

When recorded return to:
Clerk of the Board
P.O. Box 827
Florence AZ 85132

ORDINANCE NO. _____

**AN ORDINANCE OF THE PINAL COUNTY BOARD OF SUPERVISORS
ESTABLISHING MINIMUM STANDARDS FOR THE USE OF
MICROTRENCHING AS A METHOD FOR INSTALLATION OF FIBER OPTIC
CABLES IN PUBLIC RIGHTS-OF-WAY**

WHEREAS, A.R.S. § 11-251(4) authorizes the Board of Supervisors to layout, maintain, control and manage public roads within the County; and

WHEREAS, the establishment of design and construction standards for infrastructure located within the public right-of-way is part of that authority and is essential for the health, safety and welfare of the general public traveling said roadways; and

WHEREAS, the Board of Supervisors recognizes the need to update and modify standards from time to time to accommodate changes in technology and construction practices.

NOW, THEREFORE, BE IT ORDAINED, that the Board of Supervisors hereby adopts minimum standards for the use of microtrenching as a method for installation of fiber optic cables in public rights-of-way which are attached hereto, made a part hereof, and identified as Pinal County Standard Detail Drawings PC-700-1 through PC-700-5 (inclusive).

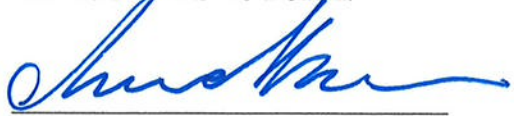
PASSED AND ADOPTED ON THIS _____ DAY OF _____, 2025, BY THE PINAL COUNTY BOARD OF SUPERVISORS.

Chairman of the Board of Supervisors

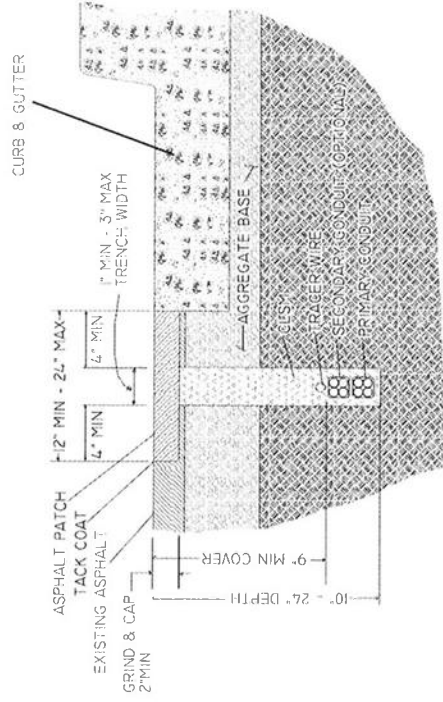
ATTEST:

Clerk/Deputy Clerk of the Board

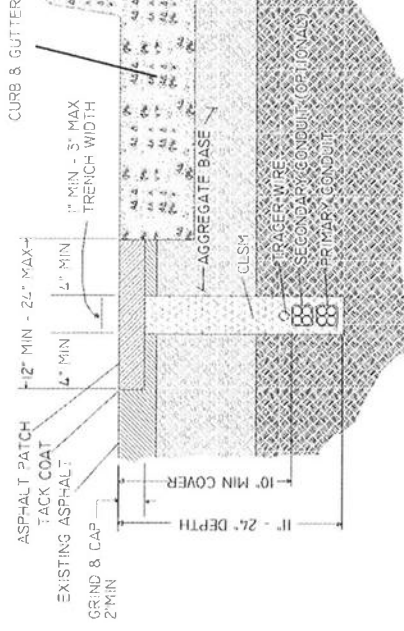
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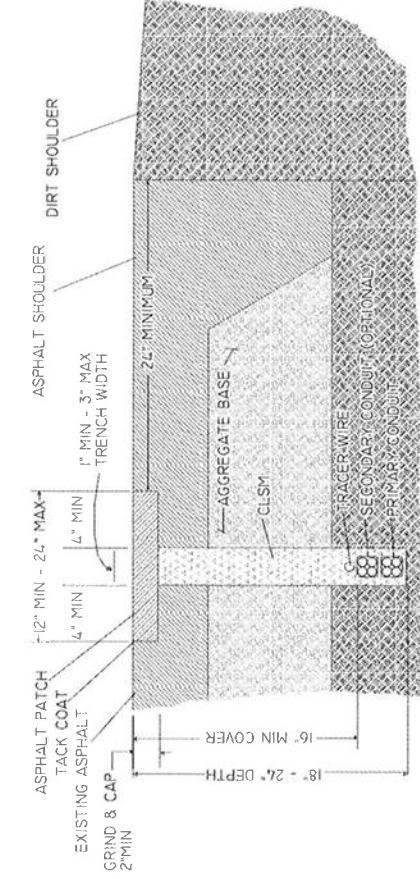
Deputy County Attorney



