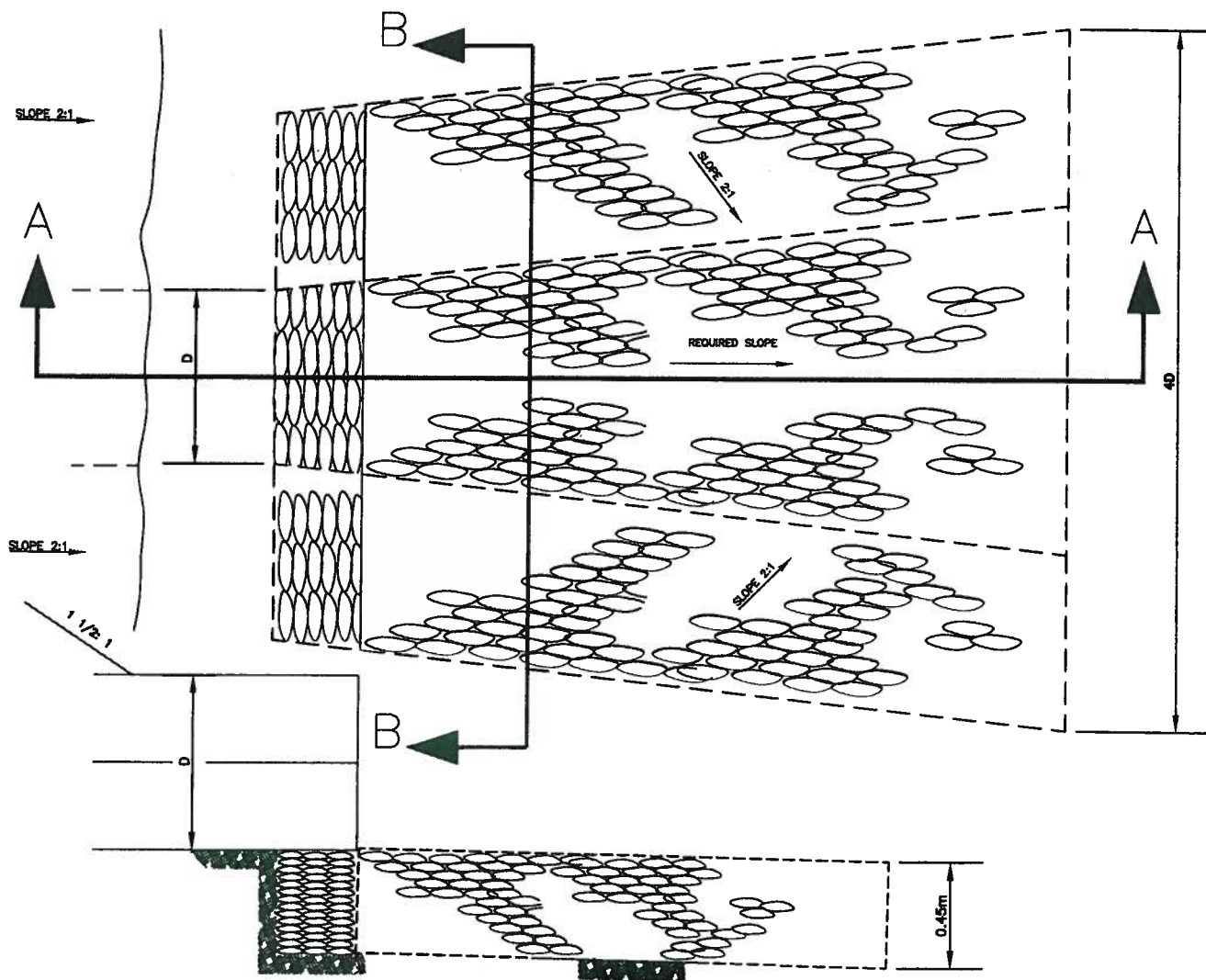
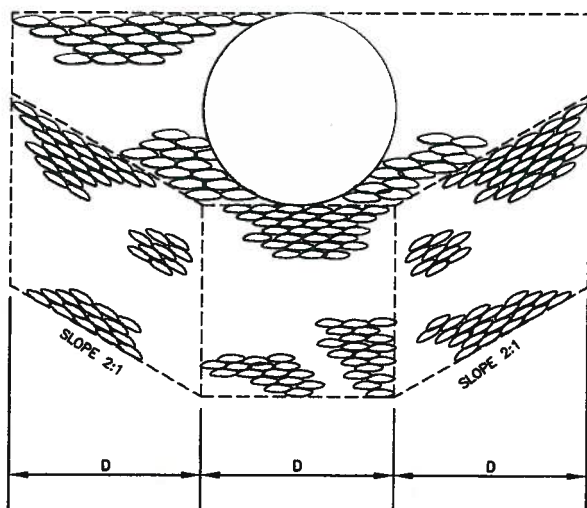


