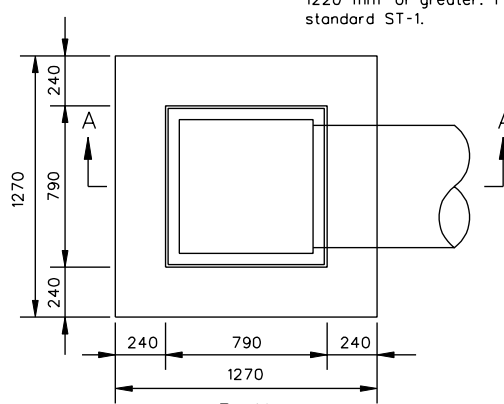


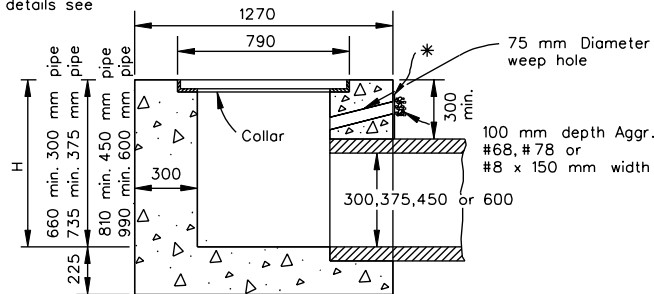
DI-1

Steps are to be provided when H is 1220 mm or greater. For details see standard ST-1.



PLAN
(Grate Removed)

* Weep hole with 300 mm x 300 mm plastic hardware cloth 6.4 mm mesh or galvanized steel wire, minimum wire diameter 0.76 mm, number 4 mesh hardware cloth anchored firmly to outside of structure.
12 mm dia. x 200 mm Smooth Dowels @ approximately 300 mm c-c to be placed in all areas adjacent to abutting concrete to prevent settlement.
In lieu of dowels a 50 mm x 100 mm notch may be provided. See Standard T-DI-3, 4 alternate design.



SECTION A-A

CONCRETE QUANTITIES FOR MIN. DEPTH

300 concrete pipe - 1.10 m³ Concrete
375 concrete pipe - 1.17 m³ Concrete
450 concrete pipe - 1.24 m³ Concrete
600 concrete pipe - 1.39 m³ Concrete
Add 0.12 m³ per additional 100 mm of depth.

Notes:

Maximum depth (H) to be 3.0 m. For greater depth use Standard DI-1A.

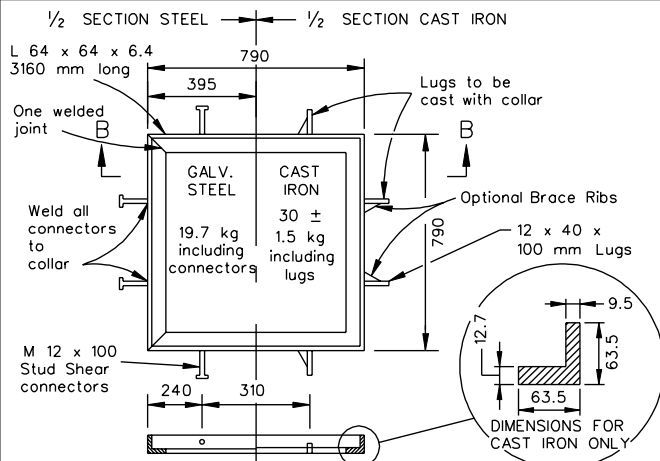
When specified on plans the invert is to be shaped in accordance with Standard Plan IS-1. The cost of furnishing and placing all materials incidental to the shaping is to be included in the price bid for the drop inlet complete.

This item may be precast or cast in place.

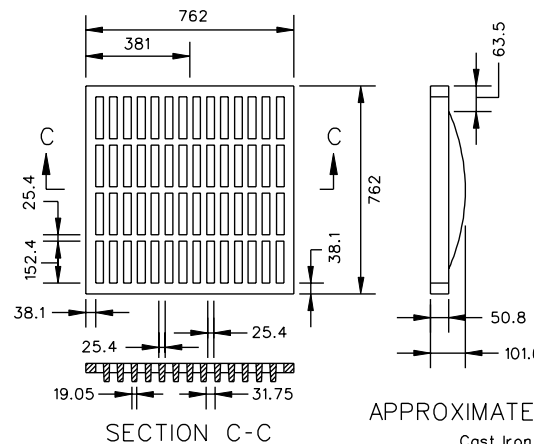
All cast in place concrete to be Class 20. For precast See Sheet 103.03.

The "H" dimension shown on the Standards and specified on the plans will be measured from the invert of the outfall pipe to the top of the structure. Plan "H" dimensions are approximate only for estimating purposes and the actual dimensions shall be determined by the Contractor from field conditions.

In the event the invert of the outfall pipe is higher than the bottom of the structure, the invert of the structure shall be shaped with cement mortar to prevent standing or ponding of water in the structure. The cost for invert shaping shall be included in the price bid for the structure.



SECTION B-B



SECTION C-C

APPROXIMATE WEIGHT

Cast Iron
Grate 164 ± 8.2 kg

Notes:

Any alternate methods of anchorage, meeting the approval of the Engineer, may be substituted for the cast iron lugs as shown hereon.

STANDARD DROP INLET

300 mm - 600 mm PIPE MAXIMUM DEPTH (H) = 3.0 m

104.01 UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE

233
302

Note:

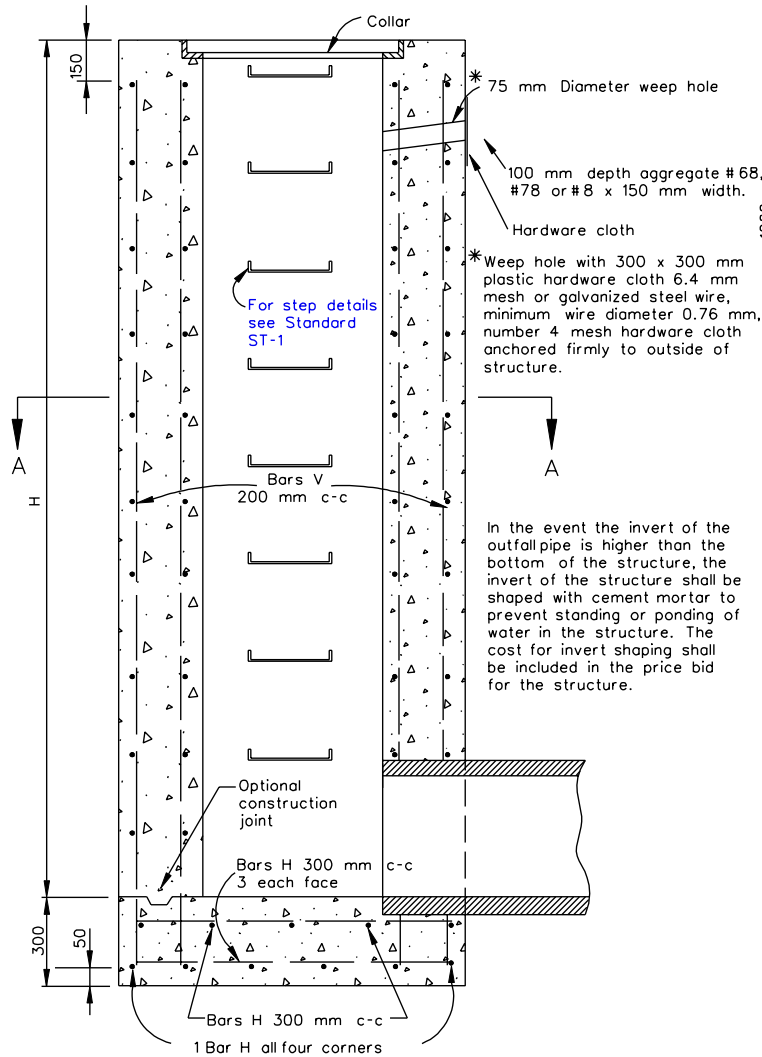
See Standard SL-1 for applicability of safety slabs.

Note:

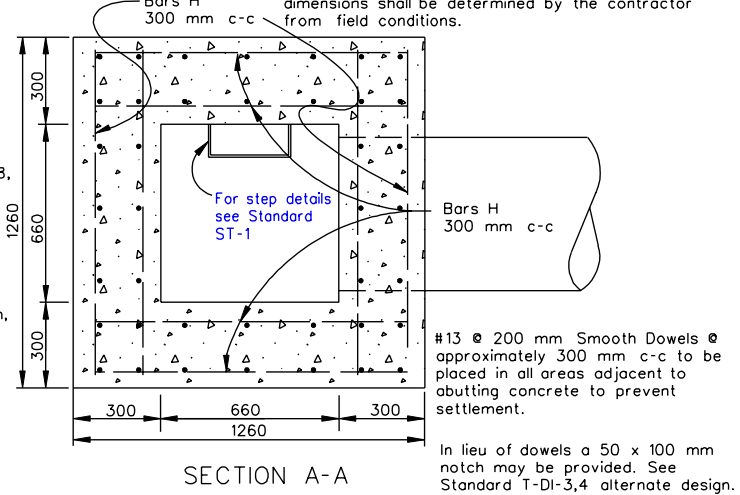
When specified on plans the invert is to be shaped in accordance with Standard Plan IS-1. The cost of furnishing and placing all materials incidental to the shaping is to be included in the price bid for the drop inlet complete.

The "H" dimension shown on the Standards and specified on the plans will be measured from the invert of the outfall pipe to the top of the structure. Plan "H" dimensions are approximate only for estimating purposes and the actual dimensions shall be determined by the contractor from field conditions.

DI-1A



In the event the invert of the outfall pipe is higher than the bottom of the structure, the invert of the structure shall be shaped with cement mortar to prevent standing or ponding of water in the structure. The cost for invert shaping shall be included in the price bid for the structure.



Notes:

For all details, dimensions, etc. of grate and steel or cast iron collar see Standard DI-1.

Minimum depth (H) to be 3.0 meters, maximum depth to be 6.1 meters. For inlets less than 3.0 meters use Standard DI-1.

All cast in place concrete to be Class 20. For precast See Sheet 103.03

This item may be precast or cast in place.

If optional construction joint is used, it is to be keyed.

All splices in bars V to lap a minimum of 40 x diameter (520 mm).

REINFORCING STEEL SCHEDULE			
MARK	SIZE	NO REQ'D	LENGTH
Bars H	#16	$8 \times (H/0.30 + 2)$	1160
Bars V	#13	40	H+100

APPROXIMATE QUANTITIES FOR MINIMUM (3.0 m) DEPTH		
CONCRETE PIPE DIAMETER	CONCRETE	REINF. STEEL
	m ³	kg
300	3.89	295
375	3.88	294
450	3.85	293
600	3.80	291

Increments to be added for each additional meter of depth (H):

1.152 m³ concrete
87.8 kg reinforcing steel

SPECIFICATION REFERENCE

233
302

STANDARD DROP INLET
300 mm-600 mm PIPE DEPTH (H) 3.0 m TO 6.1 m

VIRGINIA DEPARTMENT OF TRANSPORTATION

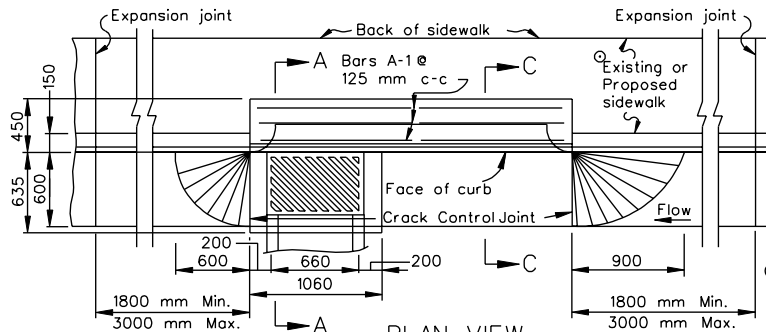
UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

104.02

DI-2A-2B-2C

12 mm diameter x 200 mm Smooth Dowels @ approx. 300 mm c-c to be placed in all areas adjacent to abutting concrete to prevent settlement.

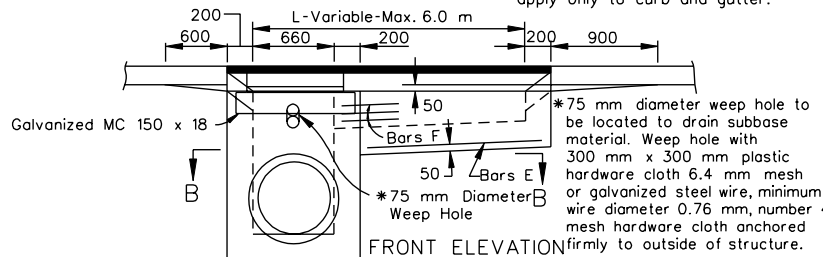
For Nose details see sheet 104.04



PLAN VIEW

Grate is to be installed so slots will direct water toward the inlet throat.

This area may be earthen, in which case the expansion joints will apply only to curb and gutter.

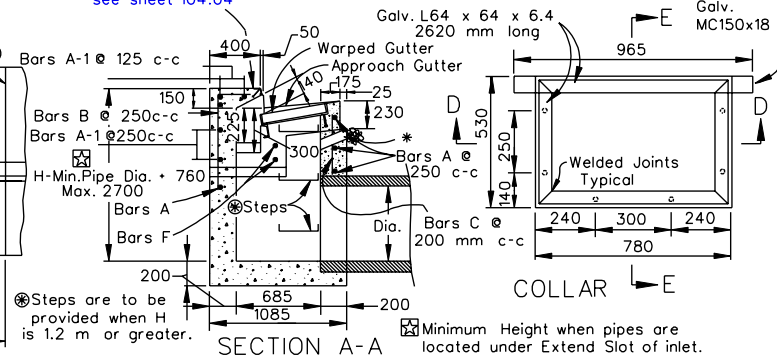


FRONT ELEVATION

Notes: Standard inlets may be constructed with concrete block in accordance with the details shown on Standard Drawing DI-MB.

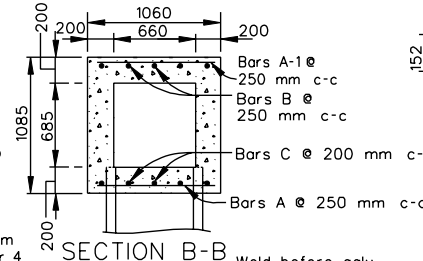
In the event the invert of the outfall pipe is higher than the bottom of the structure, the invert of the structure shall be shaped with cement mortar to prevent standing or ponding of water in the structure. The cost for invert shaping shall be included in the price bid for the structure. This standard is intended for use in curb and gutter situations only.

For step details see Std. ST-1.



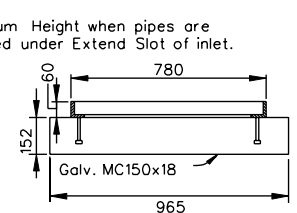
SECTION A-A

Minimum Height when pipes are located under Extend Slot of inlet.

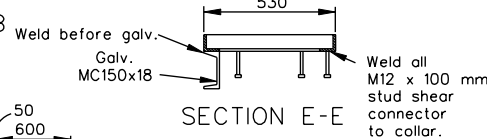


SECTION B-B

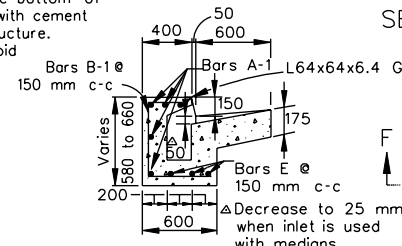
COLLAR



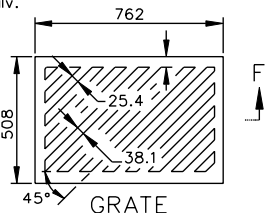
SECTION D-D



SECTION E-E



SECTION C-C



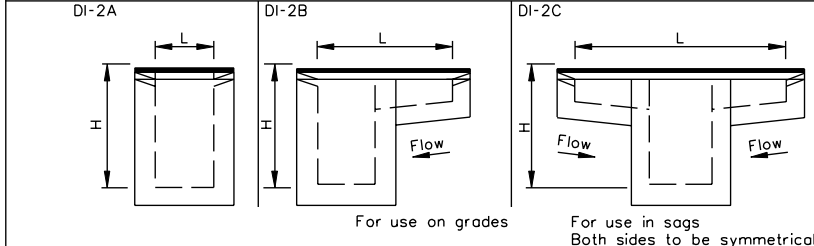
GRATE



SECTION F-F

Depth of inlet (H) is to be as shown on plans. Length of slot (L) will, in every case, be shown on plans. This item may be precast or in place.

When specified on plans the invert is to be shaped in accordance with Standard Plan IS-1. The cost of furnishing and placing all materials incidental to the shaping is to be included in the price bid for the drop inlet complete.



The "H" dimension shown on the standards and specified on the plans will be measured from the invert of the outfall pipe to the top of the structure. Plan "H" dimensions are approximate only for estimating purposes and the actual dimensions shall be determined by the contractor from field conditions.

Sheet 1 of 2		STANDARD CURB DROP INLET		SPECIFICATION REFERENCE
300 mm - 600 mm PIPE MAXIMUM DEPTH (H) = 2.7 m		VIRGINIA DEPARTMENT OF TRANSPORTATION		
104.03	UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS			233 302

TABLE OF QUANTITIES

REINFORCING STEEL

TYPE	L	Concrete	BARS A		BARS A-1		BARS B		BARS B-1		BARS C		BARS E		BARS F		WEIGHT
	Meters	Cu. Meters	No.	mm *	No.	mm. *	No.	mm. *	No.	mm. *	No.	mm. *	No.	mm. *	No.	mm. *	Kilograms
DI-2A	0.66	1.30	4	960	5	960	4	1060	-	-	5	600	-	-	-	-	25
DI-2B	1.2	1.45	4	960	5	1520	4	1060	3	1290 to 1370	5	600	3	600	3	450	40
	1.8	1.70	4	960	5	2130	4	1060	7	1290 to 1370	5	600	3	1210	3	450	56
	2.4	1.90	4	960	5	2740	4	1060	11	1290 to 1370	5	600	3	1820	3	450	72
	3.0	2.10	4	960	5	3350	4	1060	15	1290 to 1370	5	600	3	2430	3	450	88
	3.6	2.30	4	960	5	3960	4	1060	19	1290 to 1370	5	600	3	3040	3	450	103
	4.2	2.55	4	960	5	4570	4	1060	23	1290 to 1370	5	600	3	3650	3	450	119
	4.8	2.75	4	960	5	5180	4	1060	27	1290 to 1370	5	600	3	4260	3	450	135
	5.4	2.95	4	960	5	5790	4	1060	31	1290 to 1370	5	600	3	4870	3	450	151
DI-2C	6.0	3.15	4	960	5	6400	4	1060	35	1290 to 1370	5	600	3	5480	3	450	167
	1.8	1.70	4	960	5	2130	4	1060	6	1290 to 1370	5	600	6	630	6	450	56
	2.4	1.90	4	960	5	2740	4	1060	10	1290 to 1370	5	600	6	930	6	450	72
	3.0	2.15	4	960	5	3350	4	1060	14	1290 to 1370	5	600	6	1240	6	450	88
	3.6	2.35	4	960	5	3960	4	1060	18	1290 to 1370	5	600	6	1540	6	450	104
	4.2	2.55	4	960	5	4570	4	1060	22	1290 to 1370	5	600	6	1850	6	450	119
	4.8	2.75	4	960	5	5180	4	1060	26	1290 to 1370	5	600	6	2150	6	450	135
5.4	3.00	4	960	5	5790	4	1060	30	1290 to 1370	5	600	6	2460	6	450	151	
6.0	3.20	4	960	5	6400	4	1060	34	1290 to 1370	5	600	6	2760	6	450	167	

* Denotes length of one (1) bar

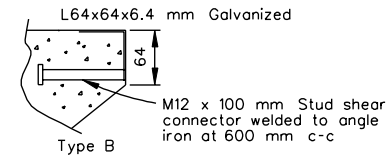
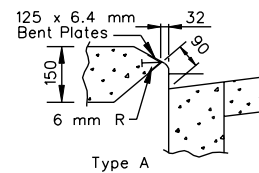
NOTES:

All reinforcing bars to be #16.

All cast in place concrete to be Class 20. For acceptable alternate see Precast Standard Designs.

Concrete quantities shown are for depth (H) of 1.6 m without pipes. The amount displaced by pipes must be deducted to obtain true quantities. For inlets of different depths add or subtract 0.21 m³ of concrete for each meter of difference in depth.

Length of Angle Iron as shown on Sheet 1 is to be L * 0.4 m @ 6.1 kg per meter.



NOSE DETAILS

Type A nose detail shall be used with CG-7 Standard.

Type B nose detail shall be used with CG-6 Standard.

Galvanized plate to be bent on an angle of 68° 30' and is to be anchored with M12 X 100 mm stud shear connectors welded to bent plate at 600 mm c-c.

SPECIFICATION REFERENCE

233
302

STANDARD CURB DROP INLET
300 mm - 600 mm PIPE MAXIMUM DEPTH (H)=2.7 m

VIRGINIA DEPARTMENT OF TRANSPORTATION

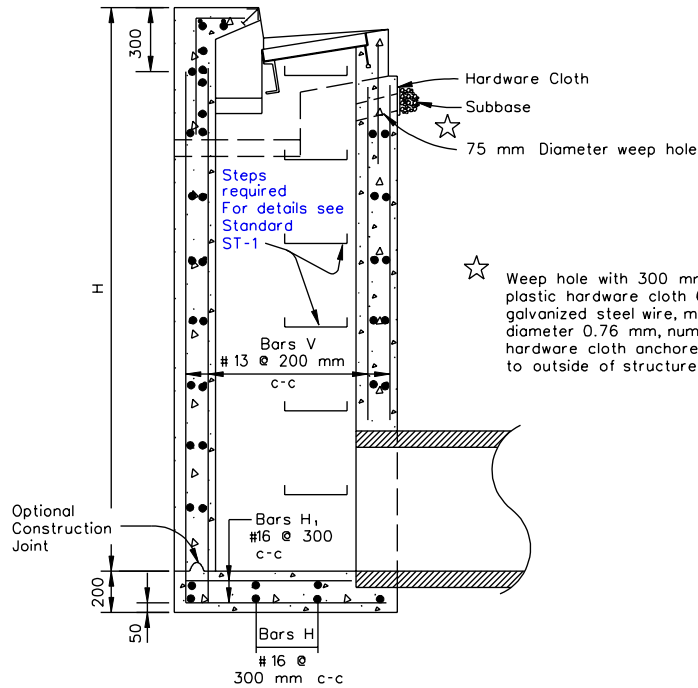
UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

DI-2AA,2BB,2CC

Notes:

For details and dimensions of curb, slot, beam, collar and grate, dropped gutter line, and reinforcing and structural steel not detailed see Standard DI-2A.

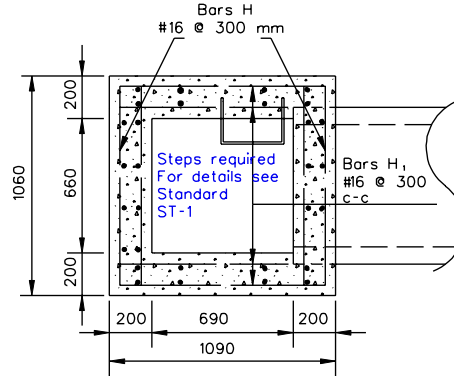
The "H" dimension shown on the Standards and specified on the plans will be measured from the invert of the outfall pipe to the top of the structure. Plan "H" dimensions are approximate only for estimating purposes and the actual dimensions shall be determined by the contractor from field conditions.



☆ Weep hole with 300 mm x 300 mm plastic hardware cloth 6.4 mesh or galvanized steel wire, minimum wire diameter 0.76 mm, number 4 mesh hardware cloth anchored firmly to outside of structure.

Note:

When specified on plans the invert is to be shaped in accordance with Standard IS-1. The cost of furnishing and placing all materials incidental to the shaping is to be included in the price bid for the drop inlet complete.



In the event the invert of the outfall pipe is higher than the bottom of the structure, the invert of the structure shall be shaped with cement mortar to prevent standing or ponding of water in the structure. The cost for invert shaping shall be included in the price bid for the structure.

Notes:

All cast in place concrete to be Class 20. For acceptable alternate see Precast Standard Designs.

Minimum depth (H) to be 2.7 meters. Maximum depth to be 6.1 meters. For inlets less than 2.7 meters use Standard. DI-2A, 2B, 2C. Depth of inlet (H) to be as shown on plans.

Length of slot (L) will, in all cases, be shown on plans.

For plan view of inlet see Standard DI-2A,2B,2C. If optional construction joint is used it is to be keyed. All splices in Bars V to be a minimum of 40 x diameter (520 mm). When specified on plans invert is to be shaped in accordance with Standard Plan IS-1.

This item may be precast or cast in place.

* For description and location of dimension L see sheet 104.03.
** For number of Bars A-F required, and lengths see sheet 104.04.

Quantities shown are for minimum inlets of each type. For inlets of greater depth (H) or longer slots (L) increments shown per meter must be added. The amount of concrete and steel displaced by pipes must be deducted to obtain true quantities. 12 mm dia. x 200 mm Smooth Dowels @ approximately 300 mm c-c to be placed in all areas adjacent to abutting concrete to prevent settlement.

This standard is intended for use in curb and gutter situations only. In lieu of dowels a 50 mm x 100 mm notch may be provided. See Standard T-DI-3,4 alternate design.

SCHEDULE OF REINFORCING STEEL **					
BARS H		BARS H ₁		BARS V	
NO REQ'D.	LENGTH (m)	NO REQ'D.	LENGTH (m)	NO REQ'D.	LENGTH (m)
4x(H/0.3+1)+8	0.96	4x(H/0.3+1)+8	0.99	36	H-0.35

APPROXIMATE QUANTITIES FOR MINIMUM 2.7 m DEPTH INLET				INCREMENTS TO BE ADDED FOR EACH ADDITIONAL METER OF DEPTH (H) AND, OR SLOT LENGTH (L)			
TYPE	DIMENSION L * (Meters)	REINFORCING STEEL (kg)	CONCRETE (m ³)	H		L	
				m ³ Conc.	kg. Steel	m ³ Conc.	kg. Steel
DI-	0.66	254	2.12	0.70	112	-	-
2BB	1.20	299	2.34	0.70	112	0.40	26
2CC	1.80	285	2.59	0.70	112	0.40	26

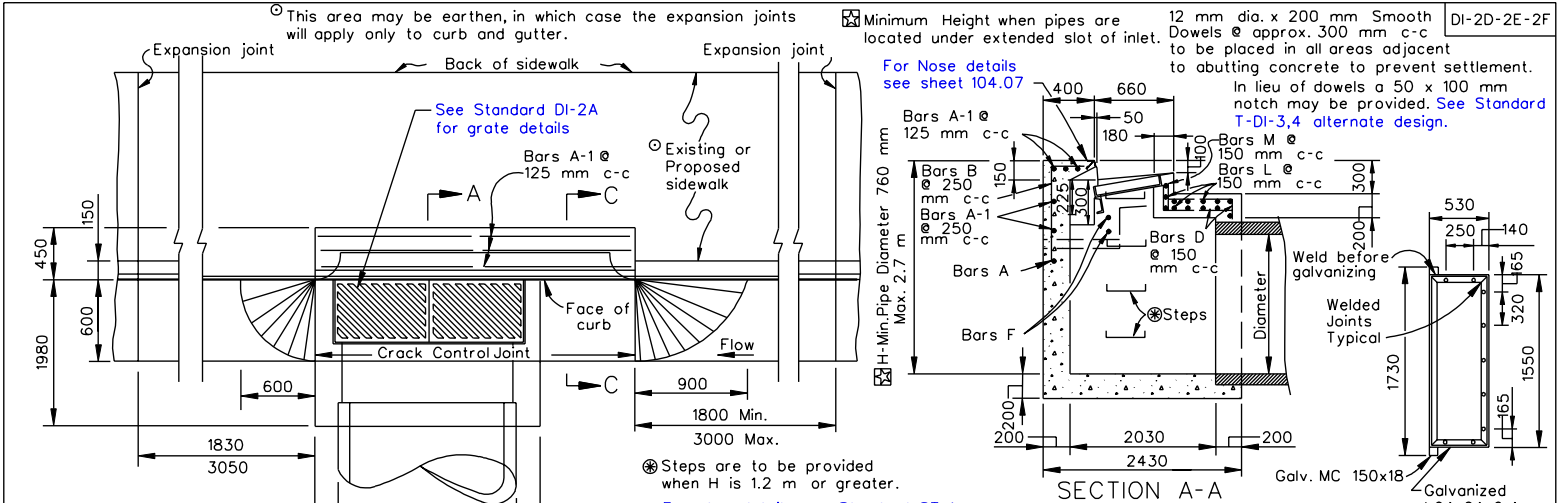
STANDARD CURB DROP INLET
300 mm - 600 mm PIPE MAXIMUM DEPTH (H) = 2.7 m - 6.1 m

SPECIFICATION REFERENCE

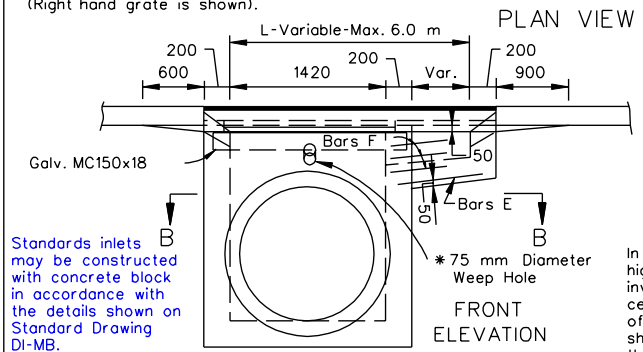
233
302

104.05 UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

VIRGINIA DEPARTMENT OF TRANSPORTATION



Grate is to be installed so slots will direct water toward the throat.
Grate must be reversible.
(Right hand grate is shown).



Steps are to be provided when H is 1.2 m or greater.
For step details see Standard ST-1.