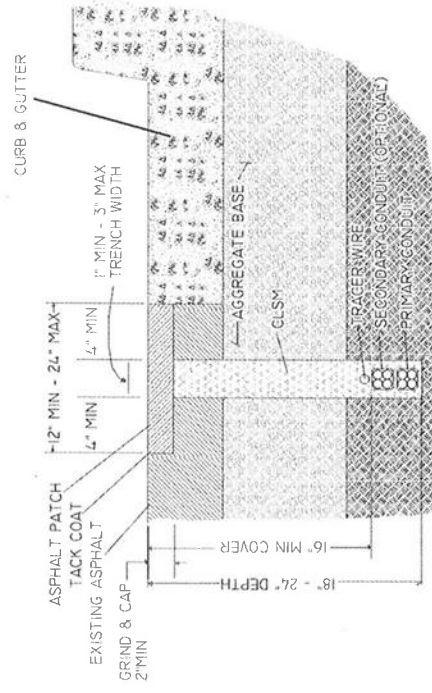
LOCAL STREET



COLLECTOR STREET



ARTERIAL STREET W/O CURB



ARTERIAL STREET

LEGEND

-  ASPHALT
-  ASPHALT PATCH
-  CEMENTITIOUS BACKFILL
-  CONCRETE
-  AGGREGATE BASE COURSE
-  SUBGRADE/NATIVE MATERIAL

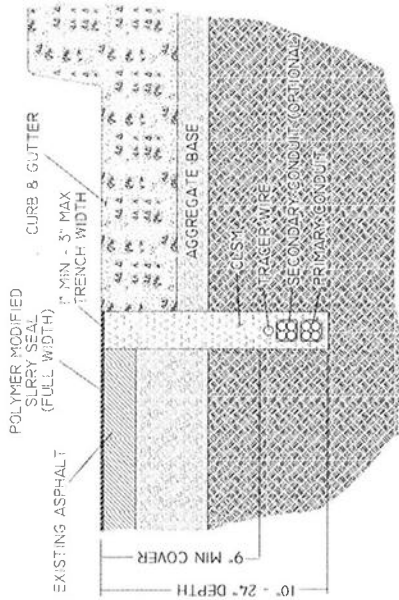


STANDARD DETAILS

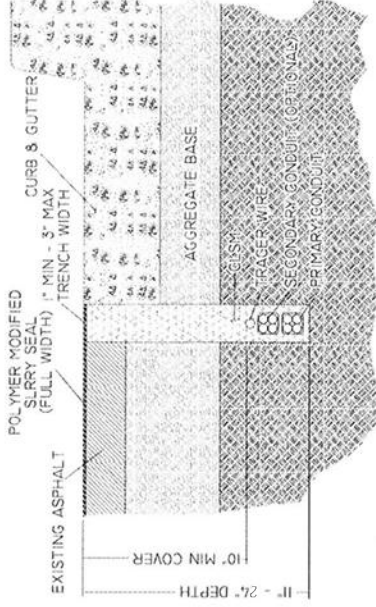
Detail No: **PC-700-1**

**MICROTRENCH DETAILS
ROADWAY CROSS SECTIONS
"T-TOP" ALTERNATIVE**

INITIAL/DRAFT	06/16/2025
REVISED	07/24/2025
REVISED	08/06/2025
APPROVED	
COUNTY ENGINEER	DATE



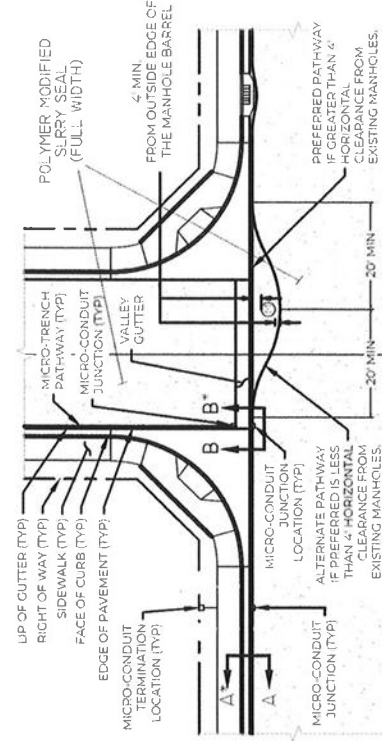
LOCAL STREET
(SECTION A-A)



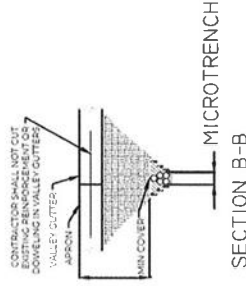
MINOR COLLECTOR STREET
(SECTION A-A)

LEGEND

- POLYMER MODIFIED SLURRY SEAL
- ASPHALT
- CEMENTITIOUS BACKFILL
- CONCRETE
- AGGREGATE BASE COURSE
- SUBGRADE/NATIVE MATERIAL



ROADWAY WITH VALLEY GUTTER & APRON CURB RETURN



SECTION B-B

