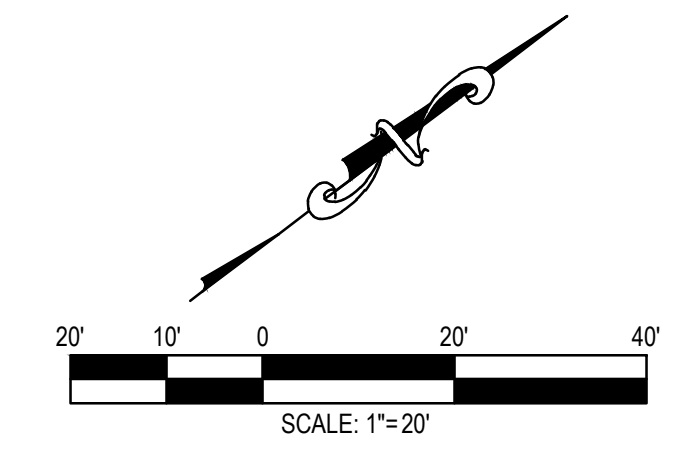
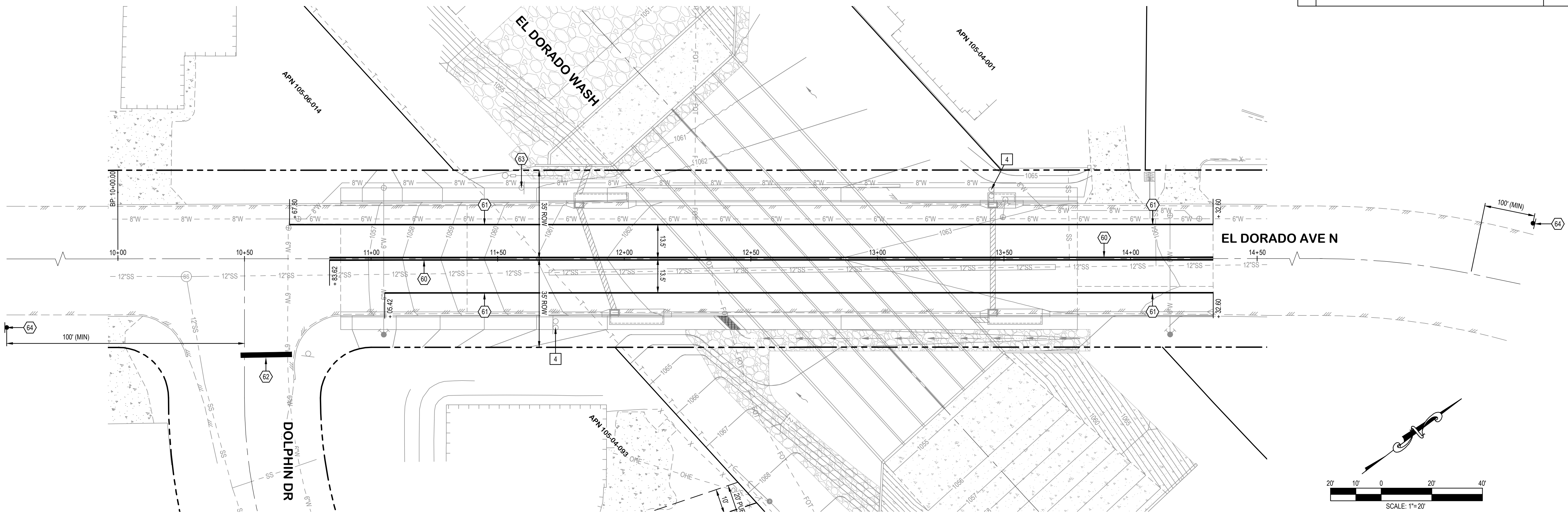
**ARIZONA**

Civil, Water, Wastewater, Drainage, and Transportation Engineering  
Construction Management • Surveying  
California • Arizona



NOTES		
CONSTRUCTION	EST. QUANTITY THIS SHEET	
60 DOUBLE YELLOW PERMANENT PAVEMENT MARKINGS	349	LF
61 SINGLE WHITE PERMANENT PAVEMENT MARKINGS	692	LF
62 SINGLE WHITE STOP LINE, 24" WIDE.	1	EA
63 REMOVE, SALVAGE, AND REINSTALL SIGN.	1	EA
64 FURNISH & INSTALL 24" X 30" REDUCE SPEED AHEAD WARNING SIGN. POST PER MAG 131 TYPE 'A'. SEE DETAIL ON SHEET 14.	2	EA
REMOVALS	EST. QUANTITY THIS SHEET	
4 REMOVE EX. SIGN.		NPI
UTILITIES	EST. QUANTITY THIS SHEET	
EASEMENTS	EST. QUANTITY THIS SHEET	

NO.	REVISIONS / SUBMISSIONS	DATE
	FINAL SUBMITTAL	



LAKE HAVASU CITY, AZ  
WASH CROSSING IMPROVEMENTS  
EL DORADO AVENUE N.

Designed by: ARS  
Drawn by: RAM  
Checked by: CJD  
Date: 8/4/2023  
Dwg. scale: SEE PLAN

SIGNAGE & STRIPING PLAN

**WILSON & COMPANY**  
HIGHER RELATIONSHIPS

9299 W. Olive Ave. Ste. 405  
Peoria, AZ 85345  
Phone: 623.582.0970  
Fax: 623.582.1973  
Web: www.civiltec.com

**CIVILTEC engineering inc.**  
Civil, Water, Wastewater, Drainage, and Transportation Engineering  
Construction Management • Surveying  
California • Arizona

PROFESSIONAL ENGINEER (CIVIL) V.T.B.  
1014  
BRIAN NICHOLAS SCHALK  
REGISTERED PROFESSIONAL ENGINEER (CIVIL) V.T.B.  
58518  
ANDREW R. SHRODS  
REGISTERED PROFESSIONAL ENGINEER (CIVIL) V.T.B.  
58518  
ANDREW R. SHRODS  
ARIZONA  
EXPIRES 6/30/2025

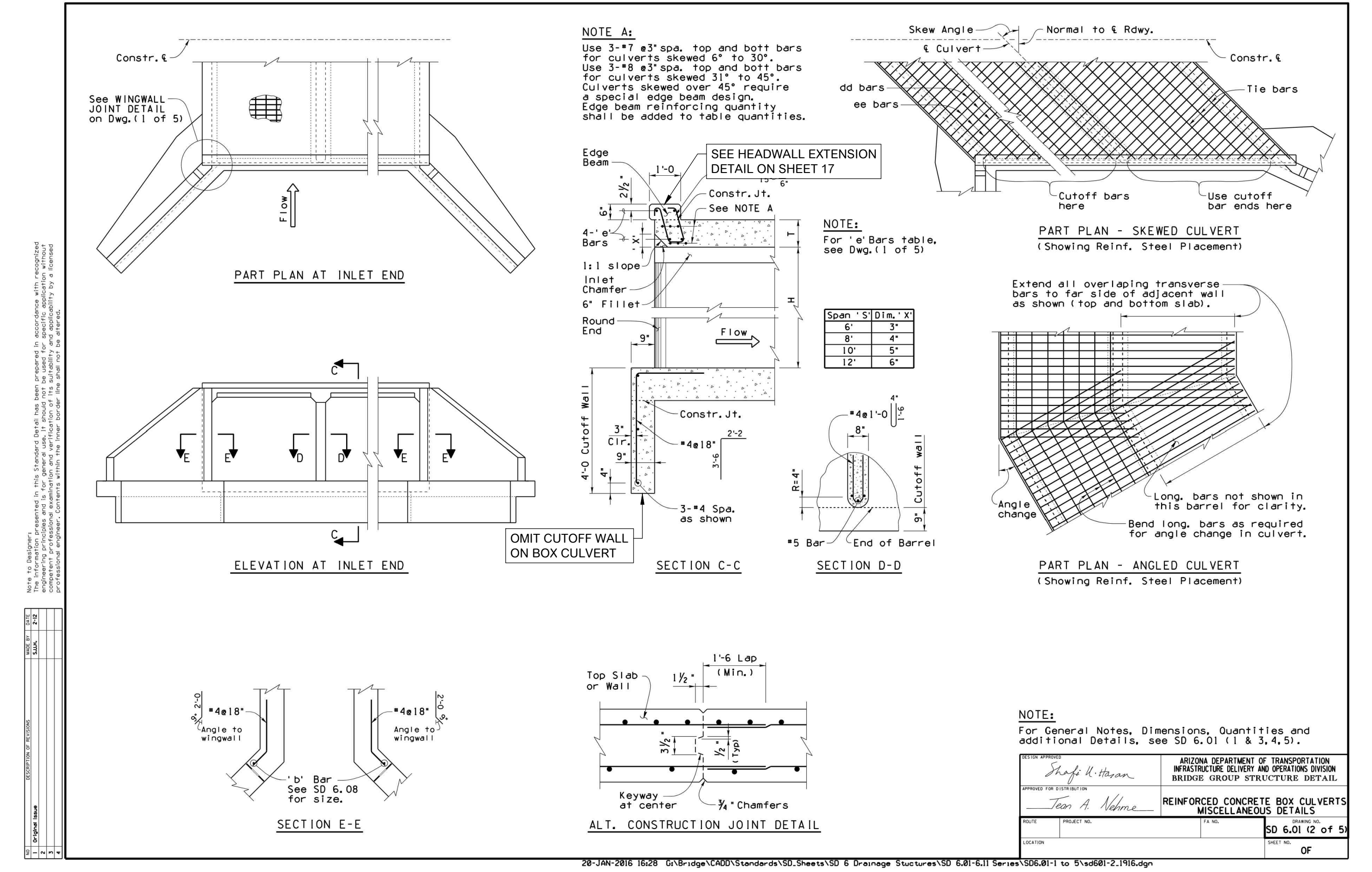
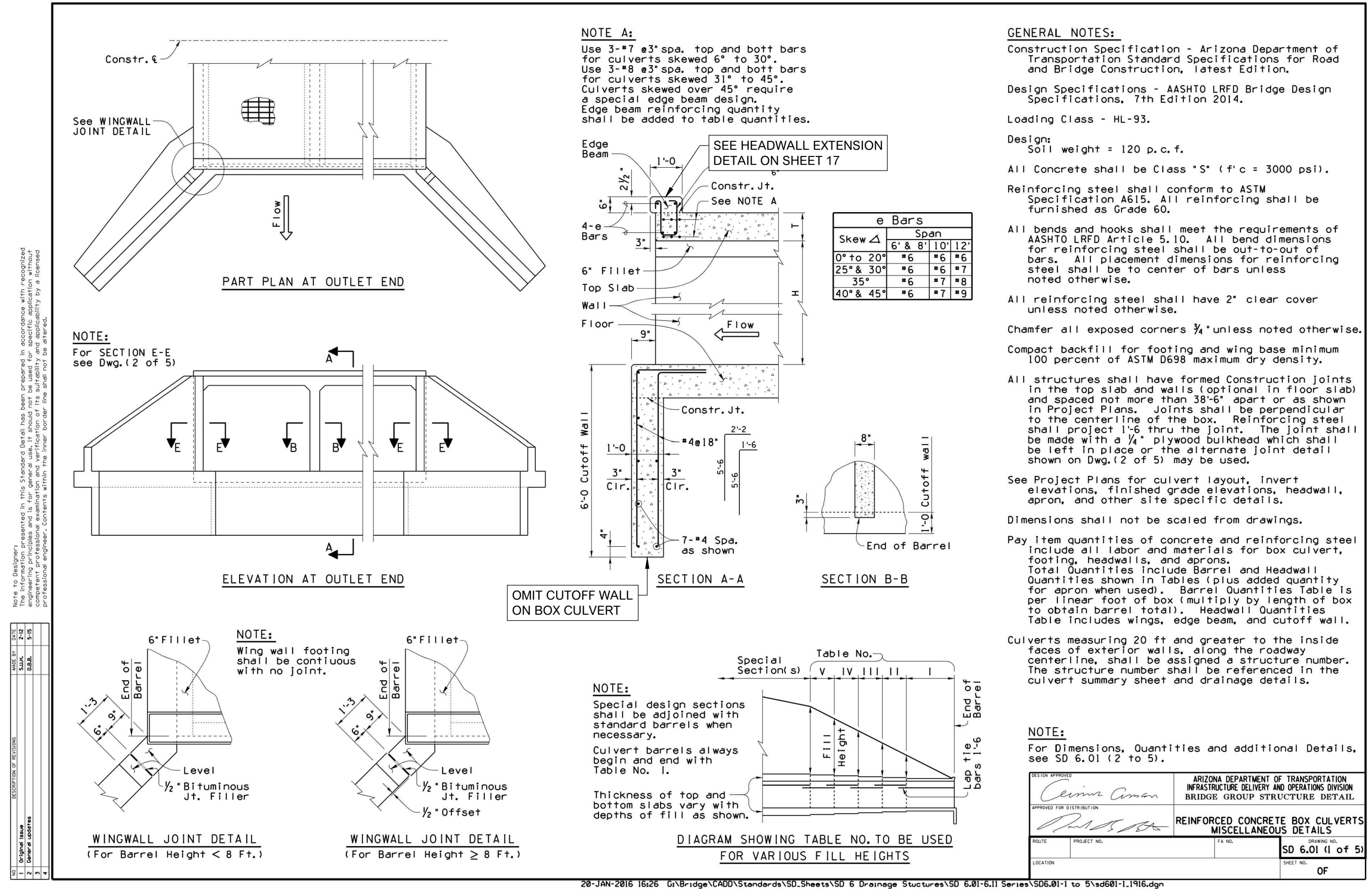
CALL AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION

**ARIZONA**  
DIAL 8-1-1 OR 1-800-STAKE-IT (782-5348)  
MARICOPA COUNTY: (602) 689-1500

Sheet Number:  
**C-05**  
Sheet 10 of 17







28-JAN-2016 16:28 G:\Bridge\CA001\Standard\SD Sheets\SD 6 Drainage Structures\SD 6.01 (1-1) Series\SD6.01-1 to 5\adot-1.1916.dgn

28-JAN-2016 16:28 G:\Bridge\CA001\Standard\SD Sheets\SD 6 Drainage Structures\SD 6.01 (1-1) Series\SD6.01-1 to 5\adot-2.1916.dgn



NO.	REVISIONS / SUBMITTALS	DATE
	FINAL SUBMITTAL	

LAKE HAVASU CITY, AZ  
WASH CROSSING IMPROVEMENTS  
EL DORADO AVENUE N.

Designed by: ARS  
Drawn by: RAM  
Checked by: CJD  
Date: 8/4/2023  
Dwg. scale: SEE PLAN

ADOT DETAILS

Sheet Number:  
D-02  
Sheet 13 of 17

**WILSON & COMPANY**  
HIGHER RELATIONSHIPS

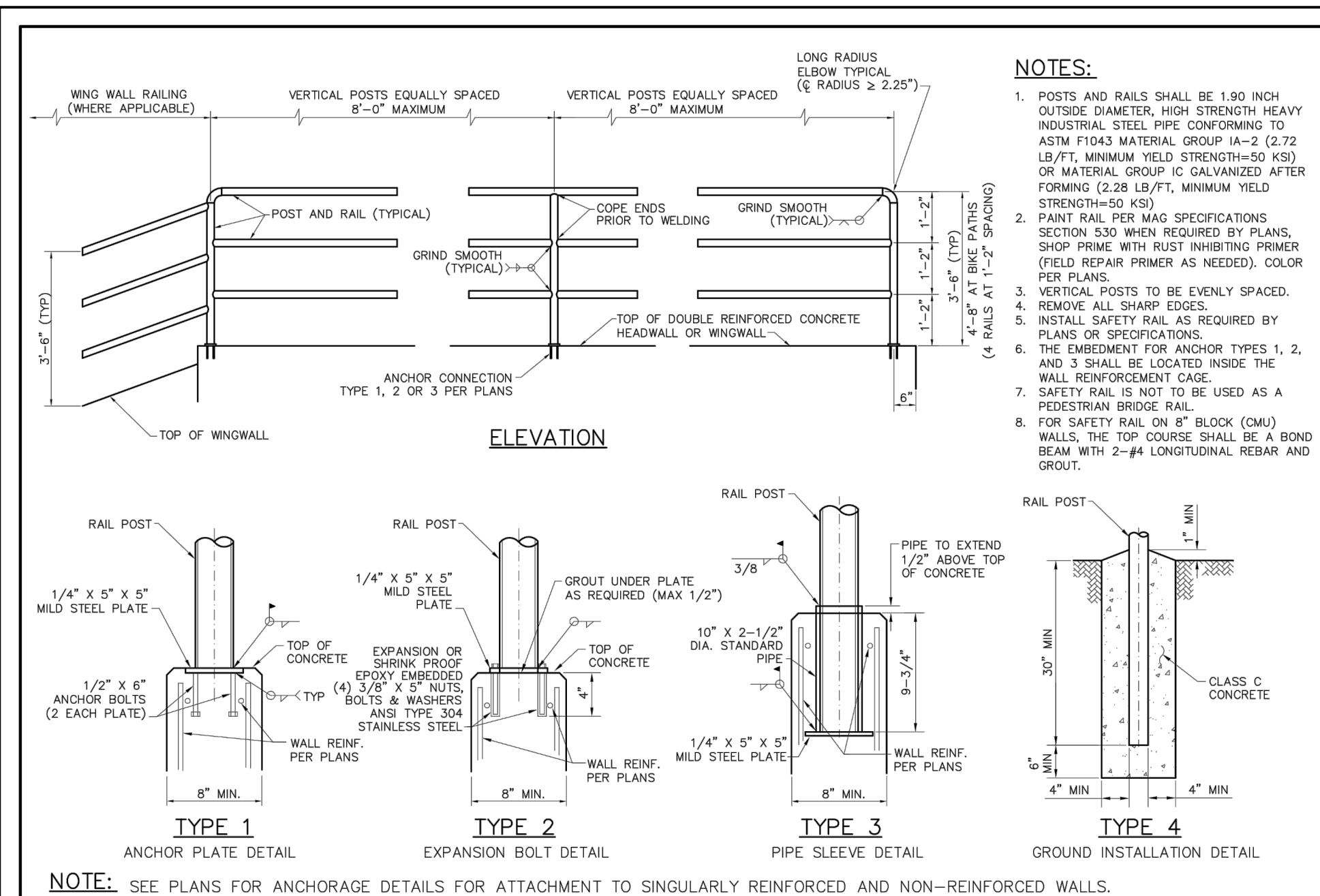
9299 W. Olive Ave. Ste. 405  
Peoria, AZ 85345  
Phone: 623.582.0970  
Fax: 623.582.1973  
Web: www.civiltec.com

**CIVILTEC engineering inc.**  
Civil, Water, Wastewater, Drainage, and Transportation Engineering  
Construction Management • Surveying  
California • Arizona

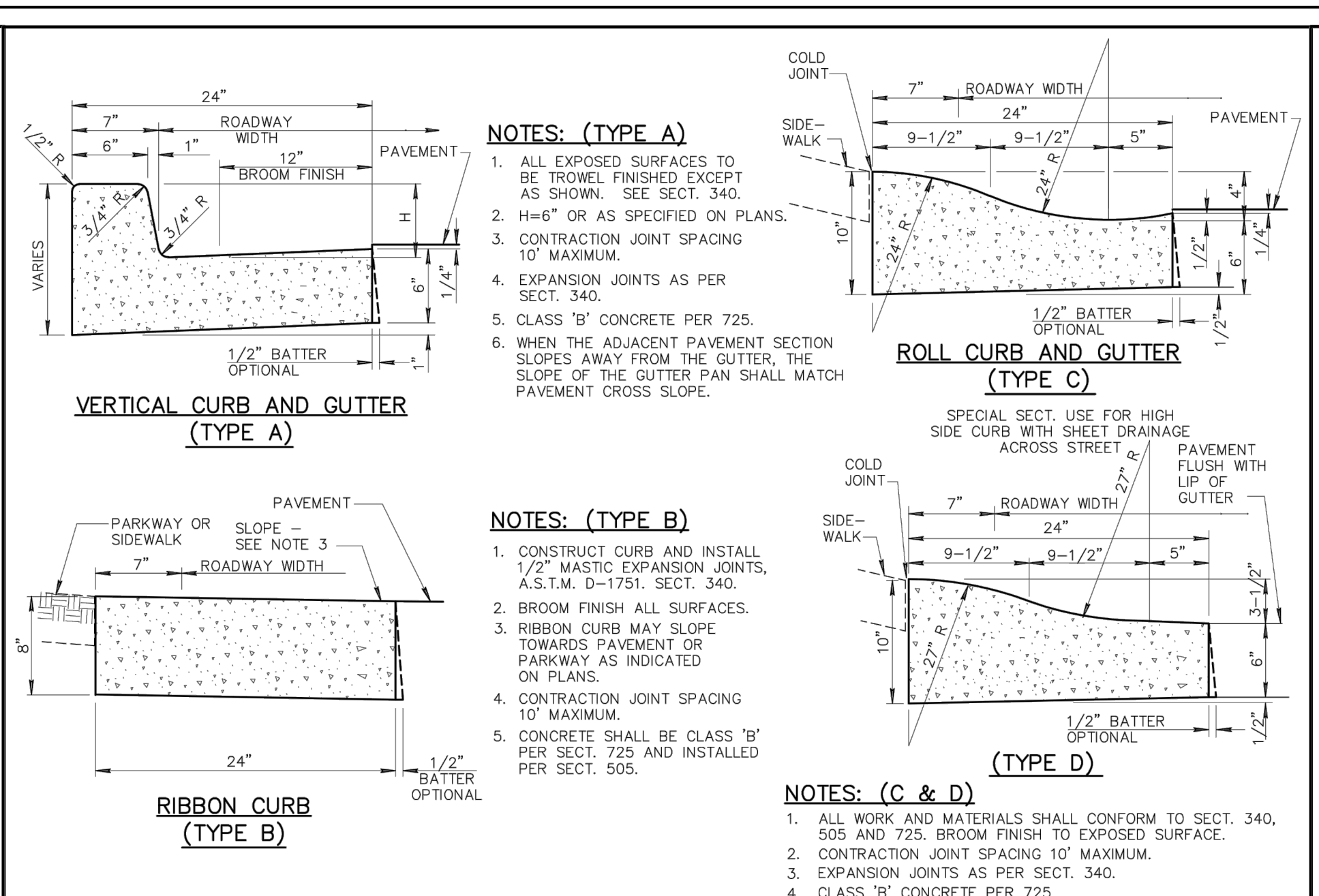
REGISTERED PROFESSIONAL ENGINEER (CIVIL) V. 0111  
41014  
BRIAN J. SCHALK  
ARIZONA  
EXPIRES 6-30-2025

