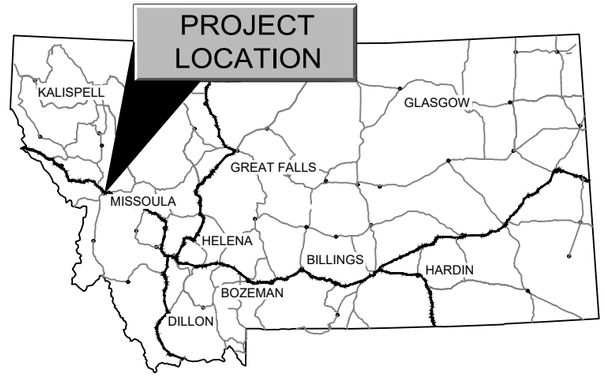
CONSTRUCTION PLANS FOR:

LOLO STREET
WATER MAIN REPLACEMENT

CITY OF MISSOULA PROJECT NO. 2026-MSS-PWI-00001

S14 T13N R19W

MISSOULA COUNTY, MONTANA



LOCATION MAP

INDEX TO SHEETS	
NO.	DESCRIPTION
1	TITLE SHEET
2	GENERAL NOTES
3	SUMMARY OF ESTIMATED QUANTITIES
4	PROJECT CONTROL & EXISTING CONDITIONS
5	SITE PLAN
6	UTILITY PLAN
7	FITTING POINT TABLE
8 - 9	SUSPENDED WATER MAIN DETAILS
10 - 11	CONSTRUCTION DETAILS



SITE MAP

NO SCALE

PLANS PREPARED FOR

CITY OF MISSOULA

MONTANA
BRENDAN J. ELKINS
No. 54409 PE
9-3-2026
LICENSED PROFESSIONAL ENGINEER

PROJECT MANAGER
B. ELKINS

GENERAL NOTES

1. SPECIFICATIONS: CONSTRUCT THE PROJECT IN COMPLIANCE WITH THE PROJECT SPECIAL PROVISIONS, ENVIRONMENTAL PROTECTION AGENCY REGULATIONS, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, MONTANA PUBLIC WORKS SUPPLEMENTS AND BEST MANAGEMENT PRACTICES AS AMENDED BY THE CITY OF MISSOULA, THE CITY OF MISSOULA STANDARDS AND SPECIFICATIONS MANUAL, AND THE MISSOULA CITY STANDARD DETAILS AND DRAWINGS.

2. MATERIAL SOURCES: ALL MATERIALS ARE CONTRACTOR FURNISHED.

3. SOIL EROSION AND POLLUTION CONTROL PLAN: SUBMIT A SOIL EROSION AND POLLUTION CONTROL PLAN, IN CONJUNCTION WITH THE BRIDGE REPLACEMENT PROJECT, TO THE CITY FOR APPROVAL PRIOR TO BEGINNING WORK ACCORDING TO THE PROJECT SPECIFICATIONS. PROVIDE METHODS TO PREVENT RUNOFF FROM THE CONSTRUCTION SITE FROM ENTERING THE ACTIVE STREAM OR ADJACENT PROPERTIES.

4. DISPOSAL: ALL MATERIALS DESIGNATED FOR REMOVAL, EXCEPT FOR MATERIALS TO BE SALVAGED PER THE PROJECT PLANS AND SPECIFICATIONS, BECOME THE PROPERTY OF THE CONTRACTOR UPON REMOVAL AND ARE TO BE DISPOSED OF IN AN ENVIRONMENTALLY SAFE MANNER IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REQUIREMENTS.

5. UTILITIES: UTILITY LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE. NOT ALL EXISTING UTILITIES ARE SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY LOCATIONS OF ALL UTILITIES THAT MAY BE IMPACTED BY THIS PROJECT. THE CONTRACTOR SHALL COORDINATE ALL UTILITY RELOCATIONS WITH THE UTILITY PROVIDERS AT NO COST TO THE OWNER.

6. RIGHTS-OF-WAY: DUE TO THE PROXIMITY OF WORK TO ADJACENT PROPERTIES, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO IDENTIFY LOCATION OF EXISTING RIGHT-OF-WAY PRIOR TO STARTING WORK. WHERE APPLICABLE, THE RIGHT-OF-WAY BASED ON FOUND MONUMENTS TAKES PRECEDENCE OVER THAT BASED ON AS-BUILT PLANS.

7. TEMPORARY TRAFFIC CONTROL: TEMPORARY TRAFFIC CONTROL PLAN TO BE COMPLETED WITH THE BRIDGE PROJECT, AND SUBMITTED TO THE CITY FOR APPROVAL PRIOR TO BEGINNING WORK. THE MAIN STREET MAY BE CLOSED IN THE VICINITY OF THE CONSTRUCTION FOR THE DURATION OF CONSTRUCTION. MAINTAIN ACCESS TO RESIDENTS' DRIVEWAYS AT ALL TIMES

8. MAILBOXES: ALL MAILBOXES ARE TO REMAIN OPERATIONAL DURING CONSTRUCTION, EITHER BY INSTALLING CLUSTER MAILBOXES BEFORE REMOVING EXISTING MAILBOXES OR BY PROVIDING TEMPORARY MAILBOX USE.

9. DISTURBANCE: THE CONTRACTOR SHALL ONLY DISTURB WITHIN THE LIMITS OF DISTURBANCE SPECIFIED AND SHOWN ON THE CONSTRUCTION DRAWINGS. NO GROUND DISTURBANCE SHALL OCCUR OUTSIDE THE LIMITS UNLESS APPROVED BY THE CONTRACTING OFFICER PRIOR TO CONSTRUCTION. ALL DISTURBANCE AREAS MUST BE RESTORED TO PRE-CONSTRUCTION OR BETTER CONDITIONS AT THE COMPLETION OF WORK.

10. BRIDGE PROJECT: THE WATER MAIN REPLACEMENT PROJECT WILL BE CONSTRUCTED IN CONJUNCTION WITH THE BRIDGE REPLACEMENT THAT THE WATER MAIN WILL BE SUSPENDED ON. THE WATER MAIN WILL BE THE RESPONIBILITY OF THE CITY OF MISSOULA WHILE THE BRIDGE REPLACEMENT PROJECT WILL BE THE RESPONSIBILITY OF MISSOULA COUNTY. THE BRIDGE IS REPLACED ACCORDING TO THE BRIDGE REPLACEMENT PLANS AND IS PAID FOR UNDER SCHEDULE A.

ABBREVIATIONS

(E) = EXISTING

(N) = NEW

NTS = NOT TO SCALE

R/W = RIGHT OF WAY

REQ'D = REQUIRED

TRANS = TRANSITION

TYP = TYPICAL

WM = WATER MAIN

WTR = WATER

SEQUENCE OF WORK

SEE SPECIFICATIONS PACKAGE FOR A PROPOSED SEQUENCE OF WORK.

LEGEND

	EXISTING	PROPOSED
EDGE OF ASPHALT		
TEMPORARY CONSTRUCTION EASEMENT		
ROAD CENTERLINE		
SIGNS		
MINOR CONTOUR		
MAJOR CONTOUR		
FENCE		
NATURAL GAS LINE	NG	
OVERHEAD POWER LINE	OHP	
POWER POLE		
POWER POLE ANCHOR		
LIGHTING		
UTILITY BOX	T	
RIGHT-OF-WAY BASED ON FOUND MONUMENTS	R/W	
RIGHT OF WAY BASED ON AS-BUILT CENTERLINE		
CURB AND GUTTER		
CONSTRUCTION LIMITS		
CONTROL POINT		
ASPHALT CONCRETE PAVEMENT		
CONCRETE		
GRAVEL		
CULVERT		
TOPSOIL AND SEEDING		
WATER VALVE	W	
WATER LINE	EW	W
SEWER MANHOLE	S	S
SEWER LINE	SS	SS
MAILBOX		
STORM SUMP OR CATCH BASIN		
ASPHALT AND BASE TO BE REMOVED AND REPLACED		
ASPHALT TO BE REMOVED AND REPLACED		
CONCRETE CURB AND GUTTER TO BE REMOVED AND REPLACED		

CALL
TWO WORKING DAYS
BEFORE YOU DIG
(ID, MT, ND, OR, WA, WY)

CALL 1-800-424-5555
WWW.MONTANA811.ORG
UNDERGROUND UTILITIES LOCATION CENTER

WITH THE FOLLOWING:
COUNTY MISSOULA
NEAREST CITY MISSOULA
SEC. & 1/4 SEC. NO.# 14-SE 1/4 (S 1/4 OF SE 1/4)
TOWNSHIP & RANGE T 13 N, R 19 W

REVISION	DATE	DESCRIPTION
-	-	-

DESIGNER MS PROJ. NO. 7749
DRAWN MS DATE 9/3/2026
CHECKED BE SURVEYED DJ&A P.C.

