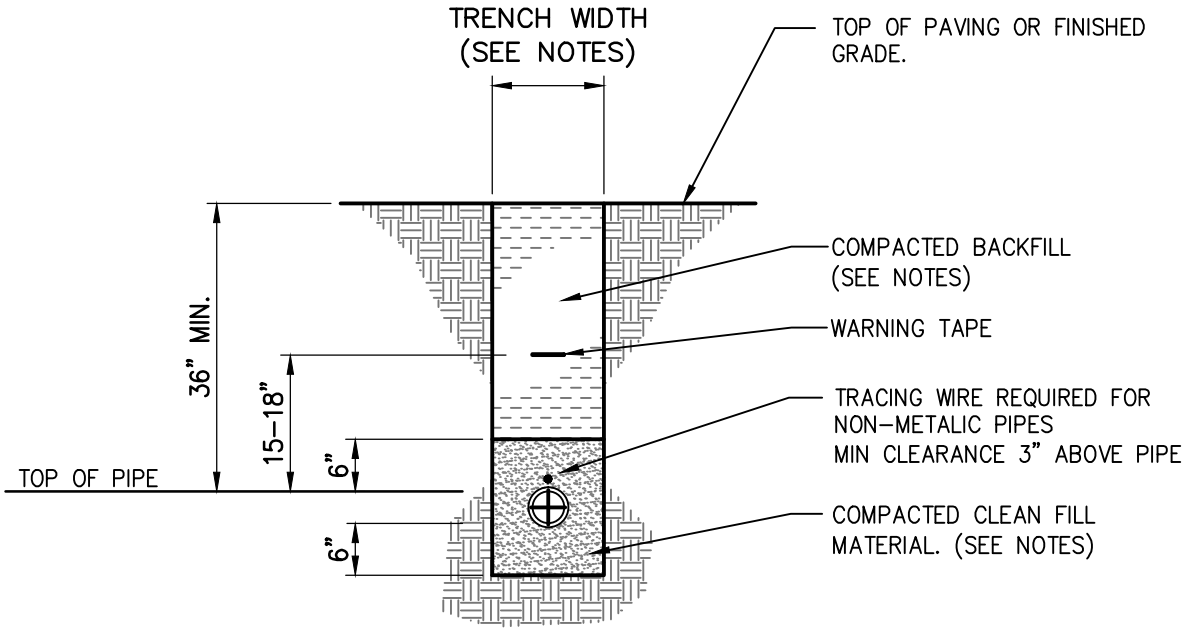


TYPICAL TRENCH

TRENCH WIDTH SPECIFICATION:

A) THREE PIPE DIAMETERS OR 12 INCHES, WHICHEVER IS GREATER FOR TRENCHES REQUIRING COMPACTION TESTS.

B) THREE PIPE DIAMETERS FOR OTHER TRENCHES.

C) TRENCH WIDTHS AND CROSS SECTIONS SHALL BE COMPLIANT TO ALL APPLICABLE SAFETY STANDARDS AND REGULATIONS.

D) TRENCH DETAIL IS APPLICABLE TO POLY PIPE INSTALLATION.

E) TRENCH WIDTH FOR STEEL PIPE SHALL BE DESIGNED ON A PER CASE BASIS.

GENERAL NOTES:

1. COMPACTION TO BE 95% PER AASHTO T-180 (ASTM D1557) UNLESS OTHERWISE NOTED IN SPECIFICATIONS OR ON DRAWINGS.
2. CLEAN FILL SHALL BE FREE OF ANGULAR ROCKS OR HARD PARTICLES LARGER THAN 1/2 INCH.
3. ON POLY LINES, CLEAN FILL MAY BE UP TO 1-1/2 INCHES IF IT IS ROUNDED AND SMOOTH.
4. TRACING WIRE SHALL BE 12 GA SOLID. CONTINUITY TEST IS REQUIRED.
5. TRACING WIRE FOR GAS LINE TO BE 3" MIN CLEARANCE ABOVE PIPE ON CENTER.
6. TRACING WIRE TO BE ACCESSIBLE WITHIN VALVE BOX, SERVICE POINT OR WITHIN AN INSTALLED TWO POINT BOX, AT 500' MAXIMUM ON CENTER.

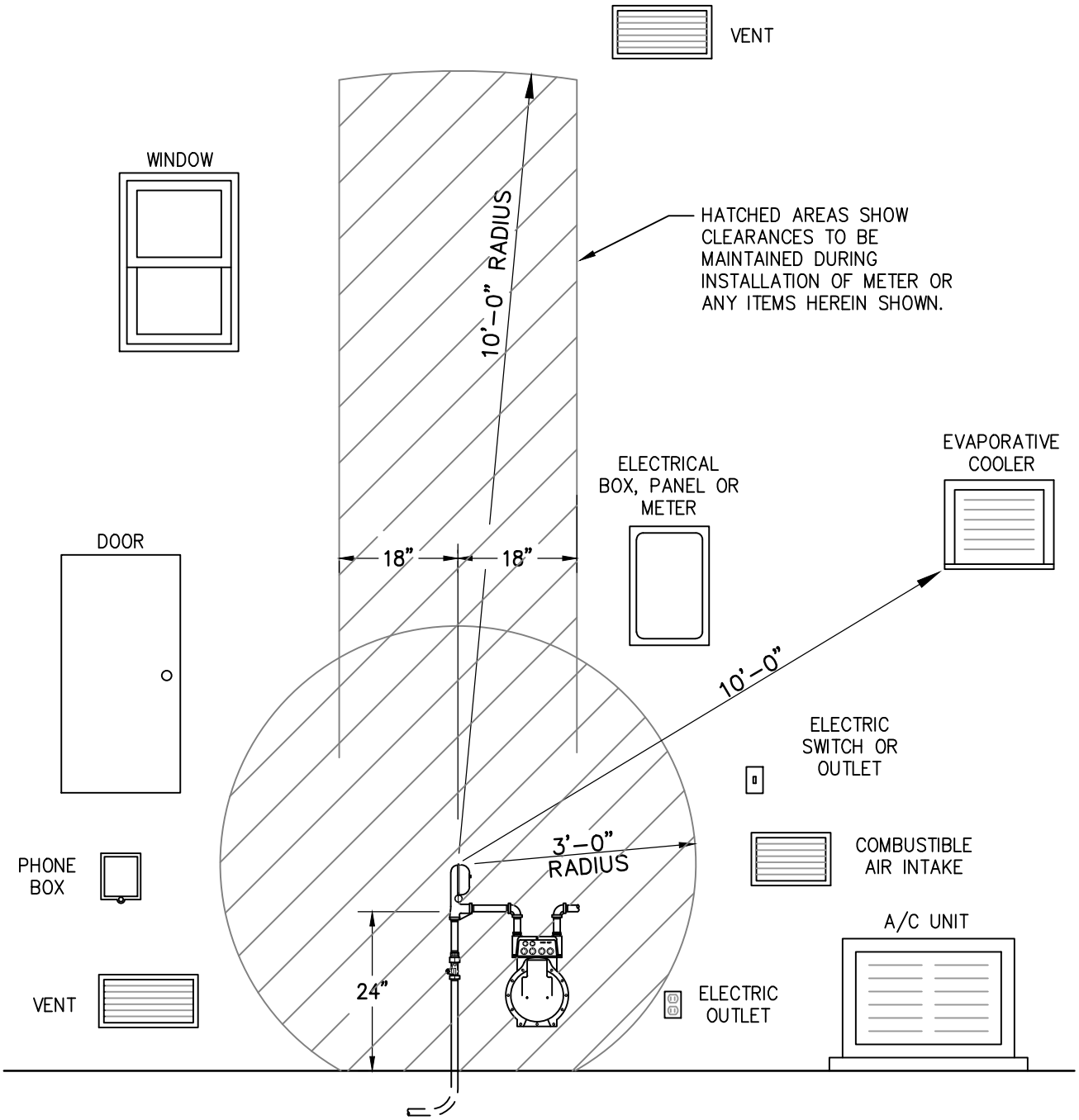
REVISION	DESCRIPTION	BY	DATE

GAS LINE TRENCHING DETAILS

APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'-0"	
	FILE: DIR\UT-G1	PLOT SIZE: 8.5 x 11	

New Mexico State University

UT-G1



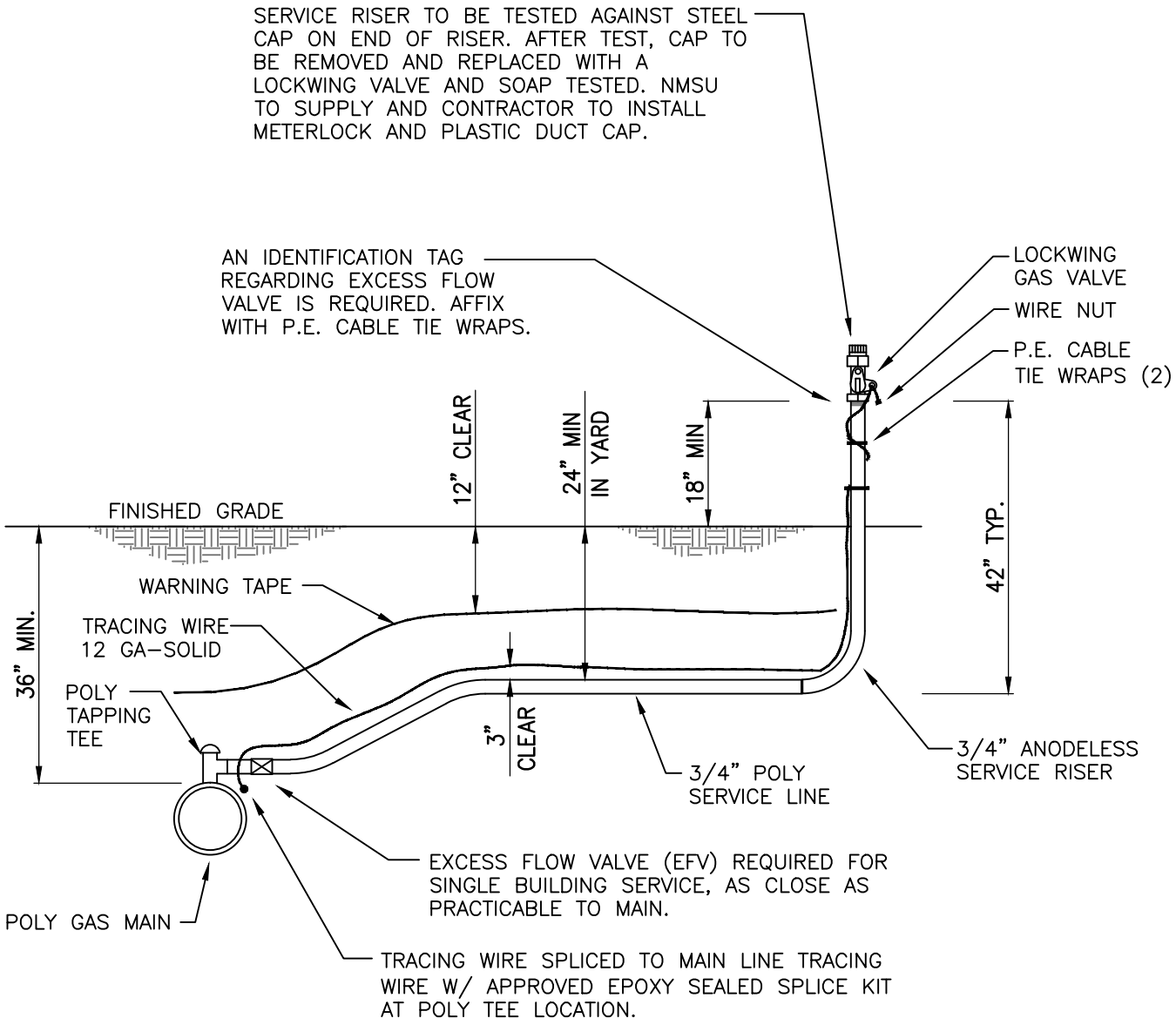
GENERAL NOTES:

1. SERVICE LINE NOT ALLOWED UNDER CONCRETE UNLESS PROPERLY VENTED. REFERENCE UT-G4 AND UT-G5.
2. CLEARANCE DIMENSIONS SHOWN ARE TO BE MINIMUM.
3. METERS INSTALLED BY NMSU OR APPROVED CONTRACTOR.
4. GAS METER LOCATIONS SHALL BE APPROVED BY NMSU ENGINEERING PRIOR TO INSTALLATION.
5. NO AIR INTAKES, SOURCES OF VENTILATION OR SOURCES OF IGNITION SHALL BE LOCATED WITHIN DESIGNATED CLEARANCES AT ANY TIME.

REVISION	DESCRIPTION	BY	DATE

GAS METER CLEARANCES

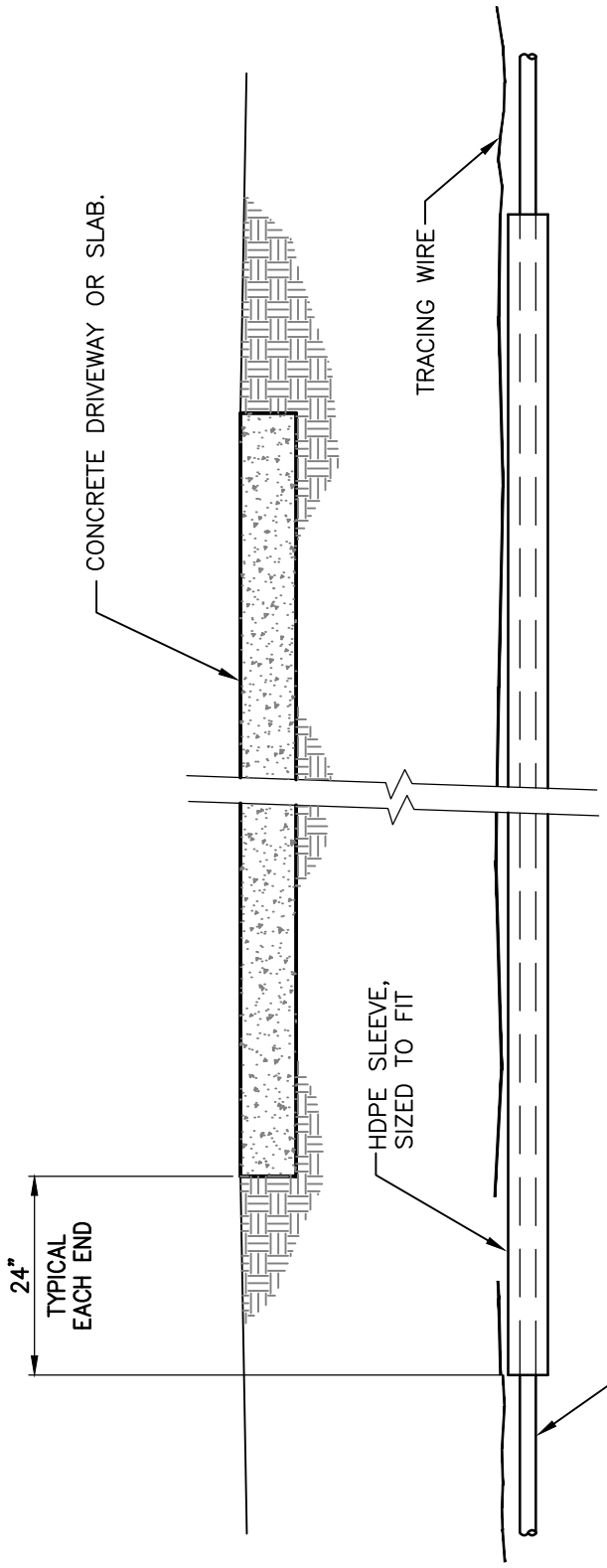
APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'-0"	New Mexico State University
	FILE: DIR\UT-G2	PLOT SIZE: 8.5 x 11	UT-G2



GENERAL NOTES:

1. CONTINUITY TEST REQUIRED ON TRACING WIRE.

				GAS SERVICE LINE DETAIL	
REVISION	DESCRIPTION		BY	DATE	
APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2'=1'-0"		New Mexico State University	UT–G3
	FILE: DIR\UT–G3	PLOT SIZE: 8.5 x 11			



CROSS SECTION

GENERAL NOTES:

1. TYPICAL FOR ALL CONCRETE INSTALLATION WHERE CONCRETE ABUTTS A CLOSED STRUCTURE.
2. NO GAS FITTING ALLOWED UNDER CONCRETE.

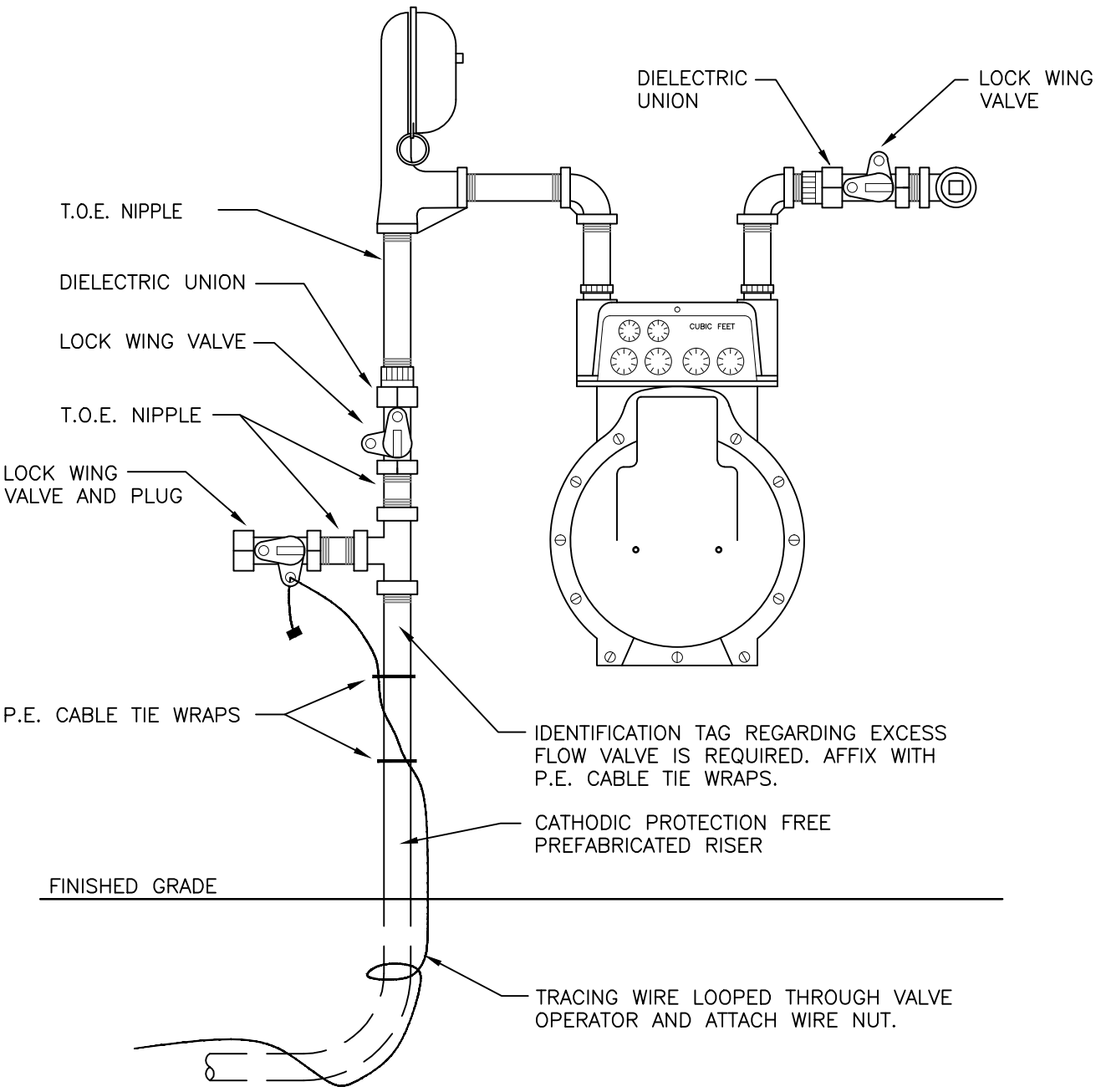
REVISION	DESCRIPTION	BY	DATE

APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1'=1'-0"	
	FILE: DIR\UT-G4	PLOT SIZE: 8.5 x 11	

GAS SERVICE LINE
UNDER CONCRETE INSTALLATION

New Mexico State University

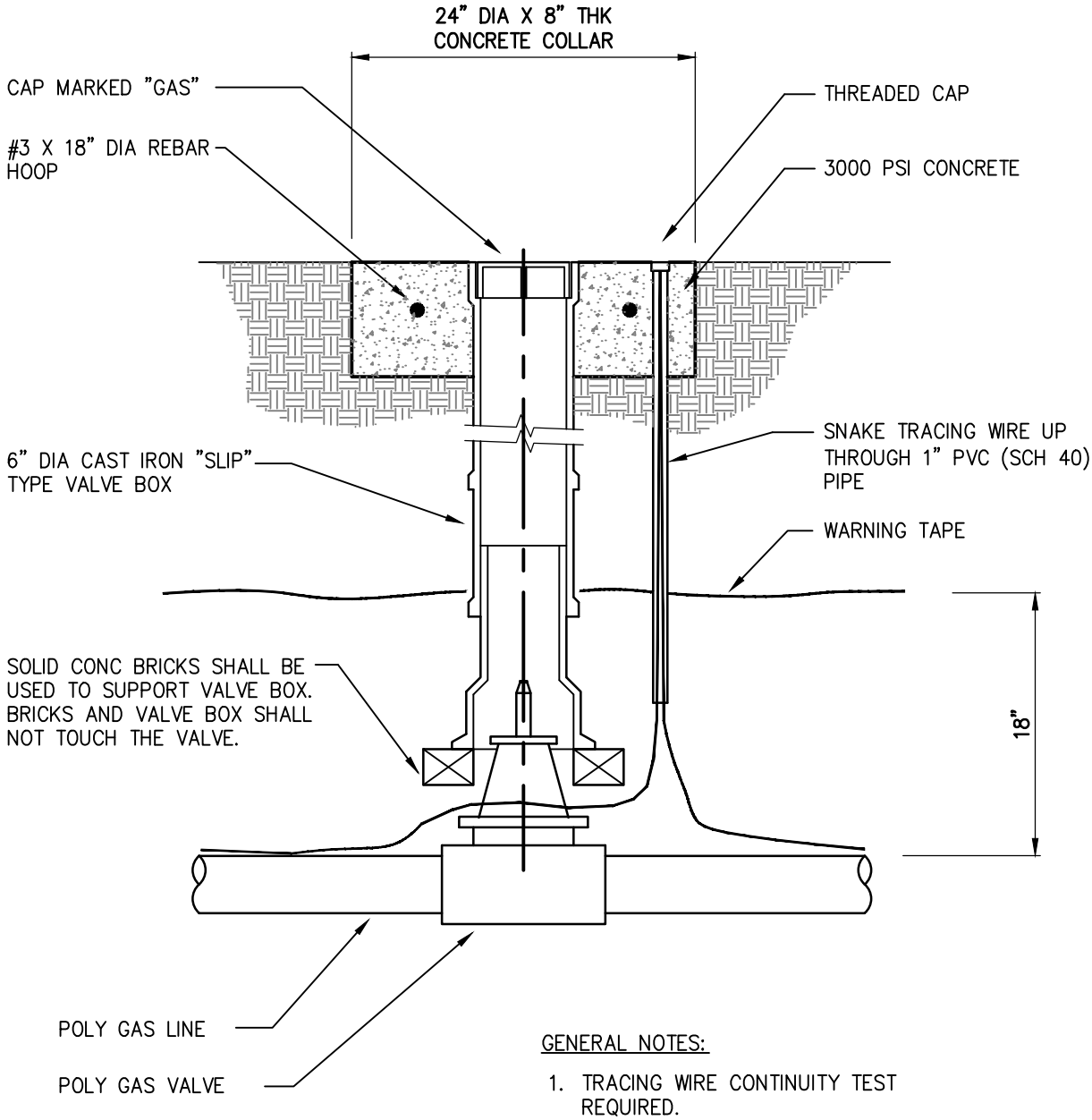
UT-G4



GENERAL NOTES:

1. TRACING WIRE CONTINUITY TEST REQUIRED.

				BYPASS FOR GAS SERVICE 1-1/4" OR LARGER	
REVISION	DESCRIPTION		BY	DATE	
APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 2"=1'-0"	New Mexico State University	UT-G5	
	FILE: DIR\UT-G5	PLOT SIZE: 8.5 x 11			



GENERAL NOTES:

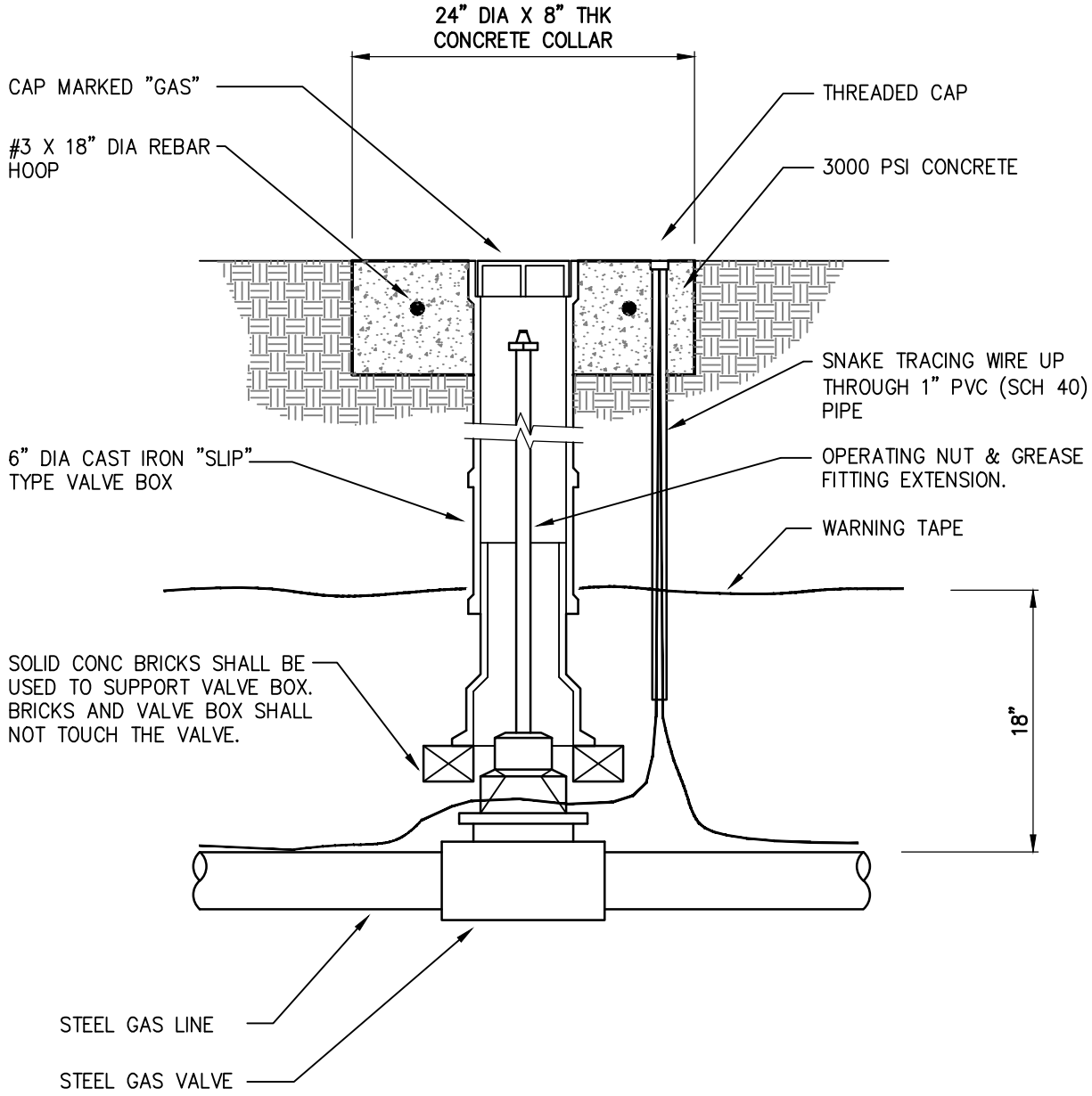
1. TRACING WIRE CONTINUITY TEST REQUIRED.
2. TRACING WIRE 3" MIN CLEARANCE ABOVE PIPE ON CENTER.