REGISTERED PROFESSIONAL ENGINEER (CIVIL) V. 0111  
58518  
ANDREW R. BIRDSONG  
ARIZONA  
EXPIRES 9/30/2023

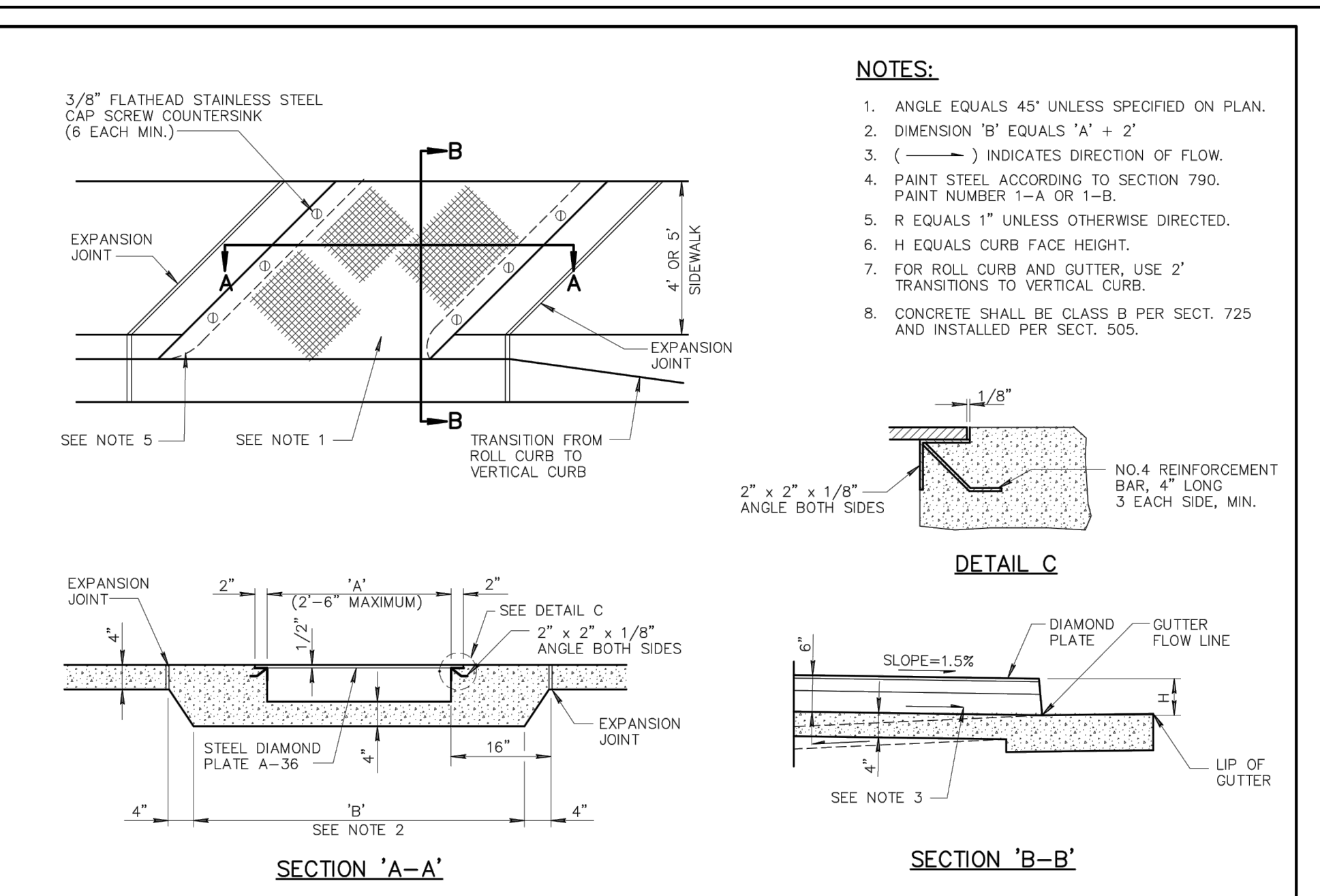
ARIZONA  
DIAL 8-1-1 OR 1-800-STAKE-IT (782-5348)  
MARICOPA COUNTY: (602) 699-7500



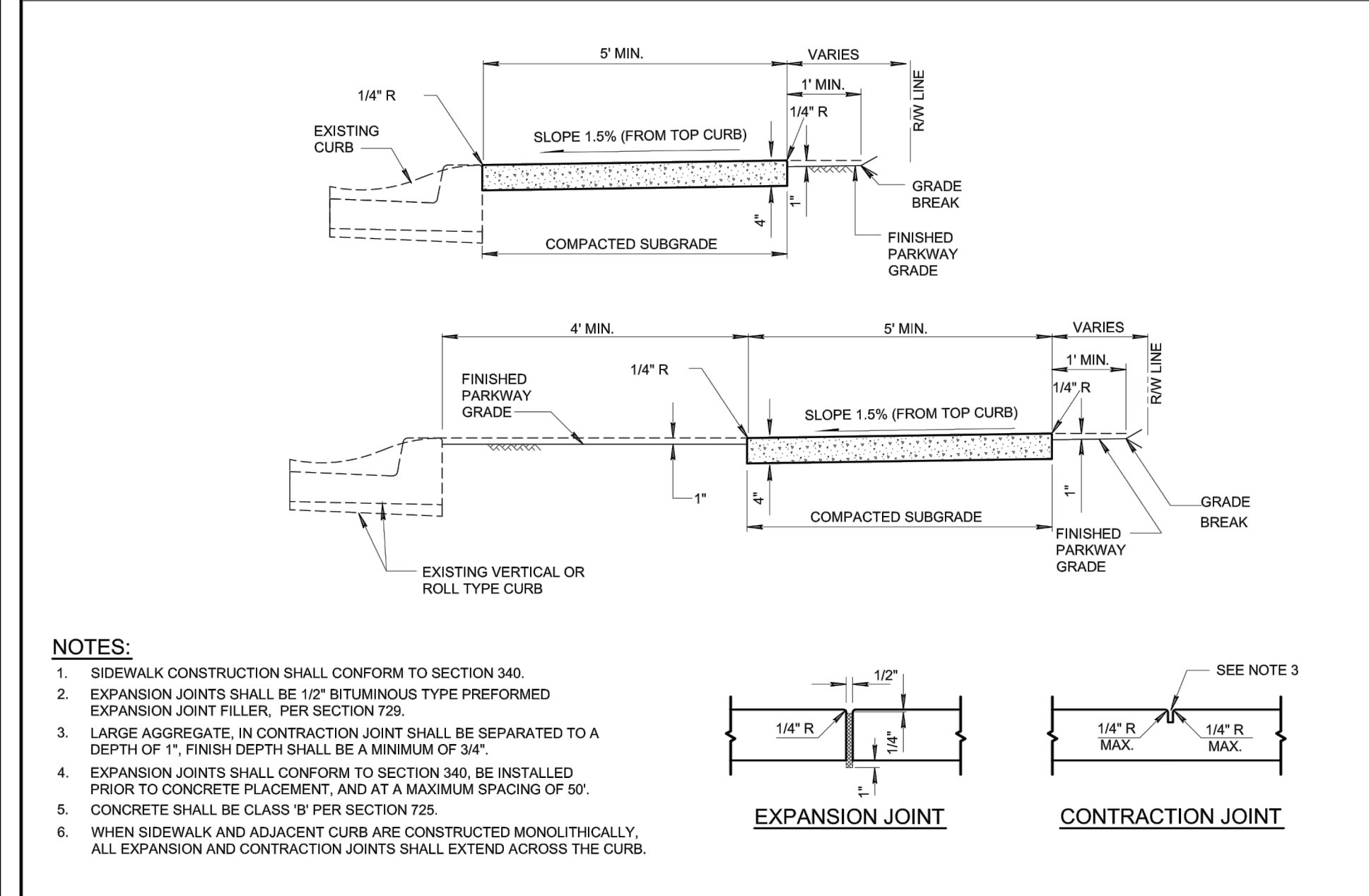
DETAIL NO.	MARICOPA ASSOCIATION OF GOVERNMENTS	STANDARD DETAIL ENGLISH	SAFETY RAIL	REVISED	DETAIL NO.
145				01-01-2020	145



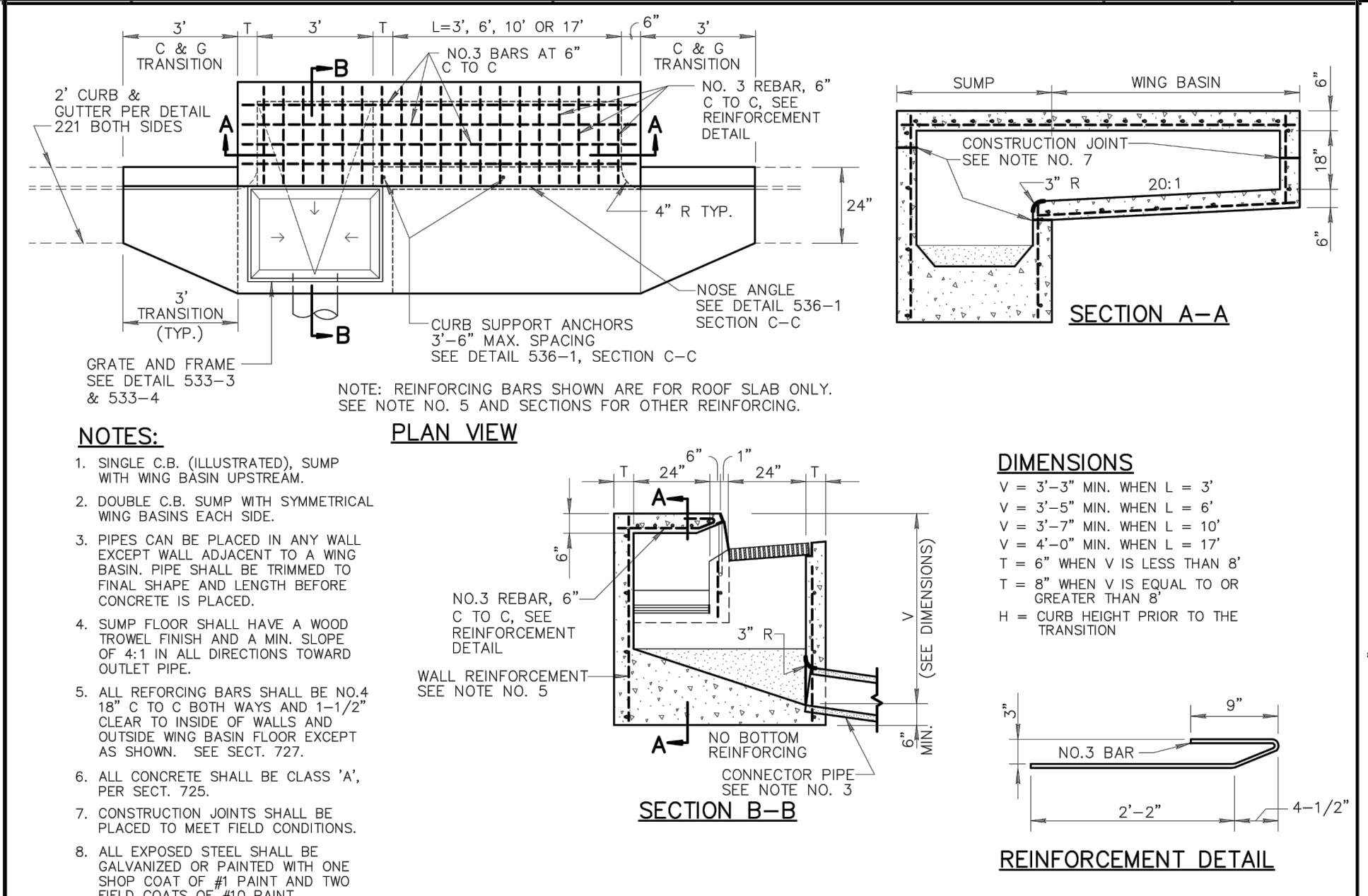
DETAIL NO.	MARICOPA ASSOCIATION OF GOVERNMENTS	STANDARD DETAIL ENGLISH	CURB AND GUTTER TYPES A, B, C AND D	REVISED	DETAIL NO.
220-1				01-01-2021	220-1