*FOR USE ON LOCAL & MINOR COLLECTOR STREETS ONLY WITH NO PAVEMENT MARKINGS



STANDARD DETAILS

Detail No: PC-700-2

**MICROTRENCH DETAILS
ROADWAY CROSS SECTIONS
SLURRY SEAL ALTERNATIVE**

INITIAL/DRAFT	06/16/2025
REVISED	07/24/2025
REVISED	08/06/2025

APPROVED

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NOTES & SPECIFICATIONS

THE FOLLOWING STANDARDS APPLY TO MICROTRENCHING:

1) MICROTRENCHING IS NOT PERMITTING IN THE FOLLOWING AREAS

- A. CONCRETE STREETS, DRIVEWAYS, SIDEWALKS, CURB & GUTTER, APRONS, OR OTHER CONCRETE STRUCTURES.
- B. SPECIAL PAVEMENTS SUCH AS DECORATIVE PARKING, BRICKS, CONCRETE PAVERS, EXPOSED AGGREGATE CONCRETE, STAMPED ASPHALT, OR OTHER UNIQUE NON-CONCRETE OR NON-ASPHALT MATERIALS
- C. NON-ASPHALT PAVEMENTS SUCH AS ASPHALT-ROCK DUST PALLIATIVE (ARDP), SINGLE, OR DOUBLE CHIP SEAL ROADWAYS
- D. CROWN OF THE STREET

2) MICROTRENCHING MUST:

- A. HAVE SUFFICIENT DEPTH FOR THE CONDUITS TO BE INSTALLED WITH A MINIMUM DEPTH OF COVER AS SHOWN ON THE DETAIL DRAWINGS. THE TOP OF ANY CONDUIT MUST BE BELOW THE ROADWAY STRUCTURAL SECTION (ASPHALT + AGGREGATE BASE)
- B. HAVE A MAXIMUM 3-INCH WIDE TRENCH. WHERE TRENCH EXCEEDS 3-INCHES, CONTRACTOR WILL BE REQUIRED TO PROVIDE A MAG STANDARD TRENCH CONFORMING TO MAG STD DETAILS.
- C. BE RESTORED WITH PREAPPROVED CEMENTIOUS BACKFILL
- D. CONFORM TO SEPARATION REQUIREMENTS (HORIZONTAL AND VERTICAL) FROM EXISTING UTILITIES PER COUNTY STANDARDS AND UTILITY OWNER'S STANDARDS
- E. BORE OVER OR UNDER TRAFFIC LOOPS WITH A MINIMUM OF 6-INCH CLEARANCE.
- F. ALL PAVEMENT MARKINGS SHALL BE AVOIDED. ANY PAVEMENT MARKINGS DISTURBED SHALL BE REPLACED IN NEW CONDITION WITH LIMITS TO BE AT COUNTY STAFF DISCRETION.
- G. BE USED FOR TELECOMMUNICATIONS (FIBER OPTICS) CONDUITS ONLY.
- H. HAVE TRACER WIRE INSTALLED IN THE TRENCH ABOVE THE CONDUIT
- I. HAVE A MAXIMUM OF TWO CONDUITS PER TRENCH

3) LOCATION OF MICROTRENCHES

- A. MICROTRENCHING IS APPROVED ON ALL STREET CLASSIFICATIONS
- B. MICROTRENCHING MAY BE UTILIZED ON EACH SIDE OF THE STREET; PERPENDICULAR ROAD CROSSINGS SHOULD BE AVOIDED WHERE POSSIBLE.
- C. IF PLACED AT THE LIP OF THE GUTTER PROVIDE FULL WIDTH SLURRY SEAL OTHERWISE LOCATE A MINIMUM OF 4-INCH FROM LIP FOR AN ASPHALT T-TOP.

- D. MICROTRENCHING SHALL BE CONSTRUCTED AND PHASED TO MINIMIZE INTERFERENCE WITH VEHICULAR TRAFFIC.
- E. INTERSECTION CROSSINGS MUST BE ACHIEVED BY BORING; MICROTRENCHING IS PERMITTED TO CROSS ROADWAYS PERPENDICULARLY BEFORE OR AFTER AN INTERSECTION.
- F. MICROTRENCHES MUST MAINTAIN A MINIMUM OF 4-FOOT SEPARATION FROM MANHOLES AND VALVES.
- G. MICROTRENCHES MUST MAINTAIN A MINIMUM 2-FOOT SEPARATION FROM SURVEY MONUMENTS.
- H. AVOID PLACEMENT OF MICROTRENCHES IN THE VEHICLE WHEELPATH.
- I. ROADWAY CROSSINGS MUST OCCUR 90 DEGREES (PERPENDICULAR) FROM THE DIRECTION OF THE ROAD.
- J. VAULTS, PEDESTALS, AND HAND HOLES MUST BE LOCATED BEHIND THE SIDEWALK IN THE PUBLIC UTILITY EASEMENT. IF NO PUBLIC UTILITY EASEMENT EXISTS, THEY MUST BE LOCATED AT THE FAR EDGE OF THE RIGHT OF WAY.

4) PAVEMENT CUTS

- A. SAW CUTS SHALL BE STRAIGHT AND CLEAN
- B. THE VERTICAL FACES OF THE TRENCH MUST BE CLEAN, OIL FREE, WITH NO LOOSE MATERIAL.
- C. CONTRACTOR SHALL JACK OR PUSH CONDUITS DIRECTLY UNDER THE CURB AND GUTTER, SIDEWALK, AND/OR VALLEY GUTTERS. NO CONCRETE CUTS ARE PERMITTED.