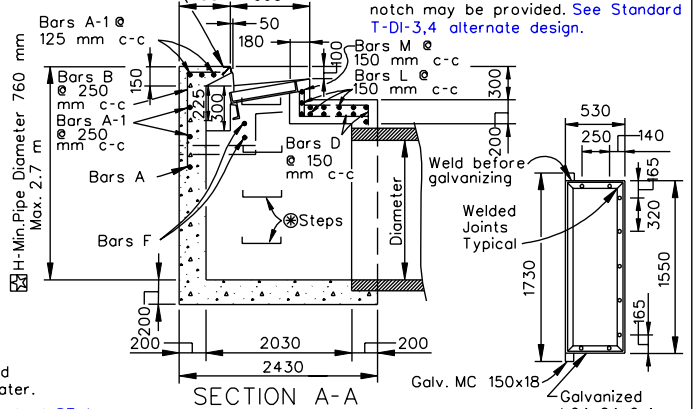
The "H" dimension shown on the standards and specified on the plans will be measured from the invert of the outfall pipe to the top of structure. Plan "H" dimensions are approximate only for estimating purposes and the actual dimensions shall be determined by the contractor from field conditions.

75 mm diameter weep hole to be located to drain subbase material. Weephole with 300 mm x 300 mm plastic hardware cloth 6.4 mm mesh or galv. steel wire, min. wire diameter 0.76 mm, 4 mesh hardware cloth anchored firmly to outside of structure.

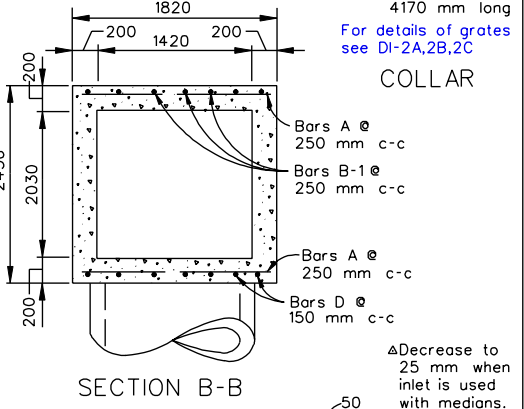
In the event the invert of the outfall pipe is higher than the bottom of the structure, the invert of the structure shall be shaped with cement mortar to prevent standing or ponding of water in the structure. The cost for invert shaping shall be included in the price bid for the structure.

Minimum Height when pipes are located under extended slot of inlet. 12 mm dia. x 200 mm Smooth Dowels @ approx. 300 mm c-c to be placed in all areas adjacent to abutting concrete to prevent settlement. In lieu of dowels a 50 x 100 mm notch may be provided. See Standard T-DI-3,4 alternate design.

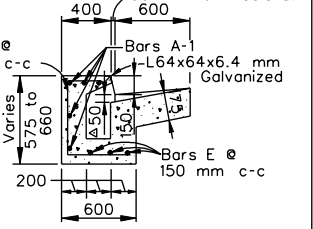
For nose details see sheet 104.07



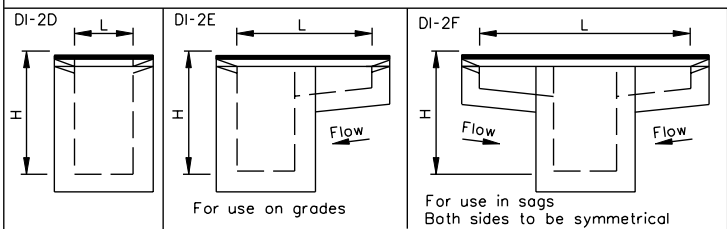
SECTION A-A



SECTION B-B



SECTION C-C



This standard is intended for use in curb and gutter situations only.

When specified on plans the invert is to be shaped in accordance with Standard Plan IS-1. The cost of furnishing and placing all materials incidental to the shaping is to be included in the price bid for the drop inlet complete.

Depth of inlet (H) is to be as shown on plans.

Length of slot (L) will, in every case, be shown on plans.

This item may be precast or in place.

SPECIFICATION REFERENCE	<h2 style="margin: 0;">STANDARD CURB DROP INLET</h2> <h3 style="margin: 0;">750 mm - 1200 mm PIPE MAXIMUM DEPTH (H)=2.7 m</h3> <p style="margin: 0;">VIRGINIA DEPARTMENT OF TRANSPORTATION</p>	DI-2D-2E-2F
233 302	<p style="margin: 0;">UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS</p>	104.06

DI-2D,2E,2F

TABLE OF QUANTITIES

TYPE	L	Concrete	REINFORCING STEEL																				
			BARS A		BARS A-1		BARS B		BARS B-1		BARS D		BARS D-1		BARS E		BARS F		BARS L		BARS M		WEIGHT
			No.	mm	No.	mm	No.	mm	No.	mm	No.	mm	No.	mm	No.	mm	No.	mm	No.	mm	No.	mm	
Meters	Cu. Meters																						
DI-2D	1.42	3.45	1	1720	5	1720	7	960	-	-	13	2030	13	1720	-	-	-	-	12	1720	13	300	140
DI-2E	1.8	3.60	1	1720	5	2130	7	960	3	1290 to 1370	13	2030	13	1720	3	300	3	450	12	1720	13	300	153
	2.4	3.85	1	1720	5	2740	7	960	7	1290 to 1370	13	2030	13	1720	3	910	3	450	12	1720	13	300	169
	3.0	4.05	1	1720	5	3350	7	960	10	1290 to 1370	13	2030	13	1720	3	1520	3	450	12	1720	13	300	183
	3.6	4.30	1	1720	5	3960	7	960	15	1290 to 1370	13	2030	13	1720	3	2130	3	450	12	1720	13	300	201
	4.2	4.55	1	1720	5	4570	7	960	19	1290 to 1370	13	2030	13	1720	3	2740	3	450	12	1720	13	300	216
	4.8	4.80	1	1720	5	5180	7	960	23	1290 to 1370	13	2030	13	1720	3	3350	3	450	12	1720	13	300	232
	5.4	5.05	1	1720	5	5790	7	960	27	1290 to 1370	13	2030	13	1720	3	3960	3	450	12	1720	13	300	248
DI-2F	6.0	5.30	1	1720	5	6400	7	960	31	1290 to 1370	13	2030	13	1720	3	4570	3	450	12	1720	13	300	264
	1.8	3.60	1	1720	5	2130	7	960	2	1290 to 1370	13	2030	13	1720	6	300	6	450	12	1720	13	300	154
	2.4	3.85	1	1720	5	2740	7	960	6	1290 to 1370	13	2030	13	1720	6	600	6	450	12	1720	13	300	170
	3.0	4.05	1	1720	5	3350	7	960	10	1290 to 1370	13	2030	13	1720	6	910	6	450	12	1720	13	300	186
	3.6	4.30	1	1720	5	3960	7	960	14	1290 to 1370	13	2030	13	1720	6	1210	6	450	12	1720	13	300	202
	4.2	4.55	1	1720	5	4570	7	960	18	1290 to 1370	13	2030	13	1720	6	1520	6	450	12	1720	13	300	218
	4.8	4.80	1	1720	5	5180	7	960	22	1290 to 1370	13	2030	13	1720	6	1820	6	450	12	1720	13	300	234
	5.4	5.05	1	1720	5	5790	7	960	26	1290 to 1370	13	2030	13	1720	6	2130	6	450	12	1720	13	300	249
	6.0	5.30	1	1720	5	6400	7	960	30	1290 to 1370	13	2030	13	1720	6	2430	6	450	12	1720	13	300	265

* Denotes length of one (1) bar

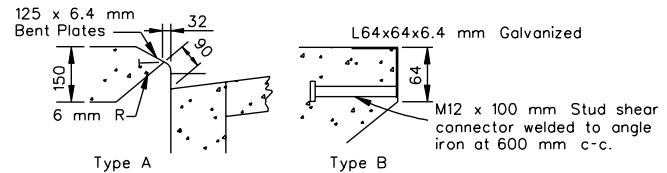
Notes:

All reinforcing bars to be #16

All cast in place concrete to be Class 20. For acceptable alternate see Precast Standard Designs.

Concrete quantities shown are for depth (H) of 1.5 m without pipes. The amount displaced by pipes must be deducted to obtain true quantities. For inlets of different depths add or subtract 1.58 m³ of concrete for each meter of difference in depth.

Length of Angle Iron as shown on Sheet 1 is to be L + 0.4 m @ 6.1 kg per meter.



NOSE DETAILS

Type A nose detail shall be used with CG-7 Standard.

Type B nose detail shall be used with CG-6 Standard.

Galvanized plate to be bent on an angle of 68° 30' and is to be anchored with M12 x 100 mm stud shear connectors welded to bent plate at 600 mm c-c.

Sheet 2 of 2

STANDARD CURB DROP INLET

750 mm - 1200 mm PIPE MAXIMUM DEPTH (H)=2.7 m

104.07

UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

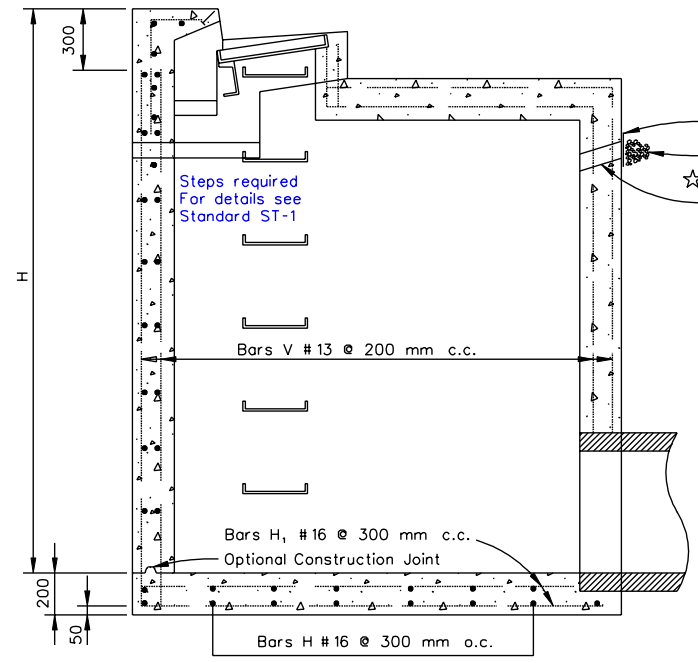
VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION
REFERENCE

233
302

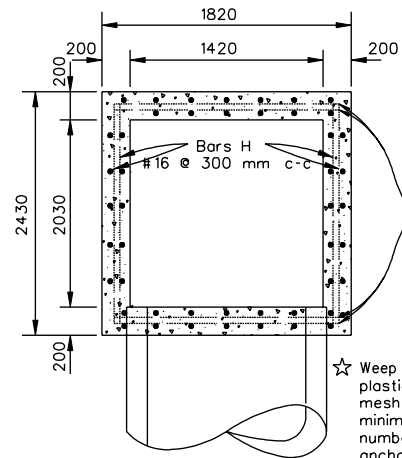
Note:

See Standard SL-1 for applicability of safety slabs.
 For details and dimensions of curb, slot, beam, collar and grate, dropped gutter line, and reinforcing and structural steel not detailed see Standard DI-2D.
 The "H" dimension shown on the Standards and specified on the plans will be measured from the invert of the outfall pipe to the top of the structure. Plan "H" dimensions are approximate only for estimating purposes and the actual dimensions shall be determined by the contractor from field conditions.



Note:

When specified on plans the invert is to be shaped in accordance with Standard IS-1.
 The cost of furnishing and placing all materials incidental to the shaping is to be included in the price bid for the drop inlet complete.



In the event the invert of the outfall pipe is higher than the bottom of the structure, the invert of the structure shall be shaped with cement mortar to prevent standing or ponding of water in the structure. The cost for invert shaping shall be included in the price bid for the structure.

Notes:

- All cast in place concrete to be Class 20. For acceptable alternate see Precast Standard Designs.
- Minimum depth (H) to be 2.7 m. Maximum depth to be 6.1 m. For inlets less than 2.7 m use Standard DI-2D,2E,2F. Depth of inlet (H) to be as shown on plans.
- Length of slot (L) will, in all cases, be shown on plans.
- This standard is intended for use in curb and gutter situations only.
- For plan view of inlet see Standard DI-2D,2E,2F.
- If optional construction joint is used it is to be keyed. All splices in Bars V to be a minimum of 40 x diameter (520 mm).
- When specified on plans invert is to be shaped in accordance with Standard Plan IS-1.
- This item may be precast or cast in place.

- * For description and location of dimension L see sheet 104.06.
 - ** For number of Bars A-M required and lengths see sheet 104.07.
- Quantities shown are for minimum inlets of each type. For inlets of greater depth (H) or longer slots (L) increments shown per meter must be added.
 The amount of concrete and steel displaced by pipes must be deducted to obtain true quantities.
 12 mm dia. x 200 mm Smooth Dowels @ approx. 300 mm c-c to be placed in all areas adjacent to abutting concrete to prevent settlement.
 In lieu of dowels a 50 mm x 100 mm notch may be provided. See Standard T-DI-3.4 alternate design.

APPROXIMATE QUANTITIES FOR MINIMUM 2.7 m DEPTH INLET				INCREMENTS TO BE ADDED FOR EACH ADDITIONAL METER OF DEPTH (H) AND/OR SLOT LENGTH (L)			
TYPE	DIMENSION L *	REINFORCING STEEL	CONC.	H		L	
	Meters	kg	m ³	m ³ CONC.	Kg STEEL	m ³ CONC.	Kg STEEL
2DD	1.42	655	5.30	1.58	271	—	—
2EE	1.80	668	5.51	1.58	271	0.39	27
2FF	1.80	669	5.55	1.58	271	0.39	26

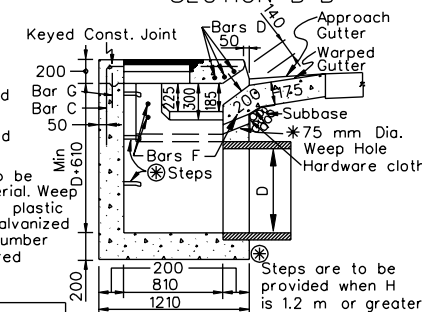
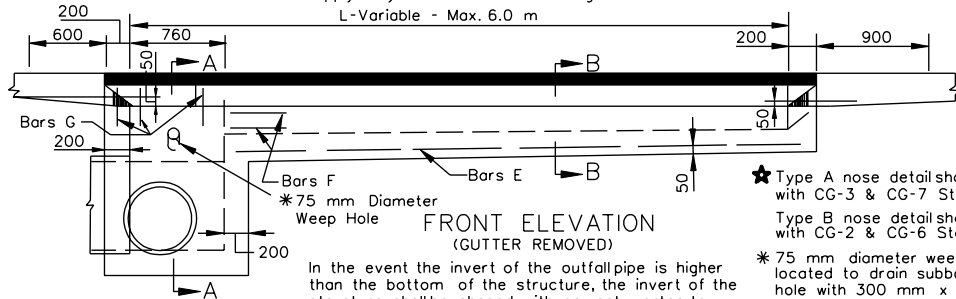
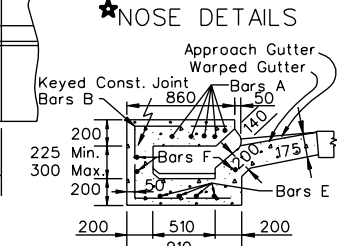
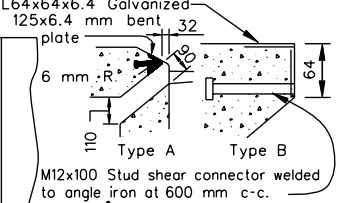
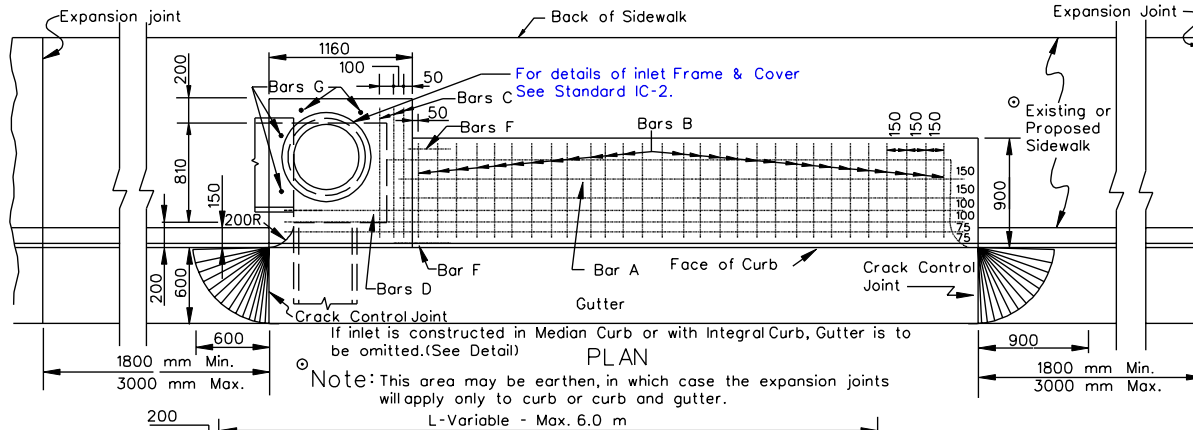
SCHEDULE OF REINFORCING STEEL **					
BARS H		BARS H ₁		BARS V	
NO. REQUIRED	LENGTH m	NO. REQUIRED	LENGTH m	NO. REQUIRED	LENGTH m
4x(H/0.3+1)+16	1.72	4x(H/0.3+1)+12	2.33	76	H-0.35

SPECIFICATION REFERENCE	<h2 style="margin: 0;">STANDARD CURB DROP INLET</h2> <h3 style="margin: 0;">750 mm - 1200 mm PIPE MAXIMUM DEPTH (H) = 2.7 m - 6.1 m</h3>
233 302	VIRGINIA DEPARTMENT OF TRANSPORTATION UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

DI-3A-3B-3C

12 mm diameter x 200 mm Smooth Dowels @ approx. 300 mm c-c to be placed in all areas adjacent to abutting concrete to prevent settlement.

Galvanized plate to be bent on an angle of 68° 30' and is to be anchored with M12x100 mm stud shear connectors welded to bent plate at 600 mm c-c.



Notes:

Standard inlets may be constructed with concrete block in accordance with the details shown on Standard Drawing DI-MB.

In the event the invert of the outfall pipe is higher than the bottom of the structure, the invert of the structure shall be shaped with cement mortar to prevent standing or ponding of water in the structure. The cost for invert shaping shall be included in the price bid for the structure.

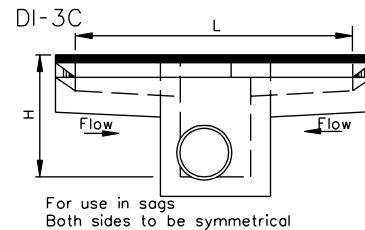
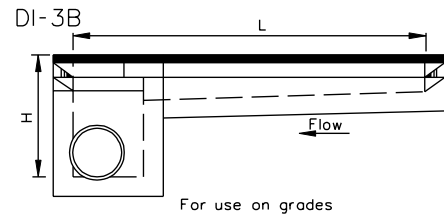
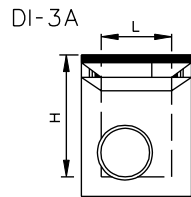
For dimensions and quantities not shown see sheet 2 of 2

Type A nose detail shall be used with CG-3 & CG-7 Standards.

Type B nose detail shall be used with CG-2 & CG-6 Standards.

* 75 mm diameter weep hole to be located to drain subbase material. Weep hole with 300 mm x 300 mm plastic hardware cloth 6.4 mesh or galvanized steelwire diameter 0.76 mm, number 4 mesh hardware cloth anchored firmly to outside of structure.

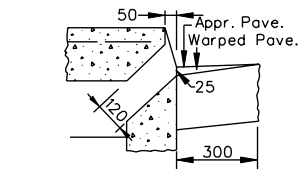
Steps are to be provided when H is 1.2 m or greater. For step details see Standard ST-1.



The "H" dimension shown on the standards and specified on the plans will be measured from the invert of the outfall pipe to the top of the structure. Plan "H" dimensions are approximate only for estimating purposes and the actual dimensions shall be determined by the contractor from field conditions.

When specified on plans the invert is to be shaped in accordance with Standard Plan IS-1. The cost of furnishing and placing all materials incidental to the shaping is to be included in the price bid for the drop inlet complete.

Length of slot (L) will, in every case, be shown on plans. When inlet is used in 1.2 m Median, back of inlet is to be shaped to conform with proposed curb. This item may be precast or cast-in-place.



DETAIL WHEN USED ADJACENT TO CURB WITHOUT GUTTER

Sheet 1 of 2

STANDARD CURB DROP INLET

300 mm - 750 mm PIPE MAXIMUM DEPTH (H)=2.4 m

104.09

UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE

233
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302

TABLE OF QUANTITIES

TYPE	L	AREA OF SLOT	REINFORCING STEEL														WEIGHT Kilograms		
			Concrete	BARS A		BARS B		BARS C		BARS D		BARS E		BARS F		BARS G			
			Cu. Meters	No.	mm *	No.	mm *	No.	mm *	No.	mm *	No.	mm *	No.	mm *	No.		mm *	
DI-3A	0.76	0.105	1.70	-	-	-	-	-	1	1700	3	960	-	-	-	-	6	300	10
DI-3B	1.2	0.168	1.95	5	450	2	2000 to 2080	3	1700	3	960	4	450	3	450	4	300	29	
	1.8	0.252	2.30	5	1060	6	2000 to 2080	3	1700	3	960	4	1060	3	450	4	300	50	
	2.4	0.336	2.60	5	1670	10	2000 to 2080	3	1700	3	960	4	1670	3	450	4	300	71	
	3.0	0.420	2.95	5	2280	14	2000 to 2080	3	1700	3	960	4	2280	3	450	4	300	93	
	3.6	0.511	3.30	5	2890	18	2000 to 2080	3	1700	3	960	4	2890	3	450	4	300	114	
	4.2	0.595	3.65	5	3500	22	2000 to 2080	3	1700	3	960	4	3500	3	450	4	300	135	
	4.8	0.679	3.95	5	4110	26	2000 to 2080	3	1700	3	960	4	4110	3	450	4	300	156	
	5.4	0.763	4.30	5	4720	30	2000 to 2080	3	1700	3	960	4	4720	3	450	4	300	177	
DI-3C	6.0	0.847	4.65	5	5330	34	2000 to 2080	3	1700	3	960	4	5330	3	450	4	300	198	
	1.8	0.252	2.30	10	530	4	2000 to 2080	5	1700	3	960	8	530	6	450	2	300	50	
	2.4	0.336	2.60	10	830	8	2000 to 2080	5	1700	3	960	8	830	6	450	2	300	71	
	3.0	0.420	2.95	10	1140	12	2000 to 2080	5	1700	3	960	8	1140	6	450	2	300	93	
	3.6	0.511	3.30	10	1440	16	2000 to 2080	5	1700	3	960	8	1440	6	450	2	300	114	
	4.2	0.595	3.60	10	1750	20	2000 to 2080	5	1700	3	960	8	1750	6	450	2	300	135	
	4.8	0.679	3.95	10	2050	24	2000 to 2080	5	1700	3	960	8	2050	6	450	2	300	156	
	5.4	0.763	4.30	10	2360	28	2000 to 2080	5	1700	3	960	8	2360	6	450	2	300	177	
6.0	0.847	4.65	10	2660	32	2000 to 2080	5	1700	3	960	8	2660	6	450	2	300	198		

* Denotes length of one (1) bar

Notes:

All reinforcing bars to be #16.

All cast in place concrete to be Class 20. For acceptable alternate see Precast Standard Designs.

Concrete quantities shown are for depth (H) of 1.6 m without pipes. The amount displaced by pipes must be deducted to obtain true quantities. For inlets of different depths add or subtract 0.80 m³ of concrete for each meter of difference in depth.

Length of Angle Iron as shown on Sheet 1 is to be L+0.4 m @ 6.1 kg per meter.

Sheet 2 of 2

SPECIFICATION
REFERENCE

233
302

STANDARD CURB DROP INLET
300 mm - 750 mm PIPE MAXIMUM DEPTH (H)=2.4 m

VIRGINIA DEPARTMENT OF TRANSPORTATION

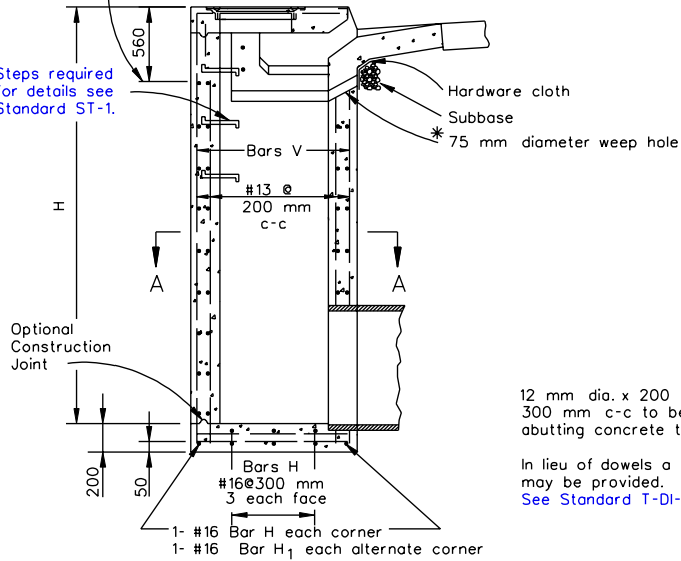
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ON THIS SHEET ARE IN MILLIMETERS

104.10

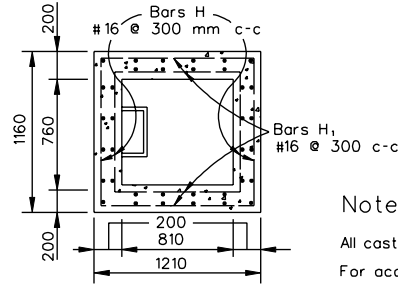
DI-3AA-3BB-3CC

For all details, dimensions, and reinforcing steel above this line see Standard DI-3A,3B 3C.

Steps required for details see Standard ST-1.



* 75 mm diameter weep hole to be located to drain subbase material. Weep hole with 300 mm x 300 mm plastic hardware cloth 6.4 mm mesh or galvanized steelwire, minimum wire diameter 0.76 mm, number 4 mesh hardware cloth anchored firmly to outside of structure.



SECTION A-A

12 mm dia. x 200 mm Smooth Dowels @ approx. 300 mm c-c to be placed in all areas adjacent to abutting concrete to prevent settlement.

In lieu of dowels a 50 mm x 100 mm notch may be provided.
See Standard T-DI-3,4 alternate design.

Notes:

All cast in place concrete to be Class 20.
For acceptable alternate see Precast Standard Designs.

Minimum depth (H) to be 2.4 m. Maximum depth to be 6.1 m. For inlets less than 2.4 m use Standard DI-3A, 3B, 3C.

Length of slot (L) will, in all cases, be shown on plans.
When inlet is used in 1.2 m median, back of inlet is to be shaped to conform with proposed curb.

For plan view of inlet see Standard DI-3A,3B,3C.
If optional construction joint is used it is to be keyed.

All splices in Bars V to be a minimum of 40 x d(520 mm).

When specified on plans invert is to be shaped in accordance with Standard Plan IS-1.

This item may be precast or cast in place.

TYPE	DIMENSION L*	REINFORCING STEEL	CONCRETE	INCREMENTS TO BE ADDED FOR EACH ADDITIONAL METER OF DEPTH (H) AND/OR SLOT LENGTH (L)			
				H		L	
				CONCRETE	STEEL	CONCRETE	STEEL
DI-	Meters	kg	Cu. Meters	Cu. Meters	kg	Cu. Meters	kg
3AA	0.76	205	2.40	0.795	94	-	-
3BB	1.20	224	2.65	0.795	94	0.551	35
3CC	1.80	245	2.97	0.795	94	0.551	35

SCHEDULE OF REINFORCING STEEL **					
BARS H		BARS H ₁		BARS V	
NO. REQ'D.	LENGTH (m)	NO. REQ'D.	LENGTH (m)	NO. REQ'D.	LENGTH (m)
4x(H/0.3+1)	1.06	4x(H/0.3+1)	1.11	36	H-0.35

The "H" dimension shown on the Standards and specified on the plans will be measured from the invert of the outfall pipe to the top of the structure. Plan "H" dimensions are approximate only for estimating purposes and the actual dimensions shall be determined by the contractor from field conditions.

* For description and location of dimension L see sheet 104.09.
** For number of Bars A-G required and lengths see sheet 104.10.

Quantities shown are for minimum inlets of each type. For inlets of greater depth (H) or longer slots (L) increments shown per meter must be added. The amount of concrete and steel displaced by pipes must be deducted to obtain true quantities.

In the event the invert of the outfall pipe is higher than the bottom of the structure, the invert of the structure shall be shaped with cement mortar to prevent standing or ponding of water in the structure.

STANDARD CURB DROP INLET

300 mm - 750 mm PIPE DEPTH (H) 2.4 m - 6.1 m

SPECIFICATION REFERENCE

233
302

104.11

UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

VIRGINIA DEPARTMENT OF TRANSPORTATION

DI-3D-3E-3F

TABLE OF QUANTITIES

TYPE	L	AREA OF SLOT	REINFORCING STEEL																		
			Concrete		BARS A		BARS B		BARS C		BARS D		BARS E		BARS F		BARS G		BARS H		WEIGHT
			Meters	Sq. Meters	No.	mm	No.	mm	No.	mm	No.	mm	No.	mm	No.	mm	No.	mm	No.	mm	
DI-3D	0.76	0.105	2.45	5	960	-	-	1	2430	3	960	-	-	-	-	10	300	4	930	26	
DI-3E	1.2	0.168	2.70	5	1420	2	2000 to 2080	3	2430	3	960	4	450	3	450	8	300	4	930	48	
	1.8	0.252	3.00	5	2030	6	2000 to 2080	3	2430	3	960	4	1060	3	450	8	300	4	930	69	
	2.4	0.336	3.35	5	2640	10	2000 to 2080	3	2430	3	960	4	1670	3	450	8	300	4	930	90	
	3.0	0.420	3.70	5	3250	14	2000 to 2080	3	2430	3	960	4	2280	3	450	8	300	4	930	111	
	3.6	0.511	4.00	5	3860	18	2000 to 2080	3	2430	3	960	4	2890	3	450	8	300	4	930	132	
	4.2	0.595	4.35	5	4470	22	2000 to 2080	3	2430	3	960	4	3500	3	450	8	300	4	930	154	
	4.8	0.679	4.70	5	5080	26	2000 to 2080	3	2430	3	960	4	4110	3	450	8	300	4	930	175	
	5.4	0.763	5.05	5	5680	30	2000 to 2080	3	2430	3	960	4	4720	3	450	8	300	4	930	196	
	6.0	0.847	5.35	5	6290	34	2000 to 2080	3	2430	3	960	4	5330	3	450	8	300	4	930	217	
	DI-3F	1.8	0.252	3.00	5	2030	4	2000 to 2080	5	2430	3	960	8	530	6	450	6	300	4	930	71
2.4		0.336	3.35	5	2640	8	2000 to 2080	5	2430	3	960	8	830	6	450	6	300	4	930	92	
3.0		0.420	3.70	5	3250	12	2000 to 2080	5	2430	3	960	8	1140	6	450	6	300	4	930	113	
3.6		0.511	4.00	5	3860	16	2000 to 2080	5	2430	3	960	8	1440	6	450	6	300	4	930	135	
4.2		0.595	4.35	5	4470	20	2000 to 2080	5	2430	3	960	8	1750	6	450	6	300	4	930	156	
4.8		0.679	4.70	5	5080	24	2000 to 2080	5	2430	3	960	8	2050	6	450	6	300	4	930	177	
5.4		0.763	5.00	5	5680	28	2000 to 2080	5	2430	3	960	8	2360	6	450	6	300	4	930	198	
6.0		0.847	5.35	5	6290	32	2000 to 2080	5	2430	3	960	8	2660	6	450	6	300	4	930	219	

* Denotes length of one (1) bar

Notes:

All reinforcing bars to be #16.