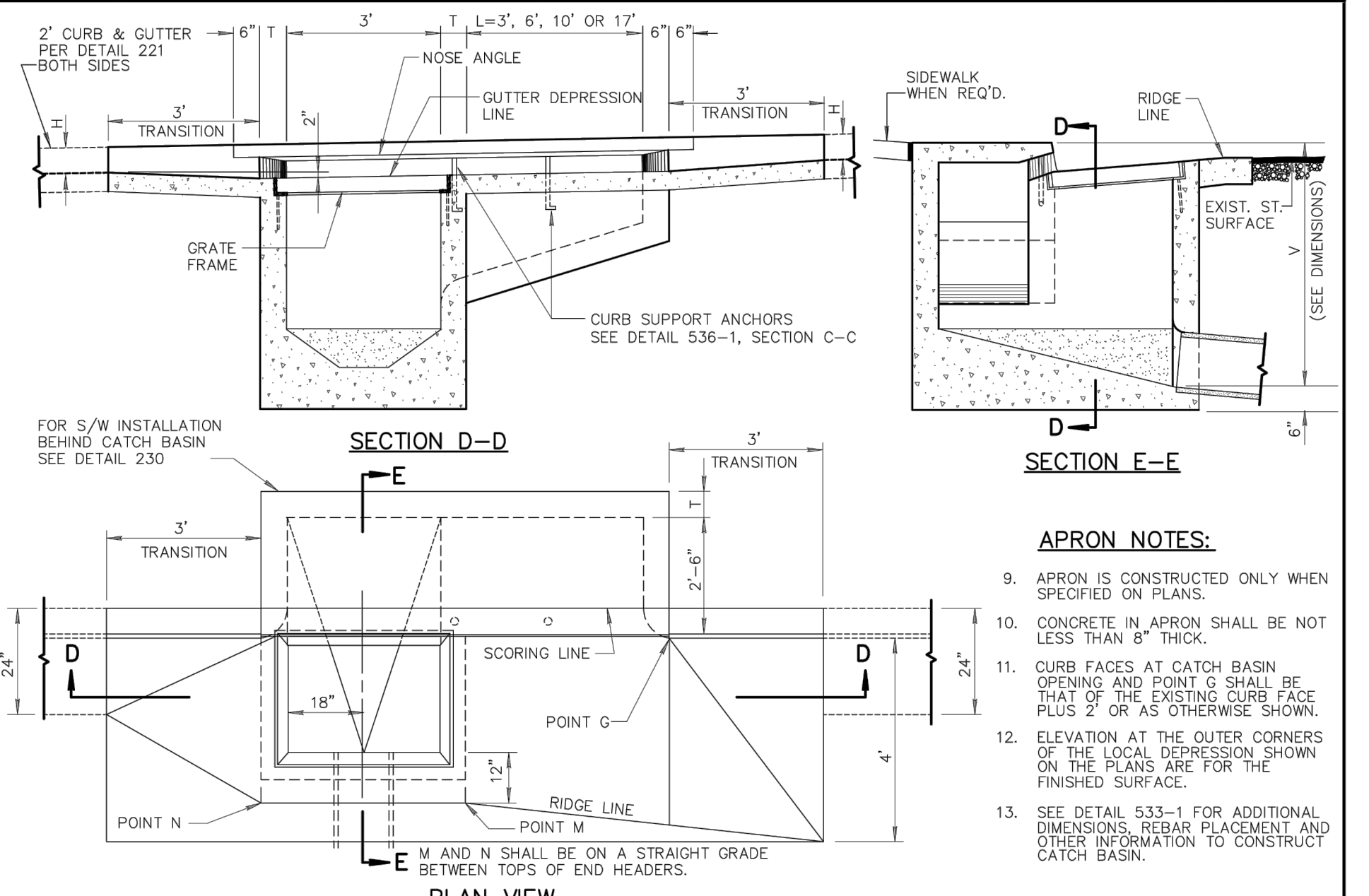
DETAIL NO.	MARICOPA ASSOCIATION OF GOVERNMENTS	STANDARD DETAIL ENGLISH	SCUPPERS	REVISED	DETAIL NO.
203				01-01-1998	203



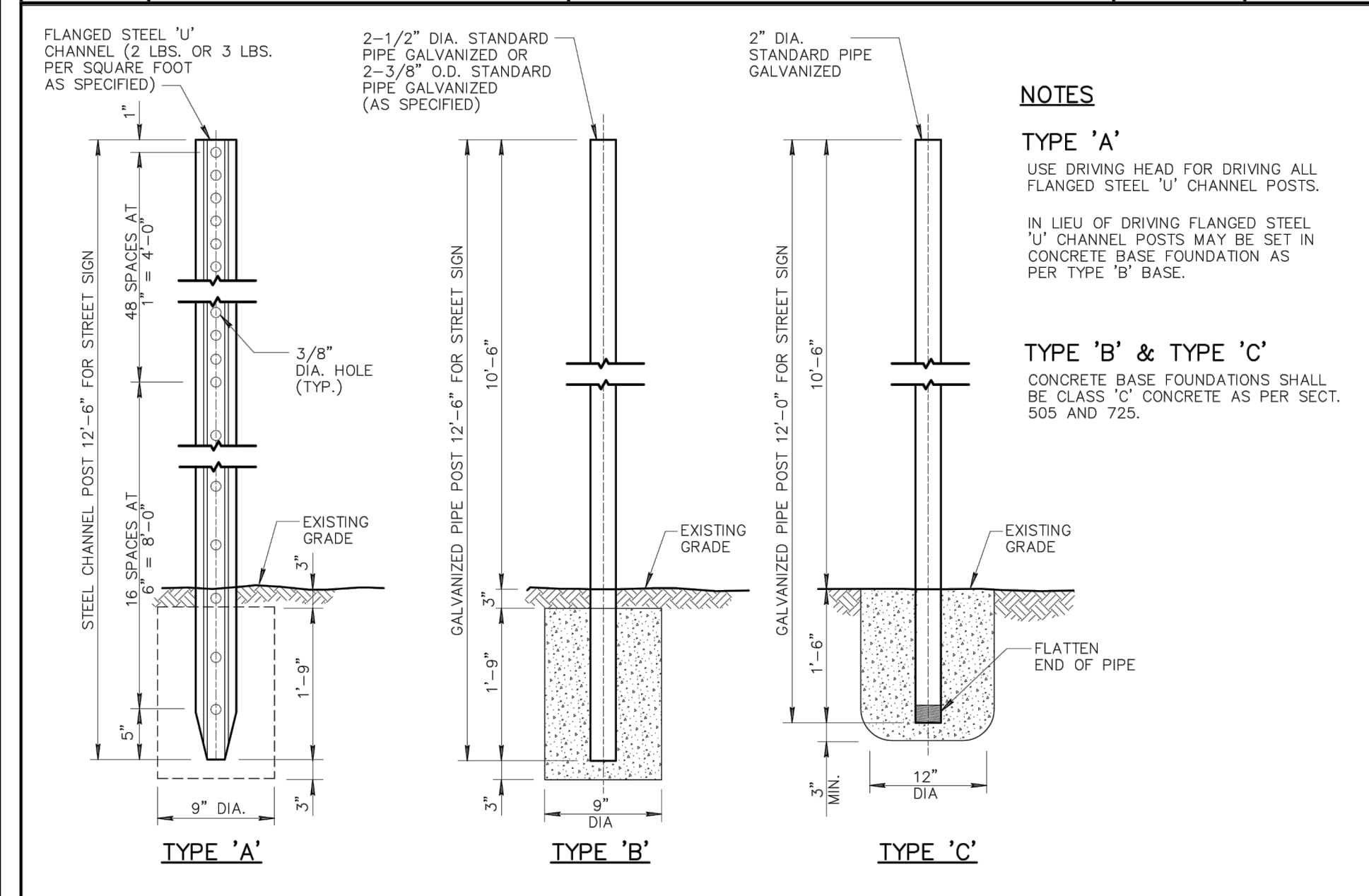
DETAIL NO.	MARICOPA ASSOCIATION OF GOVERNMENTS	STANDARD DETAIL ENGLISH	SIDEWALKS	REVISED	DETAIL NO.
230				01-01-2014	230



DETAIL NO.	MARICOPA ASSOCIATION OF GOVERNMENTS	STANDARD DETAIL ENGLISH	CATCH BASIN TYPE 'D'	REVISED	DETAIL NO.
533-1				01-01-1998	533-1



DETAIL NO.	MARICOPA ASSOCIATION OF GOVERNMENTS	STANDARD DETAIL ENGLISH	APRON FOR TYPE 'D' CATCH BASIN	REVISED	DETAIL NO.
533-2				01-01-1999	533-2



DETAIL NO.	MARICOPA ASSOCIATION OF GOVERNMENTS	STANDARD DETAIL ENGLISH	STREET SIGN BASE	REVISED	DETAIL NO.
131				01-01-1998	131

DETAIL NO.	MARICOPA ASSOCIATION OF GOVERNMENTS	STANDARD DETAIL ENGLISH	STREET SIGN BASE	REVISED	DETAIL NO.
131				01-01-1998	131



NO.	REVISIONS / SUBMITTALS	DATE
	FINAL SUBMITTAL	

LAKE HAVASU CITY, AZ  
WASH CROSSING IMPROVEMENTS  
EL DORADO AVENUE N.