REVISION	DESCRIPTION	BY	DATE
APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1'=1'-0"	
	FILE: DIR\UT-G6	PLOT SIZE: 8.5 x 11	

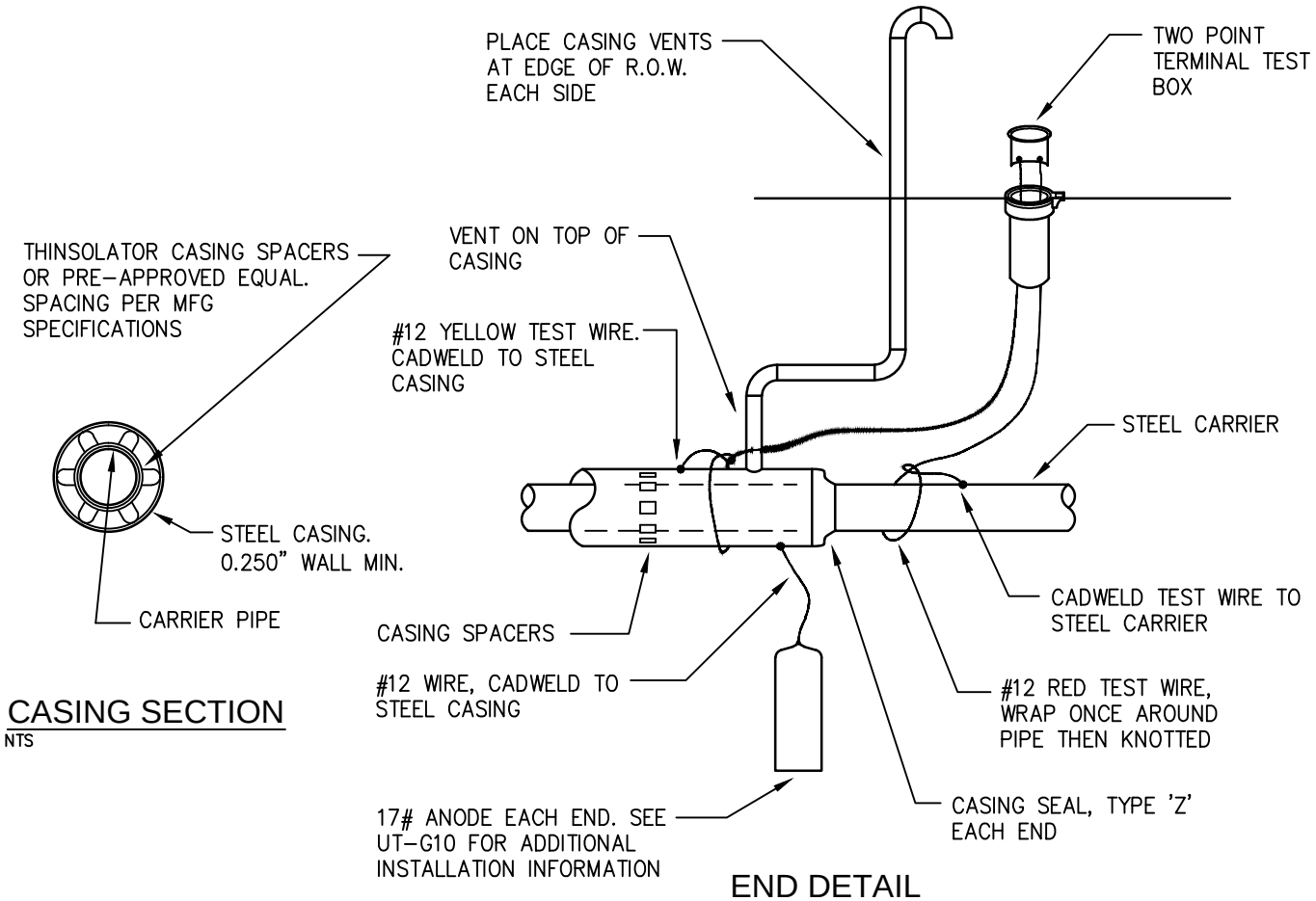
POLY GAS VALVE DETAIL

New Mexico State University

UT-G6

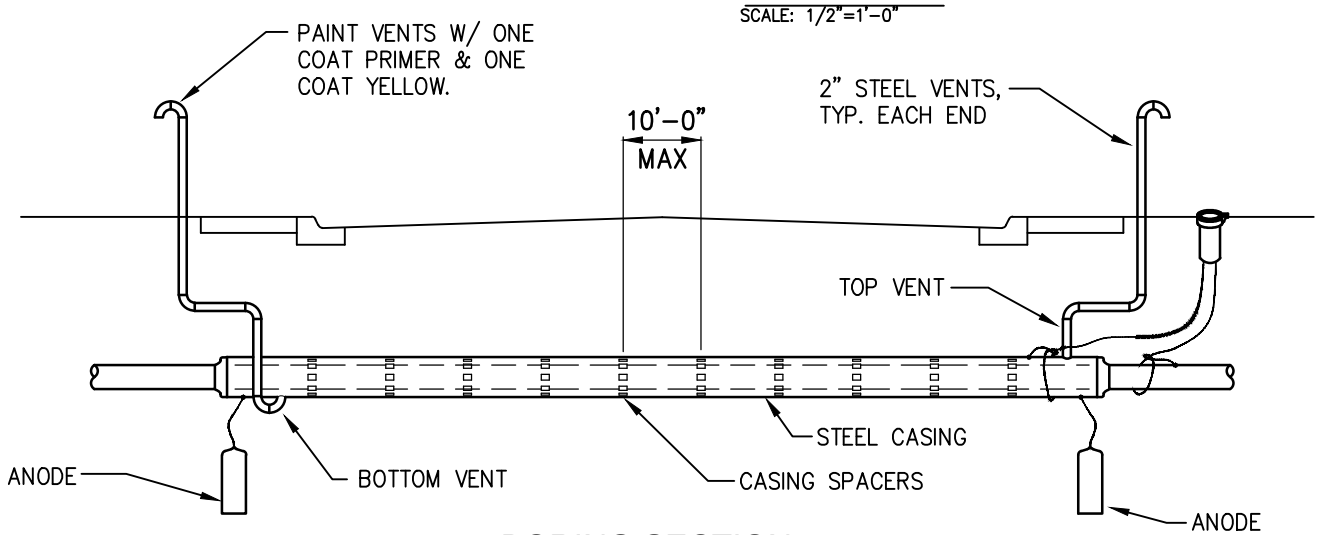


				STEEL GAS VALVE DETAIL	
REVISION	DESCRIPTION		BY	DATE	
APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1'=1'-0"		New Mexico State University	UT-G7
	FILE: DIR\UT-G7	PLOT SIZE: 8.5 x 11			



CASING SECTION
NTS

END DETAIL
SCALE: 1/2"=1'-0"



BORING SECTION
NTS

GENERAL NOTES:

1. CASING SIZE TO BE SPECIFIED BY DESIGN ENGINEER.
2. FOR STEEL CARRIER PIPE, SEE SPECIFICATIONS FOR REQUIRED TESTING PRIOR TO CONNECTION.
3. TRACING WIRE IS PLACE THROUGH CASING WHEN CARRIER PIPE IS POLY.
4. NO TEST WIRE IS REQUIRED WHEN CARRIER PIPE IS POLY.

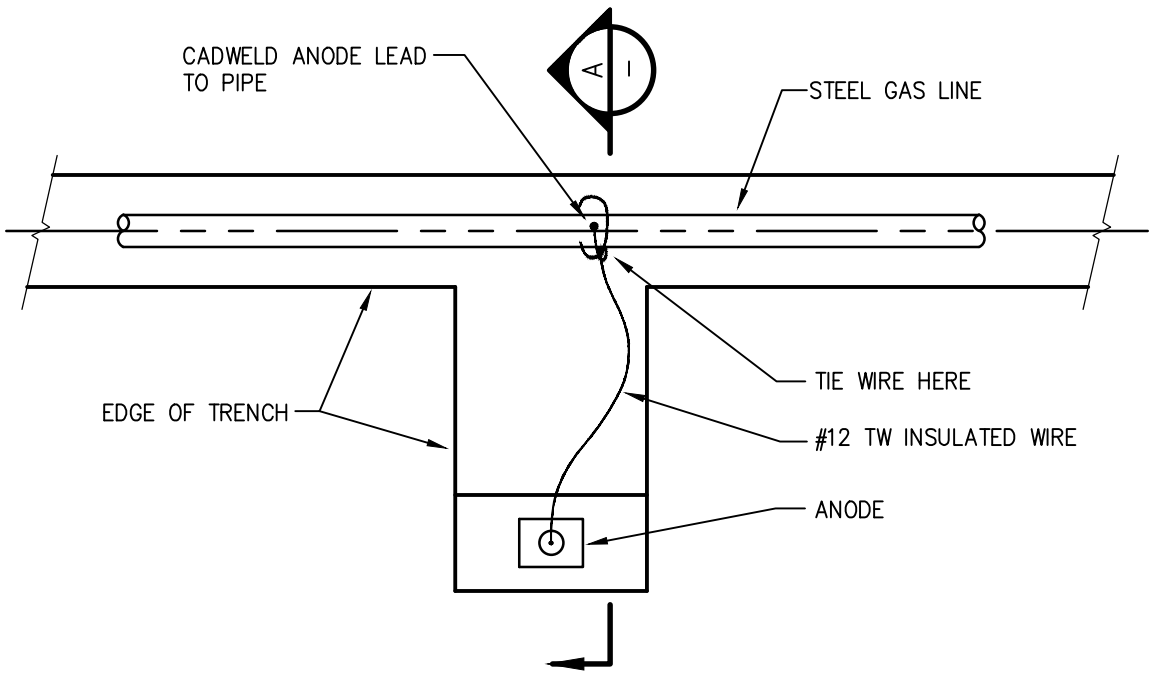
REVISION	DESCRIPTION	BY	DATE

STANDARD GAS BORE SLEEVE DETAILS

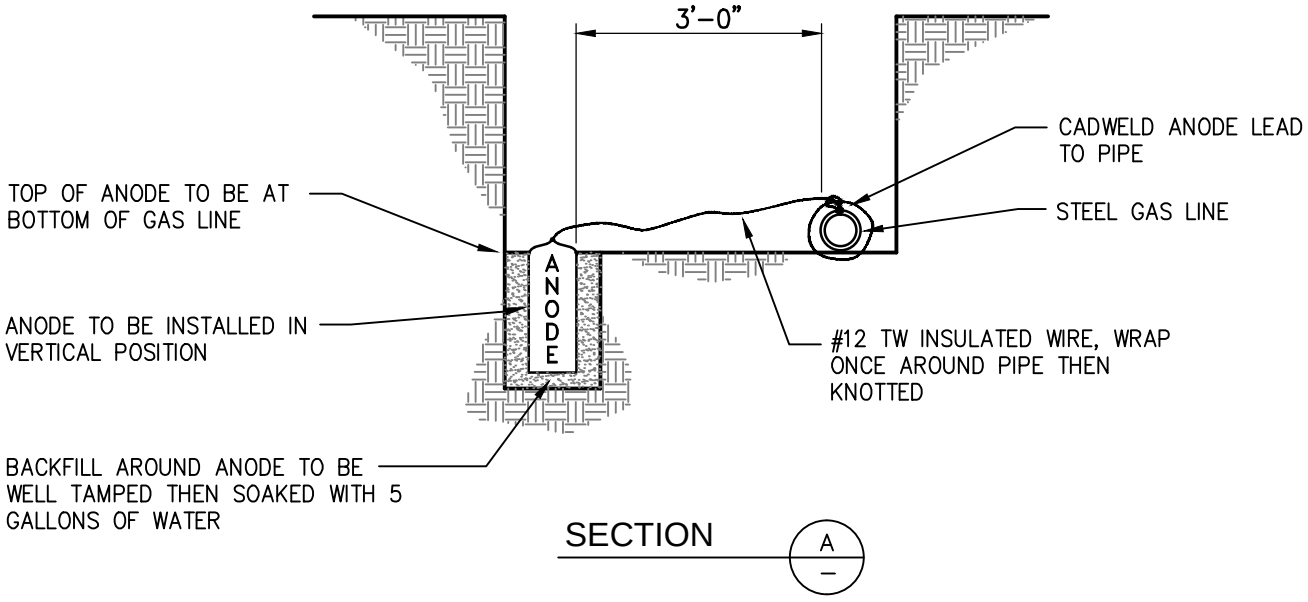
APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'-0"	
	FILE: DIR\UT-G8	PLOT SIZE: 8.5 x 11	

New Mexico State University

UT-G8



PLAN VIEW



SECTION A/–

GENERAL NOTES:

1. ANODES TO BE SIZED AND SPACING APPROVED BY NMSU ENGINEERING.
2. TRENCH WIDTHS AND CROSS SECTIONS TO BE COMPLIANT TO ALL APPLICABLE STANDARDS AND REGULATIONS.

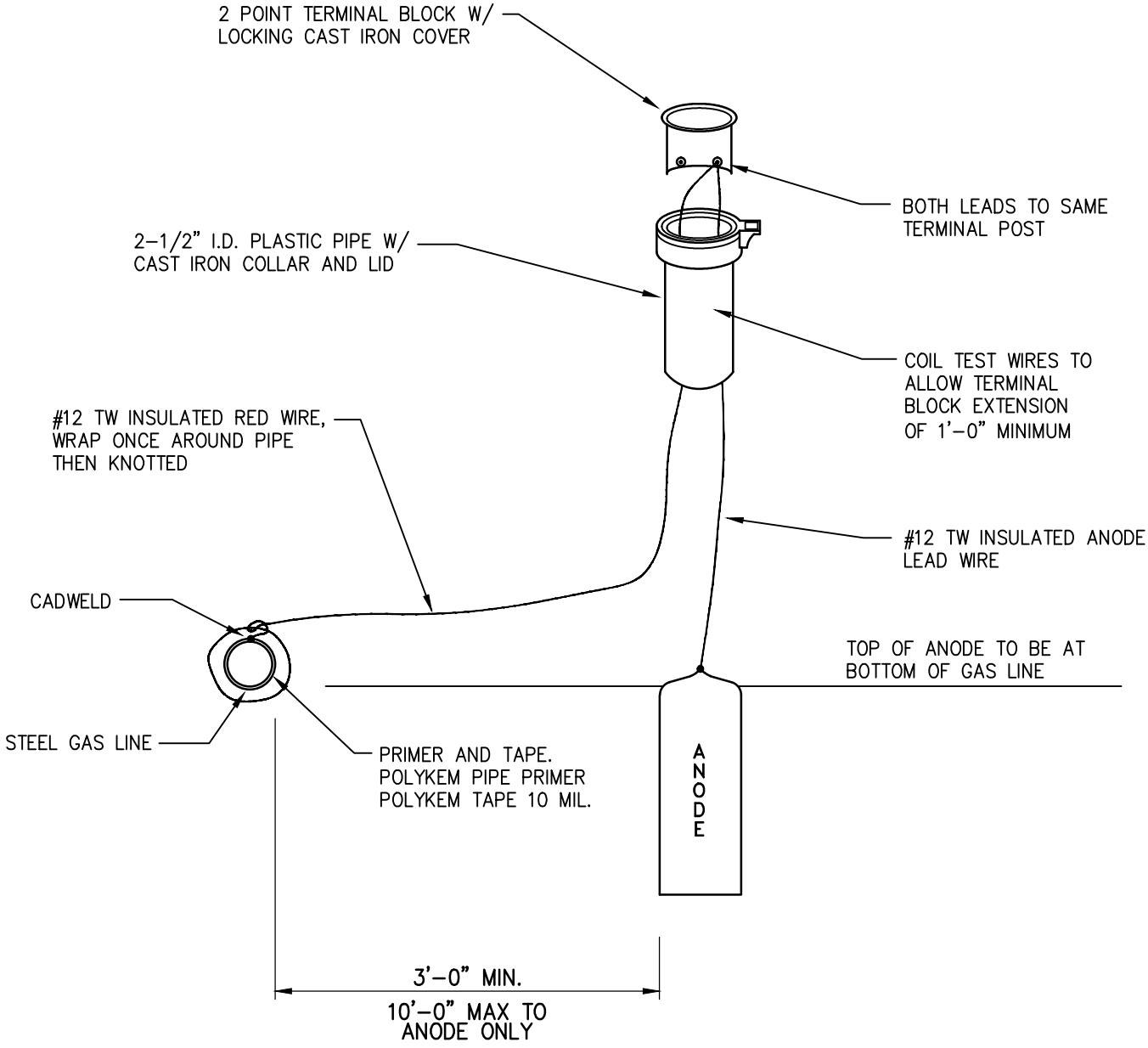
REVISION	DESCRIPTION	BY	DATE

TYPICAL ANODE INSTALLATION

APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'-0"
	FILE: DIR\UT-G9	PLOT SIZE: 8.5 x 11

New Mexico State University

UT-G9



GENERAL NOTES:

1. TEST STATION SPACING AND LOCATIONS TO BE DETERMINED BY NMSU ENGINEERING.
2. NO TRACING WIRE IS TO BE INSERTED INTO ANODE TEST BOXES.

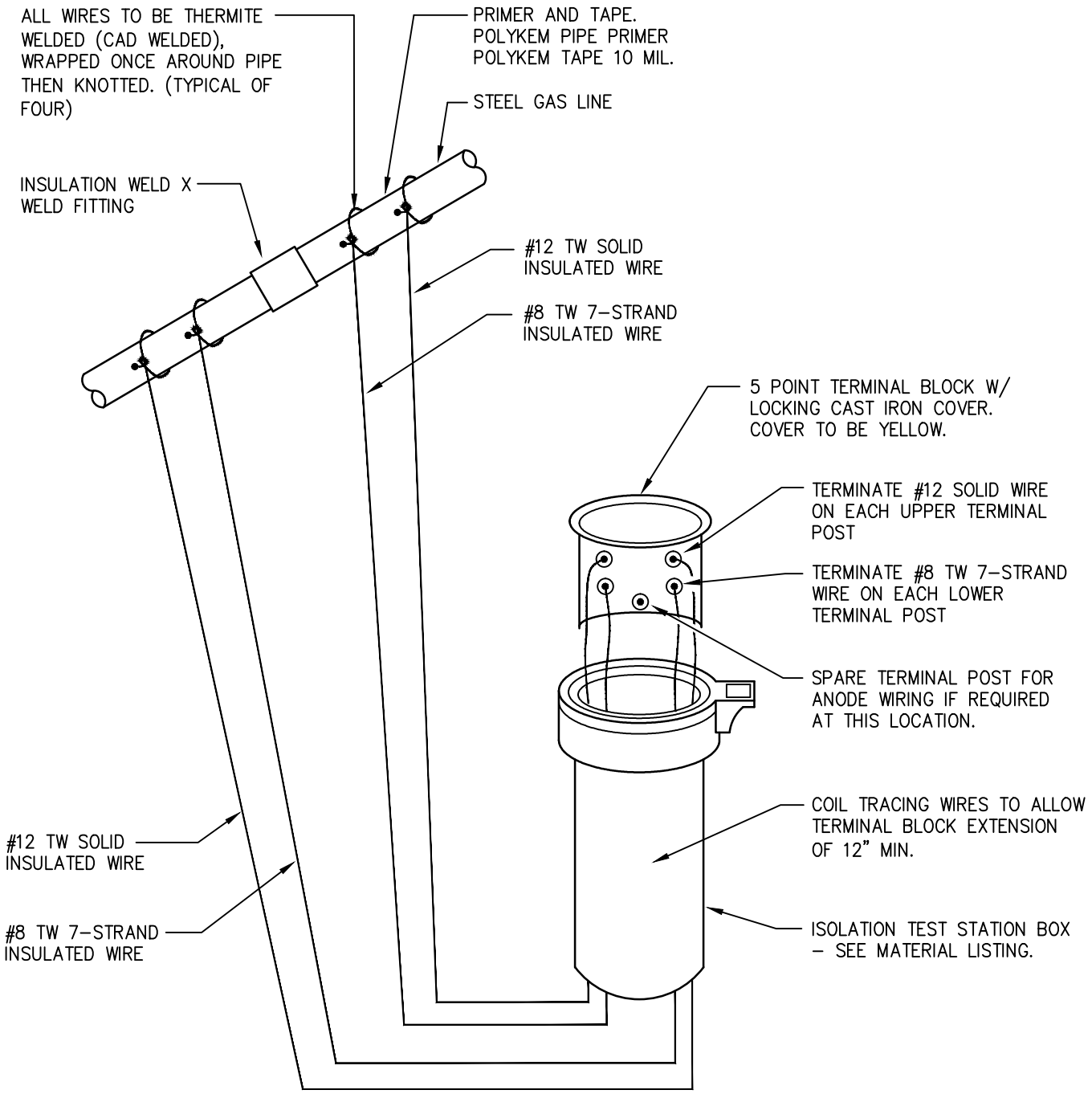
REVISION	DESCRIPTION	BY	DATE

APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'-0"	
	FILE: DIR\UT-G10	PLOT SIZE: 8.5 x 11	

ANODE TEST STATION

New Mexico State University

UT-G10



GENERAL NOTES:

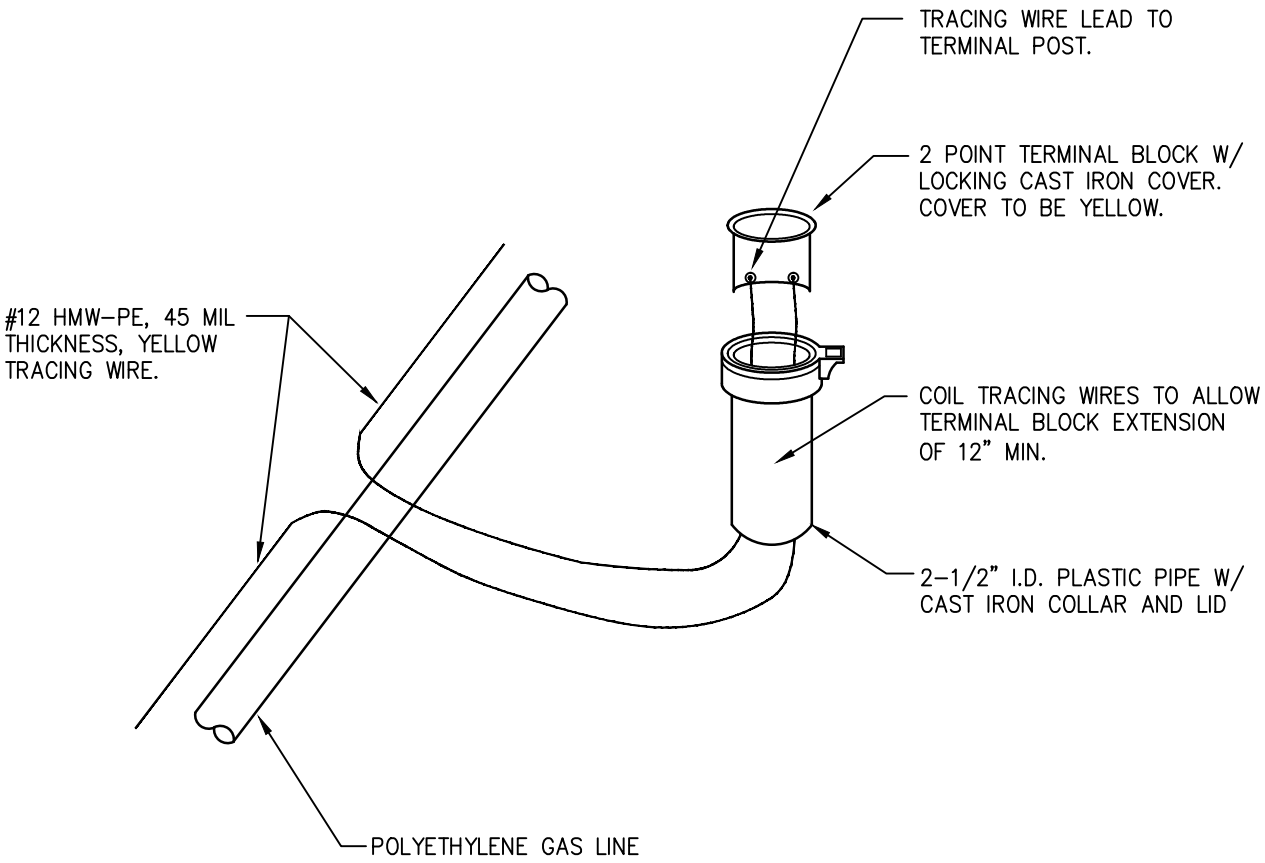
1. SPACING AND LOCATION OF TEST BOXES TO BE DETERMINED BY NMSU ENGINEERING.
2. TEST BOX LOCATION MAY VARY AND CAN BE LOCATED UP TO 50 FT. FROM GAS LINE.
3. NO SPLICES ALLOWED IN ISOLATION TEST STATION WIRING.

