

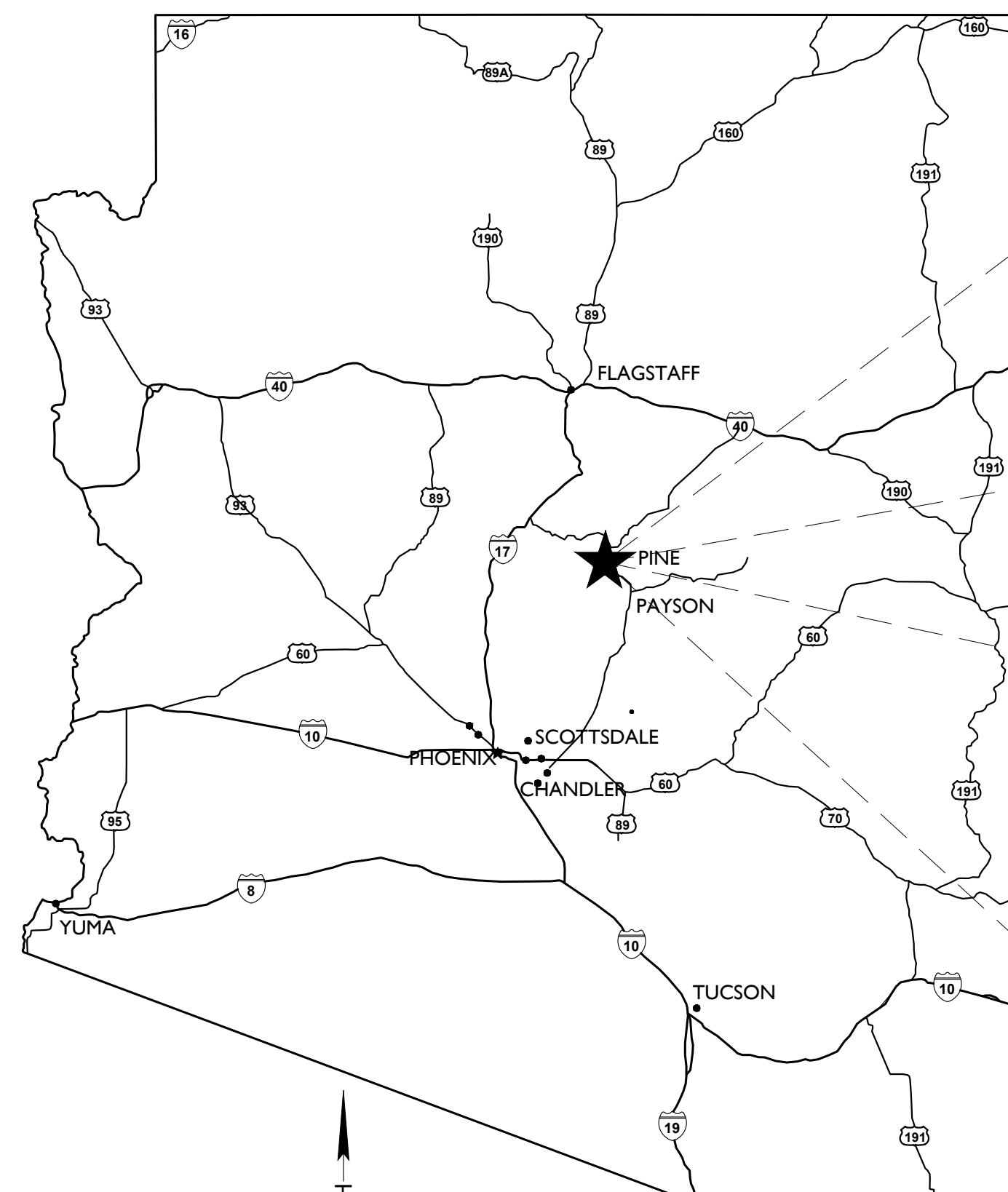
PINE-STRAWBERRY WATER IMPROVEMENT DISTRICT

WATER NOTES

1. ENGINEERING DEPARTMENT'S CIVIL / SITE INSPECTION STAFF SHALL BE NOTIFIED 48 HOURS BEFORE ANY CONSTRUCTION BEGINS TELEPHONE (928) 476-4222.
2. ALL CONSTRUCTION TO CONFORM TO M.A.G. SPECIFICATIONS AND DETAILS UNLESS MODIFIED ON THE PLANS.
3. COMPACTION SHALL COMPLY WITH M.A.G. SECTION 601.
4. PIPE DEFLECTION SHALL NOT EXCEED ONE-HALF (½) THE MANUFACTURERS RECOMMENDATIONS.
5. THE CONTRACTOR IS TO NOTIFY THE PUBLIC THAT WILL BE AFFECTED BY ANY SHUTDOWNS A MINIMUM OF 48 HOURS IN ADVANCE.
6. ALL WORK MUST COMPLY WITH REQUIREMENTS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
7. A SIX (6) FOOT MINIMUM HORIZONTAL SEPARATION FROM ANY UNDERGROUND SEWER AND OTHER UTILITY SHALL BE PROVIDED FOR WATER MAINS. THE MINIMUM HORIZONTAL SEPARATION IS MEASURED FROM OUTSIDE OF WATER MAIN TO OUTSIDE OF SEWER MAIN OR OTHER UTILITY MAIN.
8. A ONE (1) FOOT MINIMUM VERTICAL SEPARATION FROM ANY DRY UNDERGROUND UTILITY CROSSING SHALL BE PROVIDED FOR SEWER MAINS, SEWER SERVICES, WATER MAINS AND WATER SERVICES. THE MINIMUM VERTICAL SEPARATION IS MEASURED FROM OUTSIDE OF SEWER MAIN, SEWER SERVICE, WATER MAIN OR WATER SERVICE TO OUTSIDE OF DRY UNDERGROUND UTILITY.
9. A TWO (2) FOOT MINIMUM VERTICAL SEPARATION SHALL BE PROVIDED BETWEEN ANY SEWER MAIN AND OTHER UTILITY CROSSING A WATER MAIN. THE MINIMUM VERTICAL SEPARATION IS MEASURED FROM OUTSIDE OF WATER MAIN TO OUTSIDE OF SEWER MAIN OR UTILITY LINE.
10. EXCEPTIONS OR DEVIATIONS FROM THE ABOVE MINIMUM CLEARANCES MUST BE APPROVED AND SHOWN ON THE APPROVED WATER AND SEWER PLANS. WHEN UTILITY CONFLICTS ARE FOUND DURING CONSTRUCTION, ALL CHANGES AND REVISIONS MUST BE PRECEDED BY AN APPROVED PLAN REVISION.
11. ANY AND ALL MORE STRINGENT REQUIREMENTS REQUIRED BY FEDERAL, STATE, COUNTY, OR LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
12. CONCRETE OR ASPHALT DAMAGED DURING THE COURSE OF CONSTRUCTION SHALL BE REMOVED AND REPLACED IN KIND PRIOR TO FINAL INSPECTION.
13. THE LOCATION OF ALL WATER VALVES, FIRE HYDRANTS AND MANHOLES MUST AT ALL TIMES DURING CONSTRUCTION BE REFERENCED BY THE CONTRACTOR AND MADE AVAILABLE TO THE WATER DISTRICT.
14. THE EXACT LOCATIONS OF UTILITIES SHOWN ARE UNKNOWN. THE LOCATIONS SHOWN ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES AND BURIED CABLES PRIOR TO CONSTRUCTION BY CALLING "ARIZONA 811" AT 1-800-782-5348, AT LEAST 48 HOURS BEFORE DIGGING. THE CONTRACTOR SHALL COOPERATE WITH THE UTILITY OWNERS IN PROTECTING ALL EXISTING UNDERGROUND STRUCTURES, UTILITIES, AND SERVICES.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE STREETS AND FOR PARTIALLY COMPLETED PORTIONS OF THE WORK, UNTIL FINAL ACCEPTANCE OF THE WORK.
16. THE CONTRACTOR SHALL COOPERATE WITH ALL OTHER CONTRACTORS OR DISTRICT FORCES WORKING AT THE SITE.
17. ALL NEW WATER LINES SIZE SHALL BE AS SHOWN ON THE PLANS, 3" PVC PIPE LINES OR LESS SHALL BE SCHEDULE 80, 4" PVC PIPE LINES OR GREATER SHALL BE C900 DR-18, IN ACCORDANCE WITH MAG STANDARD SPECIFICATION SECTION 610.
18. ALL SERVICE LINES SHALL BE 3/4" POLYETHYLENE PIPING PER MAG STANDARD SPECIFICATION SECTION 755. ALL FITTINGS SHALL BE BRASS COMPRESSION TYPE FITTINGS PER AWWA C800 AND SHALL MEET THE LATEST NSF 61-8.
19. ALL MATERIALS USED IN THE WATER SYSTEM SHALL CONFORM TO NSF STANDARD 61.
20. CONSTRUCTION MATERIALS USED IN THE WATER SYSTEM SHALL BE LEAD-FREE AS DEFINED IN AAC R18-5-504 AND R18-1-101.
21. WATER / SEWER SEPARATION SHALL MEET THE REQUIREMENTS OF THE LATEST REVISION OF AAC R18-5-502.
22. NON-METALIC WARNING TAPE SHALL BE REQUIRED WITHIN THE WATER MAIN AND SERVICE LINE TRENCHES, IN ACCORDANCE WITH WATER DISTRICT STANDARDS.
23. DISINFECTION OF WATER LINES AND TANKS SHALL BE IN ACCORDANCE WITH M.A.G. STANDARD SPECIFICATION SECTION 611.
24. ALL WATER PIPE MATERIALS AND FITTINGS SHALL HAVE THE NSF-PW SEAL OF APPROVAL.
25. PRESSURE AND LEAKAGE TESTING SHALL BE PERFORMED IN ACCORDANCE WITH M.A.G. STANDARD SPECIFICATION NO. 610 AND 611.
26. TRENCHING AND BACKFILL SHALL MEET THE REQUIREMENTS OF M.A.G. STANDARD SPECIFICATION SECTION 601 OR PER MANUFACTURE'S RECOMMENDATIONS. WHERE THERE IS A CONFLICT BETWEEN STANDARDS THE MOST STRINGENT STANDARD SHALL GOVERN.
27. THRUST BLOCKS IN ACCORDANCE WITH M.A.G. STANDARD DETAIL NO. 380, OR JOINT RESTRAINTS IN ACCORDANCE WITH M.A.G. DETAILS 303-1 & 303-2 SHALL BE INSTALLED AT ALL WATER LINE FITTINGS.
28. CLEARING & GRUBBING SHALL BE IN ACCORDANCE WITH M.A.G. STANDARD SPECIFICATION SECTION 201. STRUCTURE EXCAVATION AND BACKFILL SHALL BE IN ACCORDANCE WITH M.A.G. STANDARD SPECIFICATION SECTION 206. FILL CONSTRUCTION SHALL BE IN ACCORDANCE WITH M.A.G. STANDARD SPECIFICATION SECTION 211.
29. WATER SUPPLY SHALL BE IN ACCORDANCE WITH M.A.G. STANDARD SPECIFICATION SECTION 104.1.3.
30. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETING A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND FOR OBTAINING AN AZPDES CONSTRUCTION GENERAL PERMIT FROM THE ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY.