LOLO STREET WATER MAIN REPLACMENT
MISSOULA COUNTY

GENERAL NOTES

SHEET 2 OF 11

J:\PROJECTS\7749 MISSOULA LOLO STREET BRIDGE\DRAWINGS\PLOT\7749 GENERAL NOTES.DWG, 9/3/2026 7:39:05 AM, MSHINE

SCHEDULE A ESTIMATED QUANTITES

SEE BRIDGE REPLACEMENT PLANS FOR QUANTITIES WHICH CORRESPOND TO THE BRIDGE REPLACEMENT.

SCHEDULE B ESTIMATED QUANTITES

SPEC	PAY ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY
MDT	1010	MOBILIZATION	LS	1
	1020	ASPHALT SAW CUT	LF	20
	1030	REMOVAL OF PAVEMENT, ASPHALT	SY	135
	1040	SEPARATION GEOTEXTILE - HIGH STRENGTH	SY	71
	1050	SUB-BASE COURSE, 3" - MINUS AND CRUSHED BASE COURSE, 3/4" - MINUS	LF	65
	1060	ASPHALT CONCRETE PAVEMENT, TYPE B, PG 58-28	TON	36
	1070	EXCAVATE, BEDDING, SURROUNDS AND BACKFILL	LF	220
	1080	REMOVE EXISTING CURB AND GUTTER	LF	10
	1090	TYPICAL "L" TYPE CURB AND GUTTER	LF	10
	1100	WATER MAIN TESTING	LS	1
	1110	12" BUTTERFLY VALVE	EA	3
	1120	12" CLASS 350 DUCTILE IRON WATER MAIN	LF	60
	1130	14" CLASS 350 DUCTILE IRON WATER MAIN	LF	140
	1140	MANUAL AIR RELEASE VALVE	EA	1
	1150	14" PRE-FABRICATED INSULATED DUCTILE IRON WATER MAIN	LF	165
	1160	10" CLASS 350 DUCTILE IRON WATER MAIN	LF	10
	1170	6" CLASS 350 DUCTILE IRON WATER MAIN	LF	5
	1180	CONNECT TO EXISTING WATER MAIN	EA	3
	1190	DUCTILE IRON WATER MAIN FITTINGS	EA	19
	1200	CUT AND CAP EXISTING WATER MAIN	EA	3
	1210	LINK-SEAL, SLEEVE AND CASING SPACERS	LS	1
MDT	1220	PIPE HANGERS AND CONNECTIONS	EA	11

NOTE: ITEMS WITH SPECIFICATIONS LISED AS 'MDT' ARE GOVERNED BY MDT SPECIFICATIONS. ALL OTHERS ARE GOVERNED BY MPWSS SPECIFICATIONS WITH APPLICABLE CITY OF MISSOULA MODIFICATIONS. SPECIFICATION NUMBERS THAT CORRESPOND TO THE ITEM NUMBERS ARE LISTED IN THE SPECIAL PROVISIONS. SEE PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION AND APPLICABLE SPECIAL PROVISIONS.

REVISION	DATE	DESCRIPTION
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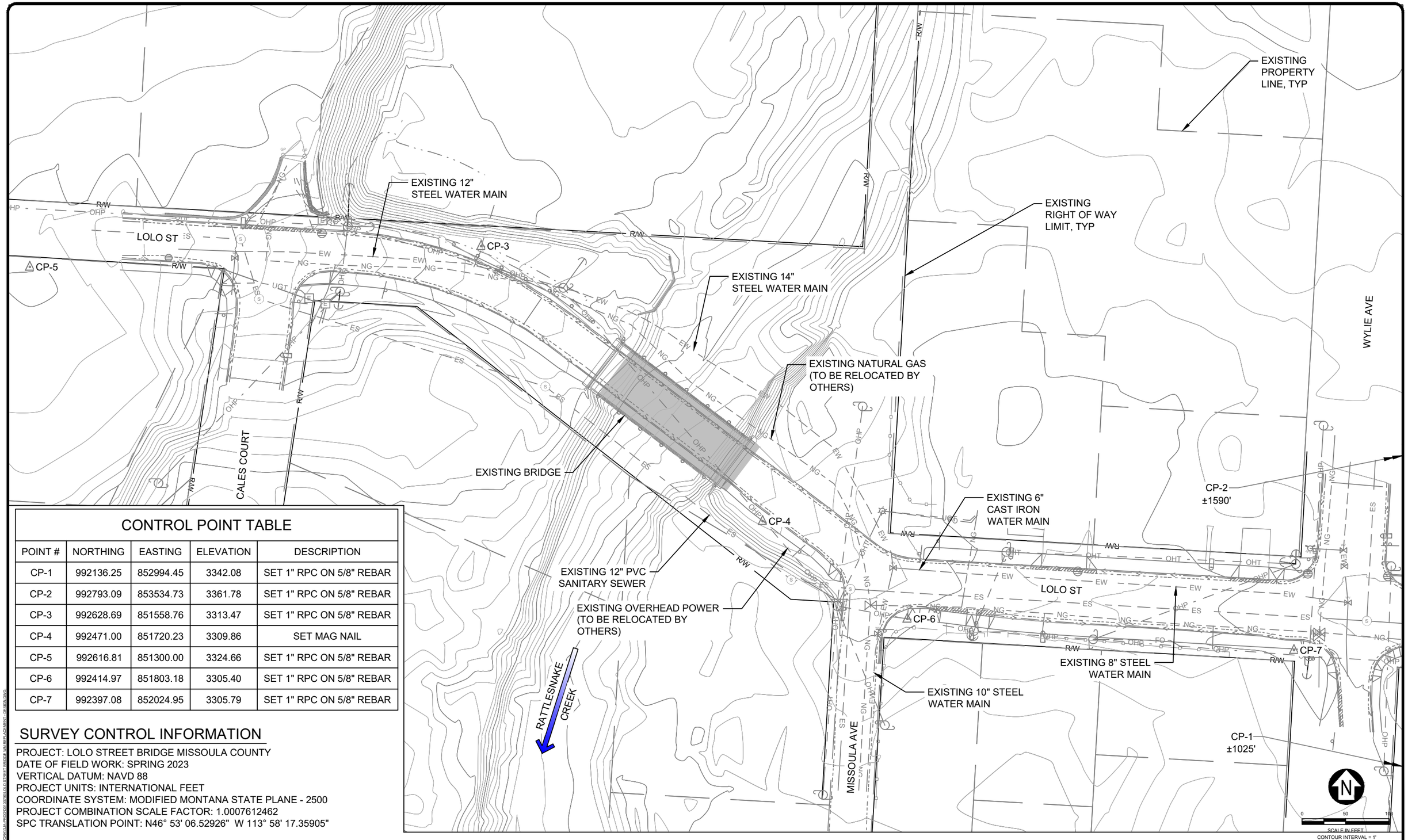
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LOLO STREET WATER MAIN REPLACMENT
MISSOULA COUNTY

SUMMARY OF ESTIMATED QUANTITIES

SHEET 3 OF 11

$XDWG M:\MISSOULA\PROJECTS\7749\DWG\SURVEY\LOLO STREET BRIDGE SURVEY_CP.DWG



CONTROL POINT TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP-1	992136.25	852994.45	3342.08	SET 1" RPC ON 5/8" REBAR
CP-2	992793.09	853534.73	3361.78	SET 1" RPC ON 5/8" REBAR
CP-3	992628.69	851558.76	3313.47	SET 1" RPC ON 5/8" REBAR
CP-4	992471.00	851720.23	3309.86	SET MAG NAIL
CP-5	992616.81	851300.00	3324.66	SET 1" RPC ON 5/8" REBAR
CP-6	992414.97	851803.18	3305.40	SET 1" RPC ON 5/8" REBAR
CP-7	992397.08	852024.95	3305.79	SET 1" RPC ON 5/8" REBAR

