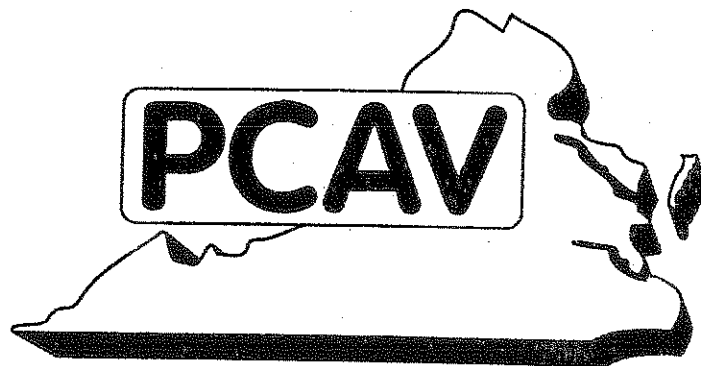


Precast Drainage Structure Stake Out Manual



PRECAST CONCRETE ASSOCIATION OF VIRGINIA

The Precast Concrete Association of Virginia is pleased to present the enclosed stake out methods for installing precast drainage structures. These stake out methods were developed by the producer members of the PCAV with the recommendations of the Virginia Department of Transportation.

The purpose of these stake out methods is to provide simple, accurate, and consistent instruction for installers of precast drainage structures. These stake out methods provide the information necessary for the proper alignment between center line of precast base unit, precast top unit, and curb line. The precast producer will provide the completed "Stake Out Data Sheet" (see enclosed) to the installer. The installer will then reference the data to the pertinent stake out charts to find the proper alignment.

These stake out methods are for use in typical situations. Should there be an unusual situation, the precaster will provide special instructions.

A metric version of each stake out method is provided for your convenience.

We hope that the contents of this manual are helpful to you in understanding the stake out methods. You should remember, however, that every project involves a unique set of site conditions and circumstances. You may need to consult your project manager and/or VDOT plans and specifications to make sure that the particular method described in this manual is appropriate for the circumstances involved in your project.



1108 East Main Street
Suite 904
Richmond, VA 23219

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COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, 23219

DAVID R. GEHR
COMMISSIONER

J.T. MILLS
DIVISION ADMINISTRATOR

June 2, 1997

Review of Stake Out
DI-2 ABC
DI-3 ABC

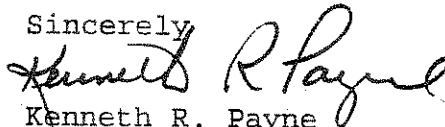
Precast Concrete Association of Virginia
PCVA Specification Committee
2006 Old Greenbrier Road
Chesapeake, Virginia 23320