STRAWBERRY KNOLLS 2 AND STRAWBERRY RANCH 2 WATER LINE REPLACEMENT PROJECT



STATE OF ARIZONA MAP

NT

ENGINEER

EPS GROUP, INC.
125 S. AVONDALE BLVD.
SUITE 115
AVONDALE, AZ 85323
PHONE: 623.547.4661

BENCHMARK

NGS POINT 'PERHAM' (PID-DN3551)
PUBLISHED ELEVATION = 5842.3 (NAVD 88)

OWNER

PSWID
6306 WEST HARDCRABBLE ROAD
PINE, AZ 85544
(928) 476-4222

DATUM INFORMATION

ARIZONA STATE PLANE EAST ZONE (NAD83)
N: 1,241,431.96, E: 312,132.50, WITH SCALE
FACTOR OF 1.00007222

LEGEND

T.O.W.	TOP OF WALL
T.O.F.	TOP OF FOOTING
C.M.U.	CONCRETE MASONRY UNIT
MAX.	MAXIMUM
MIN.	MINIMUM
O.C.	ON CENTER
EX.	EXISTING
I.B.C.	INTERNATIONAL BUILDING CODE

A.P.N.	ASSESSORS PARCEL NUMBER
M.C.R.	MARICOPA COUNTY RECORDERS
TC	TOP OF CURB
GR	GROUND
PH=3	POT HOLE NUMBER
CL	CENTER LINE
COL.	COLUMN
P.B.	PULL BOX

R/W	RIGHT OF WAY
SMH	SEWER MANHOLE
TRANS.	TRANSFORMER
P.P.	POWER POLE
E.B.	ELECTRICAL BOX
T.S.P.	TRAFFIC SIGNAL POLE
T.S.B.	TRAFFIC SIGNAL BOX
C.B.	CATCH BASIN

==	EX. TOPOGRAPHY
— OHE —	EX. OVERHEAD ELECTRIC LINE
	SURVEYED WATER METER
	SURVEYED SEWER CLEANOUT
	SURVEYED WATER VALVE
	SURVEYED DOWNGUY
LL	LOT LINE
D.P.	DEFLECTION POINT

SHEET INDEX

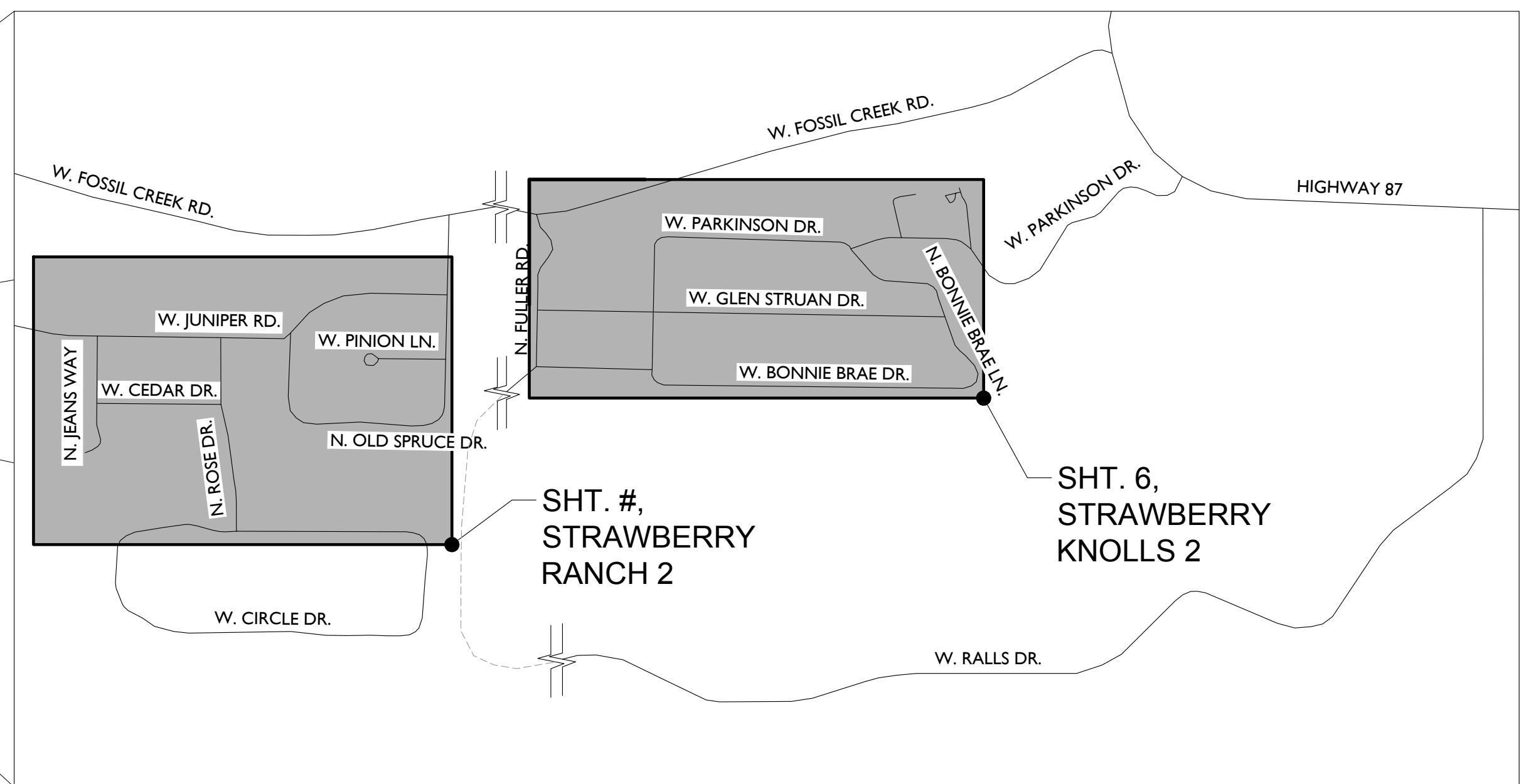
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TOWN OF PINE-STRAWBERRY ENGINEER _____ DATE _____

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE "AS-BUILT" INFORMATION AS SHOWN HEREON WAS MADE UNDER MY SUPERVISION, OR AS NOTED, AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

LICENSED SURVEYOR OR REGISTERED P.E. _____ DATE _____



VICINITY MAP

NTS

PSWID - SIRAWBERRY KNOLLS 2 AND SIRAWBERRY RANCH 2
WATER LINE REPLACEMENT PROJECT

COVER SHEET

[illegible]

DESIGNER: B.L.S.
DRAWN BY: T.S.L.



EXPIRES 09/30/2018

JOB NO.
18-056

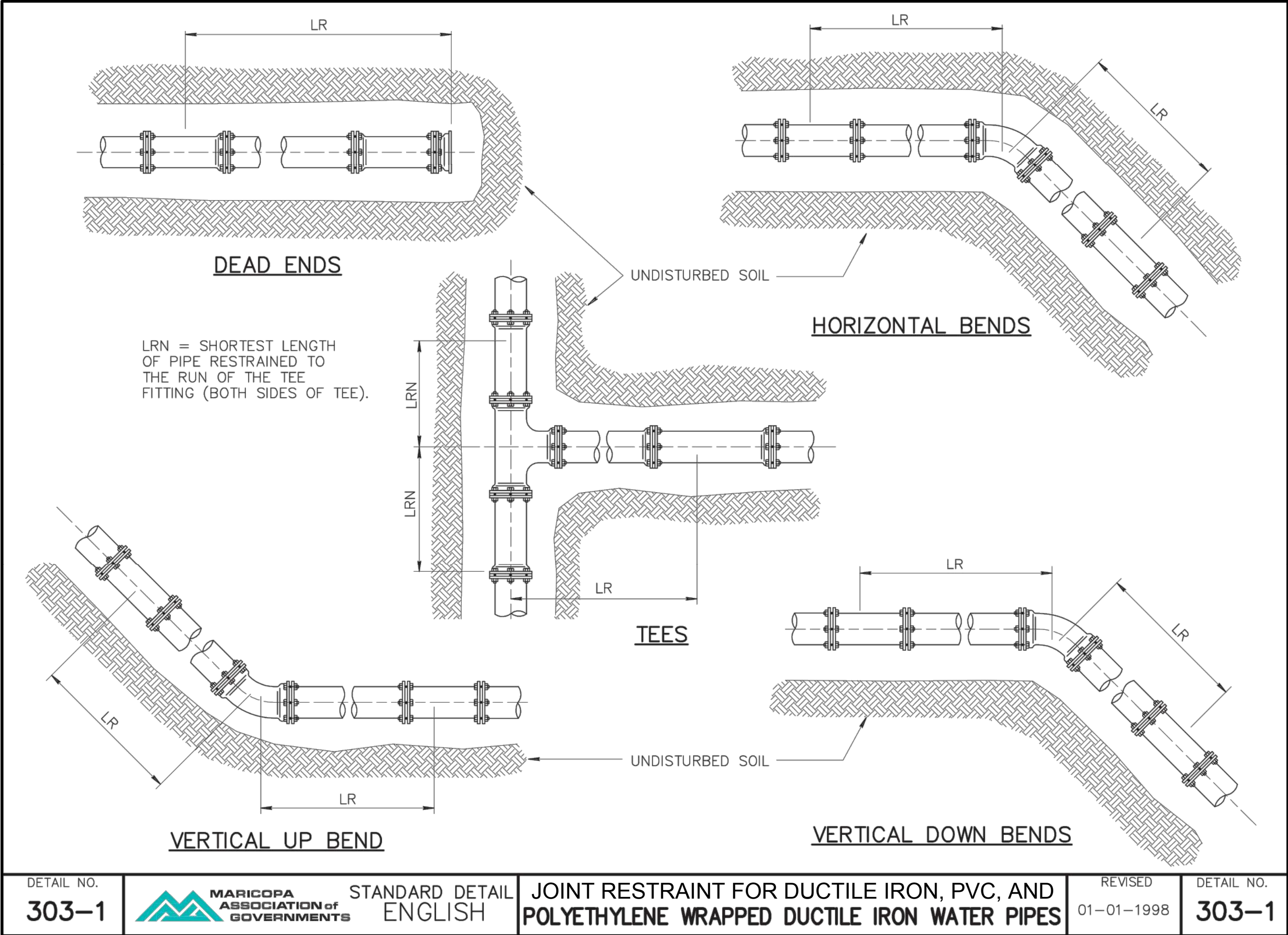
07-06-2018

SHEET NO.

- GENERAL NOTES**
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AT THE JOB SITE PRIOR TO BEGINNING WORK AND SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER.
 - DO NOT USE SCALED DIMENSIONS. WRITTEN DIMENSIONS OR WHERE NO DIMENSION IS PROVIDED, CONSULT THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
 - ESTABLISH AND VERIFY THE SIZE AND LOCATION OF ALL SLAB PENETRATIONS PRIOR TO CONSTRUCTION.
 - ALL DETAILS SHOWN APPLY WHETHER SPECIFICALLY REFERENCED OR NOT.
 - CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROPERTY.