SURVEY CONTROL INFORMATION

PROJECT: LOLO STREET BRIDGE MISSOULA COUNTY
DATE OF FIELD WORK: SPRING 2023
VERTICAL DATUM: NAVD 88
PROJECT UNITS: INTERNATIONAL FEET
COORDINATE SYSTEM: MODIFIED MONTANA STATE PLANE - 2500
PROJECT COMBINATION SCALE FACTOR: 1.0007612462
SPC TRANSLATION POINT: N46° 53' 06.52926" W 113° 58' 17.35905"

REVISION	DATE	DESCRIPTION
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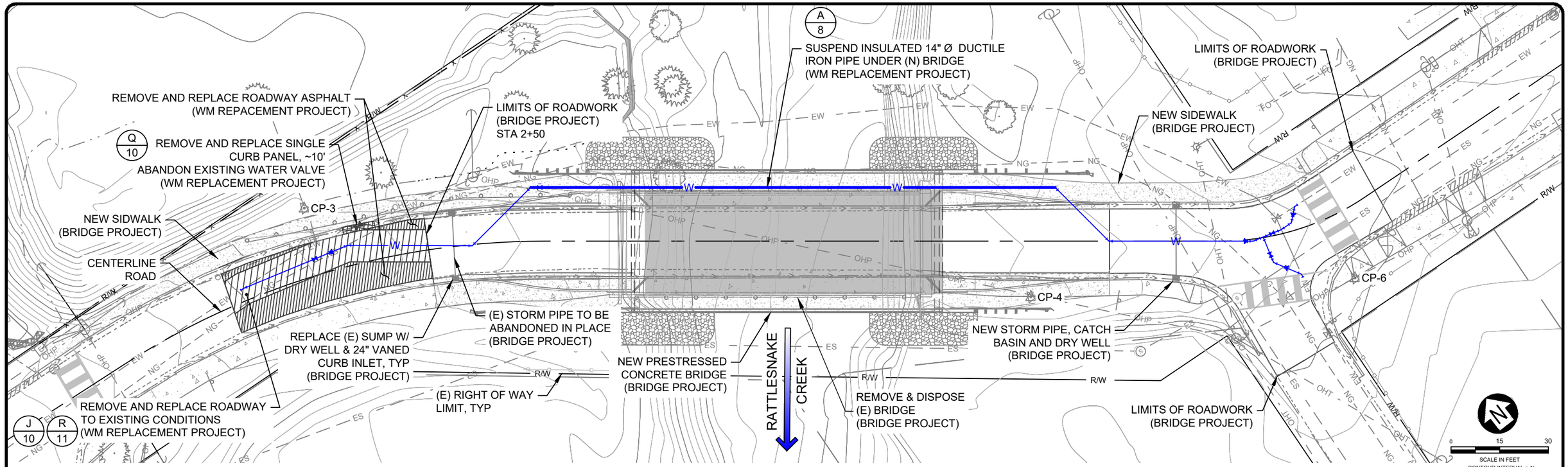
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LOLO STREET WATER MAIN REPLACMENT
MISSOULA COUNTY

PROJECT CONTROL & EXISTING CONDITIONS

SHEET 4 OF 11

J:\JOBS\14 MISSOULA\ROADS\LOLO STREET BRIDGE\MXD\PLANSHEET - CONTROL.DWG



PLAN

LEGEND:

ASPHALT AND BASE TO BE REMOVED AND REPLACED

ASPHALT TO BE REMOVED AND REPLACED

CONCRETE CURB AND GUTTER TO BE REMOVED AND REPLACED

NOTES:

1. SEE THE BRIDGE REPLACEMENT PLANS FOR GENERAL SITE WORK, BRIDGE SITE WORK, STORM DRAIN IMPROVEMENTS AND ROAD TYPICAL SECTION.
2. GEOTEXTILE TO BE PLACED IN THE PIPE TRENCH AT SUBGRADE, DIRECTLY BENEATH THE SUB-BASE MATERIAL.
3. IF WATER MAIN DOES NOT MEET HORIZONTAL SEPARATION REQUIREMENTS WITH STORM DRAINS, CONTRACTOR SHALL INSTALL FLOWABLE FILL PER THE CITY OF MISSOULA STANDARDS AND SPECIFICATIONS MANUAL.

REVISION	DATE	DESCRIPTION
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LOLO STREET WATER MAIN REPLACMENT
MISSOULA COUNTY

SITE PLAN

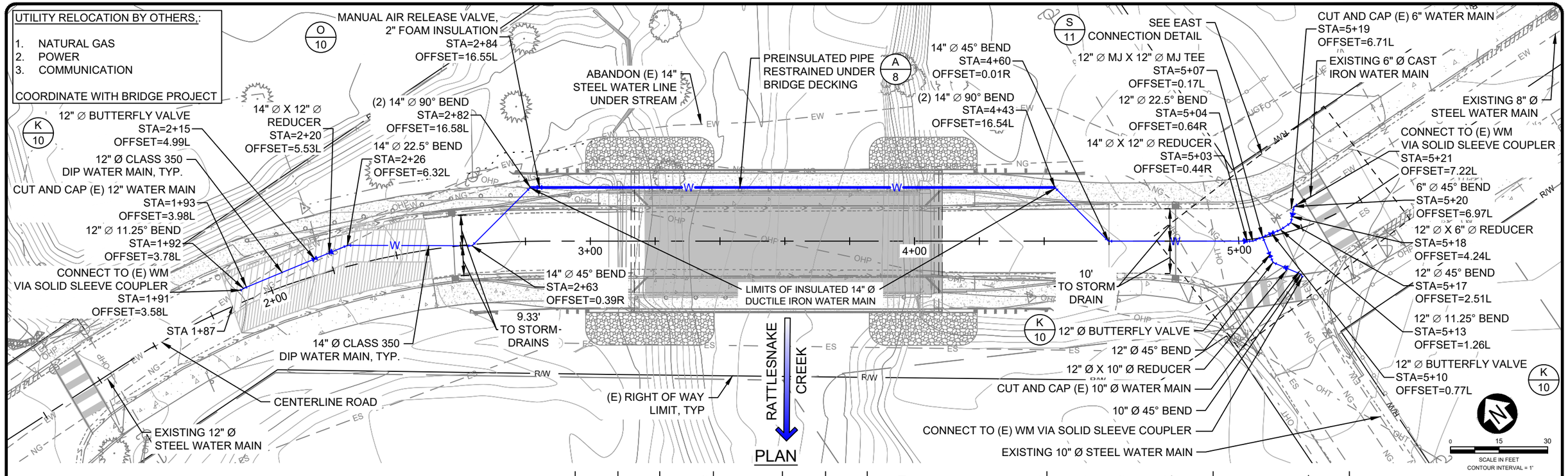
SHEET 5 OF 11

J:\JOBS_AS-BUILT JOBS\7749_LOLO STREET WATER MAIN REPLACEMENT\DRAWINGS\PLAN SHEETS\7749_LOLO STREET BRIDGE WM REPLACEMENT_PLAN SHEETS.DWG