All cast in place concrete to be Class 20. For acceptable alternate see Precast Standard Designs. Concrete quantities shown are for depth (H) of 1.6 m without pipes. The amount displaced by pipes must be deducted to obtain true quantities. For inlets of different depths add or subtract 1.10 m³ of concrete for each meter of difference in depth.

Length of Angle Iron as shown on Sheet 1 is to be L+0.4 m @ 6.1kg per meter.

Sheet 2 of 2

STANDARD CURB DROP INLET
300 mm - 750 mm PIPE MAXIMUM DEPTH (H)=2.4 m

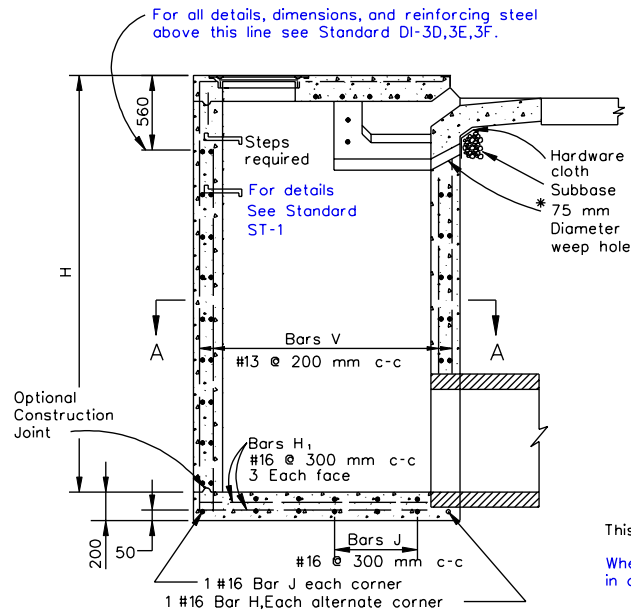
SPECIFICATION REFERENCE

233
302

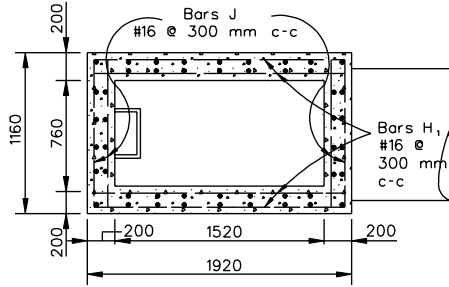
104.13

UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

VIRGINIA DEPARTMENT OF TRANSPORTATION



* 75 mm Diameter weep hole to be located to drain subbase material. Weep hole with 300 mm x 300 mm plastic hardware cloth 6.4 mm mesh or galvanized steel wire, minimum wire diameter 0.76 mm, number 4 mesh hardware cloth anchored firmly to outside of structure.



SECTION A-A

Notes:

All cast in place concrete to be Class 20. For acceptable alternate see Precast Standard Designs.

Minimum depth (H) to be 2.4 m., maximum depth to be 6.1 m. For inlets less than 2.4 m use Standard DI-3D,3E,3F.

Length of slot (L) will, in all cases, be shown on plans.

For plan view of inlet see Standard DI-3D,3E,3F.

If optional construction joint is used it is to be keyed.

All splices in Bars V to lap a minimum of 40 x diameter (500 mm).

See Standard SL-1 for applicability of safety slabs.

This item may be precast or cast in place.

When specified on plans invert is to be shaped in accordance with Standard Plan IS-1.

APPROXIMATE QUANTITIES FOR MINIMUM 2.4 m DEPTH INLET				INCREMENTS TO BE ADDED FOR EACH ADDITIONAL METER OF DEPTH (H) AND/OR SLOT LENGTH (L)			
Type	Dimension L* meters	Reinforcing Steel kg	Concrete Cu. meters	H		L	
				Cu. meters Concrete	kg Steel	Cu. meters Concrete	kg Steel
3DD	0.76	297	3.35	1.08	120	-	-
3EE	1.20	319	3.60	1.08	120	0.55	35
3FF	1.80	342	3.92	1.08	120	0.55	35

SCHEDULE OF REINFORCING STEEL **					
Bars J		Bars H ₁		Bars V	
No. Req'd.	Length (m)	No. Req'd.	Length (m)	No. Req'd.	Length (m)
4x(H/0.3)+8	1.06	4x(H/0.3)+4	1.82	52	H-0.4

The "H" dimension shown on the Standards and specified on the plans will be measured from the invert of the outfall pipe to the top of the structure. Plan "H" dimensions are approximate only for estimating purposes and the actual dimensions shall be determined by the contractor from field conditions.

* For description and location of dimension L see sheet 104.12.

** For number of Bars A-H required and lengths see sheet 104.13.

Quantities shown are for minimum inlets of each type. For inlets of greater depth (H) or longer slots (L) increments shown per meter must be added.

The amount of concrete and steel displaced by pipes must be deducted to obtain true quantities.

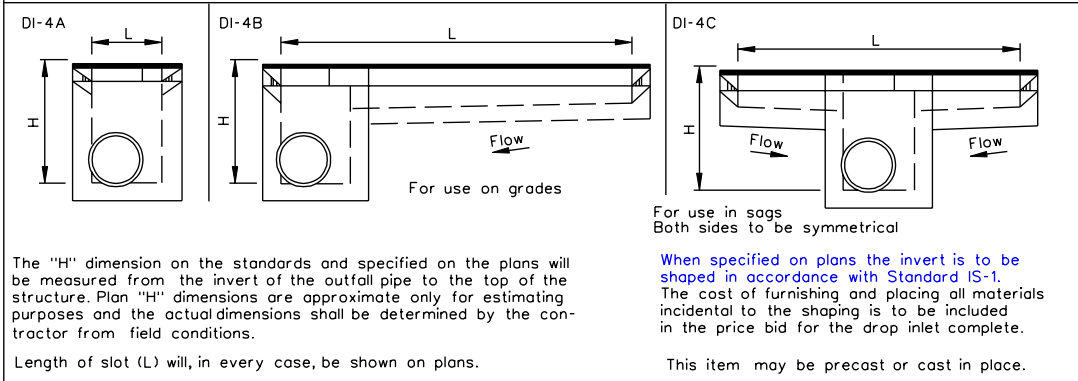
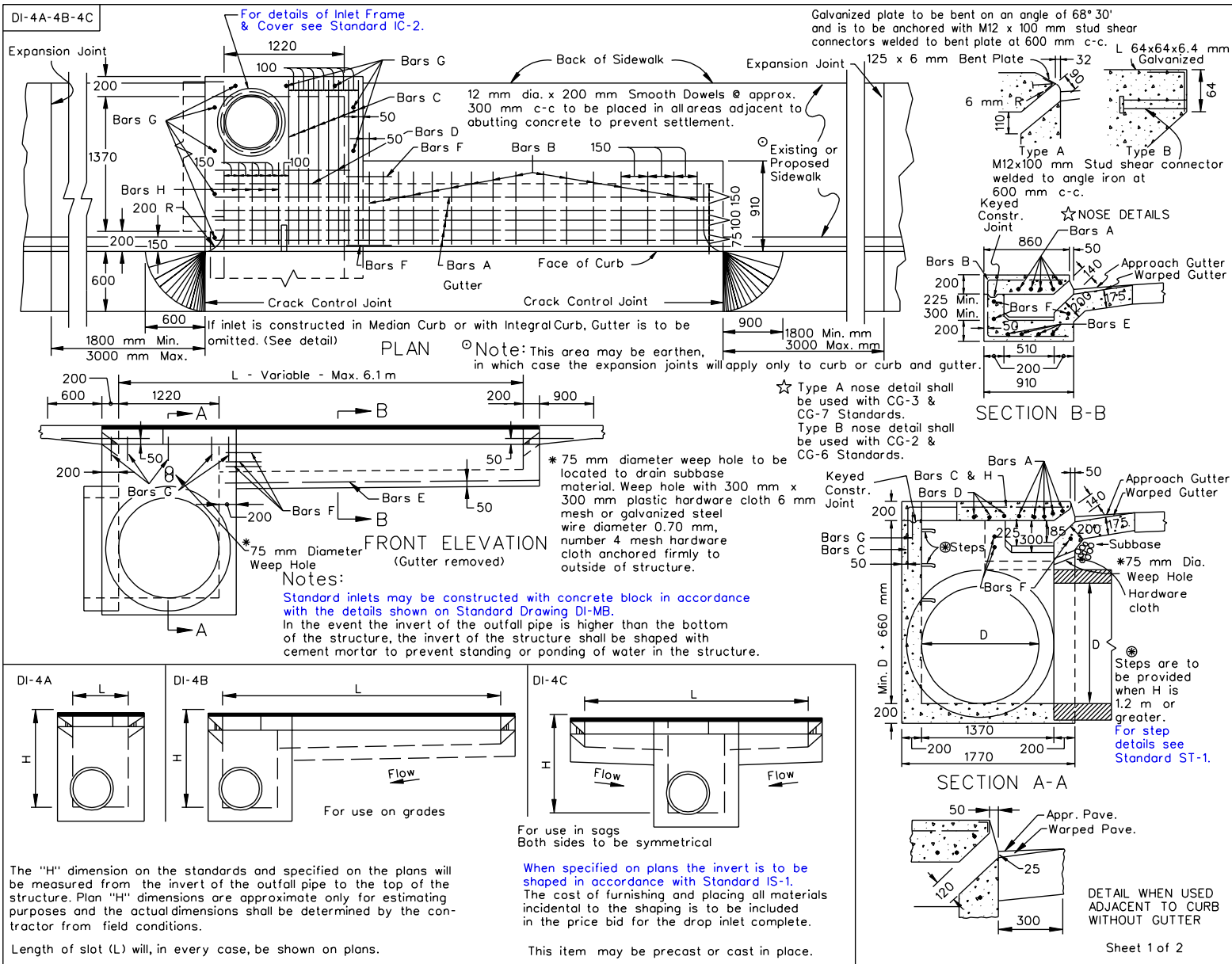
In the event the invert of the outfall pipe is higher than the bottom of the structure, the invert of the structure shall be shaped with cement mortar to prevent standing or ponding of water in the structure.

12 mm dia. x 200 mm Smooth Dowels @ approx. 300 mm c-c to be placed in all areas adjacent to abutting concrete to prevent settlement.

In lieu of dowels a 50 mm x 100 mm notch may be provided.

See Standard T-DI-3.4 alternate design.

SPECIFICATION REFERENCE	<p>STANDARD CURB DROP INLET</p> <p>300 mm - 750 mm PIPE DEPTH (H) 2.4 m - 6.1 m</p>
233 302	<p>VIRGINIA DEPARTMENT OF TRANSPORTATION</p> <p>UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS</p>
	104.14



The "H" dimension on the standards and specified on the plans will be measured from the invert of the outfall pipe to the top of the structure. Plan "H" dimensions are approximate only for estimating purposes and the actual dimensions shall be determined by the contractor from field conditions.

Length of slot (L) will, in every case, be shown on plans.

STANDARD CURB DROP INLET

900 mm - 1200 mm PIPE MAXIMUM DEPTH (H) = 2.4 m

104.15 UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE

233
302

TABLE OF QUANTITIES

TYPE	L Meters	AREA OF SLOT Sq. Meters	Concrete Cu. Meters	REINFORCING STEEL																
				BARS A		BARS B		BARS C		BARS D		BARS E		BARS F		BARS G		BARS H		WEIGHT Kilograms
				No.	mm	No.	mm	No.	mm	No.	mm	No.	mm	No.	mm	No.	mm	No.	mm	
DI-4A	1.22	0.168	3.55	5	1420	-	-	8	2280	2	1420	-	-	-	-	9	300	4	810	53
DI-4B	1.8	0.252	3.85	5	2030	3	2000 to 2080	8	2280	2	1420	4	600	3	450	9	300	4	810	73
	2.4	0.336	4.20	5	2640	7	2000 to 2080	8	2280	2	1420	4	1210	3	450	9	300	4	810	94
	3.0	0.420	4.55	5	3250	11	2000 to 2080	8	2280	2	1420	4	1820	3	450	9	300	4	810	115
	3.6	0.511	4.85	5	3860	15	2000 to 2080	8	2280	2	1420	4	2430	3	450	9	300	4	810	137
	4.2	0.595	5.20	5	4470	19	2000 to 2080	8	2280	2	1420	4	3040	3	450	9	300	4	810	158
	4.8	0.679	5.55	5	5080	23	2000 to 2080	8	2280	2	1420	4	3650	3	450	9	300	4	810	179
	5.4	0.763	5.90	5	5680	27	2000 to 2080	8	2280	2	1420	4	4260	3	450	9	300	4	810	200
DI-4C	6.0	0.847	6.25	5	6290	31	2000 to 2080	8	2280	2	1420	4	4870	3	450	7	300	4	810	221
	2.4	0.336	4.15	5	2640	6	2000 to 2080	10	2280	2	1420	8	600	6	450	7	300	4	810	99
	3.0	0.420	4.50	5	3250	10	2000 to 2080	10	2280	2	1420	8	910	6	450	7	300	4	810	120
	3.6	0.511	4.85	5	3860	14	2000 to 2080	10	2280	2	1420	8	1210	6	450	7	300	4	810	142
	4.2	0.595	5.20	5	4470	18	2000 to 2080	10	2280	2	1420	8	1520	6	450	7	300	4	810	163
	4.8	0.679	5.55	5	5080	22	2000 to 2080	10	2280	2	1420	8	1820	6	450	7	300	4	810	184
	5.4	0.763	5.85	5	5680	26	2000 to 2080	10	2280	2	1420	8	2130	6	450	7	300	4	810	205
6.0	0.847	6.20	5	6290	30	2000 to 2080	10	2280	2	1420	8	2430	6	450	7	300	4	810	226	

* Denotes length of one (1) bar

Notes:

All reinforcing bars to be #16.

All cast in place concrete to be Class 20. For acceptable alternate see Precast Standard Designs.

Concrete quantities shown are for depth (H) of 2.1 m without pipes. The amount displaced by pipes must be deducted to obtain true quantities. For inlets of different depths add or subtract 1.23 m³ of concrete for each meter of difference in depth.

Length of Angle Iron as shown on Sheet 1 is to be L + 0.4 m @ 6.10 kg per meter.

Sheet 2 of 2

SPECIFICATION
REFERENCE

233
302

STANDARD CURB DROP INLET
900 mm - 1200 mm PIPE MAXIMUM DEPTH (H) = 2.4 m

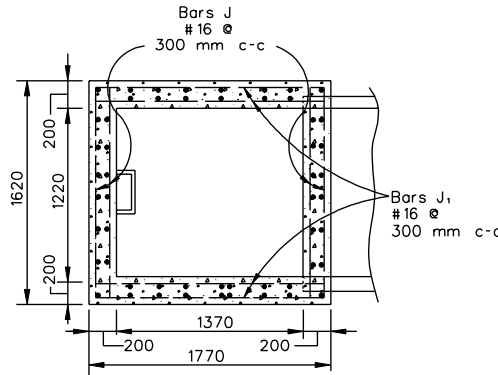
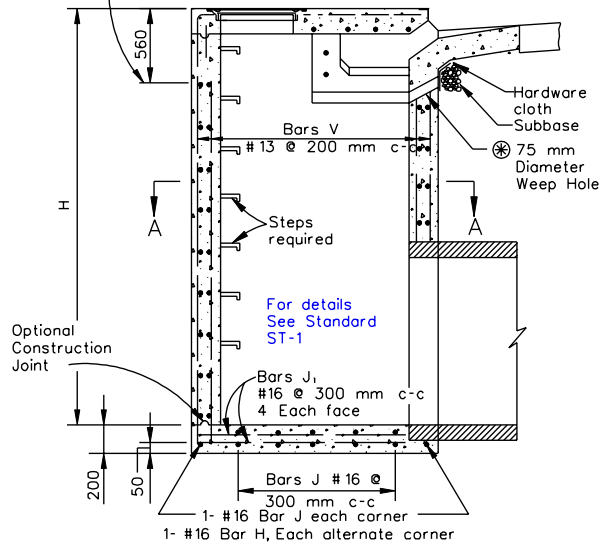
VIRGINIA DEPARTMENT OF TRANSPORTATION

UNLESS OTHERWISE NOTED, ALL DIMENSIONS
ON THIS SHEET ARE IN MILLIMETERS

104.16

DI-4AA-4BB-4CC

For all details, dimensions, and reinforcing steel above this line see Standard DI-4A,4B 4C.



SECTION A-A

⊗ 75 mm Diameter weep hole to be located to drain subbase material. Weep hole with 300 mm x 300 mm plastic hardware cloth 6.4 mm mesh or galvanized steel wire, minimum wire diameter 0.75 mm, number 4 mesh hardware cloth anchored firmly to outside of structure.

Notes:

All cast in place concrete to be Class 20. For acceptable alternate see Precast Standard Designs.

Minimum depth of inlet (H) to be 2.4 m. Maximum depth to be 6.1 m. For inlets less than 2.4 m use Standard DI-4A, 4B, 4C.

Length of slot (L) will, in all cases, be shown on plans.

For plan view of inlet see Standard DI-4A, 4B, 4C.

If optional construction joint is used it is to be keyed. All splices in Bars V to lap a minimum of 40 x d(520 mm).

When specified on plans the invert is to be shaped in accordance with Standard Plan IS-1.

This item may be precast or cast in place.

APPROXIMATE QUANTITIES FOR MINIMUM 2.4 m DEPTH INLET				INCREMENTS TO BE ADDED FOR EACH ADDITIONAL METER OF DEPTH (H) AND/OR SLOT LENGTH (L)			
Type	Dimension L*	Reinforcing Steel	Conc.	H		L	
				Conc. Cu. Meters	kg. Steel	Conc. Cu. Meters	kg. Steel
DI-	m	kg.	m ³	1.202	160	-	-
4AA	1.22	368	3.93	1.202	160	0.55	35
4BB	1.80	388	4.25	1.202	160	0.55	35
4CC	2.40	414	4.57	1.202	160	0.55	35

SCHEDULE OF REINFORCING STEEL **					
BARS J		BARS J ₁		BARS V	
No. Req'd.	Length (m)	No. Req'd.	Length (m)	No. Req'd.	Length (m)
4x(H/0.30)+2	1.52 m	4x(H/0.30)+6	1.67 m	60	H-0.35

The "H" dimension shown on the Standards and specified on the plans will be measured from the invert of the outfall pipe to the top of the structure. Plan "H" dimensions are approximate only for estimating purposes and the actual dimensions shall be determined by the contractor from field conditions.

- * For description and location of dimension L see sheet 104.15.
- ** For number of Bars A-H required and lengths see sheet 104.16.

Quantities shown are for minimum inlets of each type. For inlets of greater depth (H) or longer slots (L) increments shown per meter must be added.

The amount of concrete and steel displaced by pipes must be deducted to obtain true quantities.

In the event the invert of the outfall pipe is higher than the bottom of the structure, the invert of the structure shall be shaped with cement mortar to prevent standing or ponding of water in the structure.

12 mm dia. x 200 mm Smooth Dowels @ approx. 300 mm c-c to be placed in all areas adjacent to abutting concrete to prevent settlement.

In lieu of dowels a 50 mm x 100 mm notch may be provided. See Standard T-DI-3,4 alternate design.

STANDARD CURB DROP INLET
900 mm - 1200 mm PIPE DEPTH (H) 2.4 m - 6.1 m

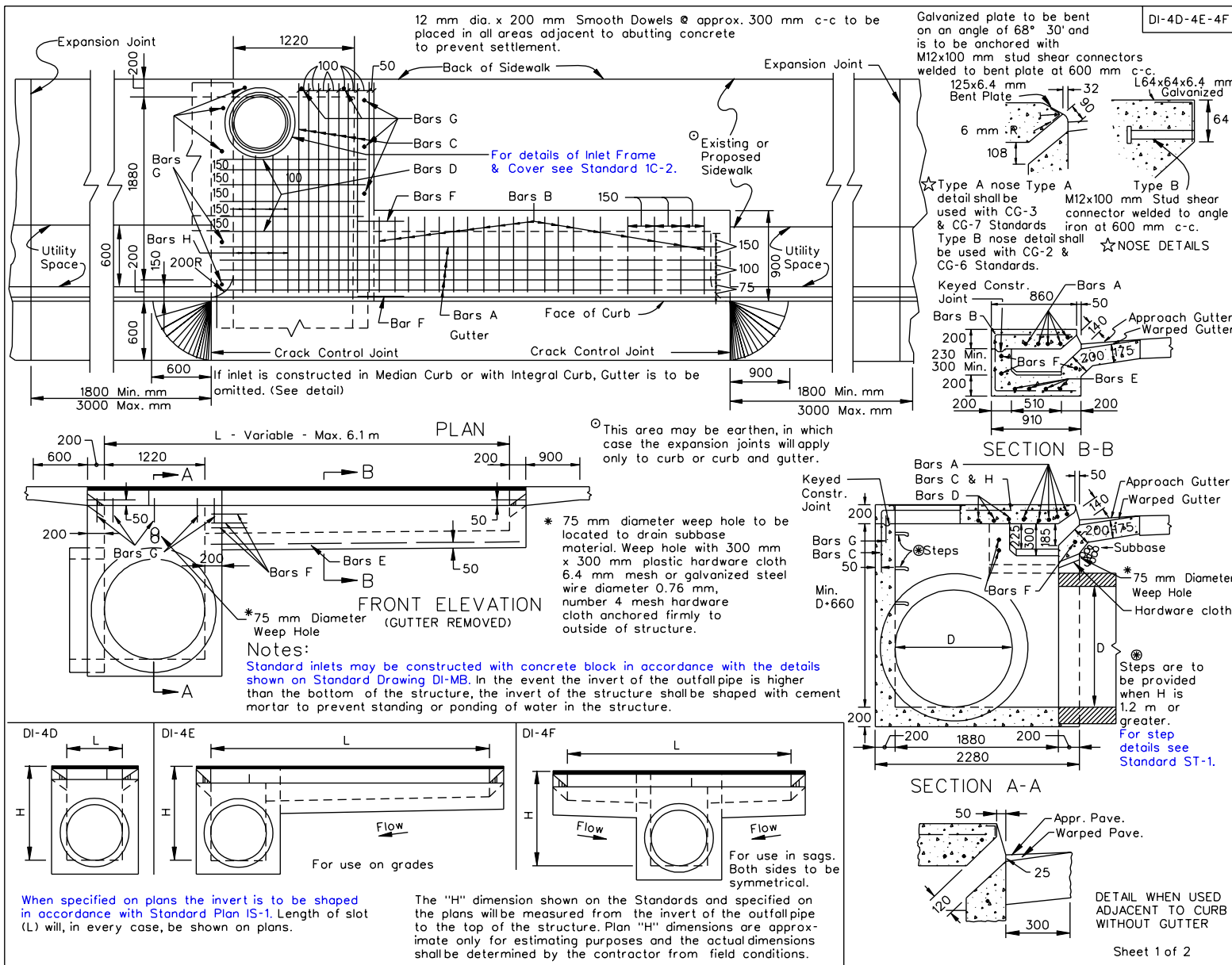
SPECIFICATION REFERENCE

233
302

104.17

UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

VIRGINIA DEPARTMENT OF TRANSPORTATION



SPECIFICATION REFERENCE	<h3 style="margin: 0;">STANDARD CURB DROP INLET</h3> <p style="margin: 0;">900 mm - 1200 mm PIPE MAXIMUM DEPTH (H) = 2.4 m</p> <p style="margin: 0; font-size: small;">VIRGINIA DEPARTMENT OF TRANSPORTATION</p>	<p style="margin: 0; font-size: small;">UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS</p> <p style="margin: 0; font-size: small;">104.18</p>
<p>233</p> <p>302</p>		

DI-4D-4E-4F

TABLE OF QUANTITIES

TYPE	L Meters	AREA OF SLOT Sq. Meters	Concrete Cu. Meters	REINFORCING STEEL																WEIGHT Kilograms
				BARS A		BARS B		BARS C		BARS D		BARS E		BARS F		BARS G		BARS H		
				No.	mm	No.	mm	No.	mm	No.	mm	No.	mm	No.	mm	No.	mm	No.	mm	
DI-4D	1.22	0.168	4.25	5	1420	-	-	6	2790	6	1420	-	-	-	-	13	300	4	1370	65
DI-4E	1.8	0.252	4.60	5	2030	3	2000 to 2080	8	2790	6	1420	4	600	3	450	11	300	4	1370	93
	2.4	0.336	4.90	5	2640	7	2000 to 2080	8	2790	6	1420	4	1210	3	450	11	300	4	1370	114
	3.0	0.420	5.25	5	3250	11	2000 to 2080	8	2790	6	1420	4	1820	3	450	11	300	4	1370	135
	3.6	0.511	5.60	5	3860	15	2000 to 2080	8	2790	6	1420	4	2430	3	450	11	300	4	1370	156
	4.2	0.595	5.95	5	4470	19	2000 to 2080	8	2790	6	1420	4	3040	3	450	11	300	4	1370	177
	4.8	0.679	6.30	5	5080	23	2000 to 2080	8	2790	6	1420	4	3650	3	450	11	300	4	1370	199
	5.4	0.763	6.60	5	5680	27	2000 to 2080	8	2790	6	1420	4	4260	3	450	11	300	4	1370	220
DI-4F	6.0	0.847	6.95	5	6290	31	2000 to 2080	8	2790	6	1420	4	4870	3	450	11	300	4	1370	241
	2.4	0.336	4.90	5	2640	6	2000 to 2080	10	2790	6	1420	8	600	6	450	9	300	4	1370	120
	3.0	0.420	5.25	5	3250	10	2000 to 2080	10	2790	6	1420	8	910	6	450	9	300	4	1370	142
	3.6	0.511	5.55	5	3860	14	2000 to 2080	10	2790	6	1420	8	1210	6	450	9	300	4	1370	163
	4.2	0.595	5.90	5	4470	18	2000 to 2080	10	2790	6	1420	8	1520	6	450	9	300	4	1370	184
	4.8	0.679	6.25	5	5080	22	2000 to 2080	10	2790	6	1420	8	1820	6	450	9	300	4	1370	205
	5.4	0.763	6.60	5	5680	26	2000 to 2080	10	2790	6	1420	8	2130	6	450	9	300	4	1370	226
	6.0	0.847	6.95	5	6290	30	2000 to 2080	10	2790	6	1420	8	2430	6	450	9	300	4	1370	247

* Denotes length of one (1) bar

Notes:

All reinforcing bars to be #16.

All cast in place concrete to be Class 20. For acceptable alternate see Precast Standard Designs.

Concrete quantities shown are for depth (H) of 2.1 m without pipes. The amount displaced by pipes must be deducted to obtain true quantities. For inlets of different depths add or subtract 1.43 m³ of concrete for each meter of difference in depth.

Length of Angle Iron as shown on Sheet 1 is to be L*0.4 m @ 6.1 kg per meter.

Sheet 2 of 2

STANDARD CURB DROP INLET
900 mm - 1200 mm PIPE MAXIMUM DEPTH (H) = 2.4 m

SPECIFICATION
REFERENCE

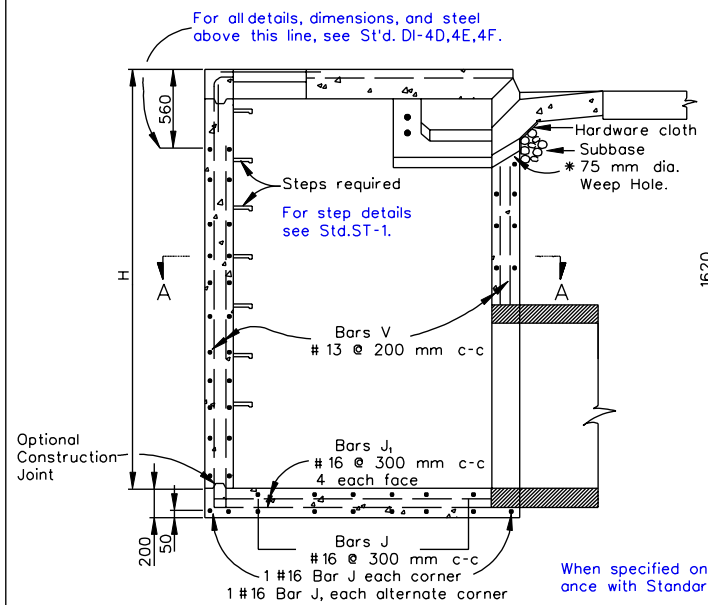
233
302

104.19

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ON THIS SHEET ARE IN MILLIMETERS

VIRGINIA DEPARTMENT OF TRANSPORTATION

DI-4DD,4EE,4FF



This item may be precast or cast in place.
* 75 diameter weep hole to be located to drain subbase.
Weep hole with 300 mm x 300 mm plastic hardware cloth 6.4 mm mesh or galvanized steel wire, minimum wire diameter 0.76 mm, number 4 mesh hardware cloth anchored firmly to outside of structure.