**APPENDIX H -
SELECT MUNICIPAL MASTER SPECIFICATION STANDARD DRAWINGS**



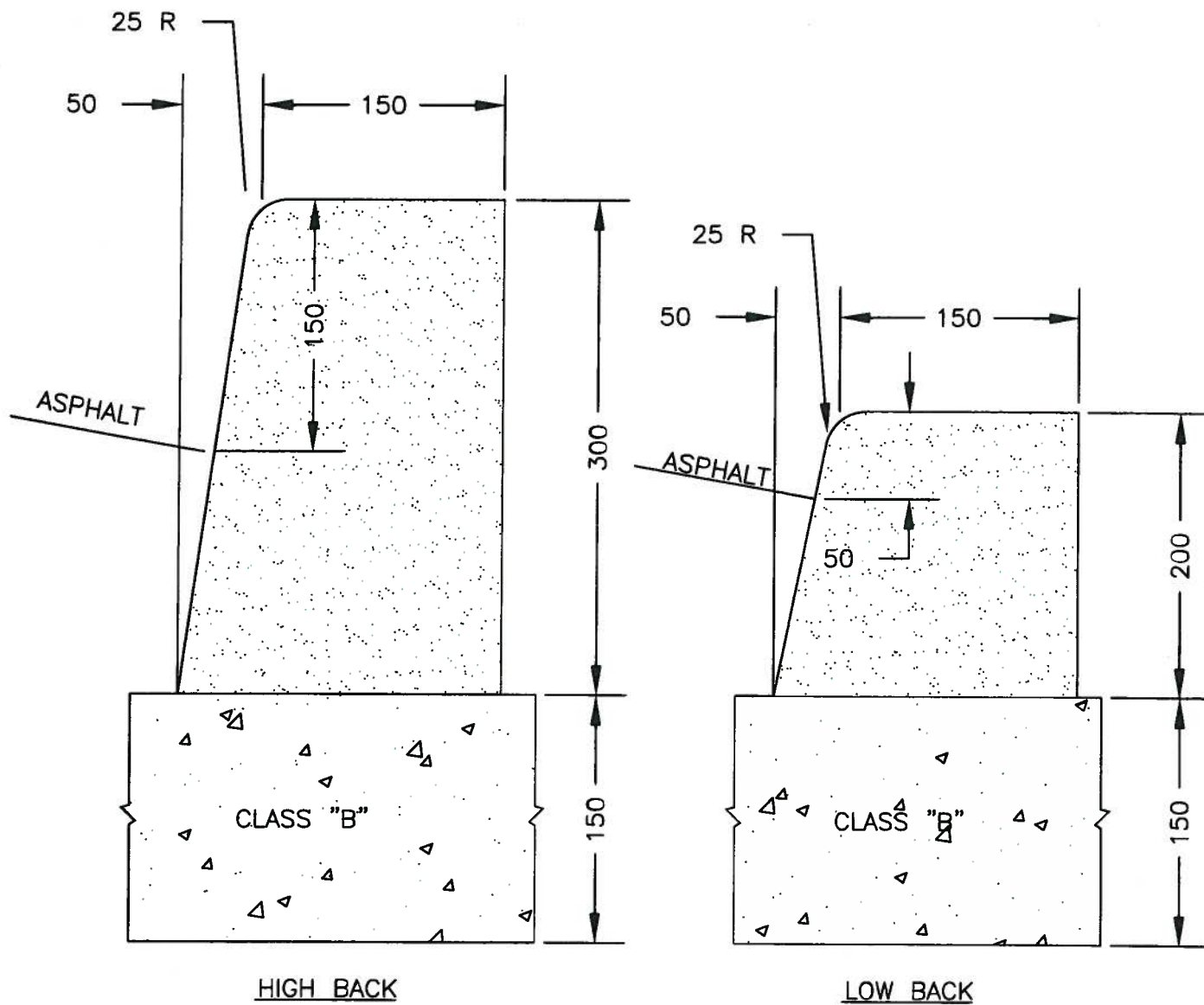
SECTION A - A



SECTION B - B

MUNICIPAL MASTER SPECIFICATIONS		
RIP RAP TREATMENT - STORM SEWER OUTLET		
