

Construction Specifications

Construction Specifications Standard Detail Drawings

City Assets – Environmental Utilities
2023

Disclaimer

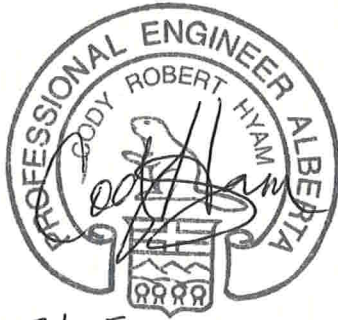
This set of drawings was developed for use with the Environmental Utilities Construction specifications to provide standards and guidelines that meet the City of Medicine Hat's expectations in the design and construction of deep utility infrastructure. Care has been taken to confirm the accuracy of the information contained herein. The views expressed herein do not necessarily represent those of any individual contributor. Infrastructure and related asset design continually evolve, and practices change and improve over time. It is necessary to regularly consult relevant technical standards, codes, and other publications, and not solely rely on this publication. The City of Medicine Hat, authors, and members of the review committee, want to convey that this document does not constitute a project-specific design. As such, no part of this guideline alleviates the responsibility of the professionals retained to design and construct specific projects from taking full responsibility and authenticating their designs as required in accordance with AEP, APEGA, AWWA, Alberta OH&S, and any other statutory or safety requirements.

Any Standard Drawings, Details, or specifications are provided to convey the City's ideal general arrangement and requirements. Representations are not to scale, they may be substantially schematic in nature and/or require further elaboration and development. As such those documents are not suitable for integration into a specific implementation without review and modification and are only intended for use by a competent designer exercising professional judgment. The designer shall modify and supplement as necessary to provide a complete, properly functioning design that conforms in all respects to the City's functional requirements.

When actualized in a particular implementation it is the designer's responsibility to ensure the size, location, and spacing of all elements, and all components/specifications, are suitable and safe for the use and location intended, and any applicable code, legislative, and authority requirements are adhered to. In addition, any accessibility, operational and maintenance requirements must be met. Deviations from the represented nominal design parameters, questions of intent or accuracy, or any other apparent conflicts, shall be reconciled with an appropriate City representative.

When employing any aspect of these documents, the ultimately responsible professional designer shall remove any authentication of the original author(s), note any provenance as appropriate, and apply their own authentication as required.

Certifications



24-Jan-2023

ENGINEER OF RECORD

Cody Hyam, P.Eng.

APEGA No: 159181

Environmental Utilities Engineer

PERMIT TO PRACTICE	
CITY OF MEDICINE HAT	
PM SIGNATURE:	<u>Sandra Plank</u>
PM APEGA ID#:	<u>84155</u>
DATE:	<u>24 January 2023</u>
PERMIT NUMBER: P004206	
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)	

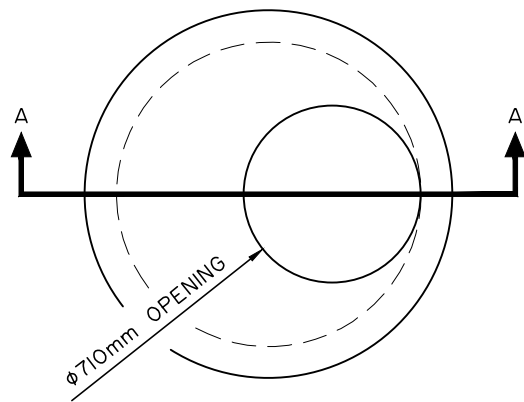
Permit to Practice

Sandra Plank, P.Eng.

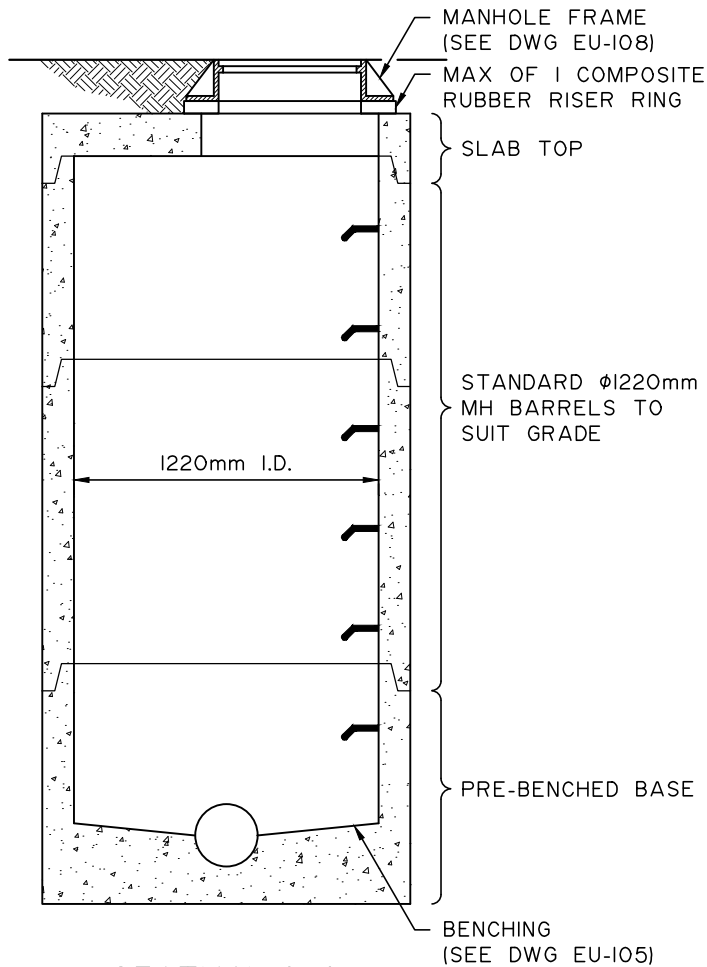
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PLAN



SECTION A-A

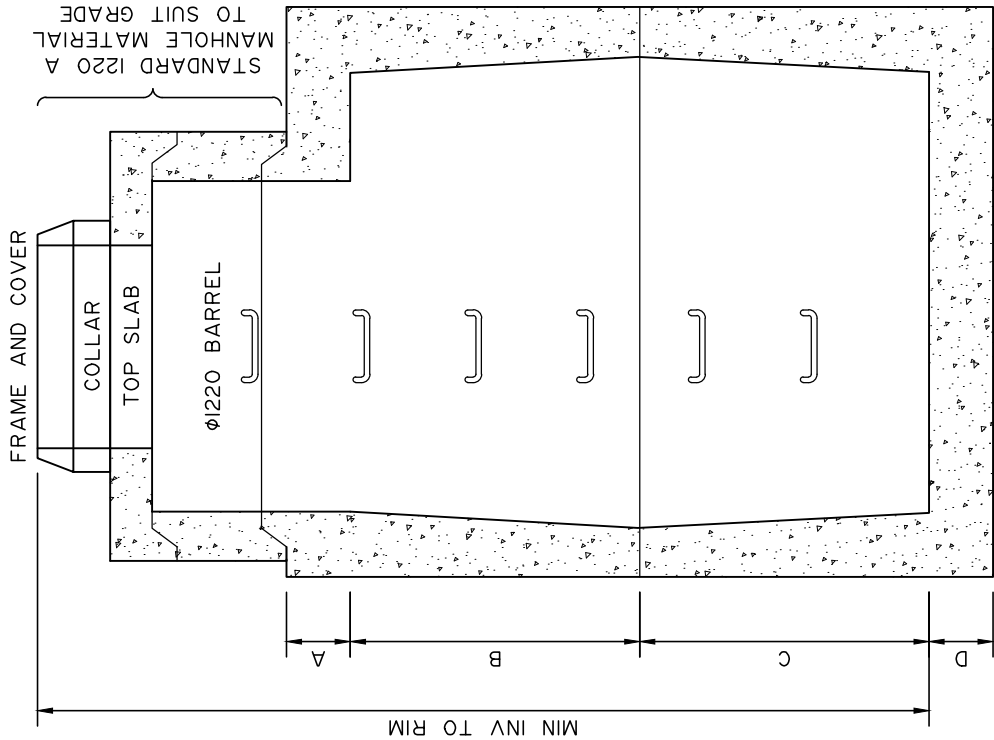
NOTES:

- I. INSTALLATION TO CONFORM TO LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS
2. CONCRETE TO BE 25 MPa MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS.
3. CONCRETE SHALL BE SULPHATE RESISTANT
4. REINFORCED STEEL TO BE INTERMEDIATE GRADE $f_s = 140\text{MPa}$
5. USE TYPE 1220 MANHOLE UP TO AND INCLUDING 600 DIA PIPE
6. PRECAST MANHOLE SECTION TO CONFORM TO ASTM DESIGNATION C478 (LATEST EDITION)
7. MANHOLE RUNGS TO BE ASTM C478, DROP STEP TYPE, PVC COATED ALUMINUM
8. USE BITUMINOUS SEAL OR RUBBER GASKET BETWEEN JOINTS
9. MANHOLE RUNGS TO TERMINATE ON BENCHING. RUNGS TO BE POSITIONED SO AS TO NOT IMPEDE ANY INTERNAL FIXTURES.
10. PRECAST MANHOLE BASES TO BE PRE-BENCHED
- II. MAXIMUM 200mm OF ADJUSTING RINGS

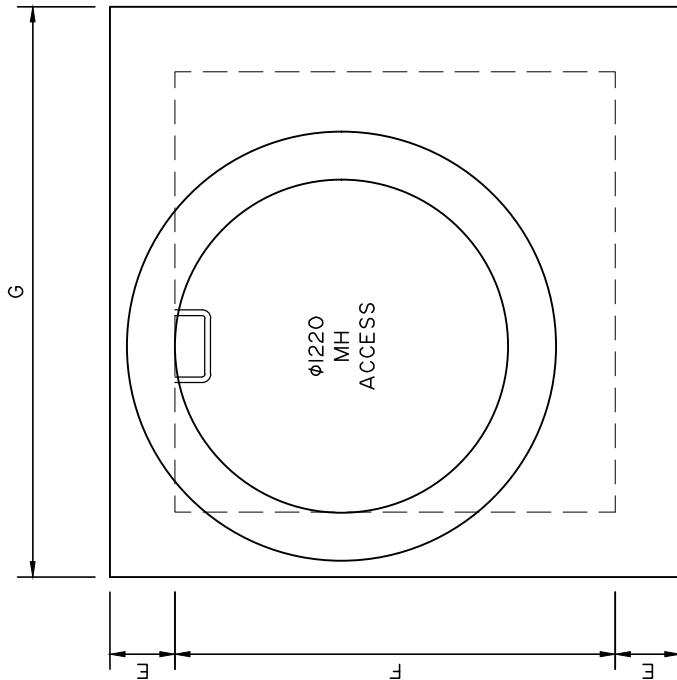
		 Medicine Hat STANDARD DRAWING	DATE: [YYYY-MM-DD]	2022-10-18	STANDARD MANHOLE TYPE 1220 A
			SCALE:	N.T.S.	
			DRAWN:	M.H.A.	
REVISED	BY		APPROVED:	C.R.H.	DRAWING No.: EU-101

DIMENSIONS	1.2mX1.2m	1.5X1.5m	1.8mX1.8m	2.4mX2.4m	2.8mX2.8m
A	175	175	200	250	250
B	1010	1010	1200	1200	1400
C	1010	1010	1200	1200	1400
D	200	200	200	250	250
E (AT CENTER)	150	150	150	230	230
F (AT CENTER)	1200	1500	1930	2400	2800
G	1500	1800	2230	2860	3260
MIN. INV. TO RIM	2820	2820	2850	3270	3670

- NOTE:
1. INSTALLATION TO CONFORM TO LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS
 2. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED
 3. I-S TOP AND BOTTOM HALVES TO BE LAFARGE PRODUCT CODE 4648, 4660, 4672, 4696, 4696, 4612 OR APPROVED EQUAL



ELEVATION

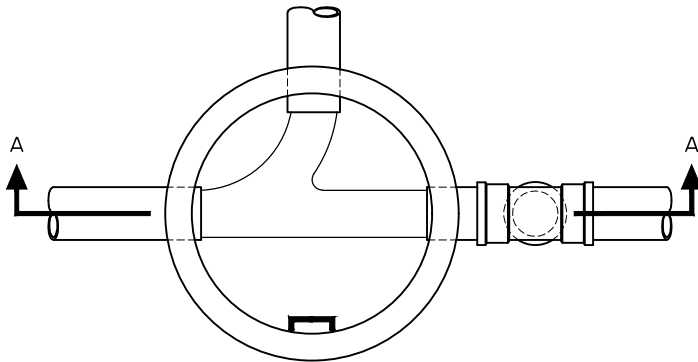


PLAN

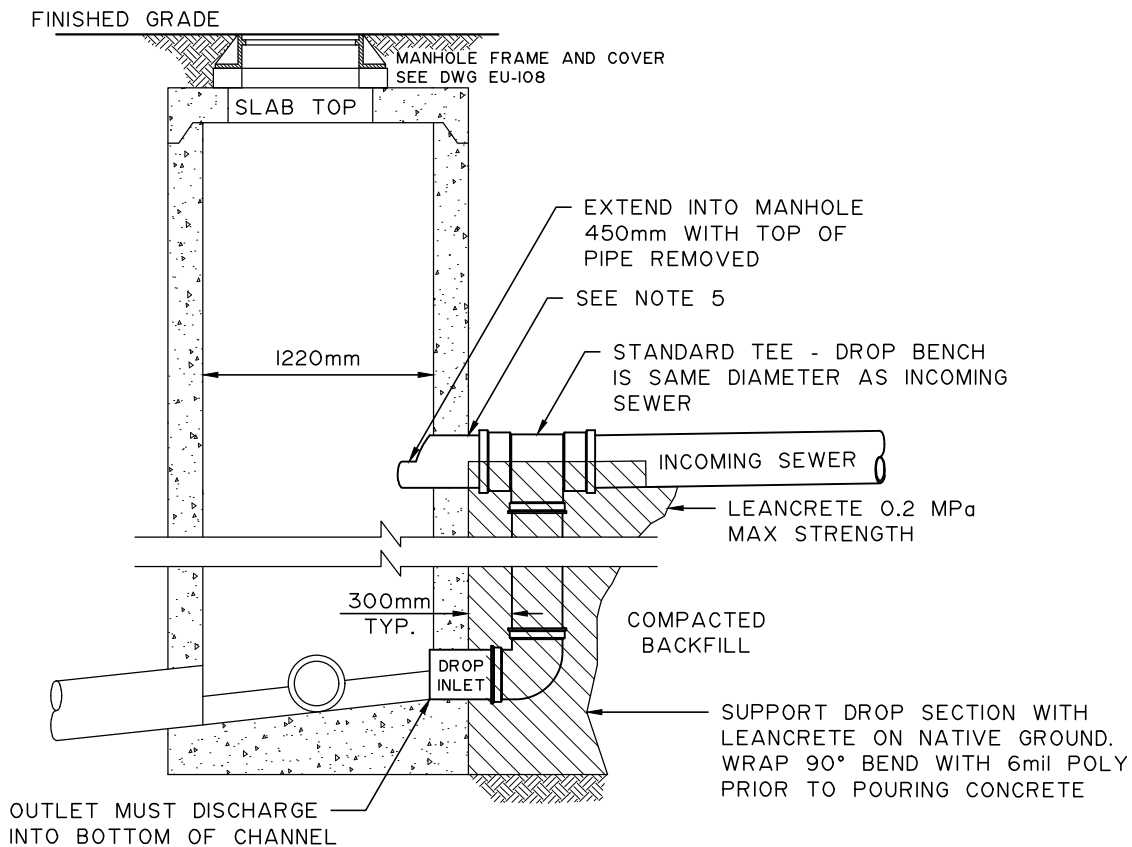
		 Medicine Hat STANDARD DRAWING	DATE: (YYYY-MM-DD)	2022-10-18	TYPE I-S MANHOLE
			SCALE:	N.T.S.	
			DRAWN:	M.H.A.	
REVISED	BY			APPROVED:	C.R.H.

NOTE:

1. INSTALLATION TO CONFORM TO THE LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS
2. SEE DWG EU-101 FOR NOTES AND DETAILS PERTAINING TO MANHOLE
3. INCOMING SEWER INVERTS GREATER THAN 600mm ABOVE MANHOLE CHANNEL INVERT SHALL HAVE DROP STRUCTURE
4. ALL DROP MANHOLES IN MAINLINES WITH DIAMETER GREATER THAN 100mm SHALL BE EXTERNAL DROP (SECTION A-A)
5. MANHOLE PENETRATIONS TO BE CORED IN FIELD. SAW CUT AND HAMMERED PENETRATIONS ARE NOT ALLOWED.

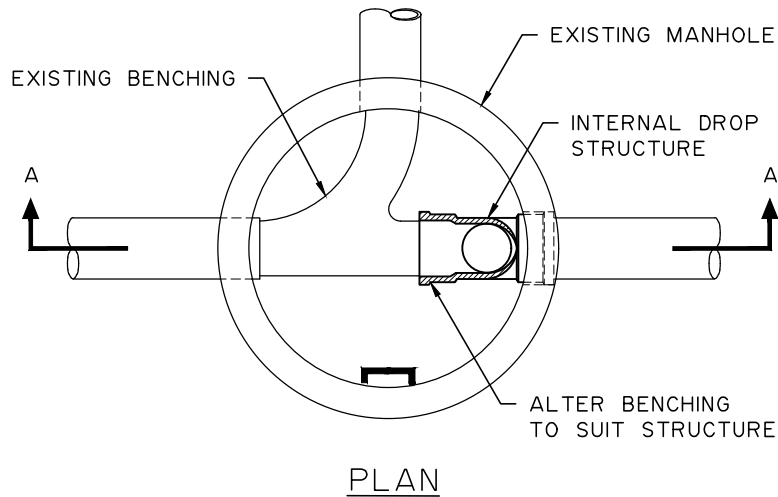


PLAN



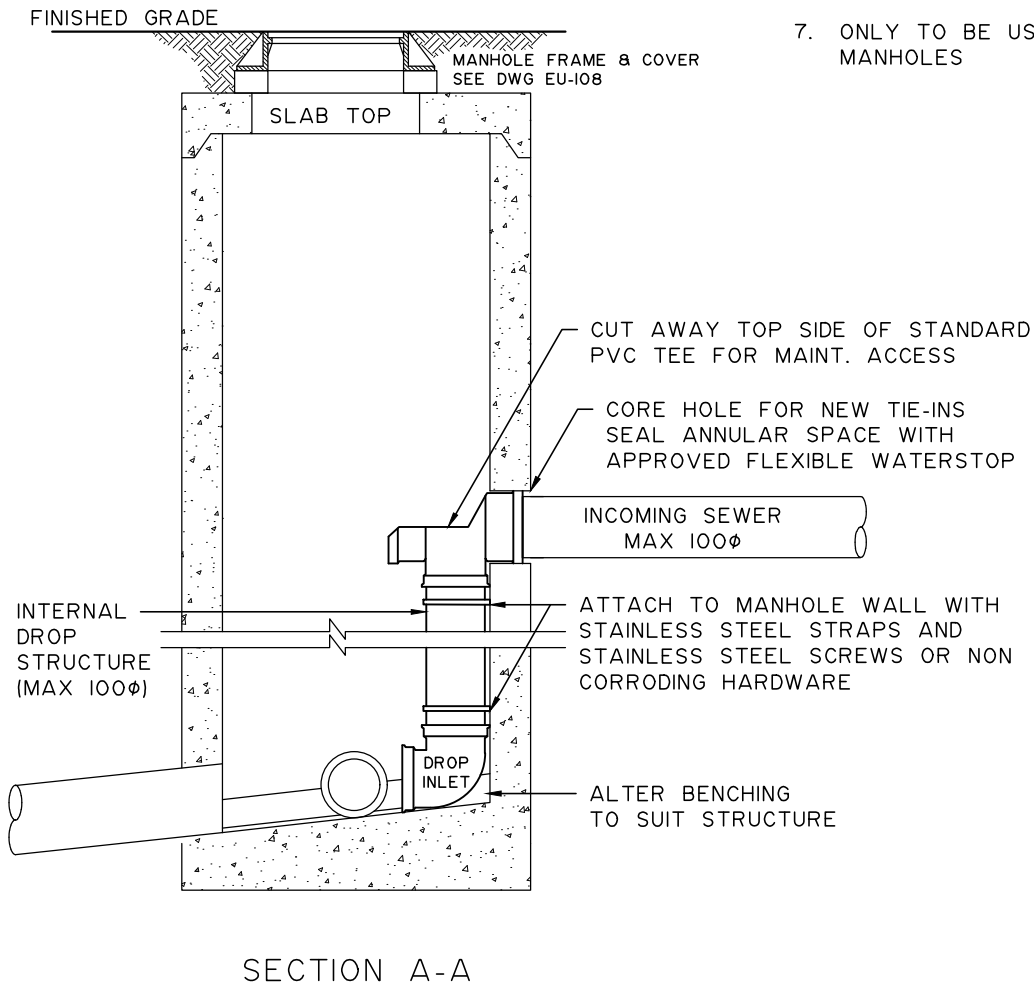
SECTION A-A

	BY	 Medicine Hat STANDARD DRAWING	DATE: (YYYY-MM-DD)	2022-10-18	DROP MANHOLE
			SCALE:	N.T.S.	
			DRAWN:	M.H.A	
			APPROVED:	C.R.H.	DRAWING No.: EU-103



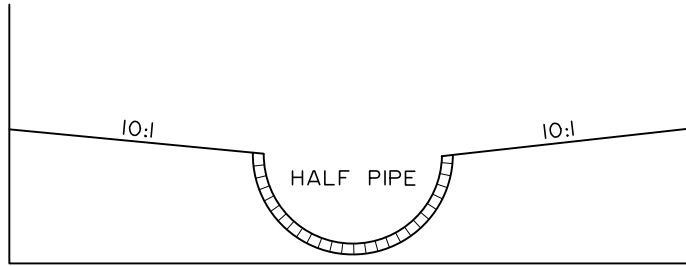
NOTE:

1. INSTALLATION TO CONFORM TO THE LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS
2. SEE DWG EU-101 FOR NOTES AND DETAILS PERTAINING TO MANHOLE
3. INCOMING SEWER INVERTS GREATER THAN 600mm ABOVE MANHOLE CHANNEL INVERT SHALL HAVE DROP STRUCTURE
4. ALL DROP MANHOLES WITH INCOMING SEWER OF DIAMETER 100 ϕ OR LESS SHALL BE INTERNAL DROP (SECTION A-A)
5. MANHOLE PENETRATIONS TO BE CORED IN FIELD. SAW CUT AND HAMMERED PENETRATIONS ARE NOT ALLOWED
6. DROP OUTLET MUST DISCHARGE INTO THE BOTTOM OF THE CHANNEL
7. ONLY TO BE USED IN EXISTING MANHOLES

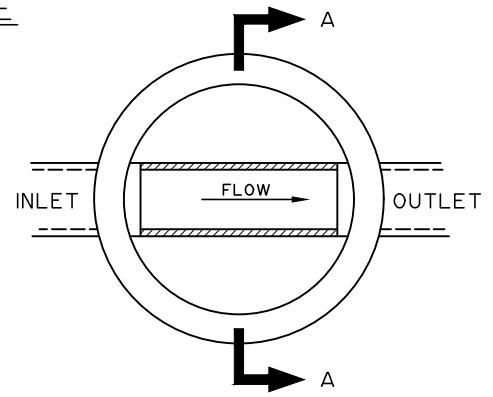


		 Medicine Hat STANDARD DRAWING	DATE: [YYYY-MM-DD]	2022-10-18	INTERNAL DROP MANHOLE (FOR INSTALLATION IN EXISTING MANHOLES WITH MAX 100Ø PIPES)
			SCALE:	N.T.S.	
			DRAWN:	M.H.A.	
REVISED	BY			APPROVED:	C.R.H.

