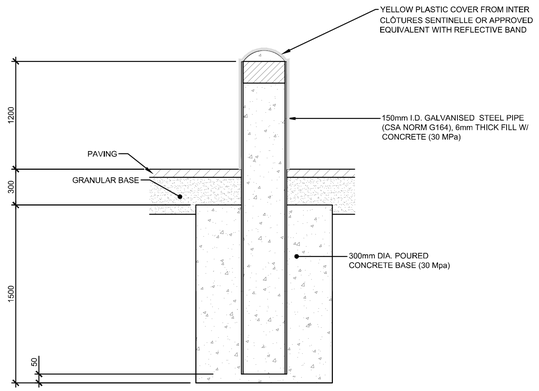
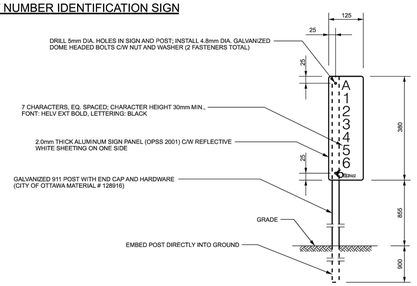


STANDARD BOLLARD

AUCUNE / NTS

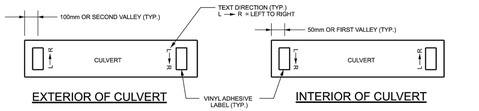
403

CULVERT NUMBER IDENTIFICATION SIGN



VINYL ADHESIVE LABELS

ADHESIVE LABEL LOCATIONS

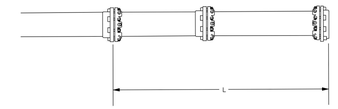


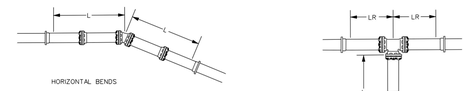
NOTES:

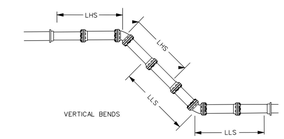
1. REFLECTIVE WHITE SHEETING SHALL BE 3M ENGINEERED PRESSURE SENSITIVE (PS) OR EQUIVALENT.
2. TOTAL OF 2 CULVERT NUMBER IDENTIFICATION SIGNS AND 4 VINYL ADHESIVE LABELS REQUIRED FOR EACH CULVERT.
3. PREPARE SURFACE OF GALVANIZED STEEL AS PER LABEL MANUFACTURER'S RECOMMENDATION TO ACHIEVE PROPER BOND.
4. CITY OF OTTAWA LOGO STAMP SHALL BE AFFIXED TO THE FRONT OF EACH CULVERT NUMBER IDENTIFICATION SIGN.
5. TO BE PLACED NEXT TO CEDAR POST WITH REFLECTIVE STRIP.

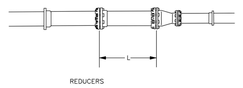
N.T.S.

CULVERT IDENTIFICATION SIGN FOR CULVERTS OWNED BY CITY OF OTTAWA	DATE:	SEPTEMBER 2006
	REV. DATE:	MARCH 2021
	DWG. No.:	S34





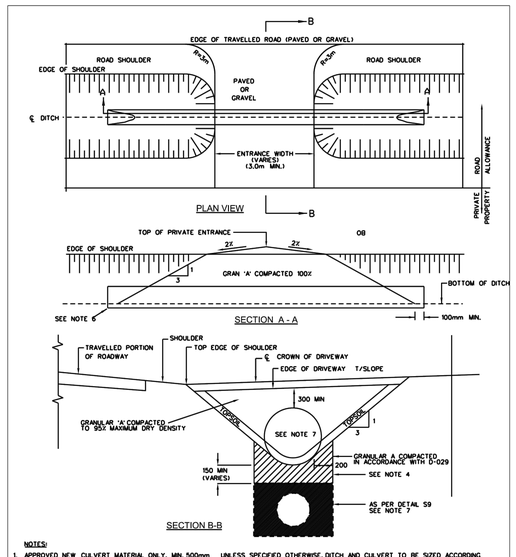




NOTES:

1. ANY JOINT THAT FALLS WITHIN THE RECOMMENDED LENGTH (L) SHALL BE RESTRAINED. SEE DRAWING W25.6
2. TO REDUCE THE NUMBER OF RESTRAINERS REQUIRED THE USE OF FULL PIPE LENGTHS IS RECOMMENDED IN THESE AREAS.