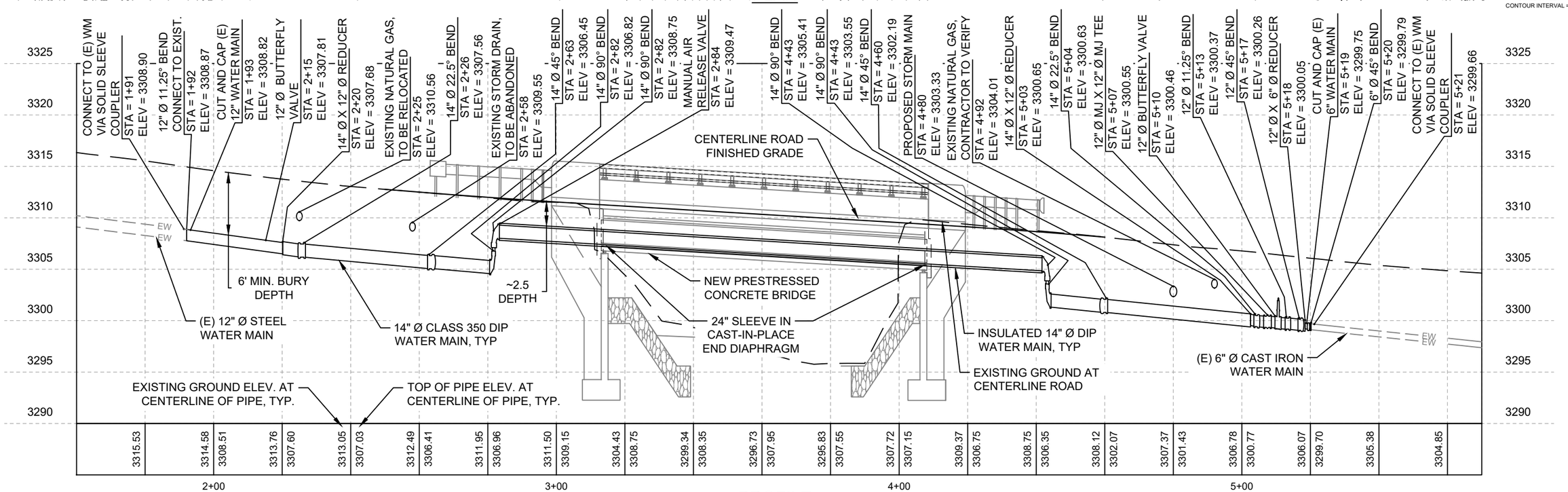
UTILITY RELOCATION BY OTHERS,:

1. NATURAL GAS
2. POWER
3. COMMUNICATION

COORDINATE WITH BRIDGE PROJECT



PLAN



PROFILE

REVISION	DATE	DESCRIPTION
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LOLO STREET WATER MAIN REPLACMENT
MISSOULA COUNTY

UTILITY PLAN

SHEET 6 OF 11

A:\2025.16 LOLO MAIN_ENGINEERING\CIVIL_PAVING\01 LOLO STREET BRIDGE (4M-PBP) ACSHEET - DESIGN.DWG

OBJECT	NORTHING	EASTING	STATION	OFFSET
12" Ø 11.25° BEND	851528.9119	992620.3942	1+92	3.78L
12" Ø BUTTERFLY VALVE	851551.8702	992614.3417	2+15	4.99L
14" Ø x 12" Ø REDUCER	851558.1180	992612.6383	2+20	5.53L
14" Ø 22.5° BEND	851562.1712	992611.5619	2+26	6.32L
14" Ø 45° BEND	851592.9007	992588.0559	2+63	0.39R
(2) 14" Ø 90° BEND	851618.1116	992591.4269	2+82	16.58L
MANUAL AIR RELEASE VALVE	851620.3537	992589.7166	2+84	16.55L
(2) 14" Ø 90° BEND	851746.6683	992493.2349	4+43	16.54L
14" Ø 45° BEND	851749.7703	992470.0415	4+60	0.01R
14" Ø X 12" Ø REDUCER	851782.9608	992444.6991	5+03	0.44R
12" Ø 22.5° BEND	851785.1505	992443.0266	5+04	0.64R
12" Ø MJ X 12" Ø MJ TEE	851788.3386	992442.1806	5+07	0.17L
12" Ø BUTTERFLY VALVE	851791.2115	992441.3979	5+10	0.77L
12" Ø 11.25° BEND	851794.0845	992440.6153	5+13	1.26L
12" Ø 45° BEND	851797.9353	992440.3846	5+17	2.51L
12" Ø X 6" Ø REDUCER	851800.1592	992442.3548	5+18	4.24L
6" Ø 45° BEND	851801.7303	992443.7467	5+20	6.97L
12" Ø BUTTERFLY VALVE	851786.8017	992436.4808		
12" Ø 45° BEND	851786.1448	992434.0056		
12" Ø X 10" Ø REDUCER	851788.5178	992429.9221		
10" Ø 45° BEND	851790.8062	992425.9266		

REVISION	DATE	DESCRIPTION
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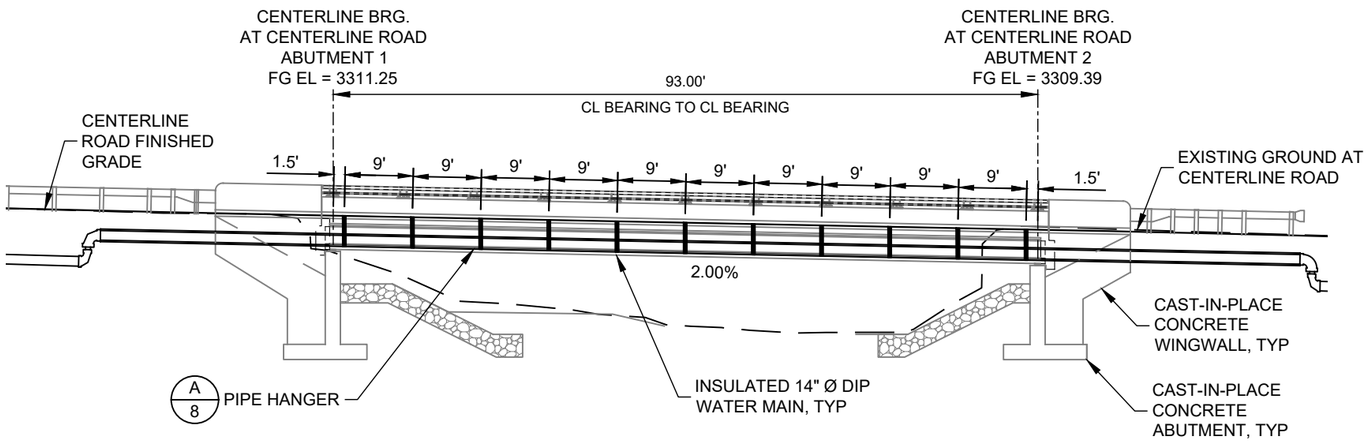
LOLO STREET WATER MAIN REPLACMENT
MISSOULA COUNTY

FITTING POINT TABLE

SHEET 7 OF 11

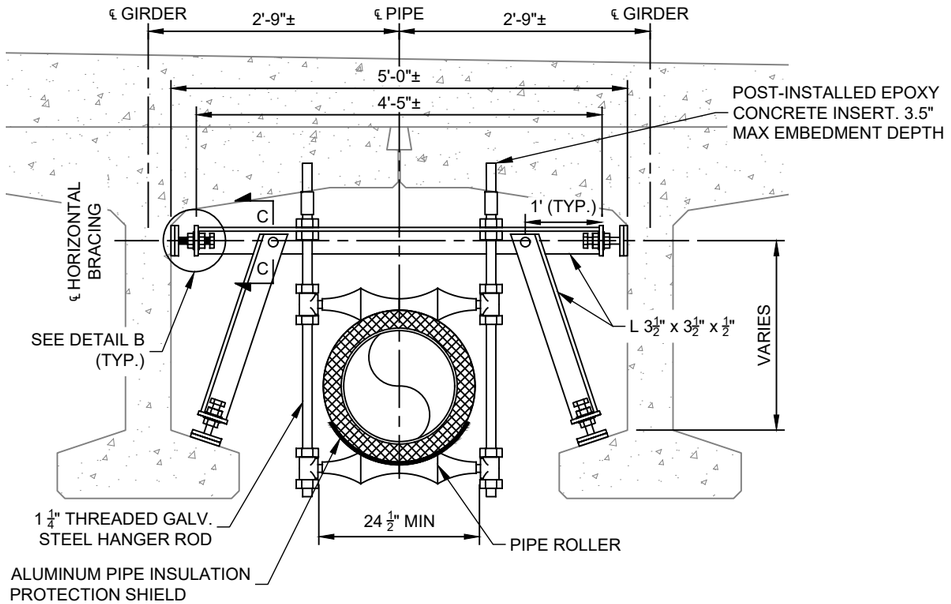
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NOTE: SEE BRIDGE PROJECT PLANS FOR BRIDGE INFORMATION.