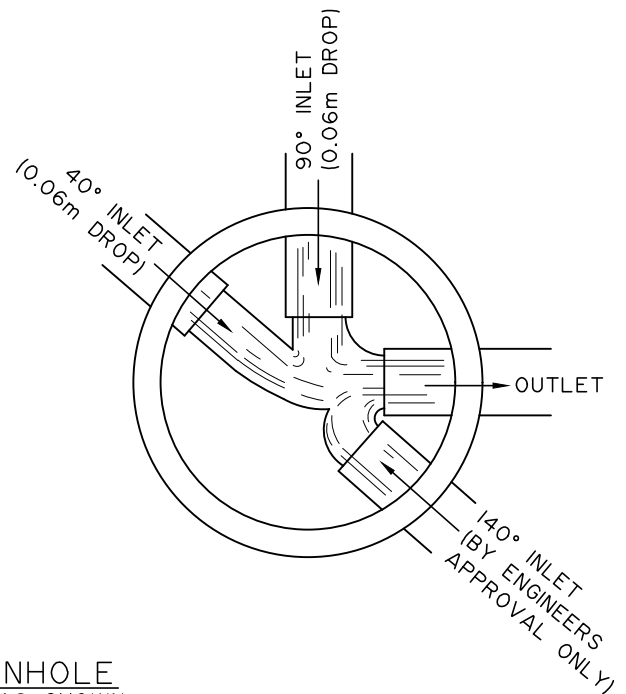
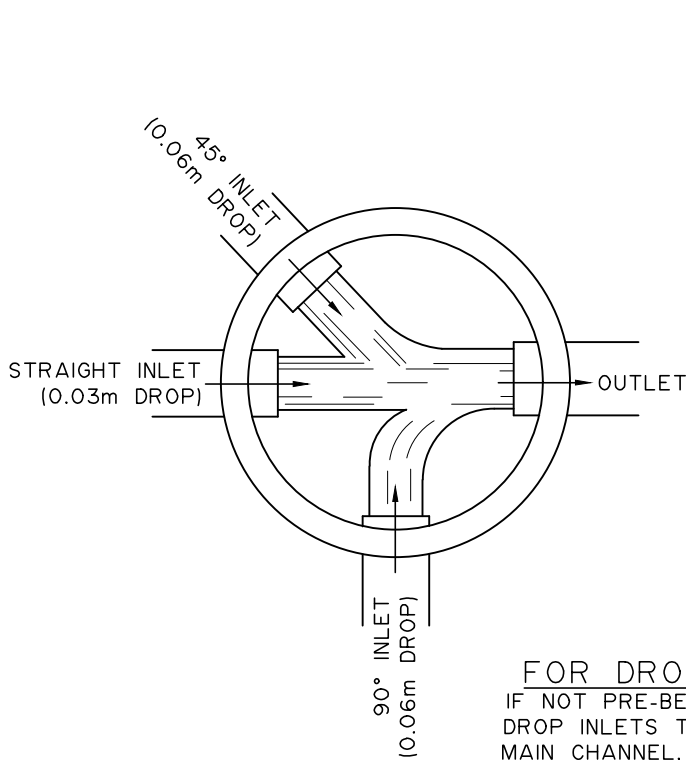
BENCHING IN MANHOLE



SECTION A-A



1. INSTALLATION TO CONFORM TO LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS
2. SEE DWG EU-101 NOTES AND DETAILS PERTAINING TO MANHOLE REQUIREMENTS
3. STANDARD SIDE SLOPE OF BENCHING SHALL BE 10:1 FROM EDGE OF HALF-PIPE CHANNEL.
4. FOR STRAIGHT-THROUGH FLOW PATTERNS, MINIMUM FALL ACROSS NEW PRE-BENCHED MANHOLES TO BE 0.03m FROM INLET INVERT TO OUTLET INVERT.
5. FOR INLETS WITH DEFLECTION ANGLES BETWEEN 5° AND 90°, A MINIMUM FALL FROM INLET INVERT TO OUTLET INVERT TO BE 0.06m.
6. INLETS WITH DEFLECTION ANGLES GREATER THAN 90° SHOULD BE AVOIDED.
7. EXCEPTIONS TO THE ABOVE WILL BE PERMITTED UNDER SPECIAL CIRCUMSTANCES ONLY WITH PERMISSION OF THE ENVIRONMENTAL UTILITIES ENGINEER.

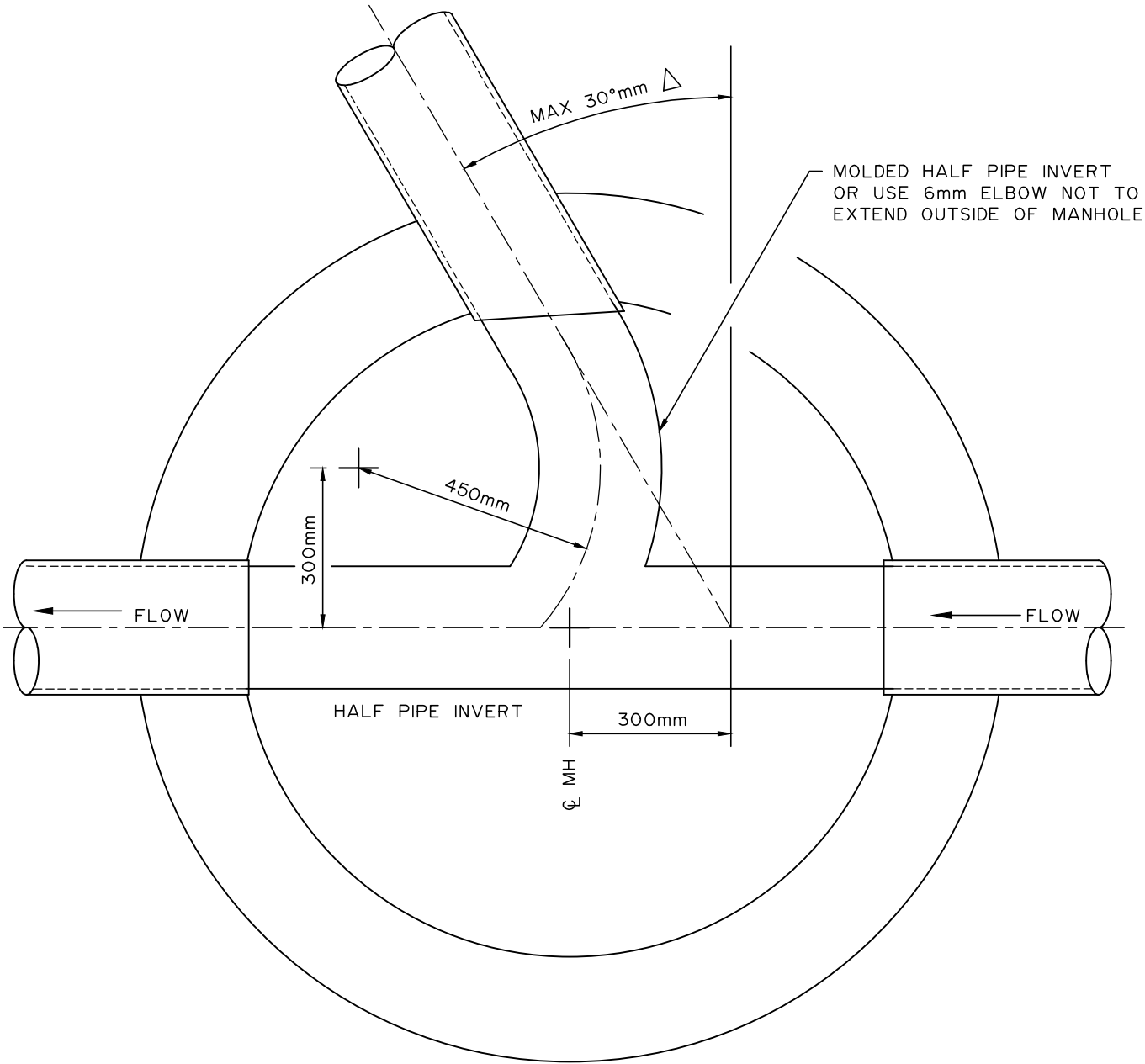


FOR DROP MANHOLE
IF NOT PRE-BENCHED AS SHOWN,
DROP INLETS TO DISCHARGE INTO
MAIN CHANNEL, NOT ONTO BENCH.
FOR DETAILS SEE DRAWING EU-103

REVISED	BY		DATE: (YYYY-MM-DD)	2022-10-18	BENCHING STANDARDS FOR MANHOLES
			SCALE:	N.T.S.	
			DRAWN:	M.H.A.	
			APPROVED:	C.R.H.	DRAWING No.: EU-105

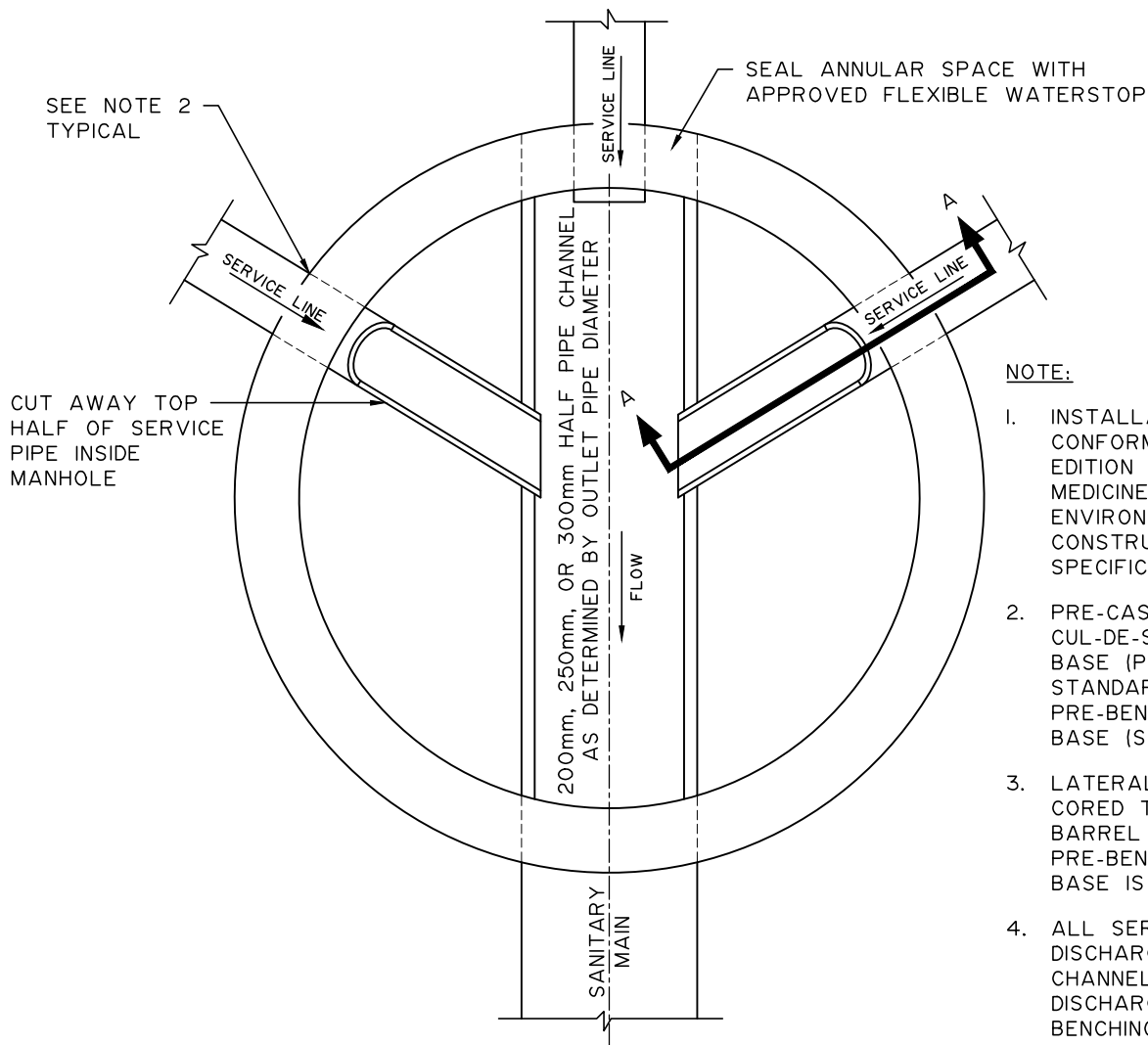
NOTE:

- 1. INSTALLATION TO CONFORM TO THE LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS
- 2. SEE DWG EU-101 FOR NOTES AND DETAILS PERTAINING TO MANHOLE



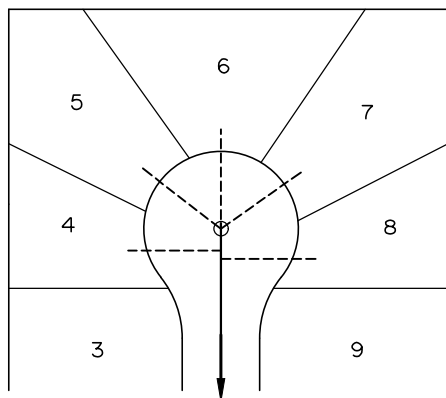
STANDARD I220 A MANHOLE

		 Medicine Hat STANDARD DRAWING	DATE: (YYYY-MM-DD)	2022-10-18	MANHOLE INVERT ARRANGEMENT INTERSECTION LESS THAN 90°
			SCALE:	N.T.S.	
			DRAWN:	M.H.A.	
REVISED	BY		APPROVED:	C.R.H.	DRAWING No.: EU-106

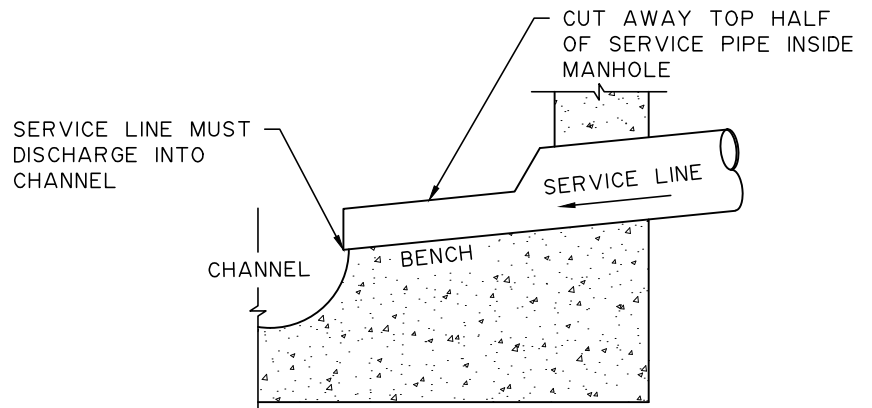


NOTE:

1. INSTALLATION TO CONFORM TO LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS
2. PRE-CAST I220 CUL-DE-SAC MANHOLE BASE (PREFERRED) OR STANDARD I220 PRE-BENCHED MANHOLE BASE (SHOWN)
3. LATERAL INLETS TO BE CORED THROUGH MANHOLE BARREL IF STANDARD I220 PRE-BENCHED MANHOLE BASE IS USED
4. ALL SERVICE LINES MUST DISCHARGE DIRECTLY INTO CHANNEL. SERVICE LINES DISCHARGING ONTO BENCHING ARE PROHIBITED



TYPICAL CUL-DE-SAC

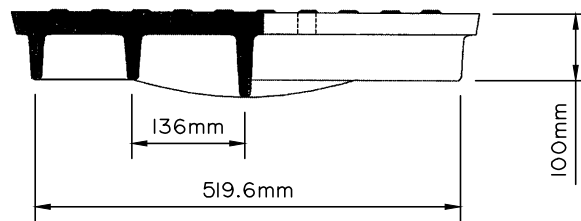
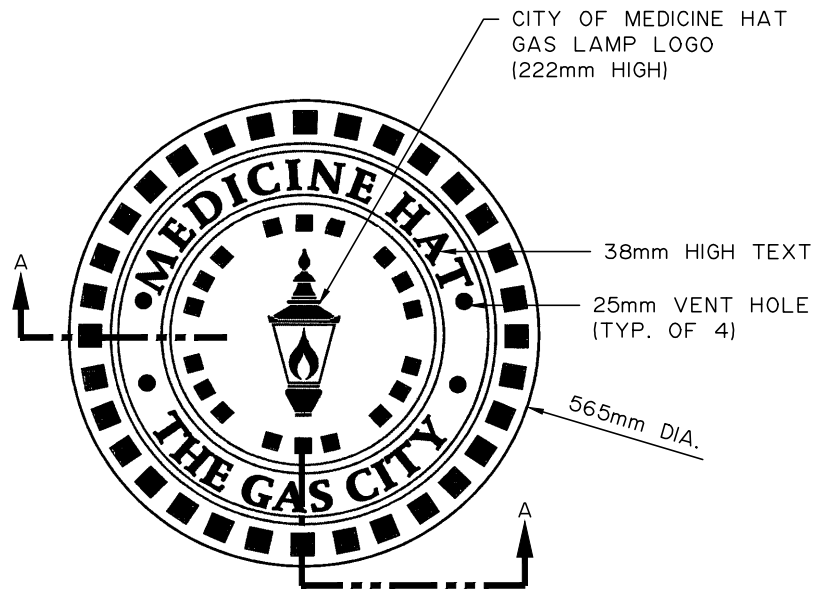


SECTION A-A

	BY	 Medicine Hat STANDARD DRAWING	DATE: (YYYY-MM-DD)	2021-10-18	BENCHING DETAIL FOR MANHOLE IN CUL-DE-SAC
			SCALE:	N.T.S.	
			DRAWN:	M.H.A.	
			APPROVED:	C.R.H.	DRAWING No.: EU-107

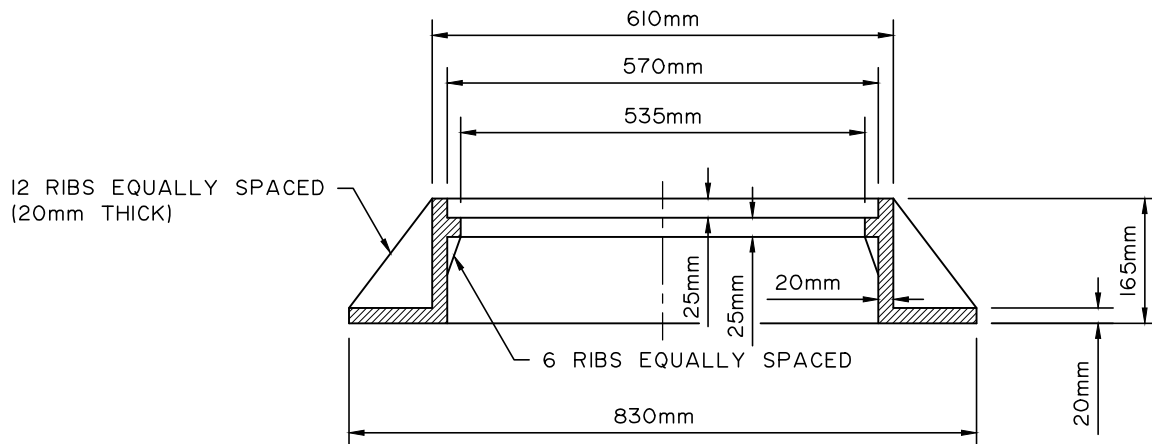
NOTE:

1. INSTALLATION TO CONFORM TO LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS
2. FRAME AND COVER TO BE TROJAN TF-39 OR APPROVED EQUAL



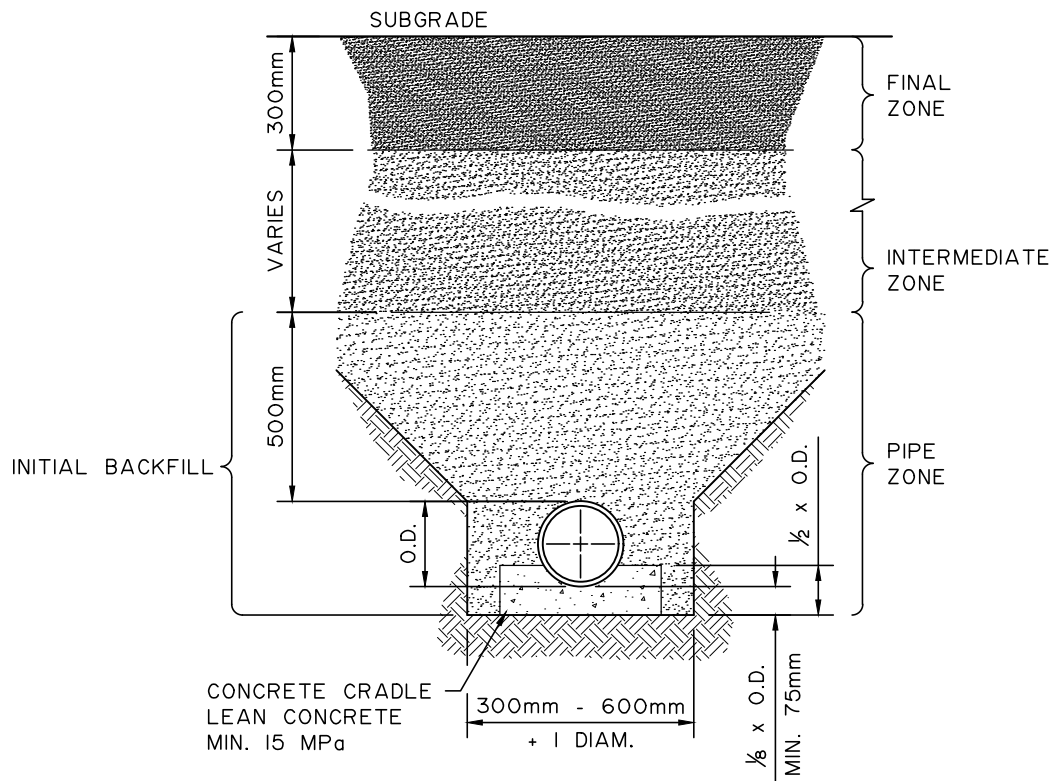
SECTION A-A

COVER

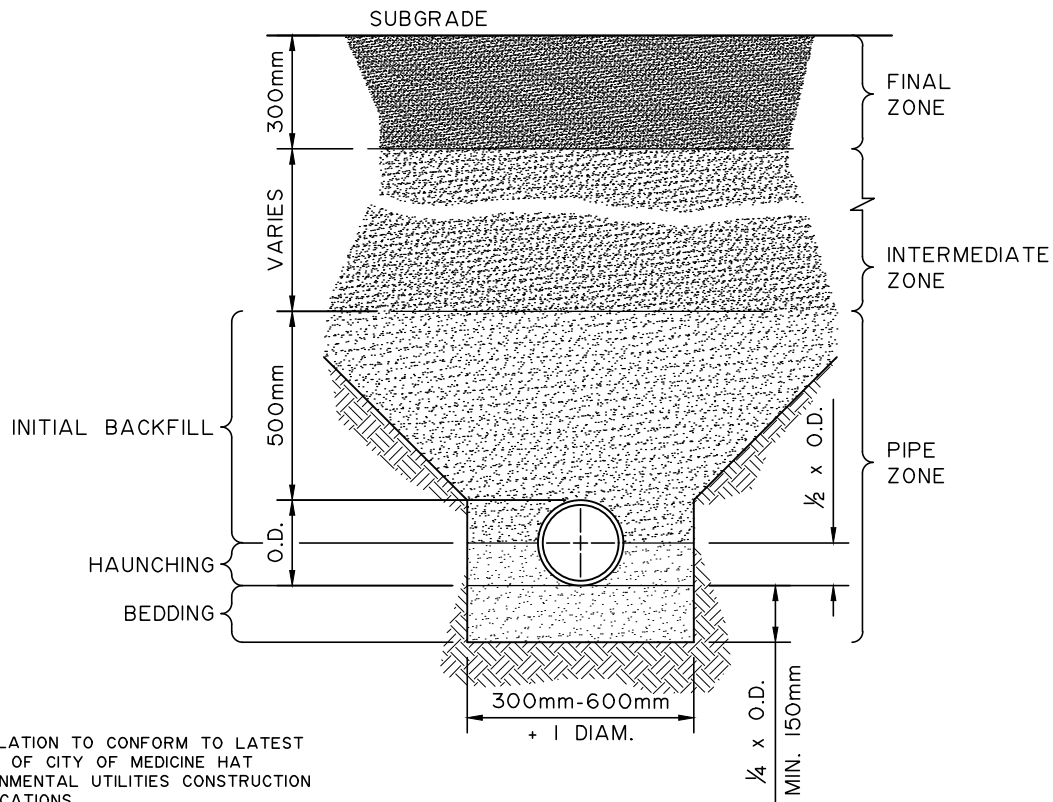


FRAME

REVISED	BY	 Medicine Hat STANDARD DRAWING	DATE: (YYYY-MM-DD)	2022-10-18	STANDARD MANHOLE COVER AND FRAME DETAILS DRAWING No.: EU-108
			SCALE:	N.T.S.	
			DRAWN:	M.H.A.	
			APPROVED:	C.R.H.	