ENGINEER'S NOTES

- THE ENGINEER WILL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES OR FOR SAFETY PRECAUTIONS OR PROGRAMS UTILIZED IN CONNECTION WITH THE WORK, AND WILL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- THE ENGINEER AND APPLICABLE AGENCY MUST APPROVE, PRIOR TO CONSTRUCTION, ANY ALTERATION OR VARIANCE FROM THESE PLANS.
- THE CONTRACTOR SHALL PROTECT AND MAINTAIN ALL EXISTING UTILITIES ON THE SITE. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN OR NOT ON THE DRAWINGS, SHALL BE REPAIRED/REPLACED AT THE CONTRACTOR'S EXPENSE. EXISTING SURFACE FEATURES AND FENCING SHALL BE REPLACED IN KIND.
- ANY INSPECTION BY THE DISTRICT OR ENGINEER SHALL NOT IN ANY WAY RELIEVE THE CONTRACTOR FROM ANY OBLIGATION TO PERFORM THE WORK IN STRICT COMPLIANCE WITH THE APPLICABLE CODES AND AGENCY REQUIREMENTS.
- CONTRACTOR IS TO LOCATE ALL EXISTING PROPERTY MONUMENTS PRIOR TO CONSTRUCTION. A REGISTERED LAND SURVEYOR, AT THE CONTRACTOR'S EXPENSE, SHALL REPLACE ANY MONUMENTS DISTURBED DURING THE CONSTRUCTION OF THIS PROJECT.
- NOTHING CONTAINED IN THE CONTRACT DOCUMENTS SHALL CREATE, NOR SHALL BE CONSTRUED TO CREATE, ANY CONTRACTUAL RELATIONSHIP BETWEEN THE ENGINEER AND THE CONTRACTOR OR ANY SUBCONTRACTOR.
- CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS.
- CONTRACTOR IS RESPONSIBLE FOR PREPARING, SUBMITTING, OBTAINING APPROVAL FOR, AND IMPLEMENTING A TRAFFIC CONTROL PLAN.
- PRIOR TO FINAL APPROVAL AND ACCEPTANCE OF THE WORK THE CONTRACTOR WILL BE REQUIRED TO CLEAN AND REPAIR ADJACENT ROADWAYS USED OR DAMAGED DURING THE COURSE OF CONSTRUCTION.
- IN ACCORDANCE WITH AAC R18-4-213, ALL MATERIALS ADDED AFTER JANUARY 1, 1993, WHICH MAY COME INTO CONTACT WITH DRINKING WATER SHALL CONFORM TO NATIONAL SANITATION FOUNDATION STANDARDS 60 AND 61.
- UNLESS NOTED ON PLANS, EXISTING FACILITIES SHALL BE PROTECTED IN PLACE. IF A CONFLICT IS FOUND TO EXIST THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO START OF CONSTRUCTION.
- THE CONTRACTOR SHALL PROVIDE FULL SIZE "AS-BUILTS" DRAWINGS WITH REGISTERED LAND SURVEYOR'S SEAL PLACED ON EVERY PAGE.



RANCH 2 ESTIMATE OF QUANTITIES		
CONNECT TO EXISTING WATER LINE. INSTALL ROMAC 501 COUPLING ADAPTOR, SIZE PER PLANS. CONTRACTOR TO VERIFY EXISTING INVERT AND LOCATION (SEE NOTE 1).		3 EA
INSTALL 4" BLIND FLANGE WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.		2 EA
INSTALL 4" PVC C900 DR-18 WATER LINE. BEDDING AND TRENCH BACKFILL PER DETAIL D OR E ON SHEET 4.		3011 LF
INSTALL 4"-11.25" BEND WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.		9 EA
INSTALL 4"-22.5" BEND WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.		2 EA
INSTALL 4"-45" BEND WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.		3 EA
INSTALL 4" X 4" X 4" TEE WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.		3 EA
INSTALL 4" FLANGED GATE VALVE WITH BOX AND COVER PER MAG STD. DTL. 391-1 AND 391-2, TYPE C, OR APPROVED EQUAL, WITH JOINT RESTRAINT PER MODIFIED MAG STD. DTL. 303.		9 EA
INSTALL 6" PVC C900 DR-18 WATER LINE. BEDDING AND TRENCH BACKFILL PER DETAIL D OR E ON SHEET 4.		1423 LF
INSTALL 6"-11.25" BEND WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.		2 EA
INSTALL 6"-22.5" BEND WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.		1 EA
INSTALL 6"-45" BEND WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.		1 EA
INSTALL 6" x 6" x 6" TEE WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.		3 EA
INSTALL 6" X 6" X 6" X 6" CROSS WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.		1 EA
INSTALL 6" x 4" REDUCER WITH JOINT RESTRAINT (MEGALUGES OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.		4 EA
INSTALL 6" FLANGED GATE VALVE WITH BOX AND COVER PER MAG STD. DTL. 391-1 AND 391-2, TYPE C, OR APPROVED EQUAL, WITH JOINT RESTRAINT PER MODIFIED MAG STD. DTL. 303.		6 EA
INSTALL 3/4" POLYETHYLENE SERVICE PIPE PER MAG STD. SPECIFICATION 755. CONNECT TO EXISTING METER PER DETAIL B ON SHEET 3.		919 LF
INSTALL 3/4" WATER SERVICE PIPE CONNECTION TO NEW LINE WITH BRONZE DOUBLE-STRAP SADDLE, LEAD-FREE BRONZE DUAL CHECK VALVE (BY APOLLO VALVES MODEL DUCLF4N OR APPROVED EQUAL), AND CORP STOP PER DETAIL A ON SHEET 3.		52 EA
INSTALL CURB STOP WITH FLUSHING PIPE AT HIGH POINT PER DETAIL E ON SHEET 5. EXTEND PIPE AND PLACE BOX ON THE SIDE OF EXISTING THE ROAD.		5 EA
INSTALL WATER LINE UNDER LOW-WATER CROSSING. TRENCHING, BACK FILL, REINFORCEMENT PER DETAIL H ON SHT 5.		82 LF
INSTALL 6" BLIND FLANGE WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.		1 EA

NOTES:

- LOCATION OF EXISTING PIPE IS UNKNOWN, QUANTITIES ARE AN ESTIMATE.

KNOLLS 2 ESTIMATE OF QUANTITIES		
CONNECT TO EXISTING WATER LINE. INSTALL ROMAC 501 COUPLING ADAPTOR, SIZE PER PLANS. CONTRACTOR TO VERIFY EXISTING INVERT AND LOCATION (SEE NOTE 1).		3 EA
INSTALL 4" PVC C900 DR-18 WATER LINE. BEDDING AND TRENCH BACKFILL PER DETAIL D OR E ON SHEET 4.		3540 LF
INSTALL 4"-22.5" BEND WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.		6 EA
INSTALL 4"-45" BEND WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.		10 EA
INSTALL 4" x 4" x 4" TEE WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.		2 EA
INSTALL 4" FLANGED GATE VALVE WITH BOX AND COVER PER MAG STD. DTL. 391-1 AND 391-2, TYPE C, OR APPROVED EQUAL, WITH JOINT RESTRAINT PER MODIFIED MAG STD. DTL. 303.		10 EA
INSTALL 6" PVC C900 DR-18 WATER LINE. BEDDING AND TRENCH BACKFILL PER DETAIL D OR E ON SHEET 4.		2312 LF
INSTALL 6"-11.25" BEND WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.		4 EA
INSTALL 6"-22.5" BEND WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.		2 EA
INSTALL 6"-45" BEND WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.		9 EA
INSTALL 6" x 6" x 6" TEE WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.		3 EA
INSTALL 6" x 6" x 6" x 6" CROSS WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.		1 EA
INSTALL 6" x 4" REDUCER WITH JOINT RESTRAINT (MEGALUGES OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.		5 EA
INSTALL 6" FLANGED GATE VALVE WITH BOX AND COVER PER MAG STD. DTL. 391-1 AND 391-2, TYPE C, OR APPROVED EQUAL, WITH JOINT RESTRAINT PER MODIFIED MAG STD. DTL. 303.		7 EA
INSTALL 3/4" POLYETHYLENE SERVICE PIPE PER MAG STD. SPECIFICATION 755. CONNECT TO EXISTING METER PER DETAIL B ON SHEET 3.		1244 LF
INSTALL 3/4" WATER SERVICE PIPE CONNECTION TO NEW LINE WITH BRONZE DOUBLE-STRAP SADDLE, LEAD-FREE BRONZE DUAL CHECK VALVE (BY APOLLO VALVES MODEL DUCLF4N OR APPROVED EQUAL), AND CORP STOP PER DETAIL A ON SHEET 3.		63 EA
INSTALL WATER LINE VERTICAL RE-ALIGNMENT PER DETAIL C ON SHEET 3.		6 EA
SAWCUT, REMOVE, AND REPLACE EXISTING PAVEMENT PER DETAIL E ON SHEET 4.		1138 SY
INSTALL CURB STOP WITH FLUSHING PIPE AT HIGH POINT PER DETAIL E ON SHEET 5. EXTEND PIPE AND PLACE BOX ON THE SIDE OF EXISTING THE ROAD.		8 EA

NOTES:

- LOCATION OF EXISTING PIPE IS UNKNOWN, QUANTITIES ARE AN ESTIMATE.

RESTRAINED LENGTHS, LR, FOR DUCTILE IRON PIPE												
NOMINAL PIPE SIZE INCHES	HORIZONTAL BENDS			TEES		VERTICAL OFFSETS						DEAD ENDS
						90° BEND FITTINGS		45° BEND FITTINGS		22-1/2° BEND FITTINGS		
	90°	45°	22-1/2°	LRN=0°	LRN=10°	DOWN BEND	UP BEND	DOWN BEND	UP BEND	DOWN BEND	UP BEND	
4	18	7	4	30	8	31	18	13	7	6	3	31
6	25	10	5	43	20	44	25	18	10	9	5	44
8	32	13	6	56	34	58	32	24	13	11	6	58
10	38	16	8	68	45	69	38	29	16	14	8	69
12	45	19	9	80	57	81	45	34	19	16	9	81
14	51	21	10	91	68	92	51	38	21	18	10	92
16	57	24	11	103	79	104	57	43	24	21	11	104
18	62	26	12	113	90	115	62	48	26	23	12	115
20	68	28	14	125	100	126	68	52	28	25	14	126
24	79	33	16	145	121	147	79	61	33	29	16	147