ELEVATION

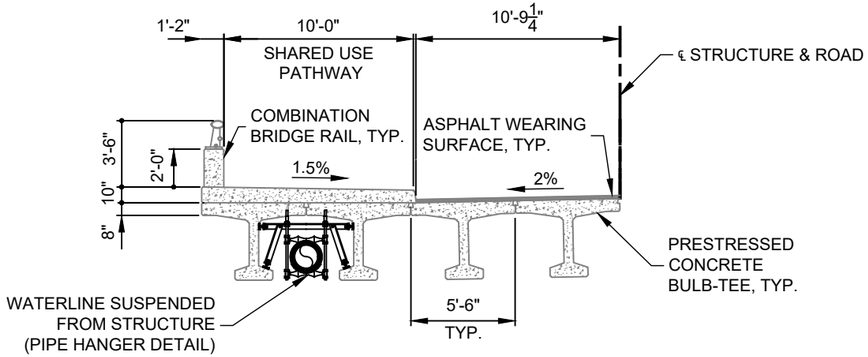
SCALE: NTS



1. SUBMIT PROPOSED ROLLER AND HANGER SYSTEM FROM MANUFACTURER TO ENGINEER FOR APPROVAL.
2. VERIFY ALL DIMENSIONS PRIOR TO FABRICATING COMPONENTS.
3. USE STRUCTURAL STEEL MEETING THE REQUIREMENTS OF AASHTO M270 GRADE 50. GALVANIZE ALL COMPONENTS.
4. THE EPOXY INSERT SHALL HAVE A 3.5" MAX EMBEDMENT INTO THE BRIDGE DECK. THE EPOXY INSERT DATA SHEET SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO ORDERING MATERIALS.
5. CONTRACTOR TO LOCATE AND VERIFY REINFORCING BARS IN THE DECK AND AVOID DRILLING INTO REINFORCING STEEL WHEN INSTALLING EPOXY ANCHORS.
6. CONTRACTOR SHALL COORDINATE ALL FINAL DIMENSIONS OF UTILITY SUPPORT HANGER WITH PIPE MANUFACTURER PRIOR TO ORDERING MATERIALS.

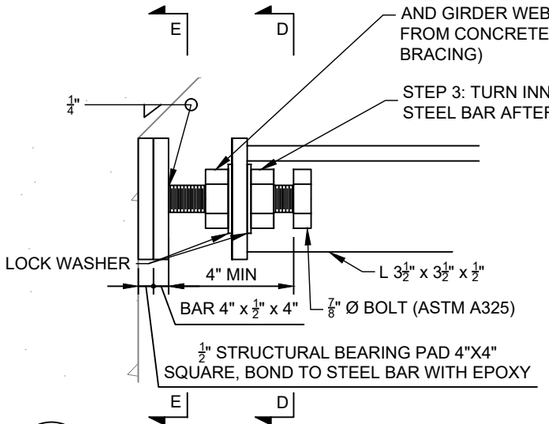
A / 8 PIPE HANGER DETAIL

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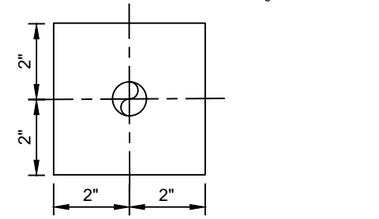
TYPICAL SECTION

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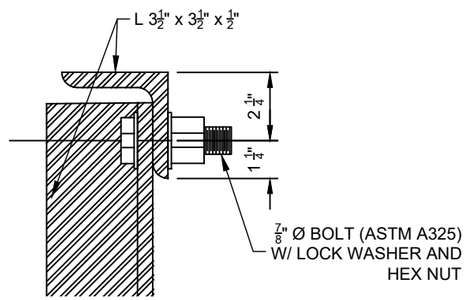
B / 8 DETAIL B

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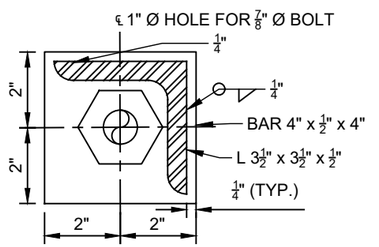
E / 8 SECTION E-E

SCALE: NTS



C / 8 SECTION C-C

SCALE: NTS



D / 8 SECTION D-D

SCALE: NTS

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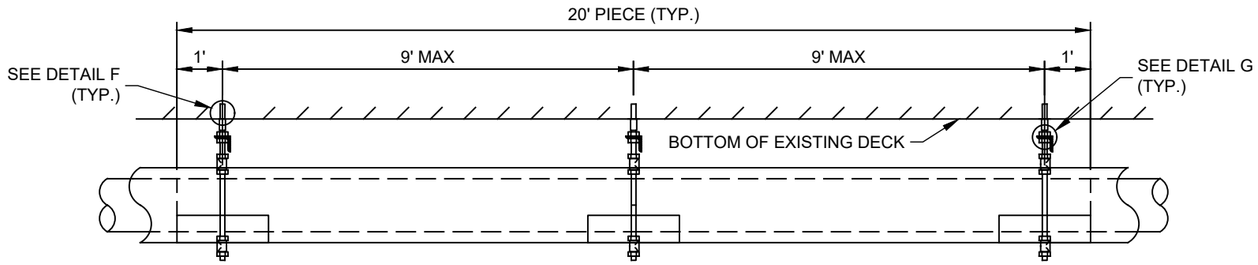
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LOLO STREET WATER MAIN REPLACMENT
MISSOULA COUNTY

SUSPENDED WATER MAIN DETAILS

SHEET 8 OF 11

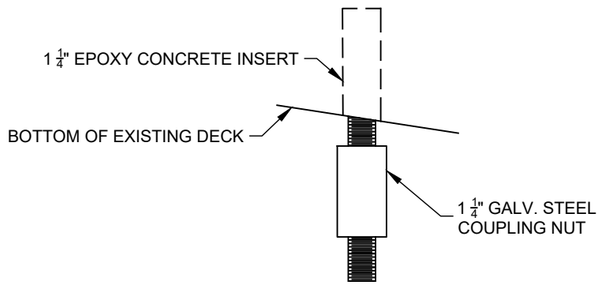
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1. PIPE SHALL BE RESTRAINED AND FULLY INSULATED. SUBMIT RESTRAINT SYSTEM TO ENGINEER FOR APPROVAL
2. HANGER SUPPORTS MUST BE LOCATED WITHIN 2 FEET OF OF EACH BELL. SUBMIT RESTRAINT SYSTEM TO ENGINEER FOR APPROVAL.

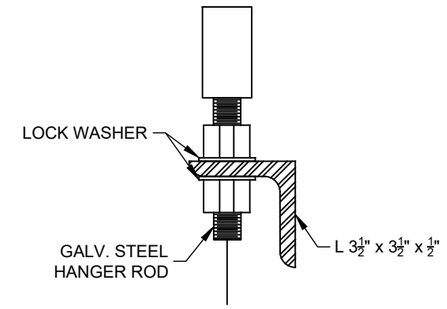
INSULATED PIPE SEGMENT ELEVATION

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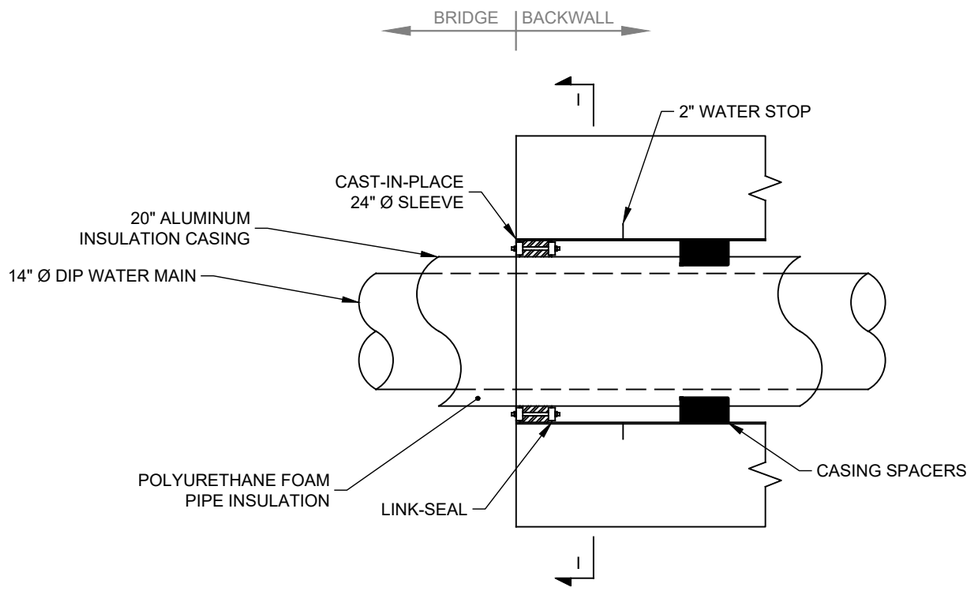
F/9 DETAIL F