DRAWING #	SPEC. REFERENCE	DATE:
0560	02434	MARCH 1992

April 2002



TYPICAL X-SECTION

NOTE:

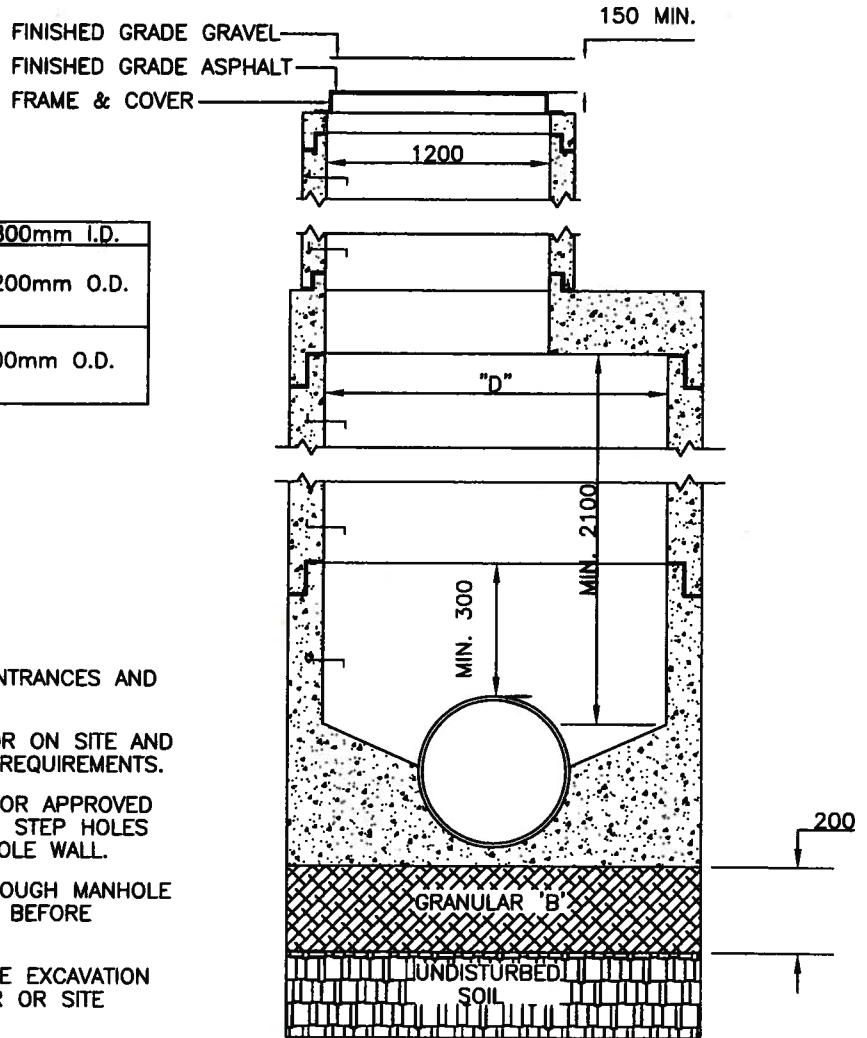
1. CONCRETE TO BE 32 MPa. TO MEET CSA A23.1, CLASS C-2 EXPOSURE.