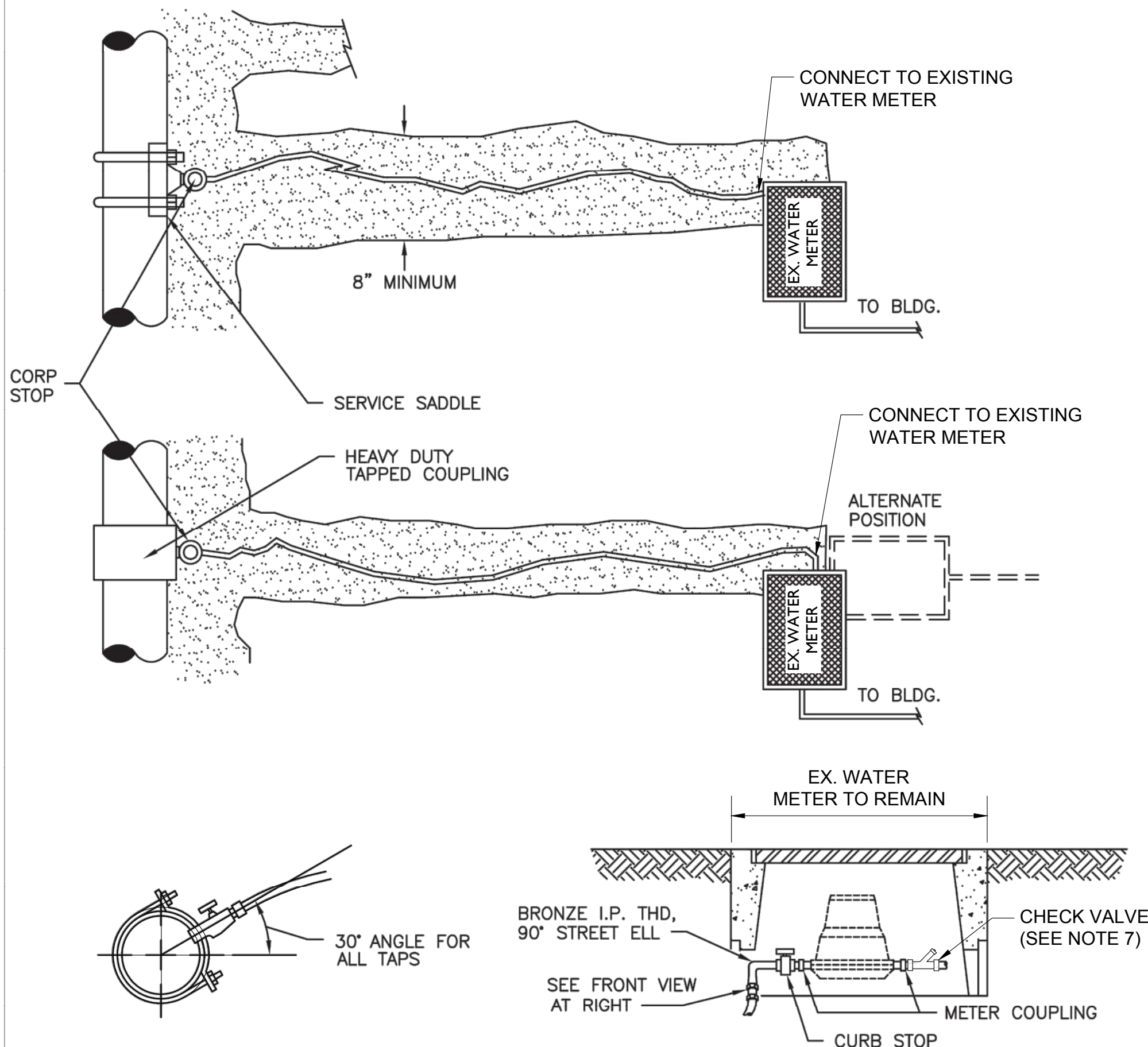
RESTRAINED LENGTHS, LR, FOR DUCTILE IRON PIPE WITH POLYETHYLENE WRAP												
NOMINAL PIPE SIZE INCHES	HORIZONTAL BENDS			TEES		VERTICAL OFFSETS						DEAD ENDS
						90° BEND FITTINGS		45° BEND FITTINGS		22-1/2° BEND FITTINGS		
	90°	45°	22-1/2°	LRN=0°	LRN=10°	DOWN BEND	UP BEND	DOWN BEND	UP BEND	DOWN BEND	UP BEND	
4	26	11	5	69	18	72	26	30	11	14	5	72
6	36	15	7	99	47	102	36	42	15	20	7	102
8	47	19	9	130	78	133	47	55	19	26	9	133
10	56	23	11	157	103	159	56	66	23	32	11	159
12	65	27	13	185	131	187	65	77	27	37	13	187
14	74	31	15	211	156	214	74	89	31	42	15	214
16	82	34	16	238	183	241	82	100	34	48	16	241
18	90	37	18	263	207	266	90	110	38	53	18	266
20	98	41	20	289	233	292	98	121	41	58	20	292
24	113	47	22	337	280	340	113	141	47	68	22	340

NOTES:

- ALL JOINTS WITHIN THE SPECIFIED LENGTH LR MUST BE RESTRAINED. ALL LENGTHS ARE GIVEN IN FEET.
- THE MAXIMUM TEST PRESSURE SHALL NOT EXCEED 200 PSI
- THE MINIMUM DEPTH OF BURY SHALL BE 3' TO TOP OF PIPE.
- RESTRAINED LENGTHS MAY BE REDUCED WHEN SUPPORTED BY ENGINEERING CALCULATIONS.

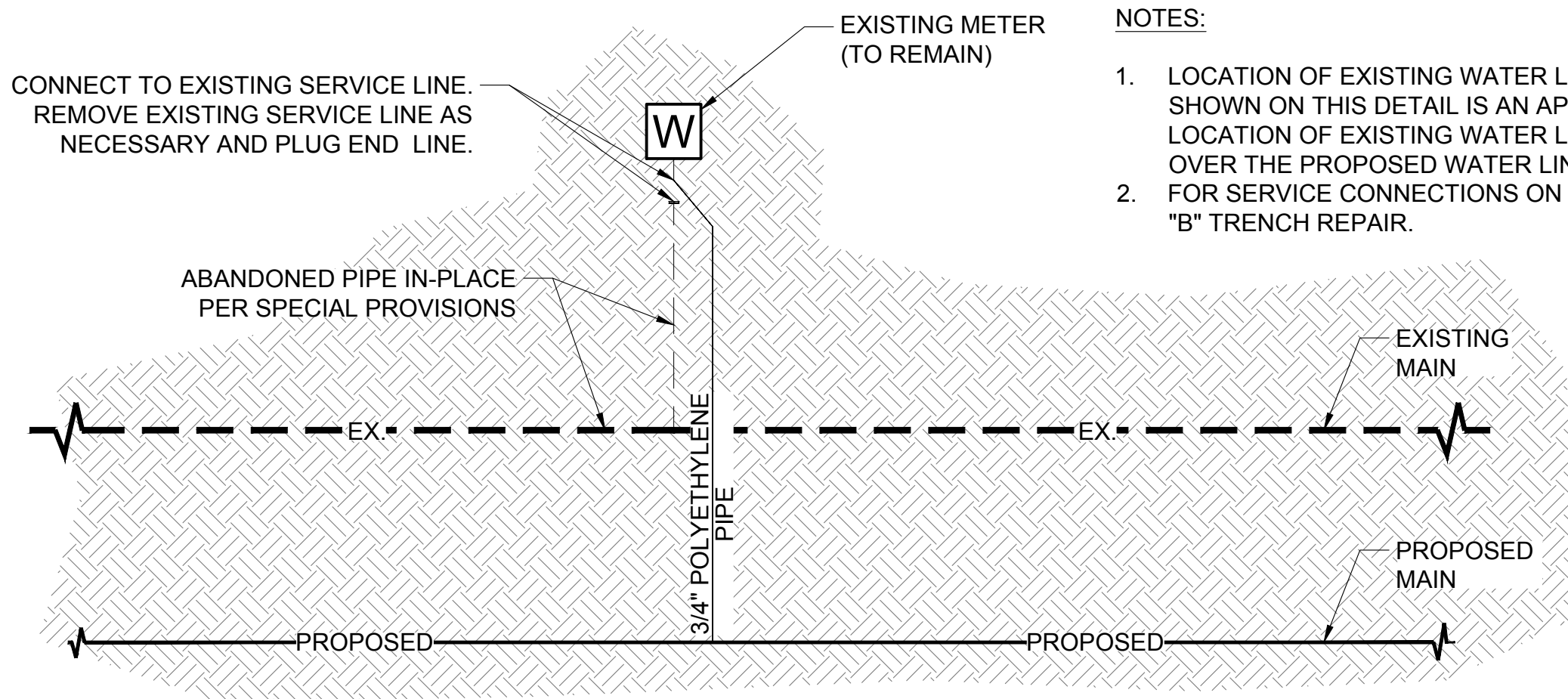
DETAIL NO.				REVISED	DETAIL NO.
303-2	MARICOPA ASSOCIATION OF GOVERNMENTS	STANDARD DETAIL	ENGLISH	01-01-1998	303-2
JOINT RESTRAINT FOR DUCTILE IRON, PVC, AND POLYETHYLENE WRAPPED DUCTILE IRON WATER PIPES					

MODIFIED MAG STD. DTL. 303



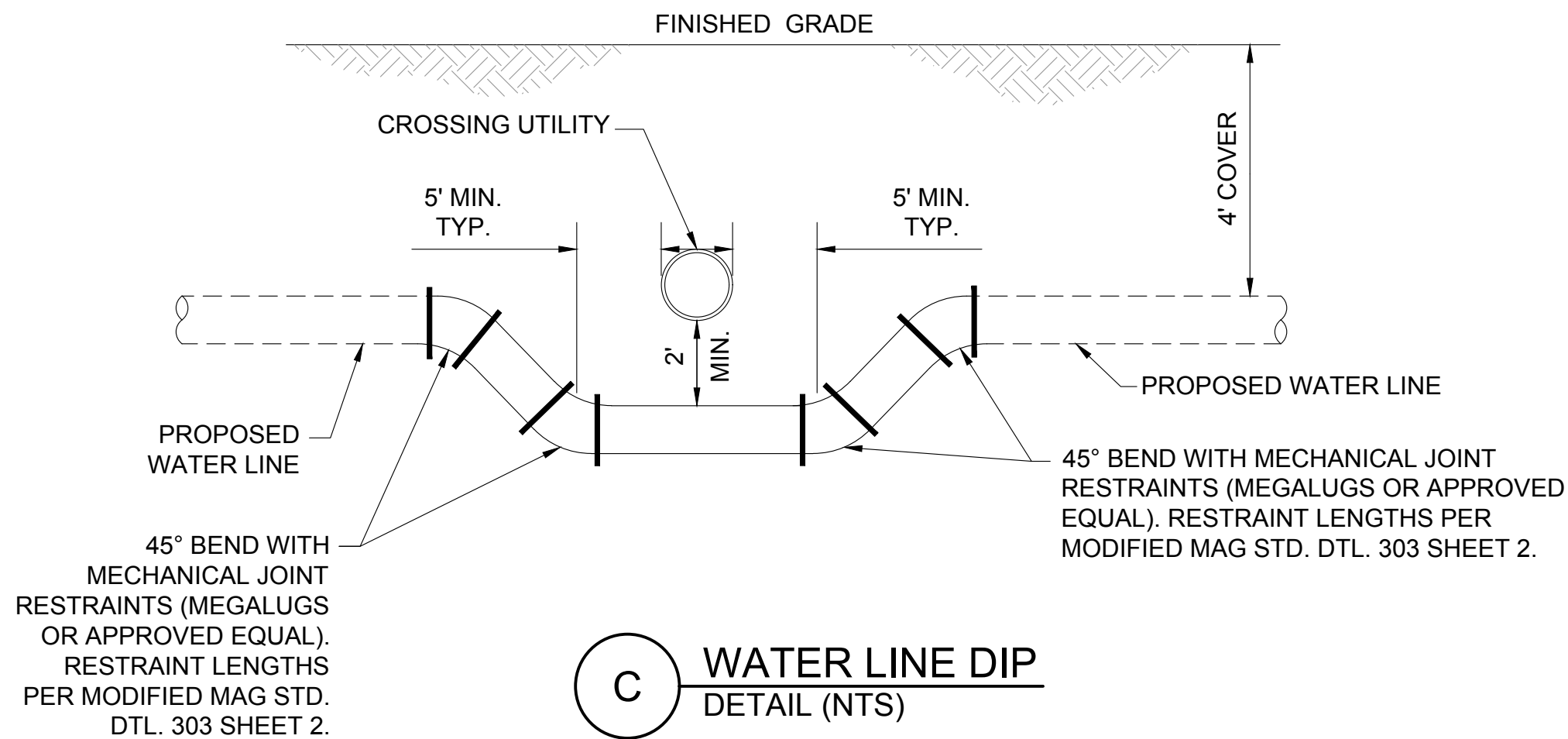
A WATER SERVICE CONNECTION
DETAIL (NTS)

- NOTES:
1. NEW WATER SERVICE TAPS SHALL BE INSTALLED USING AN ALL-BRONZE DOUBLE-STRAP TAPPING SADDLE.
 2. 30" MINIMUM COVER IS REQUIRED OR SERVICE LINES.
 3. WATER SERVICE DOES NOT INCLUDE METER. EXISTING METER TO REMAIN IN PLACE.
 4. ONLY AUTHORIZED PERSONNEL SHALL INSTALL SERVICE CONNECTIONS.
 5. FOR 3/4" TO 2" SERVICE USE POLYETHYLENE PIPE, PER MAG STD. SPECIFICATION SECTION 755.
 6. ALL FITTINGS SHALL BE BRASS COMPRESSION TYPE PER AWWA C800 AND NSF 61-8.
 7. 3/4" DUEL CHECK VALVE, LEAD-FREE BRONZE, APOLLO VALVES MODEL DUCLF4N (OR APPROVED EQUAL).