CLASS 'A' BEDDING

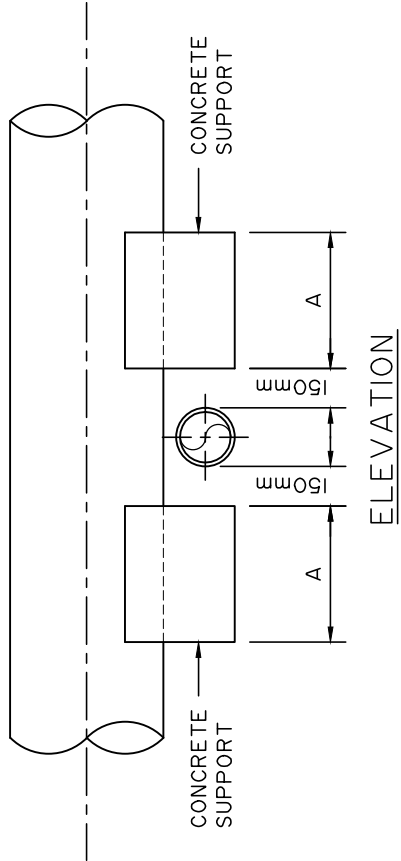
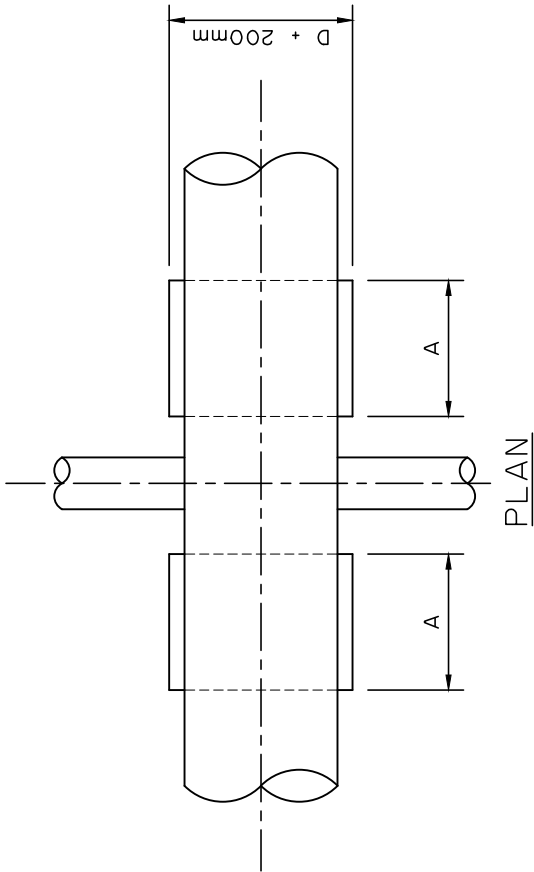


NOTES:

- I. INSTALLATION TO CONFORM TO LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS

CLASS 'B' OR 'C' BEDDING

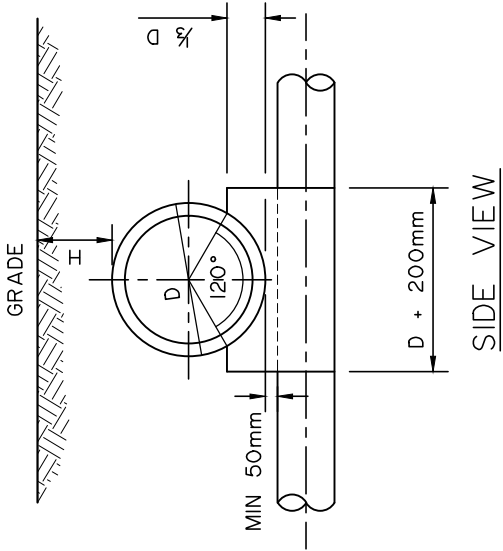
REVISED	BY	 Medicine Hat STANDARD DRAWING	DATE: (YYYY-MM-DD)	2022-10-18	STANDARD PIPE BEDDING AND BACKFILLING
			SCALE:	N.T.S.	
			DRAWN:	M.H.A.	
			APPROVED:	C.R.H.	DRAWING No.: EU-109



"H"	"A"
0mm TO 2450mm	900mm
2450mm TO 4250mm	1200mm
4250mm TO 6100mm	1500mm

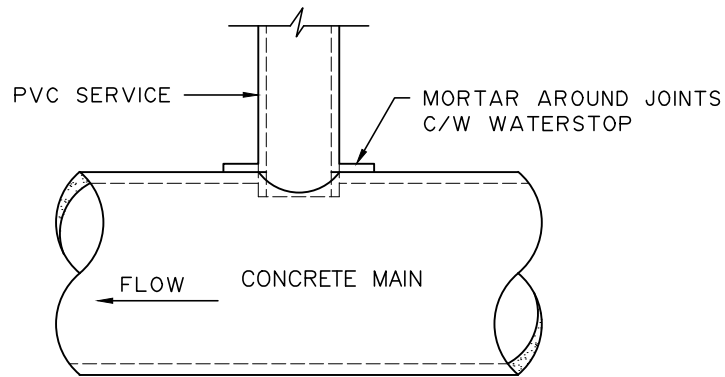
NOTES:

1. INSTALLATION TO CONFORM TO LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS
2. TO BE USED WHERE MAXIMUM DISTANCE BETWEEN PIPE (ANY SIZE) IS 300mm AND MINIMUM DISTANCE OF 50mm
3. CONCRETE SHALL BE SULPHATE RESISTANT
4. SUPPORTS TO BE FORMED AND POURED CONCRETE. NO PRECAST CONCRETE BLOCKS TO BE USED
5. BONDING BETWEEN CONCRETE PIPE AND CONCRETE SUPPORT WILL NOT BE PERMITTED
6. CONCRETE SHALL BE 25 MPa AT 28 DAY STRENGTH

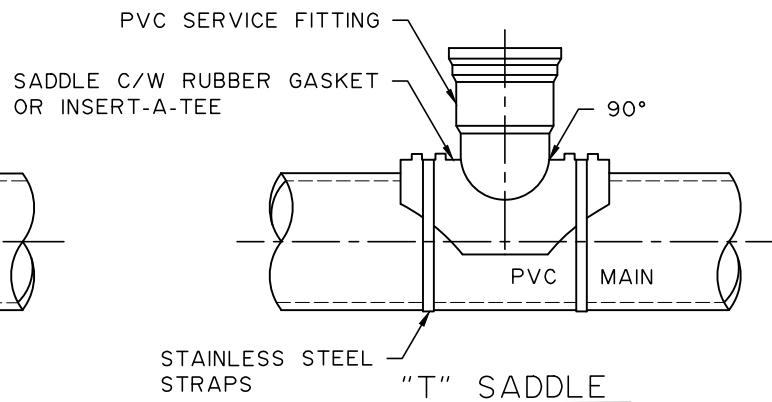
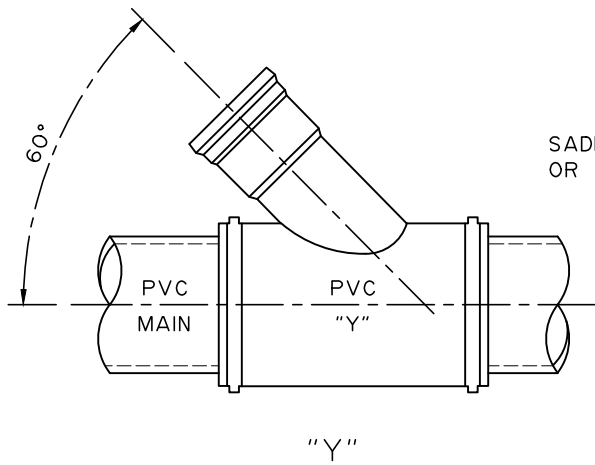


NOTE:

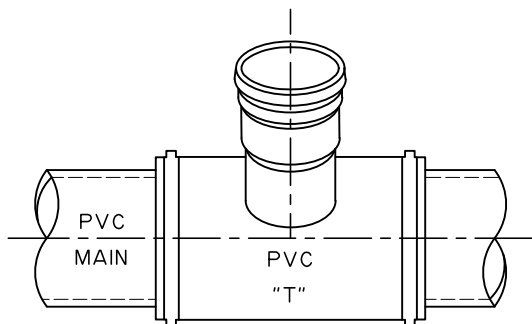
- I. INSTALLATION TO CONFORM TO LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS



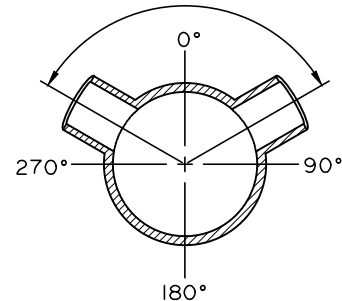
TYPICAL CONNECTION FOR CONCRETE MAIN



"T" FITTING

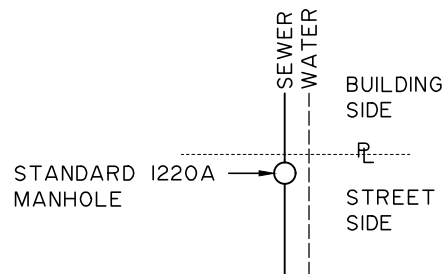
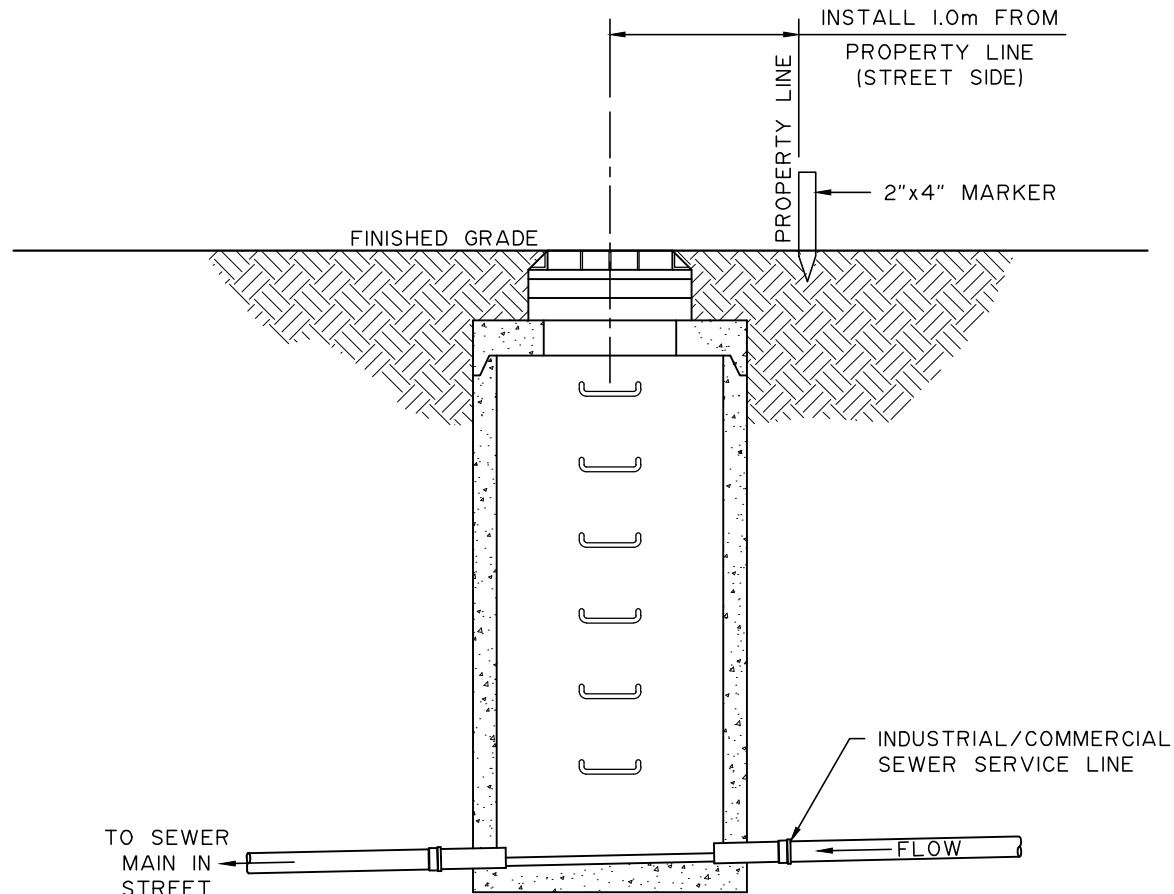


INSTALL TEE BETWEEN 60° AND 300°

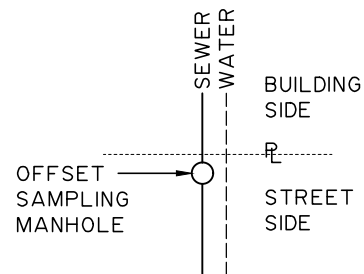


TYPICAL CONNECTIONS FOR PVC MAIN

REVISED	BY		DATE: (YYYY-MM-DD)	2022-10-18	SEWER SERVICE CONNECTIONS TO MAINS
			SCALE:	N.T.S.	
			DRAWN:	M.H.A.	
			APPROVED:	C.R.H.	DRAWING No.: EU-II2



NEW SERVICES

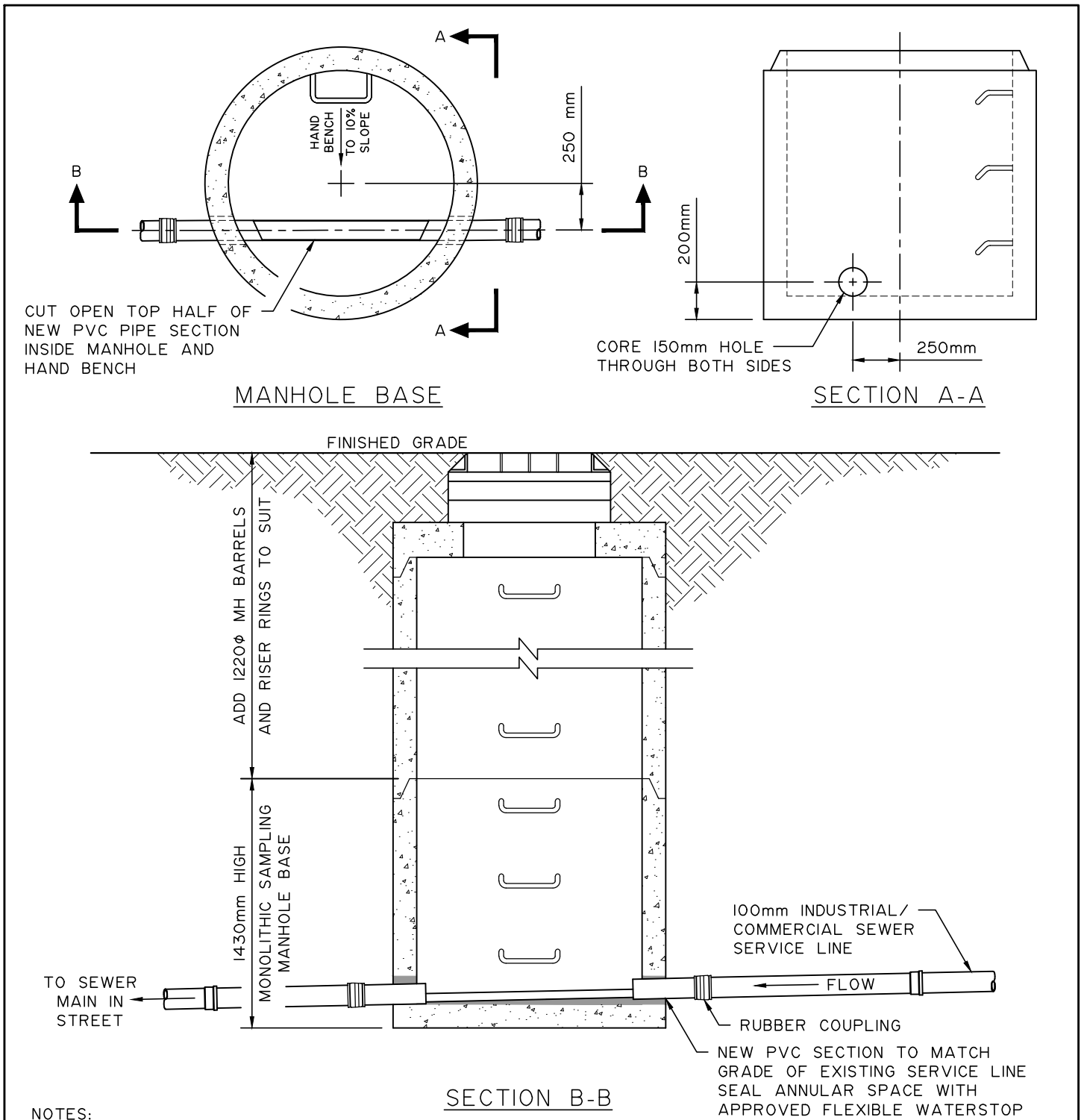


EXISTING SERVICES
(COMMON TRENCHED)

NOTES:

1. INSTALLATION TO CONFORM TO THE LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS
2. FOR NEW SERVICES, USE STANDARD MANHOLE TYPE I220A. SEE DWG EU-101 FOR NOTES AND DETAILS PERTAINING TO MANHOLE
3. FOR EXISTING SERVICES, USE OFFSET MANHOLE. SEE DRAWING EU-114
4. IF ENVIRONMENTAL UTILITIES INSTALLS NEW SERVICE, ENVIRONMENTAL UTILITIES WILL INSTALL SAMPLING MANHOLE AND COST WILL BE ADDED TO TOTAL COST AND INVOICED TO OWNER/DEVELOPER
5. LINE SEPARATION BETWEEN WATER AND SEWER SERVICE TO BE APPROVED BY ENVIRONMENTAL UTILITIES
6. AUTHORITY: BYLAW I54I (SEWER) CLAUSE 509

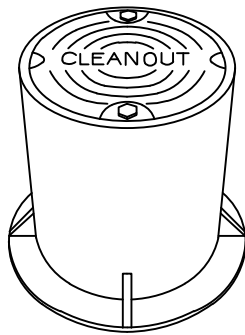
		 Medicine Hat STANDARD DRAWING	DATE: (YYYY-MM-DD)	2022-10-18	INDUSTRIAL/COMMERCIAL SITE SERVICING MANHOLE DETAILS
			SCALE:	N.T.S.	
			DRAWN:	M.H.A.	
			APPROVED:	C.R.H.	
REVISED	BY		DRAWING No.: EU-113		



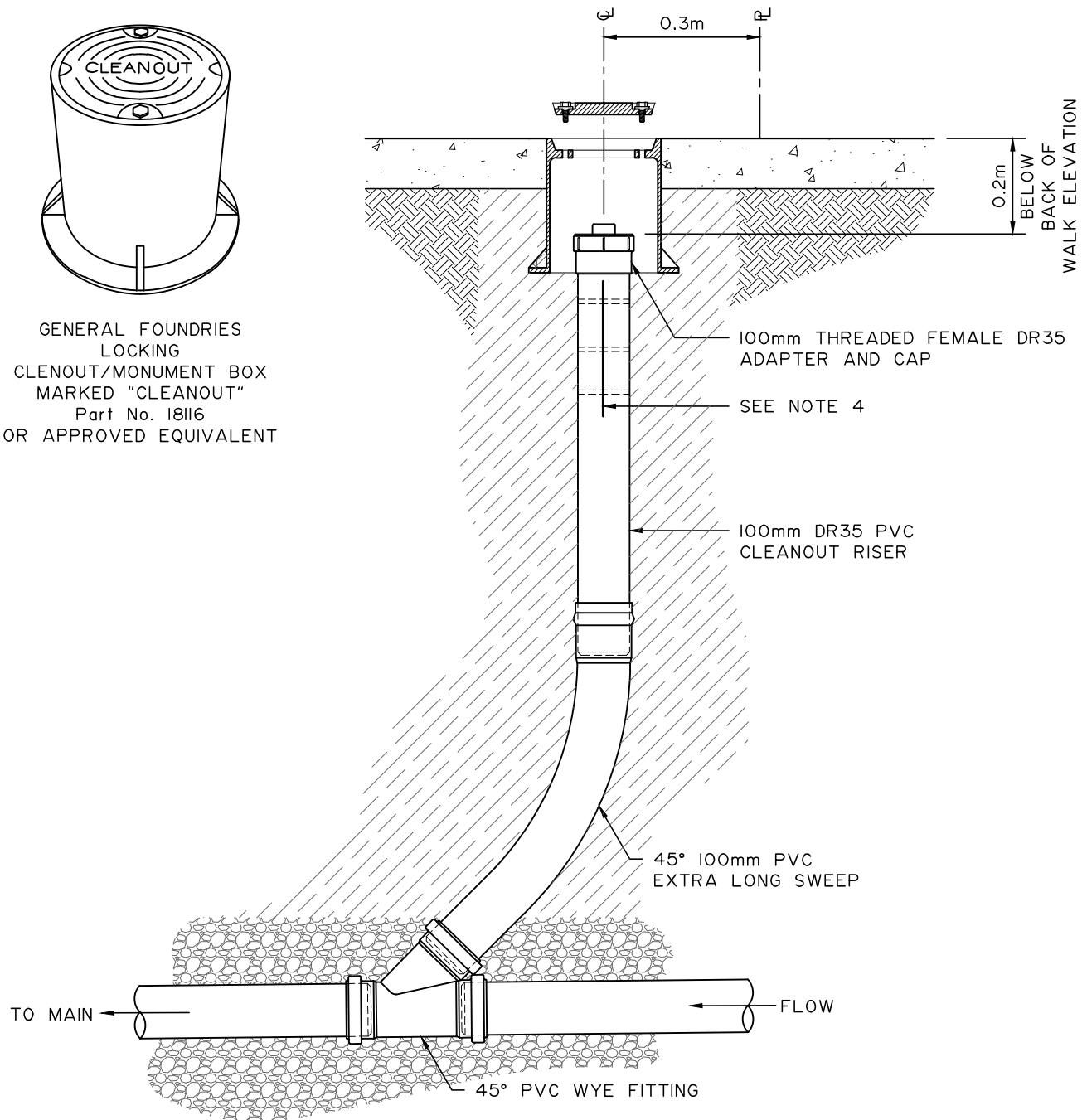
NOTES:

1. INSTALLATION TO CONFORM TO THE LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS
2. IF EXISTING SERVICE DOES NOT HAVE SAMPLING MANHOLE, OWNER/DEVELOPER TO INSTALL SAMPLING MANHOLE AT THEIR COST
3. FOR EXISTING SERVICES, USE OFFSET MANHOLE. SEE DWG EU-101 FOR NOTES AND DETAILS PERTAINING TO MANHOLE
4. AUTHORITY: BYLAW 1541 (SEWER) CLAUSE 509

		 Medicine Hat STANDARD DRAWING	DATE: [YYYY-MM-DD]	2022-10-18	INDUSTRIAL/COMMERICAL OFFSET SAMPLING MANHOLE DETAILS
			SCALE:	N.T.S.	
			DRAWN:	M.H.A.	
REVISED	BY		APPROVED:	C.R.H.	