MUNICIPAL MASTER SPECIFICATIONS		
CURB		
DRAWING #	SPEC. REFERENCE	DATE:
0600	02528	APRIL 2001

"D"	1500mm I.D.	1800mm I.D.
MAX. PIPE O.D. STRAIGHT THRU TO 45° DEFLECT.	1050mm O.D.	1200mm O.D.
MAX. PIPE O.D. 90° DEFLECTION	750mm O.D.	900mm O.D.

NOTES:

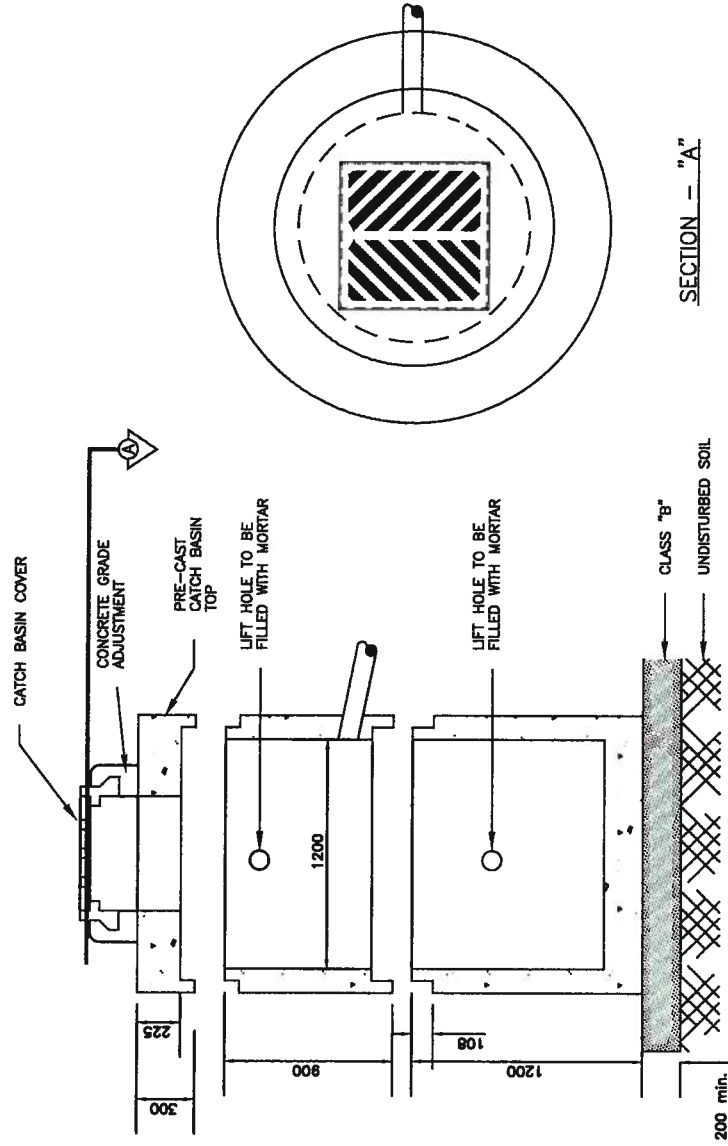
1. ALL CONCRETE TO BE 30 MPa.
2. GASKETS ARE TO BE USED FOR ALL PIPE ENTRANCES AND PLACED IN BASE SECTION AT FACTORY.
3. BENCHING TO BE PREFORMED AT FACTORY OR ON SITE AND TO CONFORM TO CAST IN PLACE BENCHING REQUIREMENTS.
4. MSU DAYMOND ALUMINIUM CLIMBING STEPS (OR APPROVED EQUAL) TO BE PLACED AT 300mm CENTERS. STEP HOLES ARE TO BE ONLY PARTIALLY THROUGH MANHOLE WALL.
5. LIFT HOLES ARE TO BE ONLY PARTIALLY THROUGH MANHOLE FROM OUTSIDE. HOLES TO BE GROUT FILLED BEFORE BACKFILLING.
6. NO PRECAST MANHOLE TO BE PLACED IN THE EXCAVATION PRIOR TO INSPECTION BY PROJECT ENGINEER OR SITE REPRESENTATIVE.
7. MINIMUM DROP ACROSS MANHOLE TO BE 50mm FOR STRAIGHT THROUGH TO 45° DEFLECTION.
8. MINIMUM DROP ACROSS MANHOLE TO BE 150mm FOR DEFLECTION GREATER THAN 45° AND UP TO 90°.