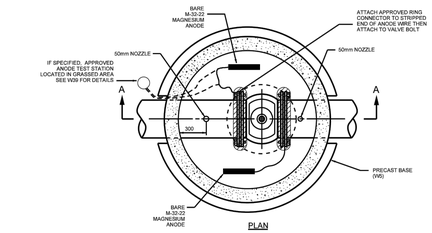
RESTRAINING AND RETAINING RINGS FOR PVC AND DI PIPE 400mm AND UNDER	DATE:	MAY 2001
	REV. DATE:	NONE
	DWG. No.:	W25.5

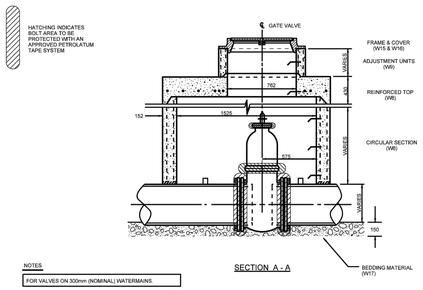


NOTES:

1. APPROVED NEW CULVERT MATERIAL ONLY, MIN. 500mm UNLESS SPECIFIED OTHERWISE. DITCH AND CULVERT TO BE SIZED ACCORDING TO SEWER DESIGN GUIDELINE MANUAL.
2. LENGTH OF CULVERTS IS DEPENDENT UPON THE DEPTH OF DITCH AND WIDTH OF ENTRANCE.
3. ENTRANCE CULVERTS GREATER THAN 900mm DIA. OR MULTIPLE CULVERTS MUST BE APPROVED PRIOR TO INSTALLATION. CULVERTS OVER 12m LONG AND HEADWALLS REQUIRE APPROVAL AND PERMIT BY THE CITY.
4. IN FROST SUSCEPTIBLE SOILS SPECIAL BEDDING CONDITIONS WILL BE REQUIRED.
5. REMOVE ALL ORGANICS FROM SIDE SLOPES AND DITCH BOTTOM PRIOR TO PLACING CULVERT AND GRANULARS.
6. CULVERT TO BE COUNTERSUNK 10% OF ITS DIAMETER BELOW FINISHED DITCH INVERT.
7. WHERE SPECIFIED, APPROVED DITCHED PIPE TO BE AT A MINIMUM GRADE OF 0.5% AND BE NON-PERFORATED TYPE UNDER CULVERTS.
8. SEE MS 22.15 FOR APPROVED PRODUCTS. UNLESS OTHERWISE STATED IN THE CONTRACT, CONSTRUCTION AS PER OPSS 421.
9. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.

PRIVATE ENTRANCE DETAIL - RURAL	DATE:	MAY 2001
	REV. DATE:	MARCH 2016
	DWG. No.:	S26





NOTES:

FOR VALVES ON 300mm (NOMINAL) WATERMAINS

1. CLEARANCE AROUND PIPE AT CHAMBER WALL TO BE 50mm MINIMUM.
2. VALVE CHAMBERS IN LIEU OF BOXES ON WATERMAINS SMALLER THAN 300mm ONLY TO BE USED, IF APPROVED BY THE CONTRACT ADMINISTRATOR.
3. REFER TO MW-13.1 FOR ADDITIONAL REQUIREMENTS.
4. REFER TO MW-18.16 FOR APPROVED MANUFACTURERS.
5. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
6. CATHODIC PROTECTION MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH W09, W40 AND W42.
7. TRACER WIRE REQUIRED FOR PVC, PEX AND HDPE WATERMAIN PIPE ONLY AS PER W06. TRACER WIRE TO BE CONNECTED TO VALVE BOLT AS PER W65 AND SECURED TO TOP OF CHAMBER.

CIRCULAR CHAMBER GATE VALVES	DATE:	MAY 2001
	REV. DATE:	MARCH 2021
	DWG. No.:	W3

TABLE OF RESTRAINED LENGTHS FOR DI AND PVC WATERMAIN PIPE IN STANDARD GRANULAR 'A' EMBEDMENT IN SOILS OF BEARING CAPACITY OF 100 KPa AND OVER

REDUCERS	LARGER DIAMETER SIDE (TO BE RESTRAINED)					
SMALLER DIAMETER (UNRESTRAINED)	100mm	150mm	200mm	250mm	300mm	400mm
100mm	N/A	3	6	8	10	14
150mm	N/A	N/A	4	6	9	13
200mm	N/A	N/A	N/A	3	6	11
250mm	N/A	N/A	N/A	N/A	4	9
300mm	N/A	N/A	N/A	N/A	N/A	7
400mm	N/A	N/A	N/A	N/A	N/A	N/A