5) BACKFILL PROCEDURES

- A. THE BACKFILL MATERIAL MUST BE 1200-2000 PSI CONTROLLED LOW STRENGTH MATERIAL (CLSM) WITH SAND OR AN EQUIVALENT FLOWABLE TYPE BKACFILL AS SPECIFIED IN MAG SPECIFICATION SECTION 604, 701.3, AND 728. MICROTRENCHING AND CORES SHALL BE BACKFILLED BY THE END OF THE DAY FOLLOWING THE INSTALLATION OF THE NEW FACILITY. THIS BACKFILLING PROCES MUST ADHERE TO THE FOLLOWING REQUIREMENTS:
 - I. THE BACKFILL MUST BE PLACED IN A TRENCH FREE OF WATER.
 - II. BEFORE PLACING ANY BACKFILL, REMOVE ALL LOOSE CONCRETE, ROCKS, TRASH, AND OTHER DEBRIS FROM THE EXCAVATION.
 - III. SAND BEDDING IS NOT ALLOWED.
 - IV. THE BACKFILL MUST BE PLACED USING ON-BOARD VIBRATOR THAT MATCHES THE TRENCH WIDTH.
 - V. THE BACKFILL MATERIAL MUST ADHERE TO MAG SPECIFICATION 604.1, MODIFIED TO REPLACE COARSE AGGREGATE WITH FINE AGGREGATE (SAND), AS SPECIFIED IN MAG SPECIFICATION SECTION 701.3.



PINAL COUNTY
WIDE OPEN OPPORTUNITY

STANDARD DETAILS

Detail No: **PC-700-3**

MICROTRENCH DETAILS
NOTES & SPECIFICATIONS

INITIAL/DRAFT

06/16/2025

REVISED

07/24/2025

REVISED

08/06/2025

APPROVED

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THE MATERIAL MUST ALSO:

- I. FLOW FREELY TO THE TRENCH'S BOTTOM
2. BE SUITABLE FOR THE ROAD ENVIRONMENT.
3. MEET PERFORMANCE TESTING PER MAG SPECIFICATION SECTION 604.4
4. MEET ACCEPTANCE PER MAG SPECIFICATION SECTION 604.5
- VI. THE BACKFILL MUST BE 100% CURED BEFORE APPLYING ASPHALT PATCH
- VII. IF TESTS OR INSPECTIONS REVEAL THAT THE BACKFILL FAILS TO MEET THE REQUIREMENTS MENTIONED ABOVE, THE BACKFILL WILL BE CONSIDERED UNACCEPTABLE AND MUST BE REMOVED AND REPLACED. ALL COSTS RELATED TO THE CORRECTIONS AND SUBSEQUENT TESTING WILL BE THE RESPONSIBILITY OF THE CONTRACTOR IF THE BACKFILL IS DEEMED UNACCEPTABLE AND/OR IF THE TRENCH IS BACKFILLED WITHOUT BEING INSPECTED BY THE COUNTY INSPECTOR.

6) "T-TOP" TRENCH & ASPHALT REPAIR (PC-700-1 DETAIL)

- A. PAVEMENT REPLACEMENT TO BE PER MAG STANDARD SPECIFICATION SECTION 336.2.4.
- B. PROVIDE MINIMUM 4 INCH WIDE SHELVE AS SHOWN IN MICROTRENCH DETAILS.
- C. SAWCUT OR MILL EDGE AND APPLY TACK COAT. APPLY 2 1/2 INCH WIDE SECTION 337.2.1 COMPLIANT JOINT SEALANT.
- D. "T-TOP" TO BE A MINIMUM OF 12 INCHES WIDE UP TO OF 24 INCHES WIDE MAXIMUM.

7) POLYMER MODIFIED (PM) SLURRY SEAL (PC-700-2 DETAIL)