SCALE: NTS



G/9 DETAIL G

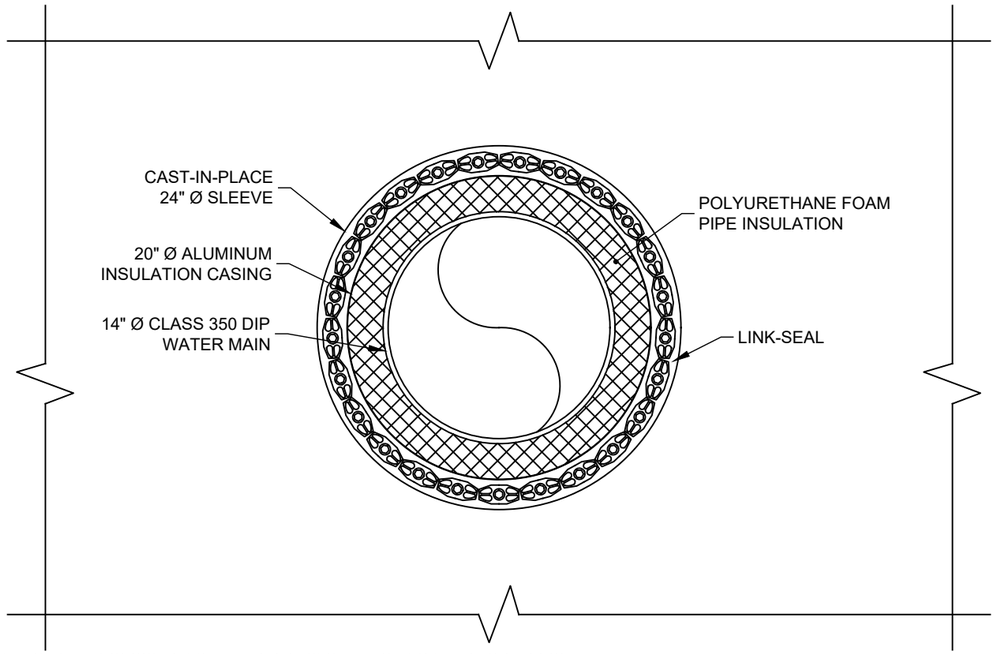
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1. SUBMIT PROPOSED LINK-SEAL AND SLEEVE SYSTEM TO ENGINEER FOR APPROVAL.
2. MIN. 3 CASING SPACERS SHALL BE INSTALLED AND EQUALLY DISTRIBUTED FOR PIPE SUPPORT.
3. 2" WATER STOP SHALL BE THE SAME TYPE OF STEEL AND WELDED CONTINUOUSLY ON BOTH SIDES
4. TRANSITION FROM INSULATED PIPE TO NON-INSULATED PIPE WITH EPDM END SEAL BOOT AND STAINLESS STEEL BAND STRAPS.

H/9 BACKWALL PENETRATION DETAIL

SCALE: NTS



1. SUBMIT PROPOSED INSULATED PIPE SYSTEM TO ENGINEER FOR APPROVAL.

I/9 SECTION I-I

SCALE: NTS

REVISION	DATE	DESCRIPTION
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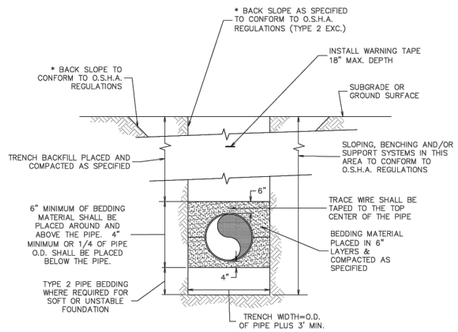
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LOLO STREET WATER MAIN REPLACMENT
MISSOULA COUNTY

SUSPENDED WATER MAIN DETAILS

SHEET 9 OF 11

J:\9\7749 LOLO MAIN SEGMENT 2\CAD\PW\MOD\LOLO_PROD\DGN\LOLO STREET BRIDGE WATER ATTACHMENT - DETAILS.DWG



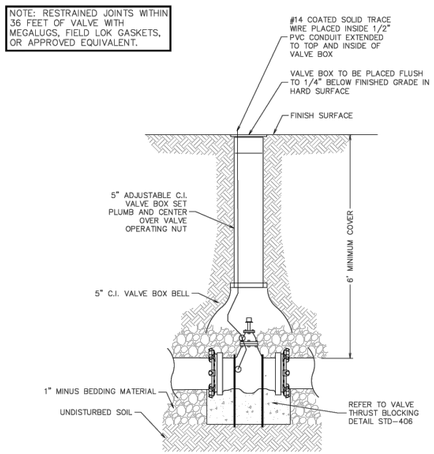
* SEE O.S.H.A. CONSTRUCTION STANDARDS FOR EXCAVATIONS, SECTION 1926, SUBPART P.

GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2-A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
2. CASING PIPE (IF ANY) INSTALLED BY TRENCH CONSTRUCTION METHODS SHALL BE BEDDED AS SHOWN IN THIS DETAIL.

Engineering Division | Typical Utility Trench Detail | J 10
Approved By Utilities Engineer Logan McInnis, PE | Adopted:09/28/2020 Revised: 01/01/2023 | STD - 401

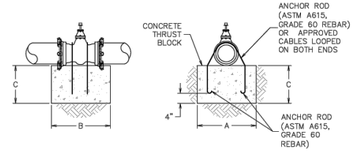
NOTE: RESTRAINED JOINTS WITHIN 36 FEET OF VALVE WITH MEGALUGS, FIELD LOK GASKETS, OR APPROVED EQUIVALENT.



GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2-A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.

Engineering Division | Valve Detail | K 10
Approved By Utilities Engineer Logan McInnis, PE | Adopted:09/28/2020 Revised: 01/01/2023 | STD - 405



STANDARD THRUST BLOCK DIMENSIONS

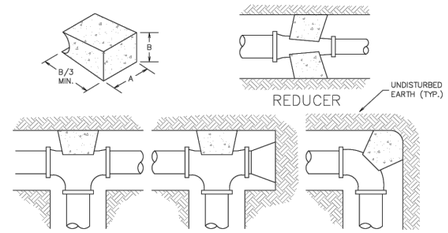
ANCHOR ROD SIZE	VALVE SIZE	100 PSI			150 PSI			200 PSI			250 PSI			300 PSI	
		"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"
3/4"	6" & 8"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"
3/4"	10"	2'-0"	2'-0"	2'-0"	2'-6"	2'-6"	2'-0"	2'-9"	2'-6"	2'-6"	3'-0"	3'-0"	3'-0"	3'-7"	3'-0"
3/4"	12"	2'-3"	2'-0"	2'-0"	3'-0"	3'-0"	2'-8"	3'-5"	3'-0"	3'-0"	4'-3"	3'-0"	3'-0"	5'-1"	3'-0"
1"	14"	2'-3"	2'-0"	2'-4"	3'-5"	3'-0"	3'-0"	4'-6"	3'-0"	3'-0"	4'-0"	4'-0"	4'-0"	4'-9"	4'-0"
1 1/8"	16"	3'-0"	3'-0"	2'-11"	4'-4"	3'-0"	3'-0"	4'-1"	4'-0"	4'-0"	5'-1"	4'-0"	4'-0"	6'-1"	4'-0"
1 1/4"	18"	3'-8"	3'-0"	3'-0"	5'-5"	3'-0"	3'-0"	5'-1"	4'-0"	4'-0"	6'-4"	4'-0"	4'-0"	5'-9"	5'-0"
1 3/8"	24"	4'-4"	4'-0"	4'-0"	6'-5"	4'-0"	4'-0"	6'-6"	5'-0"	5'-0"	6'-5"	6'-0"	6'-0"	7'-8"	6'-0"

NOTE: PRESSURES SHOWN ABOVE ARE MAXIMUM WORKING PRESSURE IN SYSTEM.

GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2-A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
2. DIAGRAM DEPICTS GATE VALVES ONLY, VALVES 12 INCH AND LARGER TO BE BUTTERFLY. AND INSTALLED PER MANUFACTURERS RECOMMENDATIONS WITH BLOCKS CENTERED UNDER LOAD BEARING PORTION OF VALVE.
3. STEEL CABLE (3/4" MINIMUM DIA. OR AS APPROVED BY THE ENGINEER) W/ANCHOR BOLTS MAY BE SUBSTITUTED FOR ANCHOR ROD.

Engineering Division | Valve Thrust Blocking Detail | L 10
Approved By Utilities Engineer Logan McInnis, PE | Adopted:09/28/2020 Revised: 01/01/2023 | STD - 406



DIMENSIONS FOR THRUST BLOCKING

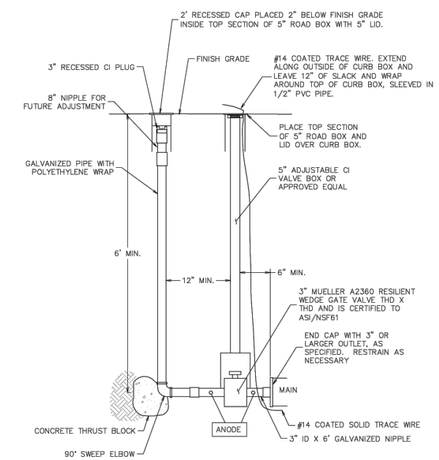
FITTING SIZES	TEES & PLUGS		90° BEND		45° BEND & WYES		REDUCERS & 22 1/2° BEND	
	A	B	A	B	A	B	A	B
4" & 6"	2'-0"	1'-11"	2'-5"	2'-2"	1'-10"	1'-7"	1'-9"	0'-10"
8"	2'-8"	2'-6"	3'-2"	3'-0"	2'-5"	2'-1"	1'-9"	1'-6"
10"	4'-0"	3'-3"	4'-0"	3'-10"	3'-0"	2'-9"	2'-2"	1'-11"
12"	4'-0"	3'-10"	4'-8"	4'-8"	3'-8"	3'-3"	2'-7"	2'-3"
16"	4'-6"	4'-0"	5'-0"	4'-8"	4'-0"	3'-0"	3'-0"	2'-6"
20"	5'-0"	5'-0"	7'-0"	5'-0"	4'-6"	4'-0"	3'-0"	3'-0"
24"	6'-10"	5'-0"	10'-0"	5'-0"	5'-8"	4'-6"	3'-8"	3'-8"

GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2-A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
2. THIS TABLE IS BASED ON 2000 PSF SOIL BEARING PRESSURE AND 150 PSI MAIN PRESSURE.
3. WRAP ALL FITTINGS WITH POLYETHLENE PRIOR TO PLACING CONCRETE.

Engineering Division | Thrust Block Detail | M 10
Approved By Utilities Engineer Logan McInnis, PE | Revised: 01/01/2023 | STD - 407

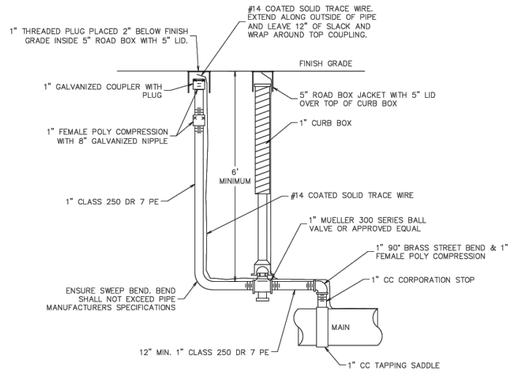
NOTE: NO UNRESTRAINED JOINTS WITHIN 36 FEET OF BLOWOFF



GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2-A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
2. ROAD BOXES TO BE PLACED FLUSH TO 1/4" BELOW FINISHED GRADE IN HARD SURFACE.

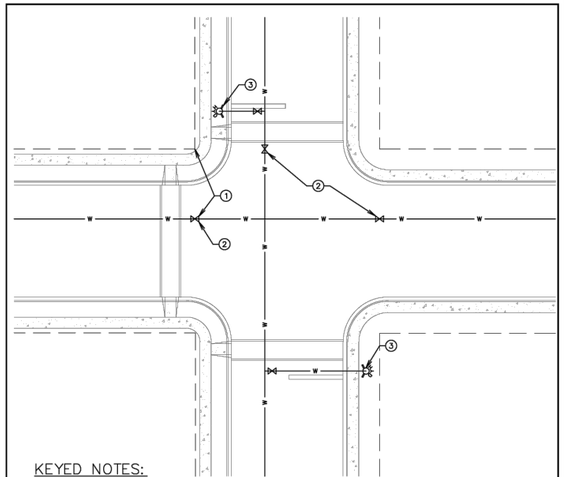
Engineering Division | Typical Blow-Off Assembly | N 10
Approved By Utilities Engineer Logan McInnis, PE | Adopted:09/28/2020 Revised: 01/01/2023 | STD - 409



GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2-A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
2. WHERE AIR RELIEF VALVES (ARVs) ARE IDENTIFIED ON THE PLANS AS TEMPORARY, TRACER WIRE IS NOT REQUIRED AND ALL MATERIALS CAN BE SALVAGED AFTER THE CORP IS CLOSED, THE LINE IS CAPPED WITH A BRASS CAP AND FITTINGS ARE WRAPPED IN 10-MIL TAPE.
3. ROAD BOX TO BE PLACED FLUSH TO 1/4" BELOW FINISHED GRADE IN HARD SURFACE

Engineering Division | Manual Air Relief Detail | O 10
Approved By Utilities Engineer Logan McInnis, PE | Revised: 01/01/2023 | STD - 410



KEYED NOTES:

① WATER MAIN VALVES SHALL BE MECHANICAL JOINT AND SHOULD BE PLACED IN LINE WITH THE RIGHT-OF-WAY LINES BUT NO FURTHER THAN 15 FEET FROM THE CURB PC AND NOT WITHIN A CROSSWALK.

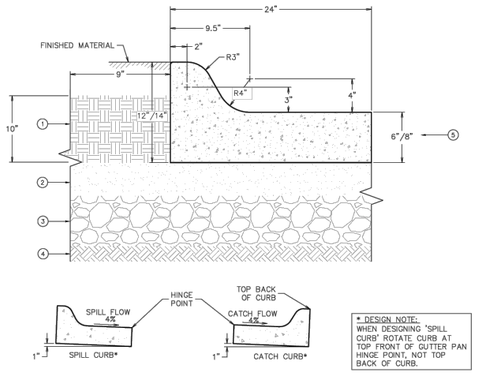
② VALVES SHALL BE INSTALLED IN AT LEAST TWO DIRECTIONS AT EACH TEE AND IN AT LEAST THREE DIRECTIONS AT EACH CROSS. VALVES SHALL HAVE MECHANICAL JOINTS. VALVES SHALL BE PLACED SO THAT ONLY A SINGLE FIRE HYDRANT IS OUT OF SERVICE WHEN THE MAIN IS SHUTDOWN.

③ FIRE HYDRANTS SHOULD BE LOCATED 3 FT FROM EDGE OF LAYDOWN AND A MINIMUM OF 5 FT FROM VALVE. PUMPER NOZZLE NUT SHALL BE A MINIMUM OF 2 FT FROM THE TOP BACK OF CURB OR SIDEWALK WHERE SIDEWALK IS LOCATED ADJACENT TO THE CURB. FIRE HYDRANT SHALL BE LOCATED NO FURTHER THAN 12 FT FROM THE CURB. MINIMUM ROAD WIDTH AT A HYDRANT SHALL BE 26 FT.

GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2-A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.

Engineering Division | Typical Valve Location Detail | P 10
Approved By Utilities Engineer Logan McInnis, PE | Adopted: Revised: 01/01/2023 | STD - 415



* DESIGN NOTE:
WHEN DESIGNING "SPILL CURB" ROTATE CURB AT TOP FRONT OF GUTTER PAN HINGE POINT, NOT TOP BACK OF CURB.

KEYED NOTES:

① IMPERVIOUS FILL MATERIAL (FOR CURB WITH BOULEVARD): SEE CITY OF MISSOULA MODIFICATION TO MPWSS SECTION 02528

② BASE COURSE: SEE TABLE 7-3 IN MCPWSS AND CITY OF MISSOULA MODIFICATION TO MPWSS SECTIONS 02235 & 02528

③ SUBBASE COURSE: SEE TABLE 7-4 IN MCPWSS AND CITY OF MISSOULA MODIFICAITON TO MPWSS SECTION 02234

④ SUBGRADE: SEE CITY OF MISSOULA MODIFICATION TO MPWSS SECTION 02230 & 02528

⑤ GUTTER PANS SHALL BE 8 INCHES MINIMUM THICKNESS FROM PC TO PT AT COLLECTOR AND ARTERIAL INTERSECTIONS, ROUNDABOUTS AND SPLITTER ISLANDS, THROUGH COMMERCIAL AND INDUSTRIAL APPROACHES, OR WHERE TRUCK TRAFFIC IS ASSUMED

Engineering Division | Typical "L" Type Curb/Gutter Section | Q 10
Approved By City Engineer Kevin J. Slovarp | Adopted:01/30/1980 Revised: 01/01/2023 | STD - 740

REVISION	DATE	DESCRIPTION
-	-	-

DESIGNER MS | PROJ. NO. 7749
DRAWN MS | DATE 9/3/2026
CHECKED BE | SURVEYED DJ&A P.C.

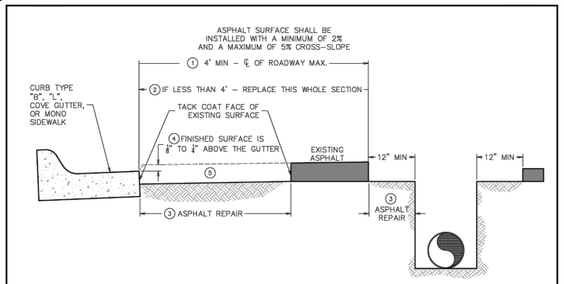
DJ&A

LOLO STREET WATER MAIN REPLACMENT
MISSOULA COUNTY

CONSTRUCTION DETAILS

SHEET OF 10 11

G:\2025\25-14 LOLO STREET\CAD\LAYOUTS\STD LOLO STREET BRIDGE UNDER ACCABONAC - DESIGN.DWG



KEYED NOTES:

① ASPHALT SHALL BE CUT & REMOVED TO AN EXTENT WHERE THE ASPHALT PATCH IS A MINIMUM OF FOUR (4') FEET FROM THE FACE OF THE GUTTER PAN AND MAY REQUIRE ADDITIONAL WIDTH (UP TO CENTERLINE), AS REQUIRED BY THE CITY ENGINEER. THE 4' MINIMUM ASPHALT REPLACEMENT IS REQUIRED TO ENSURE ADEQUATE COMPACTION IS ACHIEVED.

② IF THE ASPHALT CUT LINE FOR A TRENCH PATCH IS LESS THAN FOUR (4') FEET FROM THE FACE OF EXISTING GUTTER PAN, EDGE OF EXISTING ASPHALT, OR A SEAM, REMOVE AND REPLACE THE ENTIRE ASPHALT SECTION BETWEEN THE TRENCH CUT LINE AND EDGE OF THE FACE OF THE GUTTER PAN, ASPHALT, OR SEAM.

③ FOR ASPHALT REPAIR SECTION SEE CITY OF MISSOULA MODIFICATIONS TO MPWSS SECTION 02230

④ FINISHED ASPHALT SURFACE SHALL BE ¼" TO ½" ABOVE GUTTER LIP

⑤ ASPHALT SURFACE: FOR THICKNESS SEE TABLE 7-2 IN MCPWSS

GENERAL NOTES:

1. ASPHALT SURFACE SHALL BE SQUARE CUT (PARALLEL AND/OR PERPENDICULAR TO CURB OR EDGE OF ASPHALT)
2. ALL ASPHALT PATCH JOINTS SHALL BE SEALED IN ACCORDANCE WITH CITY OF MISSOULA STANDARD MODIFICATIONS TO MPWSS SECTION 02510.
3. FOR SHORT SPANS OF CURB REPLACEMENT, EXISTING ASPHALT EDGE MAY BE USED AS A FRONT FORM IF EXISTING ASPHALT IS SOUND AND SQUARE FACED, AND ONLY UPON PRIOR APPROVAL OF THE CITY ENGINEER.

MISSOULA
Engineering Division

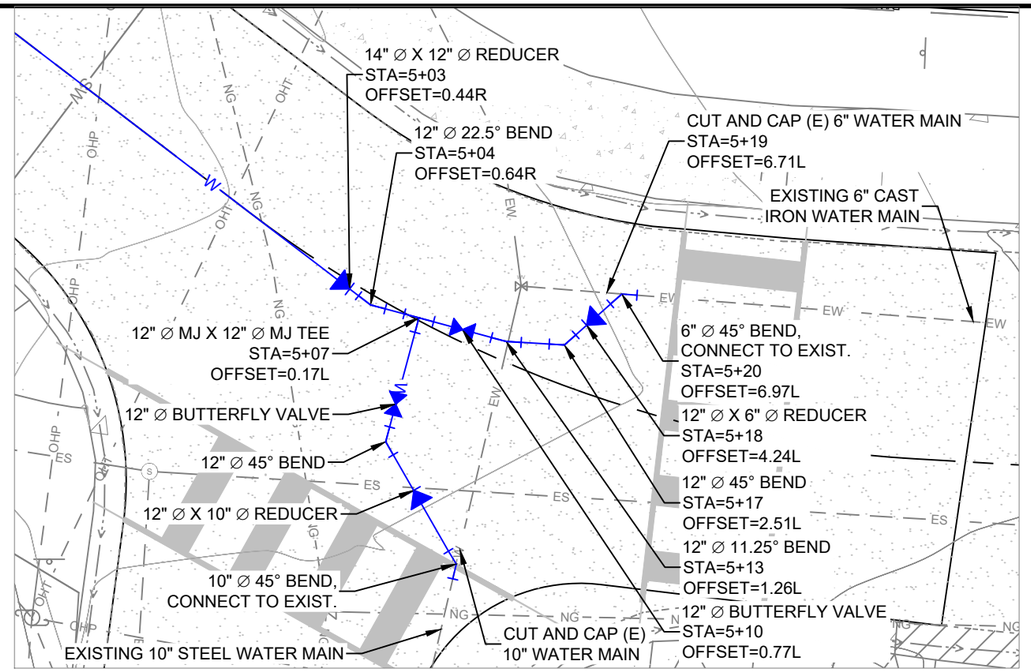
Asphalt Cutting, Removal and Replacement

R 11

Approved By
City Engineer
Kevin J. Slovarp

Adopted: 02/06/1986
Revised: 01/01/2024

STD - 744



S 11 EAST CONNECTION DETAIL
SCALE: NTS

REVISION	DATE	DESCRIPTION
-	-	-

DESIGNER MS PROJ. NO. 7749
DRAWN MS DATE 9/3/2026
CHECKED BE SURVEYED DJ&A, P.C.

DJ&A

LOLO STREET WATER MAIN REPLACMENT
MISSOULA COUNTY

CONSTRUCTION DETAILS

SHEET OF 11 11

J:\PROJECTS\7749 LOLO STREET WATER MAIN REPLACEMENT\CAD\PLANS\PROD\20260303_LOLO STREET WATER MAIN REPLACEMENT_DESIGN.DWG