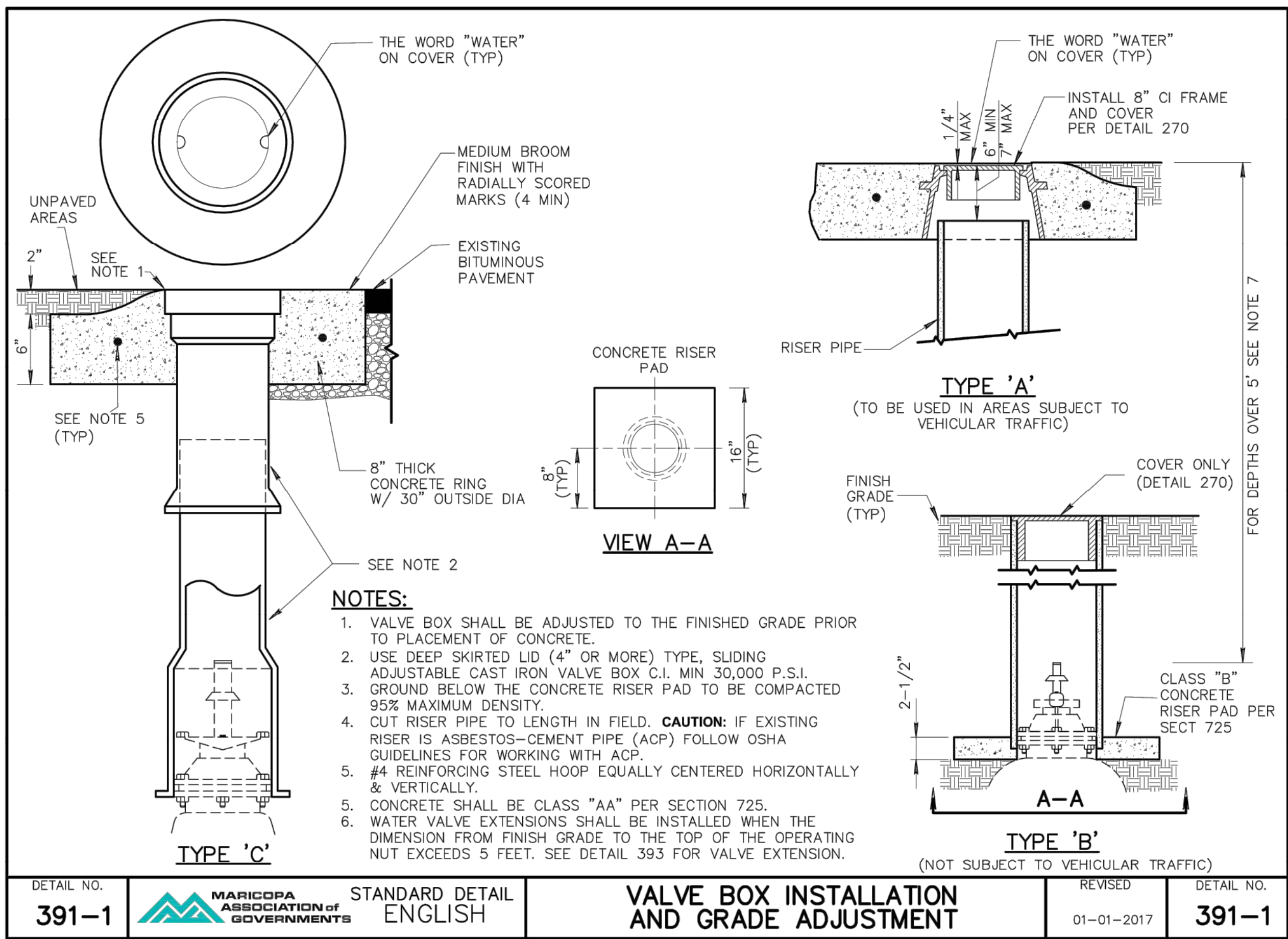


B METER CONNECTION SCHEMATIC
DETAIL (NTS)

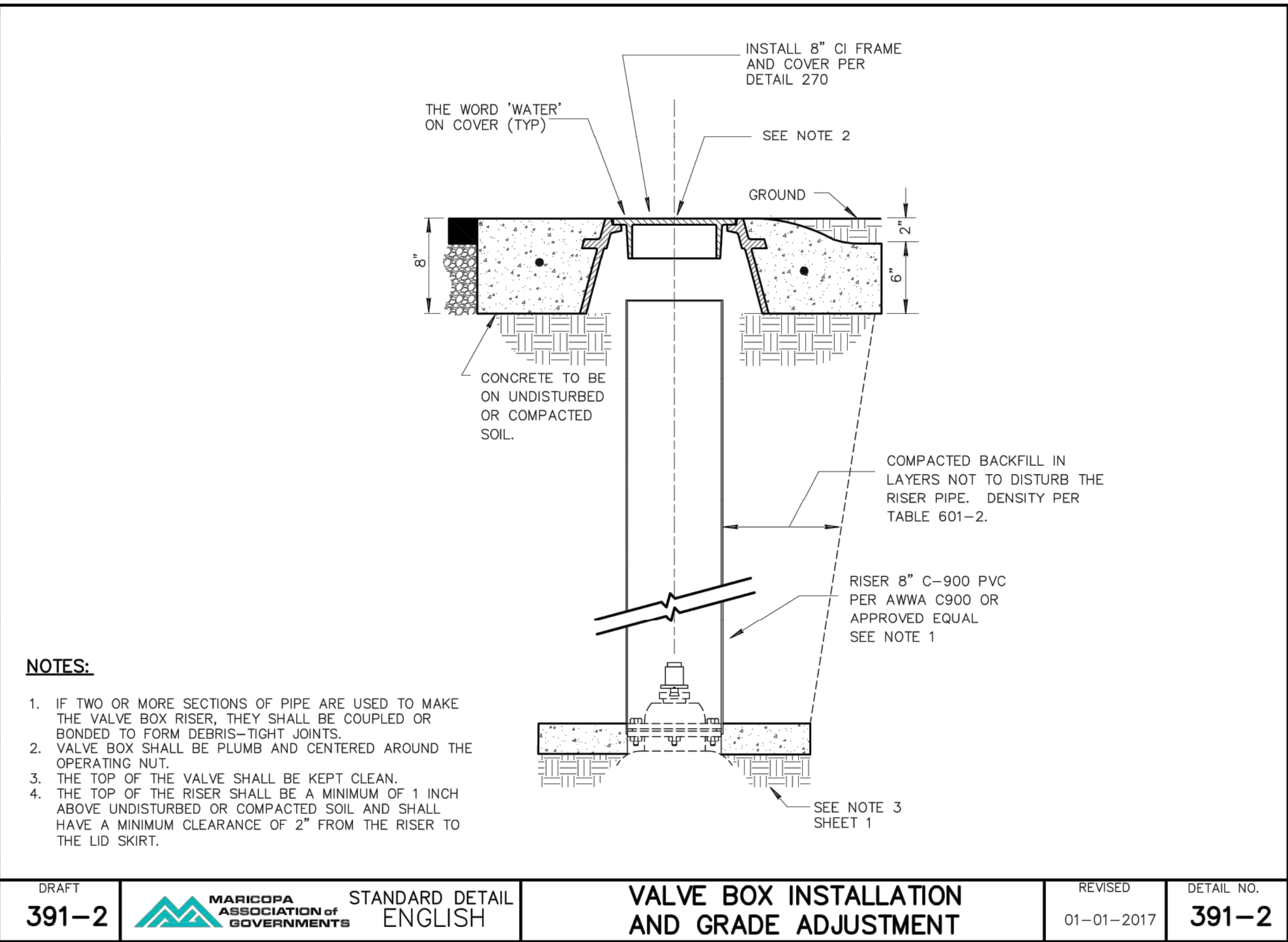
- NOTES:
1. LOCATION OF EXISTING WATER LINE IS UNKNOWN. LOCATION SHOWN ON THIS DETAIL IS AN APPROXIMATION. TRUE LOCATION OF EXISTING WATER LINE MEANDERS AND CROSSES OVER THE PROPOSED WATER LINE. PROVIDE 30" MIN. COVER.
 2. FOR SERVICE CONNECTIONS ON PAVED ROADS USE MAG TYPE "B" TRENCH REPAIR.



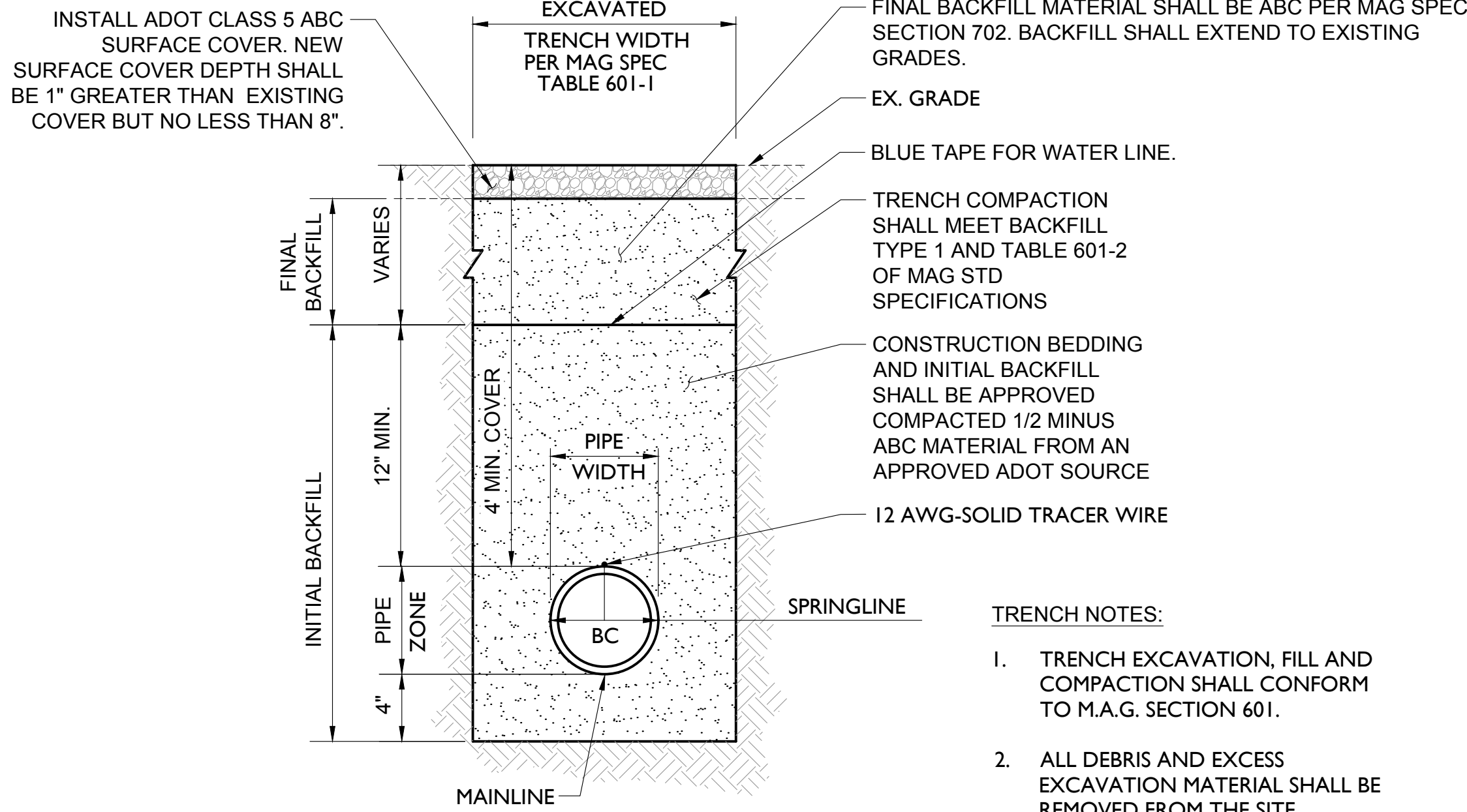
C WATER LINE DIP
DETAIL (NTS)