Designed by: ARS  
Drawn by: RAM  
Checked by: CJD  
Date: 8/4/2023  
Dwg. scale: SEE PLAN

MAG DETAILS

**WILSON & COMPANY**  
HIGHER RELATIONSHIPS

9299 W. Olive Ave. Ste. 405  
Peoria, AZ 85345  
Phone: 623.582.0970  
Fax: 623.582.1973  
Web: www.civiltec.com

**CIVILTEC engineering inc.**  
Civil, Water, Wastewater, Drainage, and Transportation Engineering  
Construction Management • Surveying  
California • Arizona

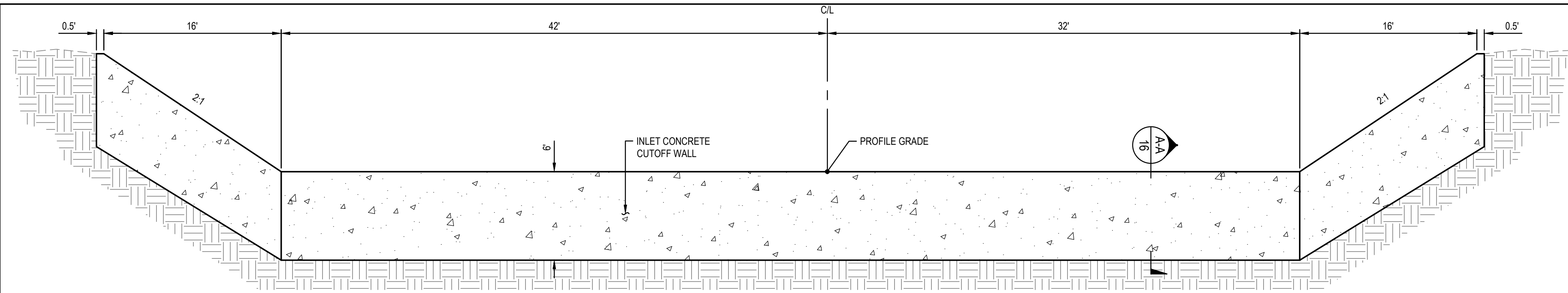
REGISTERED PROFESSIONAL ENGINEER (CIVIL) V. E. D. #1014  
ANDREW R. SHRODS  
BIRMINGHAM, ALABAMA  
EXPIRES 6/30/2025

REGISTERED PROFESSIONAL ENGINEER (CIVIL) V. E. D. #58518  
ANDREW R. SHRODS  
PHOENIX, ARIZONA  
EXPIRES 9/30/2023

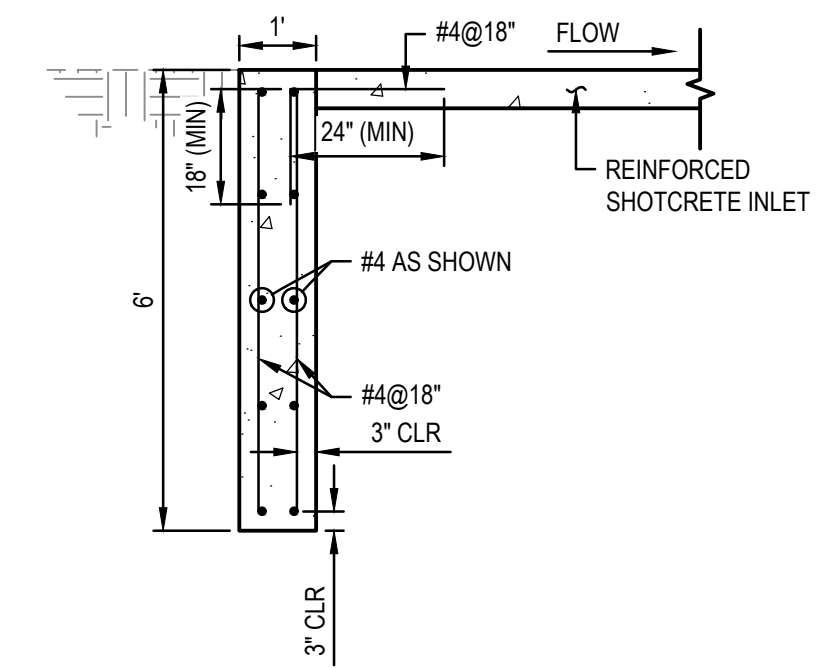
CALL AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION

ARIZONA  
DIAL 8-1-1 OR 1-800-STAKE-IT (782-5348)  
MARICOPA COUNTY: (602) 699-1500

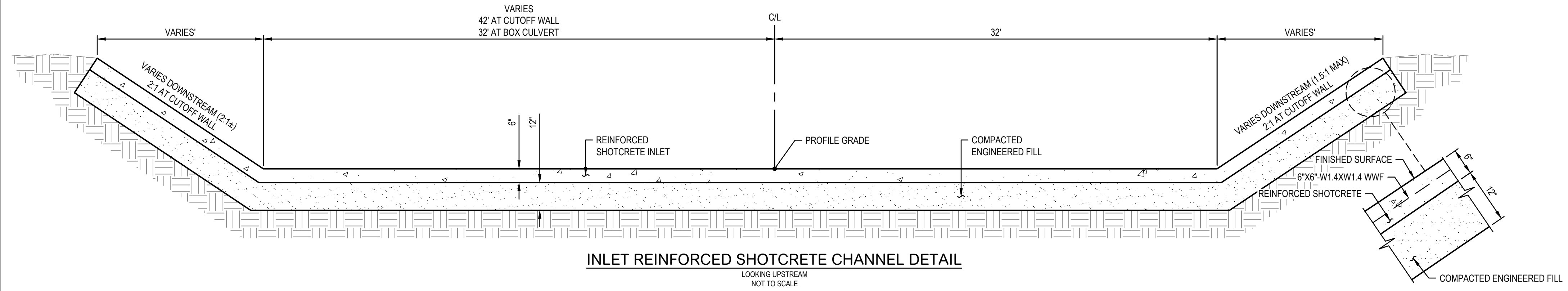




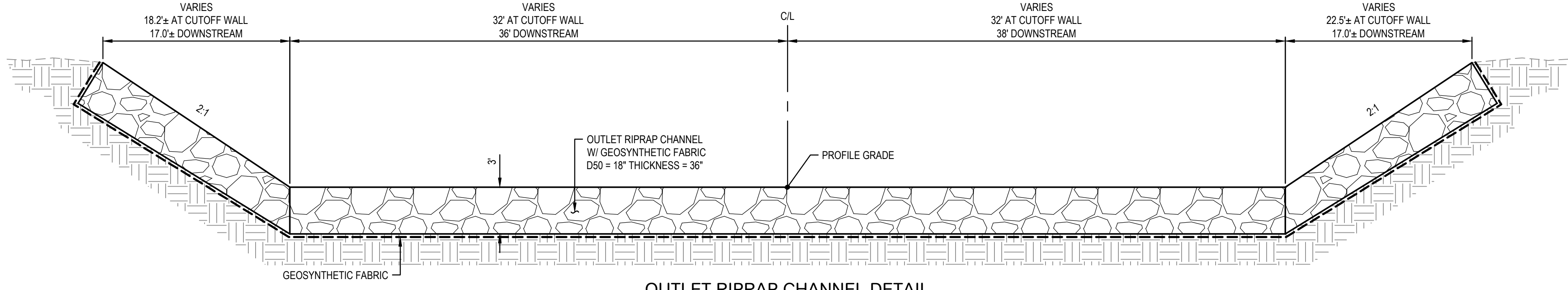
**INLET CONCRETE CUTOFF WALL DETAIL**  
LOOKING UPSTREAM  
NOT TO SCALE



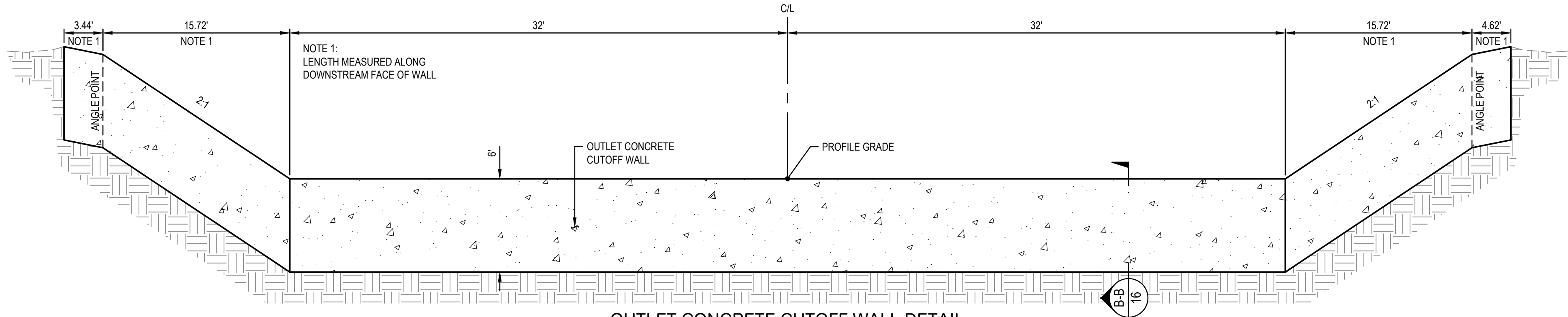
**SECTION A-A**  
NOT TO SCALE



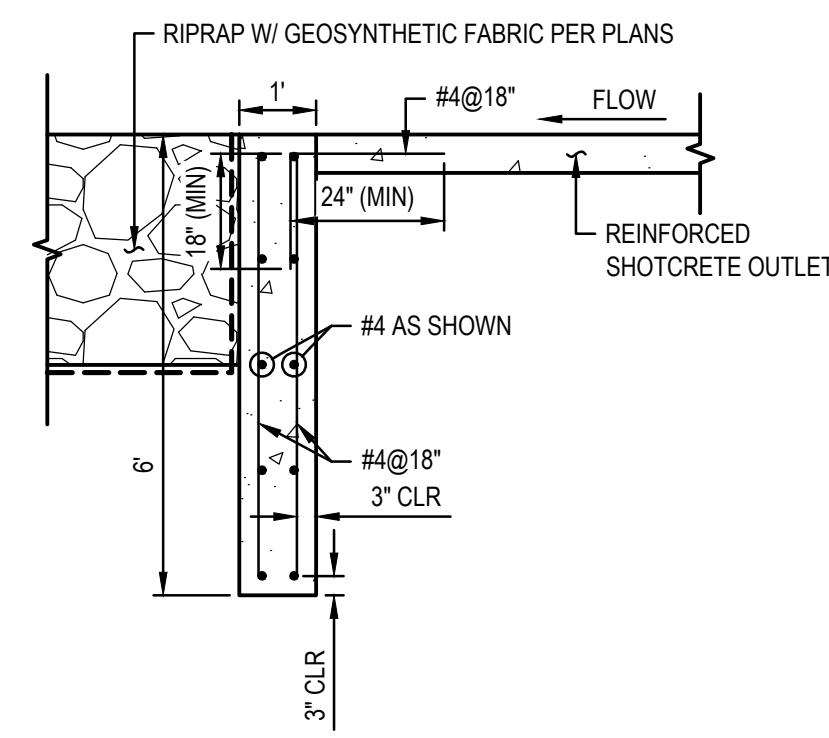
**INLET REINFORCED SHOTCRETE CHANNEL DETAIL**  
LOOKING UPSTREAM  
NOT TO SCALE



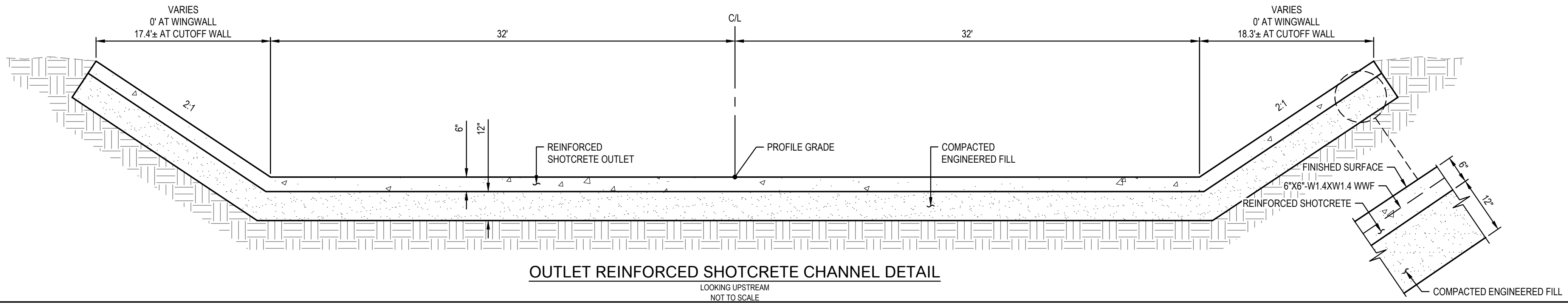
**OUTLET RIPRAP CHANNEL DETAIL**  
LOOKING UPSTREAM  
NOT TO SCALE



**OUTLET CONCRETE CUTOFF WALL DETAIL**  
LOOKING UPSTREAM  
NOT TO SCALE



**SECTION B-B**  
NOT TO SCALE



**OUTLET REINFORCED SHOTCRETE CHANNEL DETAIL**  
LOOKING UPSTREAM  
NOT TO SCALE

NO.	REVISIONS / SUBMITTALS	DATE
	FINAL SUBMITTAL	

**LAKE HAVASU CITY, AZ**  
**WASH CROSSING IMPROVEMENTS**  
**EL DORADO AVENUE N.**

Designed by:	ARS
Drawn by:	RAM
Checked by:	CJD
Date:	8/4/2023
Dwg. scale:	SEE PLAN

**CHANNEL DETAILS**

**WILSON & COMPANY**  
HIGHER RELATIONSHIPS

9299 W. Olive Ave. Ste. 405  
Peoria, AZ 85345  
Phone: 623.582.0970  
Fax: 623.582.1973  
Web: www.civiltec.com

**CIVILTEC engineering inc.**  
Civil, Water, Wastewater, Drainage, and Transportation Engineering  
Construction Management • Surveying  
California • Arizona

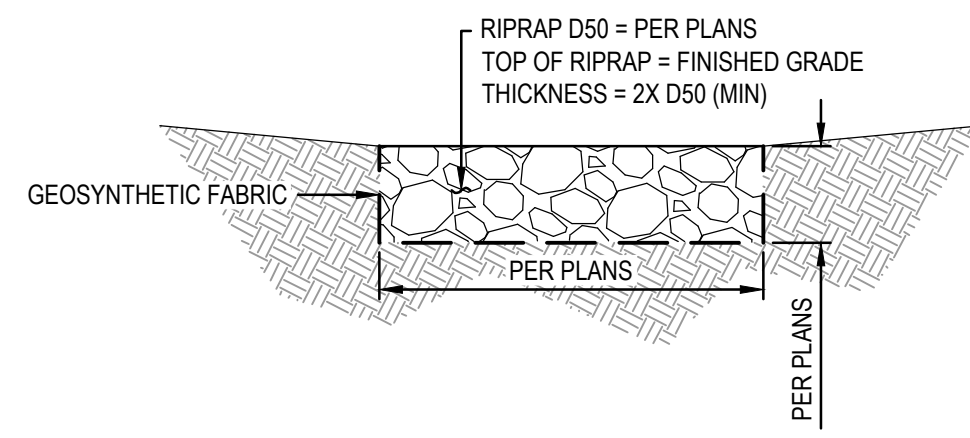
PROFESSIONAL ENGINEER (CIVIL) V.P.D.  
41014  
BRIAN SCHALK  
REGISTERED PROFESSIONAL ENGINEER (CIVIL) V.P.D.  
58518  
ANDREW R. SHRODS  
REGISTERED PROFESSIONAL ENGINEER (CIVIL) V.P.D.  
41014  
BRIAN SCHALK  
REGISTERED PROFESSIONAL ENGINEER (CIVIL) V.P.D.  
58518  
ANDREW R. SHRODS

CALL AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION

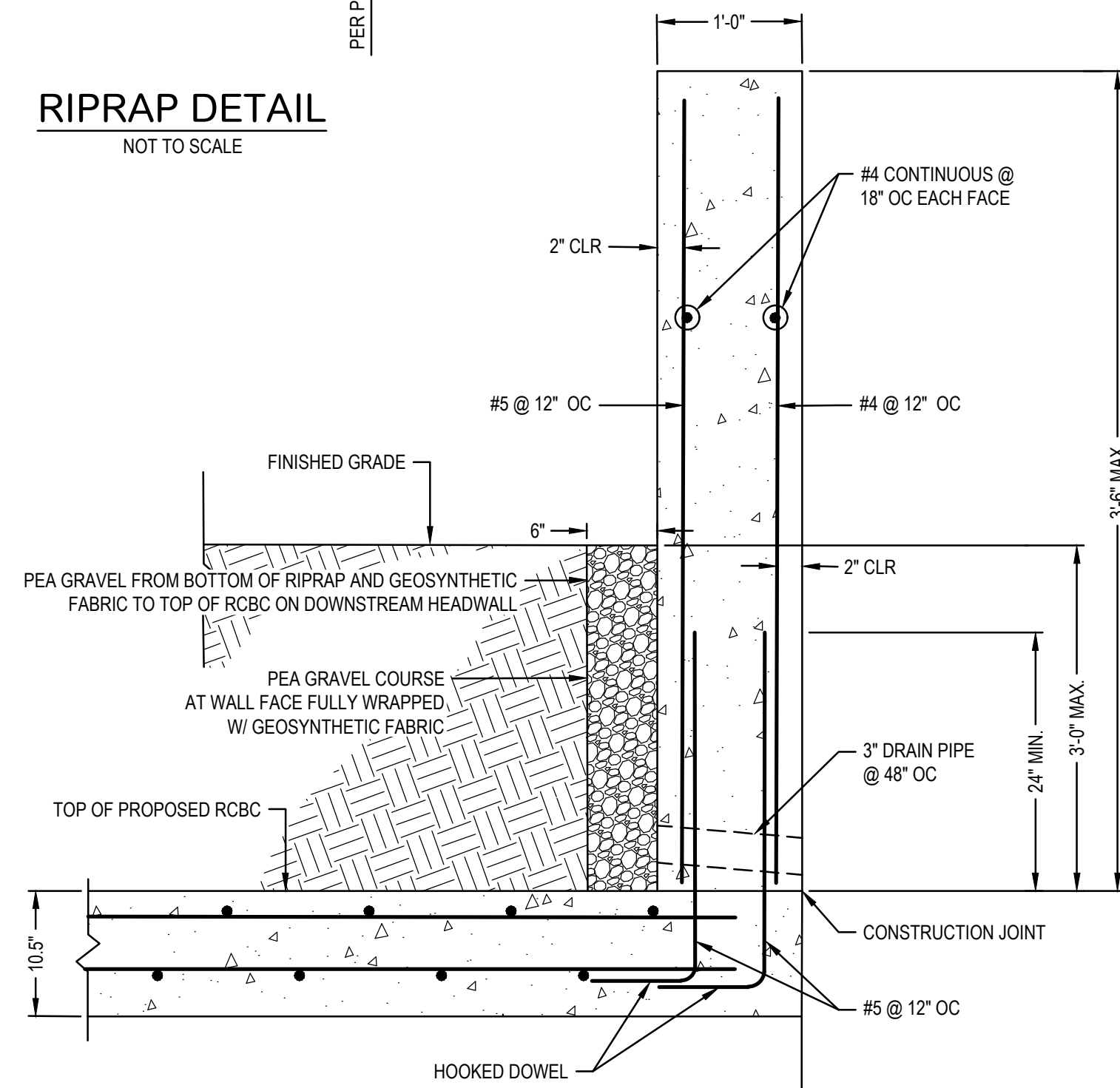
**ARIZONA**  
DIAL 8-1-1 OR 1-800-STAKE-IT (782-5348)  
MARICOPA COUNTY: (602) 699-1500