TYPICAL X-SECTION

PRECAST MANHOLE – TYPE 1500, 1800

MUNICIPAL MASTER SPECIFICATIONS		
PRECAST MANHOLE – TYPE 1500, 1800		
DRAWING #	SPEC. REFERENCE	DATE:
0765	02601	APRIL 2000

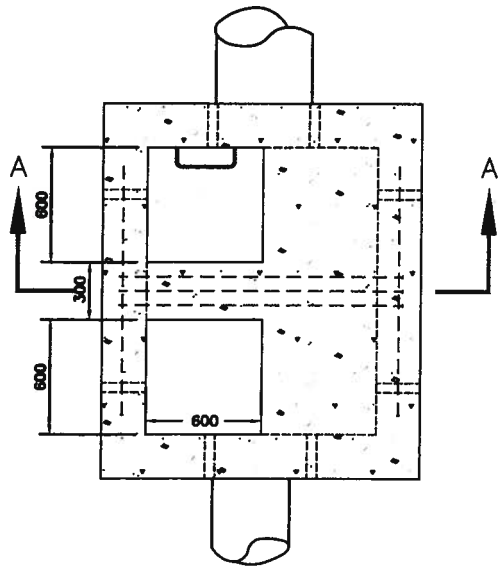


SECTION - "A"

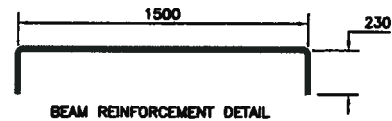
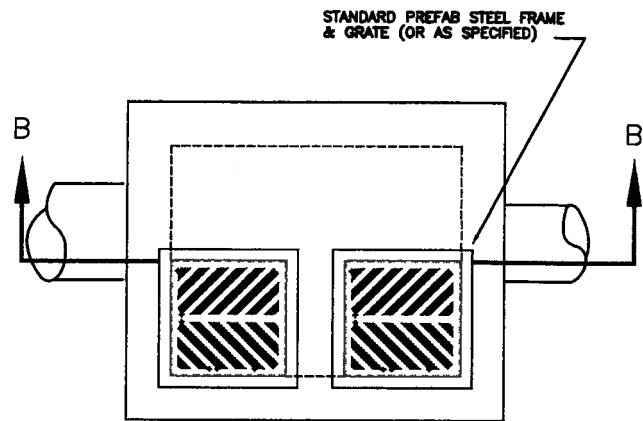
NOTES:

1. OUTLET PIPE TO BE FORMED BY PRE-CAST COLLAR, GASKET TO BE PLACED AROUND PIPE.
2. CATCH BASIN GRATING SHALL BE DEPRESSED 30mm BELOW GUTTER GRADE.
3. MINIMUM SUMP DEPTH 1200.

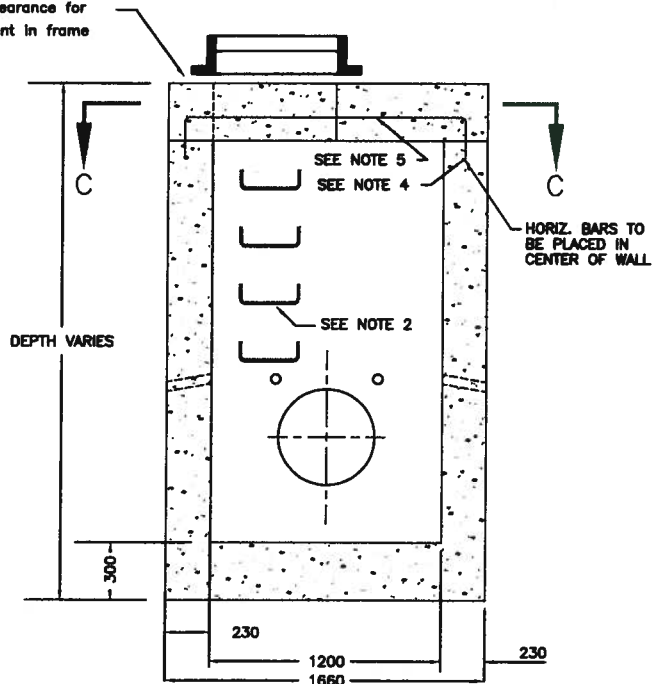
MUNICIPAL MASTER SPECIFICATIONS			
PRE-CAST SINGLE CATCH BASIN			
DRAWING #	SPEC. REFERENCE	DATE:	
0870	02601	MARCH 1993	