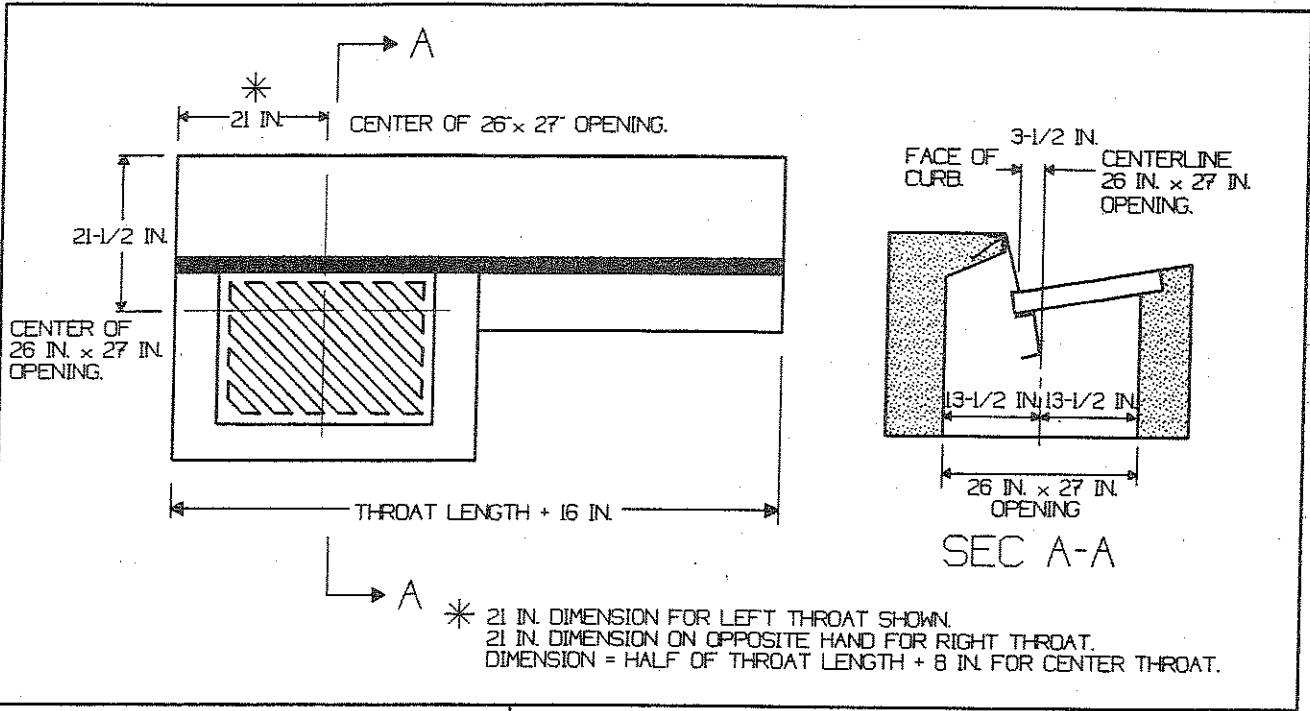
Attn: Mr. Brad Strickler

Dear Sir:

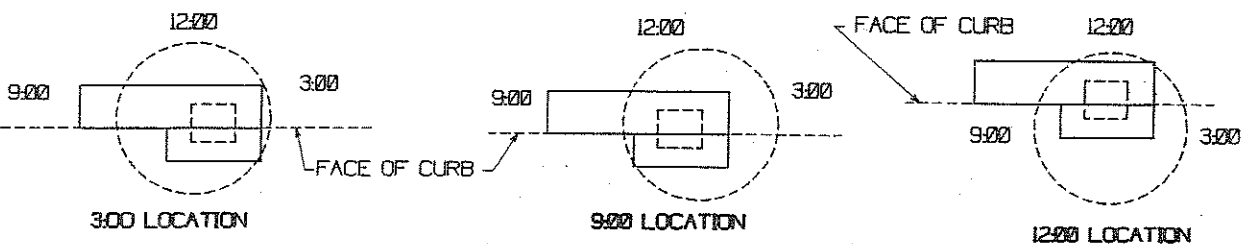
The shop drawings submitted on behalf of the Precast Concrete Assoc. of Virginia for the DI-2, and DI-3 Stake Out both Imperial and Metric have been reviewed by this office. Your designs appear to be adequate for the contractor to use in the stakeout location for precast DI-2 and DI-3 inlets. As discussed these drawings will be added to the Construction Manual for their next appropriate issue.

Sincerely


Kenneth R. Payne
Transportation Engineer

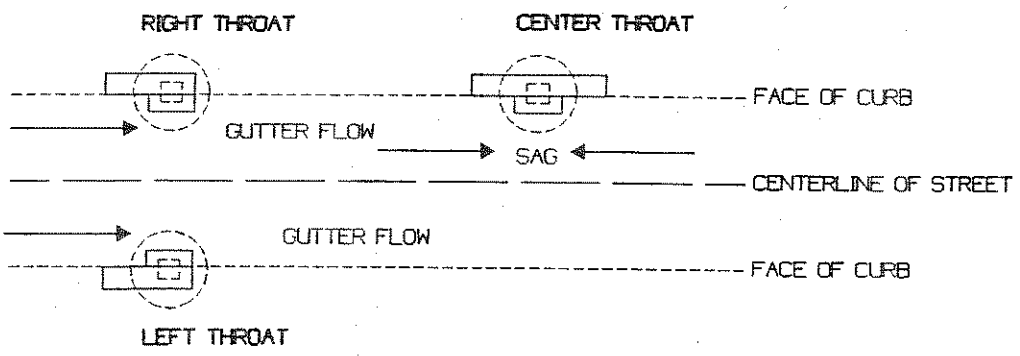


CLOCK LOCATION FOR 26 IN. x 27 IN. OPENING.