	PIPE DIAMETER					
	100mm	150mm	200mm	250mm	300mm	400mm
DEAD ENDS, CAPS, PLUGS, VALVES						
BEFORE CAPS AND EITHER SIDE OF VALVES - L	5	6	9	10	12	16
VERTICAL BENDS						
LENGTH HIGH SIDE - LHS	3	4	5	6	7	9
LENGTH LOW SIDE - LLS	1.5	2	2.5	3	3.5	4.5
TEES						
LENGTH ALONG THE BRANCH - L	1	1	1	1	1	1
LENGTH ALONG THE RUN - Lr	3	3	3	3	3	3
HORIZONTAL BENDS						
11.25, 22.5, AND 45 DEGREE BENDS	1	1.5	1.5	2	2	2.5

NOTES:

1. THE ABOVE RESTRAINED LENGTHS MEET OR EXCEED THE WATERMAIN DESIGN CRITERIA FOR FUTURE ALTERATIONS AUTHORIZED UNDER A DRINKING WATER WORKS PERMIT.
2. THE ASSUMPTIONS MADE FOR THE ABOVE CALCULATIONS ARE AS FOLLOWS:
   a) MAXIMUM OPERATING PRESSURE OF 100 psi.
   b) MAXIMUM SURGE PRESSURE WITH A FLOW VELOCITY CHANGE OF 0.6 m/s OF 115 psi (115 psi FOR CLASS 52 DI AND FOR PVC MAX. SURGE IS 35 psi)
3. FOR SOFTWARE CALCULATIONS A TEST PRESSURE OF 150 psi AND A SAFETY FACTOR OF 1.5 WAS USED WHICH RESULTS IN 225 psi MAXIMUM PRESSURE.
4. TYPE 5 TRENCH BEDDING.
5. DEPTH TO BURY 2.4 METRES EXCEPT FOR VERTICAL BENDS WHERE THE HIGH SIDE IS AT 1.8 METRES.
6. EMBEDMENT MATERIAL GRANULAR 'A' WITH CHARACTERISTICS OF ASTM D2487 GP.
7. GP SOILS ARE DESCRIBED AS POORLY GRADED GRAVEL AND SAND-GRAVEL MIXES WITH LITTLE OR NO FINES.
8. (L') MUST BE OF SOLID PIPE WITHOUT JOINTS, FITTINGS, ETC.
9. THE TABLES APPLY TO BOTH DUCTILE IRON AND PVC. WHERE ONE LENGTH EXCEEDED THE OTHER THE LONGER LENGTH WAS USED.
10. RESTRAINED LENGTHS ARE IN METRES.

TABLES OF RESTRAINED LENGTHS FOR PVC AND DI PIPE 400mm AND UNDER	DATE:	MAY 2001
	REV. DATE:	MARCH 2011
	DWG. No.:	W25.6

APPROVED
By Adam Brown at 9:39 am, Feb 07, 2023

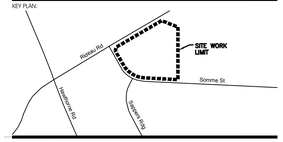
ADAM BROWN
MANAGER, DEVELOPMENT REVIEW - RURAL
PLANNING, REAL ESTATE & ECONOMIC DEVELOPMENT DEPARTMENT, CITY OF OTTAWA

CLIENT LOGO:

FASTFRATE

CBRE

KEY PLAN:



TRUE NORTH: PROJECT NORTH:

RECORD OF REVISIONS:

NUMBER:	REVISION:	DATE: (MM/DD/YYYY)
6		
5		
4	ISSUED FOR SITE PLAN CONTROL REV. 3	SEPTEMBER 29, 2022
3	ISSUED FOR 66% REVIEW	JULY 15, 2022
2	ISSUED FOR SITE PLAN CONTROL REV. 2	JUNE 7, 2022
1	ISSUED FOR SITE PLAN APPROVAL	DECEMBER 16, 2021

ISSUE:

PROFESSIONAL STAMP:

PROFESSIONAL STAMP:

CIVITAS GROUP
ARCHITECTURE & LANDSCAPE ARCHITECTURE

CIVITAS ARCHITECTURE INC. OTTAWA, ON T: 613.742.7482
14 CHAMBERLAIN AVENUE, SUITE 101 CANADA K1S 1V9 WWW.CIVITAS-INC.CA

CONSULTANT LOGO:

CIMA+

PROJECT TITLE:

FASTFRATE OTTAWA WAREHOUSE AND DISTRIBUTION FACILITY

SCALE: NONE

SOMME ST,
OTTAWA, ON

DRAWING TITLE:

DETAILS

DRAWN BY:	D.CANN
DATE:	
REVIEWED BY:	J.SAUVE
APPROVED BY:	
PRINT DATE:	
ISSUED DATE:	NOVEMBER 26, 2021
CLIENT PROJECT #:	

DRAWING NUMBER:

C014

REVISION NUMBER:

PROJECT #:

A001083