Notes:

The "H" dimensions shown on the Standards and specified on the plans will be measured from the invert of the outfallpipe to the top of the structure. Plan "H" dimensions are approximate only for estimating purposes and the actual dimensions shall be determined by the contractor from field conditions.

12 mm dia. x 200 mm Smooth Dowels @ approx. 300 mm c-c to be placed in all areas adjacent to abutting concrete to prevent settlement.

In lieu of dowels a 50 mm x 100 mm notch may be provided. See standard T-DI-3,4 alternate design.

In the event the invert of the outfallpipe is higher than the bottom of the structure, the invert of the structure shall be shaped with cement mortar to prevent standing or ponding of water in the structure.

All cast in place concrete to be Class 20. For acceptable alternate see Precast Standard Designs.

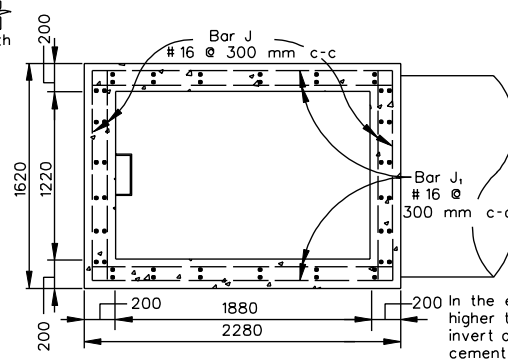
Minimum depth (H) to be 2.4 m, maximum depth to be 4.9 m. For inlets less than 2.4 m use Standard DI-4D,4E,4F.

Length of slot (L) will, in all cases, be shown on plans.

For plan view of inlet see Standard DI-4D,4E,4F.

If optional construction joint is used it is to be keyed.

All splices in Bar V to lap a minimum of 40 X d(520 mm).



When specified on plans the invert is to be shaped in accordance with Standard Plan IS-1.

APPROXIMATE QUANTITIES FOR MINIMUM 2.4 m DEPTH INLET				INCREMENTS TO BE ADDED FOR EACH ADDITIONAL METER OF DEPTH (H) AND/OR SLOT LENGTH (L)			
TYPE	DIMENSION L *	REINFORCING STEEL	CONC.	H		L	
				CONC. CUB. METERS	kg STEEL	CONC. CUB. METERS	kg STEEL
DI-	meters	kg	m ³	1.404	192	0.55	35
4DD	1.22	436	4.74	1.404	192	0.55	35
4EE	1.80	464	5.05	1.404	192	0.55	35
4FF	2.40	491	5.37	1.404	192	0.55	35

- * For description and location of dimensions L see sheet 104.18.
- ** For number of Bars A-H required and lengths see sheet 104.19.

Quantities shown are for minimum inlets of each type. For inlets of greater depth (H) or longer slots (L) increments shown per meter must be added.

The amount of concrete and steel displaced by pipes must be deducted to obtain true quantities.

SCHEDULE OF REINFORCING STEEL **					
BARS J		BARS J ₁		BARS V	
NO. REQ'D.	LENGTH (m)	NO. REQ'D.	LENGTH (m)	NO. REQ'D.	LENGTH (m)
4X(H/0.30)+10	1.52 m	4X(H/0.30)+6	2.18 m	72	H-0.4 m

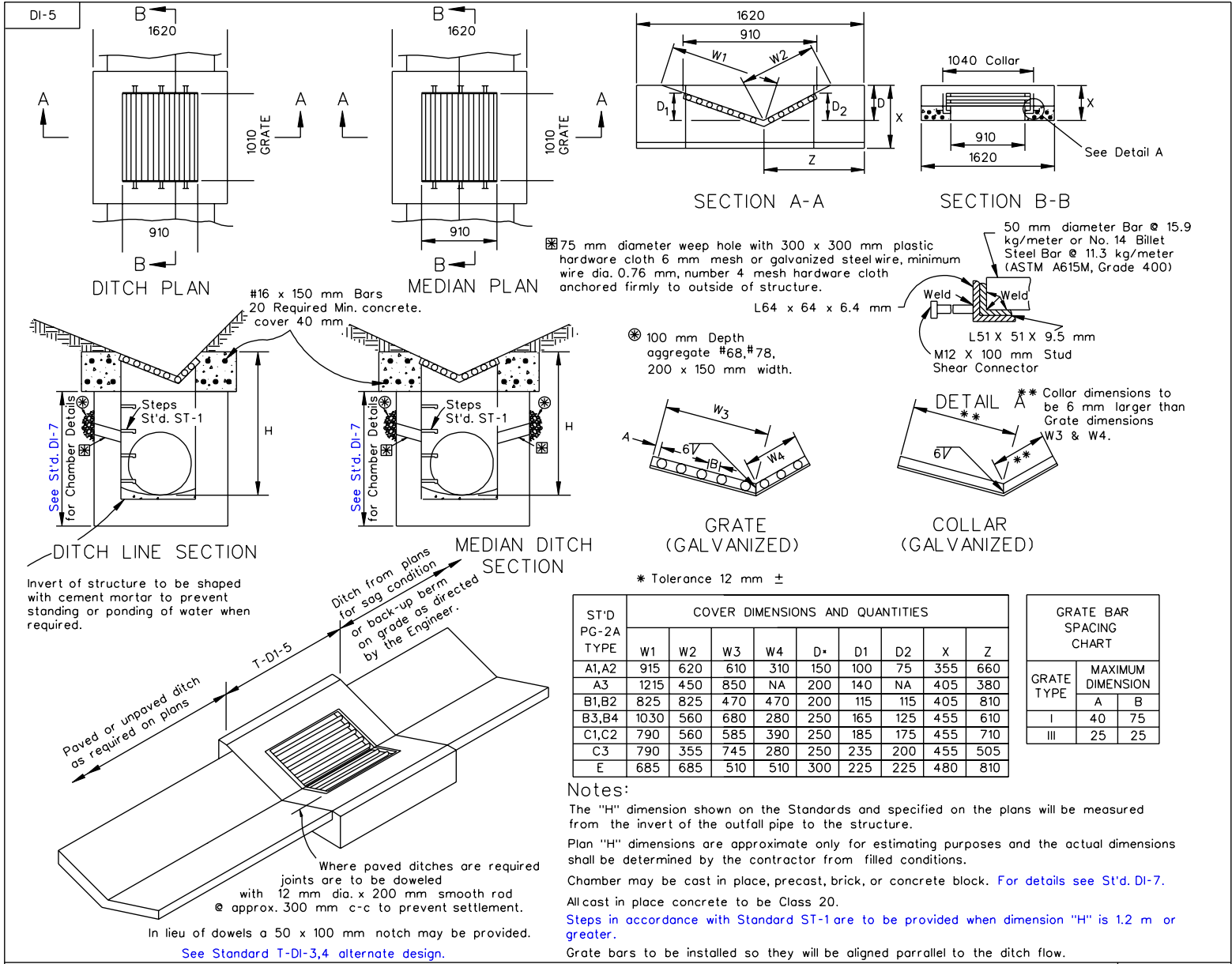
SPECIFICATION REFERENCE
233 302

STANDARD CURB DROP INLET
900 mm - 1200 mm PIPE DEPTH (H) 2.4 m - 4.9 m

VIRGINIA DEPARTMENT OF TRANSPORTATION

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104.20



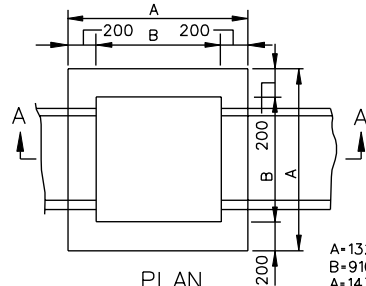
STANDARD DITCH DROP INLET

104.21 UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE
233
302

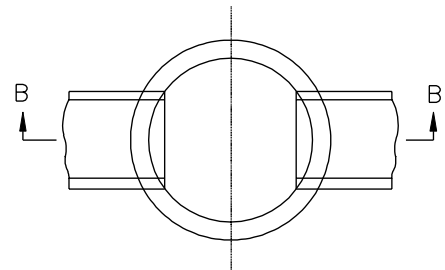
In the event the invert of the outfall pipe is higher than the bottom of the structure, the invert of the structure shall be shaped with cement mortar to prevent standing or ponding of water in the structure.



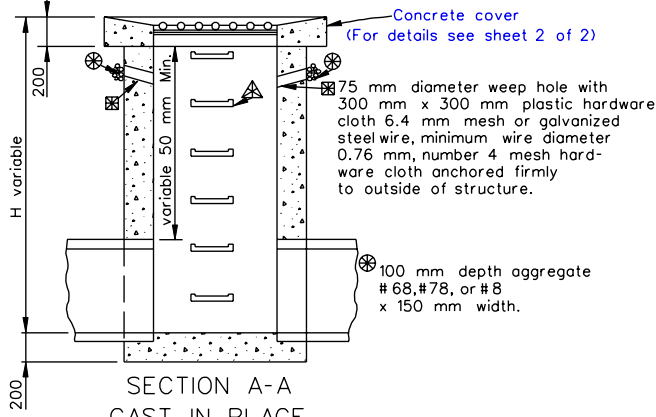
PLAN (COVER REMOVED)

- A=1320 mm (300-900 mm Pipe)
- B=910 mm (300-900 mm Pipe)
- A=1470 mm (1050 mm Pipe)
- B=1060 mm (1050 mm Pipe)

▲ Steps are to be provided when 'H' is 1.2 m or greater. For step details see Standard ST-1.



PLAN (COVER REMOVED)



SECTION A-A CAST IN PLACE

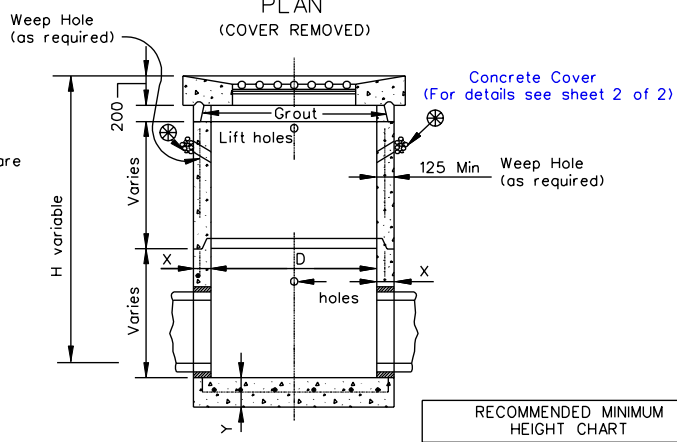
FOR USE WITH 300 mm TO 1050 mm PIPES

Class 20 concrete to be used. Maximum depth (H) to be 3.7 m.

Pipe Size	300	375	450	600	750	900	1050
Minimum Depth H (meters)	0.61	0.69	0.775	0.94	1.1	1.27	1.44
Concrete Cubic Meters	0.725	0.800	0.875	1.025	1.175	1.325	1.475

Increment per meter of additional depth (H) } = 0.91 m³ (300 mm-900 mm pipe)
 = 1.03 m³ (1050 mm pipe)

Reinforcing concrete footing may be precast or cast in place. Two lifting hooks of fabricator's design to be provided in precast footing.



SECTION B-B PRECAST

For details of Precast DI-7 not shown hereon see Precast Unit Assembly Diagram, page 103.01, Precast General Notes, Page 103.02 and Applicable Precast Base, Riser and Top Details, pages 103.07 thru 103.12.

PIPE SIZE	RECOMMENDED MINIMUM HEIGHT CHART	
	H DIMENSION (m) CONC.	CORR. METAL
300	0.76	0.74
375	0.84	0.81
450	0.93	0.89
525	1.01	0.97
600	1.09	1.04
675	1.17	1.12
750	1.26	1.19
825	1.34	1.27
900	1.42	1.35
1050	1.59	1.50

* Grate bars to be installed so they will be aligned parallel to the ditch flow.

General Notes:

DI-7 - No gutter
 DI-7A - Single gutter when drop inlet is on a grade.
 DI-7B - Double gutter when drop inlet is in a sag between two grades.
 The type of inlet detailed hereon to be constructed will be at the option of the contractor.

When specified on plans the invert is to be shaped in accordance with standard IS-1.
 For details of concrete cover, collar and grate, and method of placing approach gutter see sheet 2 of 2.

Increments shown are for inlets without pipes. Pipe displacement's must be deducted to obtain true quantities.
 Paved ditches are to be transitioned to meet inlet gutter as shown in Standard PG-1. Safety Slabs are to be provided at 2.4 m minimum and 3.6 m maximum vertical intervals and are to be spaced so as not to conflict with openings for pipes as directed by the Engineer.

SPECIFICATION REFERENCE
241
503

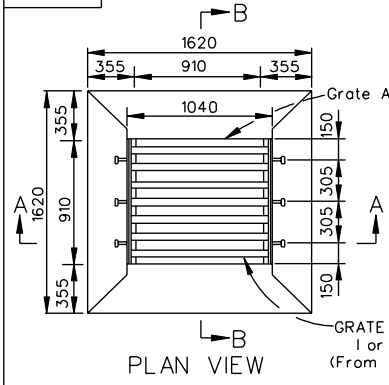
STANDARD MEDIAN DROP INLET

VIRGINIA DEPARTMENT OF TRANSPORTATION

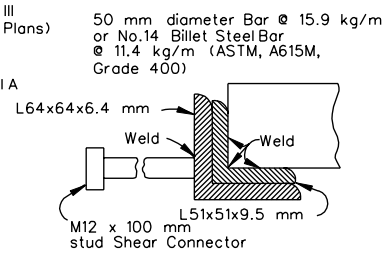
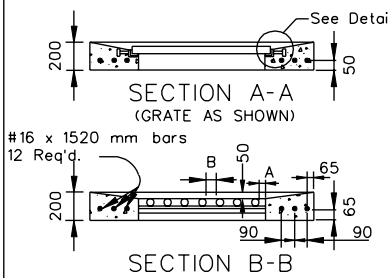
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DI-7,7A,7B

DETAILS OF CONCRETE COVER AND GRATE



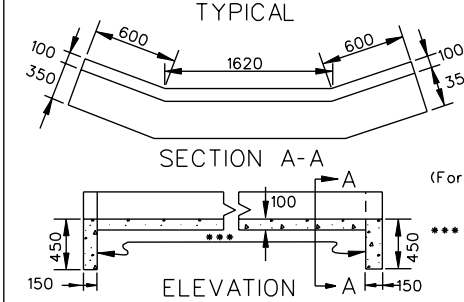
Grate A is to be used when inlet is located in median or other areas not normally subject to traffic.
 Grate B is to be used when inlet is located on shoulders or other areas subject to traffic.
 For details of load Carrying Grate (Grate B) see T-DI-7 sheet 103.07.
 Grate bars to be installed so they will be aligned parallel to the ditch flow.



Concrete cover and grate are to be furnished as a single unit. Outside dimensions for grate to be 1010 mm x 900 mm (Grate A) or 1010 mm x 900 mm Grate B.
 Alternate methods of anchoring angle iron will be acceptable if approved by the Engineer.
 Grate and collar are to be galvanized.
 Concrete cover may be precast or cast in place.
 Concrete to be Class 20 if cast in place, 30 MPa if precast.

APPROXIMATE QUANTITIES
 0.325 m³ Concrete
 29 Kg Reinforcing Steel

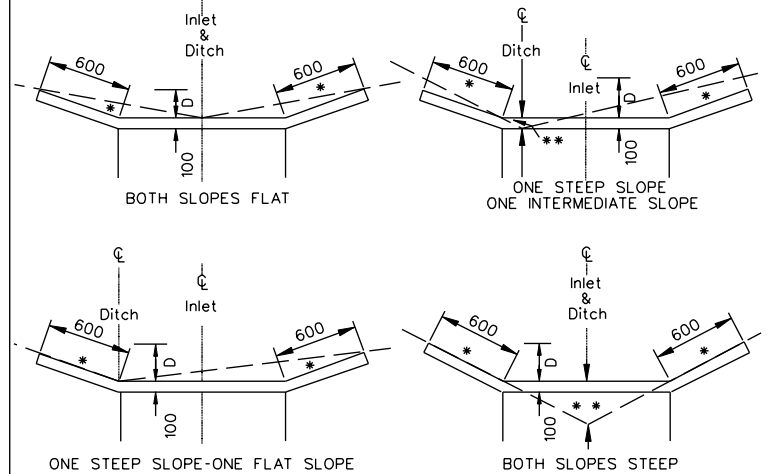
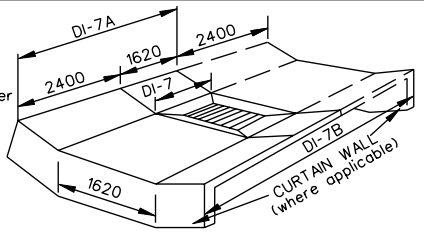
BAR SPACING CHART		
GRATE TYPE	Maximum Dimension	
	A	B
I	40	75
III	25	25



Concrete to be Class 20
 APPROXIMATE QUANTITY
 0.185 m³ Concrete
 (For one curtain wall - measured from bottom of gutter.)

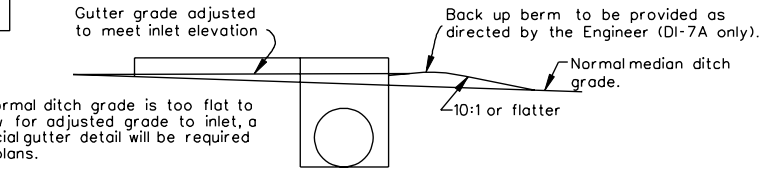
*** Curtain wall to be located at the end of the paved ditch sections of the DI-7A & DI-7B that are not abutted by other drainage.

DI-7- No Gutter
 DI-7A- Gutter in one direction
 DI-7B- Gutter in both directions
 Joints between gutter and concrete cover are to be doweled with 12 mm dia. x 200 mm smooth rods @ approx. 300 mm c-c to prevent settlement.
 In lieu of dowels a 50 mm x 100 mm notch may be provided.
 See Standard T-DI-3,4 alternate design



* Variable - 2:1 or flatter
 ** Ditch grade must be adjusted to meet difference in elevation (See Longitudinal Section).
 If depth (D) becomes less than 100 mm, length of wings are to be extended as directed by the Engineer.

APPROXIMATE QUANTITIES
 DI-7:None
 DI-7A:
 0.93 m³ Class 20 Concrete
 DI-7B:
 1.64 m³ Class 20 Concrete



If normal ditch grade is too flat to allow for adjusted grade to inlet, a special gutter detail will be required on plans.

LONGITUDINAL SECTION
 (WHEN INLET IS LOCATED ABOVE NORMAL DITCH GRADE)
 DETAIL OF GUTTER AND METHOD OF PLACEMENT

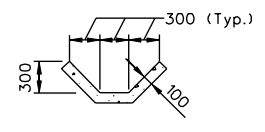
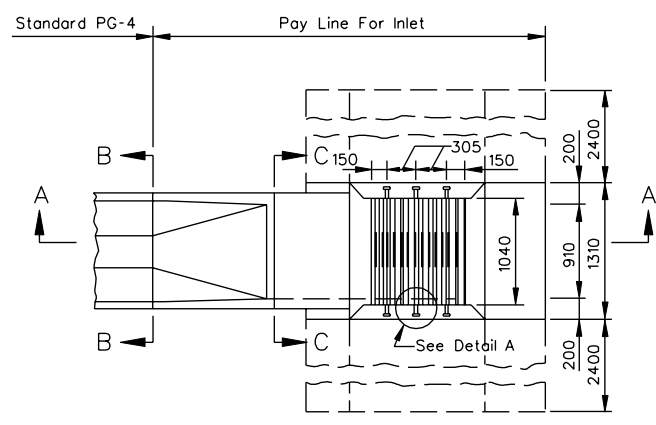
Sheet 2 of 2

STANDARD MEDIAN DROP INLET
 FOR USE WITH 300 mm TO 1050 mm PIPES

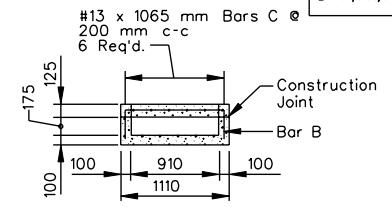
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VIRGINIA DEPARTMENT OF TRANSPORTATION

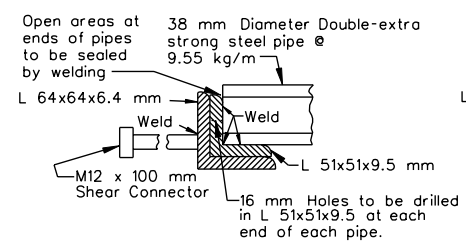
SPECIFICATION REFERENCE
241 503



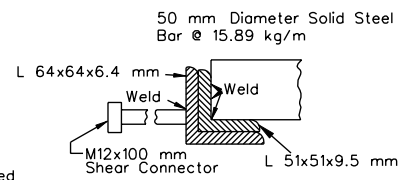
SECTION B-B



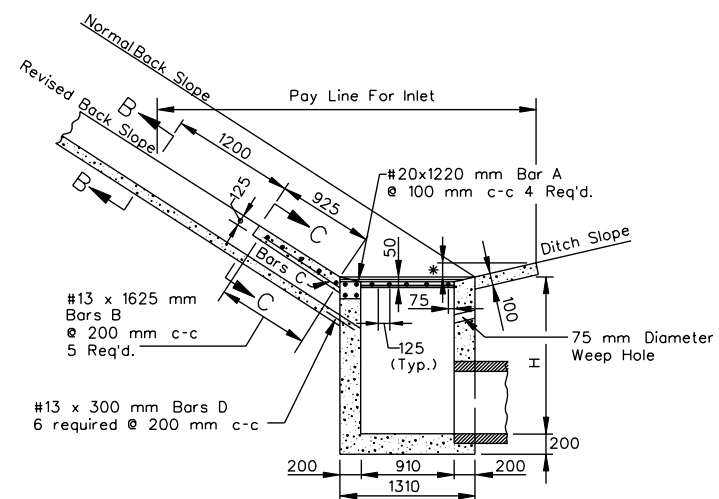
SECTION C-C



DETAIL A



ALTERNATE DETAIL A



SECTION A-A

* Apron is to be constructed to a depth of 300 mm on back slope side of inlet (DI-7). On roadway side the depth is to be 300 mm or to the shoulder elevation whichever is the lesser.

Alternate methods of anchoring angle iron will be acceptable if approved by the Engineer.

Collar and grate are to be galvanized in accordance with the specifications.

Outside dimensions of grate to be 1010 x 900 mm.

All concrete to be Class 20.

Normal ditch is to be transitioned to tie smoothly into gutter. Ditch grade is to be adjusted as necessary to meet grate elevation.

Quantities shown are based on depth H = 1.5 m.

The amount of concrete displaced by pipes must be deducted to obtain true quantities. For each meter of difference in depth H add or subtract increment as shown.

See Standard DI-7, DI-7A, 7B for details and dimensions not shown hereon.

Grate bars to be installed so they will be aligned parallel to the ditch flow.

APPROXIMATE QUANTITIES
 3.13 m³ Class 20 Concrete
 27kg Reinforcing Steel
 Increment per meter of depth(H) = 0.91 m³
 0.851 m³ Concrete to be added when double gutter is required.

SPECIFICATION REFERENCE
502

STANDARD DI-7, 7A OR 7B WITH FLUME CONNECTION

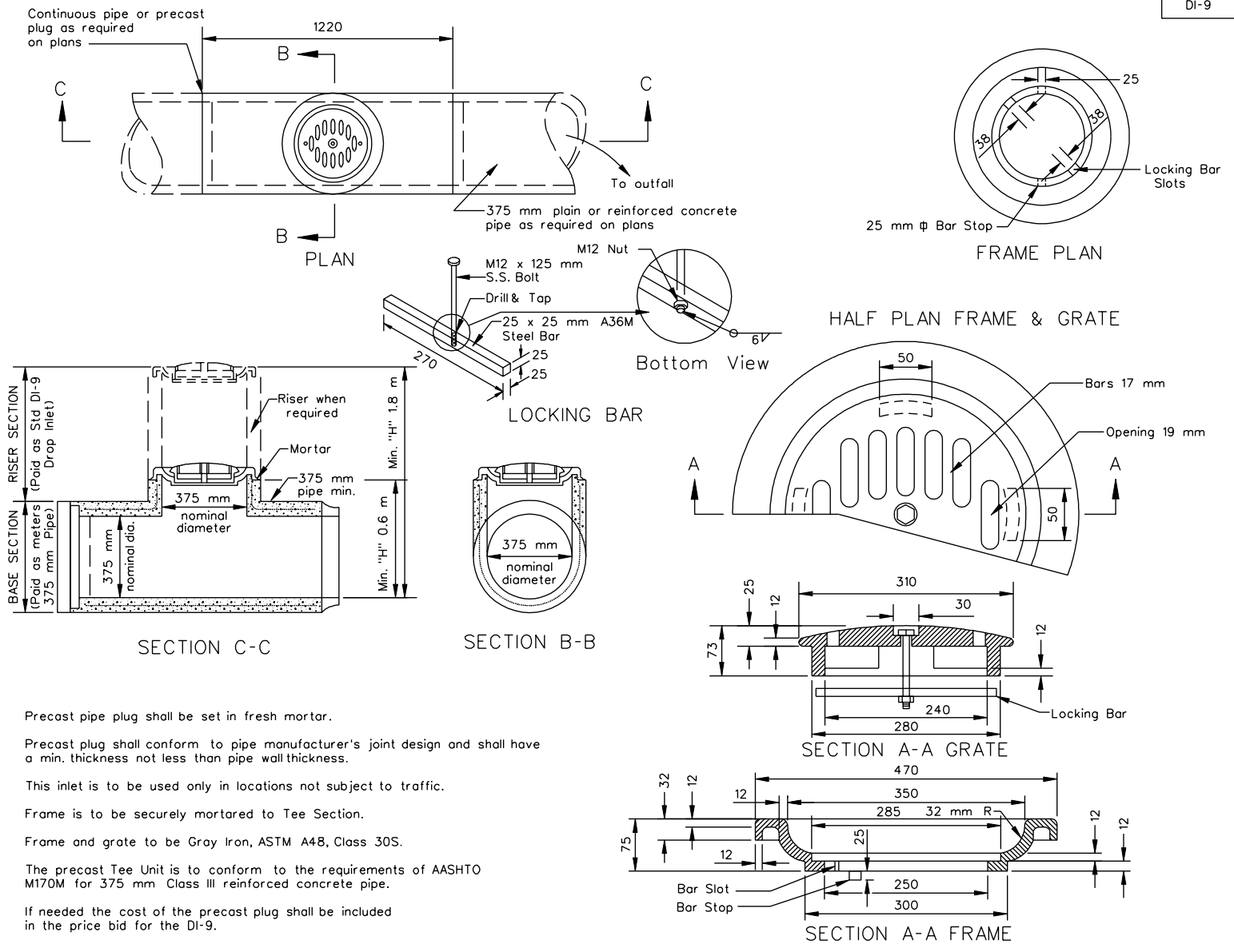
VIRGINIA DEPARTMENT OF TRANSPORTATION

UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETER

104.23A

REVISED ON 8/97

DI-9



Precast pipe plug shall be set in fresh mortar.
 Precast plug shall conform to pipe manufacturer's joint design and shall have a min. thickness not less than pipe wall thickness.
 This inlet is to be used only in locations not subject to traffic.
 Frame is to be securely mortared to Tee Section.
 Frame and grate to be Gray Iron, ASTM A48, Class 30S.
 The precast Tee Unit is to conform to the requirements of AASHTO M170M for 375 mm Class III reinforced concrete pipe.
 If needed the cost of the precast plug shall be included in the price bid for the DI-9.

SPECIFICATION REFERENCE
233
302

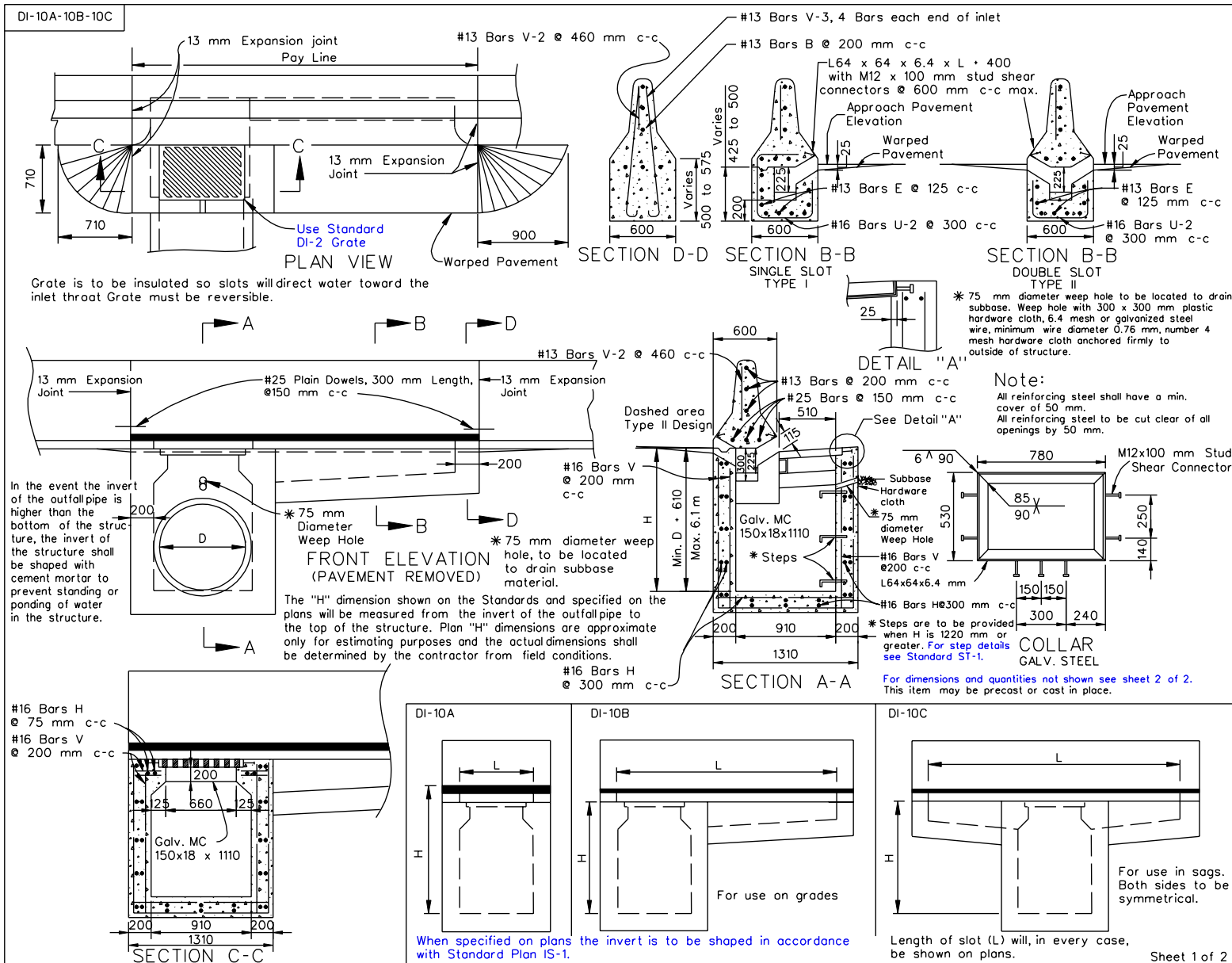
375 mm PIPE TEE SECTION DROP INLET

VIRGINIA DEPARTMENT OF TRANSPORTATION

UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

104.24

VOID 1/1/00



CONCRETE MEDIAN BARRIER DROP INLET
300 mm - 900 mm PIPE DEPTH (H) = 6.1 m MAX.