- A. WHEN A MICROTRENCH IS PLACED ON A LOCAL OR COLLECTOR STREET WITHOUT A "T-TOP" REPAIR, A POLYMER MODIFIED SLURRY SEAL IS REQUIRED TO RESTORE THE PAVEMENT SURFACE TO CONDITION EQUAL TO OR BETTER THAN PRIOR TO THE MICROTRENCH. THE SLURRY SEAL SHALL:
 - I. BE PLACED FOR THE FULL WIDTH OF THE PAVEMENT SECTION (GUTTER LIP TO GUTTER LIP) FOR ANY LOCAL OR COLLECTOR ROAD WHERE A MICROTRENCH WAS PLACED.
 - II. CONSIST OF A PROPERLY PROPORTIONED EMULSIFIED POLYMER MODIFIED ASPHALT, MINERAL AGGREGATE, MINERAL FILLERS, WATER, AND ADDITIVES AS APPROVED BY PINAL COUNTY.
 - III. BE PLACED AS A SINGLE LAYER WITH A MINIMUM THICKNESS GREATER THAN THE NOMINAL AGGREGATE SIZE SPECIFIED IN THE MIX DESIGN. THE AGGREGATE GRADATION IS USED TO FILL SURFACE VOIDS, ADDRESS SURFACE DISTRESSES, SEAL, AND PROVIDE A DURABLE WEARING SURFACE.

- B. THE PM SLURRY SEAL SHALL NOT COVER ANY PAVEMENT MARKINGS.
- C. THE UTILITY POTHOLE-KEYHOLE METHOD, ALSO KNOWN AS CORE RESTORATION, SHALL CONFORM TO MAG DETAIL 212, TYPE 'A' MODIFIED WITH A 2' X 4' PAVEMENT REPLACEMENT DIMENSION.
- I. IF THE PAVEMENT CORE IS FOUND FRACTURED OR DEFECTIVE UPON REMOVAL OR IF IT BECOMES DAMAGED AFTER REMOVAL AND BEFORE REINSTATEMENT, THE DEFECTIVE OR DAMAGED CORE SHALL NOT BE BE USED TO RESTORE THE PAVEMENT.
- II. CLSM SHALL CONFORM TO MAG STANDARD SPECIFICATIONS SECTIONS 728 AND BE PLACED TO TOP OF TRENCH.
- III. CONVENTIONAL POTHOLE RESTORATION SHALL CONFORM TO MAG DETAIL TYPE A PAVEMENT REPAIR.
- D. RESTORATION OF ANY DAMAGED TRAFFIC CONTROL DEVICES MUST BE COMPLETED, INCLUDING BUT NOT LIMITED TO EMBEDDED LOOP DETECTORS AND PAVEMENT MARKINGS, DAMAGED LOOP DETECTORS SHALL BE REPLACED PER PINAL COUNTY REQUIREMENTS.

8) SITE RESTORATION

- A. A CONTRACTOR PERFORMING CONSTRUCTION IN PUBLIC RIGHT-OF-WAY (ROW) MUST RESTORE THE ROW TO A CONDITION EQUAL TO OR BETTER THAN THAT SPECIFIED IN THIS DETAIL OR OTHER APPLICABLE COUNTY DESIGN AND CONSTRUCTION STANDARDS.
- B. CONCRETE DAMAGE, POTHOLE EXCAVATIONS OR OTHER DAMAGE IN CONCRETE FACILITIES, SHALL BE SAW CUT AND REMOVED AND REPLACED IN KIND TO THE NEAREST JOINT.
- C. TURF REPLACEMENT AND SOD MATCHING EXISTING TURF SHOULD BE USED AND CONFORM TO MAG STANDARD SPECIFICATION 430. RUTS SHOULD BE ELIMINATED, AND TOPSOIL MUST BE PREPARED TO CREATE A SMOOTH SURFACE DEVOID OF ROCKS AND GRAVEL.
- D. ANY IRRIGATION SYSTEMS SHALL BE RESTORED PER MAG SPECIFICATION SECTION 440. ALL IRRIGATION SYSTEMS (I.E. SPRINKLER HEADS, BUBBLERS, EMITTERS, CONTROLS, ETC.) SERVING AN AREA AFFECTED BY THIS PROJECT SHALL BE RESTORED AS REQUIRED TO FACILITATE THE CONTINUED OPERATION FOR THEIR INTENDED USE. NEW SPRINKLER HEADS SHALL HAVE THE SAME PRECIPITATION OUTPUT AS THE EXISTING LAWN HEADS. ALL PIPING, PIPE FITTINGS, COUPLINGS, SPRINKLERS, EMITTERS CONDUIT, SLEEVING, LOW VOLTAGE CONDUCTORS, SERVICE LINE CONDUCTORS, DRIP LINE, FIXTURES, ETC. USED IN THE REPAIR AND RESTORATION OF EXISTING SPRINKLER AND EMITTER SYSTEMS SHALL BE NEW, IN PERFECT CONDITION, AND SHALL COMPLY WITH MAG SPECIFICATION SECTION 757.