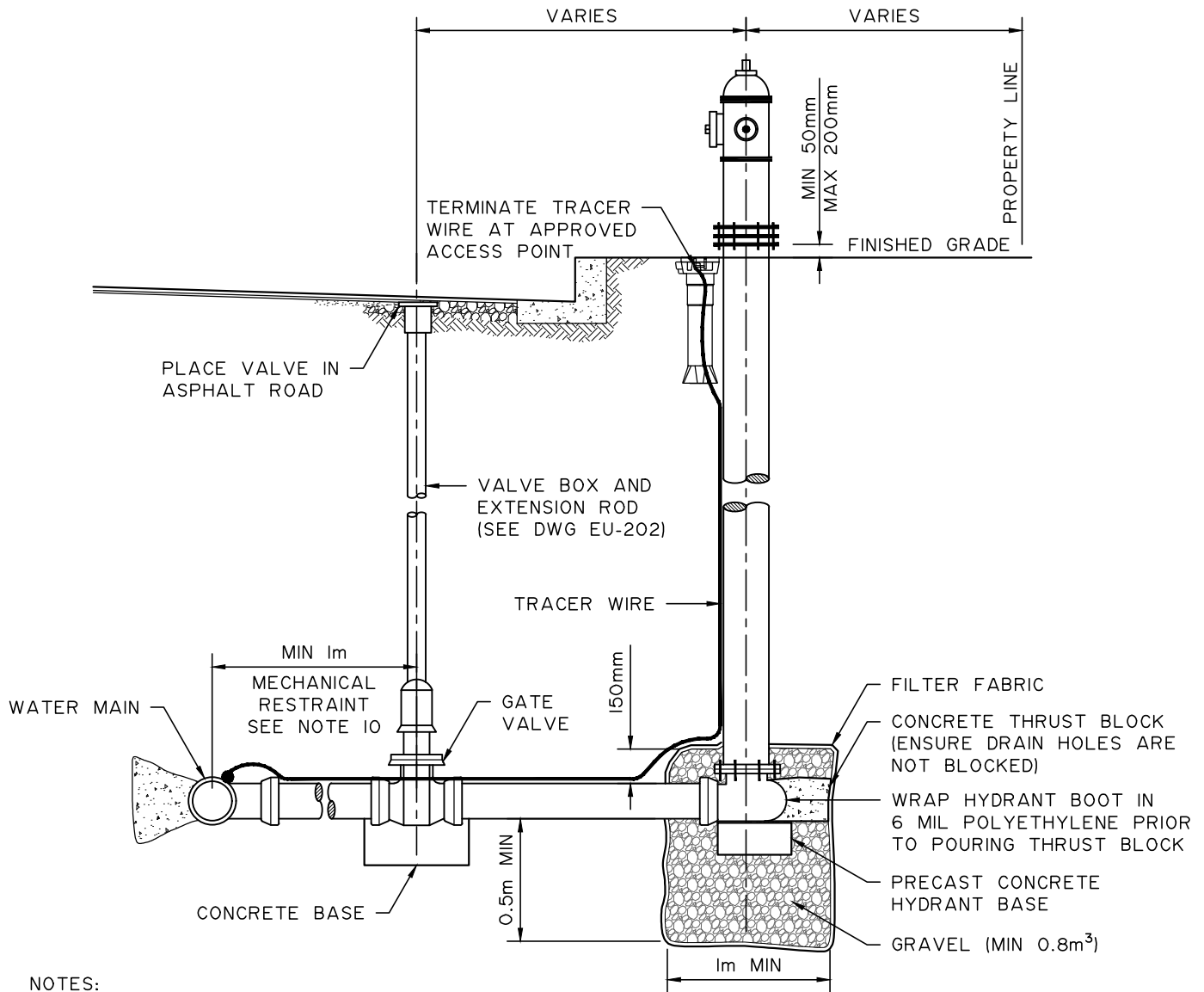
GENERAL FOUNDRIES
LOCKING
CLEANOUT/MONUMENT BOX
MARKED "CLEANOUT"
Part No. 18116
OR APPROVED EQUIVALENT



NOTES:

1. INSTALLATION TO CONFORM TO THE LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS
2. EXPANDING LINE PLUGS WILL NOT BE ACCEPTED
3. WHERE SURFACE CLEANOUT IS USED IN PROXIMITY TO WATER SERVICE BOX, THE LOCATION OF THE WATER SERVICE BOX CAN BE ADJUSTED Laterally TO ACCOMMODATE PROPER COMPACTION TO SPECIFICATION. WATER SERVICE BOX MUST STILL BE LOCATED 0.3m FROM PROPERTY LINE.
4. IF RISER IS TO BE LEFT BELOW GRADE BEFORE CLEANOUT/MONUMENT BOX IS INSTALLED, INSTALL SHORT SECTION OF 10M REBAR TAPED TO RISER FOR LOCATE PURPOSES

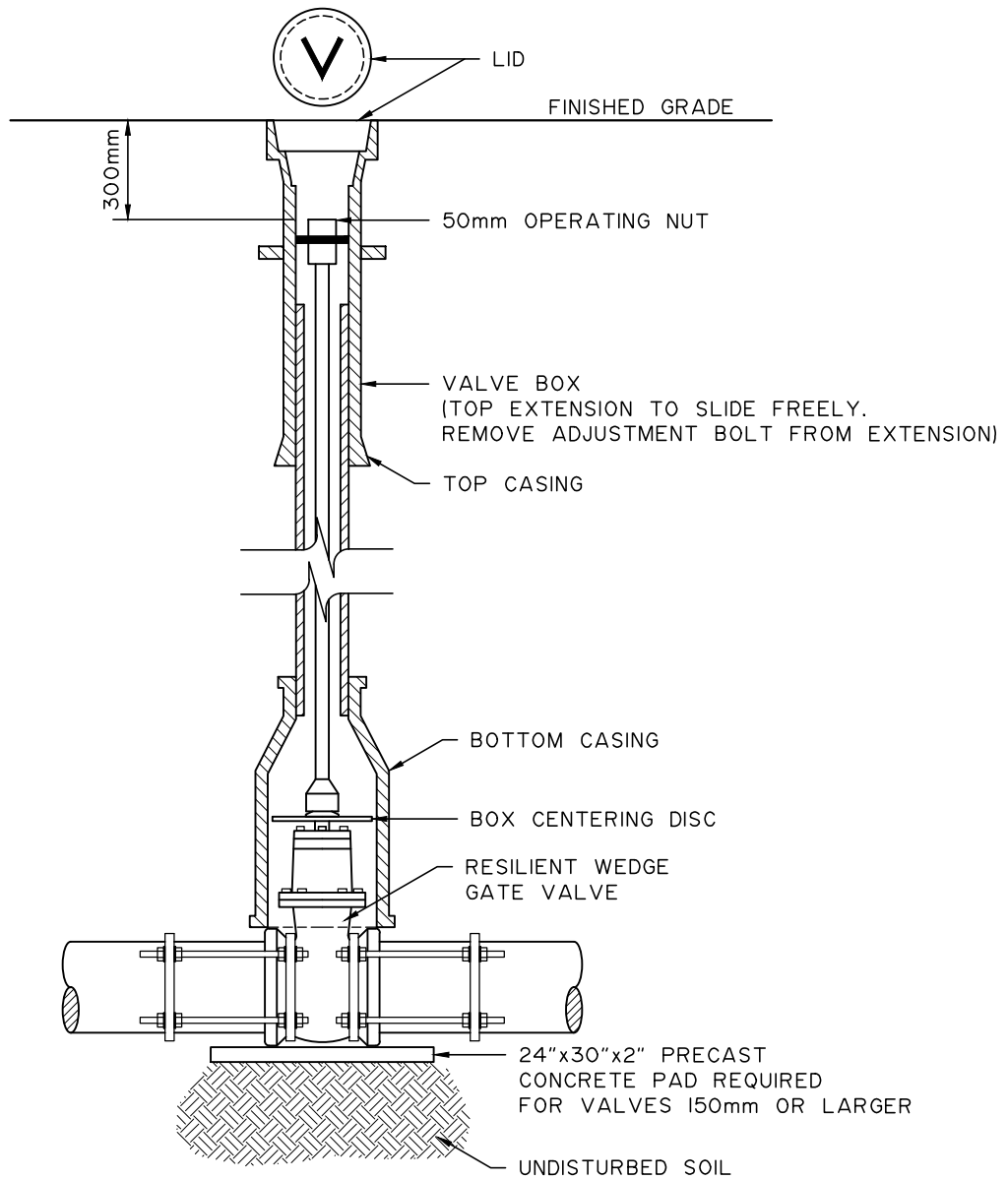
			DATE: (YYYY-MM-DD)	2022-10-18	SURFACE CLEANOUT DETAIL
			SCALE:	N.T.S.	
			DRAWN:	M.H.A.	
			APPROVED:	C.R.H.	DRAWING No.: EU-II5
REVISED	BY	STANDARD DRAWING			



NOTES:

1. INSTALLATION TO CONFORM TO LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS
2. HYDRANT SHALL BE MCAVITY, CLOW CANADA BRIGADIER M-67, OR APPROVED EQUAL. OPERATING NUTS AND CAPS TO BE SMALL PENTAGON CONFIGURATION
3. ALL BOLTS TO BE STAINLESS STEEL
4. ALL METALLIC FITTINGS TO BE FUSION-BONDED EPOXY COATED INTERIOR AND EXTERIOR (TO AWWA STANDARDS)
5. VALVE BOX TO BE FUSION-BONDED EPOXY COATED INTERIOR AND EXTERIOR (TO AWWA STANDARDS)
6. ALL VALVES TO BE LEFT TURN TO OPEN (COUNTER-CLOCKWISE) FOR MAIN SIZES Ø100mm TO Ø300mm
7. HYDRANT BOOT AND BARREL TO BE COAL TAR ENAMEL
8. IN HIGH GROUNDWATER CONDITIONS WHERE BOOT OF HYDRANT WILL LIKELY BE SUBMERGED. PLUG DRAIN HOLES AS PER SPEC.
9. USE DEEP BURY HYDRANTS WITH VALVE AND DRAIN HOLES AT 2.75m IF HYDRANT LEAD EXCEEDS THE STANDARD 2.75m BURY DEPTH.
10. PROVIDE CORROSION PROTECTION. FIELD INSTALLED CORROSION PROTECTIVE COATINGS TO BE TWO PART PASTE AND TAPE SYSTEM.

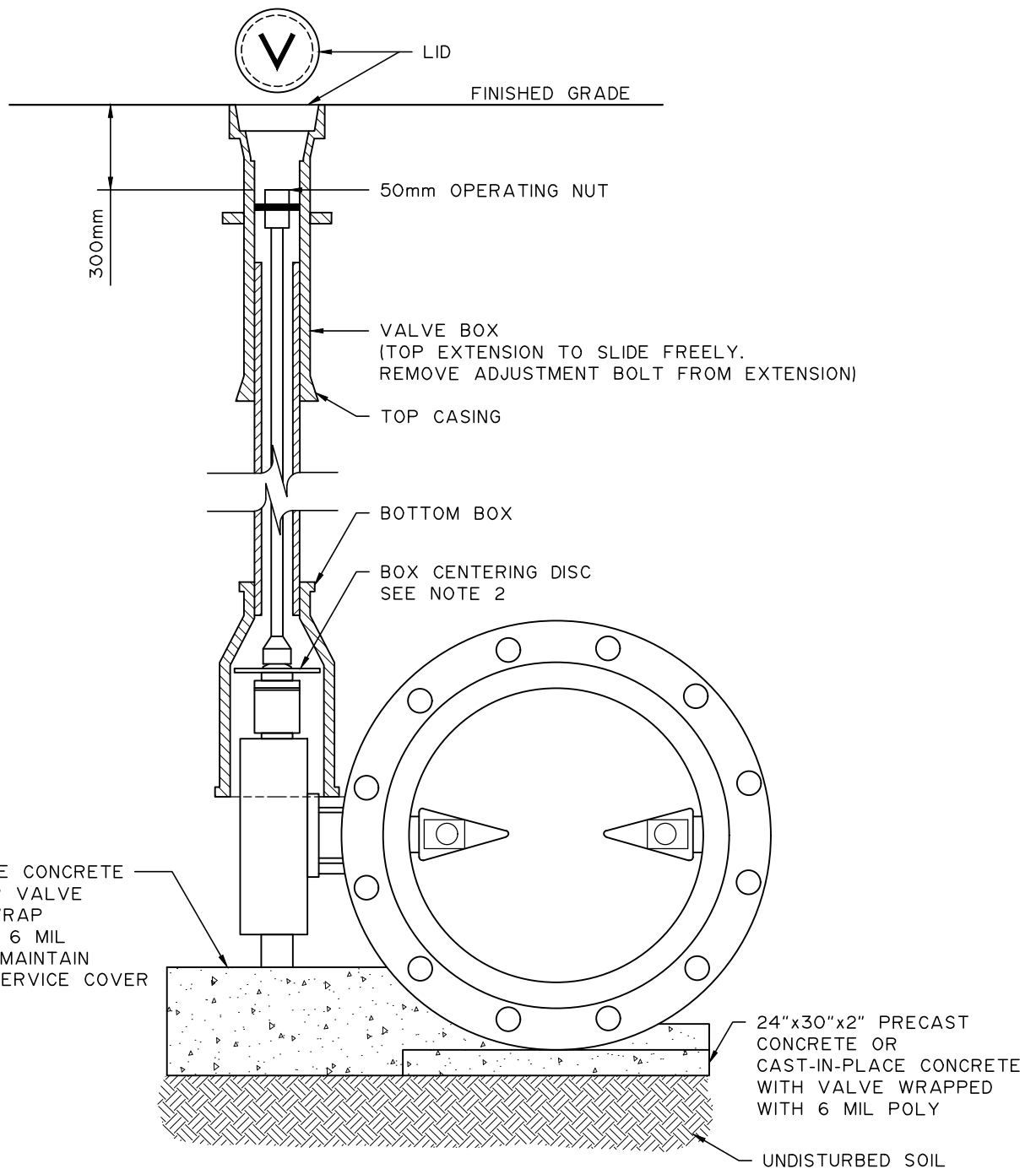
REVISED	BY	 Medicine Hat STANDARD DRAWING	DATE: (YYYY-MM-DD)	2022-10-18	STANDARD HYDRANT DETAIL DRAWING No.: EU-201
			SCALE:	N.T.S.	
			DRAWN:	M.H.A.	
			APPROVED:	C.R.H.	



NOTES:

1. INSTALLATION TO CONFORM TO LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS
2. ALL VALVES TO BE LEFT TURN TO OPEN (COUNTER-CLOCKWISE) FOR MAIN SIZES $\phi 100\text{mm}$ TO $\phi 300\text{mm}$
3. PROVIDE CORROSION PROTECTION. FIELD INSTALLED CORROSION PROTECTIVE COATINGS TO BE APPROVED TWO PART PASTE AND TAPE SYSTEM

		 Medicine Hat STANDARD DRAWING	DATE: (YYYY-MM-DD)	2022-10-18	STANDARD GATE VALVE INSTALLATION DETAILS
			SCALE:	N.T.S.	
			DRAWN:	M.H.A.	
			APPROVED:	C.R.H.	DRAWING No.: EU-202
REVISED	BY				



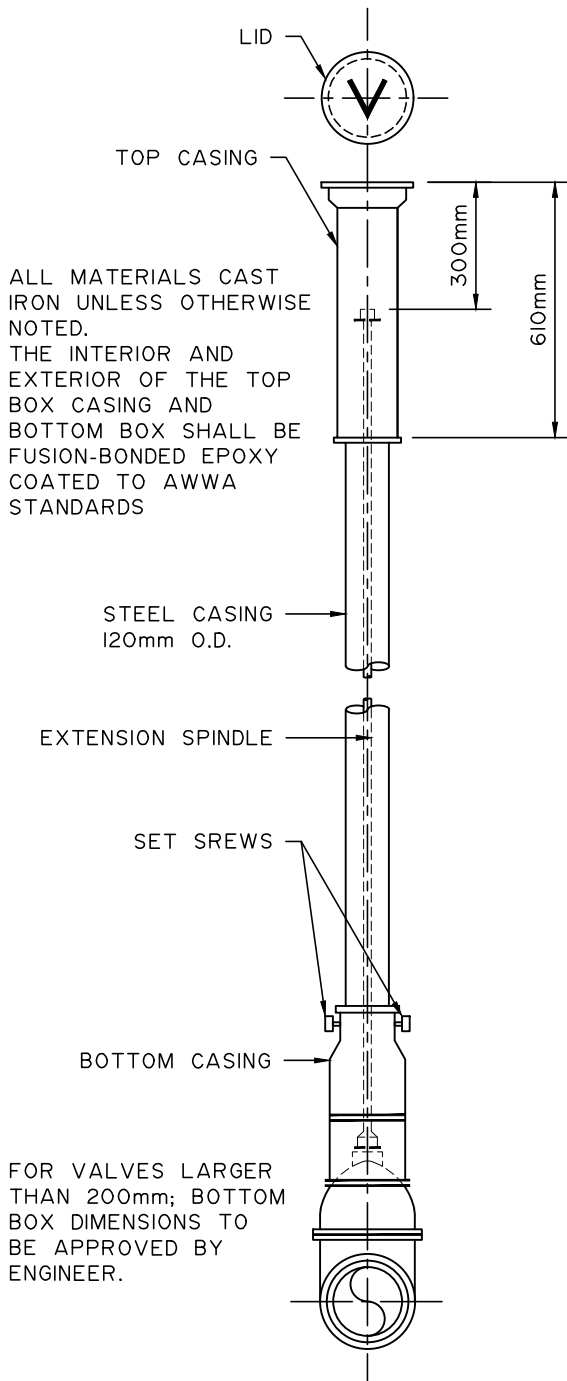
NOTES:

1. INSTALLATION TO CONFORM TO LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS
2. USE FOR MAIN SIZES $\phi 350\text{mm}$ AND LARGER. ALL BUTTERFLY VALVES TO BE INSTALLED INSIDE VAULT. VAULT DETAILS TO BE APPROVED BY EU ENGINEERING.
3. DURING INSTALLATION, CHECK TO MAKE SURE DISC ROTATES FREELY AND DOES NOT CATCH ON PIPE
4. CAUTION SHOULD BE TAKEN WHEN OPERATING THIS TYPE OF VALVE. DO NOT USE EXCESSIVE FORCE
5. ALL VALVES TO BE LEFT TURN TO OPEN (COUNTER-CLOCKWISE)

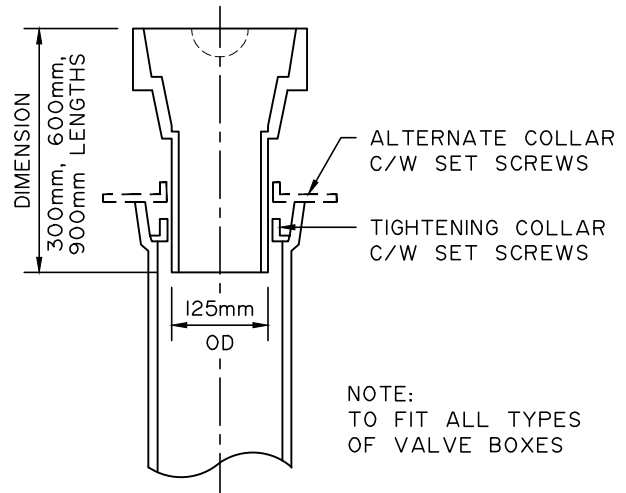
REVISED	BY	 Medicine Hat STANDARD DRAWING	DATE: (YYYY-MM-DD)	2022-10-18	STANDARD BUTTERFLY VALVE INSTALLATION DETAILS DRAWING No.: EU-203
			SCALE:	N.T.S.	
			DRAWN:	M.H.A.	
			APPROVED:	C.R.H.	