Sheet Number:	D-05
Sheet	16 of 17

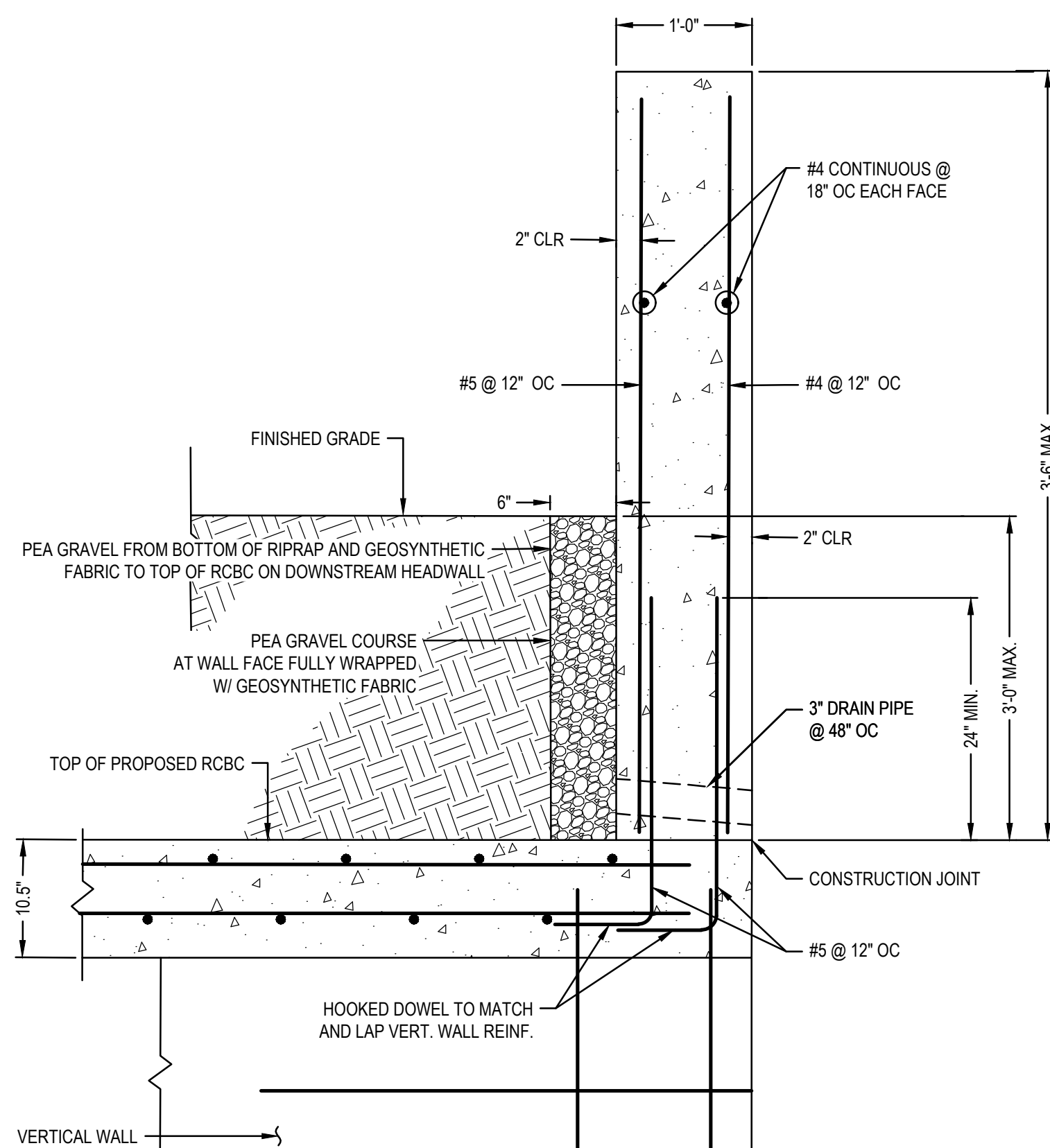




**RIPRAP DETAIL**  
NOT TO SCALE



**HEADWALL AT RCBC SPAN**

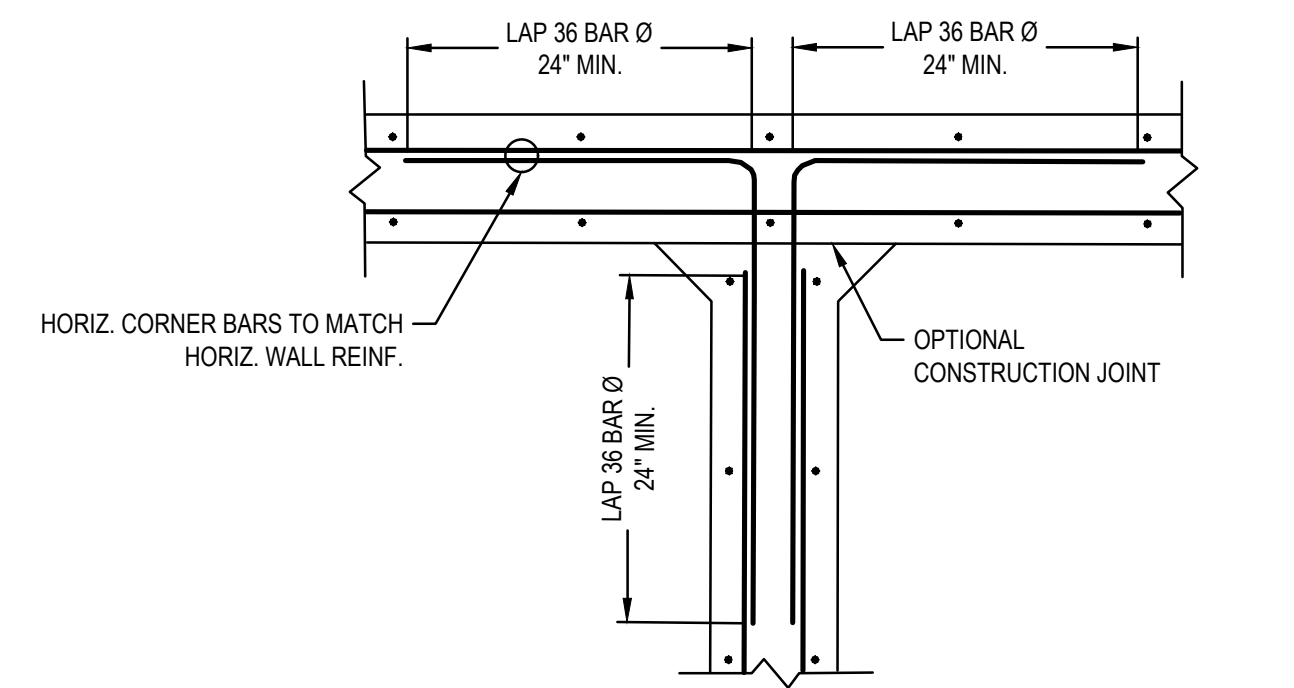


**HEADWALL AT RCBC VERTICAL WALL**

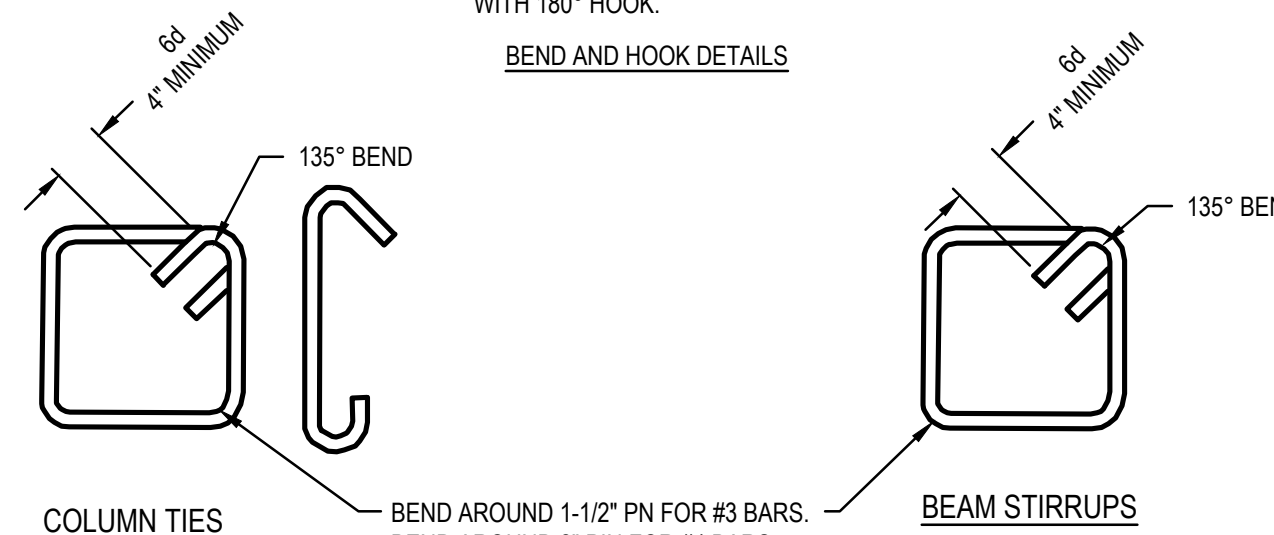
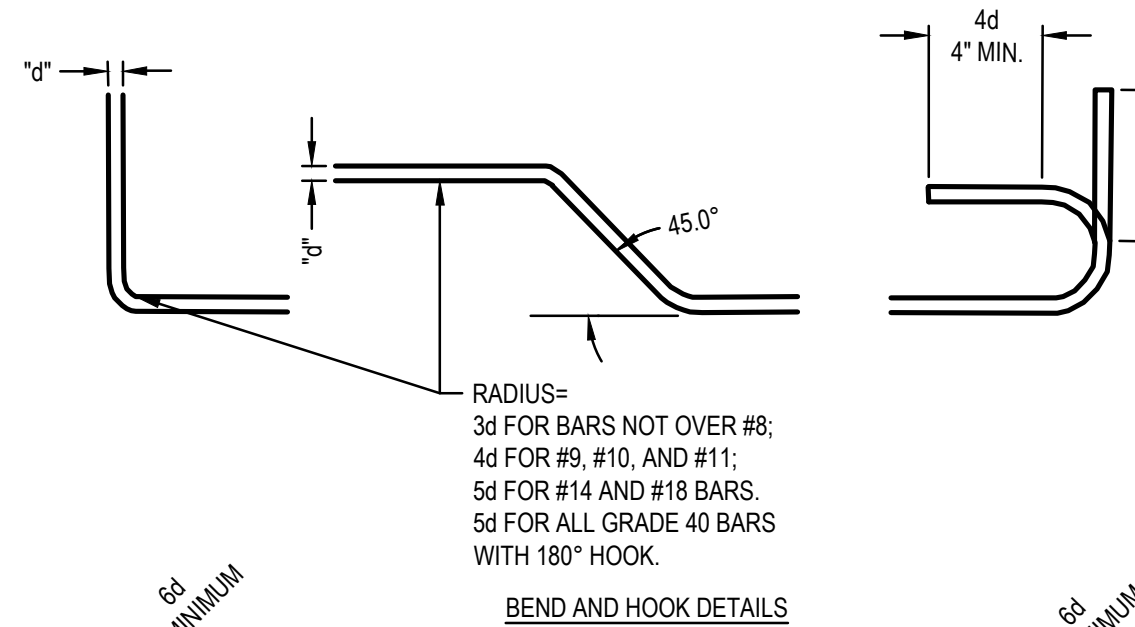
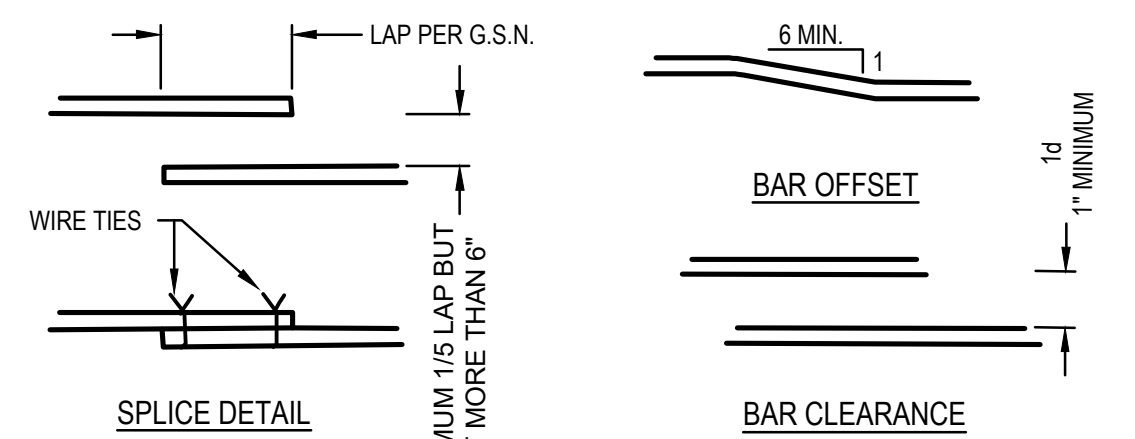
**INLET / OUTLET HEADWALL DETAIL**  
NOT TO SCALE

NOTE:  
PROVIDE 7/2X BAR DIAMETER LAP SPLICES FOR  
TYPICAL REINFORCEMENT IN CONCRETE  
UNLESS OTHERWISE NOTED.