REVISION	DESCRIPTION	BY	DATE
APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'-0"	
	FILE: DIR\UT-G11	PLOT SIZE: 8.5 x 11	

ISOLATION TEST STATION

New Mexico State University

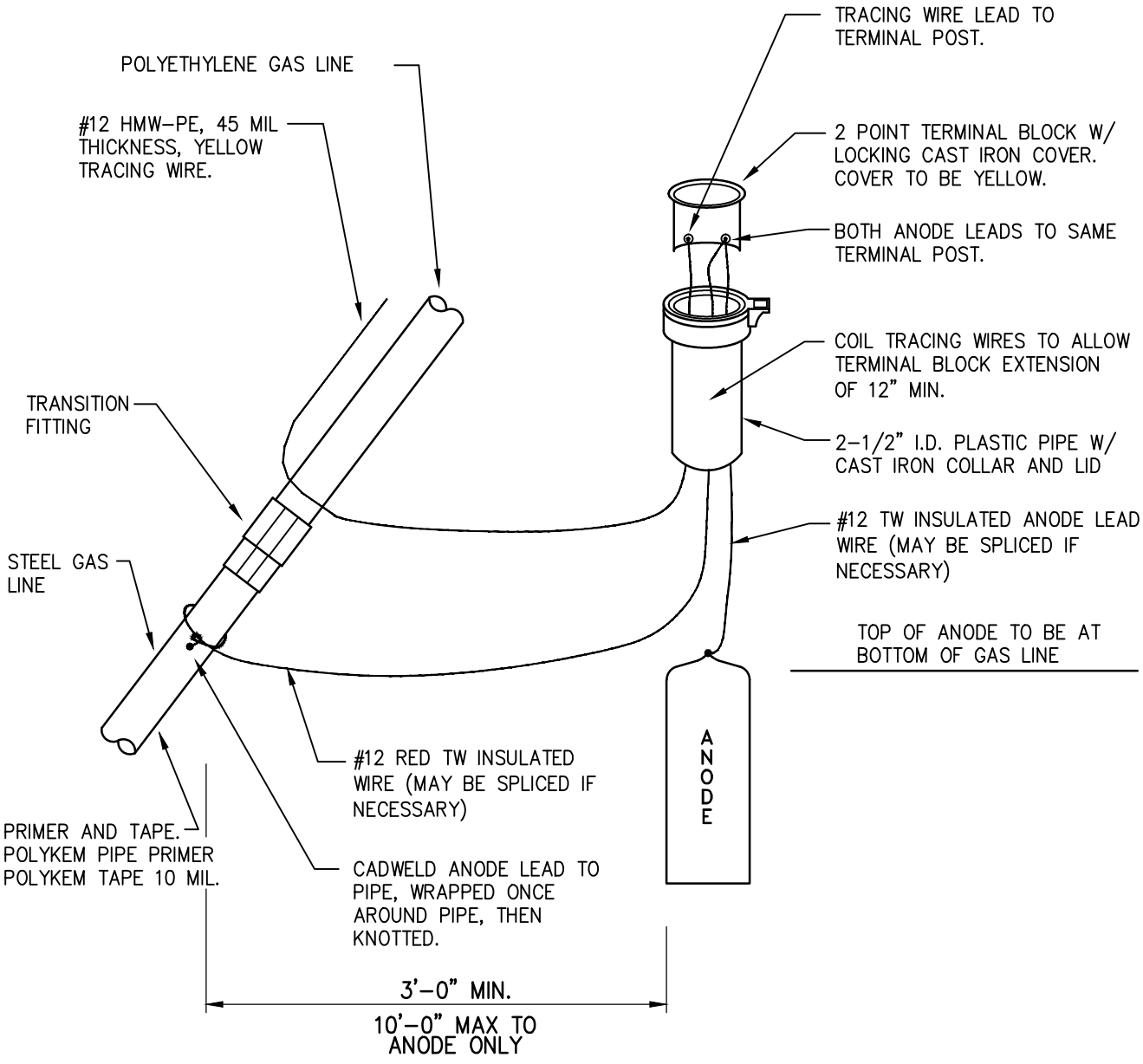
UT-G11



GENERAL NOTES:

1. TRACING WIRE FOR POLYETHYLENE GAS LINES TO 3" MIN CLEARANCE ABOVE PIPE ON CENTER.
2. SPACING AND LOCATION OF TEST BOXES TO BE DETERMINED BY NMSU ENGINEERING.
3. TEST BOX LOCATION MAY VARY AND CAN BE LOCATED UP TO 50 FT. FROM GAS LINE.
4. REFER TO GUIDELINES AND MATERIALS LISTS FOR MATERIALS.

				TRACING WIRE TEST BOX	
REVISION	DESCRIPTION		BY	DATE	
APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'-0"	New Mexico State University	UT-G12	
	FILE: DIR\UT-G12	PLOT SIZE: 8.5 x 11			



GENERAL NOTES:

1. SPACING AND LOCATION OF ANODES AND TEST BOXES TO BE DETERMINED BY NMSU ENGINEERING.
2. ANODES TO BE INSTALLED VERTICALLY.
3. TEST BOX LOCATION MAY VARY AND CAN BE LOCATED UP TO 50 FT. FROM GAS LINE.
4. ANODE LEAD WIRE TO TEST BOX AND TO CADWELD MAY BE SPLICED IF NECESSARY. SPLICE KITS WILL BE USED PER MATERIALS LIST.
5. TRACING WIRE FOR POLYETHYLENE GAS LINES TO 3" MIN CLEARANCE ABOVE PIPE ON CENTER.

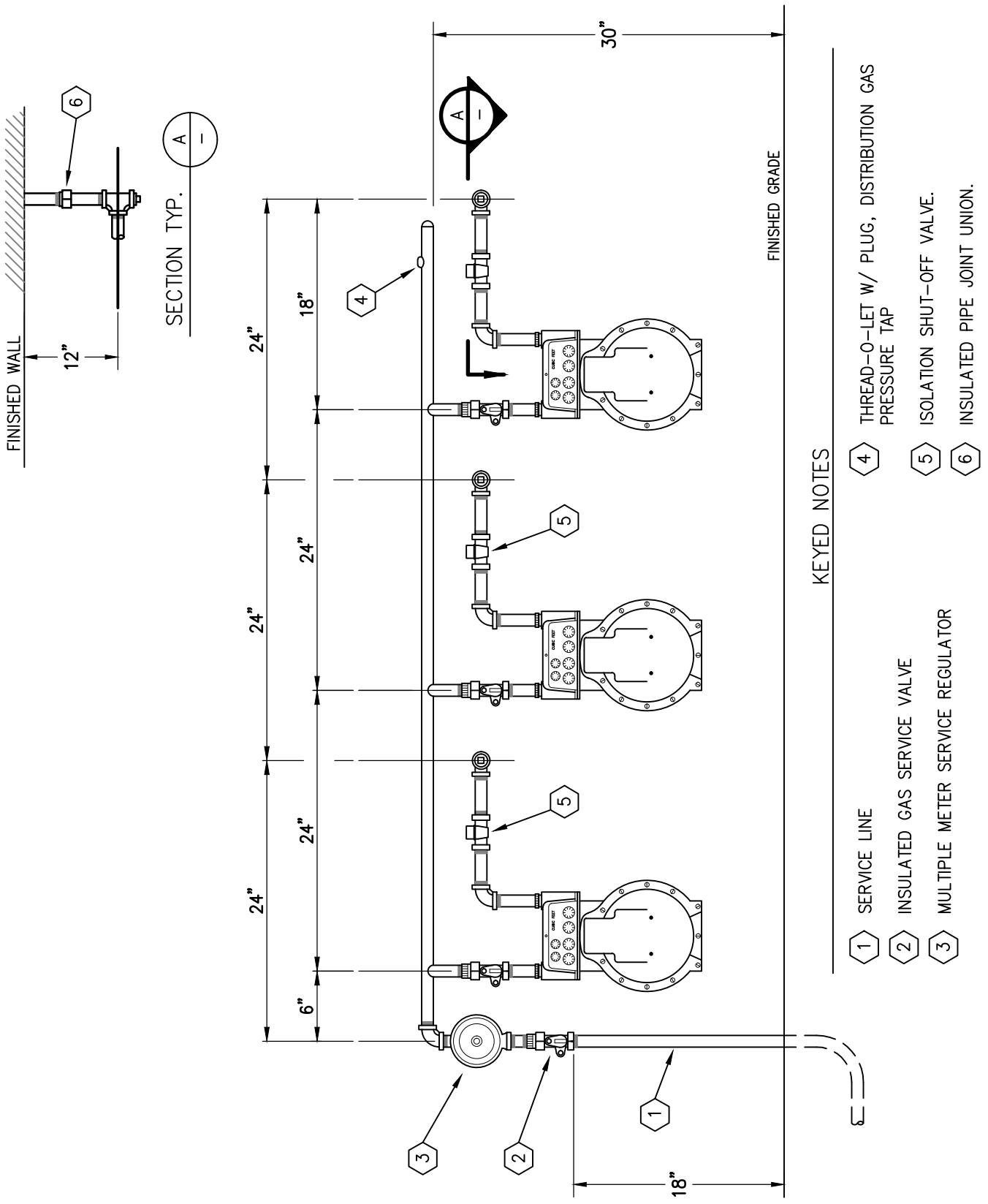
REVISION	DESCRIPTION	BY	DATE

STEEL TO POLYETHYLENE TRANSITION

APPROVED:	D.C.	ISSUED:	10/1/12	PLOT SCALE:	1/2"=1'-0"
		FILE:	DIR\UT-G13	PLOT SIZE:	8.5 x 11

New Mexico State University

UT-G13



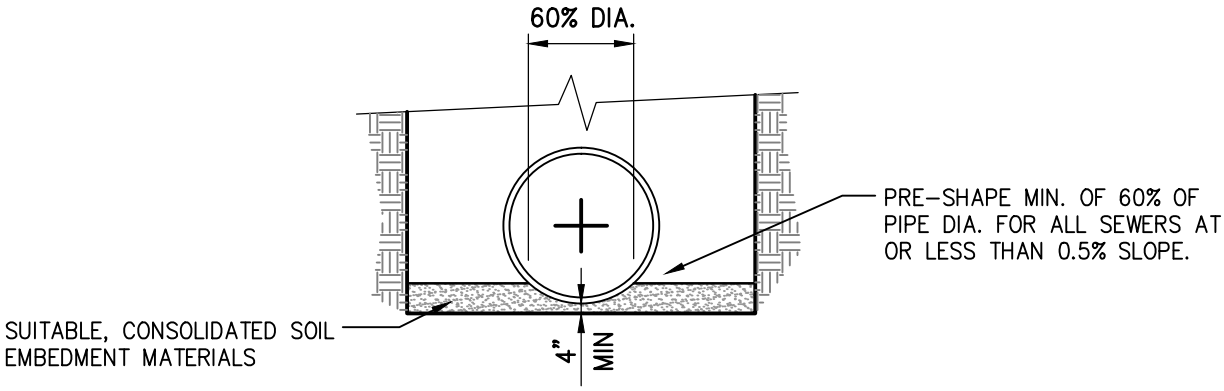
REVISION	DESCRIPTION	BY	DATE

GAS METER MANIFOLD

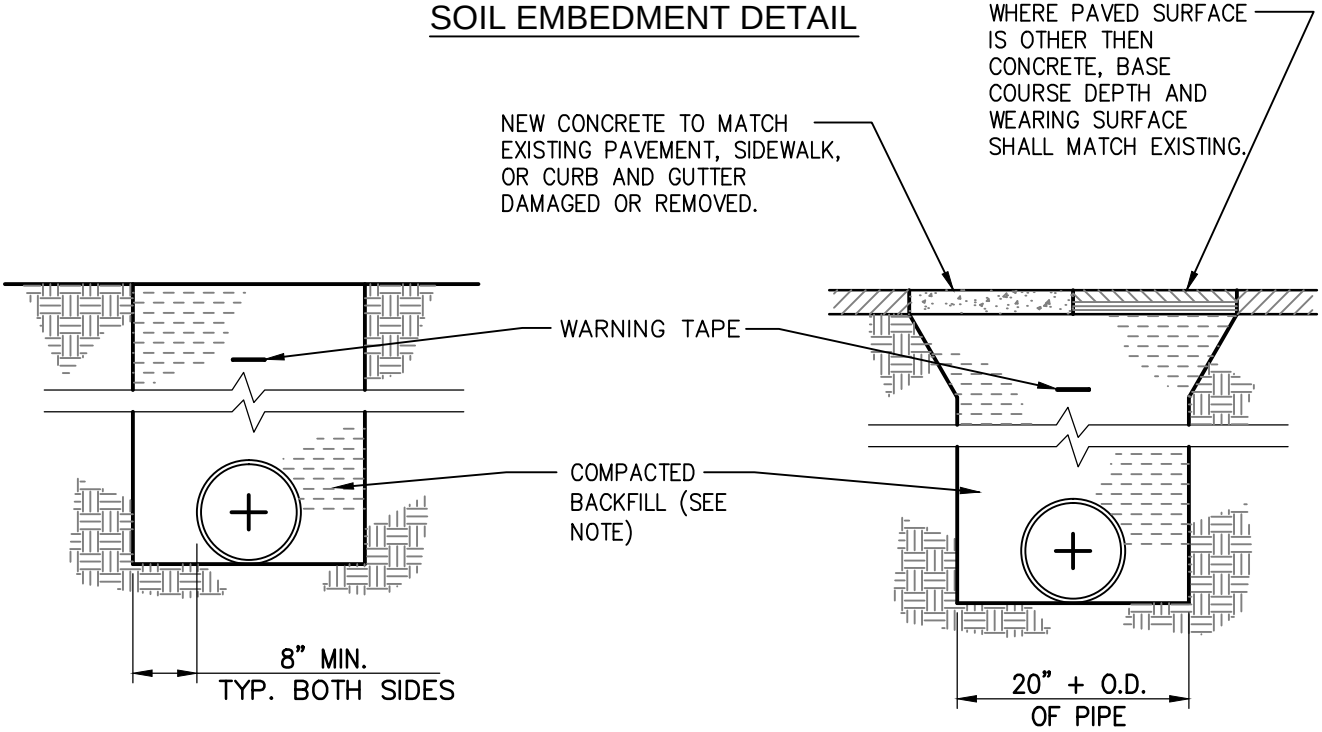
APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1'=1'-0"
	FILE: DIR\UT-G14	PLOT SIZE: 8.5 x 11

New Mexico State University

UT-G14



SOIL EMBEDMENT DETAIL



UNPAVED ROAD TRENCH

NOTE: COMPACTION TO BE 90% PER AASHTO T-180 (ASTM D1557) UNLESS OTHERWISE NOTED

PAVED ROAD TRENCH

NOTE: COMPACTION TO BE 95% PER AASHTO T-180 (ASTM D1557)

GENERAL NOTES:

1. TRENCH WIDTHS AND CROSS SECTIONS SHALL BE COMPLIANT TO ALL APPLICABLE SAFETY STANDARDS AND REGULATIONS.
2. TESTING REQUIREMENTS INCLUDE VISUAL TESTING OF ALL MAIN LINES LAID AT OR FLATTER THAN MIN. SLOPES.
3. TRACING WIRE REQUIRED TO BE PLACED ABOVE ALL MAINS.
4. TRACING WIRE TO BE TAPED TO MAINS @ 10'-0" O.C.
5. TRACING WIRE TO BE ACCESSIBLE WITHIN A VALVE BOX, A SERVICE POINT OR WITHIN AN INSTALLED TWO POINT TEST BOX AT 500 FT. MAX.

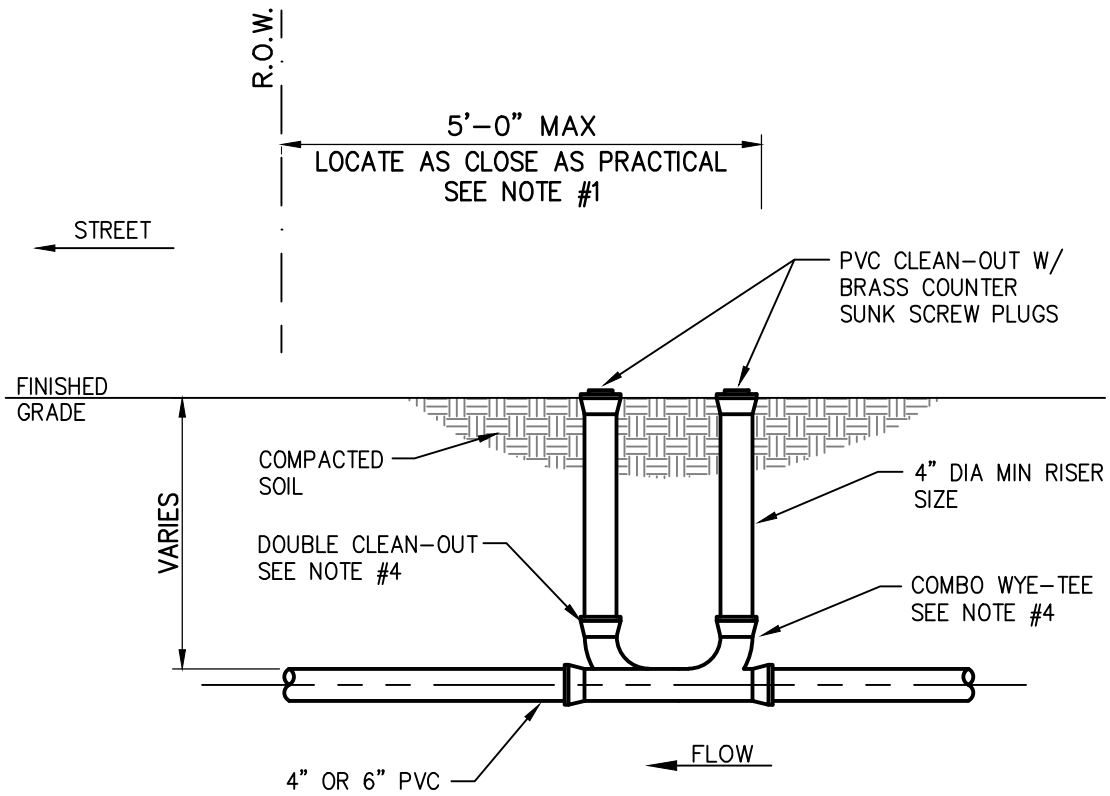
REVISION	DESCRIPTION	BY	DATE

APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'-0"	
	FILE: DIR\UT-S1	PLOT SIZE: 8.5 x 11	

TYPICAL SEWER TRENCHING DETAILS

New Mexico State University

UT-S1



GENERAL NOTES:

1. CLEAN-OUT MAY BE LOCATED IN R.O.W. WITH APPROVAL BY NMSU ENGINEERING.
2. IF CLEAN-OUT IS LOCATED IN A TRAFFIC AREA, CLEAN-OUT TO BE DESIGNED FOR APPROPRIATE LOADING AND APPROVED BY NMSU ENGINEERING.
3. A SINGLE FITTING DOUBLE CLEAN-OUT, W/ SINGLE RISER, IS AN ACCEPTABLE ALTERNATIVE.

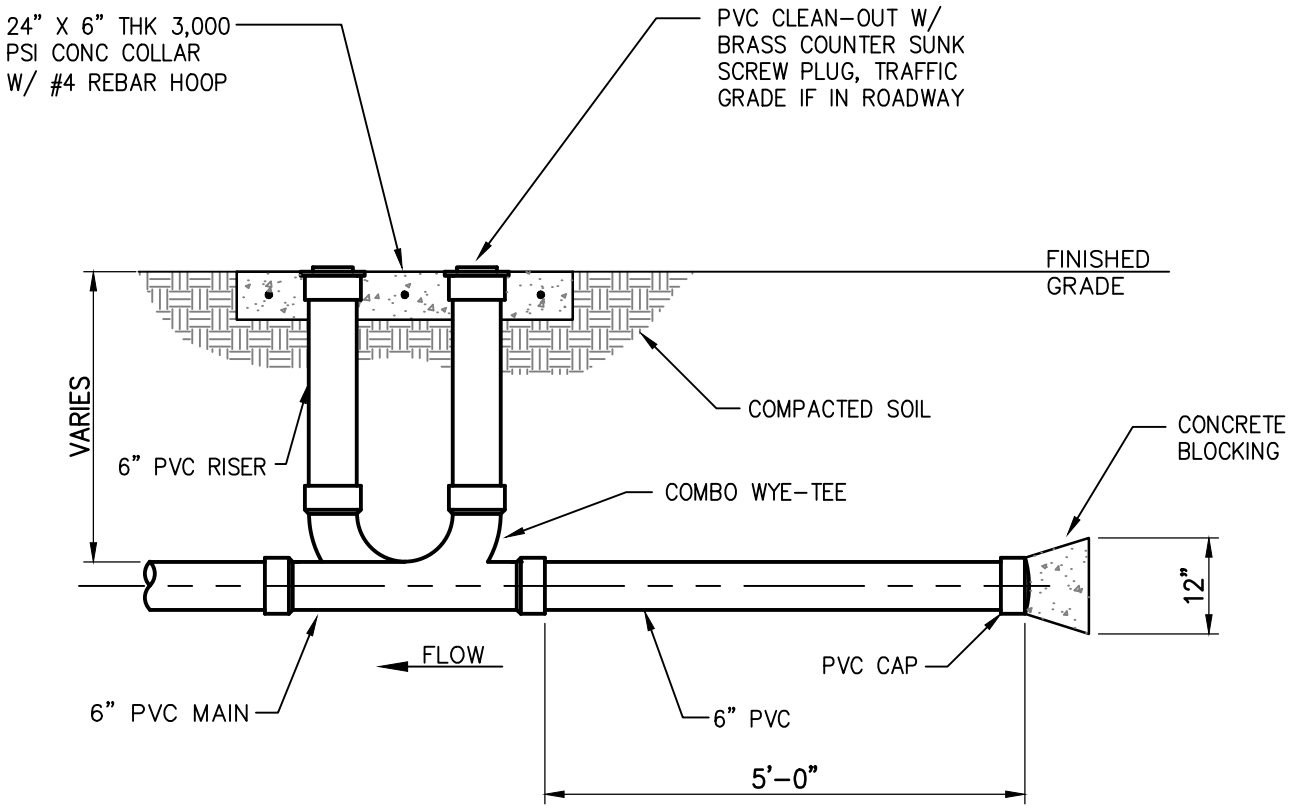
REVISION	DESCRIPTION	BY	DATE

SERVICE LINE CLEAN-OUT DETAIL

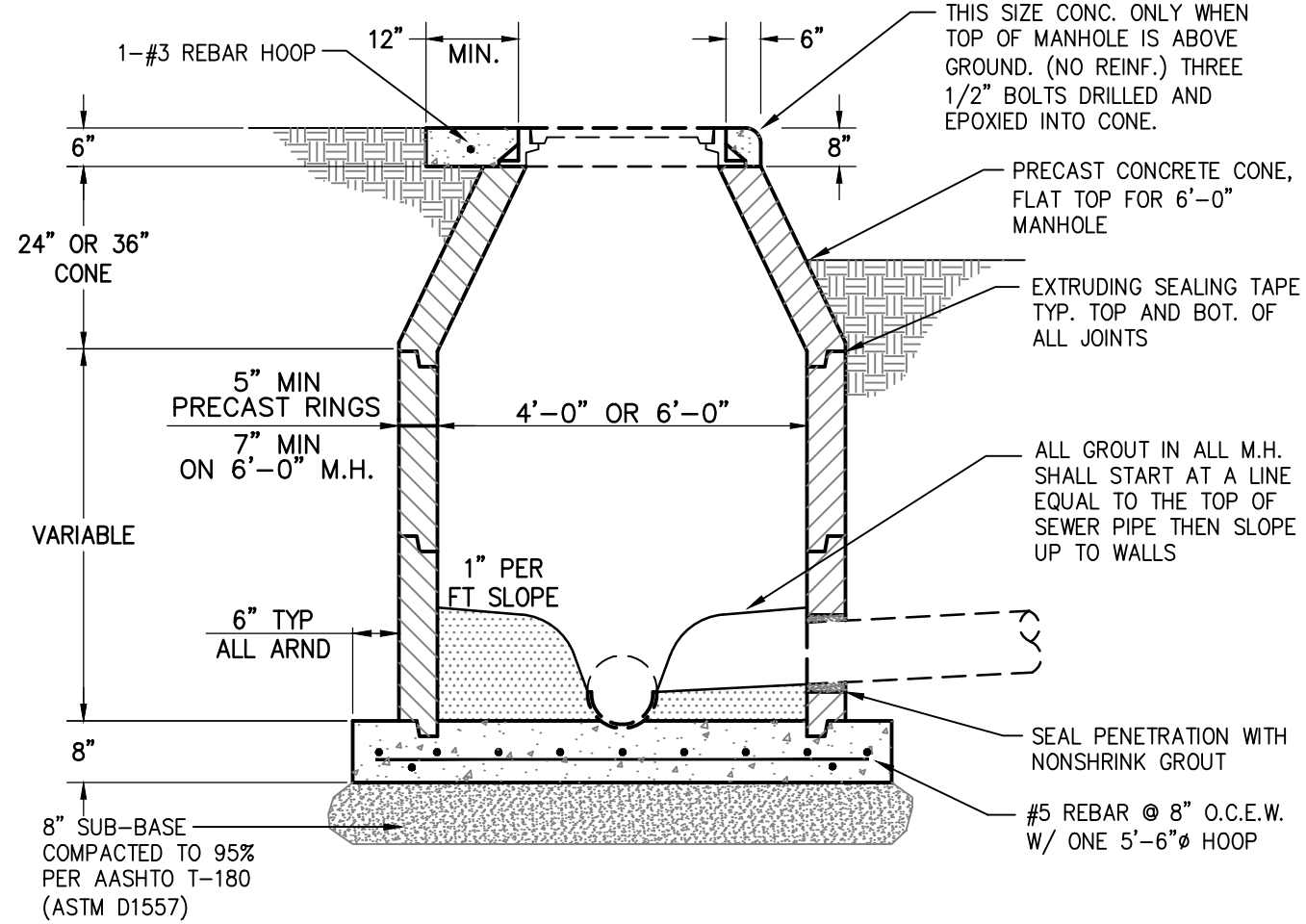
APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'-0"	
	FILE: DIR\UT-S2	PLOT SIZE: 8.5 x 11	

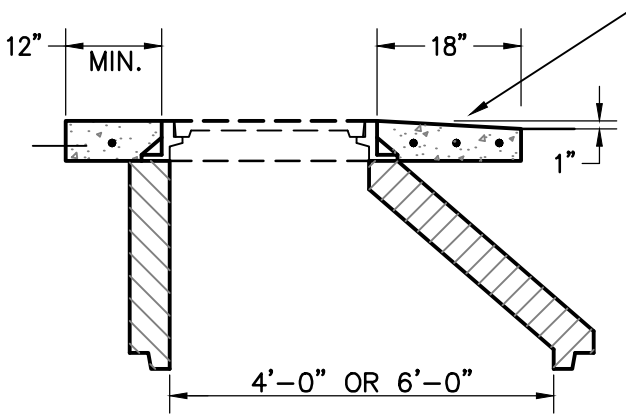
New Mexico State University

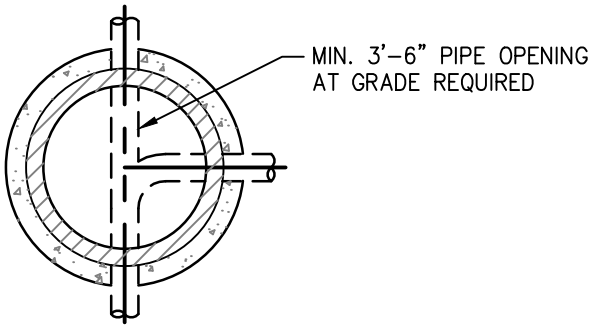
UT-S2



				MAIN LINE CLEAN-OUT DETAIL
REVISION	DESCRIPTION		BY	DATE
APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'-0"	New Mexico State University	UT-S3
	FILE: DIR\UT-S3	PLOT SIZE: 8.5 x 11		







GENERAL NOTES:

1. PRECAST PORTIONS OF MANHOLES, EXCLUDING CAST IN PLACE BOTTOM, SHALL CONFORM TO ASTM C478, LATEST REVISIONS.
2. SEALING TAPE TO BE 1/2" THK RAM–NECK OR EQUAL.
3. ECCENTRIC CONES MAY BE USED FOR IN LINE USE ONLY WITH PRIOR APPROVAL; CAN NOT BE USED ON JUNCTIONS; MANHOLE CONE OFFSET MUST BE OVER THE PIPE CENTERLINE.
4. MANHOLE COATING MAY BE REQUIRED, SEE DESIGN GUIDELINES.
5. WATER STOP GASKETS REQUIRED ON ALL PIPES ENTERING MANHOLE.