NOTES:

- I. INSTALLATION TO CONFORM TO LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS



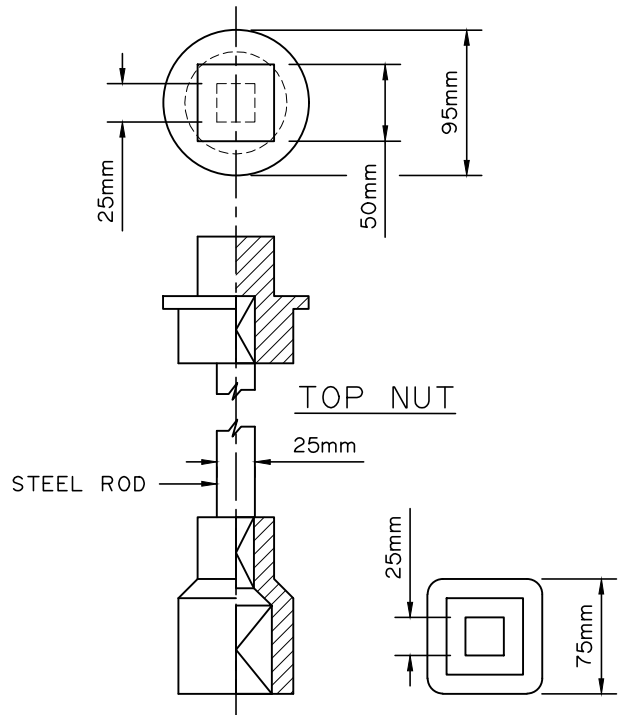
SLIDING TYPE VALVE BOX



TOP EXTENSION PIECE FOR VALVE BOX

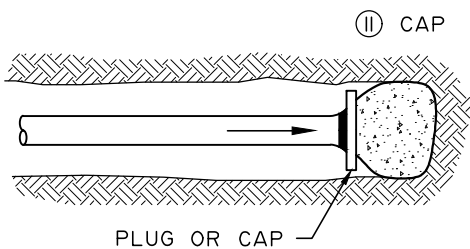
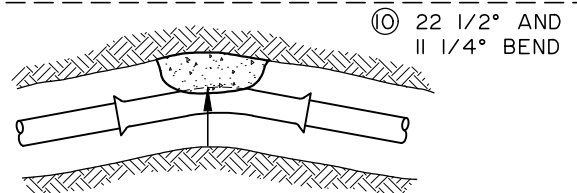
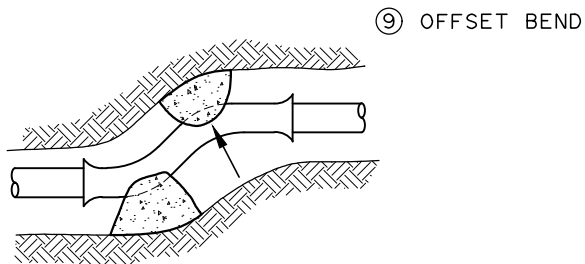
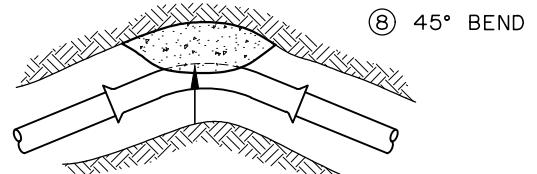
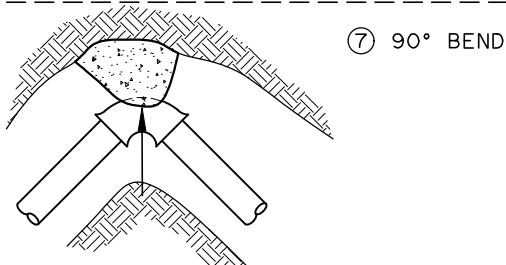
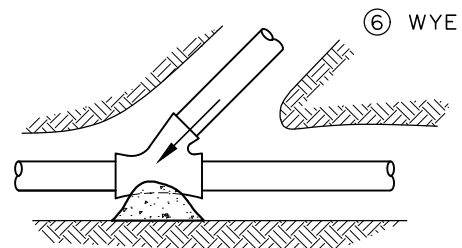
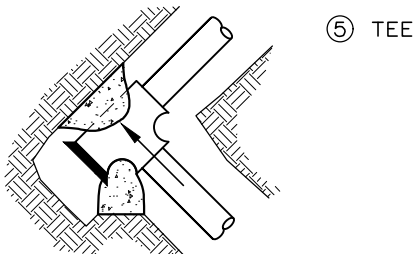
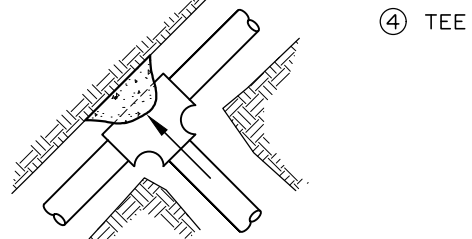
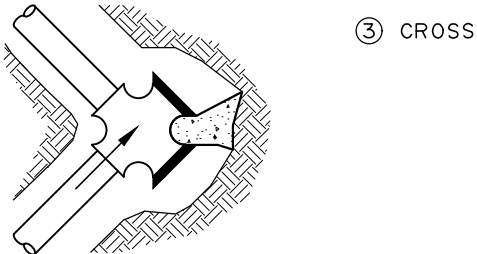
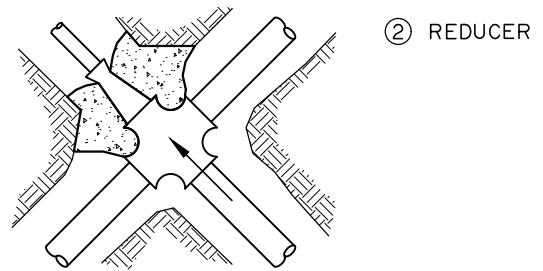
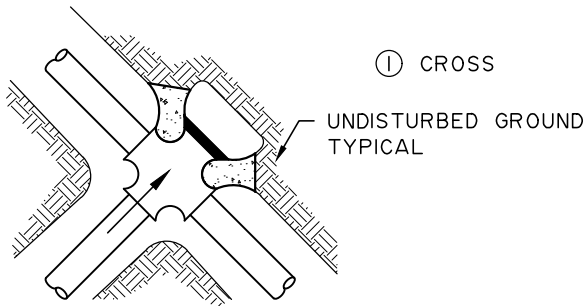
FOR DETAILS SEE MCAVITY COMPLETE VALVE BOX NO. W6001

THE BOTTOM BOOT AS SHOWN ACCOMMODATES 100mm, 150mm AND 200mm VALVES. THE VALVE BOX IS SUPPLIED WITH A LARGER BOOT FOR 250mm AND 300mm VALVES.



BOTTOM NUT

REVISED	BY	 Medicine Hat STANDARD DRAWING	DATE: (YYYY-MM-DD)	2022-10-18	STANDARD MAIN VALVE BOX DETAIL DRAWING No.: EU-204
			SCALE:	N.T.S.	
			DRAWN:	M.H.A.	
			APPROVED:	C.R.H.	



- NOTE:**
1. DESIGN ASSUMPTION:
 - 1.a. HYDRAULIC PRESSURE 1.38 MPa
 - 1.b. MEDIUM SOFT CLAY - SOIL BEARING 100KPa
 2. CONCRETE SHALL BE SULPHATE RESISTANT
 3. BEARING AREA OF BLOCKS (IN m²)

PIPE SIZE	100	150	200	250	300	400
TYPE						
I, 4, II	0.2	0.4	0.7	1.0	1.4	1.9
3, 5, 7	0.3	0.5	0.9	1.4	2.0	2.7
2			0.2	0.5	0.7	1.6
6, 8	0.2	0.3	0.5	0.6	1.1	1.4
10	0.1	0.2	0.3	0.4	0.6	0.7
9	0.3	0.6	1.0	1.2	2.2	2.9

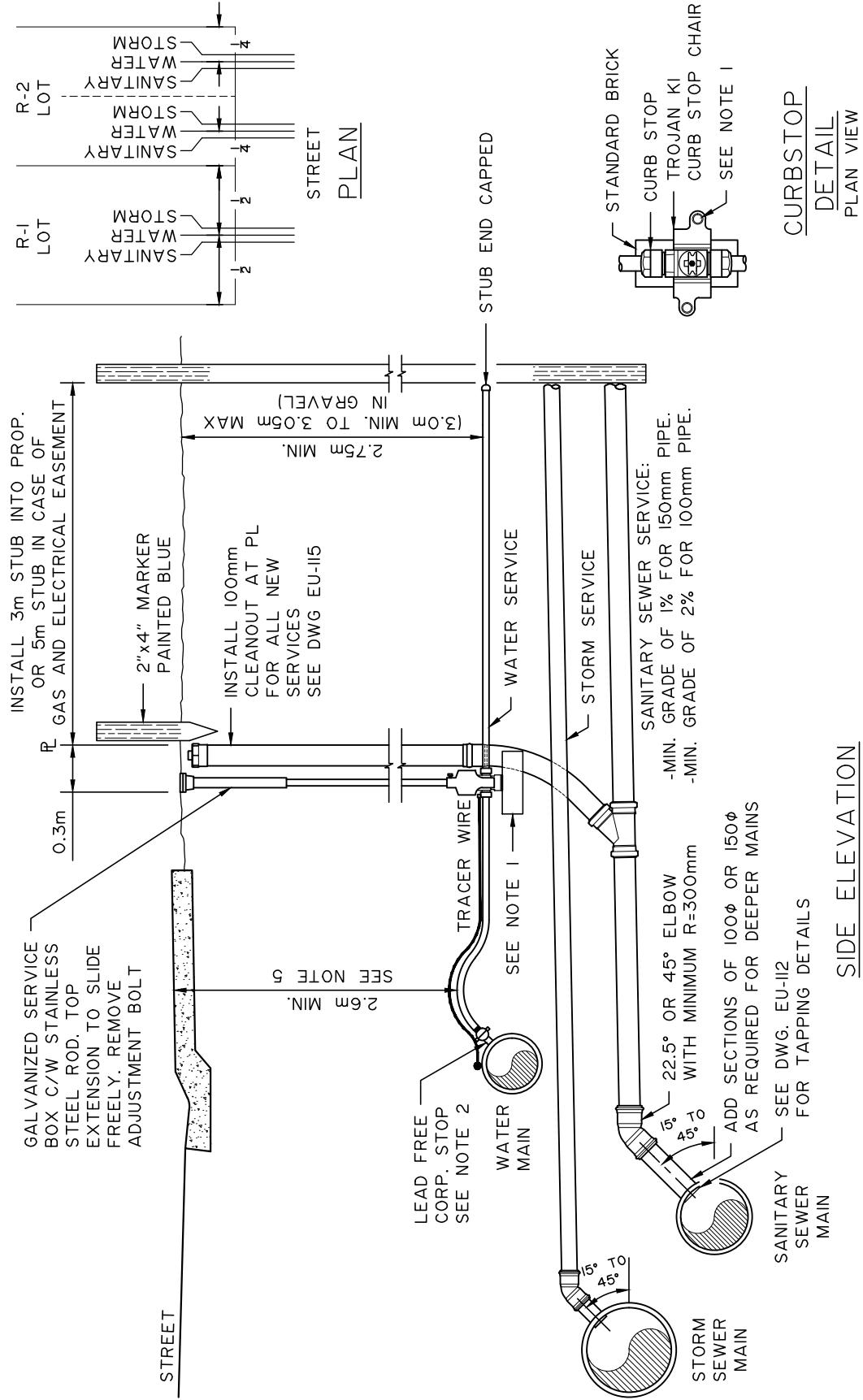
		 Medicine Hat STANDARD DRAWING	DATE: [YYYY-MM-DD]	2022-10-18	TYPICAL THRUST BLOCK LOCATIONS FOR WATER MAINS
			SCALE:	N.T.S.	
			DRAWN:	M.H.A.	
REVISED	BY		APPROVED:	C.R.H.	DRAWING No.: EU-205

REVISED	BY		DATE: (YYYY-MM-DD)	2022-10-18
			SCALE:	N.T.S.
			DRAWN:	M.H.A.
			APPROVED:	C.R.H.

STANDARD BUILDING SERVICE CONNECTION SANITARY AND WATER	
DRAWING No.:	EU-206

NOTES:

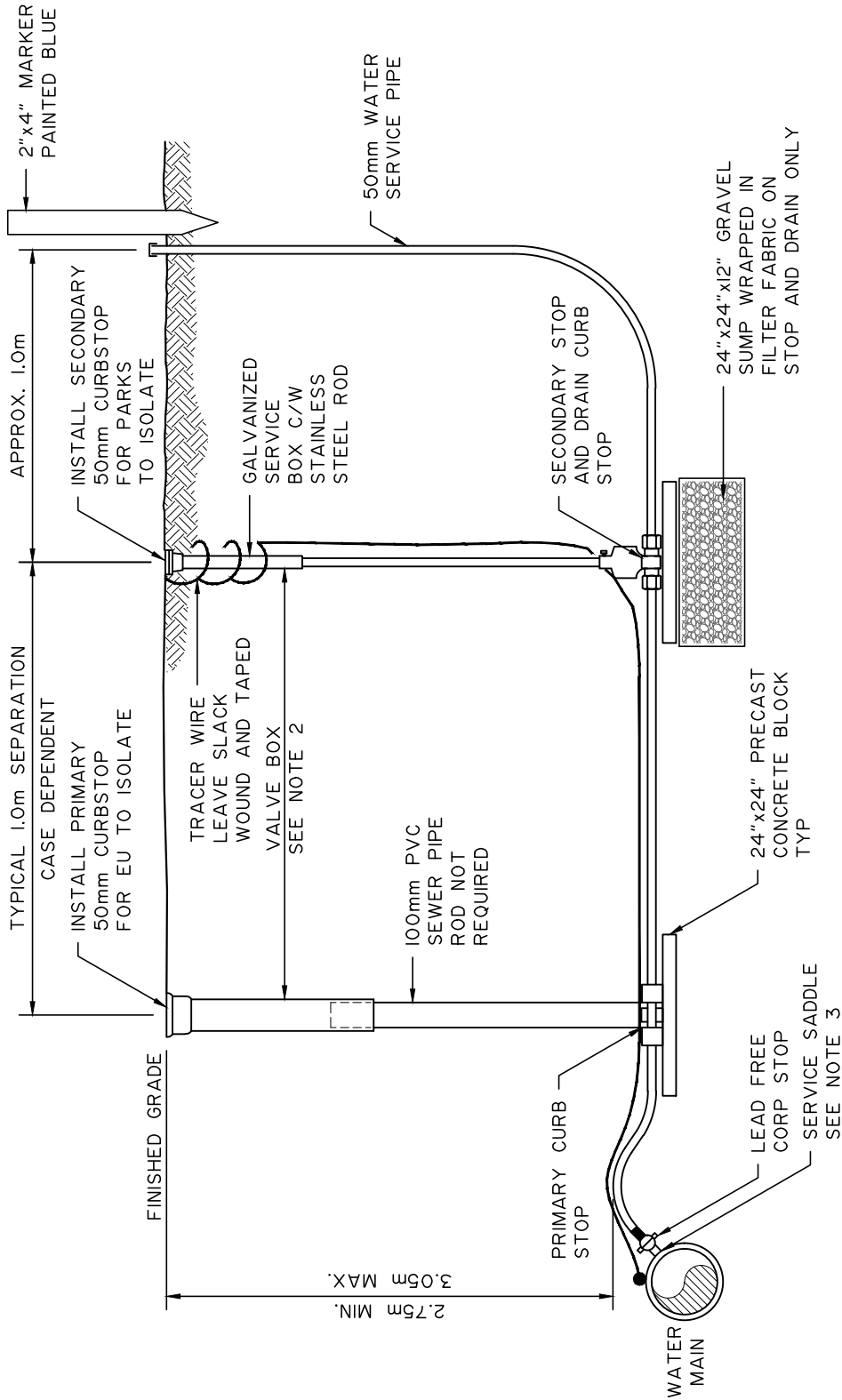
1. INSTALLATION TO CONFORM TO LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS
2. CURB STOPS SHALL BE NON-STOP, LEAD FREE AS PER EU SPECIFICATIONS AND SHALL BE PLACED ON A STANDARD BRICK BED. PIN INTO UNDISTURBED SOIL WITH $\frac{3}{8}$ " ϕ 24" LONG STAINLESS STEEL RODS TYPICAL EACH SIDE
3. SERVICE SADDLE SHALL BE USED FOR THE CONNECTION OF SERVICE LINE TO WATER MAIN (EXCEPT WHEN THE SERVICE LINE OF 25mm ϕ OR SMALLER IS TO CONNECT TO MAINS OF 200mm AND LARGER IN WHICH CASE A DIRECT TAPPING METHOD COULD BE USED) SERVICE SADDLE SHALL BE ROBAR 2706 OR APPROVED EQUAL
4. INVERTED KEY TYPE CURB VALVES NOT ACCEPTABLE
5. INSULATION REQUIRED WHEN UNABLE TO PROVIDE MINIMUM COVER ON SANITARY SEWER AND WATER SERVICES
6. IN HIGH GROUND WATER CONDITIONS OR AT THE REQUEST OF E.U. AN APPROVED PROTECTIVE PASTE AND TAPE SYSTEM MAY BE REQUIRED TO PROVIDE CORROSION PROTECTION ON ALL METAL FITTINGS
7. MARK LOCATION OF END OF SERVICE BY 2" x 4" MARKER EXTENDING FROM THE SERVICE INVERT TO A HEIGHT OF 750mm ABOVE GRADE.



REVISED	BY		DATE: (YYYY-MM-DD)	2022-10-18	STANDARD PARKS IRRIGATION SERVICE CONNECTION
			SCALE:	N.T.S.	
			DRAWN:	M.H.A.	
			APPROVED:	C.R.H.	DRAWING No.: EU-207

NOTES:

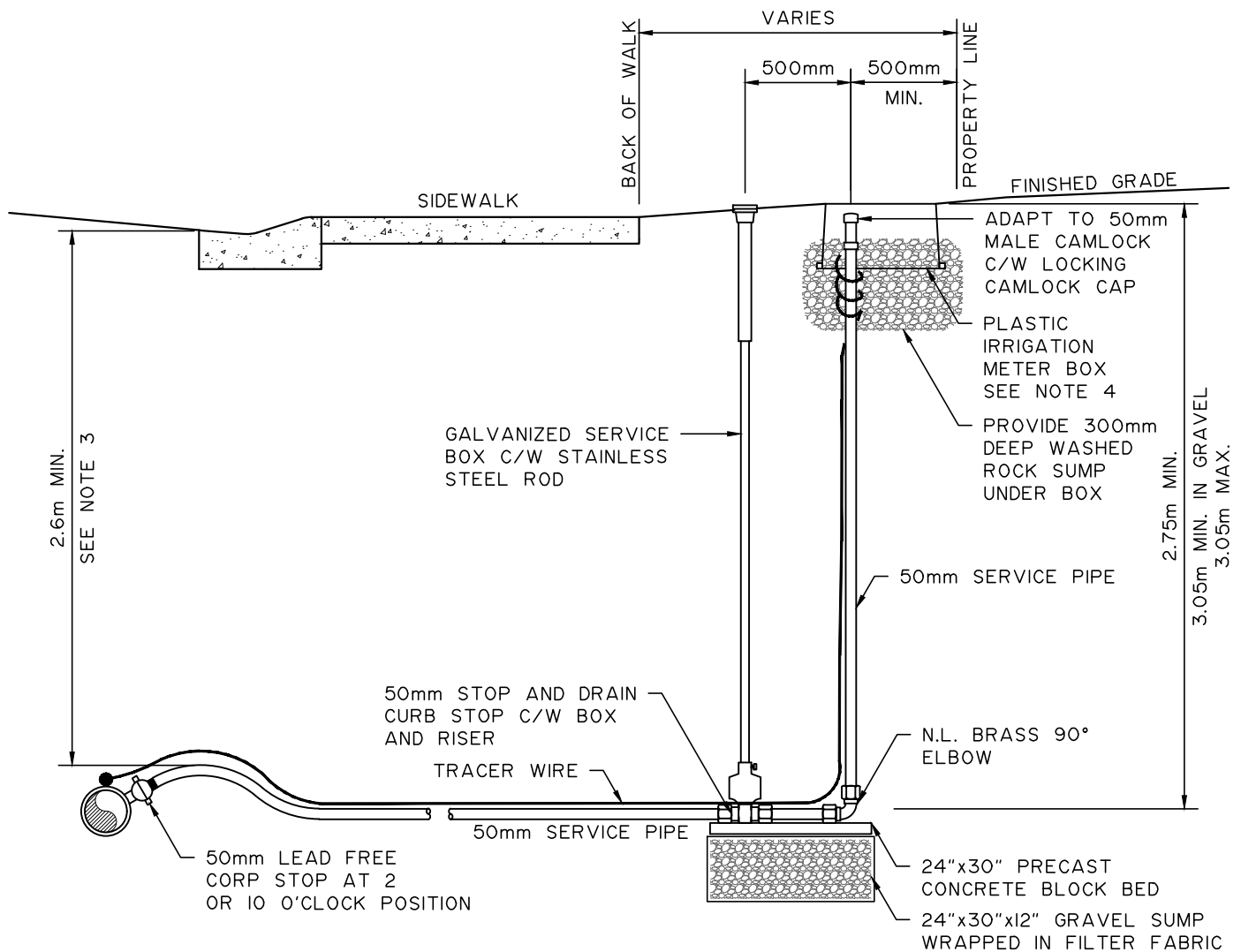
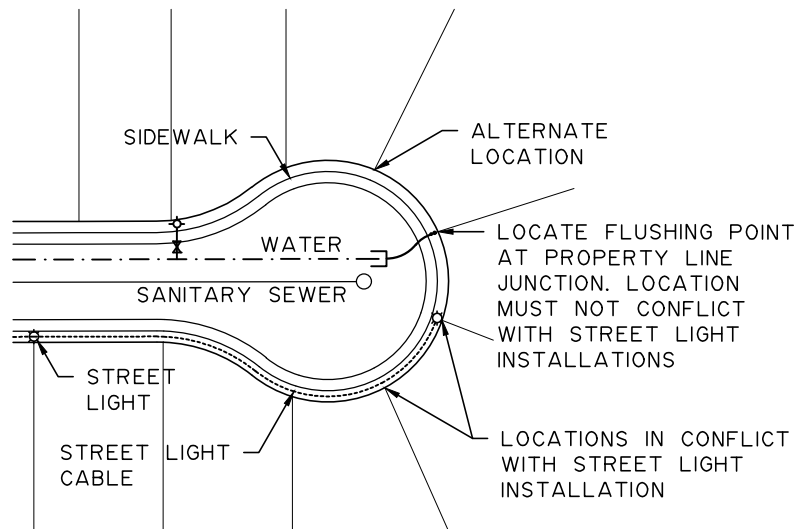
1. INSTALLATION TO CONFORM TO LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS
2. INVERTED KEY TYPE CURB VALVE WILL NOT BE ACCEPTED
3. VALVE BOX RISER AND LID TOP EXTENSION TO SLIDE FREELY. REMOVE ADJUSTMENT BOLT FROM EXTENSION
4. SERVICE SADDLE SHALL BE USED FOR CONNECTION OF SERVICE LINE TO WATER MAIN. SERVICE SADDLE SHALL BE ROBAR 2706 OR APPROVED EQUAL.
5. PROVIDE CORROSION PROTECTION. FIELD INSTALLED CORROSION PROTECTIVE COATINGS TO BE TWO PART PASTE AND TAPE SYSTEM



SIDE ELEVATION

NOTES:

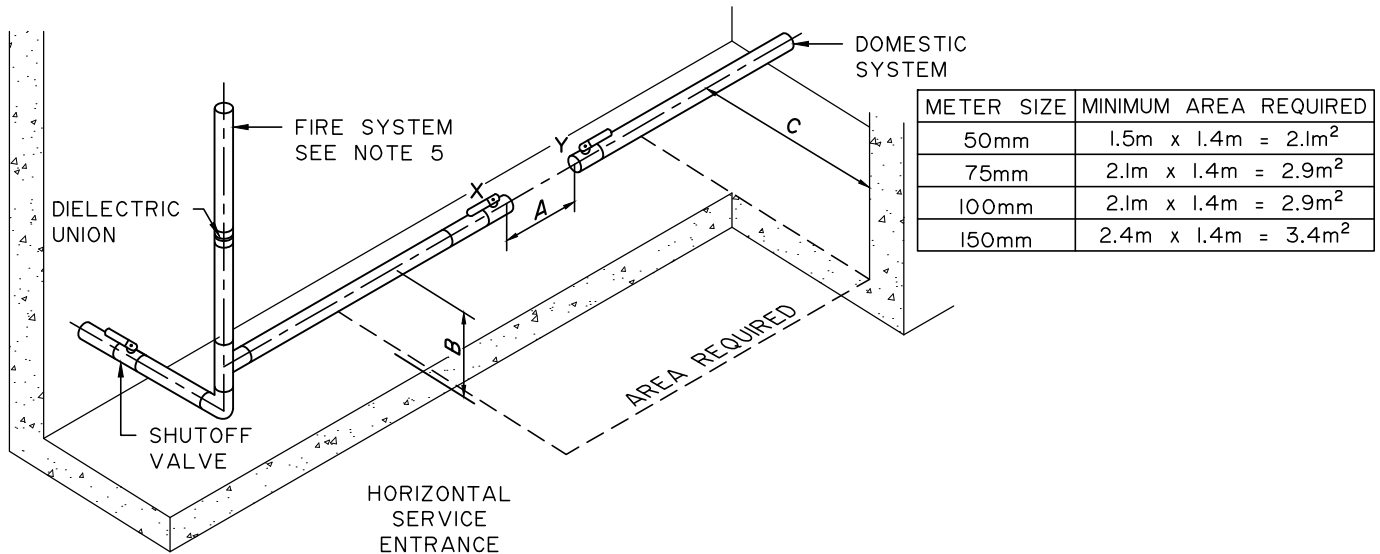
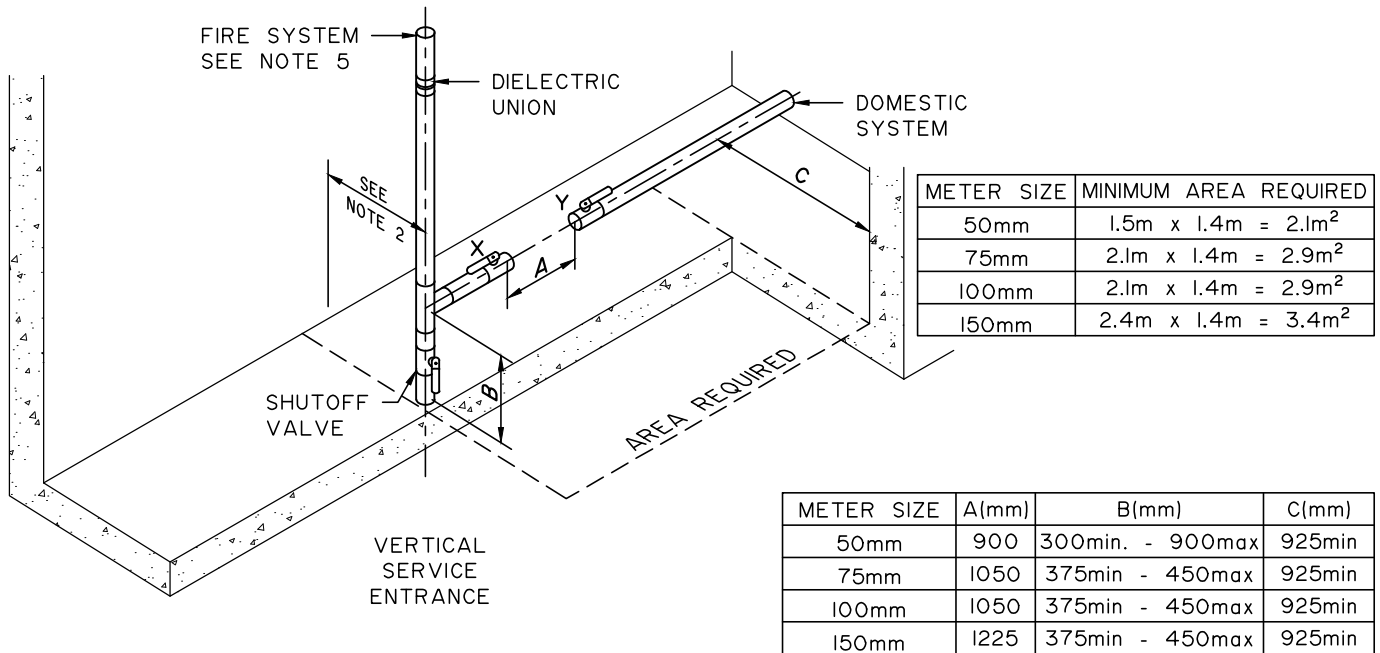
1. INSTALLATION TO CONFORM TO LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS
2. VALVE BOX RISER AND LID TOP EXTENSION TO SLIDE FREELY. REMOVE ADJUSTMENT BOLT FROM EXTENSION.
3. SERVICE PIPE GOOSENECK TO BE INSULATED IF MINIMUM SPECIFIED COVER IS NOT MET
4. PLASTIC IRRIGATION METER BOX TO BE 15"x20"(MIN.)x12". USE DURA 15"x21" CARSON I220-3, RAIN-BIRD STD., OR APPROVED EQUAL. LID MARKINGS TO READ "WATER" OR BLANK C/W LOCKING LID, PENTA BOLT. LOCATE RISER NEAR END OF BOX TO ALLOW WRENCH CLEARANCE.



		 Medicine Hat STANDARD DRAWING	DATE: (YYYY-MM-DD)	2022-10-18	CUL-DE-SAC FLUSHING POINT DRAWING No.: EU-208
			SCALE:	N.T.S.	
			DRAWN:	M.H.A.	
			APPROVED:	C.R.H.	
REVISD	BY				

METER SETTING SPECIFICATIONS

FOR METERS 50mm AND LARGER

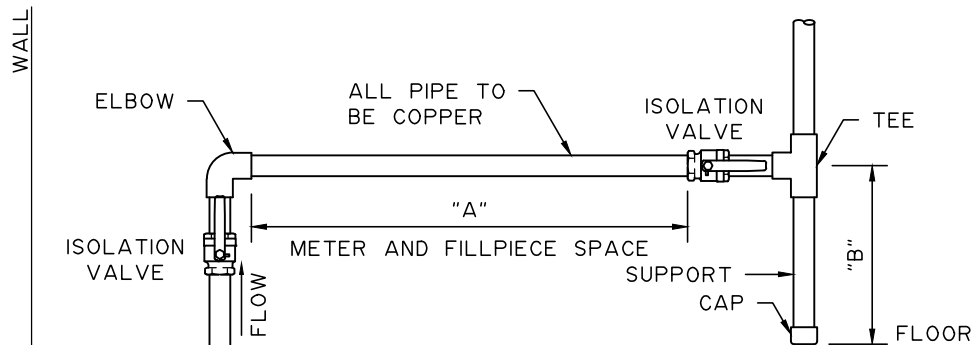


NOTES:

1. VALVES X AND Y MUST BE THREADED OR FLANGED TYPE.
2. THE MAIN PIPE ALIGNMENT MUST BE A MINIMUM 300mm FROM ANY WALL, FIXTURE, PARTITION OR OTHER PIPING.
3. THE SPACE ABOVE THE FLOOR AREA C x E MUST BE FREE FROM OBSTRUCTIONS TO A HEIGHT OF 1975mm
4. ALL COMBINED DOMESTIC AND FIRE SERVICES MUST HAVE A SHUTOFF VALVE BEFORE DOMESTIC TAKE-OFF
5. BACKFLOW PREVENTER IS REQUIRED. REFER TO CSA B64.10 FOR SELECTION OF ADEQUATE DEVICE

		 Medicine Hat STANDARD DRAWING	DATE: [YYYY-MM-DD]	2022-10-18	METER SETTING SPECIFICATIONS 50mm AND LARGER	
			SCALE:	N.T.S.		
			DRAWN:	M.H.A.		
REVISED	BY			APPROVED:	C.R.H.	DRAWING No.: EU-209

(B) INTERIOR
METER INSTALLATIONS
FOR METER SIZES 50mm AND SMALLER

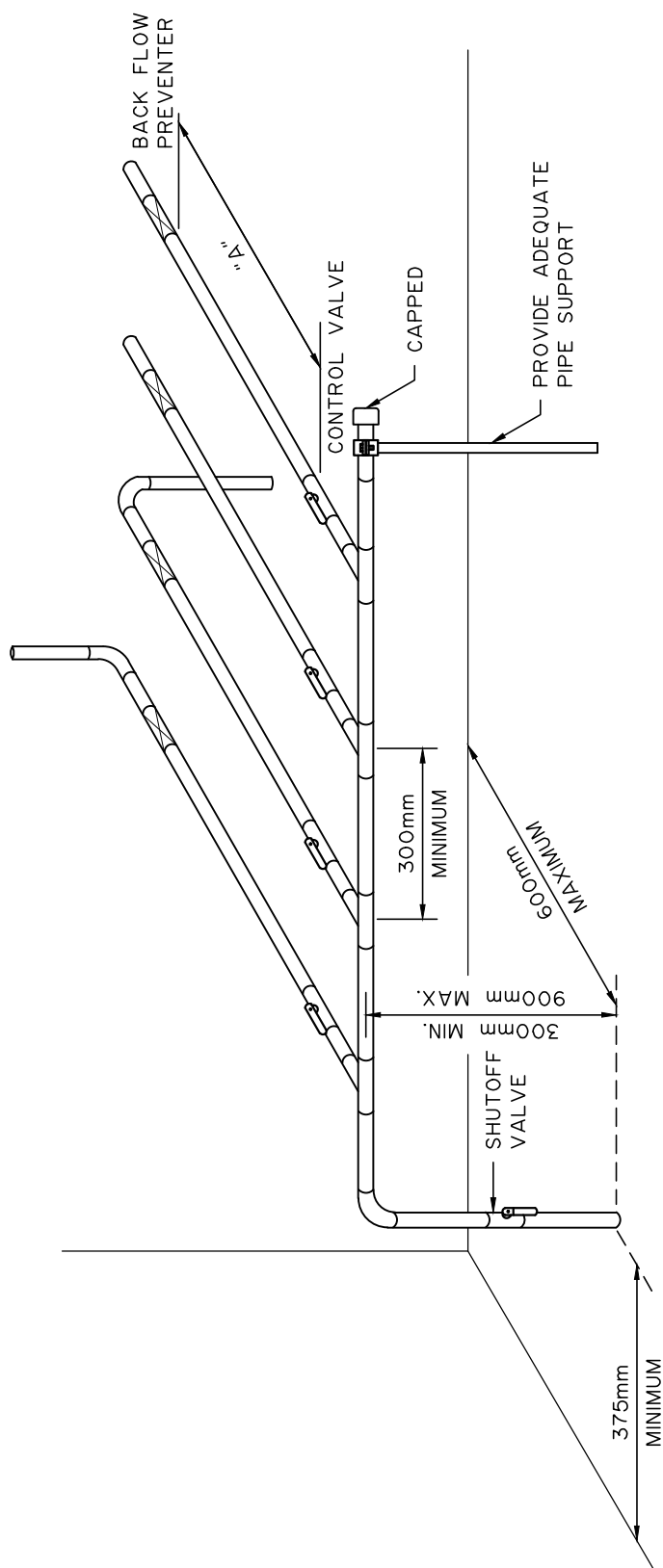


SIZE	"A"	"B" MAX	"B" MIN
15mm	400mm	300mm	300mm
20mm	450mm	300mm	300mm
25mm	550mm	300mm	300mm
40mm	550mm	300mm	300mm

NOTES:

1. INSTALLATION TO CONFORM TO LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS
2. MINIMUM DISTANCE OF CL OF PIPING ADJACENT TO METER SETTING TO BE 300mm FROM ANY ENTRANCE WALL OR INSIDE WALL
3. VALVE REQUIRED ON OUTLET SIDE OF METER SETTING ON PIPING 25mm AND OVER VALVE OPTIONAL ON PIPING UNDER 25mm
4. PIPING FOR "A" MUST BE IN A HORIZONTAL PLANE
5. PREMISES BACKFLOW PREVENTER (BFP) REQUIRED FOR COMMERCIAL, INDUSTRIAL OR INSTITUTIONAL SERVICES. BFP TO BE DOWNSTREAM OF WATER METER. REFER TO CSA B64.10 FOR BFP REQUIREMENTS

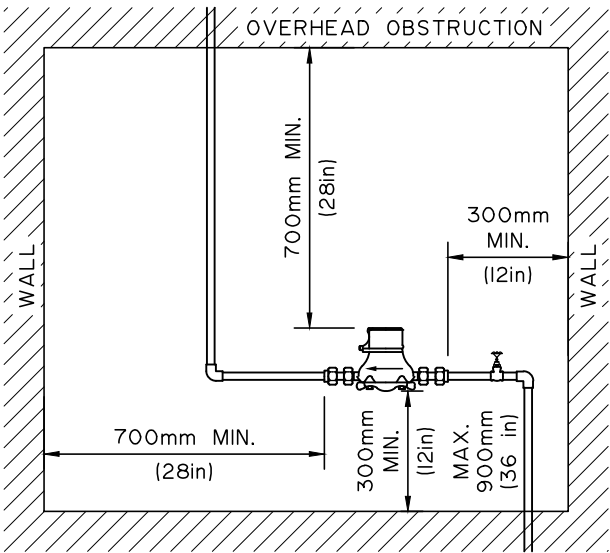
REVISED	BY	 Medicine Hat STANDARD DRAWING	DATE: (YYYY-MM-DD)	2022-10-18	METER SETTING SPECIFICATIONS 50mm AND SMALLER DRAWING No.: EU-210
			SCALE:	N.T.S.	
			DRAWN:	M.H.A.	
			APPROVED:	C.R.H.	



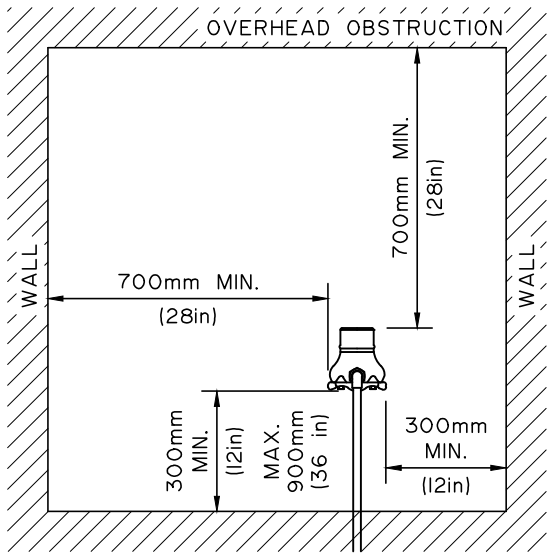
METER SIZE	"A" DIMENSIONS
15mm	400mm
20mm	450mm
25mm	550mm
40mm	550mm

- NOTES:
1. INSTALLATION TO CONFORM TO LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS
 2. PLUMBERS ARE REQUESTED TO ADVISE ENVIRONMENTAL UTILITIES OFFICE IN ADVANCE REGARDING EACH INDIVIDUAL INSTALLATION. PHONE ENVIRONMENTAL UTILITIES OFFICE FOR DETAILS
 3. BACKFLOW PREVENTER TO BE TESTABLE
 4. A CONTROL VALVE AND BACKFLOW PREVENTER MUST BE INSTALLED TO EACH METER SETTING
 5. FOR METERS LARGER THAN 40mm, CONTACT ENVIRONMENTAL UTILITIES FOR FURTHER INFORMATION
 6. PREMISES BACKFLOW PREVENTER (BFP) REQUIRED FOR COMMERCIAL, INDUSTRIAL OR INSTITUTIONAL SERVICES. BFP TO BE DOWNSTREAM OF WATER METER. REFER TO CSA BF64.10 FOR BFP REQUIREMENTS

REQUIRED INSTALLATION CLEARANCES

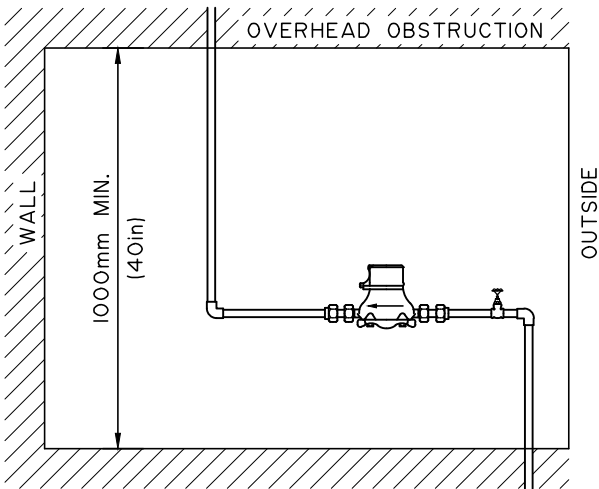


SIDE VIEW

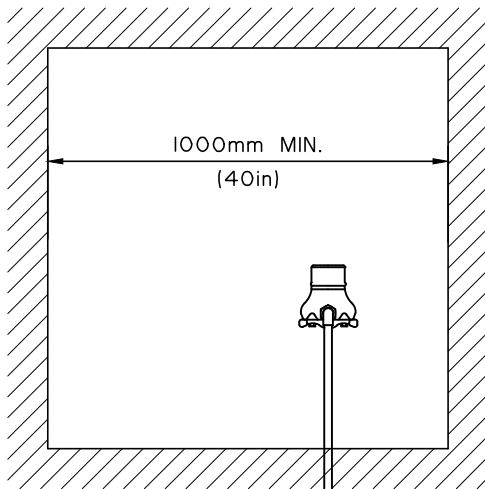


END VIEW

REQUIRED ACCESS CLEARANCES



SIDE VIEW

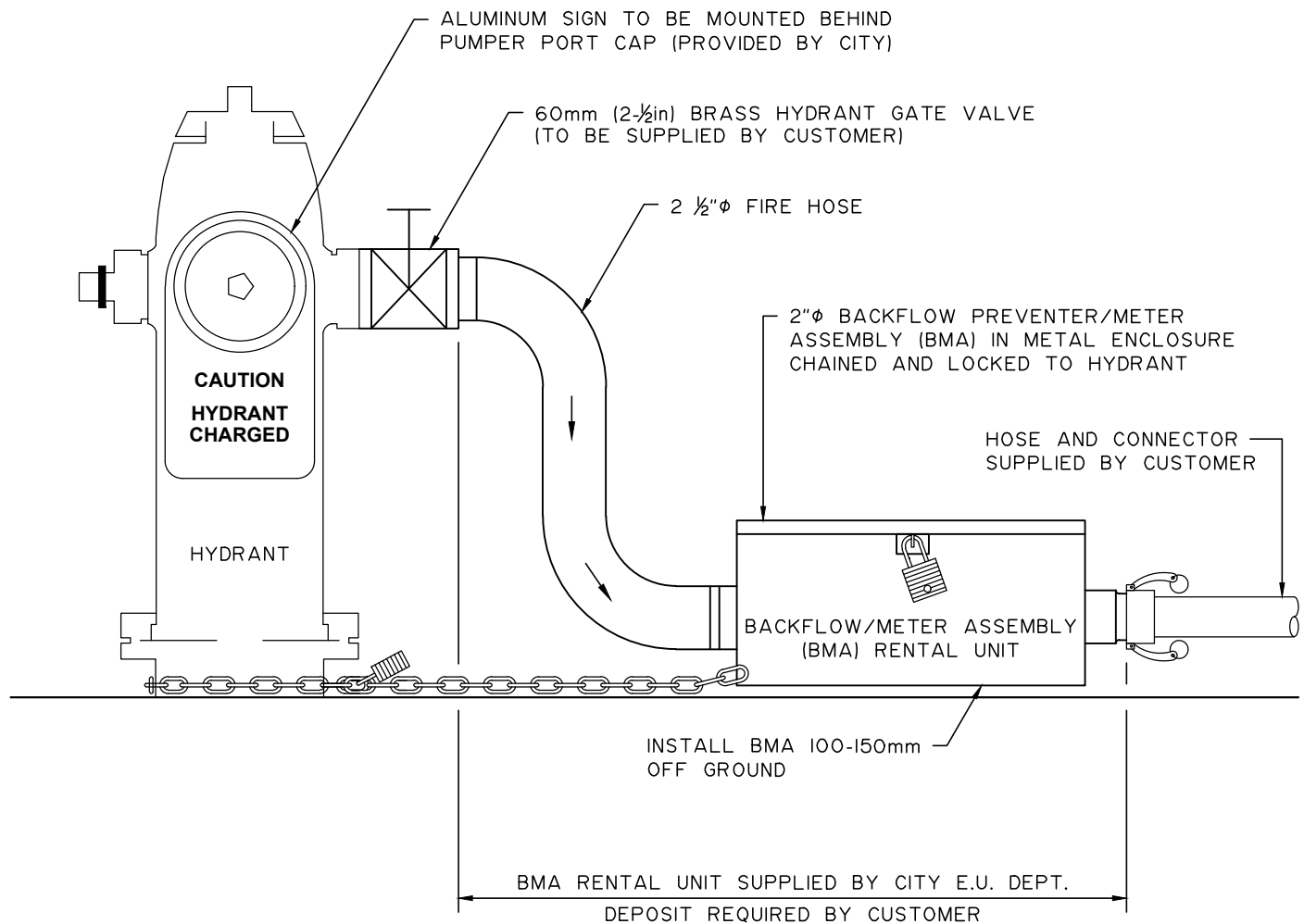


END VIEW

NOTES:

1. AUTHORITY: BYLAW 2379 CLAUSE 24
2. INSTALLATION TO CONFORM TO LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS
3. ACCESS TO DOORWAY OR HATCH TO BE LOCATED TO LEAVE SHORTEST PATH OF ACCESS TO THE WATER METER.
4. PATH OF ACCESS MUST NOT BE OBSTRUCTED BY SEWER LINES, GAS LINES OR ANY OTHER IMMOVEABLE OBJECT.