VOID 1/1/00

DI-10A-10B-10C

TABLE OF QUANTITIES

TYPE	L Meters	AREA OF SLOT Sq. Meters	Concrete		REINFORCING STEEL														WT. kg	WT. kg						
			Type I	Type II	BARS A	BARS B	BARS E	BARS H	BARS U-1 (Ty. I only)	BARS U-2 (Ty. II only)	BARS V	BARS V-1	BARS V-2	BARS V-3												
			Cu. Meters	Cu. Meters	No.	mm*	No.	mm*	No.	mm*	No.	mm*	No.	mm*	No.	mm*	No.	mm*			No.	mm*	No.	mm*	No.	mm*
DI-10A	0.91	0.126	1.53	1.52	3	1210	3	1210	-	-	38	1210	-	-	-	-	48	1010	12	760	3	710	8	1340	192	192
DI-10B	1.2	0.168	1.67	1.66	3	1520	3	1520	8	400	38	1210	2	1570 to 1720	2	940 to 1090	48	1010	12	760	4	710	8	1340	206	204
	1.8	0.252	1.94	1.91	3	2130	3	2130	8	1010	38	1210	4	1570 to 1720	4	940 to 1090	48	1010	12	760	5	710	8	1340	225	222
	2.4	0.336	2.21	2.16	3	2740	3	2740	8	1620	38	1210	6	1570 to 1720	6	940 to 1090	48	1010	12	760	7	710	8	1340	246	240
	3.0	0.420	2.51	2.43	3	3350	3	3350	8	2230	38	1210	8	1570 to 1720	8	940 to 1090	48	1010	12	760	8	710	8	1340	266	258
	3.6	0.511	2.79	2.69	3	3960	3	3960	8	2840	38	1210	10	1570 to 1720	10	940 to 1090	48	1010	12	760	9	710	8	1340	285	275
	4.2	0.595	3.06	2.95	3	4570	3	4570	8	3450	38	1210	12	1570 to 1720	12	940 to 1090	48	1010	12	760	11	710	8	1340	306	294
	4.8	0.679	3.34	3.21	3	5180	3	5180	8	4060	38	1210	14	1570 to 1720	14	940 to 1090	48	1010	12	760	12	710	8	1340	325	311
	5.4	0.763	3.63	3.46	3	5790	3	5790	8	4670	38	1210	16	1570 to 1720	16	940 to 1090	48	1010	12	760	13	710	8	1340	344	329
DI-10C	6.0	0.847	3.89	3.71	3	6400	3	6400	8	5280	38	1210	18	1570 to 1720	18	940 to 1090	48	1010	12	760	15	710	8	1340	365	347
	1.8	0.252	1.94	1.91	3	2130	3	2130	16	600	38	1210	6	1570 to 1720	6	940 to 1090	48	1010	12	760	5	710	8	1340	233	227
	2.4	0.336	2.21	2.16	3	2740	3	2740	16	910	38	1210	8	1570 to 1720	8	940 to 1090	48	1010	12	760	7	710	8	1340	254	246
	3.0	0.420	2.51	2.43	3	3350	3	3350	16	1210	38	1210	10	1570 to 1720	10	940 to 1090	48	1010	12	760	8	710	8	1340	273	263
	3.6	0.511	2.79	2.69	3	3960	3	3960	16	1520	38	1210	12	1570 to 1720	12	940 to 1090	48	1010	12	760	9	710	8	1340	293	281
	4.2	0.595	3.06	2.95	3	4570	3	4570	16	1820	38	1210	14	1570 to 1720	14	940 to 1090	48	1010	12	760	11	710	8	1340	313	299
	4.8	0.679	3.34	3.21	3	5180	3	5180	16	2130	38	1210	16	1570 to 1720	16	940 to 1090	48	1010	12	760	12	710	8	1340	333	317
	5.4	0.763	3.63	3.46	3	5790	3	5790	16	2430	38	1210	18	1570 to 1720	18	940 to 1090	48	1010	12	760	13	710	8	1340	352	334
6.0	0.847	3.89	3.71	3	6400	3	6400	16	2740	38	1210	20	1570 to 1720	20	940 to 1090	48	1010	12	760	15	710	8	1340	373	353	

* Denotes length of one (1) bar.

Notes:

Class 20 Concrete to be used if cast in place, 30 MPa if precast.

Concrete quantities shown are for depth (H) of 0.9 m without pipes. The amount displaced by pipes must be deducted to obtain true quantities. For inlets of different depths add or subtract 0.90 m² of concrete and 125 kg reinforcing steel for each meter of difference in depth.

Length of Angle Iron as shown on Sheet 1 is to be L + 0.4 m @ 6.1 kg per meter.

All reinforcing steel to be cut clear of all openings by 50 mm.

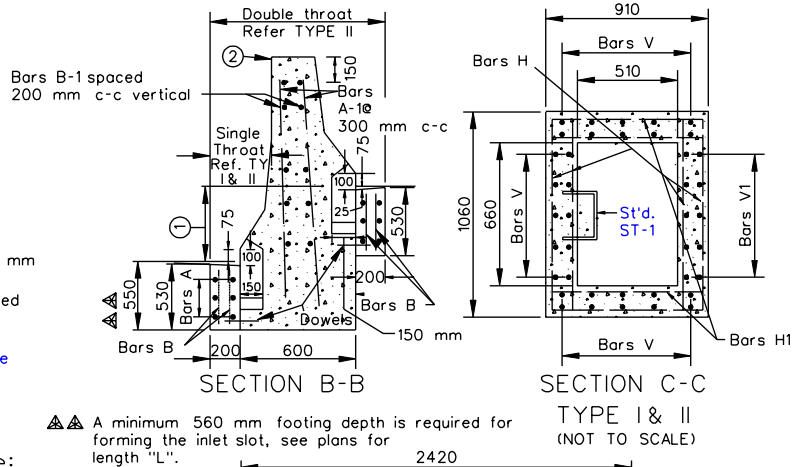
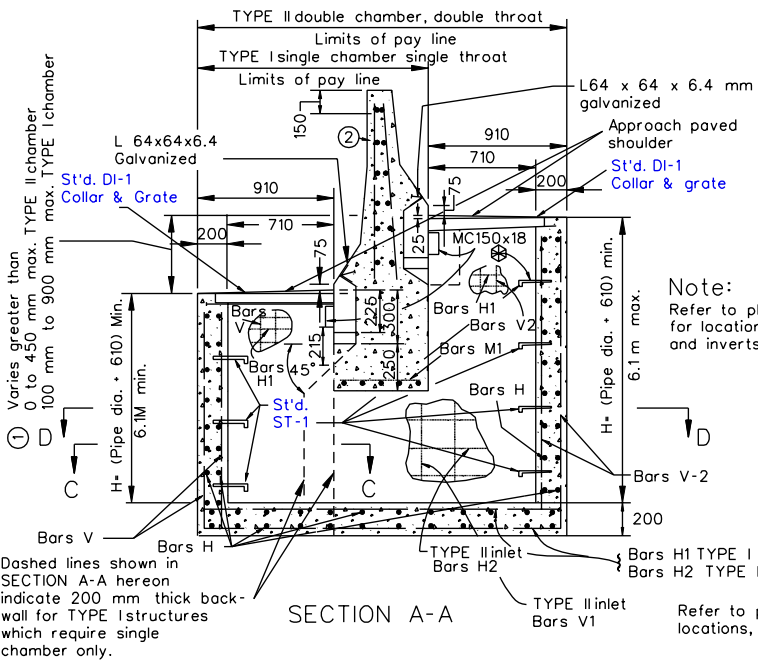
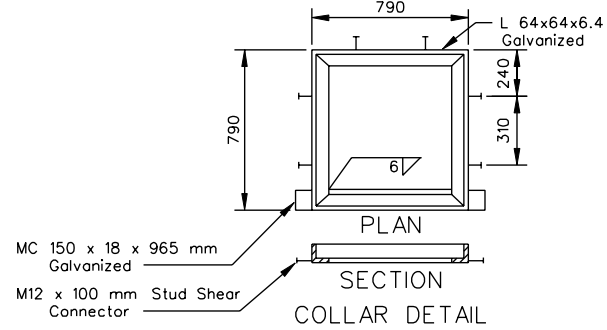
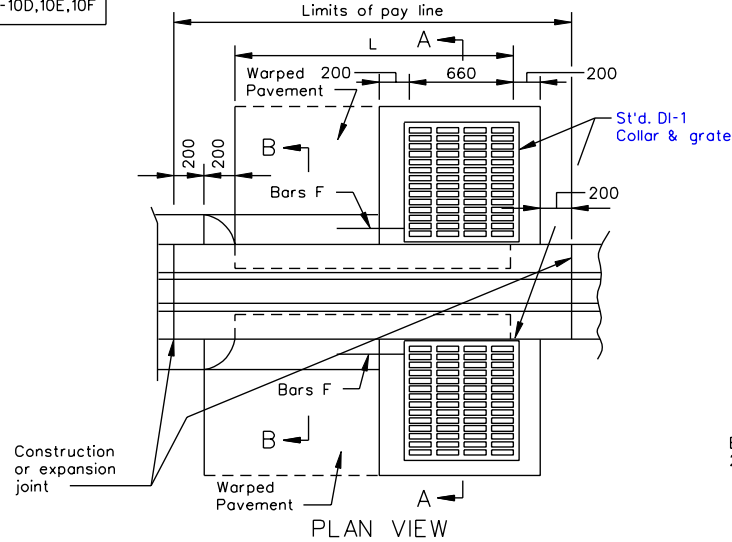
Area of slot shown are per each slot.

Sheet 2 of 2

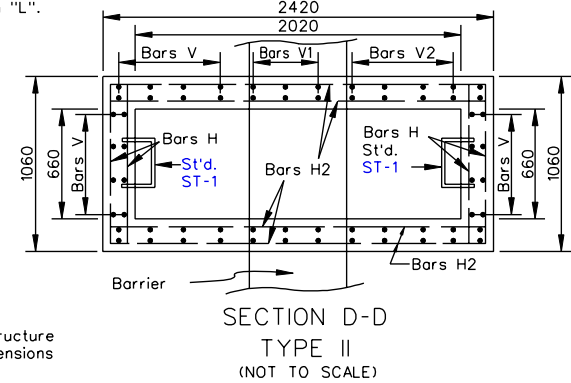
SPECIFICATION REFERENCE	CONCRETE MEDIAN BARRIER INLET
233 302	300 mm - 900 mm PIPE DEPTH (H)=6.1 m MAX.
	VIRGINIA DEPARTMENT OF TRANSPORTATION
	UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS
	104.26

VOID 1/1/00

DI-10D,10E,10F



Note:
Refer to plans for location of pipes and inverts.



Sheet 1 of 2

CONCRETE BARRIER DROP INLET

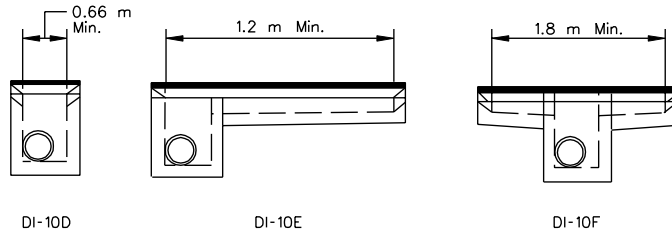
VIRGINIA DEPARTMENT OF TRANSPORTATION

104.27 UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

SPECIFICATION REFERENCE
233 302

VOID 1/1/00

DI-10D,10E,10F



Galvanized MC150 x 18 to be welded under the collar and extended into side walls to within 50 mm of outside face.

All reinforcing bars to be grade 400 steel with a minimum 40 mm concrete cover. Any bars in conflict with pipe shell and/or top slab opening are to be field cut to provide this required cover.

② For details & dimensions not shown for median barrier, see Standard MB-7

⊗ Do NOT locate Standard ST-1 steps on chamber walls that have pipes when possible.

Note: Maximum pipe size 600 mm diameter.

Type I Denotes inlet with single & III throat and chamber

Type II Denotes inlet with double throat and chamber.

TYPE - II INLET

REINFORCING STEEL				
MARK	SIZE	NO.	LENGTH	SPA.
A-1	#13	(2xL/0.30)+2	1220	300
B-1	#13	9	L + 710	200
H-2	#16	16 ⊕	2340	250
V-1	#13	12	H - 350	200
V-2	#13	30	LENGTH+H	200
A	#13	12 ⊙	L - 760	AS SHOWN
B	#10	4(L/0.30-4)	330	300
DOWELS	#13	DOUBLE NO. SHOWN FOR TYPE I	300	150
F	#16	6 ⊗	455	150
H	#16	(4+H/0.3)+8	965	300
H-1	#16	(4+H/0.3)+16	810	250
V	#13	30	LENGTH+H	200
M-1	#16	5	965	125
M	#13	4	455	300

TYPE I & III INLET

REINFORCING STEEL				
MARK	SIZE	NO.	LENGTH	SPA.
A	#13	6 ⊕	L - 760 *	AS SHOWN
A-1	#13	(2xL/0.30)+2	1220	300
B	#10	2x(L/0.30-4)	330	300
B-1	#13	9	L + 710	200
DOWELS	#13	**	300	150
F	#16	3 ⊗	455	150
H	#16	(4xH/0.30)+10	965	300
H1	#16	(4xH/0.30)+8	810	250

** 8 dowels req'd. for DI-10F. Min. L-2130 mm
Add 6 dowels for each additional meter.
4 dowels req'd. for DI-10E. Min. L-1220 mm
Add 6 dowels for each additional meter.

⊕ 12 bars A req'd. for DI-10F

* Length of bars A DI-10F = $\frac{L - (.75 \text{ m})}{2}$

⊗ Do not use with DI-10D

⊗ Use 6 bars F for DI-10F Type I

⊙ Do not use with Type III

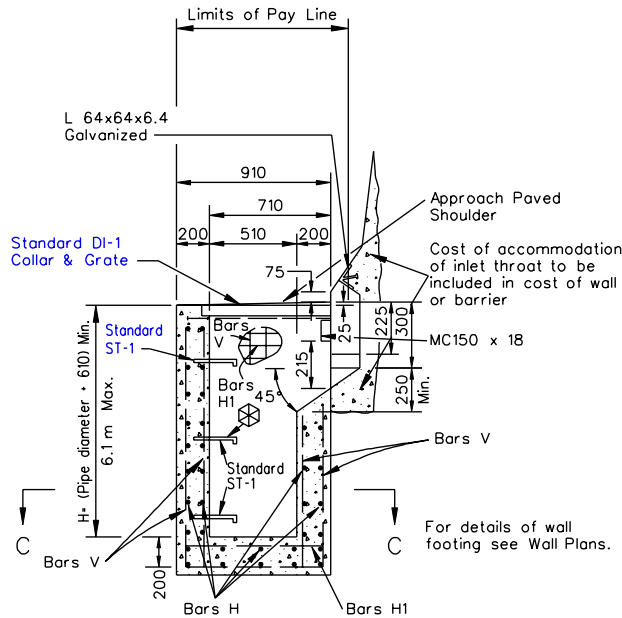
⊕ Add 12 additional bars for each extra meter of depth

⊗ Use 12 Bars F for DI-10F Type II

⊙ 24 Bars A req'd. for DI-10F

⊗ Do not use with DI-10D

⊕ Length of Bars A for DI-10F = $\frac{L - (.75 \text{ m})}{2}$



Standard DI-1 Collar & Grate

FOR USE ADJACENT TO WALL OR BARRIER WITH SAFETY SHAPE

(TYPE III)

Refer to plans for structure locations, data & dimensions

SPECIFICATION REFERENCE

233
302

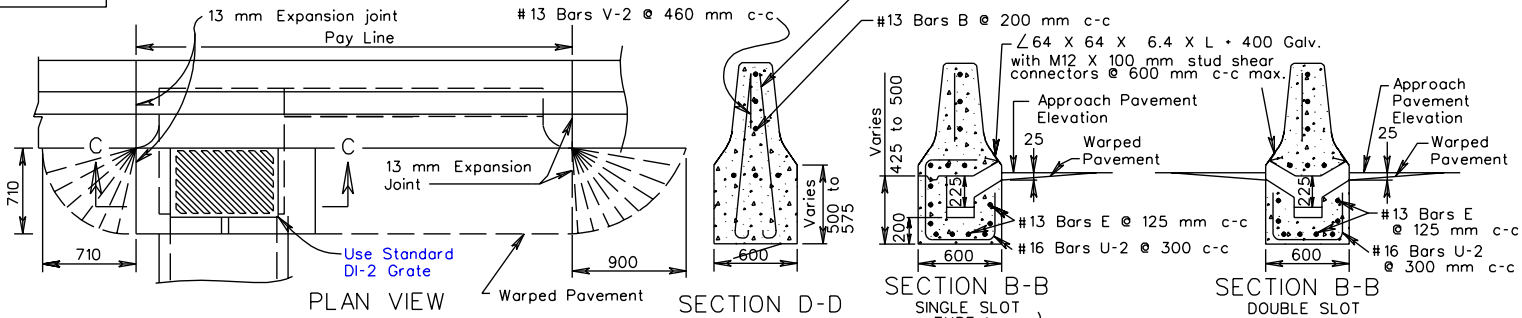
CONCRETE BARRIER DROP INLET

VIRGINIA DEPARTMENT OF TRANSPORTATION

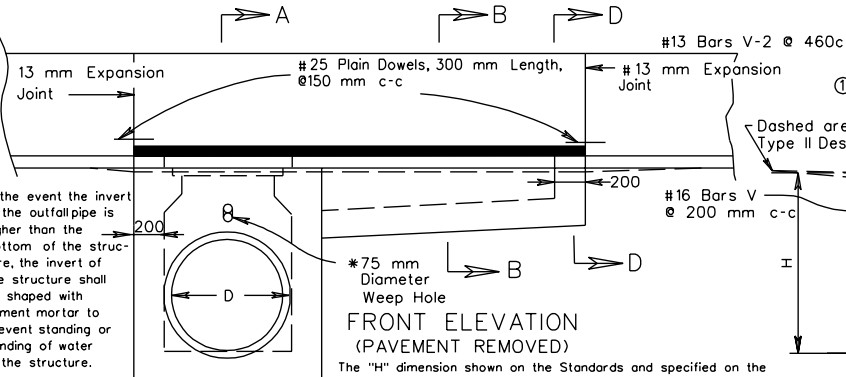
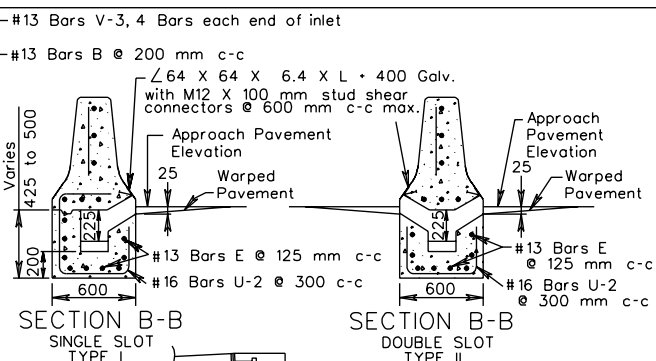
UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

104.28

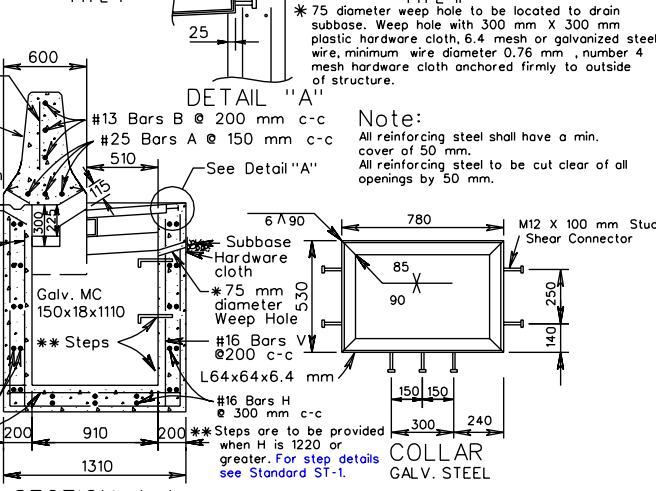
DI-10G, 10H, 10I



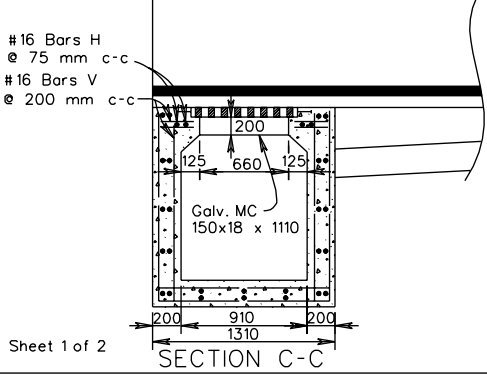
Grate is to be installed so slots will direct water toward the inlet throat. Grate must be reversible. (Right hand grate is shown).



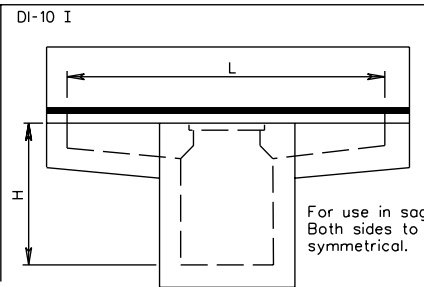
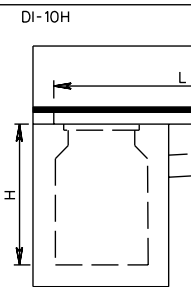
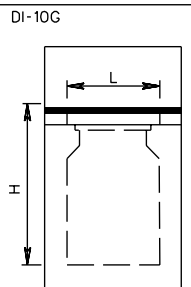
The "H" dimension shown on the Standards and specified on the plans will be measured from the invert of the outfallpipe to the top of the structure. Plan "H" dimensions are approximate only for estimating purposes and the actual dimensions shall be determined by the contractor from field conditions.



Note:
All reinforcing steel shall have a min. cover of 50 mm.
All reinforcing steel to be cut clear of all openings by 50 mm.



Sheet 1 of 2



When specified on plans the invert is to be shaped in accordance with Standard Plan IS-1.

Length of slot (L) will, in every case, be shown on plans.

CONCRETE MEDIAN BARRIER DROP INLET

300 mm - 900 mm PIPE DEPTH (H) = 6.1 m MAX.

104.29 UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE
233 302

TABLE OF QUANTITIES

TYPE	L Meters	Concrete		REINFORCING STEEL														WT. kg	WT. kg						
		Type I	Type II	BARS A	BARS B	BARS E	BARS H	BARS U-1		BARS U-2		BARS V	BARS V-1	BARS V-2	BARS V-3										
		Cu. Meters	Cu. Meters	No.	mm*	No.	mm*	No.	mm*	No.	mm*	No.	mm*	No.	mm*	No.	mm*			No.	mm*	No.	mm*		
DI-10G	0.91	1.59	1.57	3	1210	3	1210	-	-	38	1210	-	-	-	-	48	1010	12	760	3	710	8	1340	193	193
DI-10H	1.2	1.73	1.72	3	1520	3	1520	8	400	38	1210	2	1570 to 1720	2	940 to 1090	48	1010	12	760	4	710	8	1340	206	204
	1.8	2.03	2.01	3	2130	3	2130	8	1010	38	1210	4	1570 to 1720	4	940 to 1090	48	1010	12	760	5	710	8	1340	226	222
	2.4	2.32	2.31	3	2740	3	2740	8	1620	38	1210	6	1570 to 1720	6	940 to 1090	48	1010	12	760	7	710	8	1340	246	240
	3.0	2.62	2.60	3	3350	3	3350	8	2230	38	1210	8	1570 to 1720	8	940 to 1090	48	1010	12	760	8	710	8	1340	266	258
	3.6	2.92	2.89	3	3960	3	3960	8	2840	38	1210	10	1570 to 1720	10	940 to 1090	48	1010	12	760	9	710	8	1340	286	276
	4.2	3.22	3.18	3	4570	3	4570	8	3450	38	1210	12	1570 to 1720	12	940 to 1090	48	1010	12	760	11	710	8	1340	307	294
	4.8	3.52	3.47	3	5180	3	5180	8	4060	38	1210	14	1570 to 1720	14	940 to 1090	48	1010	12	760	12	710	8	1340	326	312
	5.4	3.82	3.78	3	5790	3	5790	8	4670	38	1210	16	1570 to 1720	16	940 to 1090	48	1010	12	760	13	710	8	1340	346	330
	6.0	4.12	4.07	3	6400	3	6400	8	5280	38	1210	18	1570 to 1720	18	940 to 1090	48	1010	12	760	15	710	8	1340	366	349
DI-10I	1.8	2.03	2.01	3	2130	3	2130	16	600	38	1210	6	1570 to 1720	6	940 to 1090	48	1010	12	760	5	710	8	1340	233	227
	2.4	2.32	2.31	3	2740	3	2740	16	910	38	1210	8	1570 to 1720	8	940 to 1090	48	1010	12	760	7	710	8	1340	253	245
	3.0	2.62	2.60	3	3350	3	3350	16	1210	38	1210	10	1570 to 1720	10	940 to 1090	48	1010	12	760	8	710	8	1340	273	263
	3.6	2.92	2.89	3	3960	3	3960	16	1520	38	1210	12	1570 to 1720	12	940 to 1090	48	1010	12	760	9	710	8	1340	292	281
	4.2	3.22	3.18	3	4570	3	4570	16	1820	38	1210	14	1570 to 1720	14	940 to 1090	48	1010	12	760	11	710	8	1340	313	299
	4.8	3.52	3.47	3	5180	3	5180	16	2130	38	1210	16	1570 to 1720	16	940 to 1090	48	1010	12	760	12	710	8	1340	333	317
	5.4	3.82	3.78	3	5790	3	5790	16	2430	38	1210	18	1570 to 1720	18	940 to 1090	48	1010	12	760	13	710	8	1340	352	335
6.0	4.12	4.07	3	6400	3	6400	16	2740	38	1210	20	1570 to 1720	20	940 to 1090	48	1010	12	760	15	710	8	1340	373	353	

* Denotes length of one (1) bar.

Notes:

Class 20 Concrete to be used if cast in place, 30 MPa if precast.

Concrete quantities shown are for depth (H) of 0.9 m without pipes. The amount displaced by pipes must be deducted to obtain true quantities. For inlets of different depths add or subtract 0.90 m³ of concrete and 125 kg reinforcing steel for each meter of difference in depth.

Length of Angle Iron as shown on Sheet 1 is to be $L \cdot 0.4 \text{ m} @ 6.1 \text{ kg per meter}$.

All reinforcing steel to be cut clear of all openings by 50 mm.

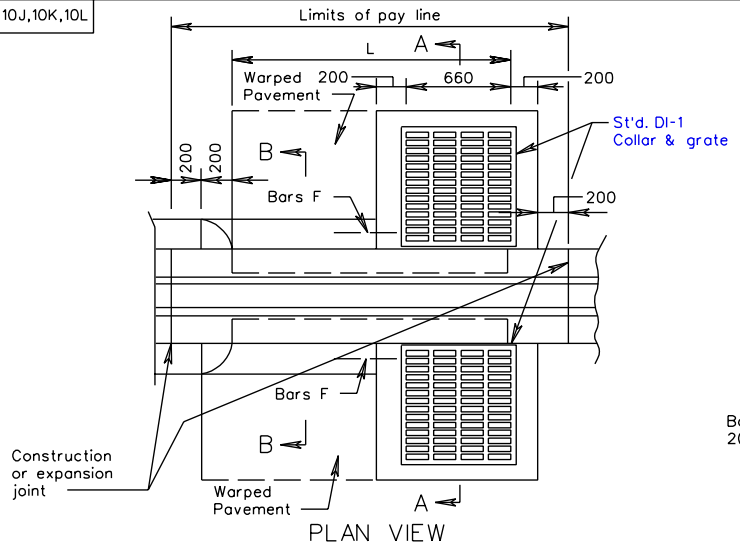
⊗ Area of slot shown are per each slot.

① For details and dimensions not shown for median barrier see Std. MB-7D (A-103).