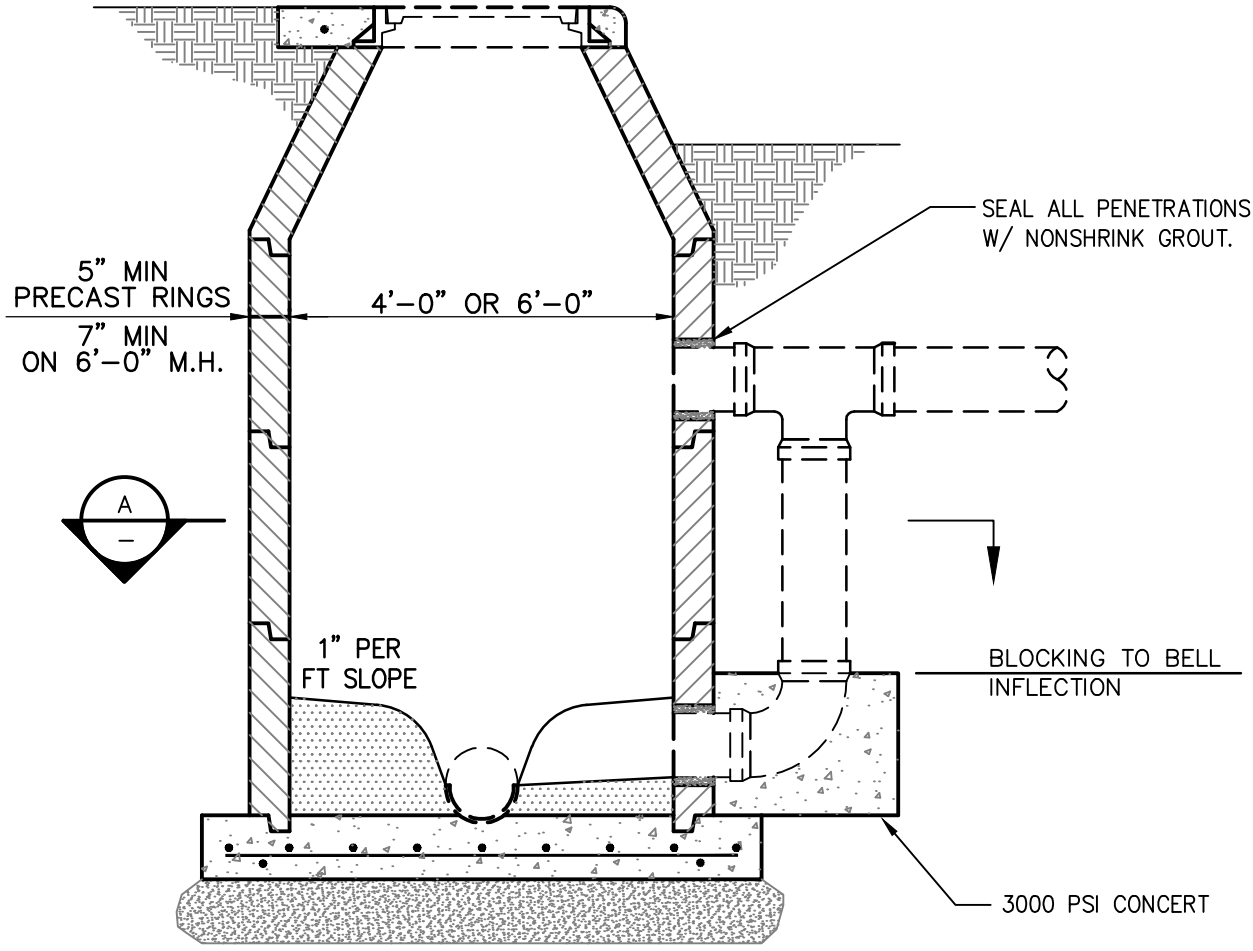
REVISION	DESCRIPTION	BY	DATE

APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'–0"	
	FILE: DIR\UT–S4	PLOT SIZE: 8.5 x 11	

TYPICAL MANHOLE DETAILS

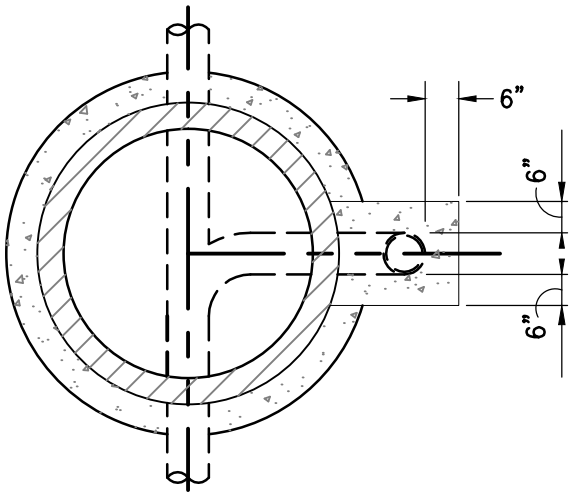
New Mexico State University

UT–S4



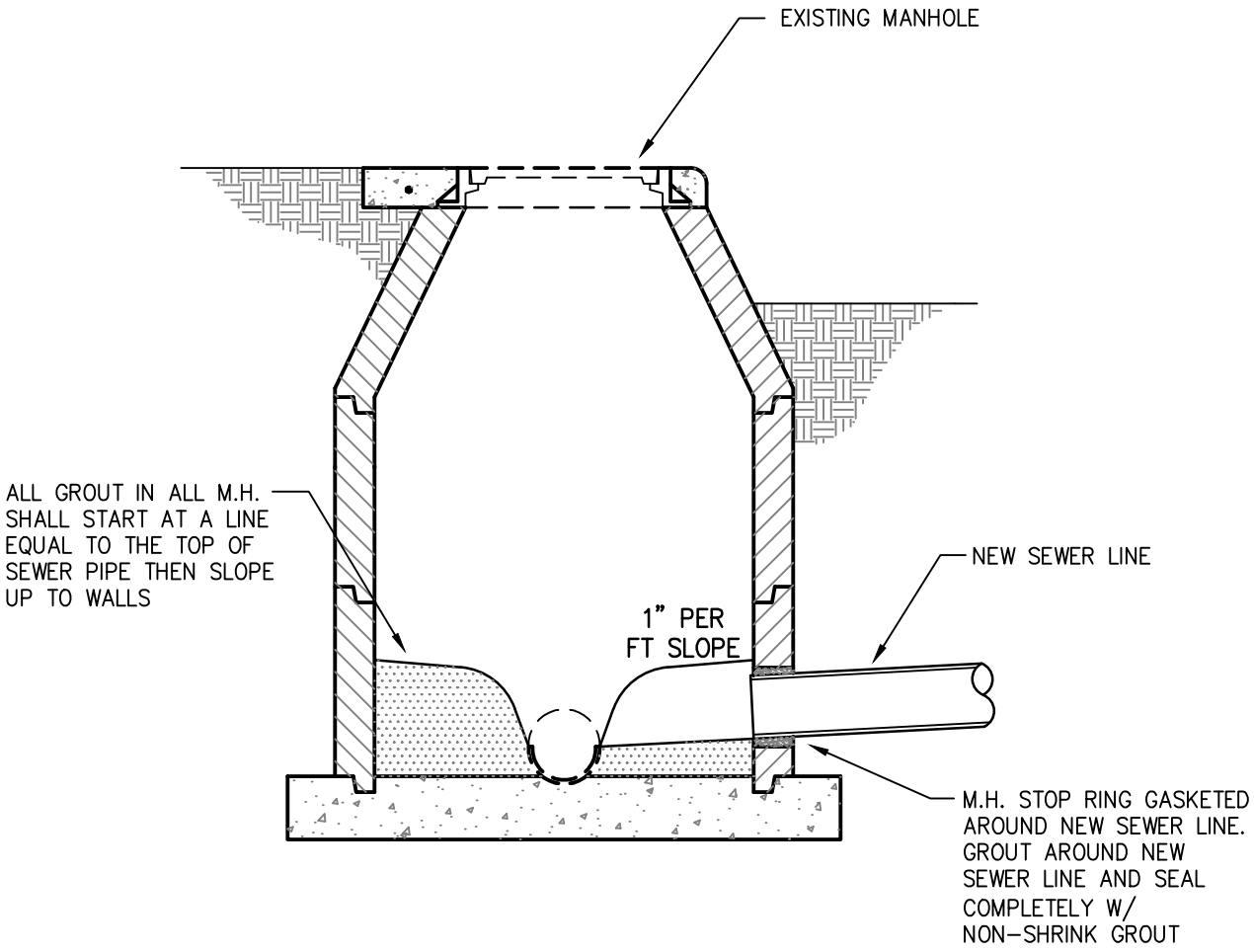
GENERAL NOTES:

1. ALL STANDARD MANHOLES REQUIREMENTS APPLY, SEE DWG UT-S4.
2. ECCENTRIC MANHOLES MAY BE USED WITH DROPPED INLET FOR IN-LINE USE ONLY. CAN NOT BE USED AT JUNCTIONS.



SECTION A

				TYPICAL MANHOLE DETAIL w/ DROP	
REVISION	DESCRIPTION		BY	DATE	
APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'-0"		New Mexico State University	UT-S5
	FILE: DIR\UT-S5	PLOT SIZE: 8.5 x 11			



GENERAL NOTES:

1. IF NEW PIPE INVERT IS BELOW EXISTING GROUTED SHELF, SHELF IS TO BE CUT OUT AS NEEDED AND RE-GROUTED PER UT-S4.

2. PRE-CAST PORTIONS OF MANHOLES, EXCLUDING CAST IN PLACE BOTTOM, SHALL CONFORM TO ASTM C478, LATEST REVISIONS.

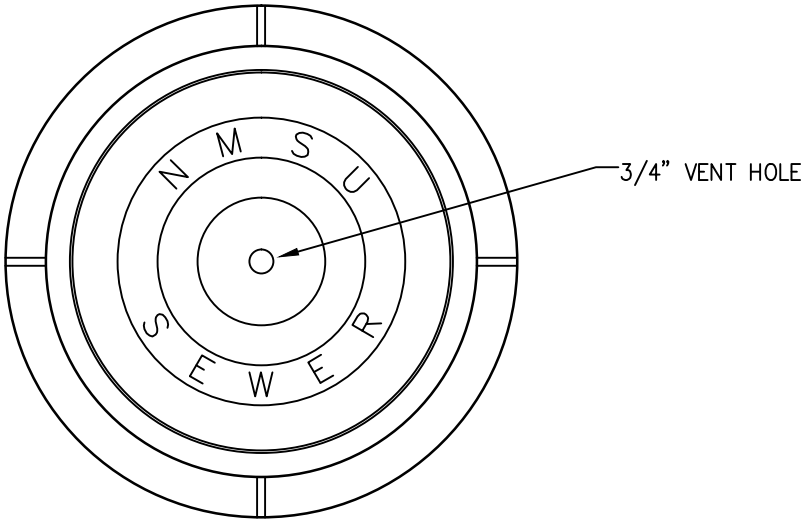
REVISION	DESCRIPTION	BY	DATE

TAPPING INTO AN EXISTING STANDARD MANHOLE

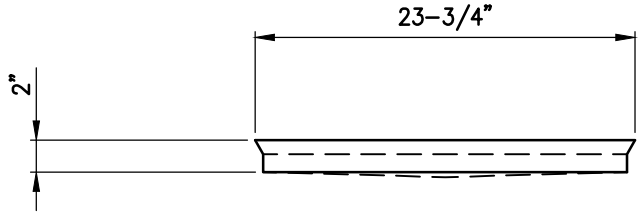
APPROVED: D.C.	ISSUED: 10/1/12	SCALE: 1/2"=1'-0"
	FILE: DIR\UT-S6	PLOT SIZE: 8.5 x 11

New Mexico State University

UT-S6

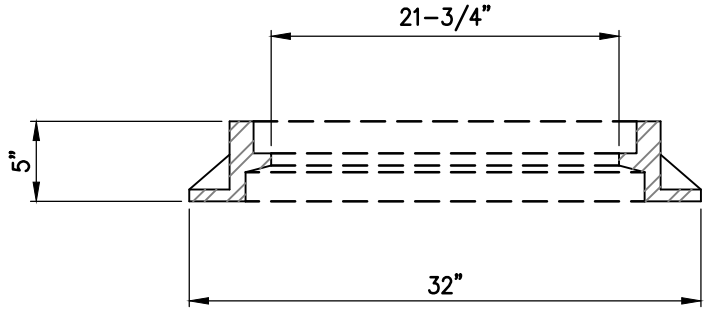


PLAN



COVER

WITH IN FLOW PROTECTION

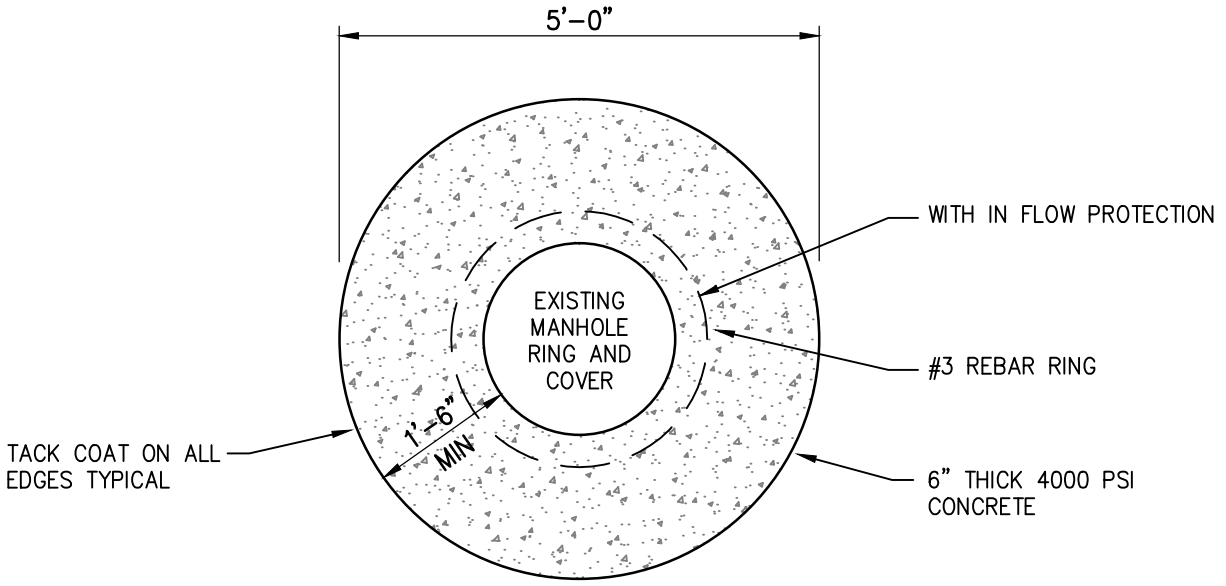


RING

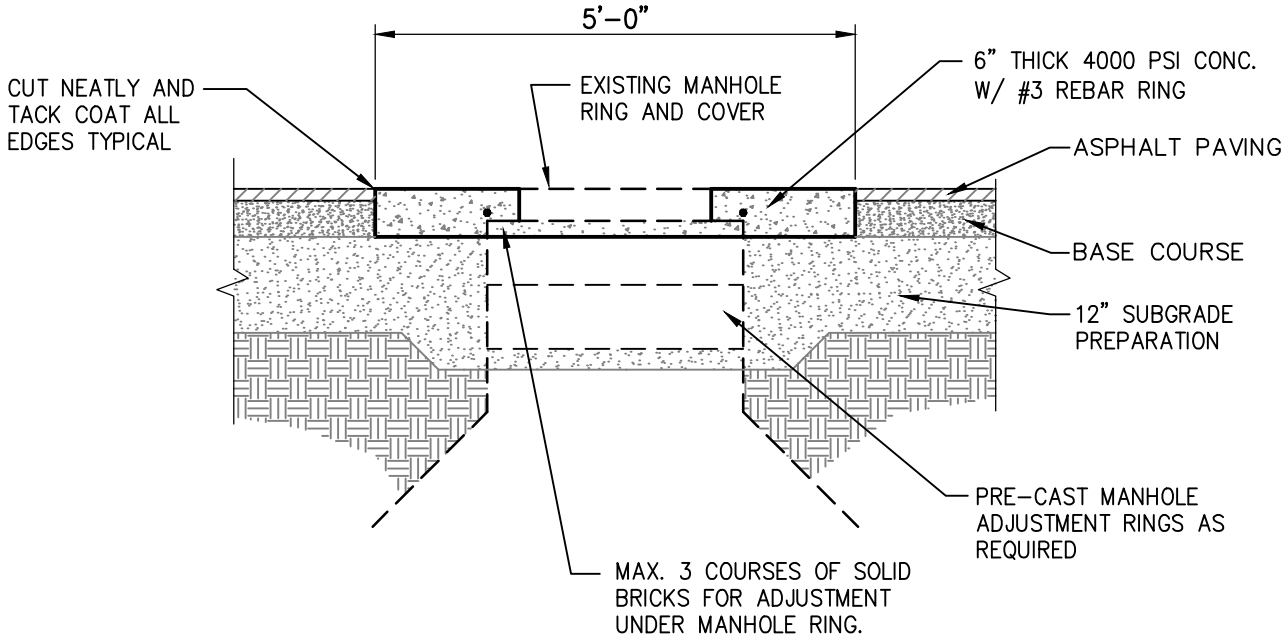
GENERAL NOTES:

1. MIN. TOTAL WEIGHT: 300 LBS.
2. MIN. COVER WEIGHT: 134 LBS.
3. MIN. RING WEIGHT: 165 LBS.
4. MANHOLE SHALL MEET AASHTO M 306-05 (OR LATEST PUBLICATION) H-20 LOADING. "EAST JORDAN IRON WORKS - 2023" OR APPROVED EQUAL W/ LETTERING AS SHOWN.

				MANHOLE RING AND COVER	
REVISION	DESCRIPTION		BY	DATE	
APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1'=1'-0"	New Mexico State University	UT-S7	
	FILE: DIR\UT-S7	PLOT SIZE: 8.5 x 11			



PLAN

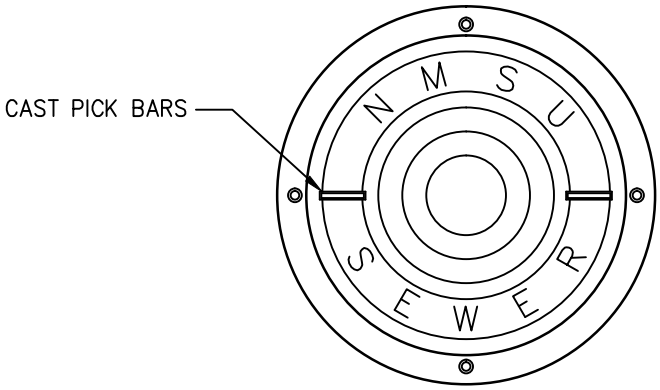


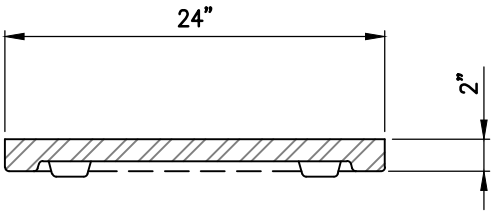
SECTION

GENERAL NOTES:

1. PRECAST PORTIONS OF MANHOLES, EXCLUDING CAST IN PLACE BOTTOM, SHALL CONFORM TO ASTM C478, LATEST REVISIONS.

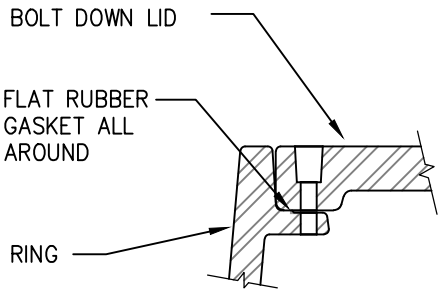
				MANHOLE RIM ADJUSTMENT DETAIL	
REVISION	DESCRIPTION		BY	DATE	
APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'-0"	New Mexico State University	UT-S8	
	FILE: DIR\UT-S8	PLOT SIZE: 8.5 x 11			



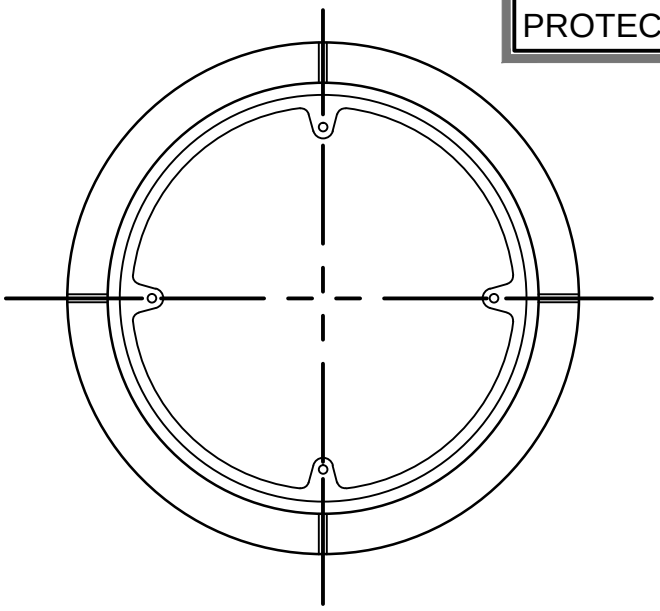


COVER

WITH IN FLOW PROTECTION



BOLT DOWN DETAIL



RING

GENERAL NOTES:

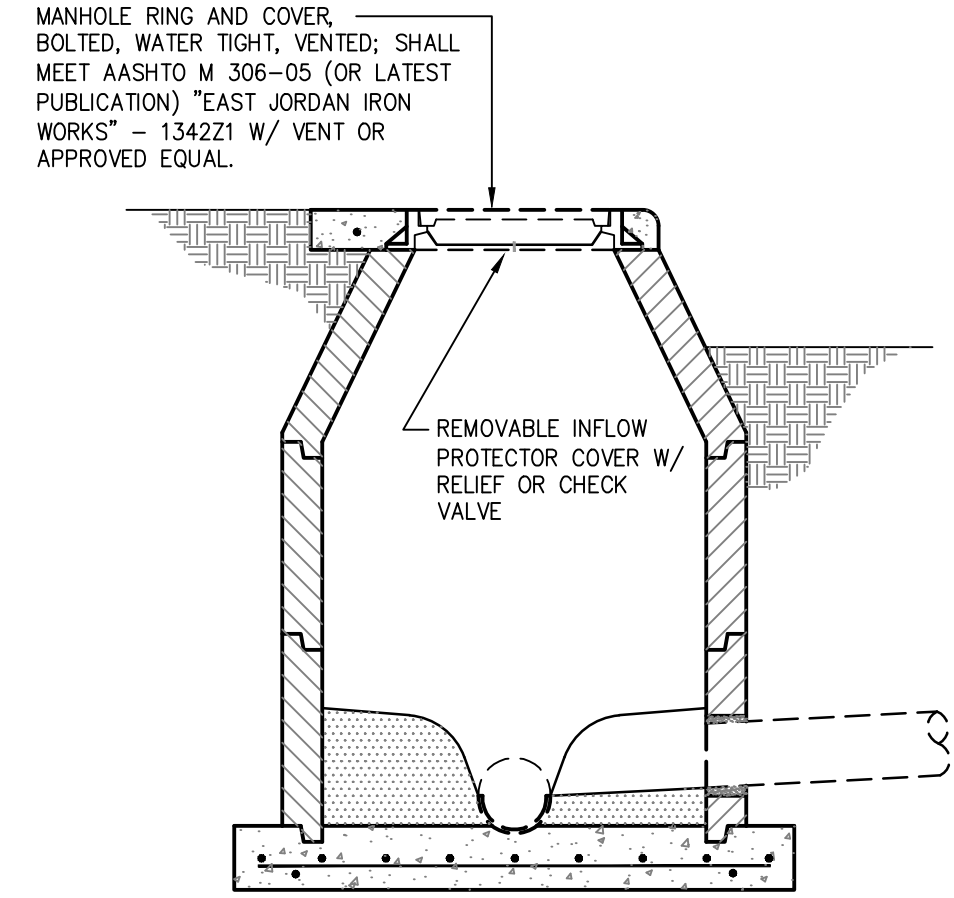
1. MIN. TOTAL WEIGHT: 300 LBS.
2. MIN. COVER WEIGHT: 135 LBS.
3. MIN. RING WEIGHT: 165 LBS.
4. MANHOLE SHALL MEET AASHTO M 306-05 (OR LATEST PUBLICATION) H-20 LOADING. "EAST JORDAN IRON WORKS" - 1342Z1 OR APPROVED EQUAL W/ LETTERING AS SHOWN.