			DATE: (YYYY-MM-DD)	2022-10-18	MINIMUM REQUIRED WATER METER INSTALLATION AND ACCESS CLEARANCES
			SCALE:	N.T.S.	
			DRAWN:	M.H.A.	
REVISED	BY		APPROVED:	C.R.H.	DRAWING No.: EU-213

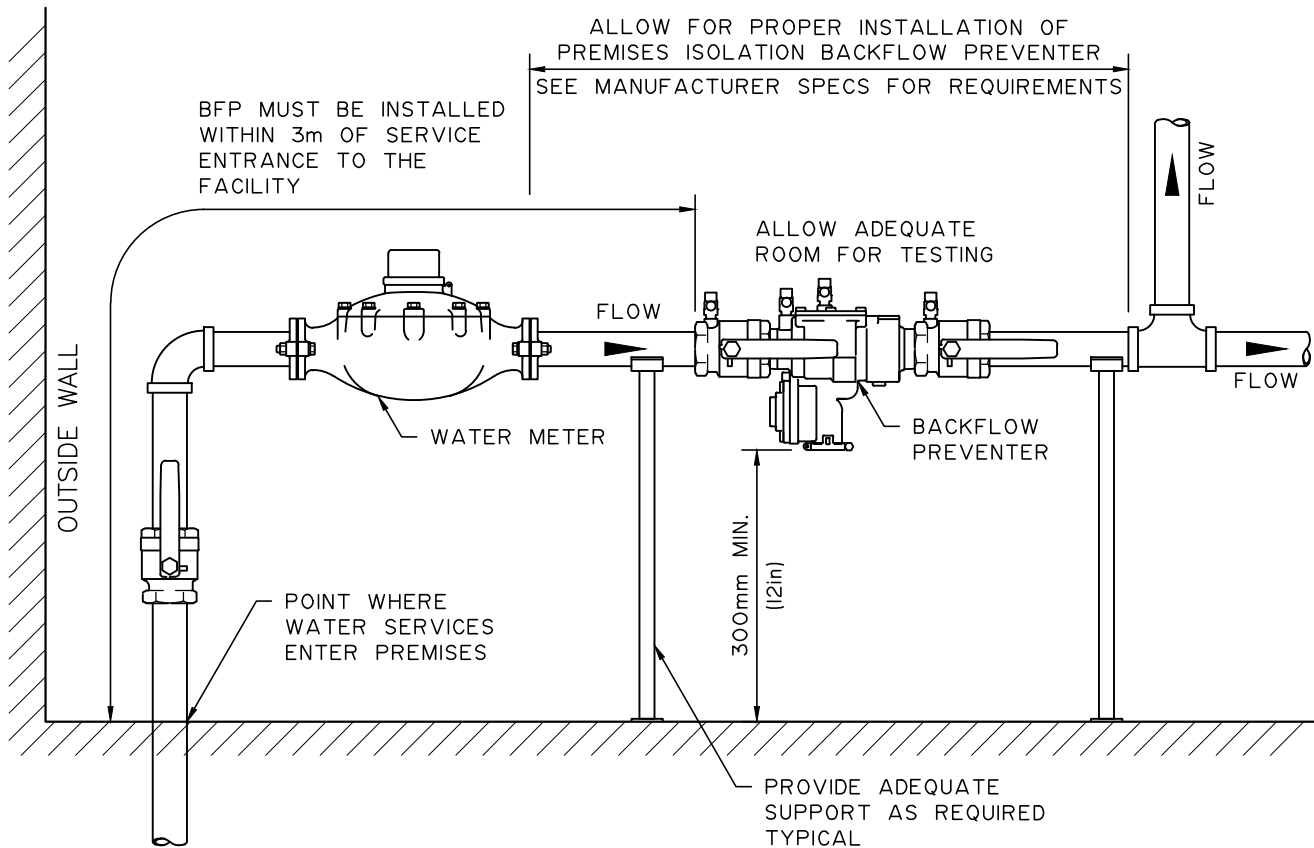


NOTES:

1. THE USE OF HYDRANTS SHALL COMPLY WITH THE REQUIREMENTS OF THE CITY OF MEDICINE HAT WATER BYLAW 2379.
2. CUSTOMER IS REQUIRED TO APPLY FOR TEMPORARY WATER AT THE CITY ASSETS - ENVIRONMENTAL UTILITIES BUILDING BY COMPLETING AN APPLICATION, PROVIDING A DEPOSIT AND SIGNING A CONTRACT
3. ALL CUSTOMER SUPPLIED COMPONENTS AND INSTALLATION TO CONFORM TO LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS

REVISED	BY		DATE: (YYYY-MM-DD)	2022-10-18	TEMPORARY WATER SUPPLY FROM HYDRANT
			SCALE:	N.T.S.	
			DRAWN:	M.H.A.	
			APPROVED:	C.R.H.	DRAWING No.: EU-214

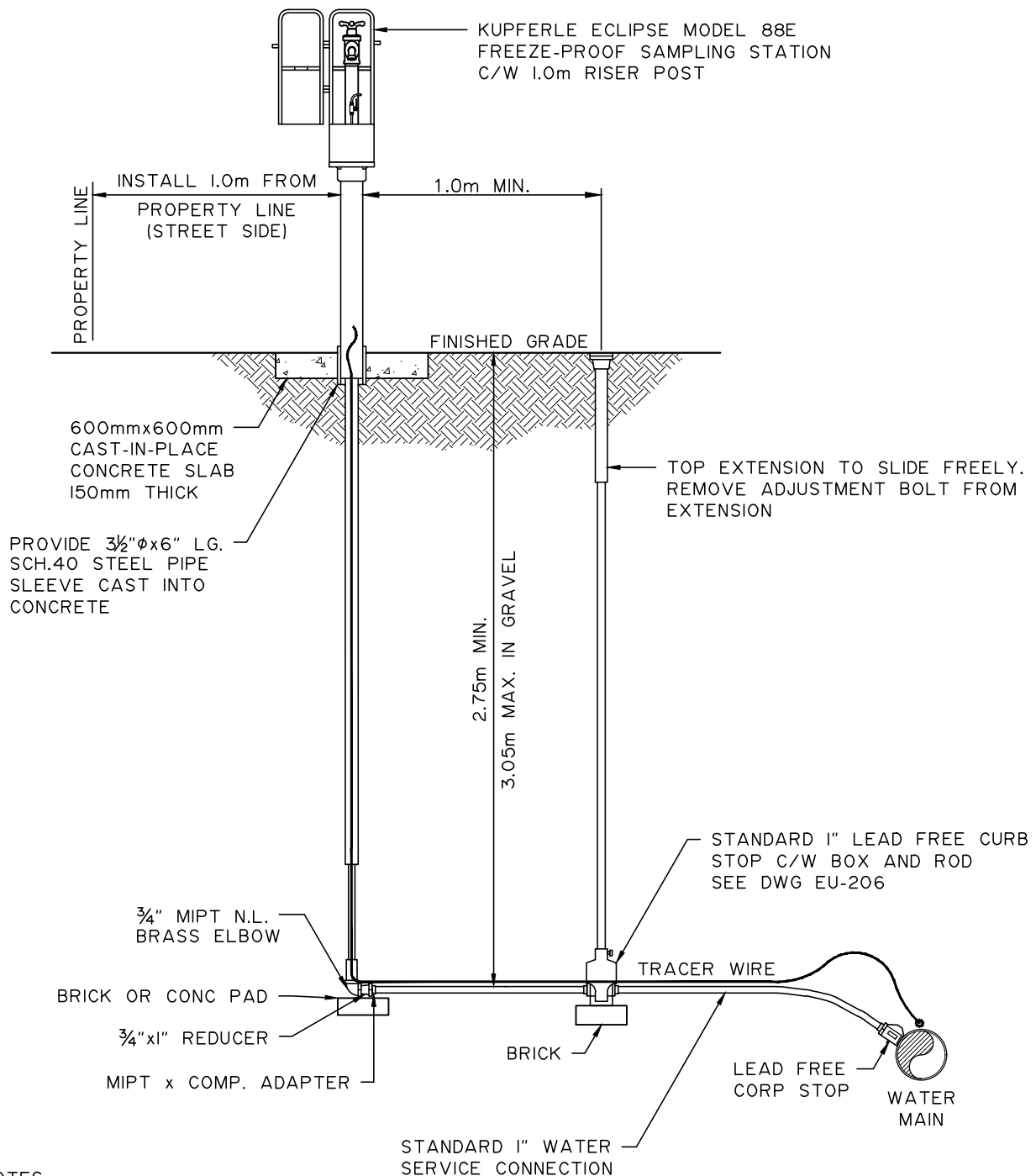
CITY OF MEDICINE HAT
CROSS CONNECTION CONTROL PROGRAM
PREMISES ISOLATION



NOTES:

1. AUTHORITY: BYLAW 2379 CLAUSE 28
2. REFER TO CSA B64-10 FOR SELECTION OF BACKFLOW PREVENTION DEVICE.
3. THERE SHALL BE NO TAPS, TAKE-OFFS OR TIE-INS TO THE SERVICE PLUMBING UPSTREAM OF THE BACKFLOW PREVENTER.
4. THERE SHALL BE NO BYPASSES AROUND THE BACKFLOW PREVENTER UNLESS THE BYPASS IS FITTED WITH A BFP OF THE SAME TYPE.

		 Medicine Hat STANDARD DRAWING	DATE: [YYYY-MM-DD]	2022-10-18	PREMISE ISOLATION DETAILS CROSS CONNECTION CONTROL PROGRAM
			SCALE:	N.T.S.	
			DRAWN:	M.H.A.	
REVISED	BY		APPROVED:	C.R.H.	



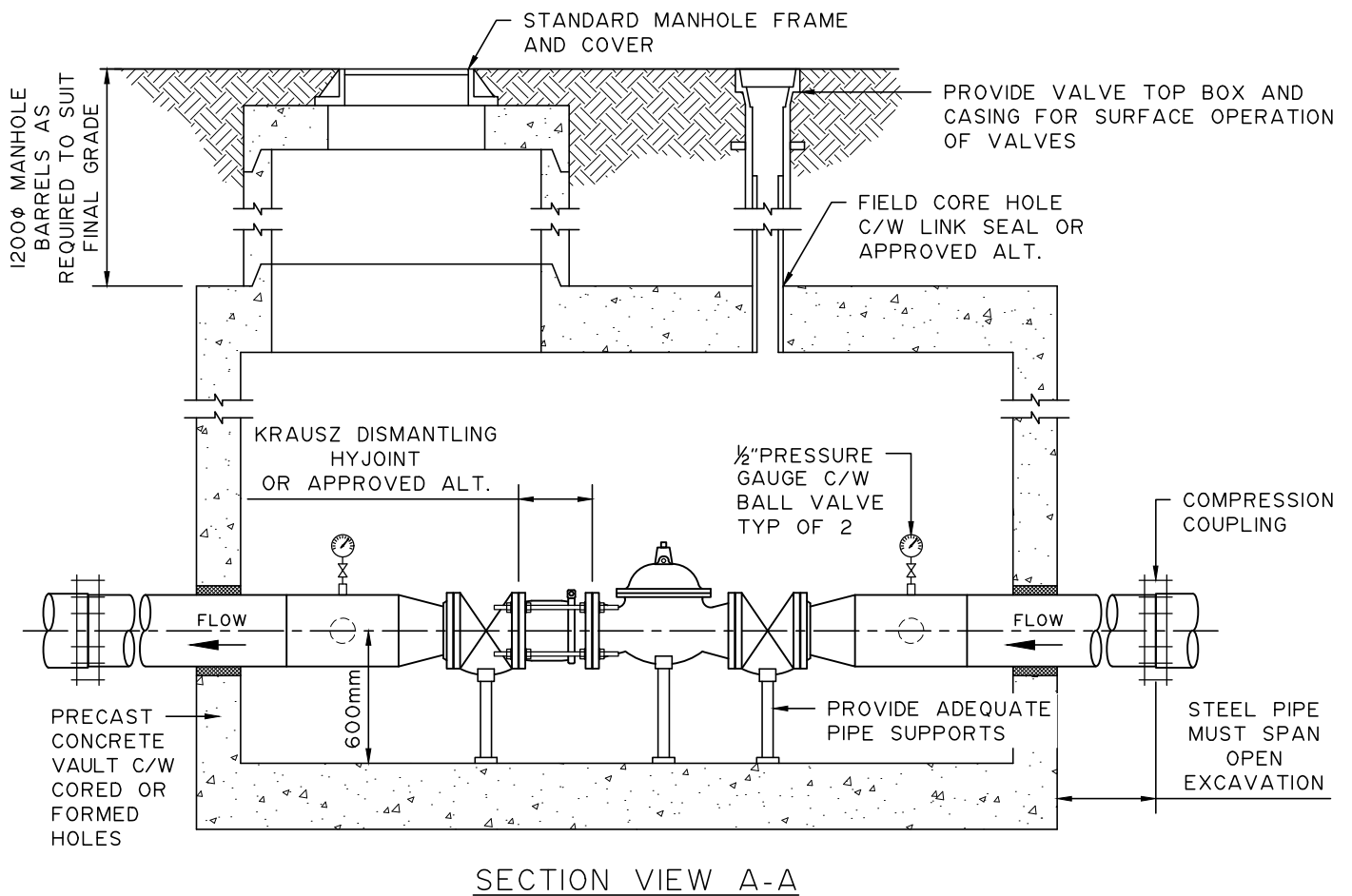
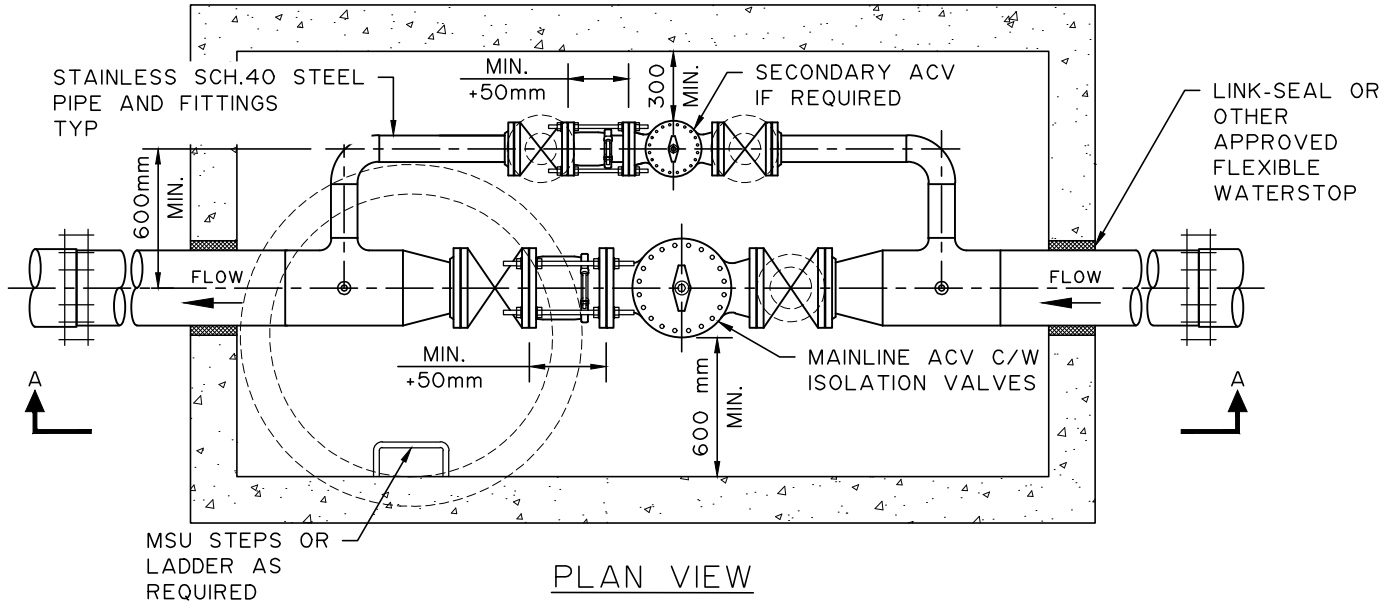
NOTES:

1. INSTALLATION TO CONFORM TO LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS
2. IN HIGH GROUND WATER CONDITIONS OR AT THE REQUEST OF EU, AN APPROVED PROTECTIVE TAPE OR WRAP MAY BE REQUIRED TO PROVIDE CORROSION PROTECTION ON ALL METAL FITTINGS.

	BY	 Medicine Hat STANDARD DRAWING	DATE: (YYYY-MM-DD)	2022-10-18	ABOVE GROUND SAMPLING STATION INSTALLATION DETAILS DRAWING No.: EU-216
			SCALE:	N.T.S.	
			DRAWN:	M.H.A.	
			APPROVED:	C.R.H.	
REVISED					

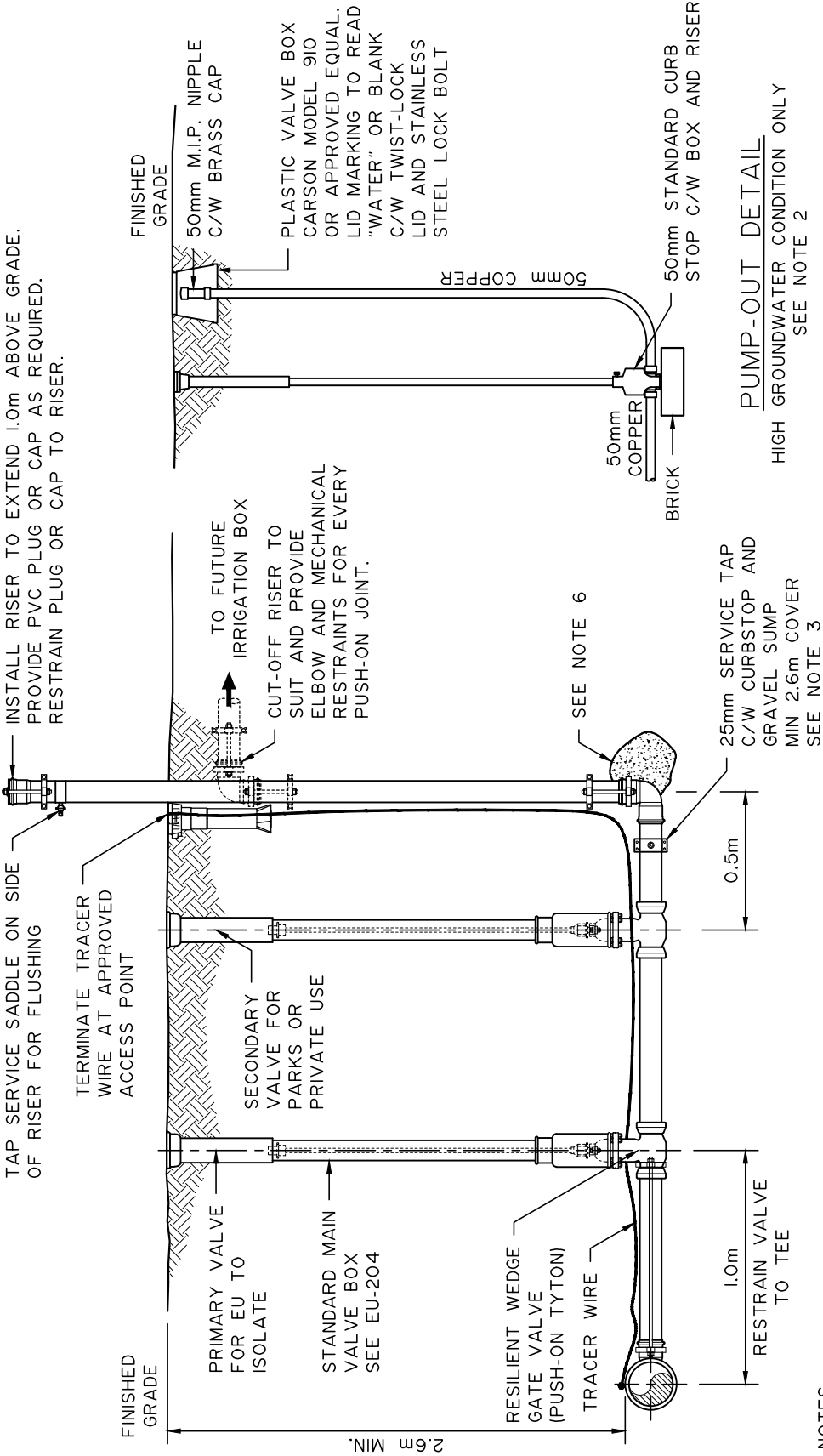
NOTES:

- I. INSTALLATION TO CONFORM TO LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS



		 Medicine Hat STANDARD DRAWING	DATE: [YYYY-MM-DD]	2022-10-18	STANDARD DETAIL FOR AUTOMATIC CONTROL VALVE INSTALLATIONS (PRV,PSV,CHK)
			SCALE:	N.T.S.	
			DRAWN:	M.H.A.	
REVISED	BY		APPROVED:	C.R.H.	

		 Medicine Hat STANDARD DRAWING	DATE: [YYYY-MM-DD]	2022-10-18	LARGE DIAMETER IRRIGATION SERVICE CONNECTION (LARGER THAN 50mm)
			SCALE:	N.T.S.	
			DRAWN:	M.H.A.	
REVISED	BY			APPROVED:	C.R.H.