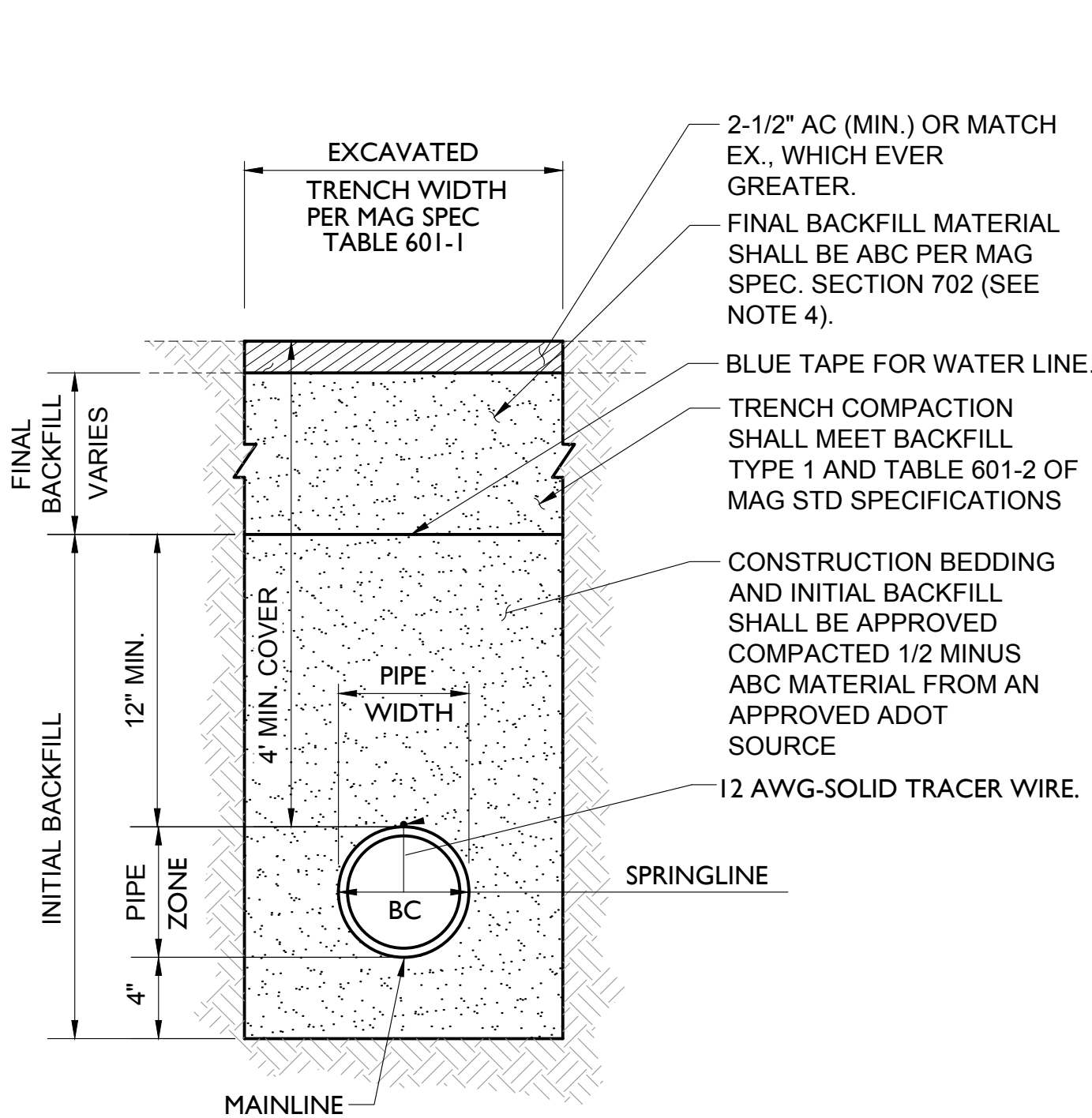
MAG STD. DTL. 391-1



MAG STD. DTL. 391-2

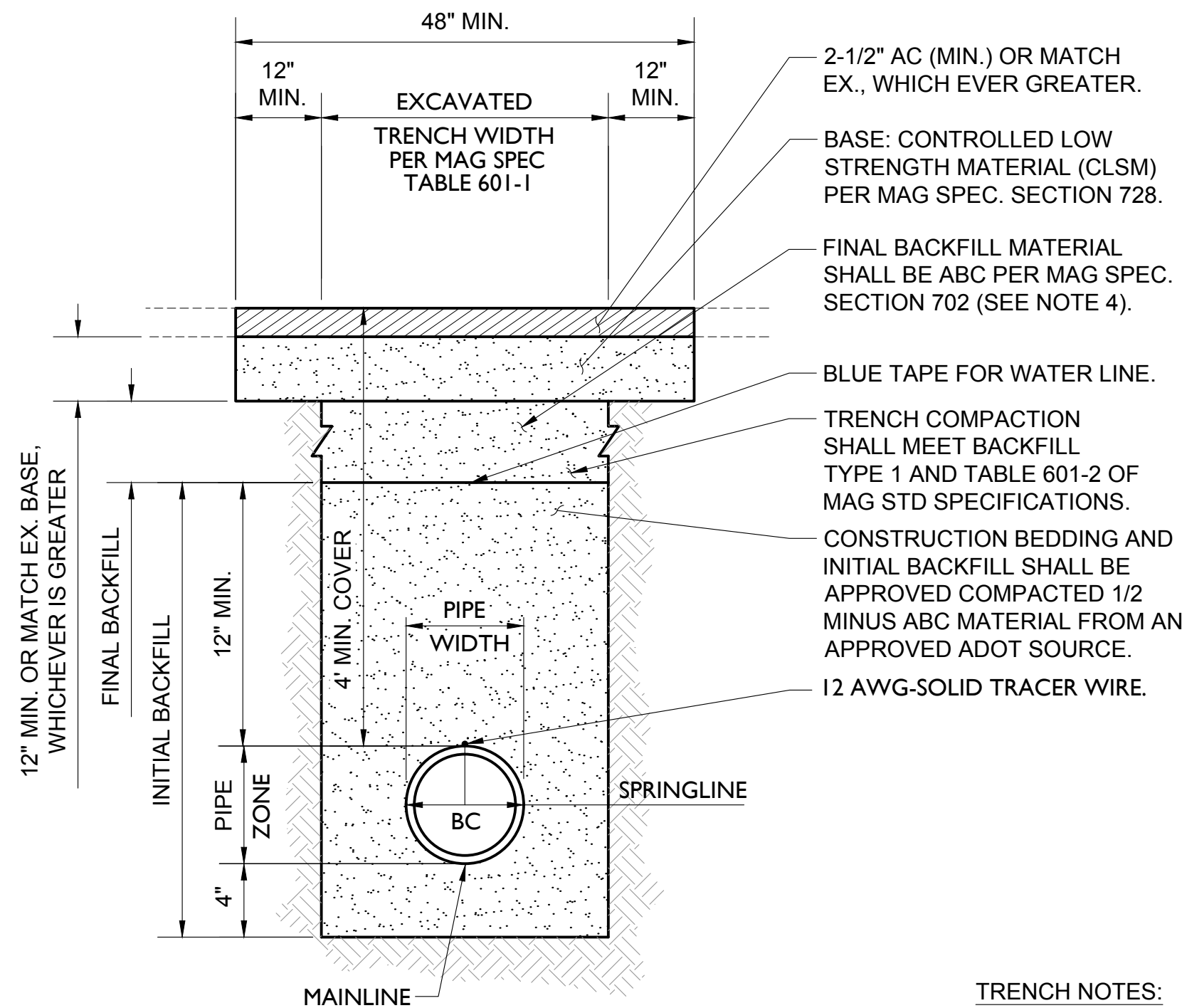


D WATER LINE TRENCH (UNPAVED SECTION) DETAIL (NTS)

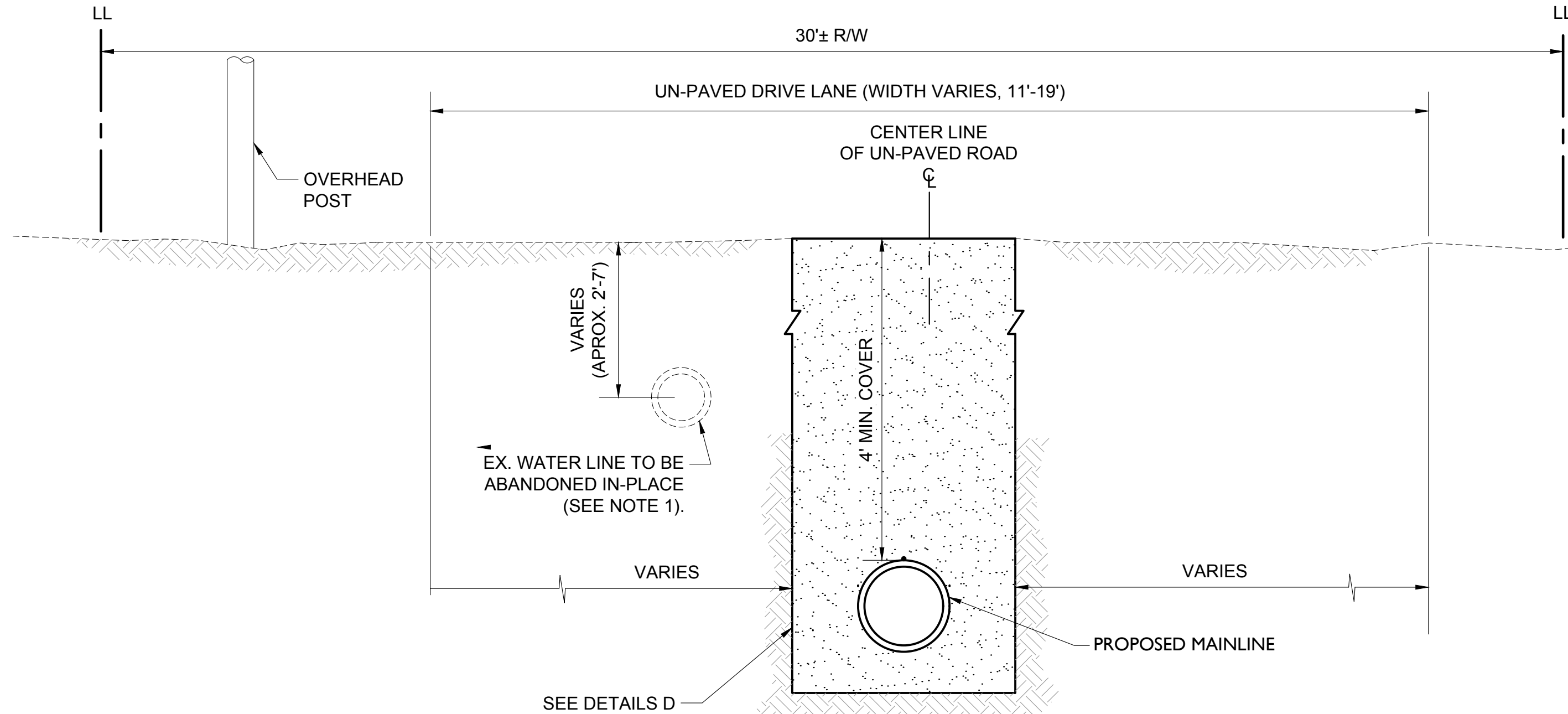


TYPE "B" TRENCH REPAIR

E WATER LINE TRENCH (PAVED SECTION) DETAIL (NTS)