PINAL COUNTY
WIDE OPEN OPPORTUNITY

STANDARD DETAILS

Detail No: **PC-700-4**

MICROTRENCH DETAILS NOTES & SPECIFICATIONS

INITIAL/DRAFT	06/16/2025
REVISED	07/24/2025
REVISED	08/06/2025

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COUNTY ENGINEER	DATE
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- E. RESTORATION WORK SHOULD BE CARRIED OUT PROMPTLY.
- UNSATISFACTORY RESTORATION OR DELAYED COMPLETION WILL LEAD TO A HALT IN ALL CONTRACTOR WORK ON THE OVERALL PROJECT. NO ADDITIONAL PERMITS WILL BE ISSUED UNTIL SATISFACTORY RESTORATION IS COMPLETED, INCLUDING PREVIOUSLY PERMITTED BUT UNFINISHED WORK.
- 9) ADDITIONAL REQUIREMENTS
- A. ANY MICROTRENCHING ON ARTERIAL ROADWAYS MAY BE RESTRICTED TO NIGHTWORK ONLY AT THE DISCRETION OF THE COUNTY INSPECTOR
- B. PRIOR TO MICROTRENCHING OPERATION, THE COUNTY INSPECTOR SHALL "WALK" THE MICROTRENCH PATH AFTER AZ811 LOCATE MARKS HAVE BEEN COMPLETED. THE PURPOSE OF THE "WALK" IS TO IDENTIFY ANY AREAS OF POTENTIAL CONFLICT AND/OR INTERFERENCE AND RECORD THE RESULTS OF THE "WALK". ADDITIONALLY, THE CONTRACTOR SHOULD VERIFY THAT ALL UTILITIES HAVE BEEN LOCATED. THE CONTRACTOR SHALL CROSS CHECK THE RECORD DRAWINGS AND PLANS WITH FIELD LOCATE MARKS TO DETERMINE DISCREPANCIES.
- C. PRIOR TO MICROTRENCHING, THE CONTRACTOR SHALL PROVIDE PUBLIC NOTIFICATION OF THE PROJECT AT LEAST 14 DAYS PRIOR TO THE START OF CONSTRUCTION. PUBLIC NOTIFICATION SHALL INCLUDE DOOR HANGARS, SIGNS LOCATED AT THE PROJECT SITE, AND PHONE NUMBER FOR THE PUBLIC TO CONTACT.
- D. CONSTRUCTION SHALL OCCUR IN ONE CONTINUOUS OPERATION TO MINIMIZE DISRUPTION TO THE PUBLIC.
- E. BEFORE MICROTRENCHING WILL BE PERMITTED, AN EVALUATION OF OTHER CONSTRUCTION ALTERNATIVES MUST BE CONSIDERED FIRST. THE COUNTY INSPECTOR OR COUNTY ENGINEER MAY REQUIRE TRADITIONAL TRENCH AND BORE INSTALLATION WHERE THERE ARE LIMITED ADVANTAGES TO PUBLIC FOR MICROTRENCHING.

PINAL COUNTY WIDE OPEN OPPORTUNITY STANDARD DETAILS Detail No: PC-700-5	MICROTRENCH DETAILS NOTES & SPECIFICATIONS	INITIAL/DRAFT	06/16/2025
		REVISED	07/24/2025
		REVISED	08/06/2025
		APPROVED	
		COUNTY ENGINEER	