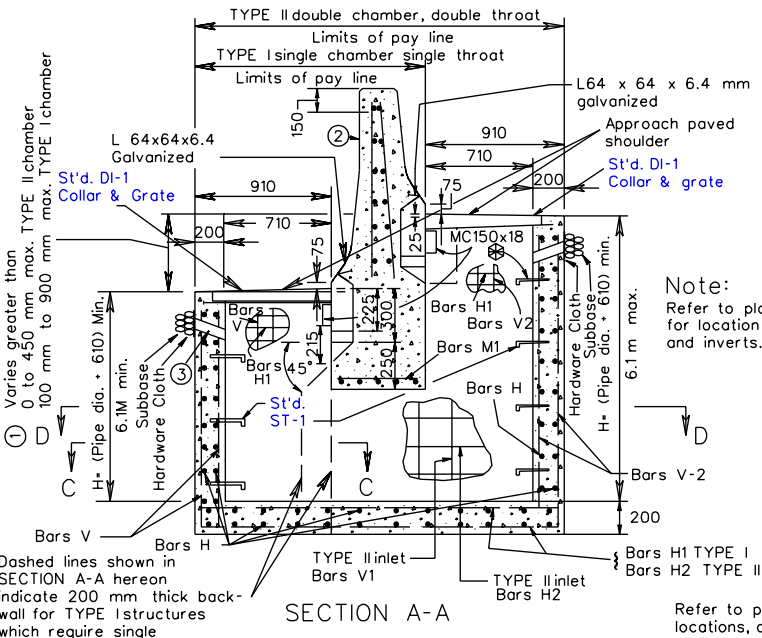
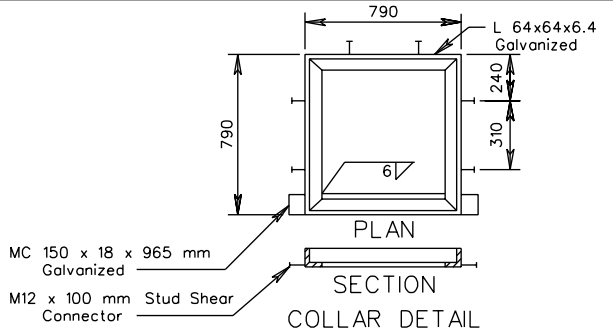
Sheet 2 of 2

SPECIFICATION REFERENCE	CONCRETE MEDIAN BARRIER DROP INLET		
233 302	300 mm - 900 mm PIPE DEPTH (H) = 6.1 m MAX.		
	VIRGINIA DEPARTMENT OF TRANSPORTATION		UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS
			104.30

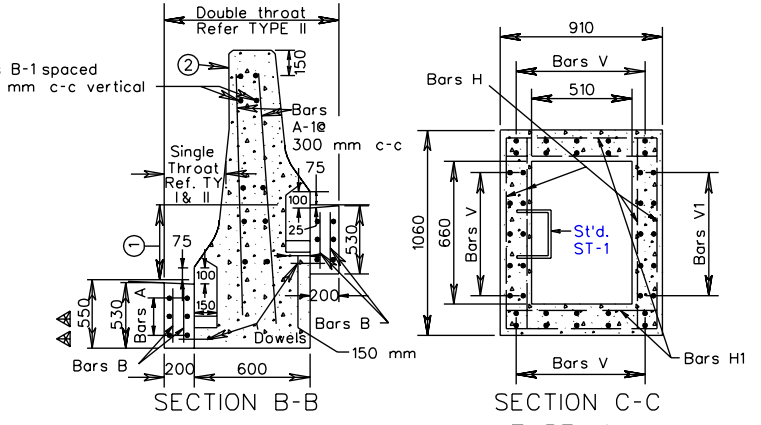
DI-10J,10K,10L



PLAN VIEW



SECTION A-A

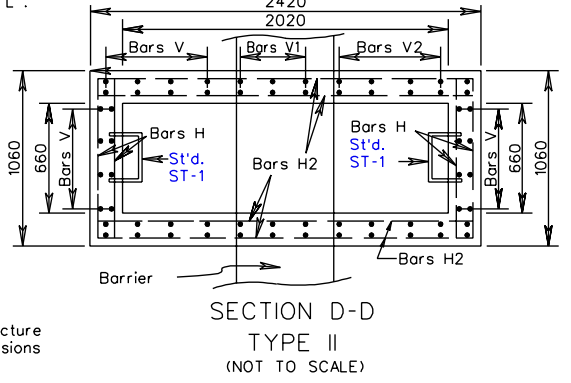


SECTION B-B

SECTION C-C

▲▲ A minimum 560 mm footing depth is required for forming the inlet slot, see plans for length "L".

Note: Refer to plans for location of pipes and inverts.



SECTION D-D

TYPE II (NOT TO SCALE)

Dashed lines shown in SECTION A-A hereon indicate 200 mm thick back-wall for TYPE I structures which require single chamber only.

Refer to plans for structure locations, data & dimensions

Sheet 1 of 2

CONCRETE MEDIAN BARRIER DROP INLET

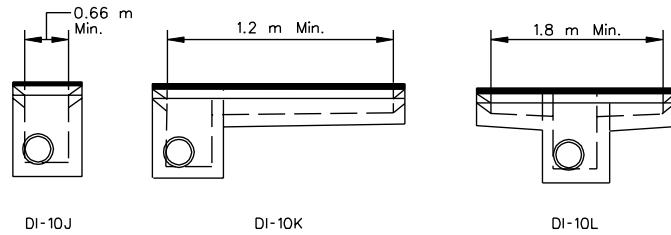
SPECIFICATION REFERENCE

233
302

104.31

UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

VIRGINIA DEPARTMENT OF TRANSPORTATION



Galvanized MC150 x 18 to be welded under the collar and extended into side walls to within 50 mm of outside face.

All reinforcing bars to be grade 400 steel with a minimum 40 mm concrete cover. Any bars in conflict with pipe shell and/or top slab opening are to be field cut to provide this required cover.

- ② For details & dimensions not shown for median barrier, see SDSA 1954A (Standard MB-8A)
- ③ 75 mm diameter weep hole to be located to drain subbase. Weep hole with 300 mm x 300 mm plastic hardware cloth, 6.4 mesh or galvanized steel wire, minimum wire diameter 0.76 mm, number 4 mesh hardware cloth anchored firmly to outside of structure.

⊗ Do NOT locate Standard ST-1 steps on chamber walls that have pipes when possible.

Note: Maximum pipe size 600 mm diameter.

Type I Denotes inlet with single throat and chamber
 Type II Denotes inlet with double throat and chamber.

TYPE - II INLET

REINFORCING STEEL				
MARK	SIZE	NO.	LENGTH	SPA.
A-1	#13	(2xL/0.30)+2	1220	300
B-1	#13	9	L + 710	200
H-2	#16	16	2340	250
V-1	#13	12	H - 350	200
V-2	#13	30	LENGTH+H	200
A	#13	12	L - 760	AS SHOWN
B	#10	4(L/0.30-4)	330	300
DOWELS	#13	DOUBLE NO. SHOWN FOR TYPE I	300	150
F	#16	6	455	150
H	#16	(4+H/0.3)+8	965	300
H-1	#16	(4+H/0.3)+16	810	250
V	#13	30	LENGTH+H	200
M-1	#16	5	965	125
M	#13	4	455	300

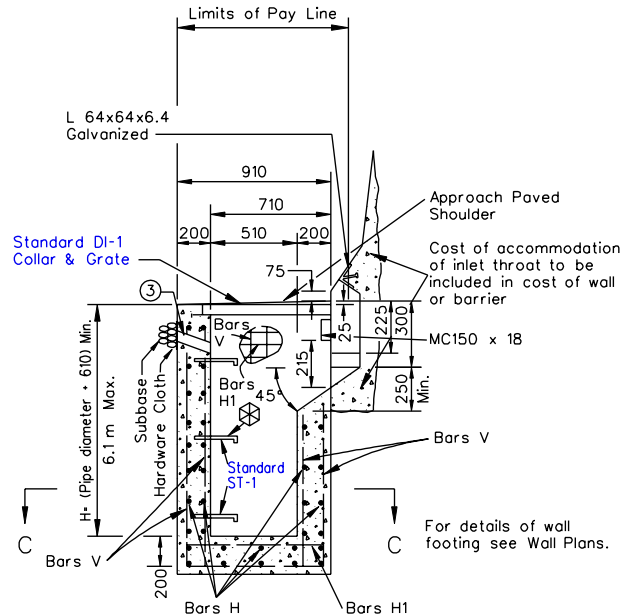
TYPE I & III INLET

REINFORCING STEEL				
MARK	SIZE	NO.	LENGTH	SPA.
A	#13	6	L - 760 *	AS SHOWN
A-1	#13	(2xL/0.30)+2	1220	300
B	#10	2x(L/0.30-4)	330	300
B-1	#13	9	L + 710	200
DOWELS	#13	**	300	150
F	#16	3	455	150
H	#16	(4xH/0.30)+10	965	300
H1	#16	(4xH/0.30)+8	810	250

** 8 dowels req'd. for DI-10L. Min. L=2130 mm
 Add 6 dowels for each additional meter.
 4 dowels req'd. for DI-10K. Min. L=1220 mm
 Add 6 dowels for each additional meter.

- △ 12 bars A req'd. for DI-10L
- * Length of bars A DI-10L = $\frac{L - (.75 \text{ m})}{2}$
- ⊗ Do not use with DI-10J
- ⊗ Use 6 bars F for DI-10L Type. I
- ⊙ Do not use with Type III

- ⊕ Add 12 additional bars for each extra meter of depth
- ⊗ Use 12 Bars F for DI-10L Type. II
- ⊙ 24 Bars A req'd. for DI-10L
- ⊗ Do not use with DI-10J
- ⊕ Length of Bars A for DI-10L = $\frac{L - (.75 \text{ m})}{2}$



FOR USE ADJACENT TO WALL OR BARRIER WITH SAFETY SHAPE

(TYPE III)

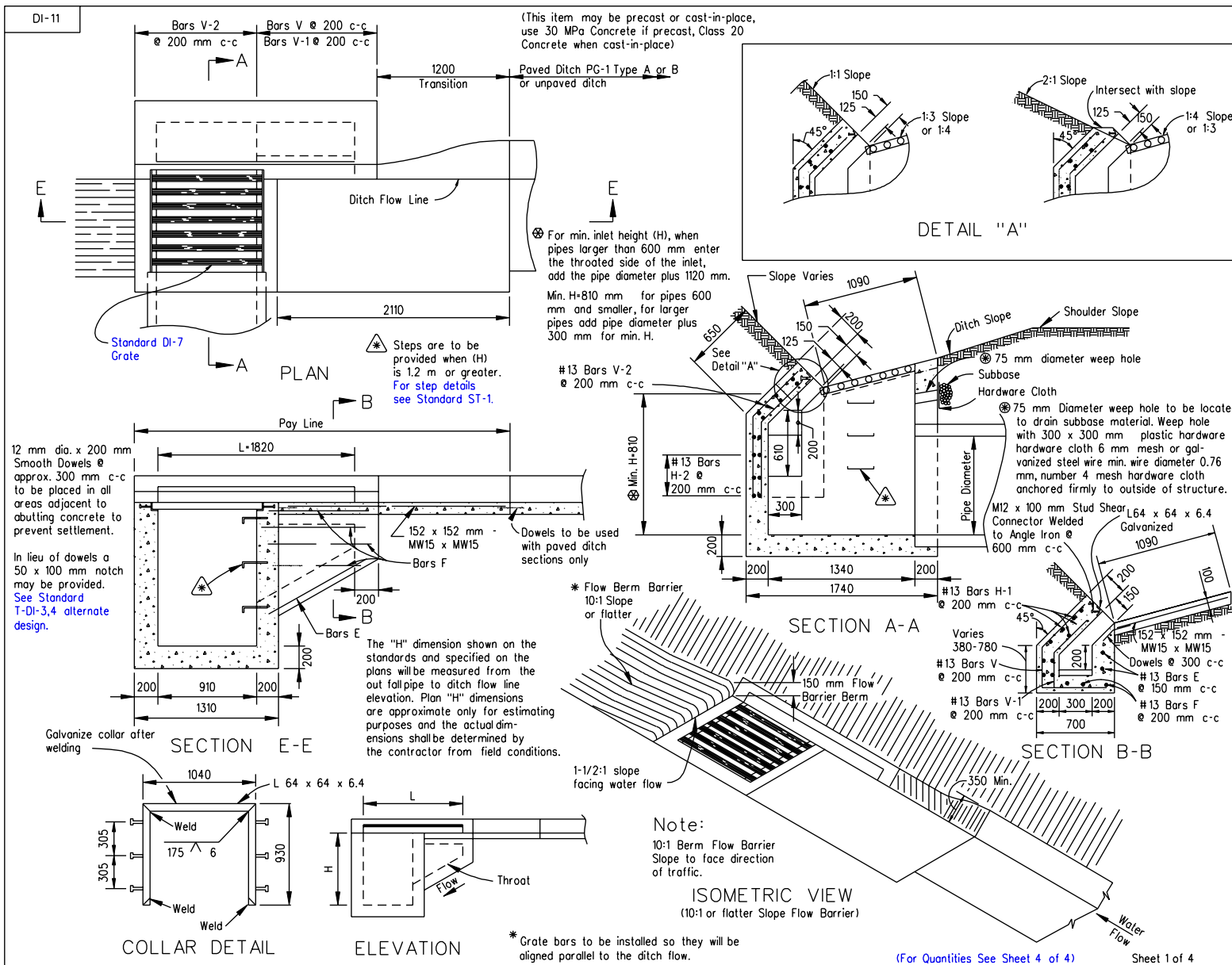
Refer to plans for structure locations, data & dimensions

SPECIFICATION REFERENCE
233
302

CONCRETE MEDIAN BARRIER DROP INLET

VIRGINIA DEPARTMENT OF TRANSPORTATION

UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS 104.32



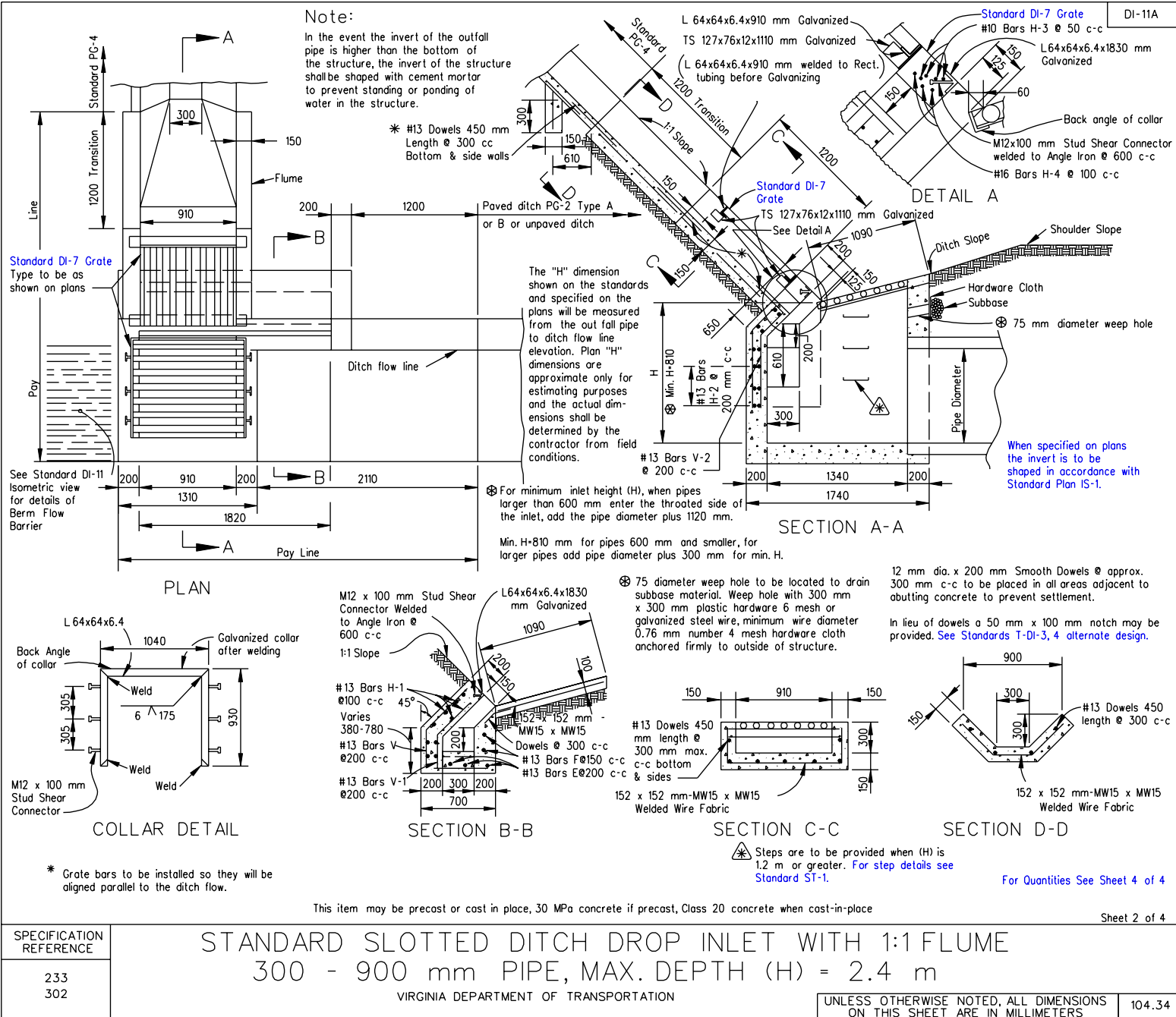
STANDARD SLOTTED DITCH DROP INLET
 300 mm - 900 mm PIPE, MAX. DEPTH (H) = 2.4 m

104.33 UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE
233
302

DI-11A



Note:
 In the event the invert of the outfall pipe is higher than the bottom of the structure, the invert of the structure shall be shaped with cement mortar to prevent standing or ponding of water in the structure.

* #13 Dowels 450 mm Length @ 300 cc Bottom & side walls

The "H" dimension shown on the standards and specified on the plans will be measured from the out fall pipe to ditch flow line elevation. Plan "H" dimensions are approximate only for estimating purposes and the actual dimensions shall be determined by the contractor from field conditions.

⊗ For minimum inlet height (H), when pipes larger than 600 mm enter the throated side of the inlet, add the pipe diameter plus 1120 mm.

Min. H=810 mm for pipes 600 mm and smaller, for larger pipes add pipe diameter plus 300 mm for min. H.

When specified on plans the invert is to be shaped in accordance with Standard Plan IS-1.

⊗ 75 diameter weep hole to be located to drain subbase material. Weep hole with 300 mm x 300 mm plastic hardware 6 mesh or galvanized steel wire, minimum wire diameter 0.76 mm number 4 mesh hardware cloth anchored firmly to outside of structure.

In lieu of dowels a 50 mm x 100 mm notch may be provided. See Standards T-DI-3, 4 alternate design.

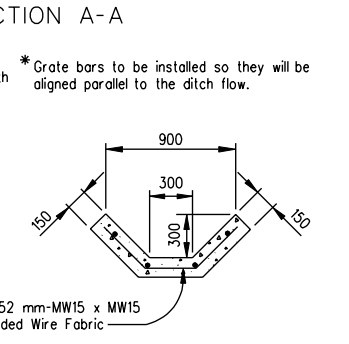
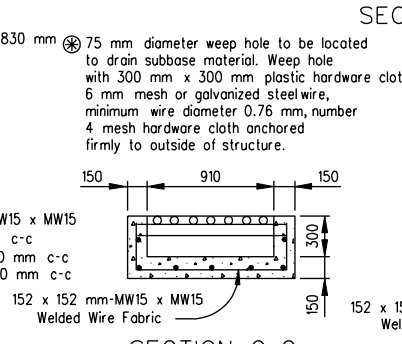
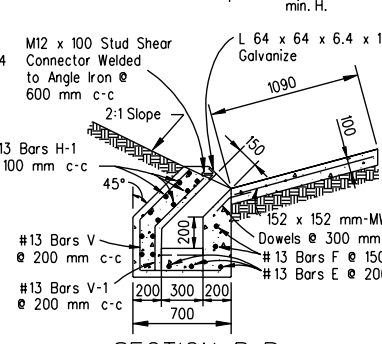
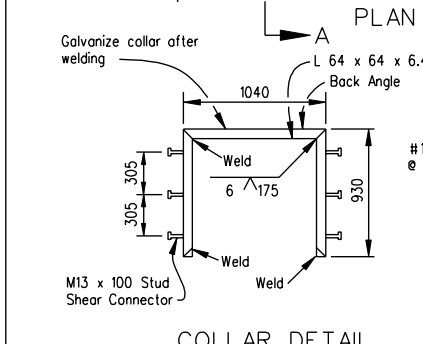
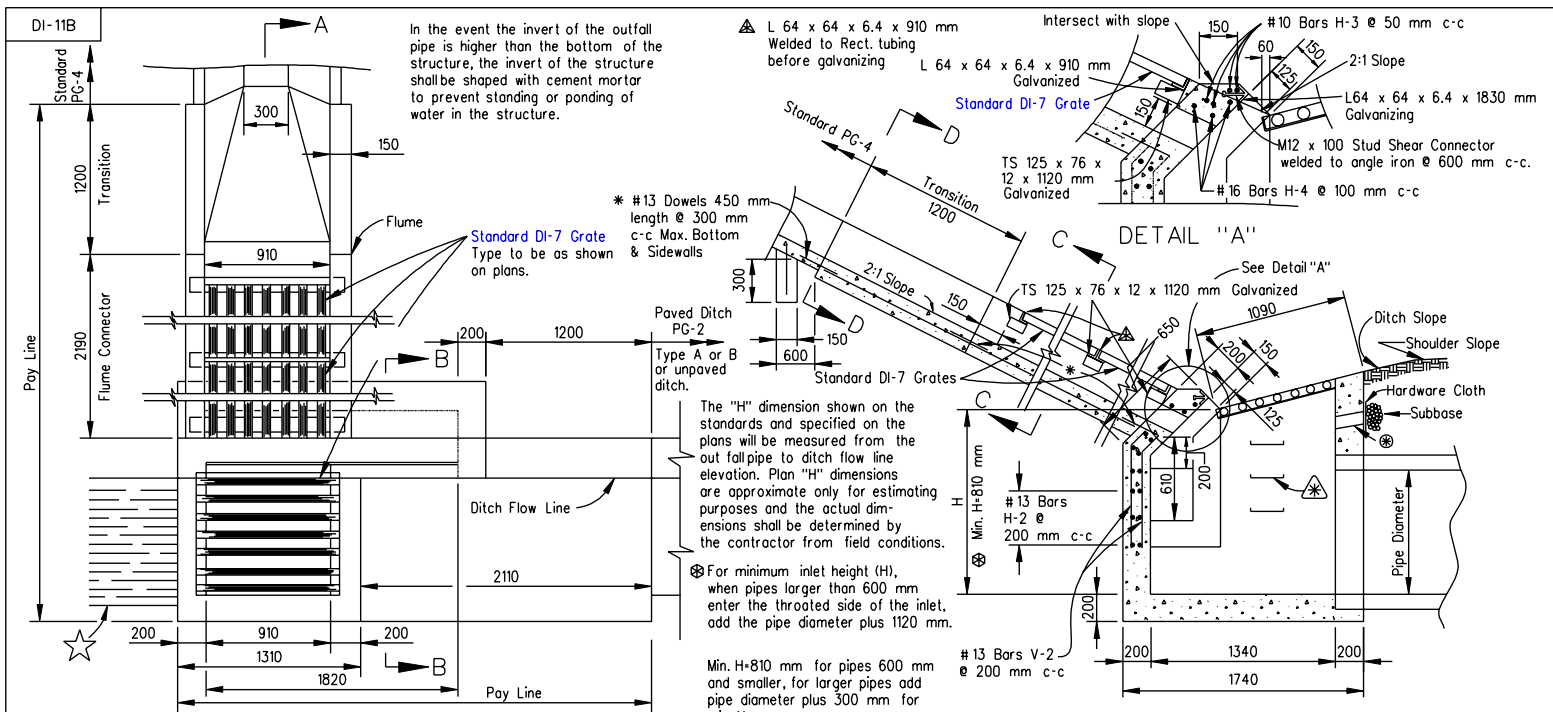
* Steps are to be provided when (H) is 1.2 m or greater. For step details see Standard ST-1.

For Quantities See Sheet 4 of 4

This item may be precast or cast in place, 30 MPa concrete if precast, Class 20 concrete when cast-in-place

Sheet 2 of 4

<p>SPECIFICATION REFERENCE</p> <p>233</p> <p>302</p>	<h2 style="margin: 0;">STANDARD SLOTTED DITCH DROP INLET WITH 1:1 FLUME</h2> <h3 style="margin: 0;">300 - 900 mm PIPE, MAX. DEPTH (H) = 2.4 m</h3> <p style="margin: 0;">VIRGINIA DEPARTMENT OF TRANSPORTATION</p>	<p>UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS</p>	<p>104.34</p>
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#13 x 200 mm Smooth Dowels @ approx. 300 mm c-c to be placed in all areas adjacent to abutting concrete to prevent settlement.

In lieu of dowels a 50 mm x 100 mm notch may be provided See Standard T-DI-3.4 alternate design.

Notes:
 * When specified on plans the invert is to be shaped in accordance with Standard Plan IS-1.
 * Steps are to be provided when (H) is 1.2 m or greater. For step details see Standard ST-1.
 * For Quantities See Sheet 4 of 4

This item may be precast or cast in place; use 30 MPa Concrete if precast, Class 20 Concrete if cast-in-place.

<h1 style="margin: 0;">STANDARD SLOTTED DITCH DROP INLET WITH 2:1 FLUME</h1> <h2 style="margin: 0;">300 mm x 900 mm PIPE, MAX. DEPTH (H) = 2.4 m</h2>		SPECIFICATION REFERENCE 233 302
104.35	UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS	VIRGINIA DEPARTMENT OF TRANSPORTATION

TABLES OF QUANTITIES

REINFORCING STEEL																		
TYPE	BARS E			BARS F			BARS H-1			BARS H-2			BARS H-3			BARS H-4		
	No.	Size	mm	No.	Size	meters	No.	Size	mm	No.	Size	mm	No.	Size	mm	No.	Size	meters
DI-II	4	#13	1120	4	#13	1020	8	#13	2130	3	#13	1220 to 2000	4	#13	2130	4	#16	1730
DI-IIA	4	#13	1120	4	#13	1020	4	#13	2130	3	#13	1220 to 2000	4	#13	2130	4	#16	1730
DI-IIB	4	#13	1120	4	#13	1020	4	#13	2130	3	#13	1220 to 2000	4	#13	2130	4	#16	1730

REINFORCING STEEL																
TYPE	BARS V			BARS V-1			BARS V-2			DOWELS			DOWELS			WELDED WIRE FABRIC 152x152-MW13 x MW13
	No.	Size	mm	No.	Size	mm	No.	Size	mm	No.	Size	mm	No.	Size	mm	Square meters
DI-II	4	#13	1550 to 1950	4	#13	940 to 1350	10	#13	1350	14	#13	300	-	-	-	2.3 m ²
DI-IIA	4	#13	1550 to 1950	4	#13	940 to 1350	10	#13	990	14	#13	300	18	#13	460	6.3 m ²
DI-IIB	4	#13	1550 to 1950	4	#13	940 to 1350	10	#13	970	14	#13	300	18	#13	460	8.0 m ²

* Two bars each length, total number of bars equal 6.

Notes:

Class 20 Concrete to be used if cast in place, 30 MPa if precast.

Concrete quantities shown are for depth (H) of 810 mm without pipes. The amount displaced by pipes must be deducted to obtain true quantities. For inlets of different depths add or subtract .328 m³ of concrete for each meter of difference in depth.

TYPE	L	AREA OF SLOT	CONCRETE	REINFORCING STEEL	WELDED WIRE FABRIC
	m	m ²	m ³	kg	kg
DI-II	1.82	0.27	2.3	83	4
DI-IIA	1.82	0.27	2.9	80	9
DI-IIB	1.82	0.27	3.2	79	12

Sheet 4 of 4

SPECIFICATION REFERENCE

233
302

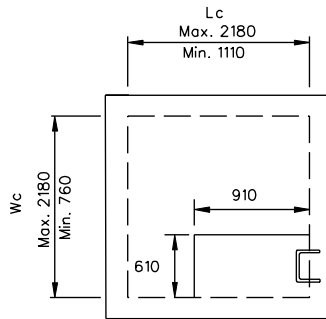
STANDARD SLOTTED DITCH DROP INLET
300 mm - 900 mm PIPE, MAX. DEPTH (H) = 2.4 m

VIRGINIA DEPARTMENT OF TRANSPORTATION

UNLESS OTHERWISE NOTED, ALL DIMENSIONS
ON THIS SHEET ARE IN MILLIMETERS

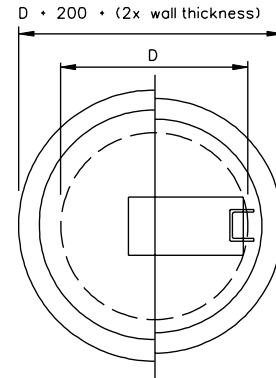
104.36

DI-12,12A

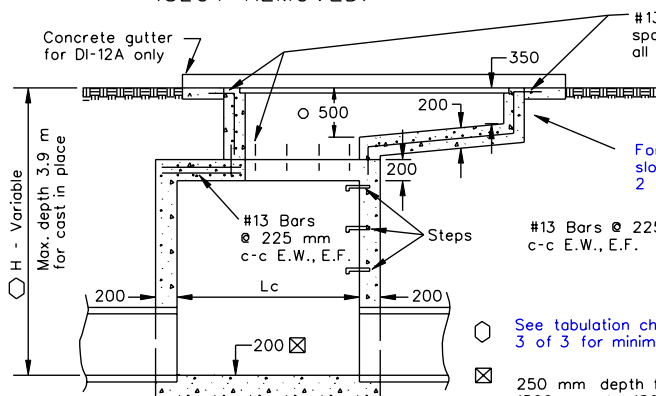


PLAN
(SLOT REMOVED)

* Grate bars to be installed so they will be aligned parallel to the ditch flow.



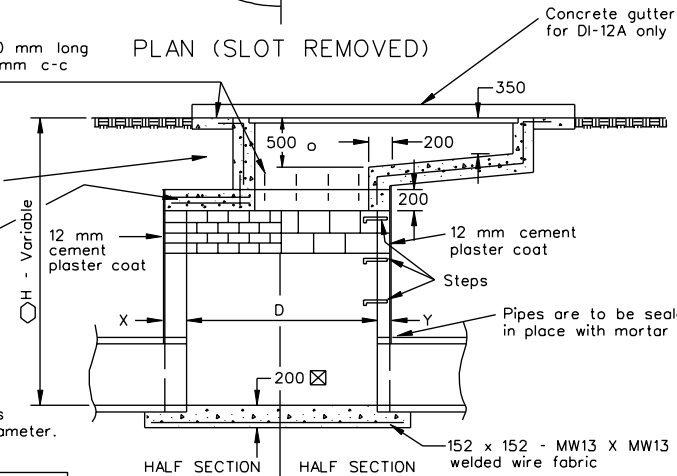
PLAN (SLOT REMOVED)



SECTION
(CAST IN PLACE)

Chamber may be precast see Standard 103.10 for details.
Max. depth : unlimited, 1500 mm minimum diameter.