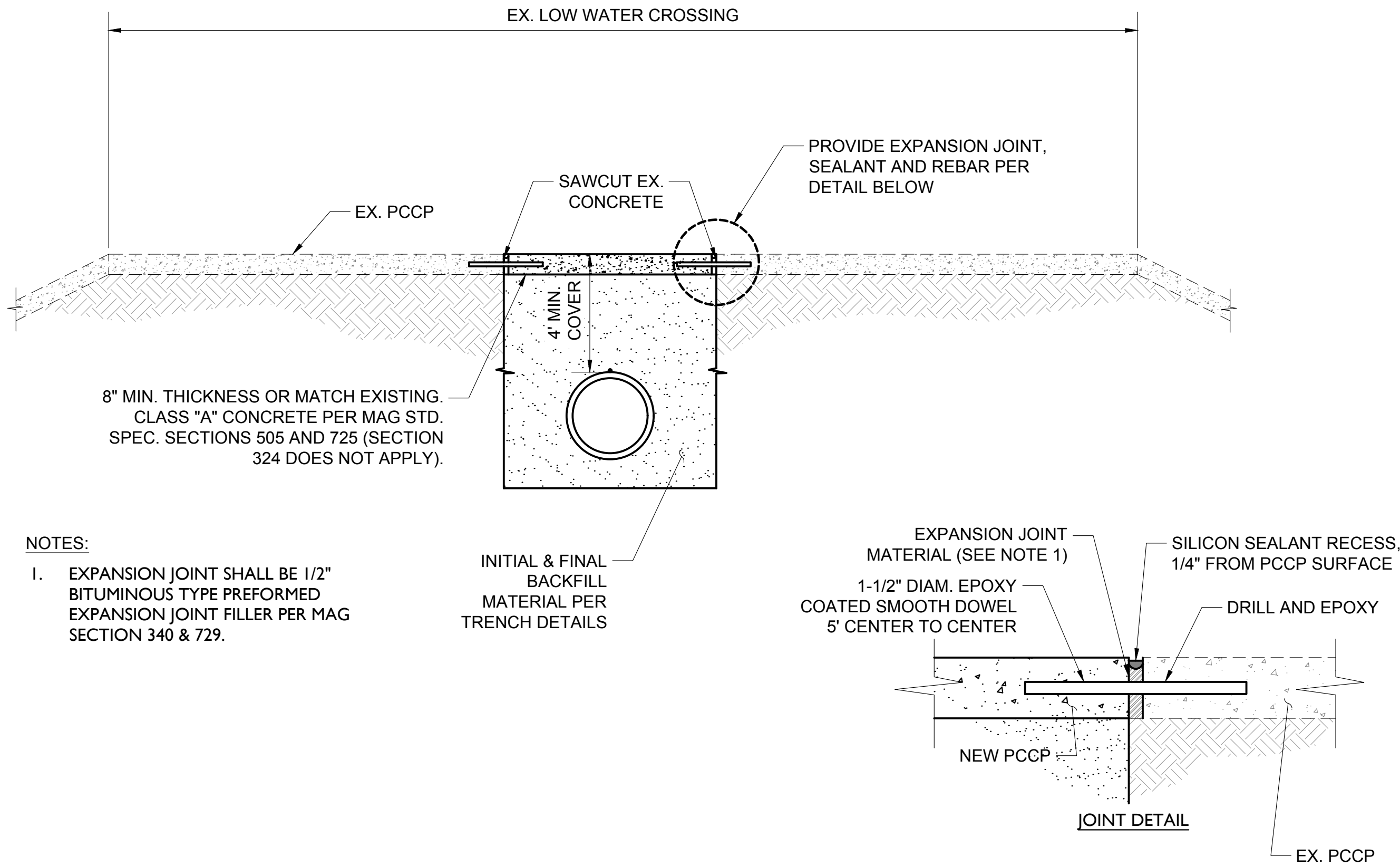


F KNOLLS 2 TYPICAL SECTION SECTION (NTS)

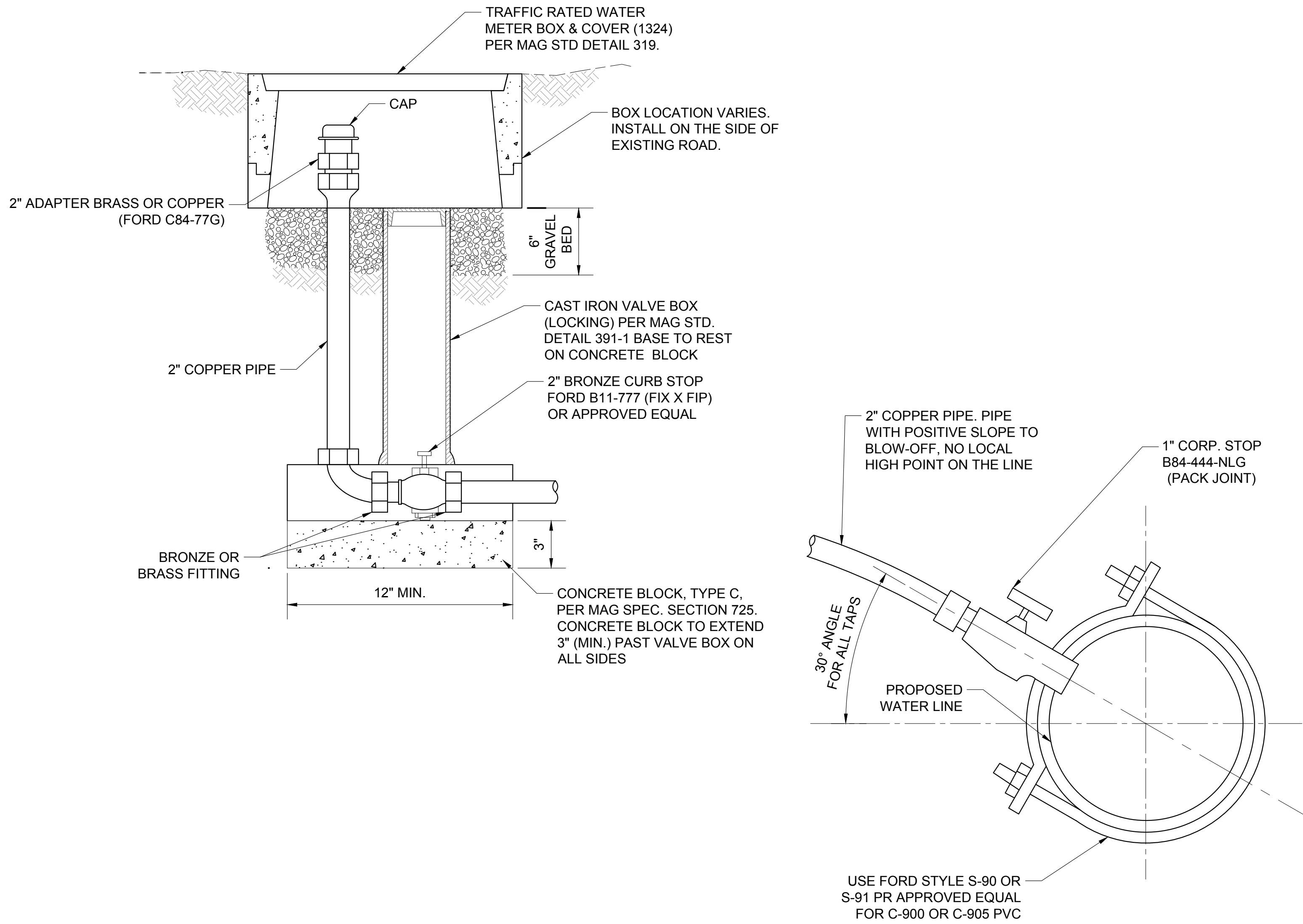


G RANCH 2 TYPICAL SECTION SECTION (NTS)

- TRENCH NOTES:
- NO BARRICADES NECESSARY AFTER TRENCH HAS BEEN BACKFILLED AND IS WAITING FOR PAVEMENT PLACEMENT.
 - PRIOR TO ASPHALT PLACEMENT SAW CUT EDGES IN ASPHALT TO A NEAT STRAIGHT LINE AND TACK COAT. CRACK SEAL ALL PAVING JOINTS (TYP.).
 - BACKFILL TO BE PLACED IN MAXIMUM 8" LIFTS. EACH LIFT TO BE 2 PERCENTAGE POINTS OF OPTIMUM MOISTURE CONTENT AND MECHANICALLY COMPACTED. WATER CONSOLIDATION IS NOT ALLOWED.
 - IF WAITING FOR PAVEMENT REPLACEMENT, FILL AS NECESSARY WITH AGGREGATE TO MAINTAIN LEVEL GRADES WITH SURROUNDING ASPHALT UNTIL ASPHALT REPLACEMENT IS MADE.
 - MINIMUM 4" SHADING REQUIRED UNDER PIPE.
 - USE "T-TOP" PAVEMENT REPLACEMENT WHERE A TRENCH IS NOT PARALLEL TO A STREET OR GOES THROUGH AN INTERSECTION AS SHOWN THE PLANS.