REVISION	DESCRIPTION	BY	DATE
APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1'=1'-0"	
	FILE: DIR\UT-S9	PLOT SIZE: 8.5 x 11	

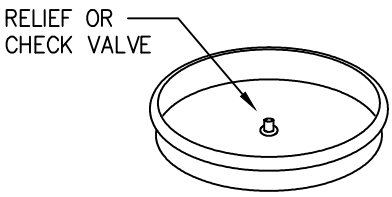
WATER TIGHT MANHOLE RING AND COVER

New Mexico State University

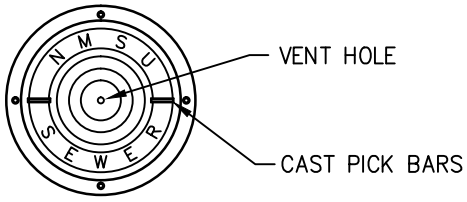
UT-S9



SECTION



INFLOW PROTECTOR COVER

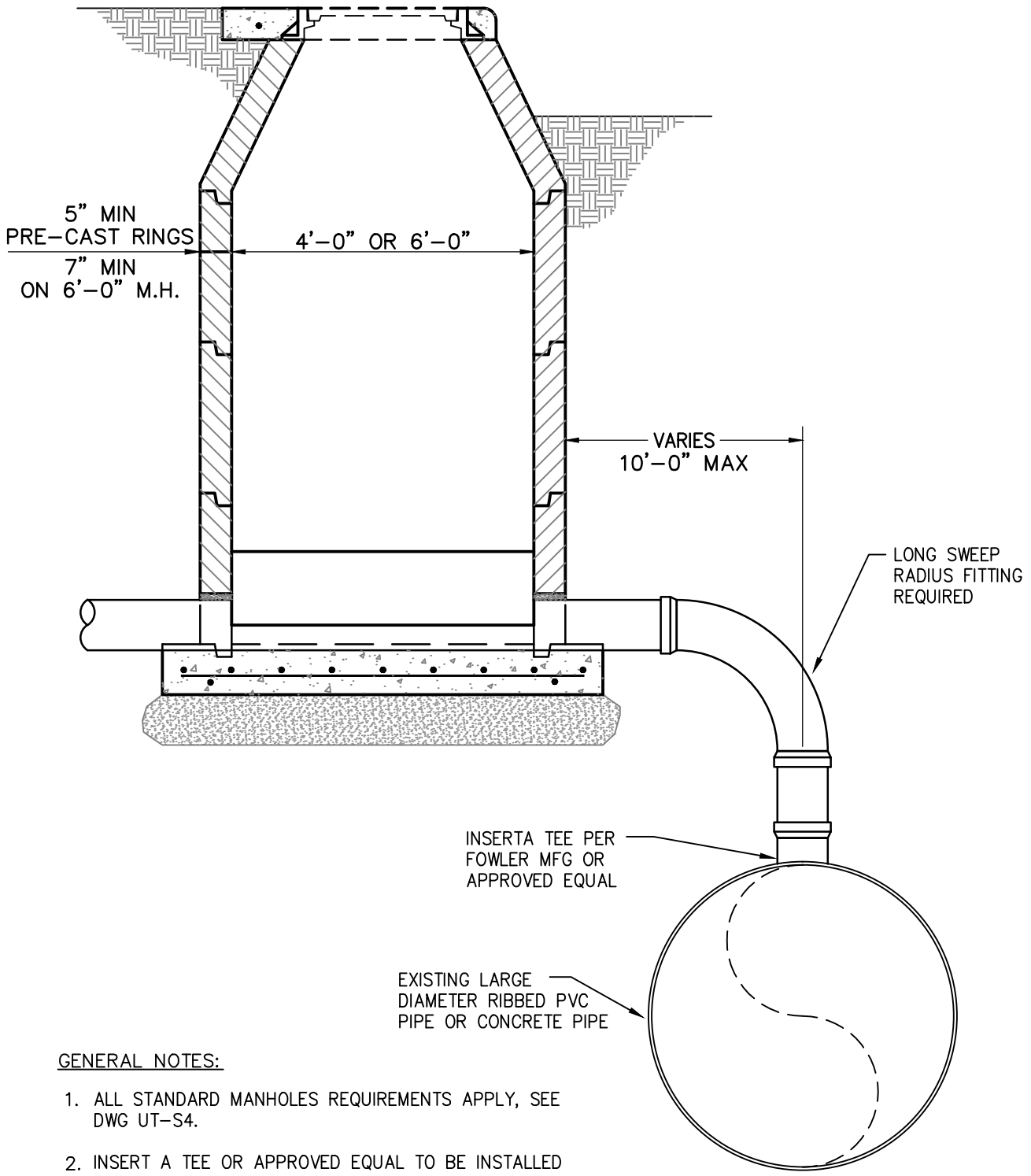


COVER

GENERAL NOTES:

1. SEE TYPICAL MANHOLE DETAIL UT-S4 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

				WATER TIGHT VENTED MANHOLE	
REVISION	DESCRIPTION		BY	DATE	
APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'-0"	New Mexico State University	UT-S10	
	FILE: DIR\UT-S10	PLOT SIZE: 8.5 x 11			



GENERAL NOTES:

1. ALL STANDARD MANHOLES REQUIREMENTS APPLY, SEE DWG UT-S4.
2. INSERT A TEE OR APPROVED EQUAL TO BE INSTALLED PER MANUFACTURERS SPECIFICATIONS.

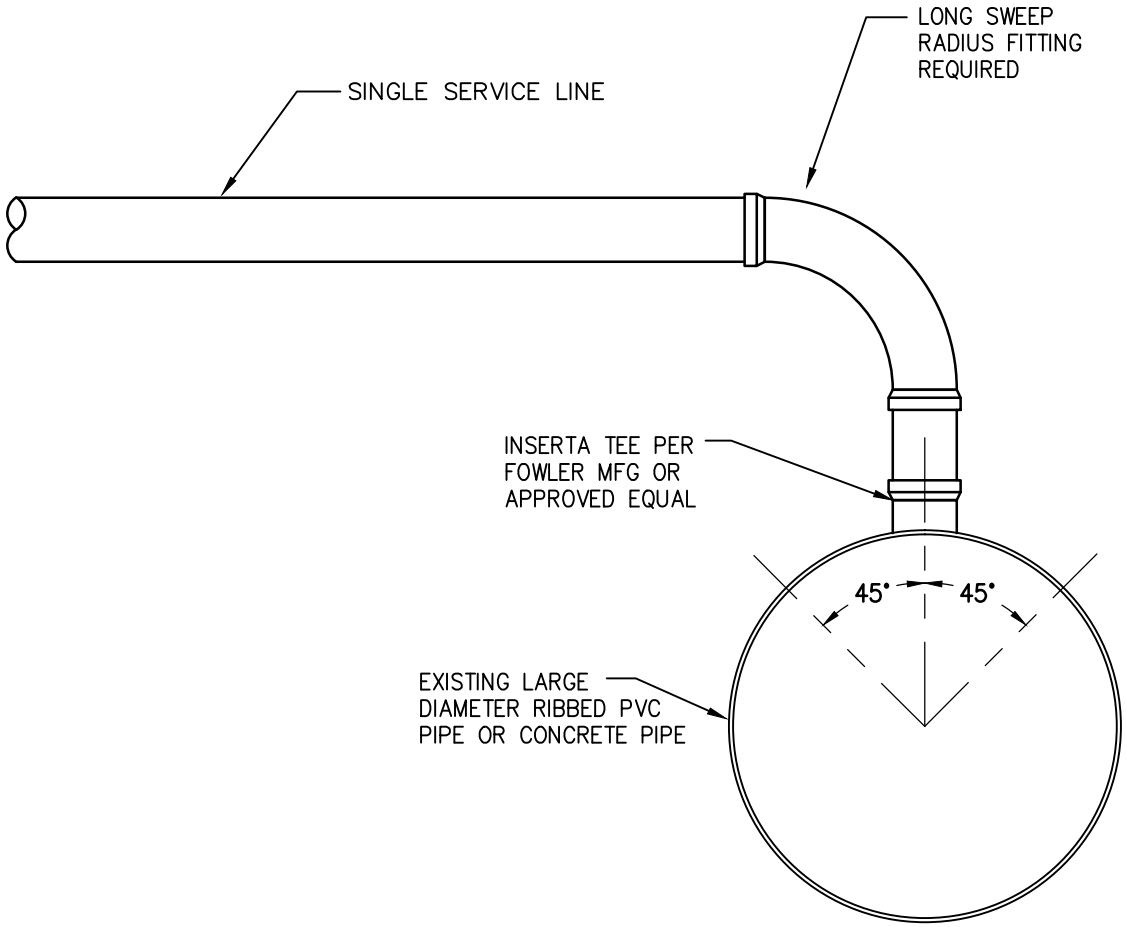
REVISION	DESCRIPTION	BY	DATE

MAIN LINE INSERTA TEE CONNECTION

APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'-0"	
	FILE: DIR\UT-S11	PLOT SIZE: 8.5 x 11	

New Mexico State University

UT-S11

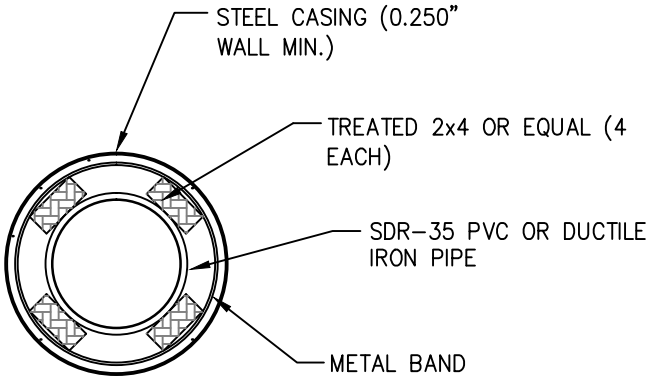


GENERAL NOTES:

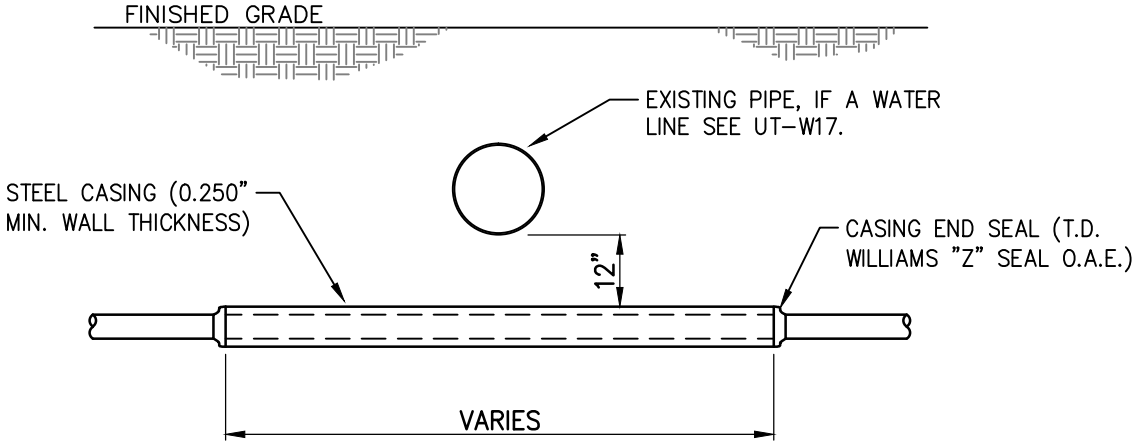
1. INSERT A TEE OR APPROVED EQUAL TO BE INSTALLED PER MANUFACTURERS SPECIFICATIONS.

2. TEE CONNECTION SHALL BE IN THE TOP OR WITHIN 45° OF VERTICAL.

				SERVICE LINE INSERTA TEE CONNECTION	
REVISION	DESCRIPTION		BY	DATE	
APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'-0"		New Mexico State University	UT-S12
	FILE: DIR\UT-S12	PLOT SIZE: 8.5 x 11			



CASING DETAIL
NTS



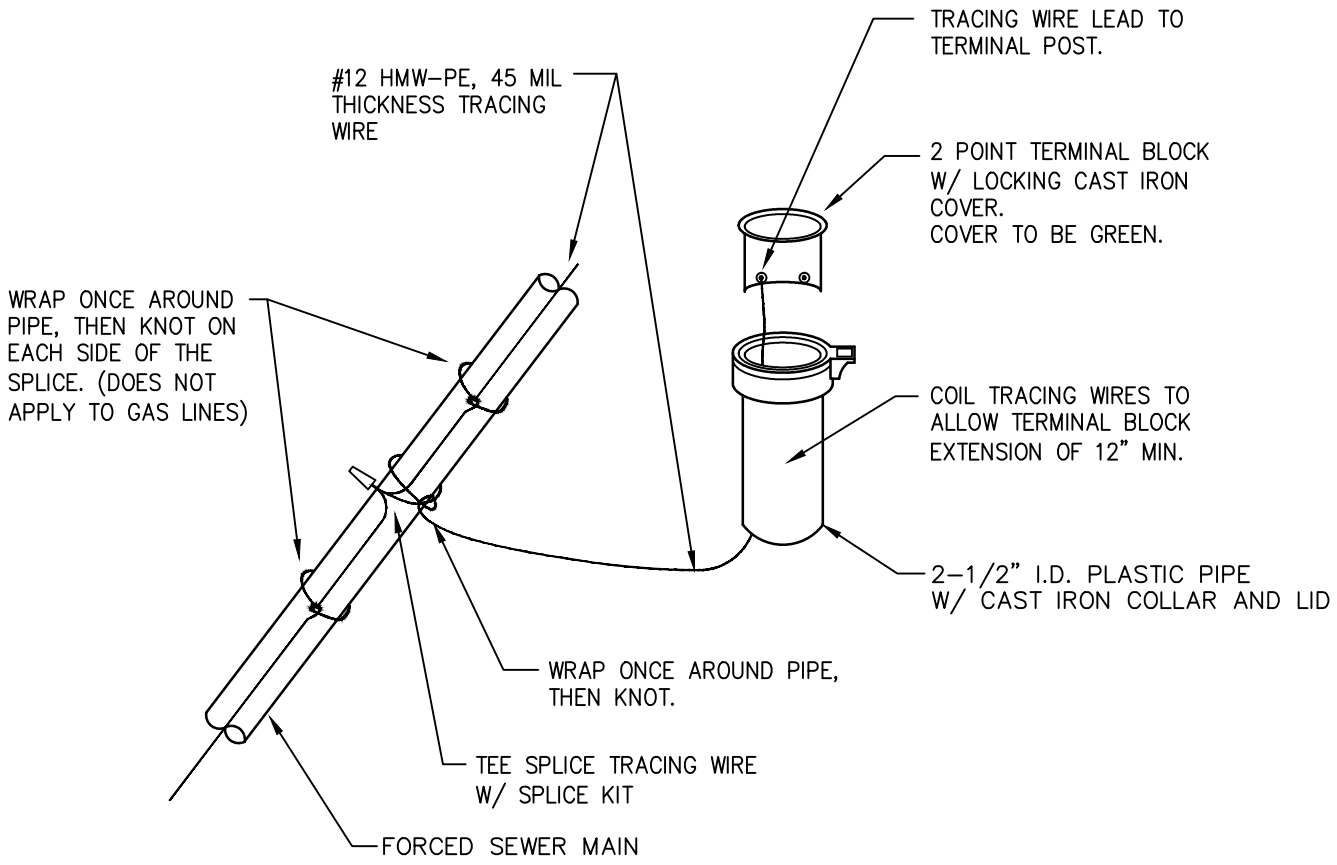
CASING SECTION

GENERAL NOTES:

1. USE "RACI" CASING SPACERS BY PUBLIC WORKS MARKETING, INC OR APPROVED EQUALS AT MANUFACTURERS RECOMMENDED SPACING OR TREATED WOOD SPACERS BANDED TO SEWER LINE FULL LENGTH OF CASING EXCEPT AT BELLS OR SPIGOTS.

2. CASING SIZE TO BE SPECIFIED BY DESIGN ENGINEER, DEPENDENT ON LENGTH OF BORE, SERVICE LINE TYPE AND ANY APPLICABLE DESIGN CRITERIA.

				SEWER LINE BORE AND CASING	
REVISION	DESCRIPTION		BY	DATE	
APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'-0"		New Mexico State University	UT-S13
	FILE: DIR\UT-S13	PLOT SIZE: 8.5 x 11			



GENERAL NOTES:

1. SPACING AND LOCATION OF TEST BOXES TO BE DETERMINED BY NMSU ENGINEERING.
2. TEST BOX LOCATION MAY VARY AND CAN BE LOCATED UP TO 50 FT. FROM FORCED MAIN LINE.
3. REFER TO STANDARDS AND MATERIALS LISTS FOR MATERIALS.

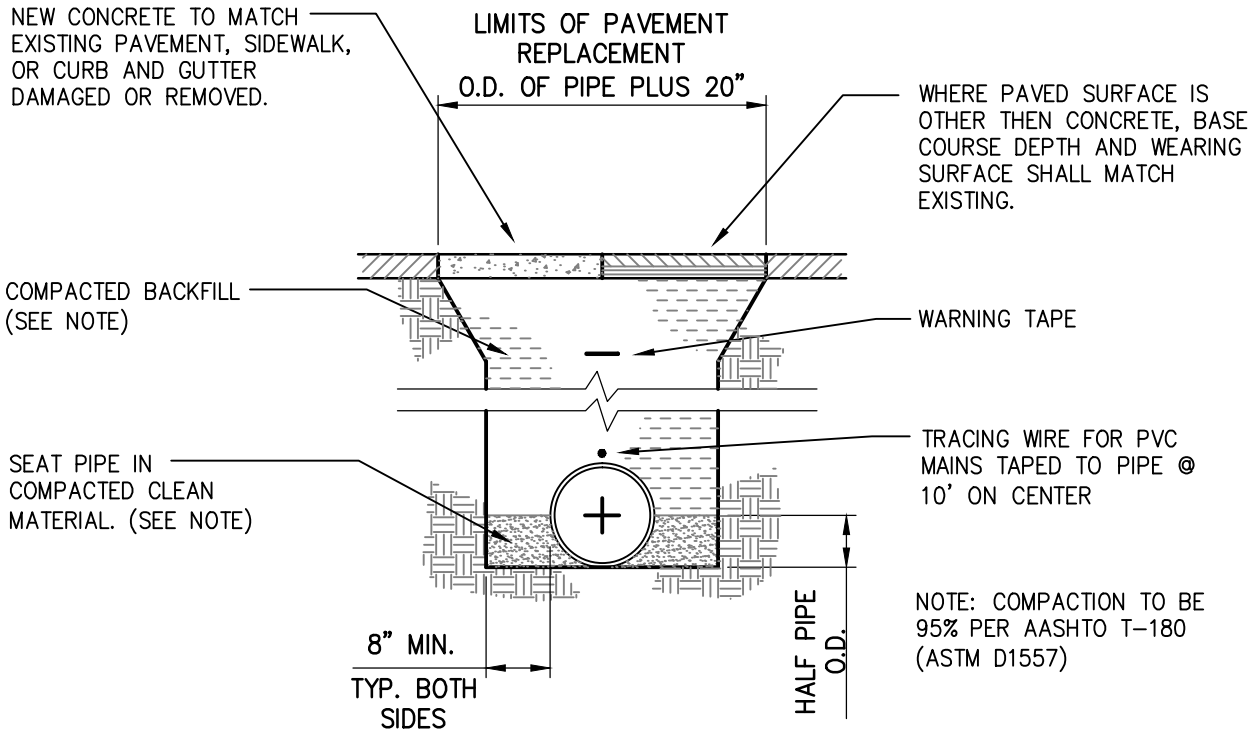
REVISION	DESCRIPTION	BY	DATE

APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'–0"	
	FILE: DIR\UT–S14	PLOT SIZE: 8.5 x 11	

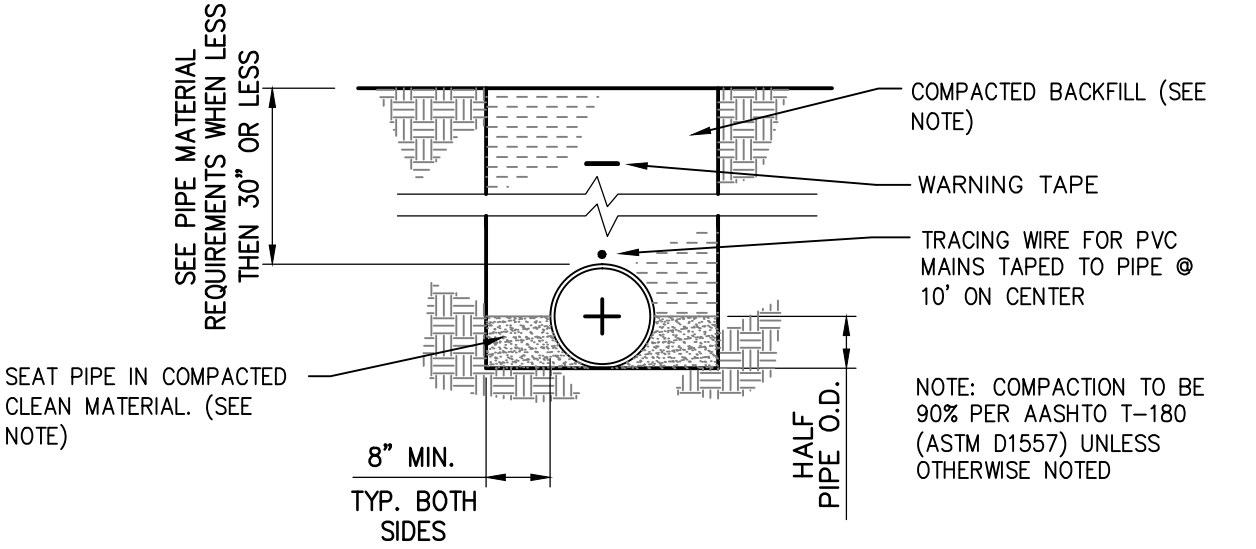
TRACING WIRE TEST BOX

New Mexico State University

UT–S14



PAVED ROAD TRENCH

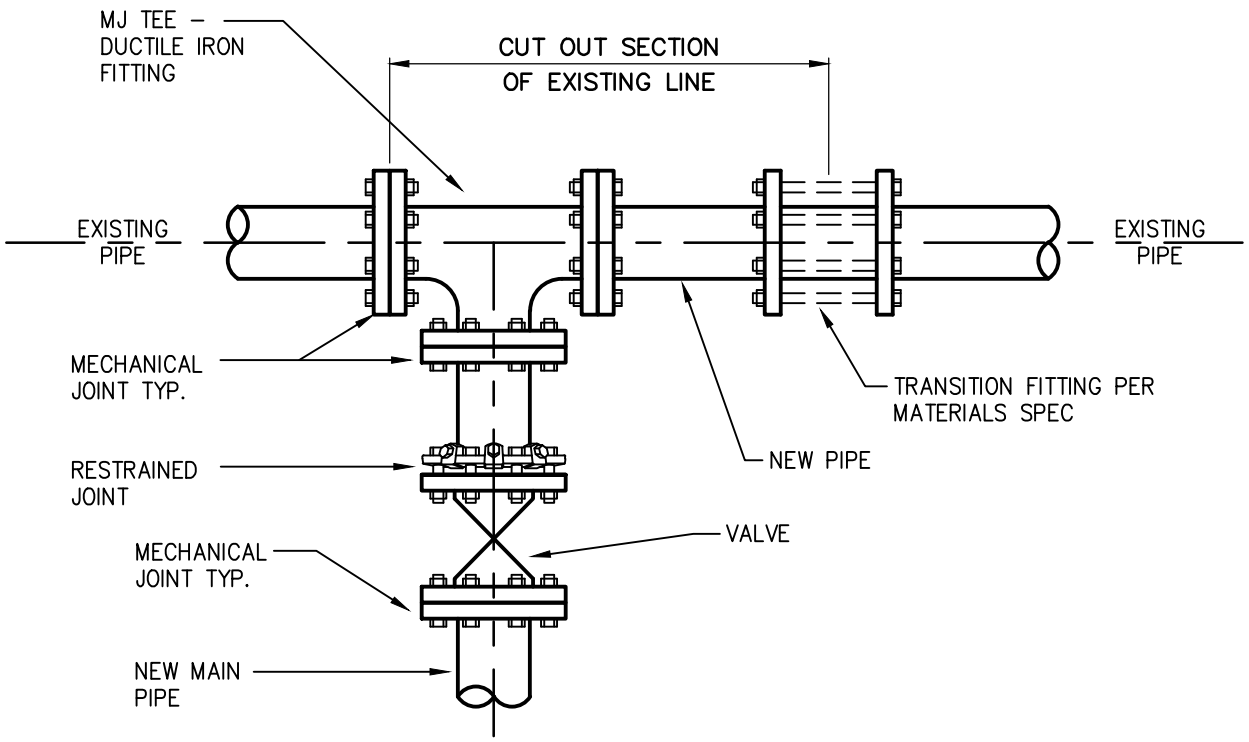


UNPAVED ROAD TRENCH

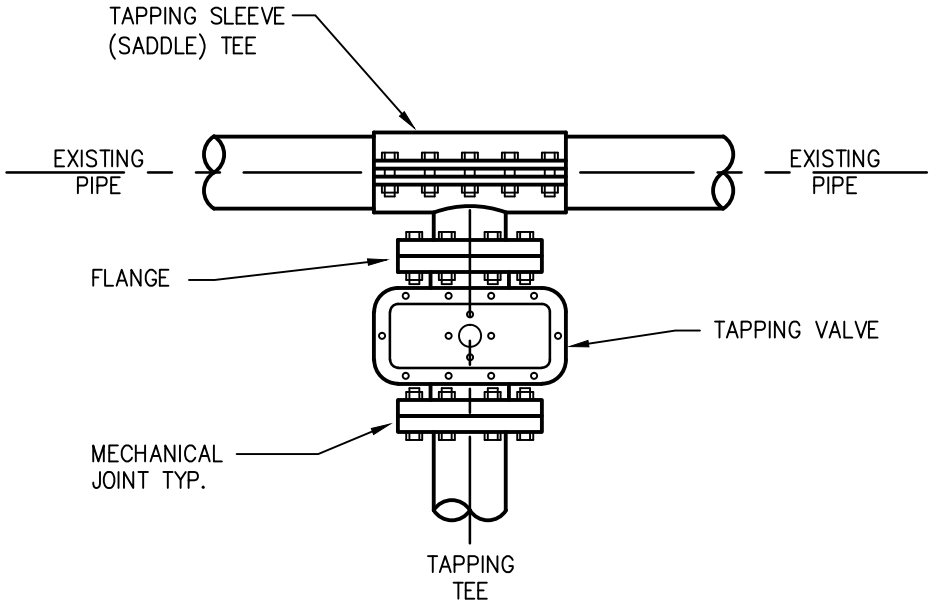
GENERAL NOTES:

1. TRACING WIRE REQUIRED TO BE PLACED ABOVE ALL MAINS AND TRANSMISSION LINES.
2. TEST BOXES THAT ARE CONNECTED INTO TRACING WIRE SYSTEM, SHALL BE WHERE HYDRANTS ARE NOT USED OR WHERE HYDRANT SPACING EXCEEDS 500 FEET.
3. TRENCH WIDTHS AND CROSS SECTIONS SHALL BE COMPLIANT TO ALL APPLICABLE SAFETY STANDARDS AND REGULATIONS.