X DIM.	DEPTH
200	0 to 3 m
300	3 m to 4.9 m
400	4.9 m to 7.6 m



BRICK CONCRETE BLOCK

Y DIM.	DEPTH
125	0 to 3.7 m
250	3.7 m to 7.6 m

DI-12 No gutter.
DI-12A Peripheral gutter.

For step details see Standard ST-1.

The type of inlet detailed hereon to be constructed will be at the option of the Contractor.

When specified on the plans the invert is to be shaped in accordance with Standard IS-1

In the event the invert of the outfall pipe is higher than the bottom of the structure, the invert of the structure shall be shaped with cement mortar to prevent standing or ponding of water in the structure.

Depth (H) and length (L) of inlet is to be as shown on plans.

All reinforcing steel to be #13 bars with a minimum of 40 mm concrete cover.

See Standard SL-1 for applicability of safety slabs.

For details of concrete slot, Collar and Grate, and method of placing approach gutter see sheet 2 of 3.

Paved ditches are to be transitioned to meet inlet gutter as shown in Standard PG-1.

Footings may be round or square in shape. Key is to be 25 mm deep x wall thickness plus 25 mm.

The "H" dimension shown on the standards and specified on the plans will be measured from the invert of the outfall pipe to the top of the structure.

Quantities shown are for inlets without pipes. Pipe displacements must be deducted to obtain true quantities. See Sheet 3 of 3 for quantities.

Sheet 1 of 3

MULTIGRATE DROP INLET FOR PIPE SIZES 300 mm to 1800 mm

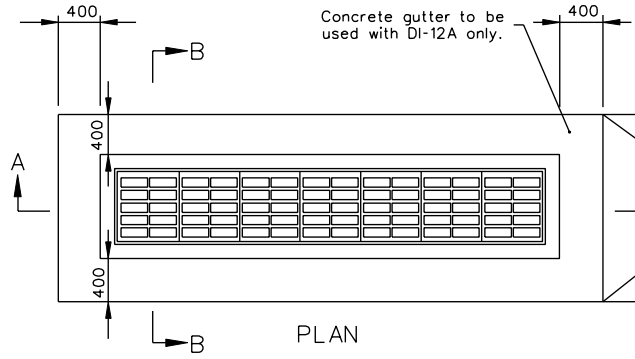
VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION
REFERENCE

233
302

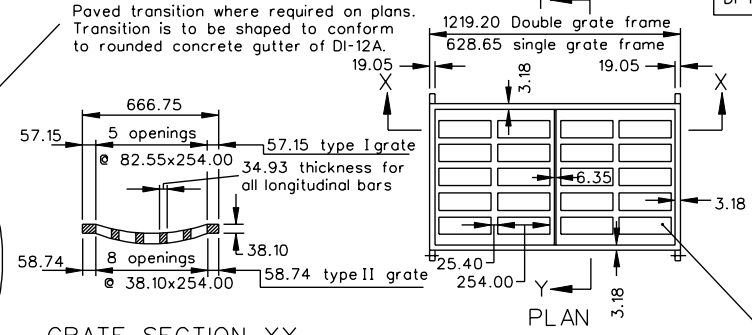
104.37

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ON THIS SHEET ARE IN MILLIMETERS



PLAN

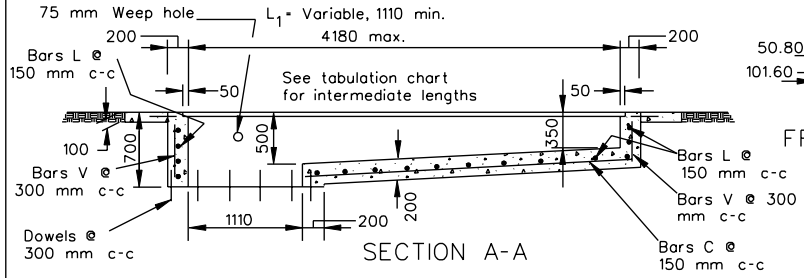
Paved transition where required on plans. Transition is to be shaped to conform to rounded concrete gutter of DI-12A.



GRATE SECTION YY

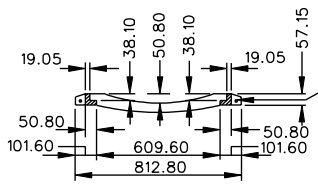
PLAN

Note: See grate section YY For the size and number of grate opening required for type I & II Grate.

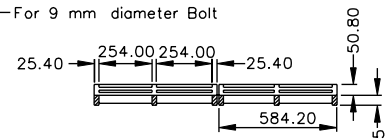


SECTION A-A

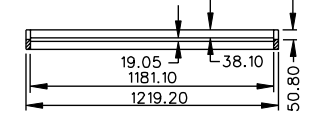
(CHAMBER NOT SHOWN)
(SLOT MAY BE CAST IN PLACE OR PRECAST)



FRAME SECTION YY

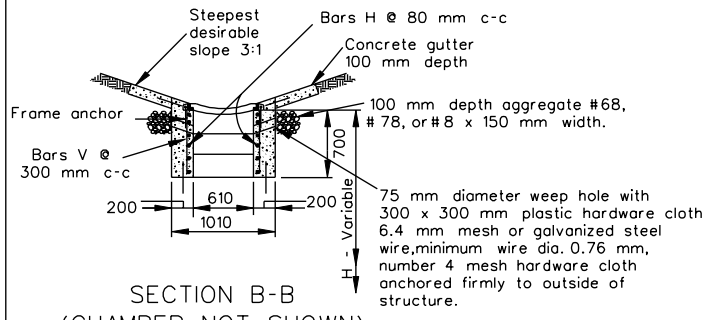


GRATE SECTION XX



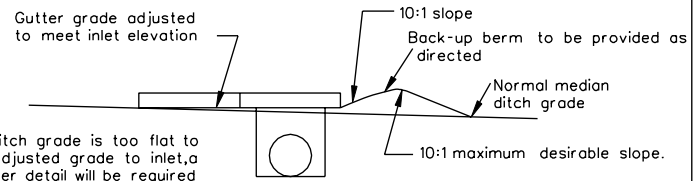
FRAME SECTION XX

Note:
Type I grate: Limited access and rural/unlimited access: Pedestrian access unlikely.
Type II grate: Urban areas: Pedestrian accessible areas.



SECTION B-B
(CHAMBER NOT SHOWN)

FRAME ANCHOR
M10 DIAMETER
BENT BAR



If normal ditch grade is too flat to allow for adjusted grade to inlet, a special gutter detail will be required on plans.
LONGITUDINAL SECTION
(When inlet is located above normal ditch grade)

* Grate bars to be installed so they will be aligned parallel to the ditch flow.

SPECIFICATION REFERENCE
233
302

MULTIGRATE DROP INLET
FOR PIPE SIZES 300 mm - 1800 mm
VIRGINIA DEPARTMENT OF TRANSPORTATION

UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS 104.38

TABULATION CHARTS

☑ APPROXIMATE QUANTITIES CAST IN PLACE CHAMBER						
PIPE SIZES	⊙ MINIMUM DEPTH H METERS	REINFORCING STEEL kg.	CONCRETE m ³	CHAMBER DIMENSIONS		*CONCRETE CHAMBER INCREMENTS PER 100 mm m ³
				W _c	L _c	
300 to 600	1.3	9	0.90	760	1110	0.30
675 to 900	1.7	13	1.60	1110	1110	0.30
1050 to 1350	2.1	58	3.30	1650	1650	0.40
1500 to 1800	2.6	125	5.80	2180	2180	0.50

Notes:

- * For each additional 100 mm in depth the increment shown must be multiplied by the additional depth in 100 mm increments and added to the concrete total.
- ☑ Approximate quantities are shown for bidding purposes only; items are not to be bid separately. To obtain the total approximate concrete quantities for each inlet, the chamber, slot and gutter (gutter to be used with DI-12A only) quantities must be added together.
- ⊙ Minimum depths shown are for the smallest pipe size in each series.
Minimum depth H-pipe diameter + pipe wall thickness + 90 mm.
- ◊ For approximate quantities for DI-12 add 0.30 m³ of Class 20 concrete to DI-12 quantities for concrete gutter. Quantity shown is for a minimum slot length of 1110 mm. For other lengths, see concrete gutter increment below.

DI-12A concrete gutter increment: Add 0.05 m³ Class 20 concrete for each additional meter of slot length greater than minimum 1110 mm.

Dowels are to be provided for the joint between the gutter & slot.
The cost of dowels are to be included in the cubic meters cost for concrete.

APPROXIMATE QUANTITIES BRICK AND BLOCK CHAMBER						
PIPE SIZES	CHAMBER DIMENSIONS "D"	REINFORCING STEEL kg.	CONCRETE m ³	BRICK		BLOCK NO.
				MIN. DEPTH H-METERS	NO.	NO.
300 to 600	1220	47	0.90	1.3	688	42
675 to 900	1220	47	0.90	1.7	911	55
1050 to 1350	1670	91	1.50	2.4	1300	111
1500 to 1800	2430	184	2.80	2.9	1568	190
BRICK CHAMBER INCREMENTS PER 100 mm						
X DIM.	DEPTH	1220 DIAMETER APPROX. NO. BRICKS/100 mm	1670 DIAMETER APPROX. NO. BRICKS/100 mm	2430 DIAMETER APPROX. NO. BRICKS/100 mm		
200	0.0-3.0	55	76	110		
300	3.0-4.9	85	114	165		
400	4.9-7.6	110	151	220		
BLOCK CHAMBER INCREMENTS PER 100 mm						
Y DIM.	DEPTH	1220 DIAMETER APPROX. NO. BRICKS/100 mm	1670 DIAMETER APPROX. NO. BRICKS/100 mm	2430 DIAMETER APPROX. NO. BRICKS/100 mm		
125	0.0-3.7	4	5	7		
250	3.7-7.6	7	9	13		

APPROXIMATE QUANTITIES - DI - 12 ONLY ◊				
SLOT 1.2 m TO 4.2 m				
⊗ L	L ₁	CONCRETE m ³	REINFORCING STEEL kg.	GRATES NO.
1.2 m	1110	0.60	37	2
1.8 m	1740	0.80	56	3
2.4 m	2330	1.00	73	4
3.0 m	2960	1.20	92	5
3.6 m	3550	1.50	110	6
4.2 m	4180	1.70	129	7

Note:

Slot may be cast in place or precast

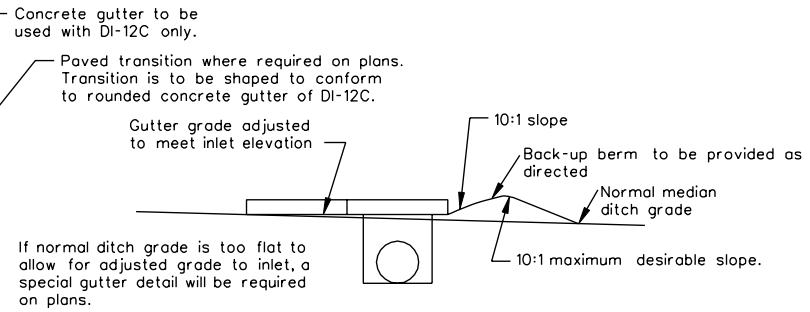
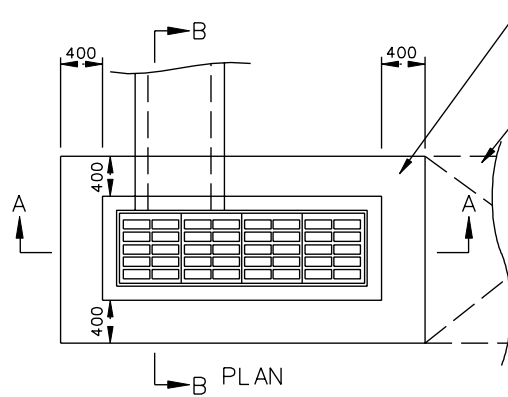
⊗ L, Length rounded for plan use.

Sheet 3 of 3

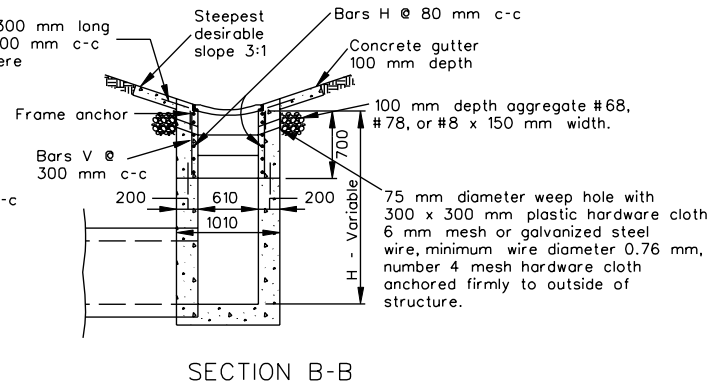
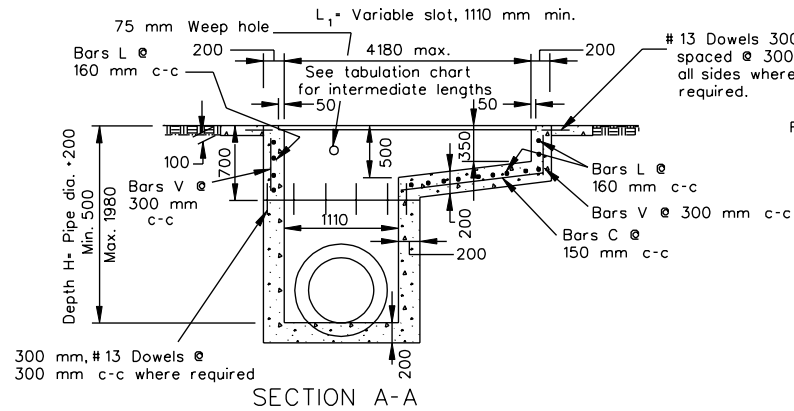
MULTIGRATE DROP INLET FOR PIPE SIZES 300 mm TO 1800 mm

SPECIFICATION REFERENCE

233
302



LONGITUDINAL SECTION
(When inlet is located above normal ditch grade)

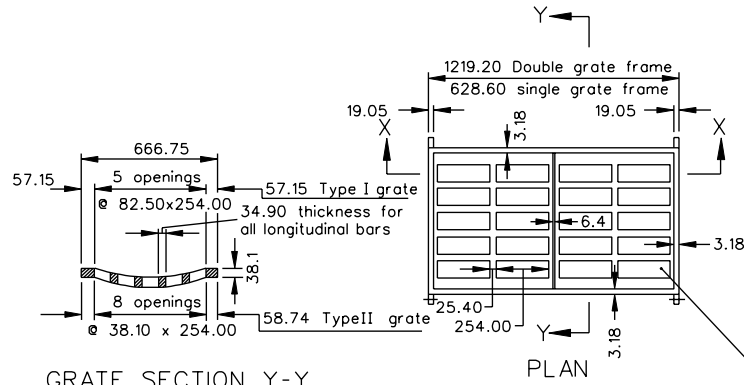


Note: This inlet may be precast or in place.
For depths greater than 1980 mm use Standard DI-12,12A.

Note: No steps required

* Grate bars to be installed so they will be aligned parallel to the ditch flow.

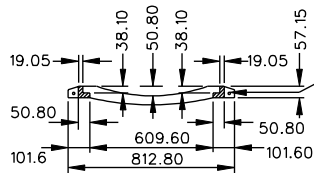
SPECIFICATION REFERENCE	MULTIGRATE DROP INLET	
241 503	FOR PIPE SIZES 300 mm - 900 mm	
	VIRGINIA DEPARTMENT OF TRANSPORTATION	
	UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS	104.40



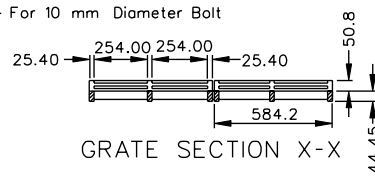
GRATE SECTION Y-Y

PLAN

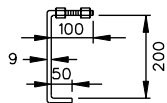
Note: See grate section YY
For the size and number of grate opening required for type I & II Grate.



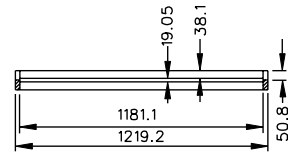
FRAME SECTION Y-Y



GRATE SECTION X-X



FRAME ANCHOR
10 mm DIAMETER BENT BAR



FRAME SECTION X-X

General Notes

DI-12B No gutter

DI-12C Peripheral gutter

When specified on the plans the invert is to be shaped in accordance with Standard IS-1.

In the event the invert of the outfall pipe is higher than the bottom of the structure. The invert of the structure shall be shaped with cement mortar to prevent standing or ponding of water in the structure.

TABULATION CHARTS

APPROXIMATE QUANTITIES DI-12B ONLY					
(MINIMUM HEIGHT) SLOT 1220 mm TO 4260 mm					
L meters	L1 mm	CONCRETE CU. METERS	REINFORCING STEEL kg	NUMBER GRATES	CONCRETE CHAMBER INCREMENTS PER 100 mm CU. METERS *
1.2	1110	0.76	36.9	2	0.09
1.8	1740	0.98	55.76	3	0.09
2.4	2330	1.13	73.56	4	0.09
3.0	2960	1.37	92.33	5	0.09
3.6	3550	1.60	110.07	6	0.09
4.2	4180	1.84	128.9	7	0.09

Note: Slot may be cast in place or precast.

L, Length rounded for plan use.

Notes

* For each additional 100 mm in depth the increment shown must be multiplied by the additional depth in 100 mm increments and added to the concrete total.

DI-12 : For approximate quantities for DI-12C add 0.30 m³ of Class 20 concrete to DI-12B quantities for concrete gutter, quantity shown is for a minimum slot length of 1120 mm, for other lengths see concrete gutter increment below.

DI-12C concrete gutter increment: Add 0.18 m³ Class 20 concrete for each additional meter of slot length greater than minimum 1110 mm.

Type I grate: Limited access and rural unlimited access:
Pedestrian access unlikely.

Type II grate: Urban areas: Pedestrian accessible areas.

Depth (H) and length (L) of inlet is to be as shown on plans.

Paved ditches are to be transitioned to meet inlet gutter as shown in Standard PG-1.

The "H" dimension shown on the standards and specified on the plans will be measured from the invert of the outfall pipe to the top of the structure.

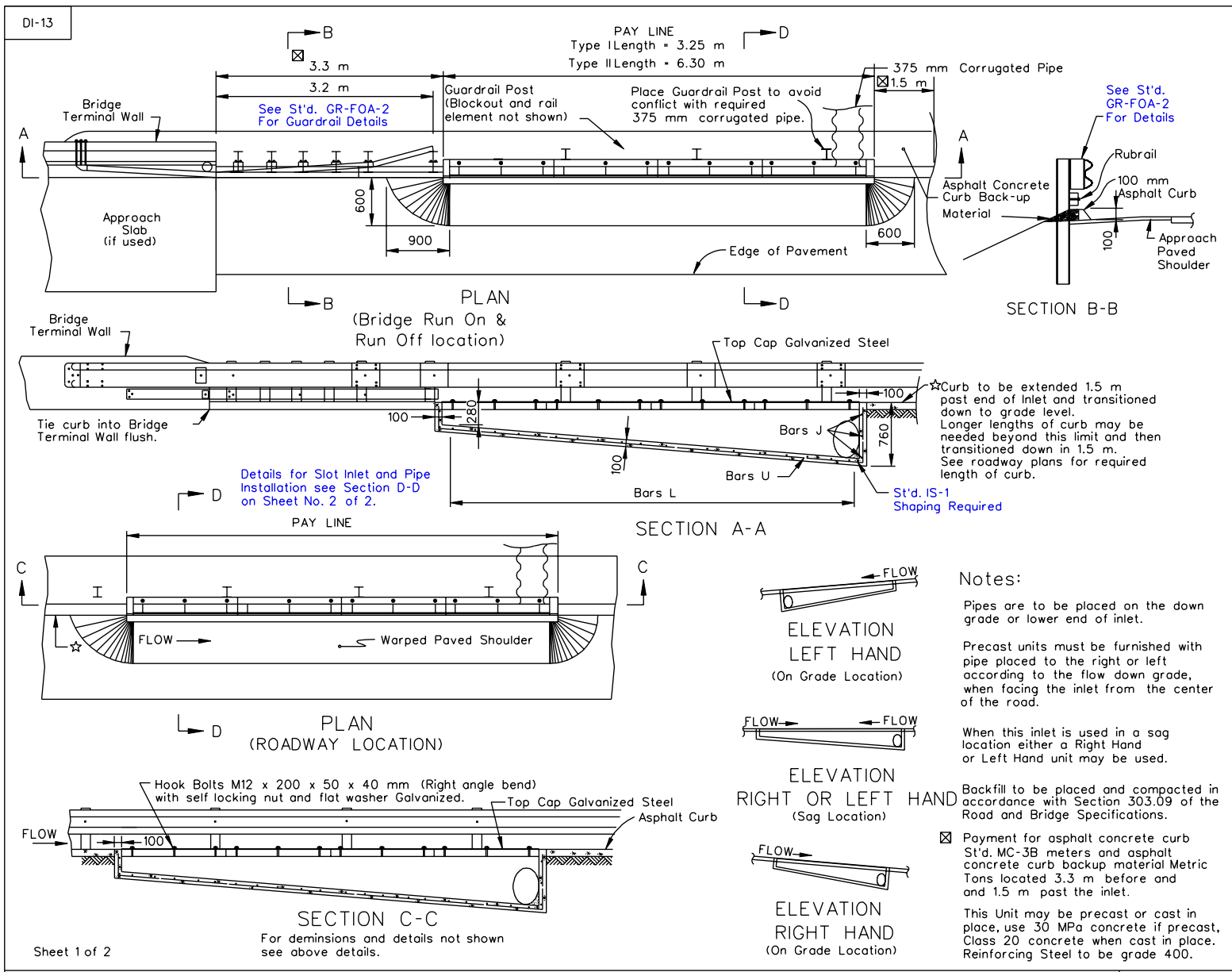
Quantities shown are for inlets without pipes. Pipe displacements must be deducted to obtain true quantities.

All reinforcing steel to be # 13 bars with a minimum of 40 mm concrete cover.

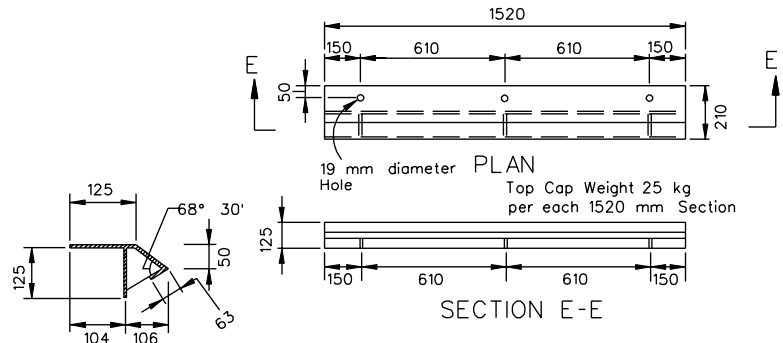
MULTIGRATE DROP INLET
FOR PIPE SIZES 300 mm - 900 mm

SPECIFICATION REFERENCE

241
503



SHOULDER SLOT INLET		SPECIFICATION REFERENCE
VIRGINIA DEPARTMENT OF TRANSPORTATION		233
104.42	UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS	302



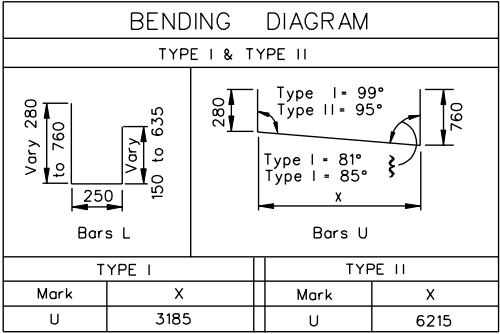
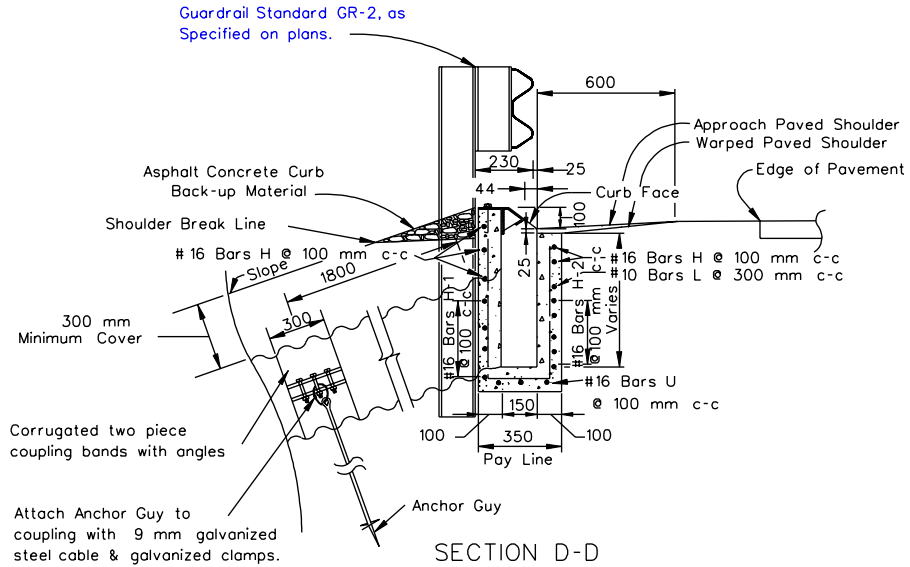
REINFORCING STEEL SCHEDULE									
TYPE I					TYPE II				
MARK	SIZE	NO.	SPA.	LENGTH	MARK	SIZE	NO.	SPA.	LENGTH
H	#16	6	100	3150	H	#16	6	100	6200
H-1	#16	4	100	2715 to 810	H-1	#16	4	100	3860 to 810
H-2	#16	4	100	2715 to 810	H-2	#16	4	100	3860 to 810
J	#16	5	300	250	J	#16	5	300	250
L	#10	11	300	1650 to 685	L	#10	21	300	1650 to 685
U	#16	3	100	4215	U	#16	3	100	7265

END VIEW

TOP CAP DETAIL

Note:

Top cap is to be fabricated from A-36M steel plate 6.4 mm thick. All joints are to be welded using 6 mm fillet welds and the completed unit is to be galvanized.



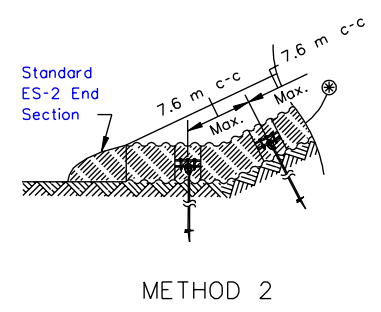
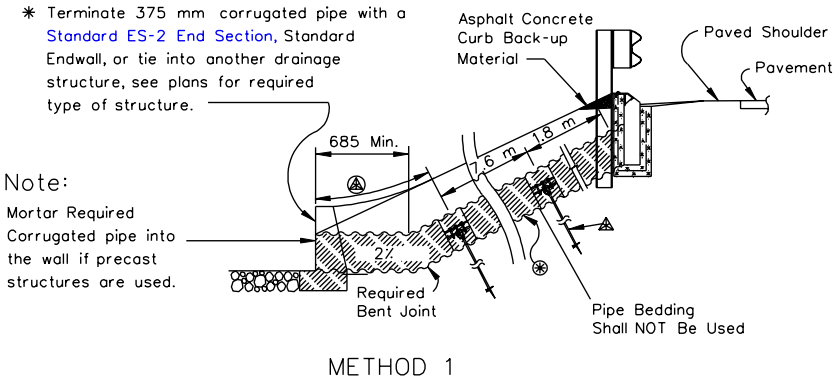
Note:

See sheet 1 of 2 (104.36) of 1994 Road and Bridge Standards for additional design and placement information.

SPECIFICATION REFERENCE
233
302

SHOULDER SLOT INLET
VIRGINIA DEPARTMENT OF TRANSPORTATION

UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS



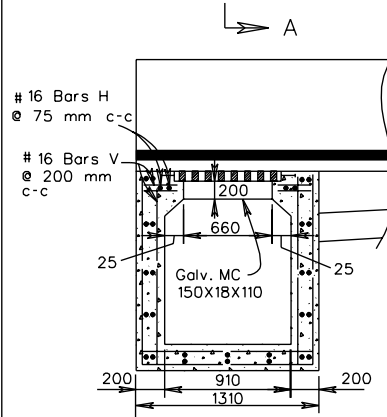
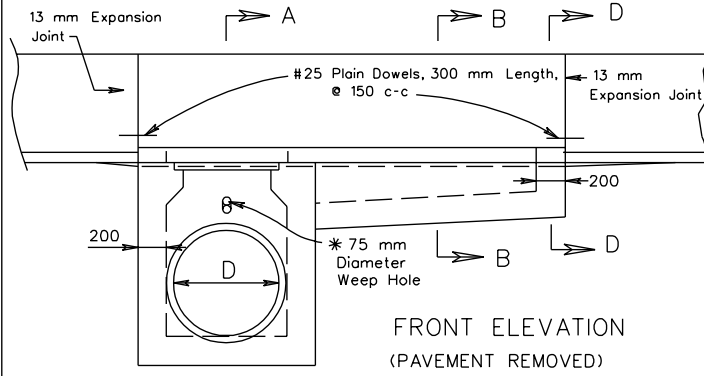
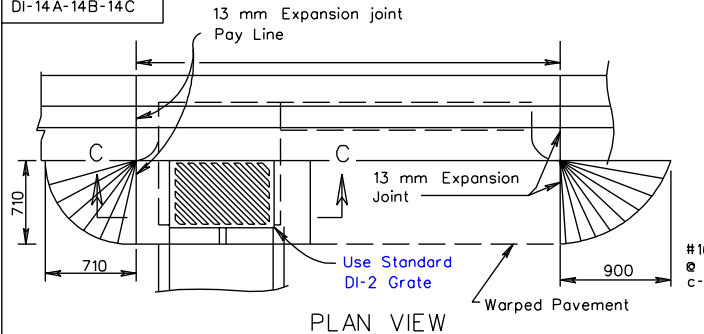
Notes:

- ⚠ Anchor Guy Screws are Not to be used with the coupling bands when the pipe lengths are less than 15.0 m. When pipe lengths exceed 15.0 m, two (2) anchor guy screws are to be used with each coupling band spaced at 7.6 m c-c maximum.
- Two (2) Anchor Guy screws, (19 mm diameter Rod x 1675 mm, 150 mm diameter Helix), to be used with each Coupling Band, when pipe length exceeds 15.0 m.
- ⚠ When the spacing of the lower coupling falls closer than 7.6 m to the Storm System structure the distance is to be added to the last full 7.6 m space and the coupling is to be spaced mid-way of the total distance.
- ⊗ Required 375 mm corrugated pipe. See plans for meter quantities. The meter cost for the pipe is to include furnishing and placing couplings and anchor guys. Corrugated polyethylene pipe lengths greater than 15.0 m may be used as an alternate provided the coupling band anchorage design is submitted, by the manufacturer, for the Engineer's review and approval.
- * Required 375 mm corrugated pipe must be terminated at the toe of the fill slope with an appropriate end treatment. For 3 : 1 slopes and flatter the pipe may be terminated with a Standard ES-2 End Section or tied into another drainage structure. For slopes 3 : 1 and steeper (Maximum 1 1/2 : 1) the 375 mm pipe must have one of the following end treatments:
 - Method 1. Terminate pipe with a standard endwall or other drainage structure, to be approved by the Engineer. For pipe lengths longer than 15.0 m, coupling bands with anchor guys are to be used at 7.6 m c-c maximum spacing.
 - Method 2. Terminate pipe with a standard ES-2 end section anchored with coupling band and anchor guys. Additional coupling bands and anchor guys are to be placed 7.6 m c-c maximum for the remaining length of pipe.