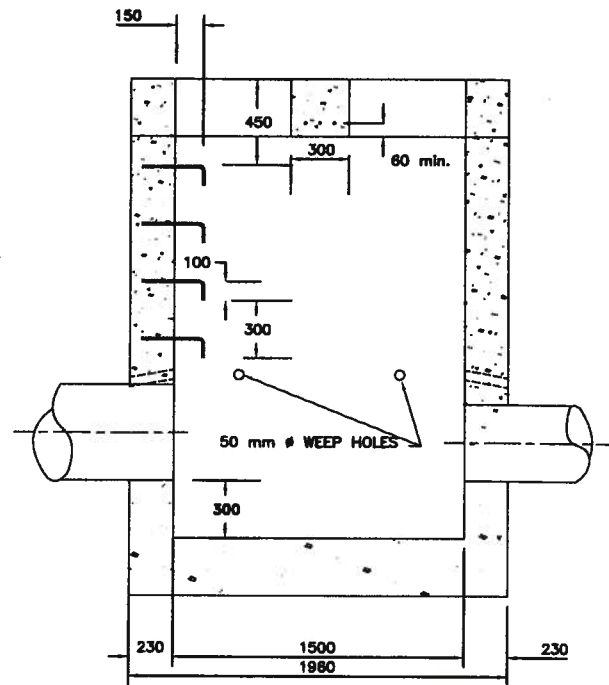
SECTION "C-C"



20mm clearance for
adjustment in frame



SECTION "A-A"



SECTION "B-B"

NOTES:

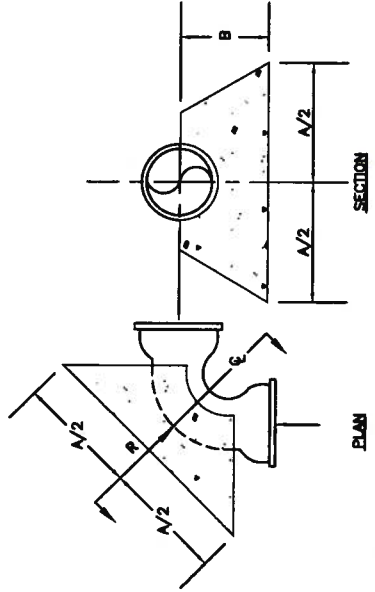
1. POROUS BACKFILL TO BE PLACED TO A MIN. OF 300 mm ON ALL SIDES.
2. LADDER RUNGS TO BE 20M HI-BOND BARS, GALVANIZED OR EQUIVLENT.
3. STRENGTH OF CONCRETE: MIN. OF 30 MPa AT 28 DAYS.
4. TIES - 15M HI-BOND BARS, 105mm LONG
5. 3 - 15M HI-BOND BARS BENT, SEE DETAIL.
6. 100mm ϕ TILE IN POROUS GROUND ONLY, SLOPE BOTTOM AS INDICATED WHEN TILE IS USED.