				WATER TRENCHING DETAILS	
REVISION	DESCRIPTION		BY	DATE	
APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'-0"	New Mexico State University	UT-W1	
	FILE: DIR\UT-W1	PLOT SIZE: 8.5 x 11			

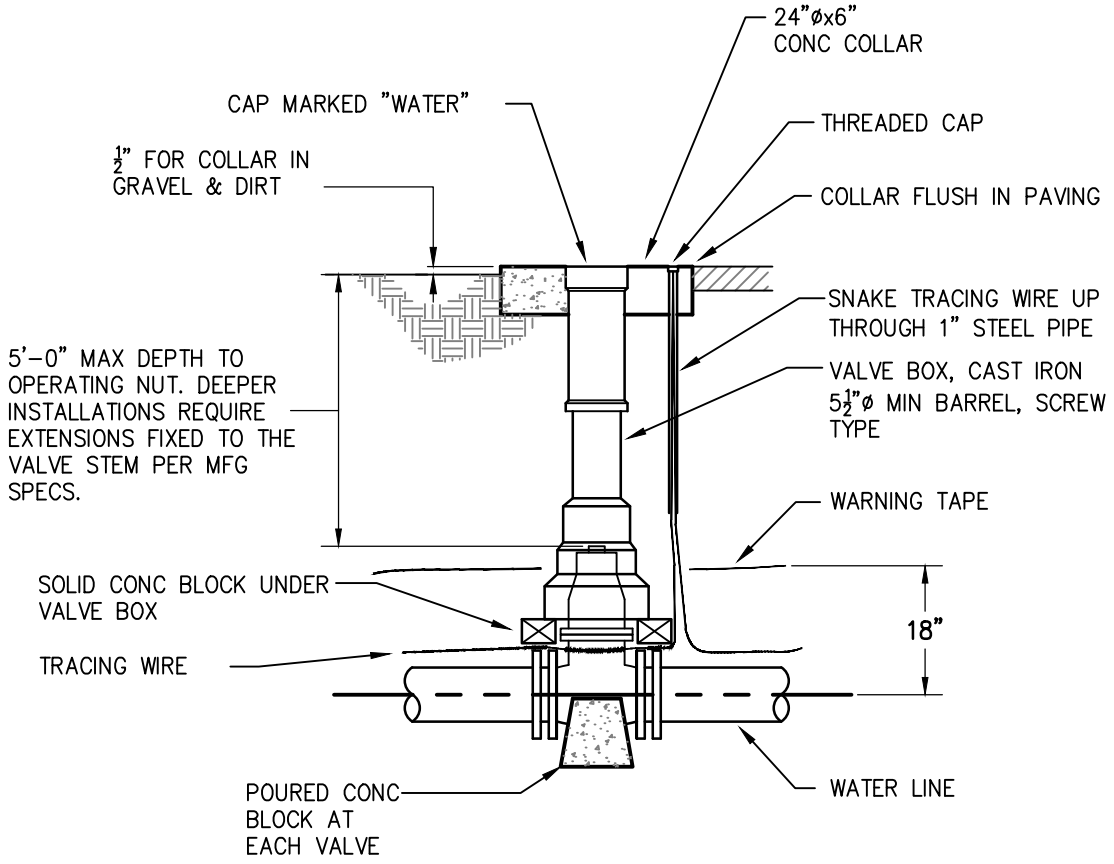


WET CONNECTION



TAPPED CONNECTION

				TYPICAL WATER CONNECTION	
REVISION	DESCRIPTION		BY	DATE	
APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1'=1'-0"		New Mexico State University	UT-W2
	FILE: DIR\UT-W2	PLOT SIZE: 8.5 x 11			



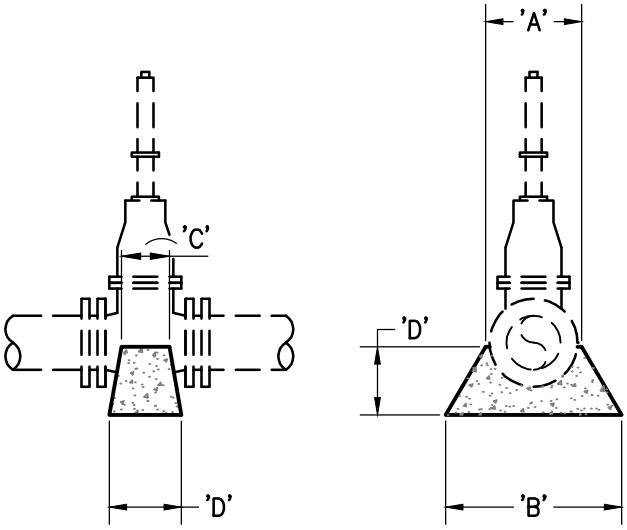
SECTION

VALVE SUPPORT TABLE

VALVE SIZE	A	B	C	D
4"	10"	20"	4"	6"
8"	12"	22"	4"	8"
10"	14"	24"	4"	8"
12"	16"	24"	4"	8"
16"	24"	36"	6"	12"

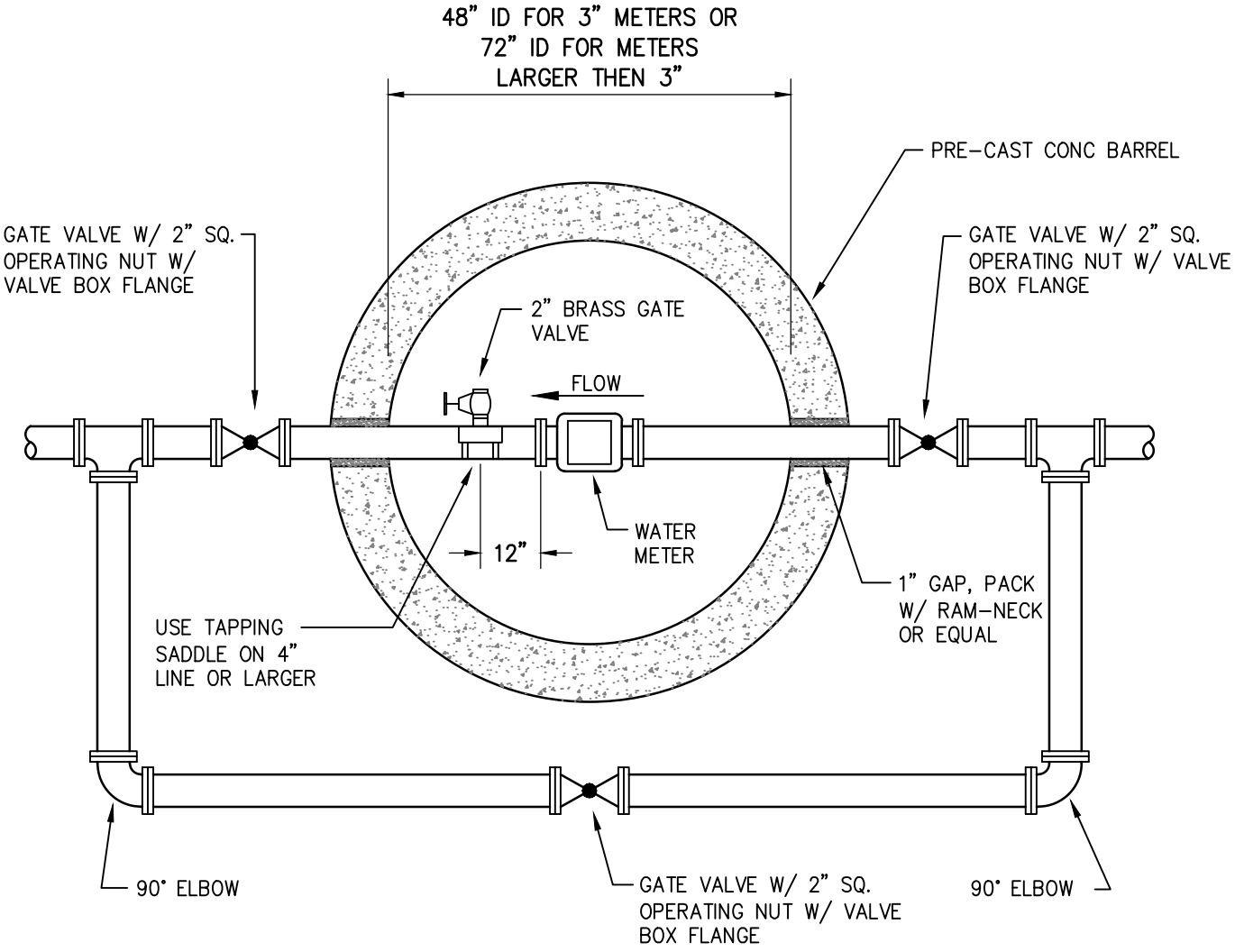
GENERAL NOTES:

1. CONCRETE STRENGTH TO BE 3,000 PSI.



BLOCKING

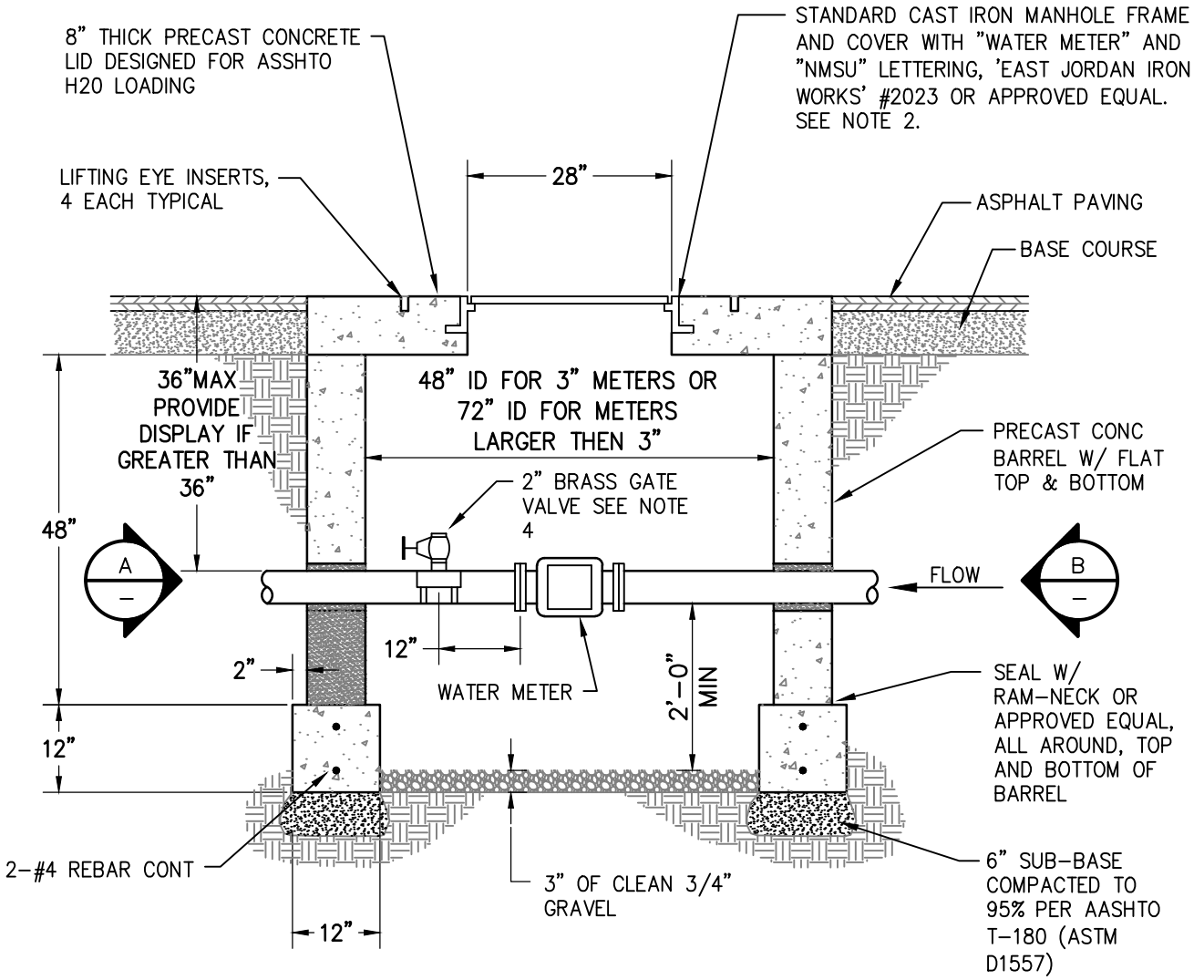
				WATER VALVE DETAIL
REVISION	DESCRIPTION	BY	DATE	
APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'-0"		New Mexico State University
	FILE: DIR\UT-W3	PLOT SIZE: 8.5 x 11		UT-W3

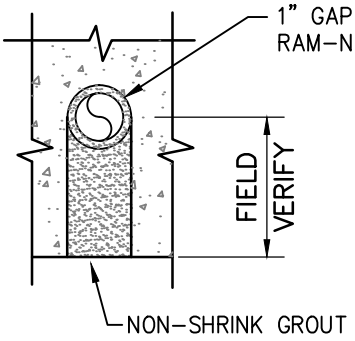


GENERAL NOTES:

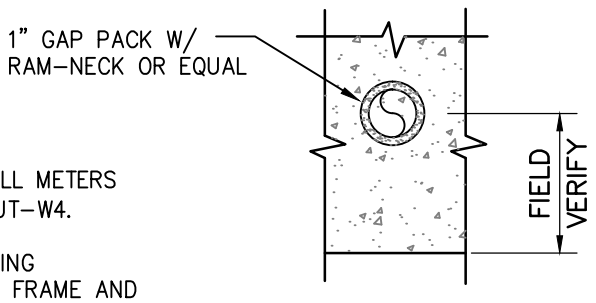
1. C-900 OR DUCTILE IRON PIPE ON 3" PIPE OR GREATER.
2. SEE UT-W5 FOR VAULT SECTION AND ADDITIONAL INFORMATION.

				WATER METER VAULT PLAN	
REVISION	DESCRIPTION		BY	DATE	
APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'-0"		New Mexico State University	UT-W4
	FILE: DIR\UT-W4	PLOT SIZE: 8.5 x 11			





VIEW 'A'
TYPICAL FOR EXISTING LINE



VIEW 'B'
TYPICAL FOR NEW LINE

GENERAL NOTES:

1. BYPASS REQUIRED ON ALL METERS LARGER THAN 2"; SEE UT-W4.
2. FOR NON-TRAFFIC BEARING APPLICATIONS, MANHOLE FRAME AND COVER TO BE 'EAST JORDAN IRON WORKS', EN104621, LIGHT DUTY INLET COVER OR APPROVED EQUAL.
3. PRECAST PORTIONS OF MANHOLES, EXCLUDING CAST-IN-PLACE FOOTINGS, SHALL CONFORM TO ASTM C478, LATEST EDITION.
4. USE TAPPING SADDLE ON 4" LINE OR GREATER.

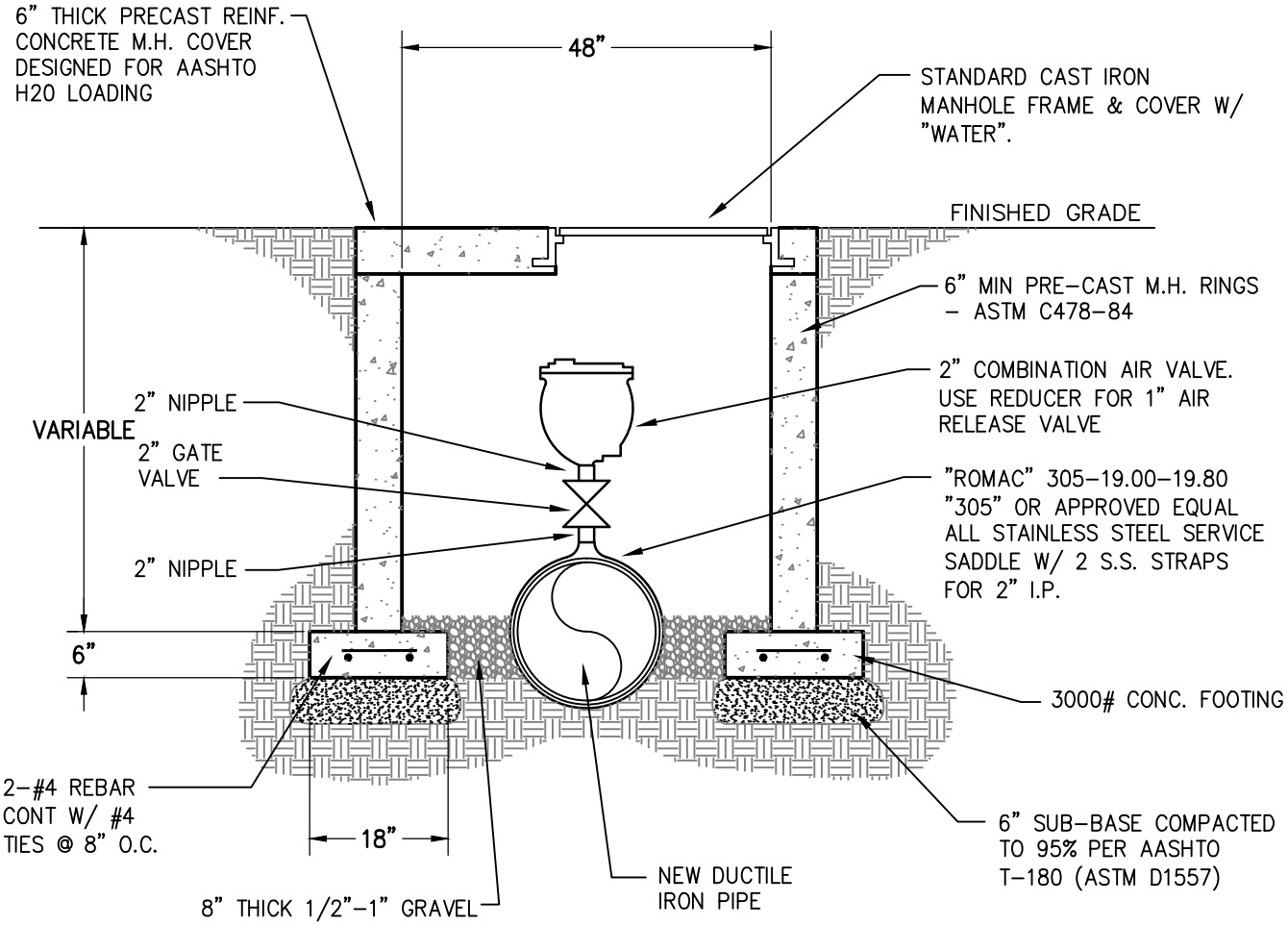
REVISION	DESCRIPTION	BY	DATE

TRAFFIC WATER METER VAULT SECTION

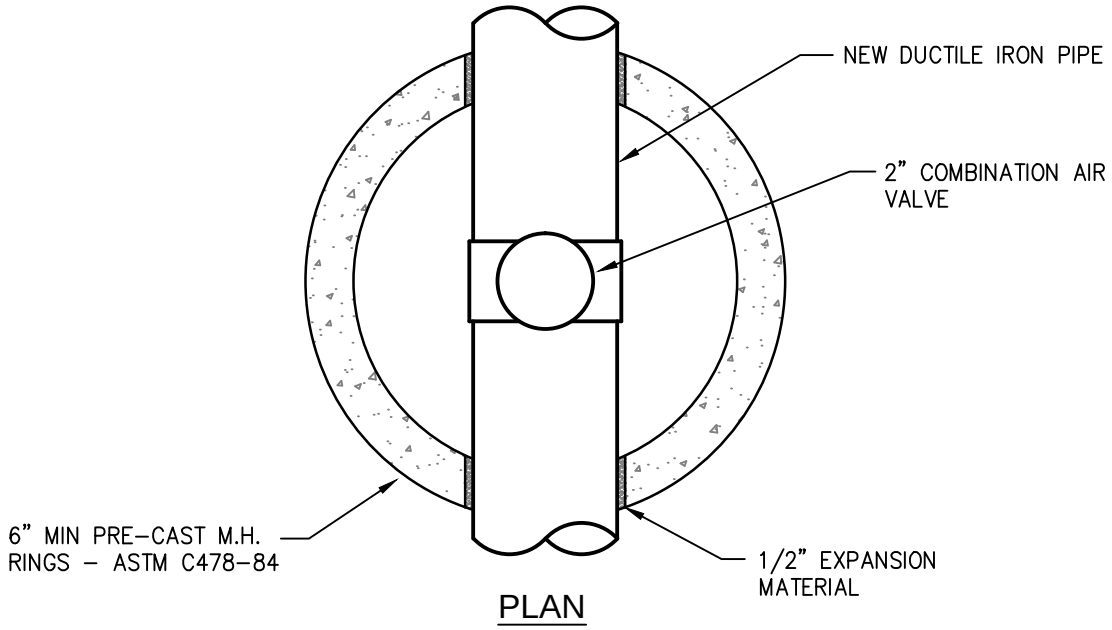
APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'-0"
	FILE: DIR\UT-W5	PLOT SIZE: 8.5 x 11

New Mexico State University

UT-W5

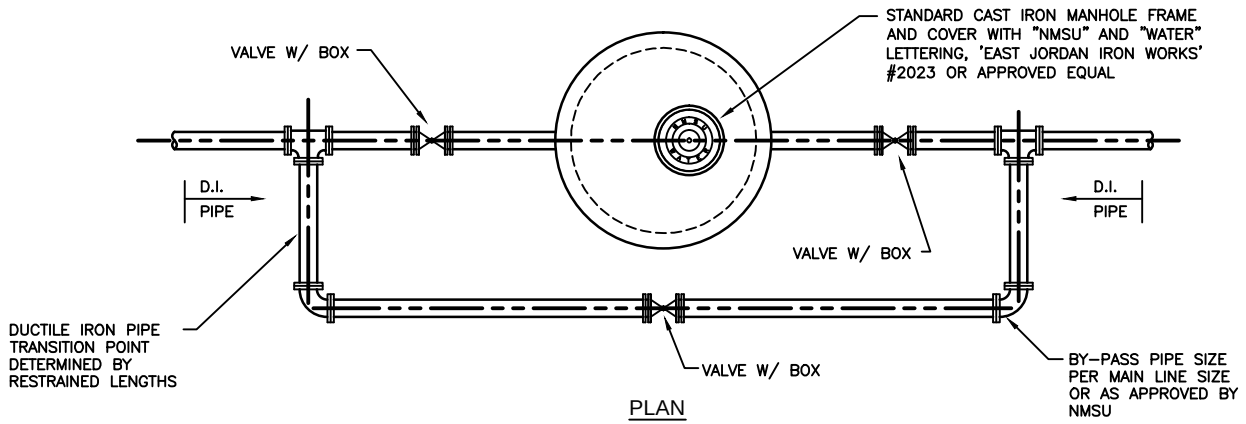


SECTION

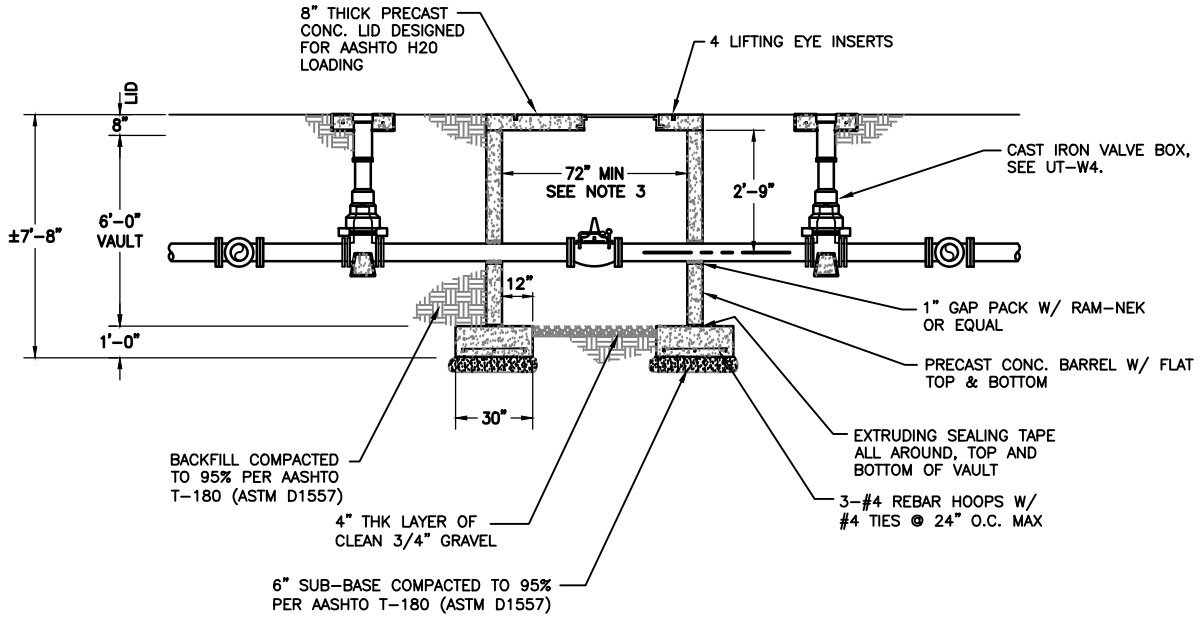


PLAN

				AIR / VACUUM RELIEF VALVE	
REVISION	DESCRIPTION		BY	DATE	
APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'-0"		New Mexico State University	UT-W6
	FILE: DIR\UT-W6	PLOT SIZE: 8.5 x 11			



PLAN



SECTION

GENERAL NOTES:

1. PROVIDE SUPPORT FOR VALVE PER MFG SPECIFICATIONS.
2. POURED FOOTING TO BE 3000 PSI CONCRETE.
3. INTERIOR DIAMETER OF VAULT TO BE SIZED BY NMSU ENGINEERING.
4. SEALING TAPE TO BE 1/2" THK RAM-NEK OR EQUAL.
5. MAINTAIN MIN 3" COVER ON ALL REBAR.
6. PRECAST PORTIONS OF VAULTS, EXCLUDING CAST IN PLACE FOOTING, SHALL CONFORM TO ASTM C478, LATEST REVISION.