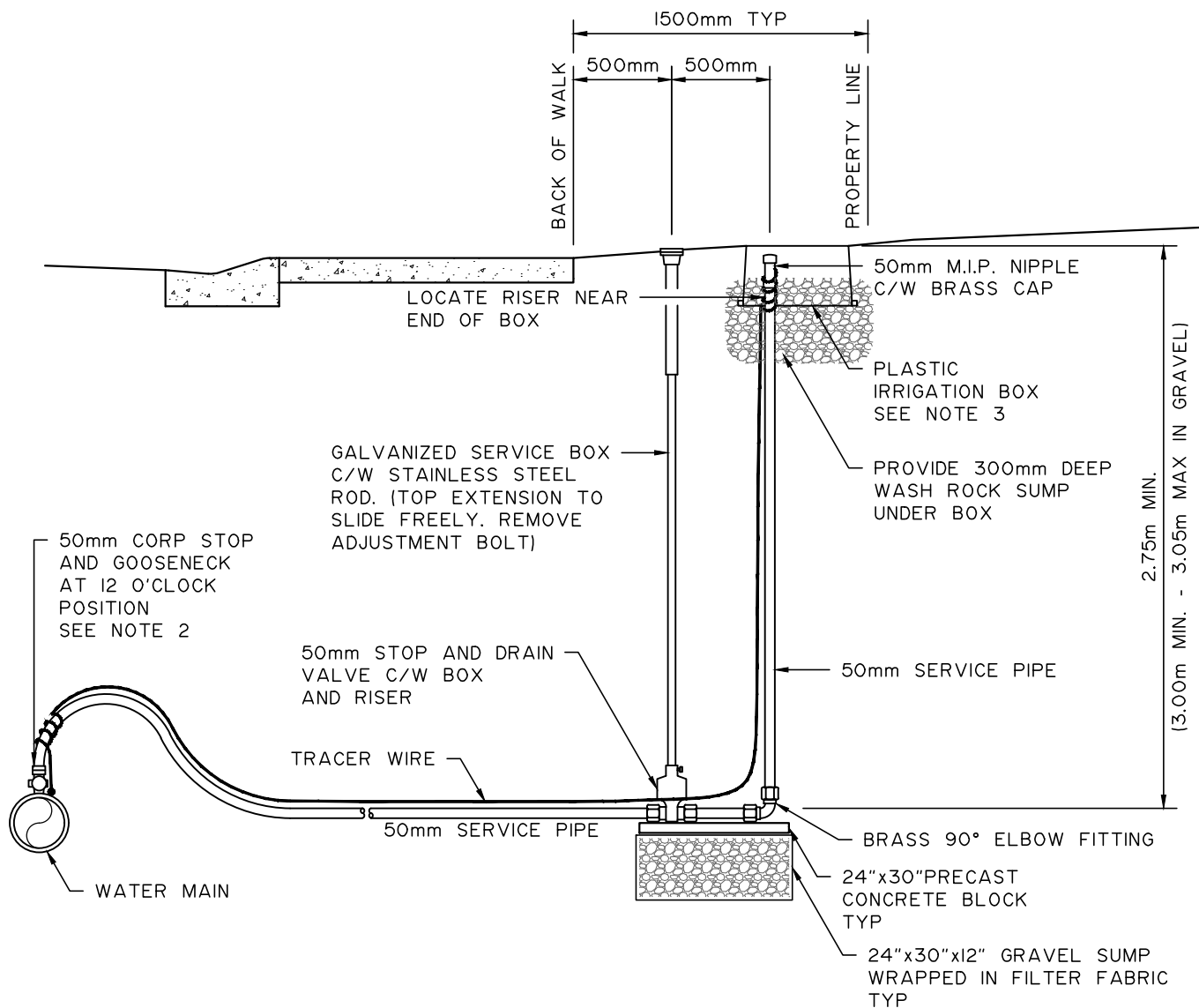


PUMP-OUT DETAIL

HIGH GROUNDWATER CONDITION ONLY
SEE NOTE 2

NOTES:

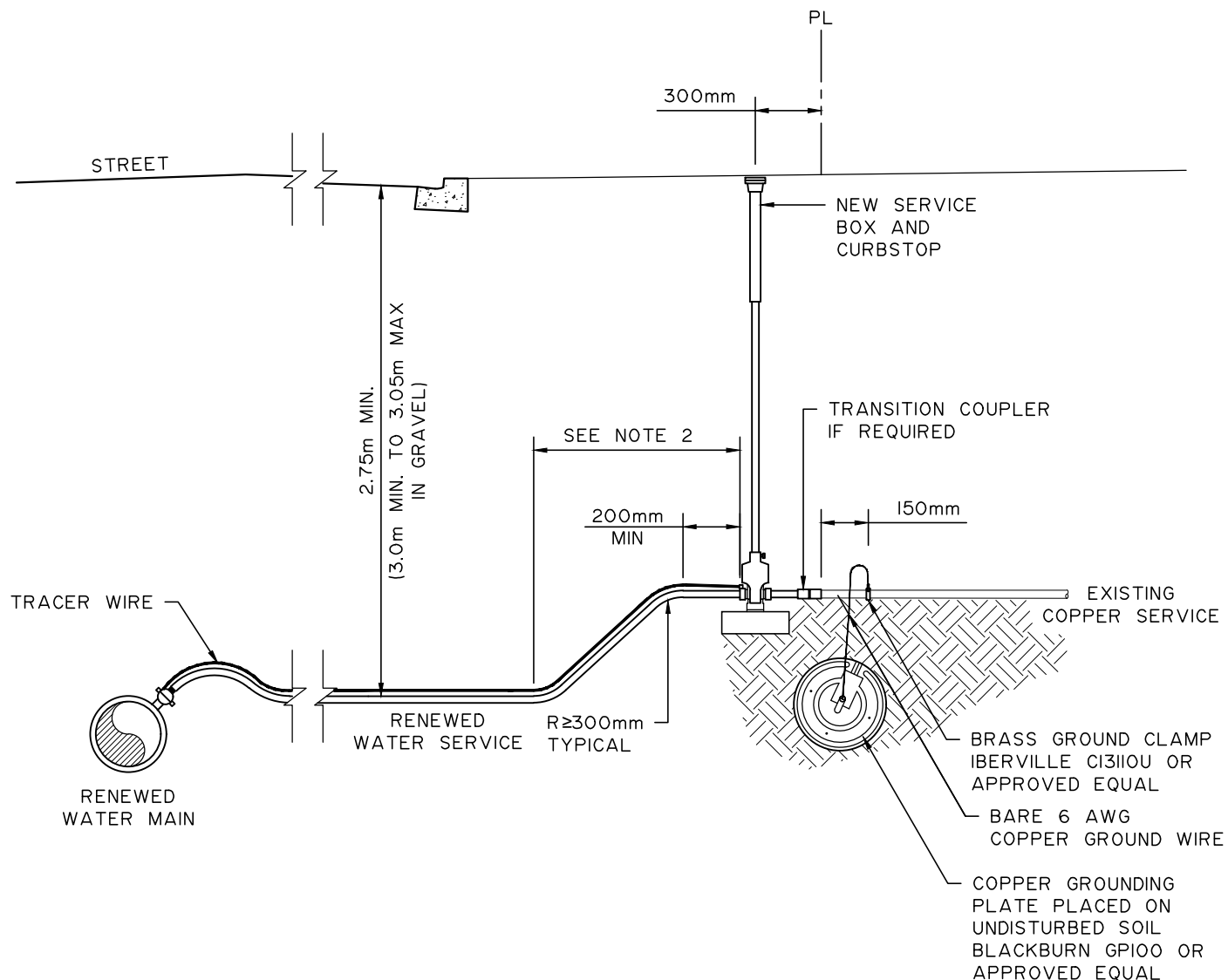
1. INSTALLATION TO CONFORM TO LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS
2. IF GROUNDWATER IS FOUND TO BE LESS THAN 3m FROM SURFACE, INSTALL 50mm PUMP OUT RISER AS SHOWN. INFORM ENVIRONMENTAL UTILITIES THAT THE GROUNDWATER LEVEL WAS TOO HIGH TO ACCOMMODATE GRAVEL SUMP DRAIN.
3. FOR SEASONAL DRAINING, PROVIDE 25mm SERVICE TAP APPROX. 1m LONG WITH FILTER FABRIC TAPED OVER DRAINING END TO GRAVEL SUMP C/W SERVICE SADDLE, CORP STOP, STANDARD CUB STOP VALVE AND SERVICE BOX TO GRADE. GRAVEL SUMP TO BE WRAPPED IN FILTER FABRIC AND SIZED TO SUIT VOLUME OF RISER.
4. ALL PIPE TO BE AWWA C900 DR18.
5. ALL PUSH-ON JOINTS TO BE MECHANICALLY RESTRAINED, USE FORD UNI-FLANGE 1360 OR EQUIVALENT. ALL RESTRAINTS TO HAVE CORROSION PROTECTION. FIELD INSTALLED CORROSION PROTECTIVE COATINGS TO BE TWO PART PASTE AND TAPE SYSTEM.
6. THRUST BLOCK C/W 6mil POLY REQUIRED FOR IRRIGATION SERVICES LARGER THAN 100mm



NOTES:

1. INSTALLATION TO CONFORM TO LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS
2. PROVIDE CORROSION PROTECTION. FIELD INSTALLED CORROSION PROTECTIVE COATINGS TO BE TWO PART PASTE AND TAPE SYSTEM
3. ADD INSULATION AS PER SPECIFICATION IF GOOSENECK HAS INSUFFICIENT COVER
4. IRRIGATION BOX TO BE DURA 15"x21" CARSON 1220-3, RAIN BIRD STD, OR APPROVED EQUAL. LID MARKING TO READ "WATER" OR BE BLANK. BOX TO BE C/W LOCKING LID PENTA BOLT.

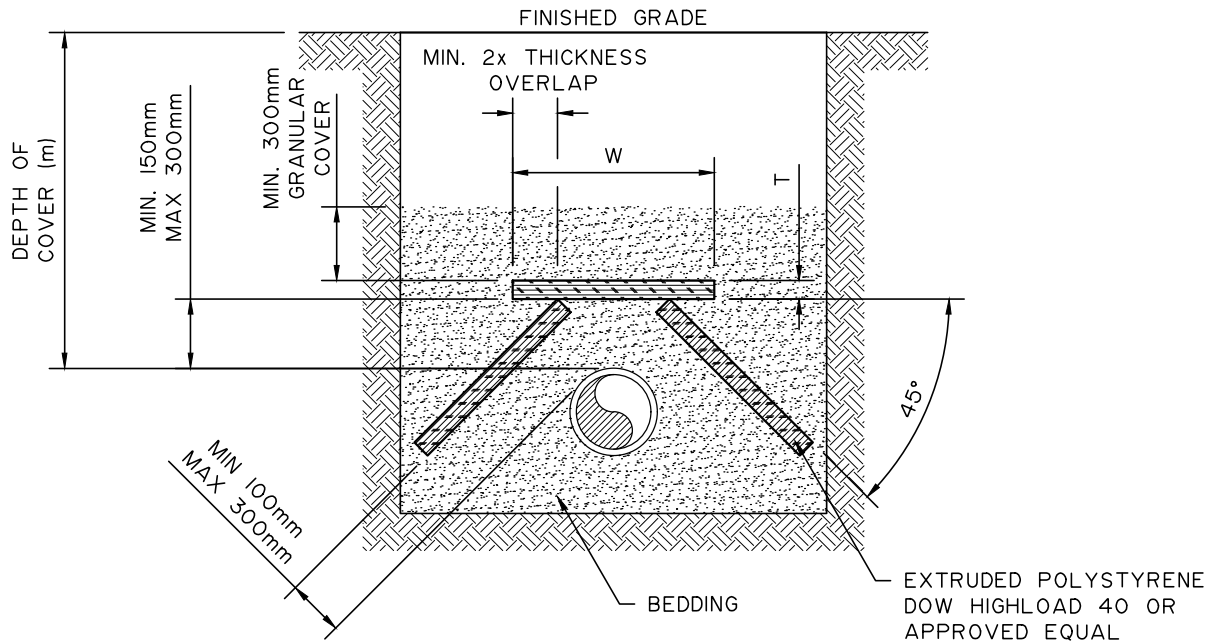
REVISED	BY	 Medicine Hat STANDARD DRAWING	DATE: (YYYY-MM-DD)	2022-10-18	MANUAL AIR RELEASE DRAWING No.: EU-219
			SCALE:	N.T.S.	
			DRAWN:	M.H.A.	
			APPROVED:	C.R.H.	



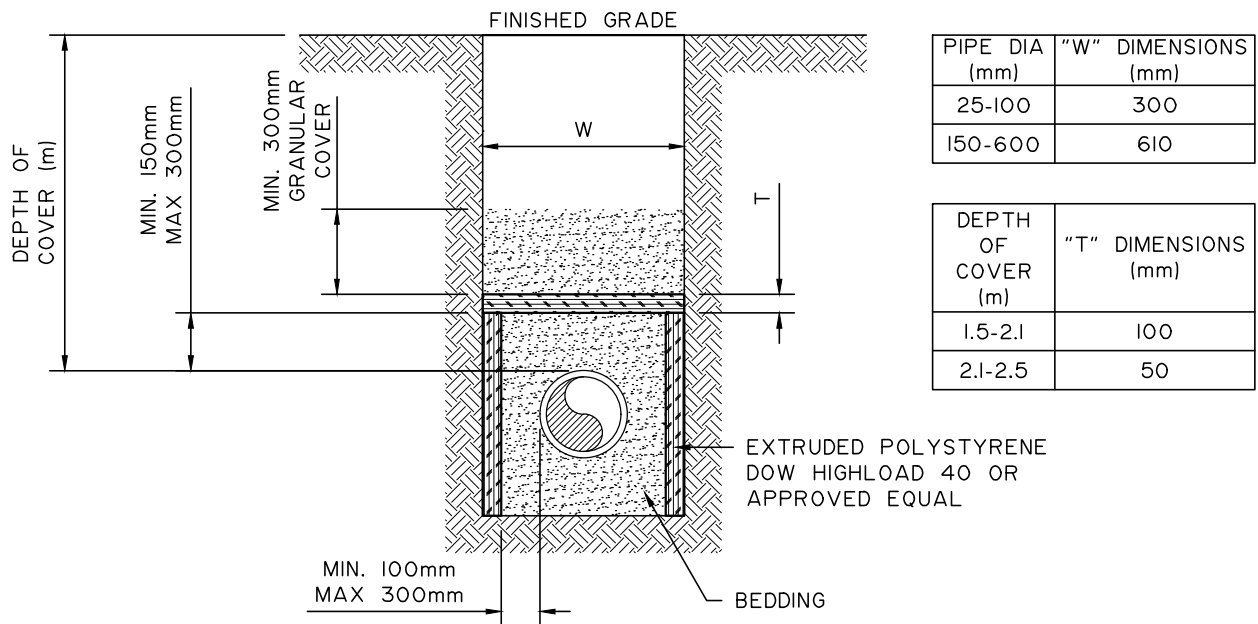
NOTES:

1. INSTALLATION TO CONFORM TO LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS
2. INSULATION IS REQUIRED ON LENGTH OF NEW SERVICE REQUIRED TO TRANSITION TO GRADE OF EXISTING SERVICE WHEN MINIMUM DEPTH CAN NOT BE MAINTAINED. SEE DWG EU-221
3. SEE DWG EU-206 FOR NOTES AND DETAILS PERTAINING TO NEW CURBSTOP AND SERVICE BOX
4. SAND LAST 25mm OF COPPER PIPE TO REMOVE ROUGHNESS AND CORROSION PRIOR TO CONNECTING COUPLER AND 25mm OF PIPE AT GROUND CLAMP LOCATION TO ENSURE GOOD GROUND CONNECTION

REVISED	BY	 Medicine Hat STANDARD DRAWING	DATE: (YYYY-MM-DD)	2022-10-18	WATERMAIN RENEWAL PROJECTS TIE TO EXISTING SERVICE DRAWING No.: EU-220
			SCALE:	N.T.S.	
			DRAWN:	M.H.A.	
			APPROVED:	C.R.H.	



INSULATION DETAIL FOR STANDARD TRENCH EXCAVATION



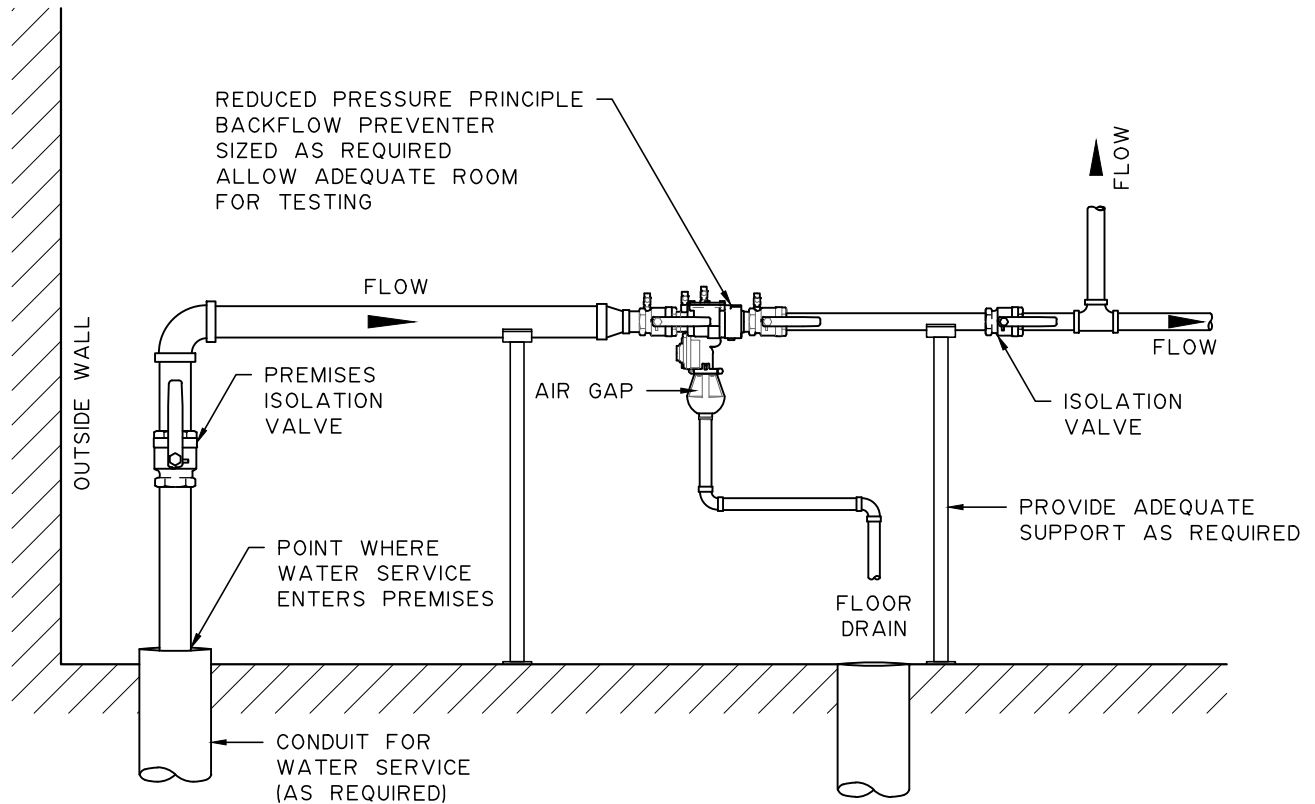
INSULATION DETAIL FOR NARROW TRENCH EXCAVATION

NOTES: USE IF EXCAVATION WIDTH IS EQUAL TO W

1. INSTALLATION TO CONFORM TO LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS
2. SEE EU-109 FOR PIPE BEDDING AND BACKFILLING DETAILS
3. ALL JOINTS MUST BE TAPED
4. MINIMUM SPACING BETWEEN PIPE AND INSULATION MUST BE MAINTAINED
5. INSULATION PLANS FOR PIPE LARGER THAN 600mm DIA WILL NEED TO BE APPROVED BY ENGINEER

REVISED	BY	 Medicine Hat STANDARD DRAWING	DATE: (YYYY-MM-DD)	2022-10-18	WATER/SEWER MAINS AND SERVICES INSULATION REQUIREMENTS DRAWING No.: EU-221
			SCALE:	N.T.S.	
			DRAWN:	M.H.A.	
			APPROVED:	C.R.H.	

CITY OF MEDICINE HAT
CROSS CONNECTION CONTROL PROGRAM
TEMPORARY WATER SERVICE



NOTES:

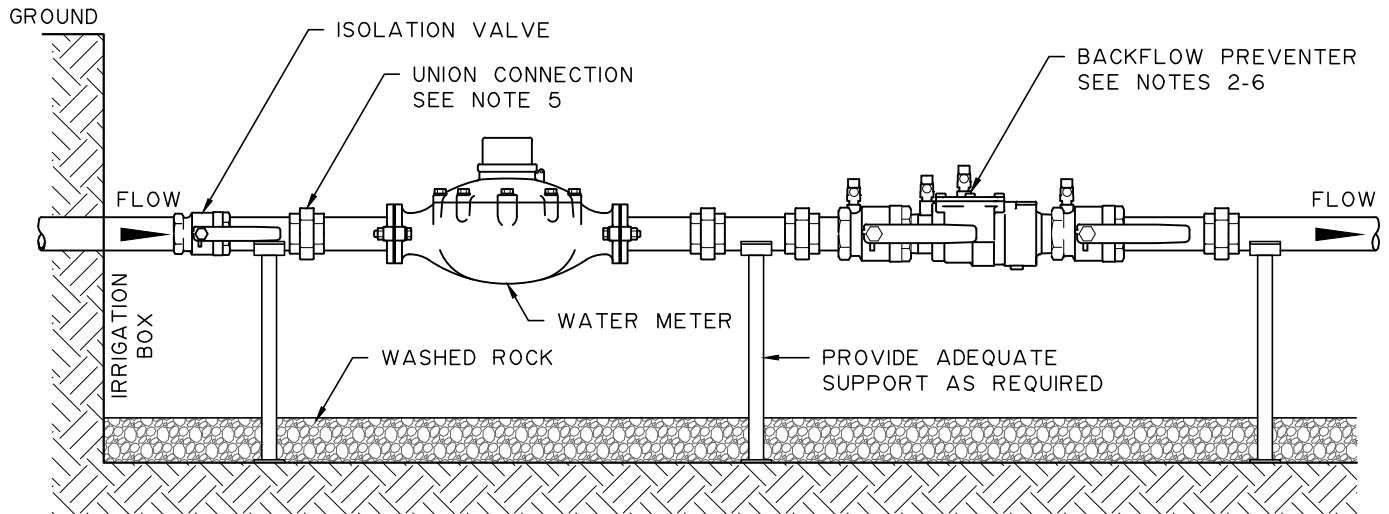
1. AUTHORITY: BYLAW 2379 CLAUSE 28
2. INSTALLATION TO CONFORM TO LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS
3. REDUCED PRESSURE PRINCIPLE DEVICE ONLY, UNLESS OTHERWISE SPECIFIED BY ENVIRONMENTAL UTILITIES CROSS CONNECTION OFFICER
4. THERE SHALL BE NO TAPS, TAKE-OFFS OR TIE-INS TO THE SERVICE PLUMBING UPSTREAM OF THE BACKFLOW PREVENTER.
5. THERE SHALL BE NO BYPASSES AROUND THE BACKFLOW PREVENTER (BFP) UNLESS THE BYPASS IS FITTED WITH A BFP OF THE SAME TYPE

REVISED	BY	 Medicine Hat STANDARD DRAWING	DATE: (YYYY-MM-DD)	2022-10-18	TEMPORARY WATER SERVICE CROSS CONNECTION CONTROL PROGRAM DRAWING No.: EU-222
			SCALE:	N.T.S.	
			DRAWN:	M.H.A.	
			APPROVED:	C.R.H.	

CITY OF MEDICINE HAT

CROSS CONNECTION CONTROL PROGRAM

SEASONAL IRRIGATION SERVICE CONNECTION



NOTES:

1. INSTALLATION TO CONFORM TO LATEST EDITION OF CITY OF MEDICINE HAT ENVIRONMENTAL UTILITIES CONSTRUCTION SPECIFICATIONS
2. REFER TO CSA B64-10 FOR SELECTION AND INSTALLATION OF BACKFLOW PREVENTION ASSEMBLY
3. THERE SHALL BE NO TAPS, TAKE-OFFS OR TIE-INS TO THE SERVICE PLUMBING UPSTREAM OF THE BACKFLOW PREVENTER
4. THERE SHALL BE NO BYPASSES AROUND THE BACKFLOW PREVENTER (BFP) UNLESS THE BYPASS IS FITTED WITH A BFP OF THE SAME TYPE.
5. PROVIDE UNION CONNECTIONS ON BOTH SIDES OF WATER METER AND BACKFLOW PREVENTER.
6. BACKFLOW PREVENTER TO HAVE WATERTIGHT PLUGS ON ALL TEST COCKS

		 Medicine Hat STANDARD DRAWING	DATE: (YYYY-MM-DD)	2022-10-18	SEASONAL IRRIGATION SERVICE CROSS CONNECTION CONTROL PROGRAM
			SCALE:	N.T.S.	
			DRAWN:	M.H.A.	
			APPROVED:	C.R.H.	
REVISED	BY		DRAWING No.: EU-223		