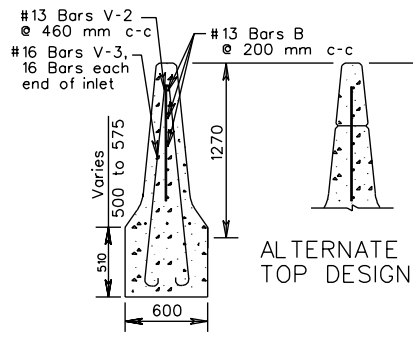
METHOD OF OUTLET PIPE INSTALLATION FOR DI-13

SPECIFICATION REFERENCE
232 302

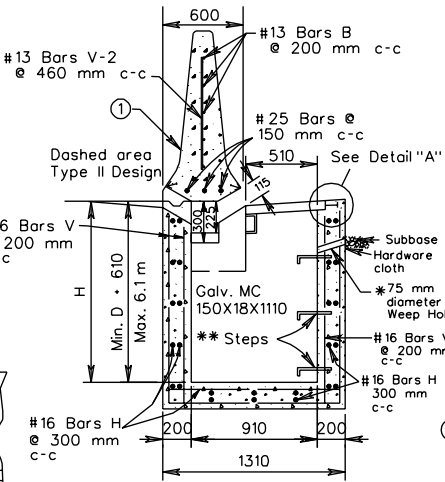
DI-14 A-14B-14C



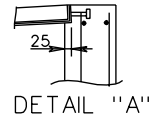
SECTION C-C



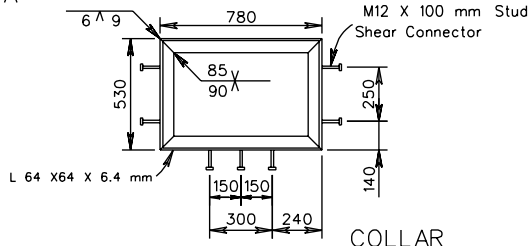
SECTION D-D



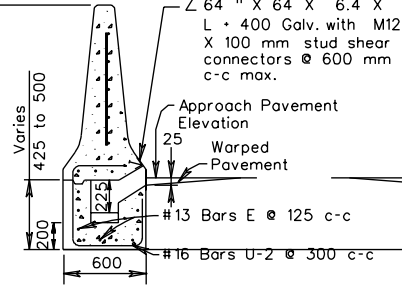
SECTION A-A



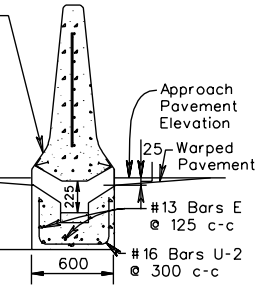
DETAIL "A"



COLLAR GALV. STEEL



SINGLE SLOT TYPE I SECTION B-B



DOUBLE SLOT TYPE II SECTION B-B

Notes:

- * 75 diameter weep hole to be located to drain subbase. Weep hole with 300X300 plastic hardware cloth, 6.4 mesh or galvanized steel wire, minimum wire diameter 0.76 mm, number 4 mesh hardware cloth anchored firmly to outside of structure.
- All reinforcing steel shall have a min. cover of 50 mm. All reinforcing steel to be cut clear of all openings by 50 mm.
- In the event the invert of the outfallpipe is higher than the bottom of the structure, the invert of the structure shall be shaped with cement mortar to prevent standing or ponding of water in the structure. When specified on plans the invert is to be shaped in accordance with Standard Plan IS-1.
- For dimensions and quantities not shown see sheet 2 of 2. This item may be precast or cast in place.
- Grate is to be insulated so slots will direct water toward the inlet throat. Grate must be reversible. (Right hand grate is shown).
- The "H" dimension shown on the Standards and specified on the plans will be measured from the invert of the outfallpipe to the top of the structure. Plan "H" dimensions are approximate only for estimating purposes and the actual dimensions shall be determined by the contractor from field conditions.
- ① For details and dimensions not shown see Std. MB-12 (MA-96).

** Steps are to be provided when H is 1220 mm or greater. For step details see Standard ST-1.

Sheet 1 of 2

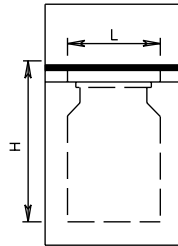
CONCRETE MEDIAN BARRIER DROP INLET (TALL WALL)
300 mm - 900 mm PIPE DEPTH (H)= 6.1 m MAX.

104.45 UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

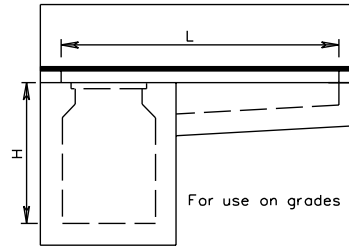
VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE
233
302

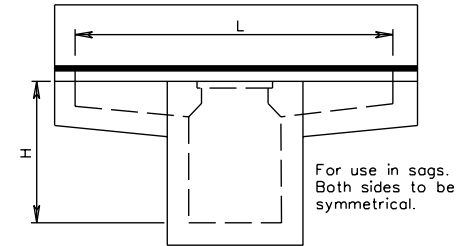
DI-14A



DI-14B



DI-14C



Length of slot (L) will, in every case, be shown on plans.

TABLE OF QUANTITIES

TYPE	L Meters	Concrete		REINFORCING STEEL														WT.	WT.								
		Concrete		BARS A		BARS B		BARS E		BARS H		BARS U-1		BARS U-2		BARS V				BARS V-1		BARS V-2		BARS V-3			
		Type I Cu. Meters	Type II Cu. Meters	No.	mm*	No.	mm*	No.	mm*	No.	mm*	No.	mm*	No.	mm*	No.	mm*			No.	mm*	No.	mm*	No.	mm*	No.	mm*
DI-14A	0.91	1.70	1.68	5	1210	3	1210	-	-	38	1210	-	-	-	-	-	-	48	1010	12	760	3	1120	8	1750	206	206
DI-14B	1.2	1.87	1.86	5	1520	3	1520	8	400	38	1210	2	1570 to 1720	2	940 to 1090	48	1010	12	760	4	1120	8	1750	219	217		
	1.8	2.22	2.21	5	2130	3	2130	8	1010	38	1210	4	1570 to 1720	4	940 to 1090	48	1010	12	760	5	1120	8	1750	239	235		
	2.4	2.56	2.55	5	2740	3	2740	8	1620	38	1210	6	1570 to 1720	6	940 to 1090	48	1010	12	760	7	1120	8	1750	259	253		
	3.0	2.92	2.89	5	3350	3	3350	8	2230	38	1210	8	1570 to 1720	8	940 to 1090	48	1010	12	760	8	1120	8	1750	279	272		
	3.6	3.27	3.24	5	3960	3	3960	8	2840	38	1210	10	1570 to 1720	10	940 to 1090	48	1010	12	760	9	1120	8	1750	299	289		
	4.2	3.62	3.59	5	4570	3	4570	8	3450	38	1210	12	1570 to 1720	12	940 to 1090	48	1010	12	760	11	1120	8	1750	320	307		
	4.8	3.97	3.93	5	5180	3	5180	8	4060	38	1210	14	1570 to 1720	14	940 to 1090	48	1010	12	760	12	1120	8	1750	339	326		
	5.4	4.33	4.29	5	5790	3	5790	8	4670	38	1210	16	1570 to 1720	16	940 to 1090	48	1010	12	760	13	1120	8	1750	359	343		
	6.0	4.69	4.63	5	6400	3	6400	8	5280	38	1210	18	1570 to 1720	18	940 to 1090	48	1010	12	760	15	1120	8	1750	380	362		
DI-14C	1.8	2.22	2.21	5	2130	3	2130	16	600	38	1210	6	1570 to 1720	6	940 to 1090	48	1010	12	760	5	1120	8	1750	246	240		
	2.4	2.56	2.55	5	2740	3	2740	16	910	38	1210	8	1570 to 1720	8	940 to 1090	48	1010	12	760	7	1120	8	1750	266	258		
	3.0	2.92	2.89	5	3350	3	3350	16	1210	38	1210	10	1570 to 1720	10	940 to 1090	48	1010	12	760	8	1120	8	1750	286	276		
	3.6	3.27	3.24	5	3960	3	3960	16	1520	38	1210	12	1570 to 1720	12	940 to 1090	48	1010	12	760	9	1120	8	1750	306	292		
	4.2	3.62	3.59	5	4570	3	4570	16	1820	38	1210	14	1570 to 1720	14	940 to 1090	48	1010	12	760	11	1120	8	1750	326	312		
	4.8	3.97	3.93	5	5180	3	5180	16	2130	38	1210	16	1570 to 1720	16	940 to 1090	48	1010	12	760	12	1120	8	1750	346	330		
	5.4	4.33	4.29	5	5790	3	5790	16	2430	38	1210	18	1570 to 1720	18	940 to 1090	48	1010	12	760	13	1120	8	1750	365	348		
	6.0	4.69	4.63	5	6400	3	6400	16	2740	38	1210	20	1570 to 1720	20	940 to 1090	48	1010	12	760	15	1120	8	1750	386	366		

* Denotes length of one (1) bar.

Notes:

Class 20 Concrete to be used if cast in place, 30 MPa if precast.

Concrete quantities shown are for depth (H) of 0.9 m without pipes. The amount displaced by pipes must be deducted to obtain true quantities. For inlets of different depths add or subtract 0.90 m³ of concrete and 125 kg reinforcing steel for each meter of difference in depth.

Length of Angle Iron as shown on Sheet 1 is to be L + 0.4 m @ 6.1 kg per meter

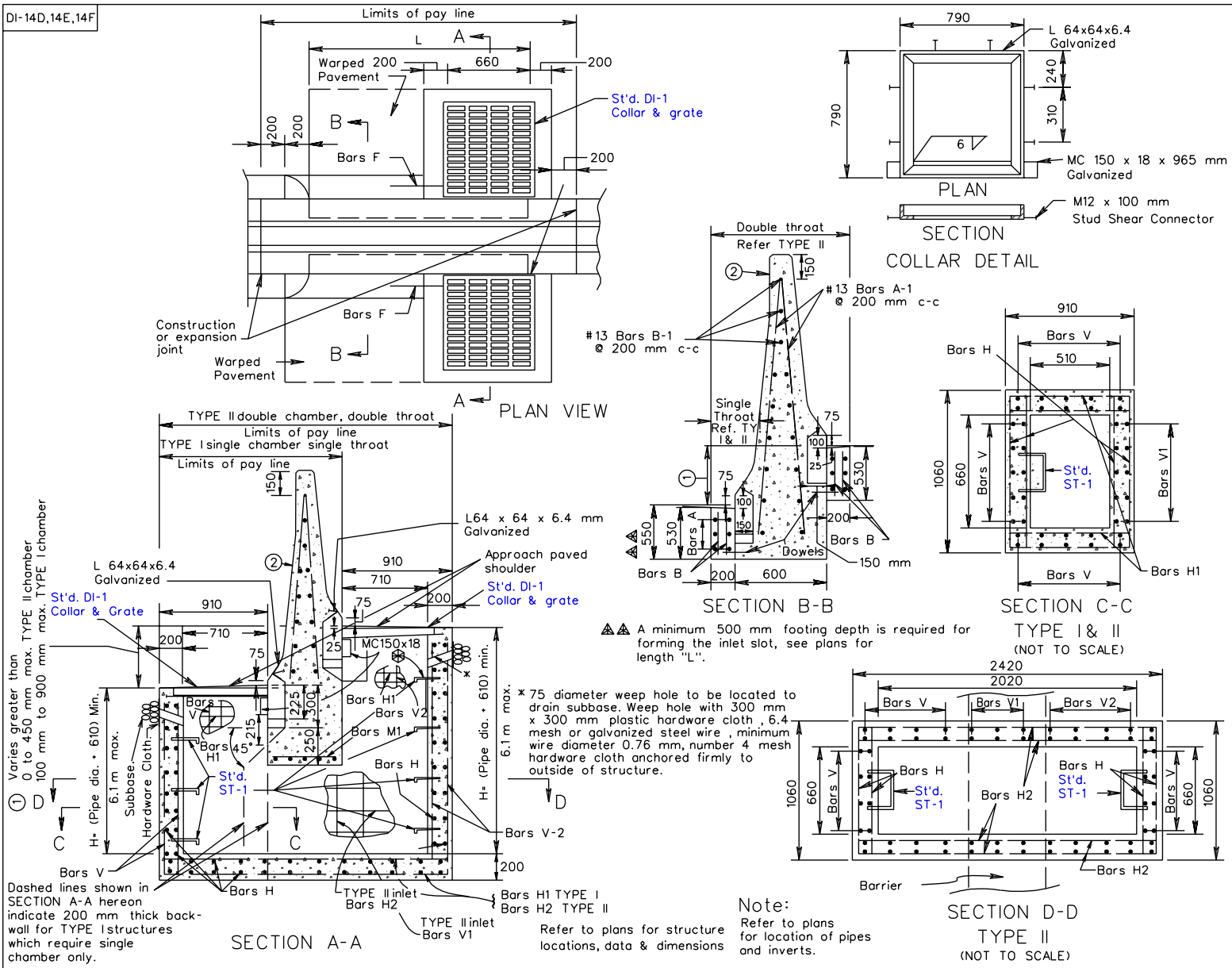
All reinforcing steel to be cut clear of all openings by 50 mm.

△ Approximate quantities

SPECIFICATION REFERENCE	<p>CONCRETE MEDIAN BARRIER DROP INLET (TALL WALL)</p> <p>300 mm - 900 mm PIPE DEPTH (H)= 6.1 m MAX.</p> <p>VIRGINIA DEPARTMENT OF TRANSPORTATION</p>	UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS	104.46
233 302			

REVISED ON 8/97

DI-14D,14E,14F



Sheet 1 of 2

CONCRETE MEDIAN BARRIER DROP INLET (TALL WALL)

SPECIFICATION REFERENCE

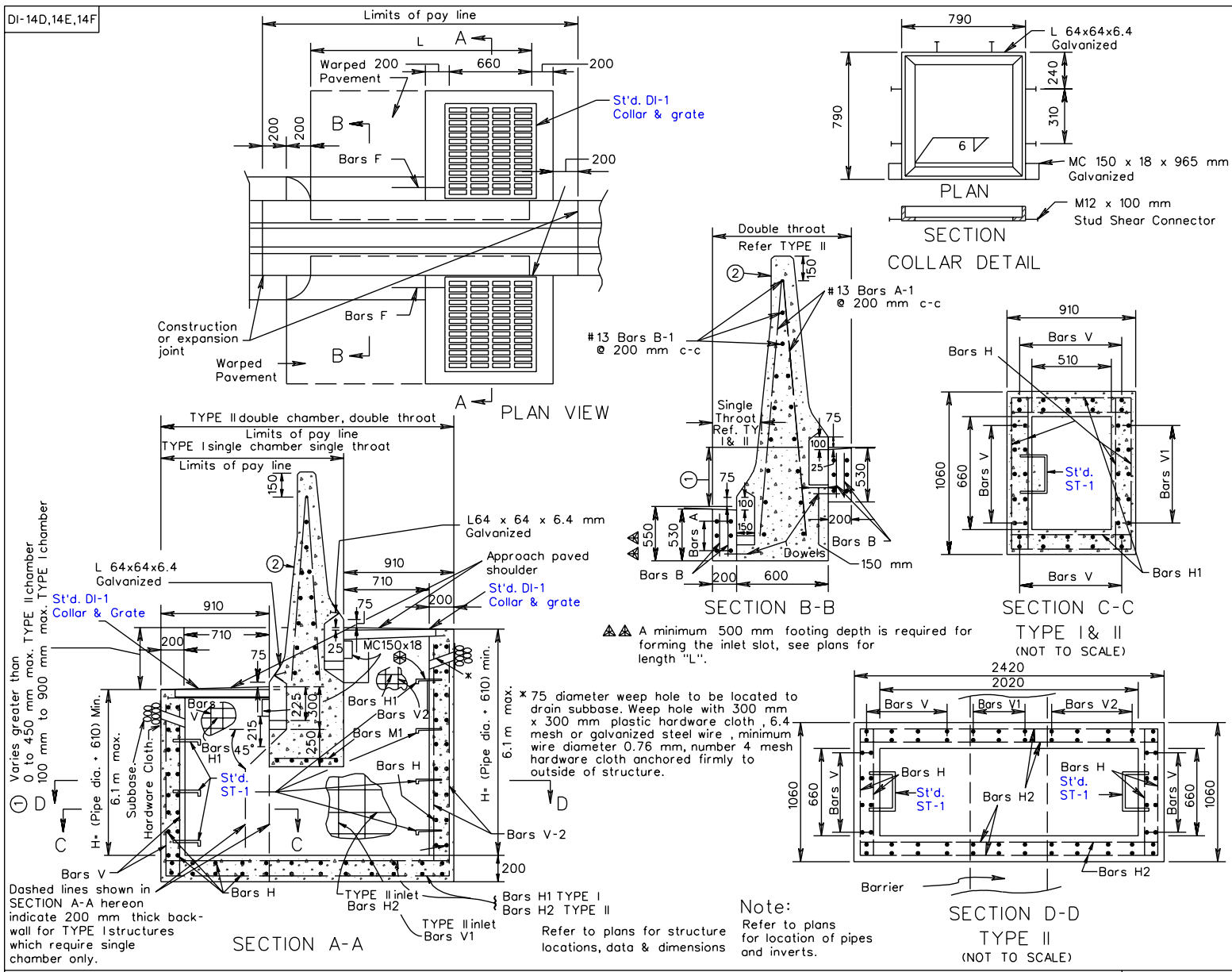
233
302

104.47 UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

VIRGINIA DEPARTMENT OF TRANSPORTATION

REVISED ON 8/97

DI-14D,14E,14F



Sheet 1 of 2

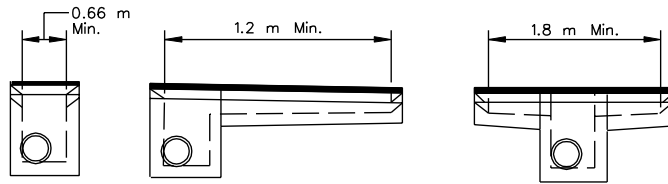
CONCRETE MEDIAN BARRIER DROP INLET (TALL WALL)

SPECIFICATION REFERENCE

233
302

104.47 UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

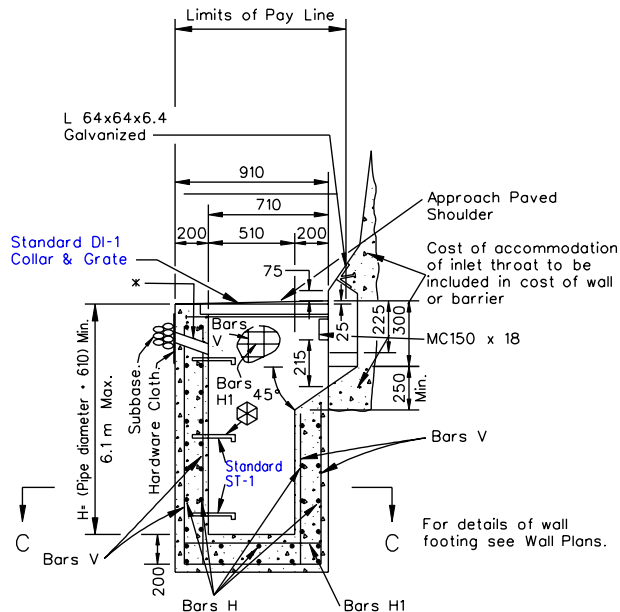
VIRGINIA DEPARTMENT OF TRANSPORTATION



DI-14D

DI-14E

DI-14F



FOR USE ADJACENT TO WALL OR BARRIER WITH SAFETY SHAPE

(TYPE III)

Refer to plans for structure locations, data & dimensions

If permanent concrete median barrier (tall wall) separates roadways of varying elevations, delineators shall be installed at the following locations. Delineation for higher elevation roadway shall be placed on top of barrier wall orientated towards oncoming traffic. Delineation for lower elevation roadway shall be placed on barrier wall orientated towards oncoming traffic at approximately 635 mm above the roadway. Concrete median barrier (tall wall) located in construction work zones shall have delineators installed on barrier wall orientated towards oncoming traffic at approximately 635 mm above the roadway.

Galvanized MC150 x 18 to be welded under the collar and extended into side walls to within 50 mm of outside face.

All reinforcing bars to be grade 400 steel with a minimum 40 mm concrete cover. Any bars in conflict with pipe, shell and/or top slab opening are to be field cut to provide this required cover.

② For details & dimensions not shown for median barrier, see Standard MB-13 (Insertable sheet #104).

⊗ Do NOT locate Standard ST-1 steps on chamber walls that have pipes when possible.

Note: Maximum pipe size 600 mm diameter.

Type I Denotes inlet with single & III throat and chamber.

Type II Denotes inlet with double throat and chamber.

TYPE - II INLET

REINFORCING STEEL				
MARK	SIZE	NO.	LENGTH	SPA.
A-1	#13	(2xL/0.30)+2	1675	300
B-1	#13	11	L + 710	200
H-2	#16	16 ⊕	2340	250
V-1	#13	12	H - 350	200
V-2	#13	30	LENGTH+H	200
A	#13	12 ⊙	L - 760 ⊠	AS SHOWN
B	#10	4(L/0.30-4)	330	300
DOWELS	#13	DOUBLE NO. SHOWN FOR TYPE I	300	150
F	#16	6 ⊗	455	150
H	#16	(4+H/0.3)·8	965	300
H-1	#16	(4+H/0.3)·16	810	250
V	#13	30	LENGTH+H	200
M-1	#16	5	965	125
M	#13	4	455	300

TYPE I & III INLET

REINFORCING STEEL				
MARK	SIZE	NO.	LENGTH	SPA.
A ⊗	#13	6 ⊠	L - 760 *	AS SHOWN
A-1 ⊙	#13	(2xL/0.30)+2	1675	300
B ⊗	#10	2x(L/0.30-4)	330	300
B-1 ⊙	#13	11	L + 710	200
DOWELS	#13	**	300	150
F ⊗	#16	3 ⊗	455	150
H	#16	(4xH/0.30)+10	965	300
H1	#16	(4xH/0.30)+8	810	250

* } 8 dowels req'd. for DI-14F Min. L=2130 mm
 Add 6 dowels for each additional meter.
 4 dowels req'd. for DI-14E Min. L=1220 mm
 Add 6 dowels for each additional meter.

⊠ 12 bars A req'd. for DI-14F

* Length of bars A DI-14F = $\frac{L - (.75 \text{ m})}{2}$

⊗ Do not use with DI-14D

⊗ Use 6 bars F for DI-14F Type. I

⊙ Do not use with Type III

⊕ Add 12 additional bars for each extra meter of depth

⊗ Use 12 Bars F for DI-14F Type. II

⊙ 24 Bars A req'd. for DI-14F

⊗ Do not use with DI-14D

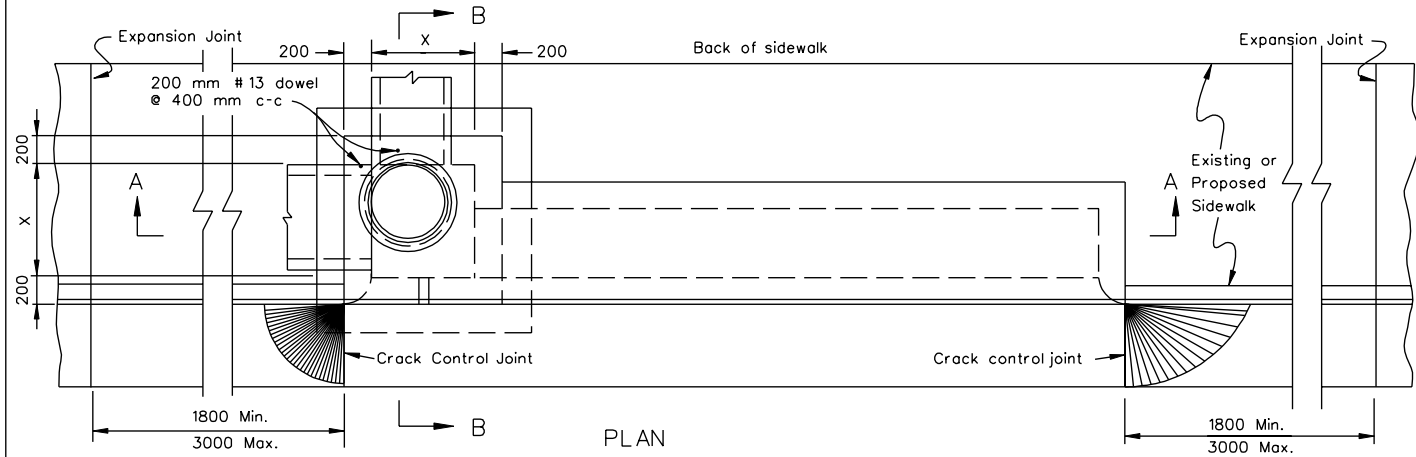
⊠ Length of Bars A for DI-14F = $\frac{L - (.75 \text{ m})}{2}$

SPECIFICATION REFERENCE
233 302

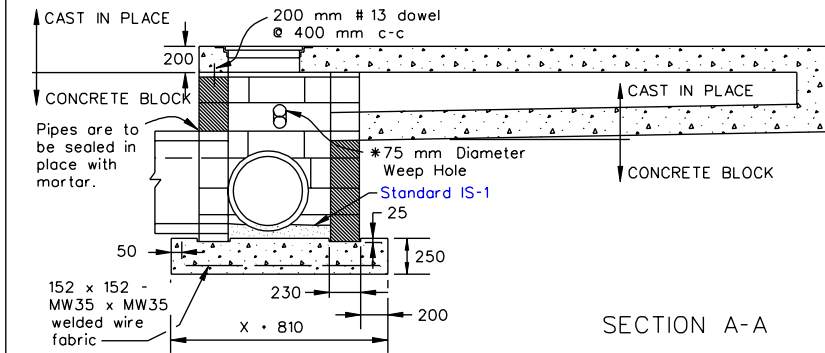
CONCRETE MEDIAN BARRIER DROP INLET (TALL WALL)

VIRGINIA DEPARTMENT OF TRANSPORTATION

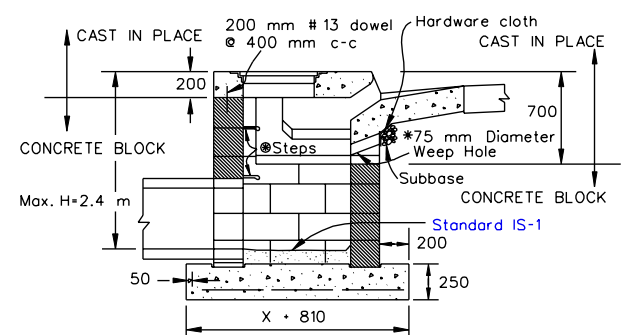
UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS



PLAN



SECTION A-A



SECTION B-B

Notes:

- Concrete block to be either 200 mm x 200 mm x 400 mm or 200 mm x 200 mm x 300 mm (nominal dimension) solid concrete masonry block meeting the requirements of A.S.T.M. C-139M.
- Details above apply to Standard Drawings 3A thru 3F and 4A thru 4F.
- X equals interior dimension of Standard Drop Inlet specified on plans.
- Partial block, brick, or mortar may be used to adjust top to curb elevation.
- Reinforced concrete footing may be precast or cast in place. Lifting hooks of fabricators design are to be provided in precast footing.
- Maximum depth allowable for concrete block construction is to be 2.4 m.
- Mortar joints on interior surfaces are to be finished flush and may be left extruded on exterior faces.
- In the event the invert of the outfall pipe is higher than the bottom of the structure, the invert of the structure shall be shaped with cement mortar to prevent standing or ponding of water in the structure.

All details and dimensions of the portion of the inlet designated "cast in place" are to be in strict accordance with the Standard Drawing specified on the plans. This will include all notes, details of frame and cover, gutter, and angle iron. All reinforcing steel will remain as detailed with the following exceptions:

1. The vertical leg of Bars C will be eliminated.
2. Bars B will be eliminated and replaced with dowels shown hereon.

* 75 mm diameter weep hole to be located to drain subbase material. Weep hole with 300 mm x 300 mm plastic hardware cloth 6 mm mesh or galvanized steel wire, minimum wire diameter .76 mm, number 4 mesh hardware cloth anchored firmly to outside of structure.

The "H" dimension shown on the Standards and specified on the plans will be measured from the invert of the outfall pipe to the top of the structure. Plan "H" dimensions are approximate only for estimating purposes and the actual dimensions shall be determined by the contractor from field conditions.

⊗ Steps are to be provided when H is 1.2 m or greater. For step details see Standard ST-1.

SPECIFICATION REFERENCE 302	<h2 style="margin: 0;">CONSTRUCTION METHODS FOR CONCRETE MASONRY BLOCK CURB DROP INLET</h2> <p style="margin: 0;">VIRGINIA DEPARTMENT OF TRANSPORTATION</p>	UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS	104.49
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