MUNICIPAL MASTER SPECIFICATIONS

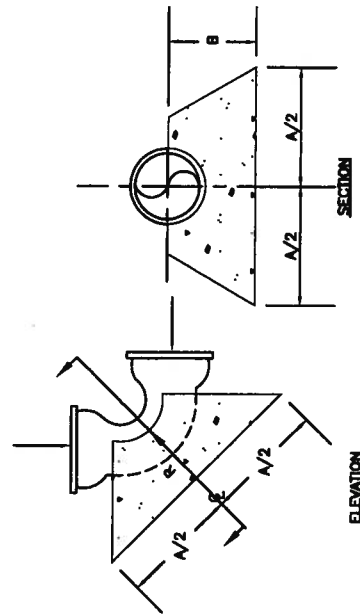
TWIN INLET CATCH BASIN

DRAWING #	SPEC. REFERENCE	DATE:
0900	02601	MARCH 1993

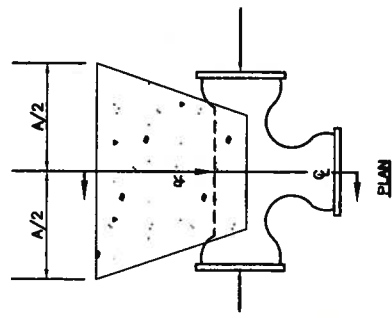
NOMINAL DIAMETER (mm)	EFFECTIVE AREA (m ²)	BENDS --- HORIZONTAL & VERTICAL --- UP												TEE & DEAD END			
		90°				45°				22 1/2°				11 1/4°			
		R	b AREA	A	B	R	b AREA	A	B	R	b AREA	A	B	R	b AREA	A	B
100	.012	1.74	0.14	375	300	.04	0.08	300	300	.04	0.03	300	300	.04	0.02	300	300
150	.024	3.81	0.30	525	300	.04	0.16	450	300	.04	0.08	300	300	.04	0.04	300	300
200	.042	6.21	0.51	750	450	.19	0.27	525	450	.04	0.14	375	450	.04	0.07	300	450
250	.063	9.21	0.75	900	450	.19	0.41	675	450	.08	0.21	450	450	.04	0.11	375	450
300	.088	13.24	1.09	1100	450	.36	0.58	750	450	.19	0.30	525	450	.04	0.15	375	450



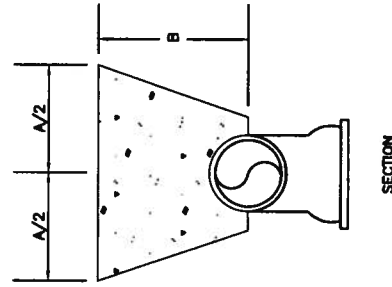
HORIZONTAL BEND



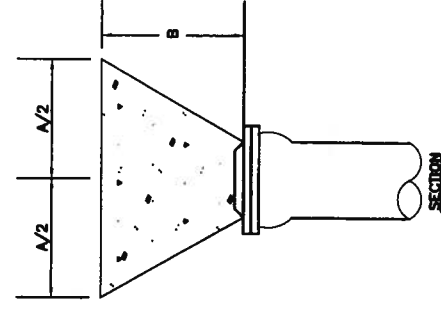
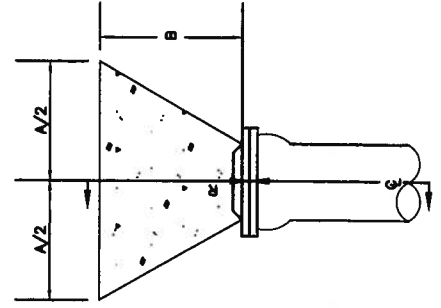
VERTICAL BEND UP



TEE



DEAD END



ABBREVIATIONS
 R - REACTION IN 1000kg
 b - MINIMUM BEARING AREA AT SOIL AREA TO CONCRETE FACE IN m²
 CONC - VOLUME OF CONCRETE IN m³
 A & B - DIMENSION OF CONCRETE IN mm UNLESS OTHERWISE NOTED

NOTES:
 1. CONCRETE - 25MPa 28 DAY STRENGTH
 2. BLOCKS SHALL BE POURED DIRECTLY AGAINST UNDISTURBED SOIL AS INDICATED
 3. DESIGN DATA - STATIC PRESSURE 1000 KPa MINIMUM BEARING CAPACITY OF SOIL 120 KPa

MUNICIPAL MASTER SPECIFICATIONS			
WATERMAIN THRUST BLOCKS A			
DRAWING #	SPEC. REFERENCE	DATE:	
1140	02713 02724 03300	MARCH 1992	