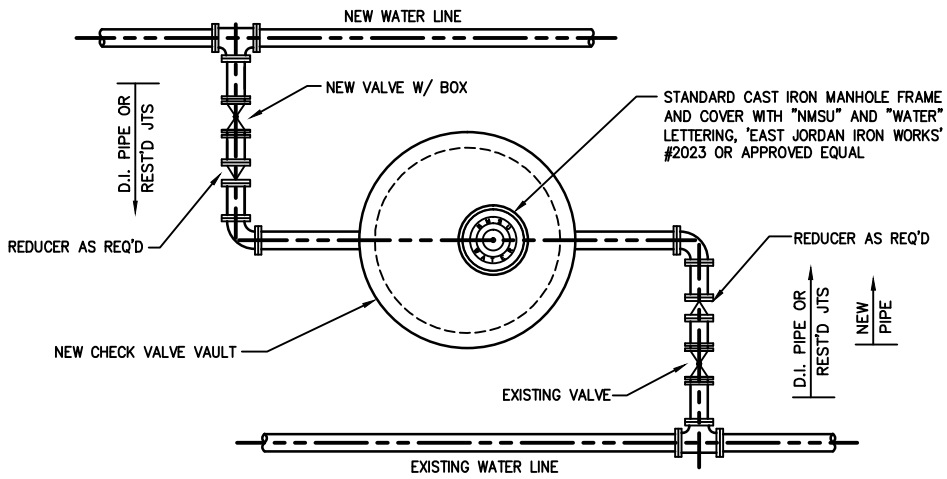
REVISION	DESCRIPTION	BY	DATE

APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: NTS	
	FILE: DIR\UT-W7	PLOT SIZE: 8.5 x 11	

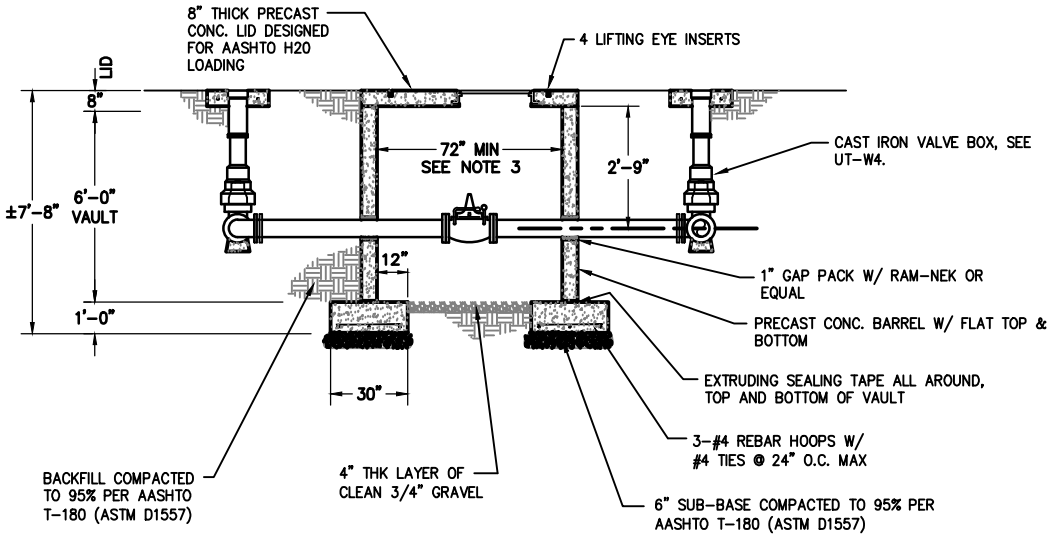
PRV VAULT DETAIL

New Mexico State University

UT-W7



PLAN



SECTION

GENERAL NOTES:

1. PROVIDE SUPPORT FOR VALVE PER MFG SPECIFICATIONS.
2. POURED FOOTING TO BE 3000 PSI CONCRETE.
3. INTERIOR DIAMETER OF VAULT TO BE SIZED BY NMSU ENGINEERING.
4. SEALING TAPE TO BE 1/2" THK RAM-NEK OR EQUAL.
5. MAINTAIN MIN 3" COVER ON ALL REBAR.
6. PRECAST PORTIONS OF VAULTS, EXCLUDING CAST IN PLACE FOOTING, SHALL CONFORM TO ASTM C478, LATEST REVISION.

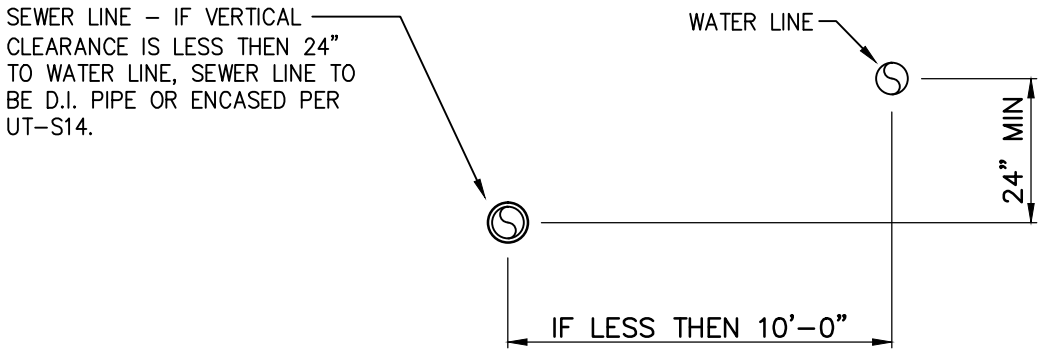
REVISION	DESCRIPTION	BY	DATE

APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: NTS	
	FILE: DIR\UT-W8	PLOT SIZE: 8.5 x 11	

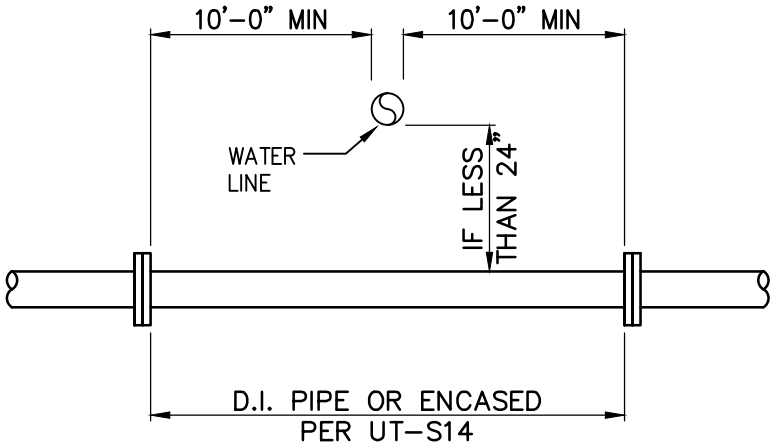
CHECK VALVE VAULT DETAIL

New Mexico State University

UT-W8



PARALLEL LINES



CROSSED LINES

GENERAL NOTES:

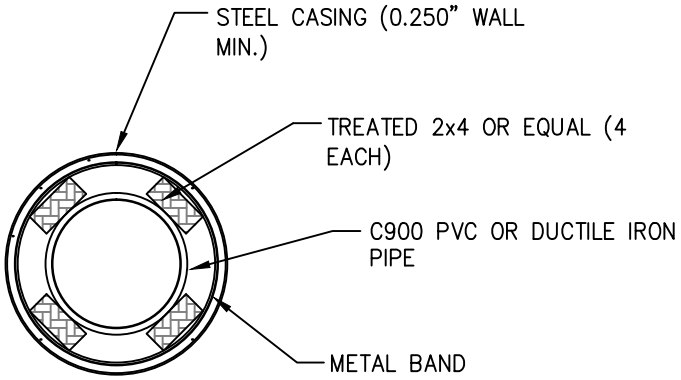
1. WHEN WATER AND SEWER LINES ARE INSTALLED PARALLEL A MINIMUM OF 10'–0" HORIZONTAL SPACING SHALL BE MAINTAINED. IF HORIZONTAL SPACING IS LESS THAN 10'–0" THEN VERTICAL SPACING SHALL BE A MINIMUM OF 24" WITH WATER LINE INSTALLED HIGHER THEN THE SEWER LINE. IF HORIZONTAL SPACING IS LESS THEN 10'–0" AND VERTICAL SPACING IS NOT 24", THE SEWER LINE SHALL BE D.I. PIPE OR ENCASED PER UT–S14.

2. WHEN WATER AND SEWER LINES CROSS, THE WATER LINE SHALL BE A MINIMUM OF 24" ABOVE THE SEWER LINE. IF THE VERTICAL CLEARANCE IS LESS THEN 24", THE SEWER LINE SHALL BE OF D.I. PIPE OR ENCASED PER UT–S14 A MIN OF 10'–0" EACH SIDE OF THE WATER LINE.

3. MINIMUM CLEARANCES ARE TO BE MAINTAINED BETWEEN PARALLEL OR CROSSING SEWER AND WATER LINES EVEN WHEN LINES ARE NOT INSTALLED AT THE SAME TIME.

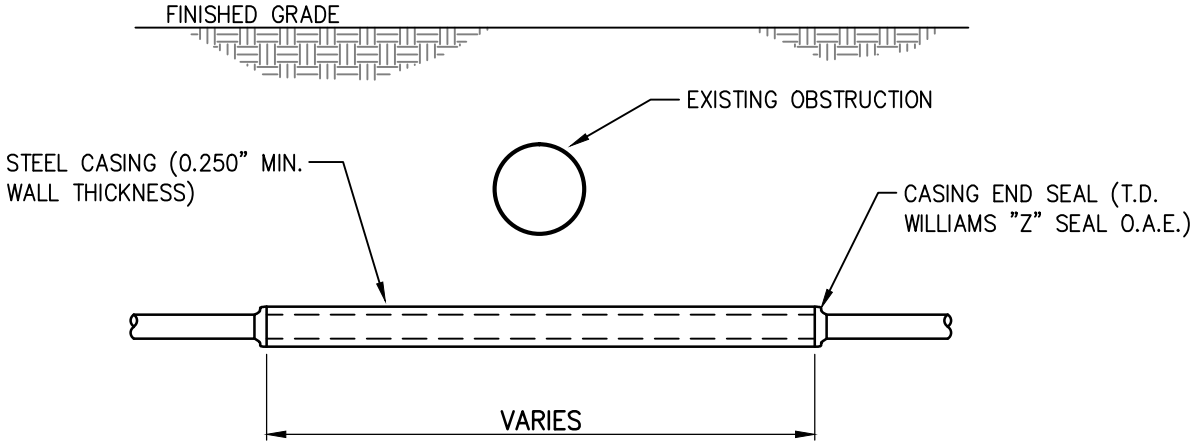
4. WATER MAIN CARRIER LINES SHALL BE OF MATERIALS APPROVED BY APPROPRIATE REGULATORY AGENCY AND NMSU ENGINEERING.

				PARRALLEL AND CROSSED LINE	
REVISION	DESCRIPTION		BY	DATE	
APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'–0"	New Mexico State University		UT–W9
	FILE: DIR\UT–W9	PLOT SIZE: 8.5 x 11			



CASING DETAIL

NTS



CASING SECTION

GENERAL NOTES:

1. USE "RACI" CASING SPACERS BY PUBLIC WORKS MARKETING, INC OR APPROVED EQUALS AT MANUFACTURERS RECOMMENDED SPACING OR TREATED WOOD SPACERS BANDED TO WATER LINE FULL LENGTH OF CASING EXCEPT AT BELLS OR SPIGOTS.

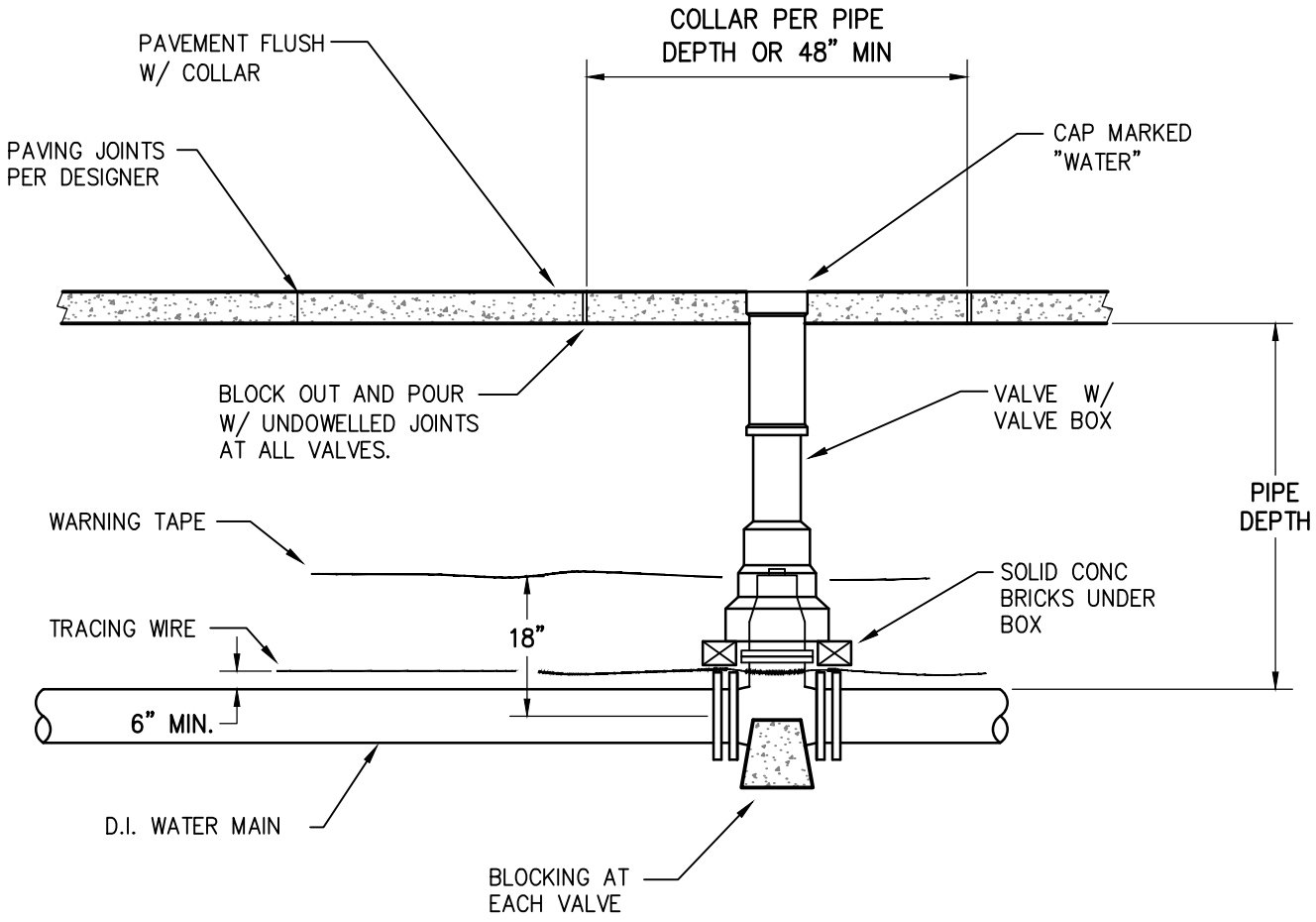
REVISION	DESCRIPTION	BY	DATE

WATER LINE BORE AND CASING

APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'-0"
	FILE: DIR\UT-W10	PLOT SIZE: 8.5 x 11

New Mexico State University

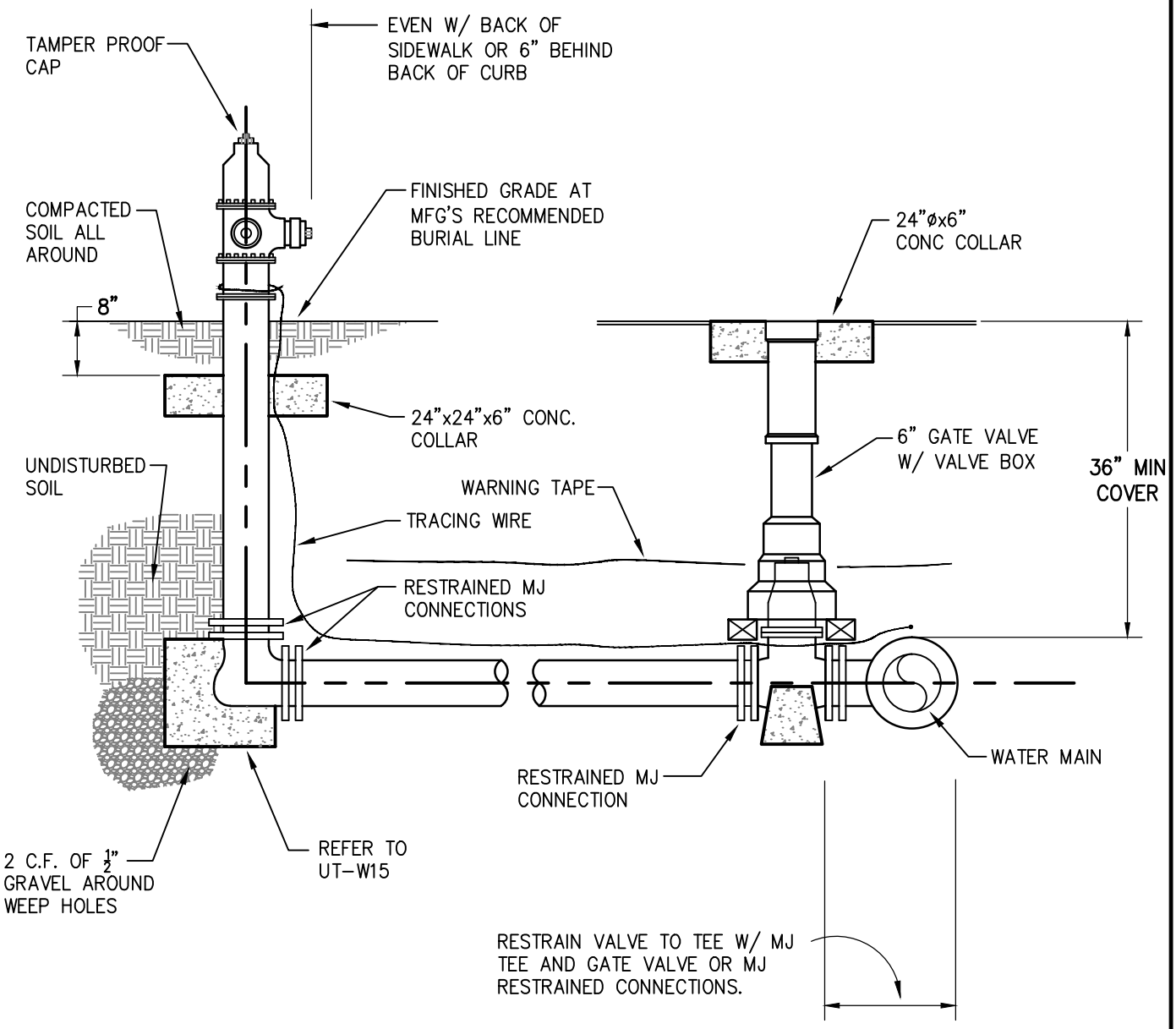
UT-W10



GENERAL NOTES:

1. USE ONLY DUCTILE IRON PIPE UNDER CONCRETE PAVING.
2. VALVE BOX TO BE CAST IRON 5 $\frac{1}{2}$"ø MIN. BARREL, SCREW TYPE

				WATER MAIN UNDER RIGID PAVING	
REVISION	DESCRIPTION		BY	DATE	
APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'-0"	New Mexico State University	UT-W11	
	FILE: DIR\UT-W11	PLOT SIZE: 8.5 x 11			



GENERAL NOTES:

1. LOCATE FIRE HYDRANT IN R.O.W. BEHIND CURB AND GUTTER IF SPACE IS AVAILABLE, OTHERWISE PLACE HYDRANT AT DIRECTION OF NMSU ENGINEERING.

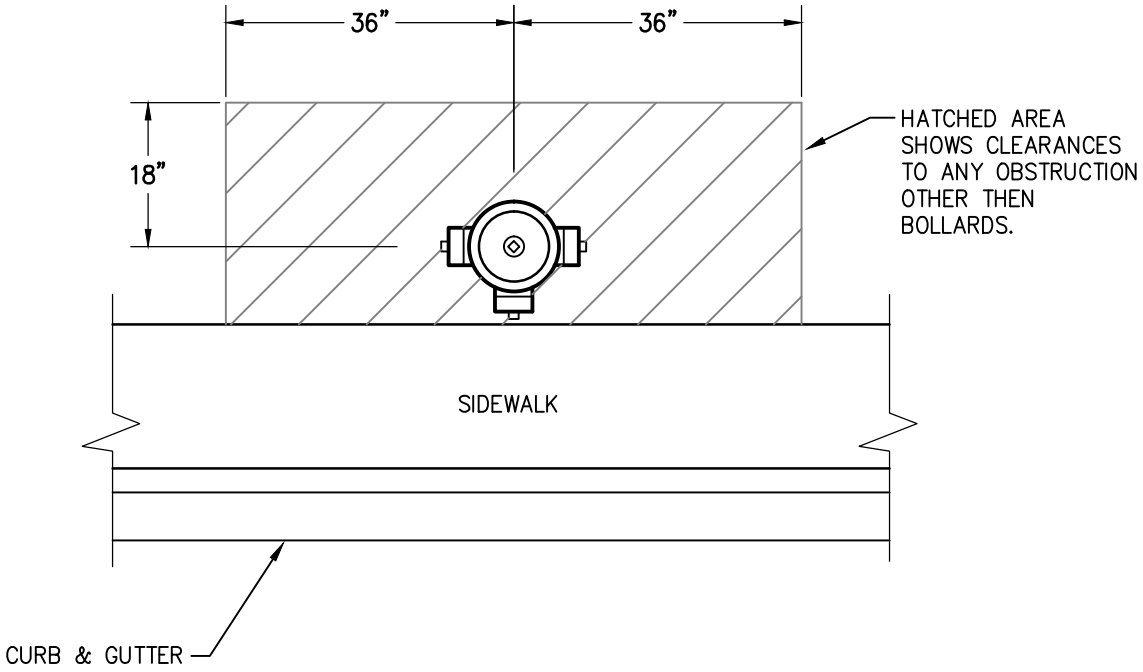
2. TRACING WIRE TO CONNECTED INTO TRACING WIRE SYSTEM.

REVISION	DESCRIPTION	BY	DATE
APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'-0"	
	FILE: DIR\UT-W12	PLOT SIZE: 8.5 x 11	

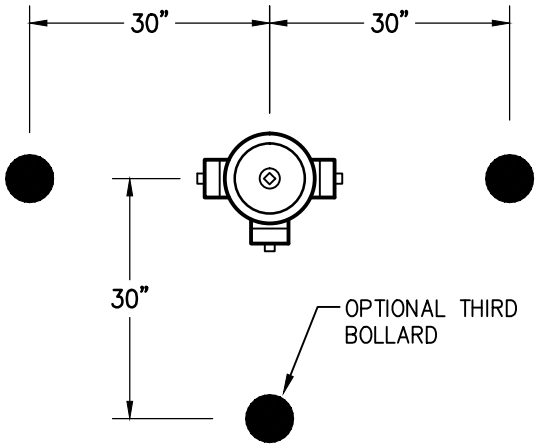
FIRE HYDRANT DETAIL

New Mexico State University

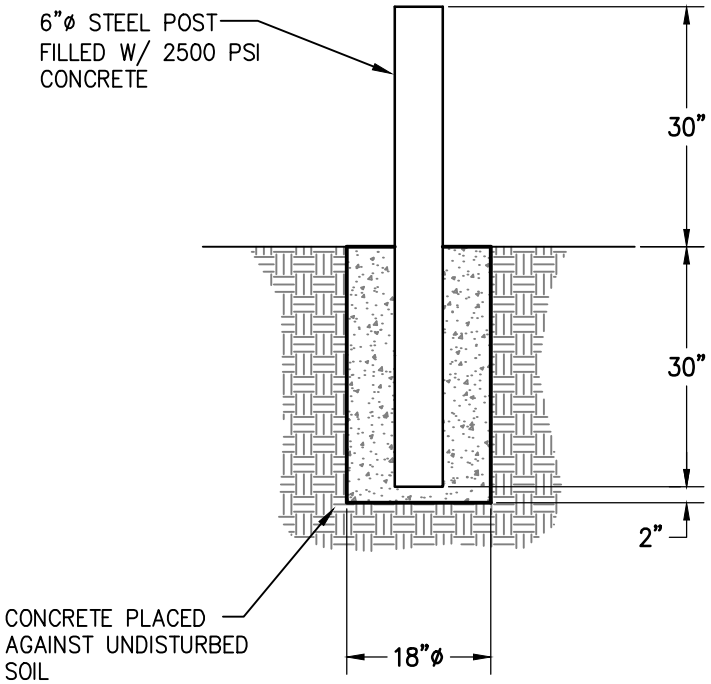
UT-W12



CLEARANCES

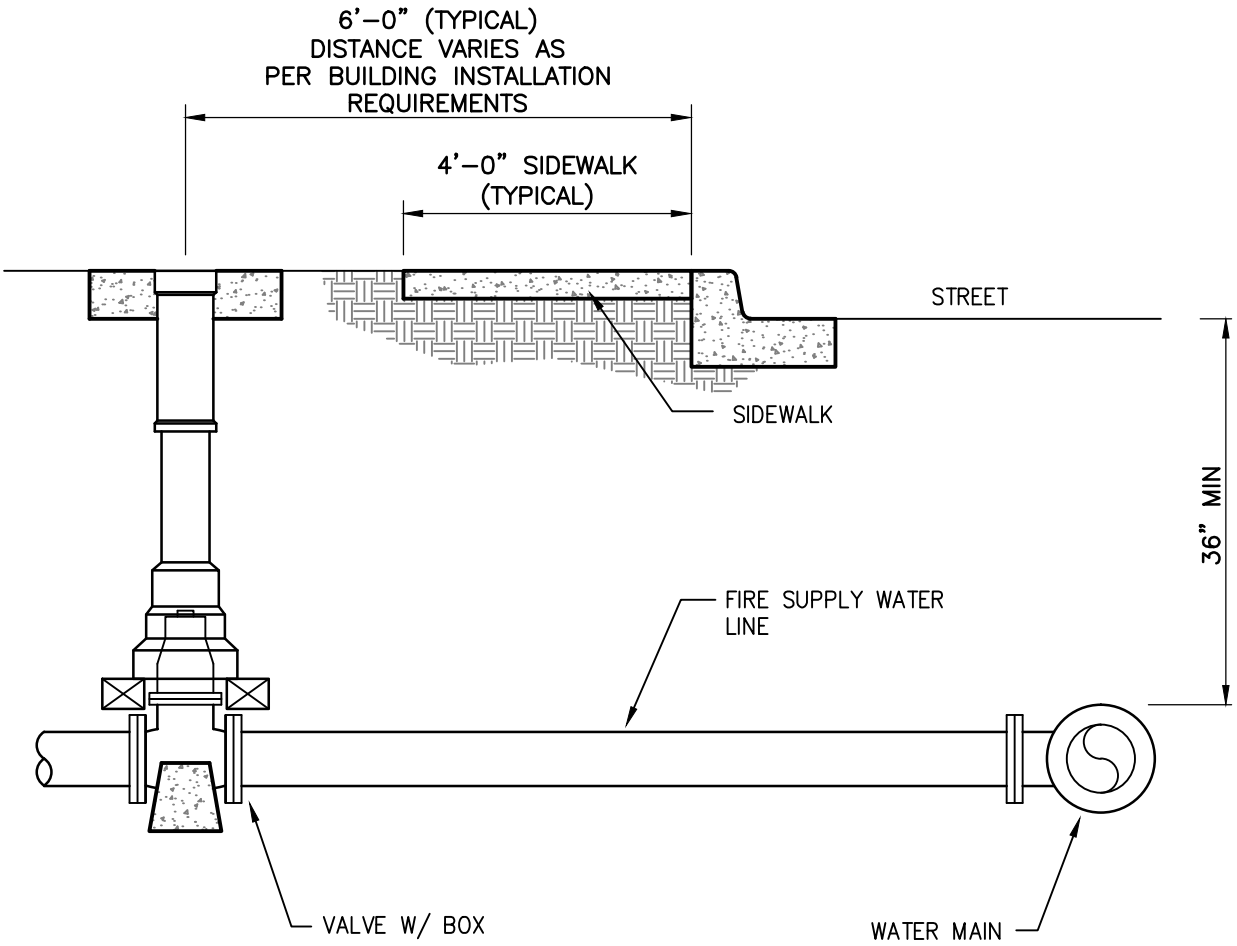


BOLLARD LAYOUT



BOLLARD SECTION

				FIRE HYDRANT CLEARANCES AND BOLLARD DETAILS
REVISION	DESCRIPTION		BY	DATE
APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'-0"		New Mexico State University
	FILE: DIR\UT-W13	PLOT SIZE: 8.5 x 11		UT-W13



GENERAL NOTES:

1. WHEN USING A TAPPING TEE NMSU SHALL BE RESPONSIBLE FOR INSTALLATION.

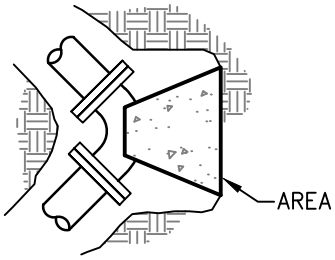
2. VALVE W/ BOX MAY BE LOCATED OUTSIDE OF THE LOCATION SHOWN (IN STREET/ OBSTACLES) W/ APPROVAL FROM NMSU ENGINEERING.