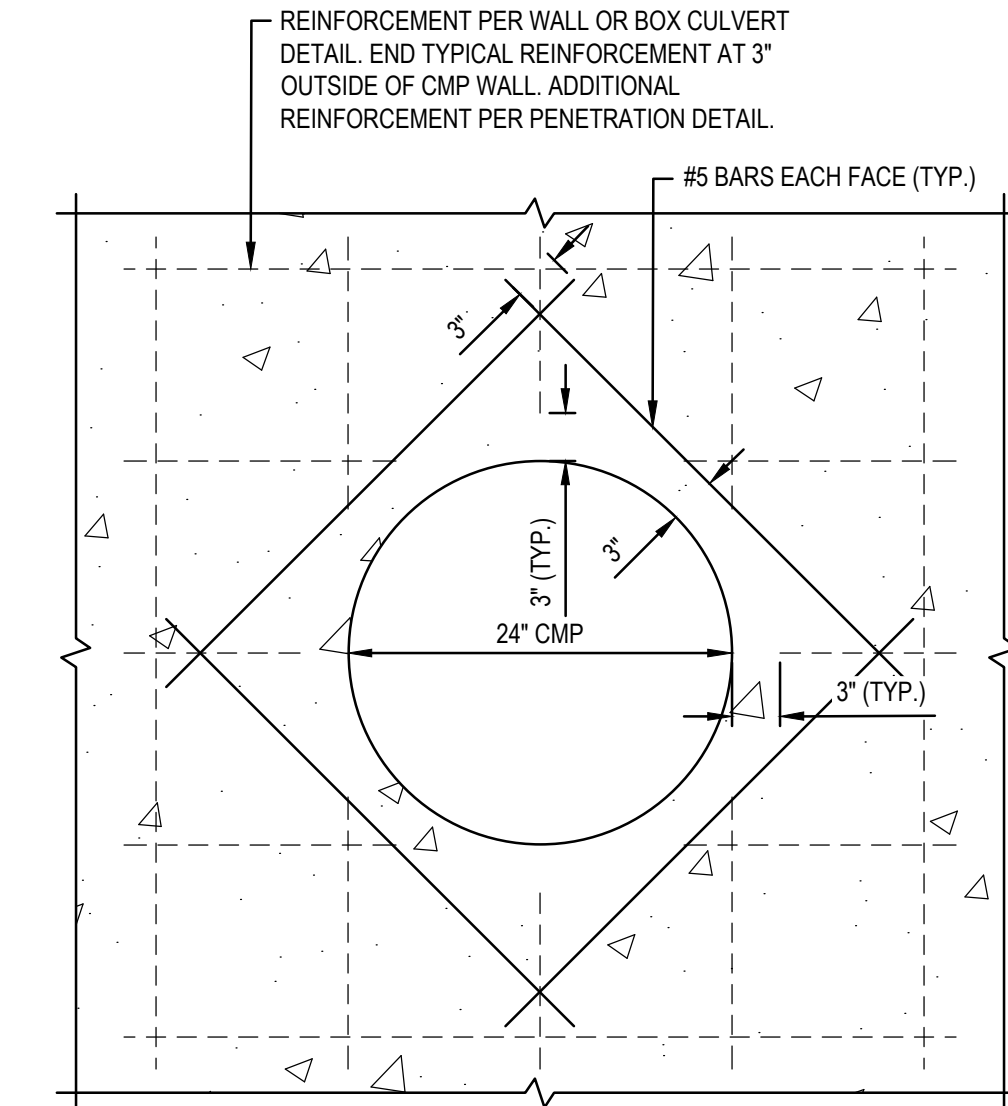
HANDRAIL NOT SHOWN.



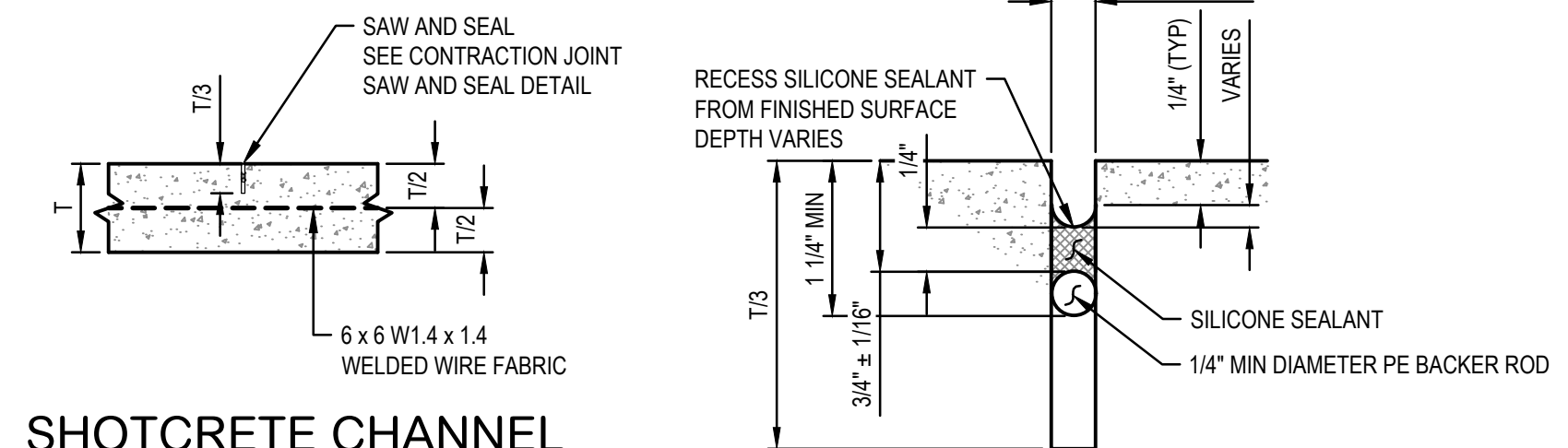
**CORNER AND INTERSECTING  
WALL/FOOTING REINFORCING**  
NOT TO SCALE



**REINFORCING DETAILS**  
NOT TO SCALE



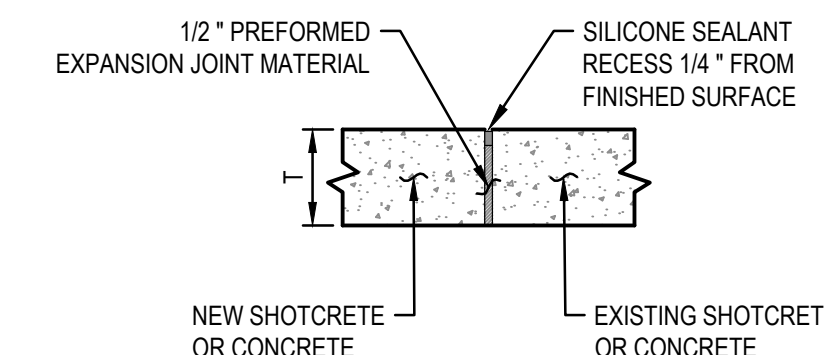
**PIPE PENETRATION DETAIL**  
NOT TO SCALE



**SHOTCRETE CHANNEL  
CONTRACTION JOINT**  
NOT TO SCALE

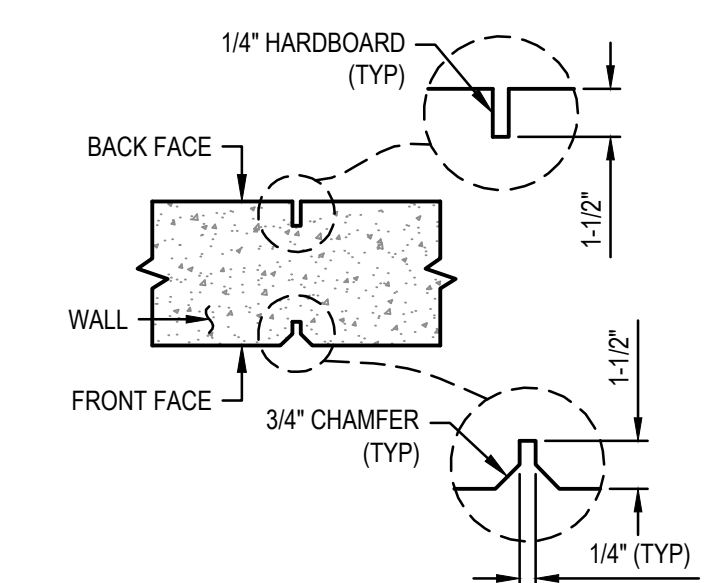
CONTRACTION JOINTS TO BE LOCATED  
ACROSS SHOTCRETE CHANNEL AT A MAXIMUM  
20 FOOT INTERVAL

**CONTRACTION JOINT  
SAW AND SEAL DETAIL**  
NOT TO SCALE



**EXPANSION JOINT**  
NOT TO SCALE

EXPANSION JOINTS TO BE LOCATED BETWEEN  
ALL NEW & EXISTING SHOTCRETE OR CONCRETE  
STRUCTURES.



**WALL  
CONTRACTION JOINT**  
NOT TO SCALE

CONTRACTION JOINTS TO BE LOCATED ALONG  
WALL AT A MAXIMUM 30 FOOT INTERVAL



NO.	REVISIONS / SUBMITTALS	DATE
	FINAL SUBMITTAL	

**LAKE HAVASU CITY, AZ  
WASH CROSSING IMPROVEMENTS  
EL DORADO AVENUE N.**

Designed by:	ARS
Drawn by:	RAM
Checked by:	CJD
Date:	8/4/2023
Dwg. scale:	SEE PLAN

**DETAILS**

**WILSON & COMPANY**  
HIGHER RELATIONSHIPS

9299 W. Olive Ave. Ste. 405  
Peoria, AZ 85345  
Phone: 623.582.0970  
Fax: 623.582.1973  
Web: www.civiltec.com

**CIVILTEC engineering inc.**  
Civil, Water, Wastewater, Drainage,  
and Transportation Engineering  
Construction Management • Surveying  
California • Arizona

PROFESSIONAL ENGINEER (CIVIL) V. E. D. #1014  
41014  
BRIAN M. SCHALK  
REGISTERED  
EXPIRES 6/30/2025

PROFESSIONAL ENGINEER (CIVIL) V. E. D. #58518  
ANDREW R. BIRDSONG  
REGISTERED  
EXPIRES 9/30/2023

CALL AT LEAST TWO FULL WORKING DAYS  
BEFORE YOU BEGIN EXCAVATION

**ARIZONA**  
DIAL 8-1-1 OR 1-800-STAKE-IT (782-5348)  
MARICOPA COUNTY: (602) 699-1500