H LOW WATER CROSSING SECTION
SECTION (NTS)



E CURB STOP WITH FLUSHING PIPE
SECTION (NTS)

REVISIONS:	



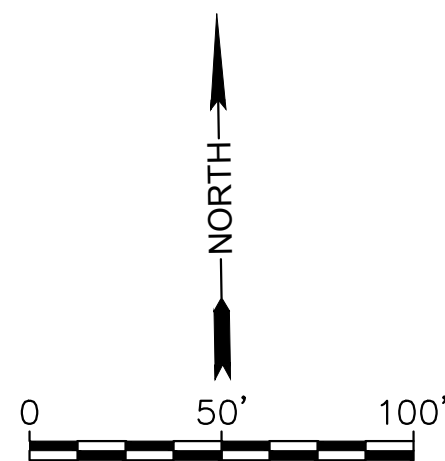
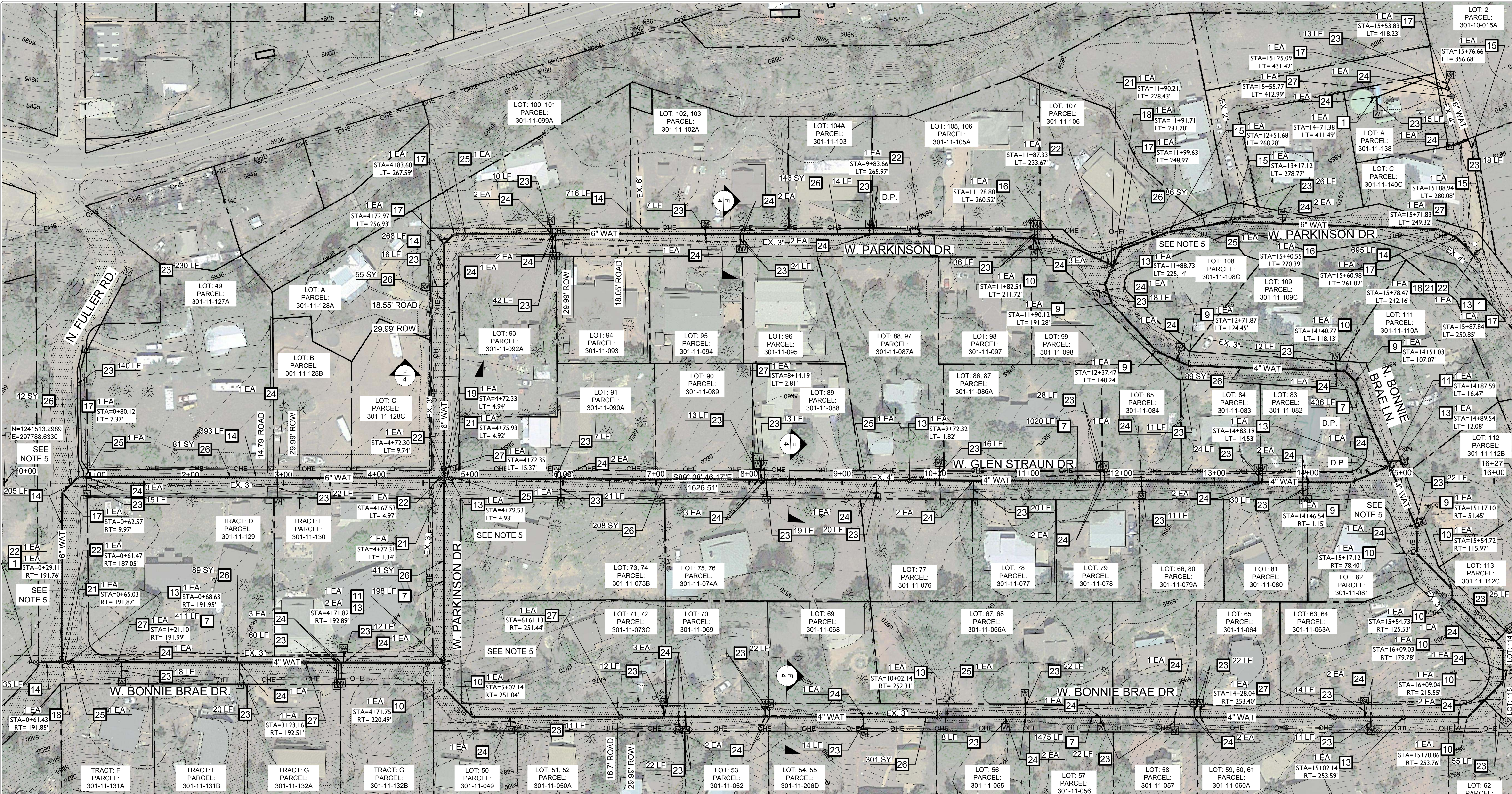
DESIGNER: B.L.S.
DRAWN BY: T.S.L.



JOB NO.
18-056

07-06-2018

SHEET NO.
5
OF 7



CONSTRUCTION NOTES

- CONNECT TO EXISTING WATER LINE. INSTALL ROMAC 501 COUPLING ADAPTOR, SIZE PER PLANS. CONTRACTOR TO VERIFY EXISTING INVERT AND LOCATION (SEE NOTE 1).
- INSTALL 4" PVC C900 DR-18 WATER LINE. BEDDING AND TRENCH BACKFILL PER DETAIL D OR E ON SHEET 4.
- INSTALL 4"-22.5" BEND WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.
- INSTALL 4"-45" BEND WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.
- INSTALL 4" x 4" x 4" TEE WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.
- INSTALL 4" FLANGED GATE VALVE WITH BOX AND COVER PER MAG STD. DTL. 391-1 AND 391-2, TYPE C, OR APPROVED EQUAL, WITH JOINT RESTRAINT PER MODIFIED MAG STD. DTL. 303.
- INSTALL 6" PVC C900 DR-18 WATER LINE. BEDDING AND TRENCH BACKFILL PER DETAIL D OR E ON SHEET 4.
- INSTALL 6"-11.25" BEND WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.
- INSTALL 6"-22.5" BEND WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.
- INSTALL 6"-45" BEND WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.
- INSTALL 6" x 6" x 6" TEE WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.

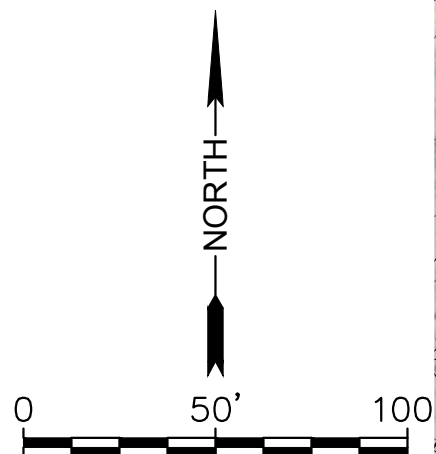
- INSTALL 6" x 6" x 6" CROSS WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.
- INSTALL 6" x 4" REDUCER WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.
- INSTALL 6" FLANGED GATE VALVE WITH BOX AND COVER PER MAG STD. DTL. 391-1 AND 391-2, TYPE C, OR APPROVED EQUAL, WITH JOINT RESTRAINT PER MODIFIED MAG STD. DTL. 303.
- INSTALL 3/4" POLYETHYLENE SERVICE PIPE PER MAG STD. SPECIFICATION 755. CONNECT TO EXISTING METER PER DETAIL B ON SHEET 3.
- INSTALL 3/4" WATER SERVICE PIPE CONNECTION TO NEW LINE WITH BRONZE DOUBLE-STRAP SADDLE, LEAD-FREE BRONZE DUAL CHECK VALVE (BY APOLLO VALVES MODEL DUCLF4N OR APPROVED EQUAL), AND CORP STOP PER DETAIL A ON SHEET 3.
- INSTALL WATER LINE VERTICAL RE-ALIGNMENT PER DETAIL C ON SHEET 3.
- SAWCUT, REMOVE, AND REPLACE EXISTING PAVEMENT PER DETAIL E ON SHEET 4.
- INSTALL CURB STOP WITH FLUSHING PIPE AT HIGH POINT PER DETAIL E ON SHEET 5. EXTEND PIPE AND PLACE BOX ON THE SIDE OF EXISTING THE ROAD.

NOTES:

- LOCATIONS OF EXISTING WATER LINE AND FITTINGS ARE UNKNOWN. LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE; TRUE LOCATIONS WILL VARY. COVER DEPTH OF EXISTING LINES VARIES.
- LOCATIONS OF EXISTING WATER METERS, WATER VALVES, ELECTRICAL UTILITIES, AND TELECOMMUNICATION UTILITIES ARE APPROXIMATE; TRUE LOCATIONS WILL VARY.
- PLUG EXISTING MAIN LINE AT EVERY CUT WHEN CROSSING PROPOSED LINE.
- MAXIMUM BENDING RADIUS PER MANUFACTURERS RECOMMENDATIONS.
- USE T-TOP TRENCH REPAIR AT ALL INTERSECTIONS, AS NOTED IN THE PLANS, INCLUDING 30 FEET PAST IN ALL DIRECTIONS PER DETAIL E ON SHEET 4.
- WATER LINE SHALL BE CONSTRUCTED TO MAINTAIN A POSITIVE OR NEGATIVE SLOPE WITHOUT ANY LOCAL HIGH POINT, UNLESS OTHERWISE NOTED ON THE PLANS.

NOTES:

1. LOCATION OF EXISTING WATER LINE AND FITTINGS ARE UNKNOWN. LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE. TRUE LOCATION WILL VARY. COVER DEPTH OF EXISTING LINES VARIES.
2. PLUG EXISTING MAIN LINE AT EVERY CUT WHEN CROSSING PROPOSED LINE.
3. MAXIMUM BENDING RADIUS PER MANUFACTURERS RECOMMENDATIONS.
4. WATER LINE SHALL BE CONSTRUCTED TO MAINTAIN A POSITIVE OR NEGATIVE SLOPE WITHOUT ANY LOCAL HIGH POINT UNLESS OTHERWISE NOTED ON THE PLANS.



CONSTRUCTION NOTES

- 1 CONNECT TO EXISTING WATER LINE. INSTALL ROMAC 501 COUPLING ADAPTOR, SIZE PER PLANS. CONTRACTOR TO VERIFY EXISTING INVERT AND LOCATION (SEE NOTE 1).
- 5 INSTALL 4" BLIND FLANGE WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.
- 7 INSTALL 4" PVC C900 DR-18 WATER LINE. BEDDING AND TRENCH BACKFILL PER DETAIL D OR E ON SHEET 4.
- 8 INSTALL 4"-11.25" BEND WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.
- 9 INSTALL 4"-22.5" BEND WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.
- 10 INSTALL 4"-45" BEND WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.
- 11 INSTALL 4" X 4" X 4" TEE WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.
- 13 INSTALL 4" FLANGED GATE VALVE WITH BOX AND COVER PER MAG STD. DTL. 391-1 AND 391-2, TYPE C, OR APPROVED EQUAL, WITH JOINT RESTRAINT PER MODIFIED MAG STD. DTL. 303.
- 14 INSTALL 6" PVC C900 DR-18 WATER LINE. BEDDING AND TRENCH BACKFILL PER DETAIL D OR E ON SHEET 4.
- 15 INSTALL 6"-11.25" BEND WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.
- 16 INSTALL 6"-22.5" BEND WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.
- 17 INSTALL 6"-45" BEND WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.
- 18 INSTALL 6" X 6" X 6" TEE WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.
- 19 INSTALL 6" X 6" X 6" CROSS WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.
- 21 INSTALL 6" X 4" REDUCER WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.
- 22 INSTALL 6" FLANGED GATE VALVE WITH BOX AND COVER PER MAG STD. DTL. 391-1 AND 391-2, TYPE C, OR APPROVED EQUAL, WITH JOINT RESTRAINT PER MODIFIED MAG STD. DTL. 303.
- 23 INSTALL 3/4" POLYETHYLENE SERVICE PIPE PER MAG STD. SPECIFICATION 755. CONNECT TO EXISTING METER PER DETAIL B ON SHEET 3.
- 24 INSTALL 3/4" WATER SERVICE PIPE CONNECTION TO NEW LINE WITH BRONZE DOUBLE-STRAP SADDLE, LEAD-FREE BRONZE DUAL CHECK VALVE (BY APOLLO VALVES MODEL DUCLF4N OR APPROVED EQUAL), AND CORP STOP PER DETAIL A ON SHEET 3.
- 27 INSTALL CURB STOP WITH FLUSHING PIPE AT HIGH POINT PER DETAIL E ON SHEET 5. EXTEND PIPE AND PLACE BOX ON THE SIDE OF EXISTING THE ROAD.
- 28 INSTALL WATER LINE UNDER LOW-WATER CROSSING. TRENCHING, BACK FILL, REINFORCEMENT PER DETAIL H ON SHT 5.
- 29 INSTALL 6" BLIND FLANGE WITH JOINT RESTRAINT (MEGALUGS OR APPROVED EQUAL), PER MODIFIED MAG STD. DTL. 303.