REVISION	DESCRIPTION	BY	DATE
APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'–0"	
	FILE: DIR\UT–W14	PLOT SIZE: 8.5 x 11	

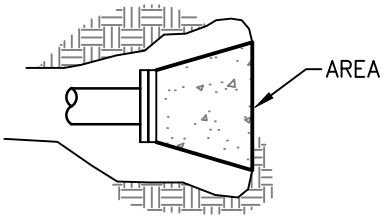
FIRE SUPPLY LINE

New Mexico State University

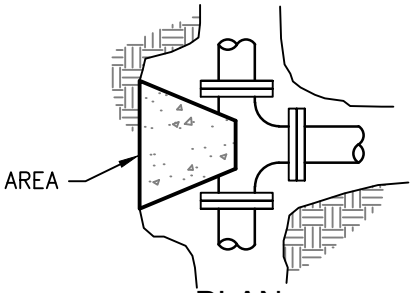
UT–W14



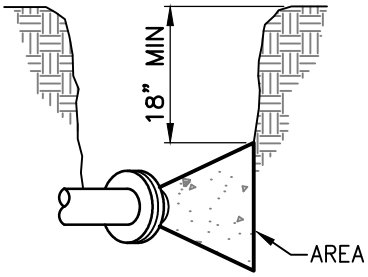
PLAN



PLAN

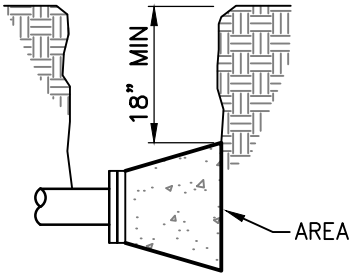


PLAN



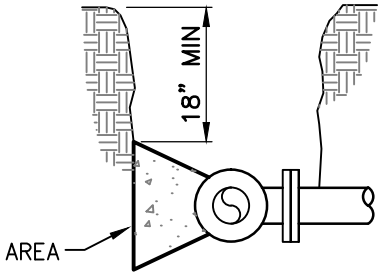
ELEVATION

BENDS



ELEVATION

DEAD ENDS



ELEVATION

TEES

TABLE 'A'

MINIMUM BEARING SURFACE
AREA IN SQUARE FEET

PIPE SIZE	BENDS				TEE OR DEAD END
	$11\frac{1}{4}°$	$22\frac{1}{2}°$	45°	90°	
4"	1	1	1	2	1.5
6"	1	1.5	2.5	4.5	3.5
8"	1.5	2.5	4.5	8	6
10"	2	3.5	7	12.5	9
12"	2.5	5	10	18	13

GENERAL NOTES:

1. BEARING VALUES SHOWN IN TABLE 'A' ARE BASED ON A TEST PRESSURE OF 150 PSI; AN 1.5 TO 1.0 SAFETY FACTOR; AND 2,000 PSF SOIL BEARING VALUE.
2. THE DESIGN ENGINEER SHALL DETERMINE THE SAFE BEARING VALUES FOR EACH PROJECT AND THE FACTORS AS SHOWN IN TABLE 'B' FOR INCREASING AREAS IN TABLE 'A' AND THESE ADJUSTED AREAS SHALL BE USED BY THE CONTRACTOR WHERE APPLICABLE.
3. BEARING SURFACE AREAS ARE TO BE ON UNDISTURBED SOIL.
4. WRAP PIPE/ FITTING W/ VISQUEEN 10 MIL.

TABLE 'B'

SOIL TYPE	MAX. ALLOWABLE SOIL BEARING VALUES	FACTORS FOR INCREASING AREAS IN TABLE 'A'
LOOSE SAND	500 PSF	4
SOFT SANDY CLAY	1,000 PSF	2
ADOBE	1,000 PSF	2
COMPACT FINE SAND	2,000 PSF	1
COMPACT COARSE SAND	2,000 PSF	1
MEDIUM STIFF CLAY	2,000 PSF	1

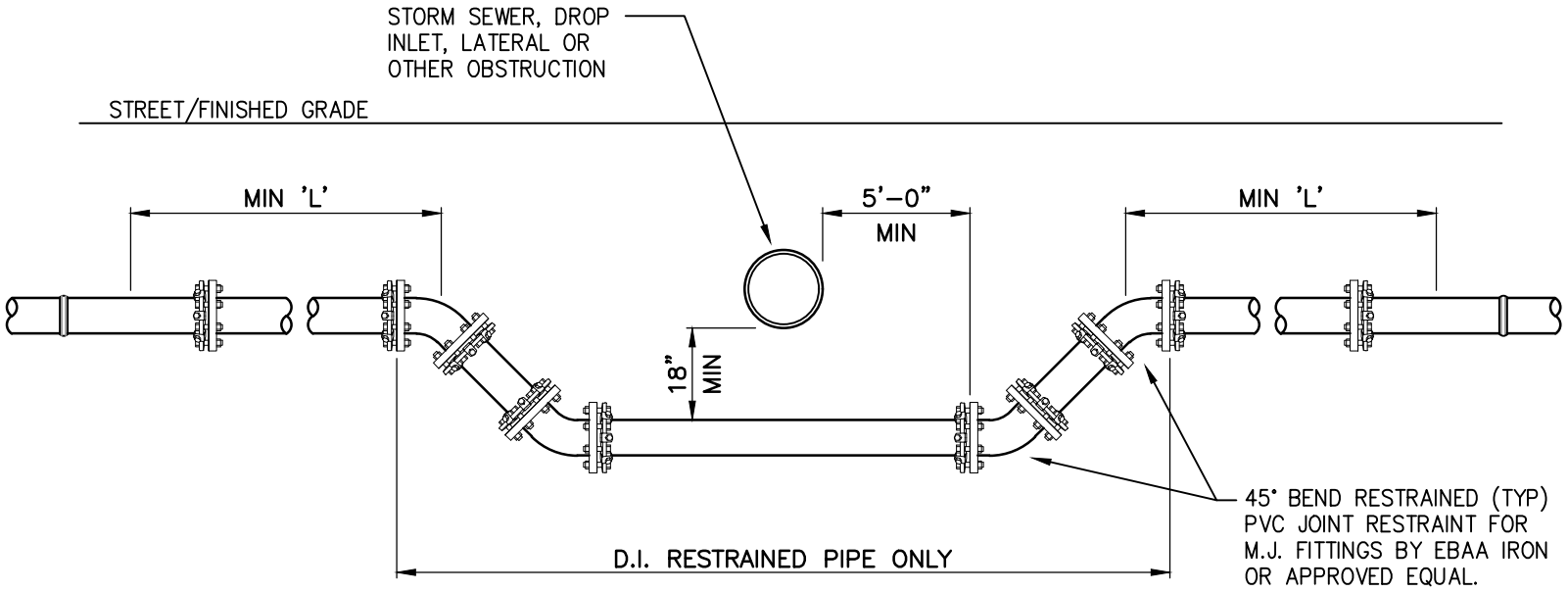
REVISION	DESCRIPTION	BY	DATE

CONCRETE BLOCKING DETAILS

APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'-0"
	FILE: DIR\UT-W15	PLOT SIZE: 8.5 x 11

New Mexico State University

UT-W15



GENERAL NOTES:

1. THIS TABLE OF RESTRAINED LENGTHS IS PROVIDED BASED ON ML (UNIFIED CLASSIFICATION) SOIL TYPES. THESE LENGTHS MAY ALSO BE USED FOR GP, GM, SM, SP AND CL SOIL TYPES. THE USE OF OTHER RESTRAINED LENGTHS BASED ON OTHER SOIL CONDITIONS OR OTHER DESIGN PARAMETERS OR PIPE SIZES LARGER THAN 12 INCHES SHALL BE DESIGNED AND SUBMITTED FOR APPROVAL.
2. RESTRAINED LENGTH CALCULATION IS BASED ON COMPACTED TYPE 4 TRENCH WITH 3'-0" OF COVER; A TEST PRESSURE OF 150 PSI; AND AN 1.5 TO 1.0 SAFETY FACTOR.
3. POLYETHYLENE WRAPPED D.I. PIPE WILL REQUIRE SEPARATE CALCULATIONS.
4. LENGTHS BASED ON EBAA IRON RESTRAINT DESIGN SOFTWARE.
5. PVC AND D.I. RESTRAINED JOINTS BY EBAA IRON, ROMAC IND. OR APPROVED EQUAL.

RESTRAINED LENGTH (L) IN FEET

PIPE SIZE	D.I.	PVC
4"	12'	22'
6"	17'	30'
8"	22'	40'
10"	26'	48'
12"	30'	56'

REVISION | DESCRIPTION | BY | DATE

APPROVED: D.C.
ISSUED: 10/1/12
PLOT SCALE: 1/2"=1'-0"
FILE: DIR\UT-W16
PLOT SIZE: 8.5 x 11

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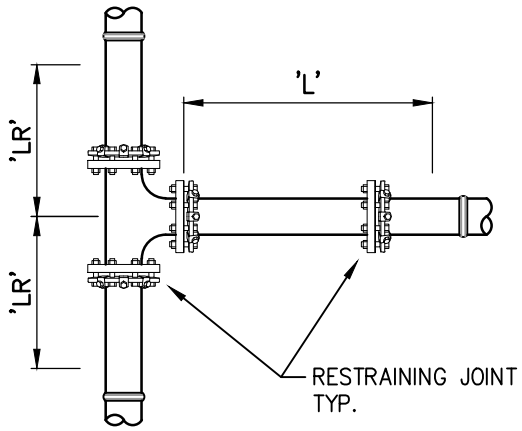
WATER LINE LOWERING

UT-W16



RESTRAINED LENGTHS (FT) FOR TEE

	LR = 5' MIN		LR = 10' MIN	
PIPE SIZE	L (D.I.)	L (PVC)	L (D.I.)	L (PVC)
4"x4"	12'	21'	1'	1'
6"x4"	4'	7'	1'	1'
6"x6"	23'	41'	7'	12'
8"x4"	1'	1'	1'	1'
8"x6"	18'	32'	1'	1'
8"x8"	36'	64'	19'	34'
10"x4"	1'	1'	1'	1'
10"x6"	12'	21'	1'	1'
10"x8"	32'	56'	10'	18'
10"x10"	45'	80'	28'	50'
12"x4"	1'	1'	1'	1'
12"x6"	6'	10'	1'	1'
12"x8"	27'	48'	1'	2'
12"x10"	42'	74'	21'	38'
12"x12"	56'	100'	39'	69'

TEE

GENERAL NOTES:

1. THIS TABLE OF RESTRAINED LENGTHS IS PROVIDED BASED ON ML (UNIFIED CLASSIFICATION) SOIL TYPES. THESE LENGTHS MAY ALSO BE USED FOR GP, GM, SM, SP AND CL SOIL TYPES. THE USE OF OTHER RESTRAINED LENGTHS BASED ON OTHER SOIL CONDITIONS OR OTHER DESIGN PARAMETERS OR PIPE SIZES LARGER THAN 12 INCHES SHALL BE DESIGNED AND SUBMITTED FOR APPROVAL.

2. RESTRAINED LENGTH CALCULATION IS BASED ON COMPACTED TYPE 4 TRENCH WITH 3'-0" OF COVER; A TEST PRESSURE OF 150 PSI; AND AN 1.5 TO 1.0 SAFETY FACTOR.

3. POLYETHYLENE WRAPPED D.I. PIPE WILL REQUIRE SEPARATE CALCULATIONS.

4. TEE FITTINGS REQUIRE THE RESTRAINT OF ALL JOINTS WITHIN A CALCULATED LENGTH ALONG THE BRANCH PIPE. THE RESTRAINED DESIGN ALSO REQUIRES THE SELECTION OF A LENGTH OF PIPE ALONG THE RUN (LR) TO BE FREE OF JOINTS.

5. LENGTHS BASED ON EBAA IRON RESTRAINT DESIGN SOFTWARE.

6. MEGA LUGS REQUIRED. GRIP RING NOT ACCEPTABLE.

REVISION	DESCRIPTION	BY	DATE

APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'-0"	
	FILE: DIR\UT-W17	PLOT SIZE: 8.5 x 11	

RESTRAINED TEE

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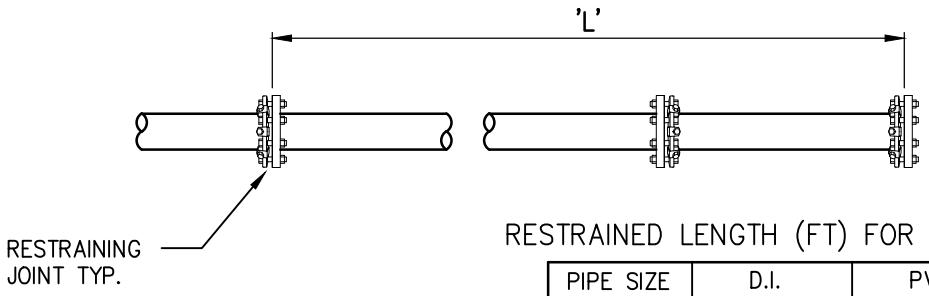
UT-W17

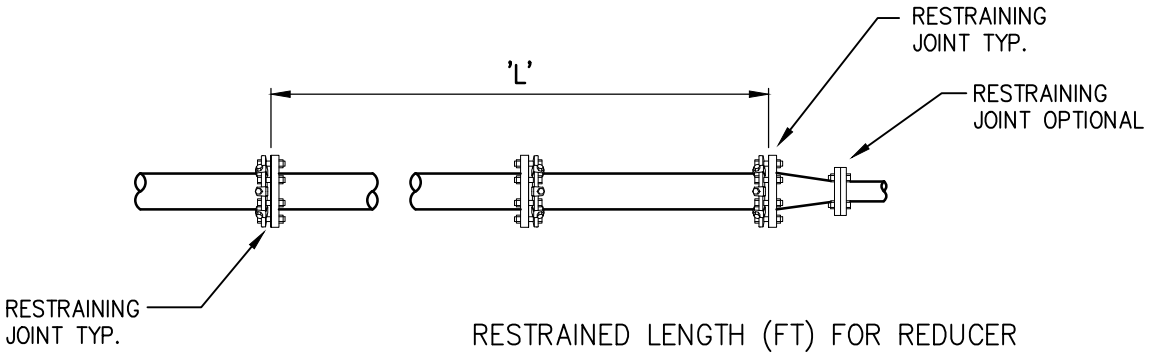


NOTE: DEAD END REQUIRES RESTRAINT OF ALL JOINTS WITHIN THE CALCULATED LENGTH (L) EXTENDING FROM CAP

RESTRAINED LENGTH (FT) FOR DEAD END

PIPE SIZE	D.I.	PVC
4"	6'	14'
6"	8'	19'
8"	10'	25'
10"	12'	29'
12"	14'	34'

DEAD END



NOTE: REDUCER REQUIRES RESTRAINT OF ALL JOINTS WITHIN THE CALCULATED LENGTH (L) EXTENDING FROM THE FITTING ON THE SIDE OF THE LARGER PIPE. RESTRAINING THE SMALLER SIDE OF THE REDUCER IS OPTIONAL.

RESTRAINED LENGTH (FT) FOR REDUCER

PIPE SIZE	D.I.	PVC
6"x4"	21'	38'
8"x4"	38'	69'
8"x6"	22'	40'
10"x4"	51'	94'
10"x6"	38'	71'
10"x8"	21'	39'
12"x4"	64'	118'
12"x6"	53'	99'
12"x8"	39'	72'
12"x10"	36'	67'

REDUCER

GENERAL NOTES:

1. THIS TABLE OF RESTRAINED LENGTHS IS PROVIDED BASED ON ML (UNIFIED CLASSIFICATION) SOIL TYPES. THESE LENGTHS MAY ALSO BE USED FOR GP, GM, SM, SP AND CL SOIL TYPES. THE USE OF OTHER RESTRAINED LENGTHS BASED ON OTHER SOIL CONDITIONS OR OTHER DESIGN PARAMETERS OR PIPE SIZES LARGER THAN 12 INCHES SHALL BE DESIGNED AND SUBMITTED FOR APPROVAL.

2. RESTRAINED LENGTH CALCULATION IS BASED ON COMPACTED TYPE 4 TRENCH WITH 3'–0" OF COVER; A TEST PRESSURE OF 150 PSI; AND AN 1.5 TO 1.0 SAFETY FACTOR.

3. LENGTHS BASED ON EBAA IRON RESTRAINT DESIGN SOFTWARE.

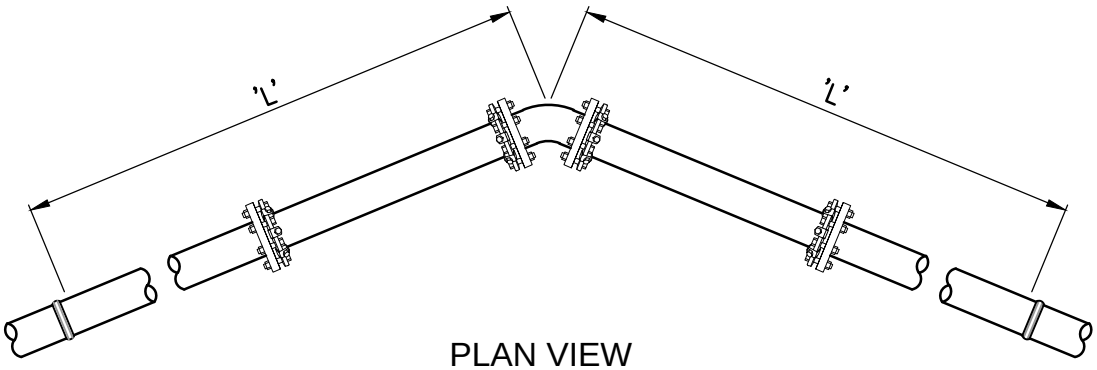
REVISION	DESCRIPTION	BY	DATE

RESTRAINED DEAD END AND REDUCER

APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'–0"
	FILE: DIR\UT–W18	PLOT SIZE: 8.5 x 11

New Mexico State University

UT–W18



PLAN VIEW

RESTRAINED LENGTH (FT) FOR DUCTILE IRON PIPE

PIPE SIZE	11 ¼° BEND	22 ½° BEND	45° BEND	90° BEND
4"	1'	3'	6'	14'
6"	2'	4'	8'	19'
8"	2'	5'	10'	25'
10"	3'	6'	12'	29'
12"	3'	7'	14'	34'

RESTRAINED LENGTH (FT) FOR P.V.C. PIPE

PIPE SIZE	11 ¼° BEND	22 ½° BEND	45° BEND	90° BEND
4"	2'	3'	7'	17'
6"	2'	5'	10'	24'
8"	3'	6'	13'	31'
10"	4'	7'	15'	37'
12"	4'	9'	18'	44'

GENERAL NOTES:

1. THIS TABLE OF RESTRAINED LENGTHS IS PROVIDED BASED ON ML (UNIFIED CLASSIFICATION) SOIL TYPES. THESE LENGTHS MAY ALSO BE USED FOR GP, GM, SM, SP AND CL SOIL TYPES. THE USE OF OTHER RESTRAINED LENGTHS BASED ON OTHER SOIL CONDITIONS OR OTHER DESIGN PARAMETERS OR PIPE SIZES LARGER THAN 12 INCHES SHALL BE DESIGNED AND SUBMITTED FOR APPROVAL.

2. RESTRAINED LENGTH CALCULATION BASED ON COMPACTED TYPE 4 TRENCH WITH 3'-0" OF COVER; A TEST PRESSURE OF 150 PSI; AND AN 1.5 TO 1.0 SAFETY FACTOR.

3. POLYETHYLENE WRAPPED D.I. PIPE WILL REQUIRE SEPERATE CALCULATIONS.

4. LENGTHS BASED ON EBAA RESTRAINT SOFTWARE.

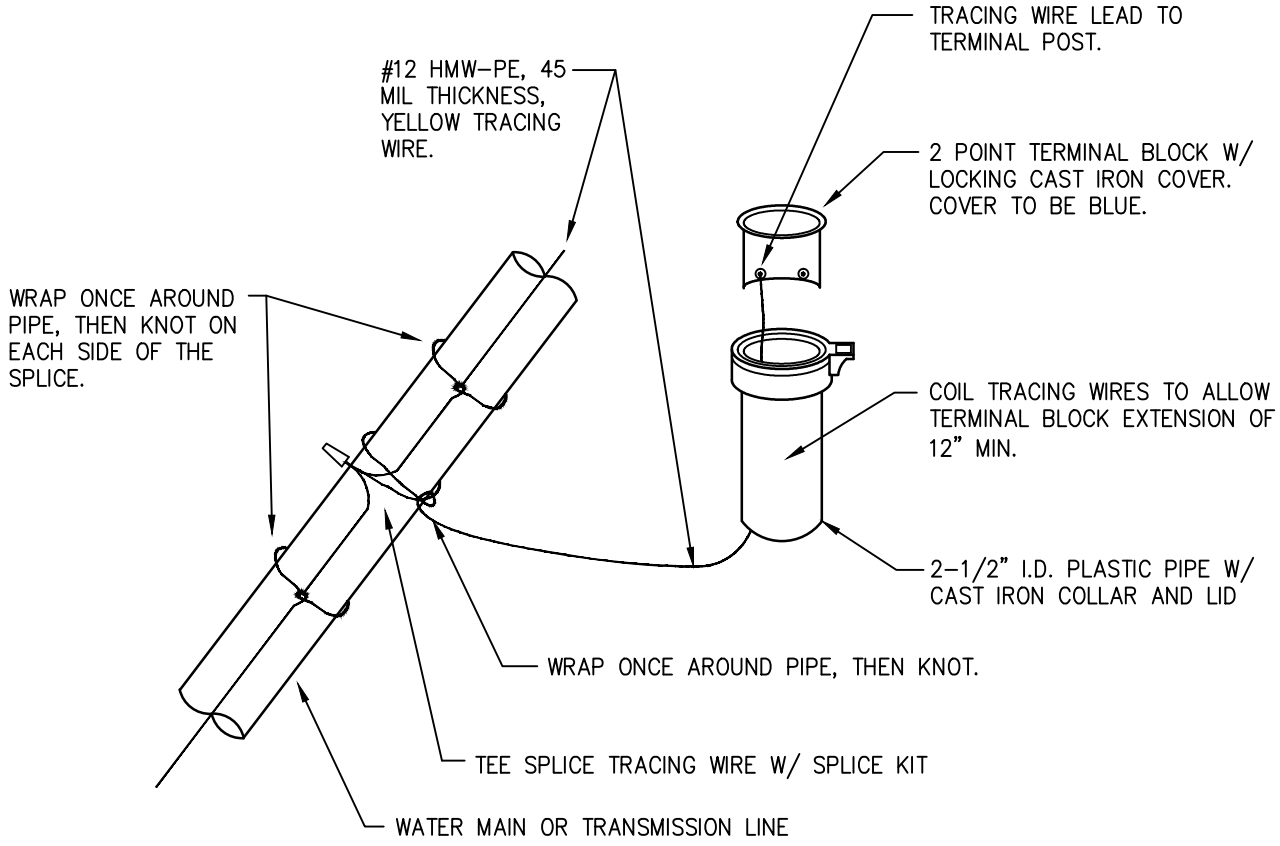
REVISION	DESCRIPTION	BY	DATE

APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'-0"	
	FILE: DIR\UT-W19	PLOT SIZE: 8.5 x 11	

RESTRAINED HORIZONTAL BEND

New Mexico State University

UT-W19



GENERAL NOTES:

1. TEST BOXES, CONNECTED INTO TRACING SYSTEM, SHALL BE REQUIRED WHERE HYDRANTS ARE NOT USED OR WHERE HYDRANT SPACING EXCEEDS 500 FEET.
2. SPACING AND LOCATION OF TEST BOXES TO BE DETERMINED BY NMSU ENGINEERING.
3. TEST BOX LOCATION MAY VARY AND CAN BE LOCATED UP TO 50 FT. FROM GAS LINE.
4. REFER TO STANDARDS AND MATERIALS LISTS FOR MATERIALS.

REVISION	DESCRIPTION	BY	DATE

TRACING WIRE TEST BOX

APPROVED: D.C.	ISSUED: 10/1/12	PLOT SCALE: 1/2"=1'-0"
	FILE: DIR\UT-W20	PLOT SIZE: 8.5 x 11

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UT-W20