THROAT DIRECTION DESIGNATION

NOTE: THROAT DIRECTION DESIGNATION IS DETERMINED BY STANDING IN THE STREET AND LOOKING AT CURB.
EXAMPLE: GUTTER FLOW FROM LEFT TO RIGHT WOULD BE A RIGHT THROAT.

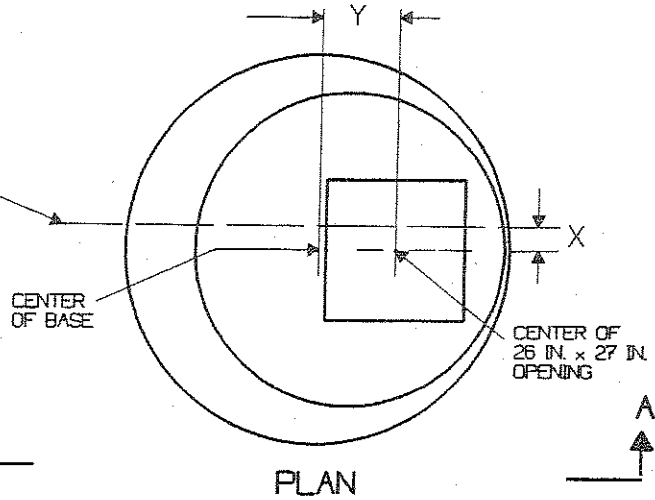
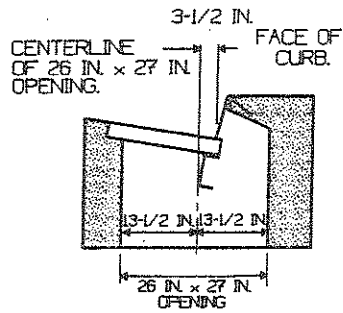


DI-2 A.B.C STAKE OUT METHODS FOR STANDARD AND NON-STANDARD ITEMS

SCALE: NONE | SHEET: 1 OF 2

PRECAST CONCRETE ASSOC. OF VIRGINIA

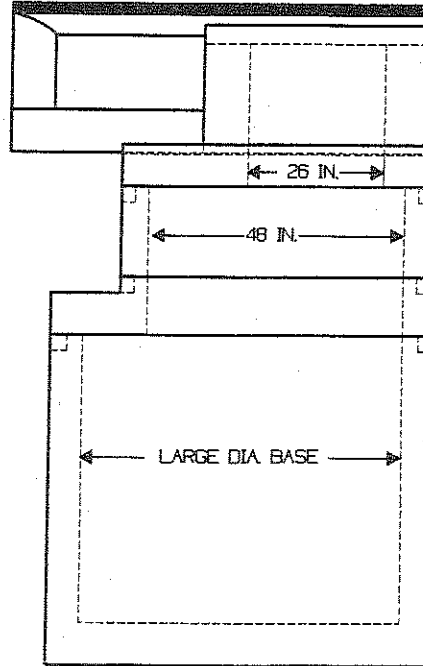
NOTE: REFER TO CURRENT VDOT ROAD AND BRIDGE STANDARDS FOR ALL DIMENSIONS NOT SHOWN.



PLAN
 LARGE DIA. BASE REDUCED TO 48 IN. DIA. WITH 300 26 IN. x 27 IN. OPENING LOCATION SHOWN. (DI-2 TOP NOT SHOWN IN PLAN VIEW FOR CLARITY).

Y = OFFSET FROM CENTER OF 26 IN. x 27 IN. OPENING TO CENTER OF BASE
 X = OFFSET FROM FACE OF CURB TO CENTER OF BASE.

BASE DIAMETER	26 IN. x 27 IN. LOCATION	X DIMENSION	Y DIMENSION
48 IN.	3-00	3-1/2 IN. FRONT OF F.C.	7 IN. LT.
	9-00	3-1/2 IN. FRONT OF F.C.	7 IN. RT.
	12-00	10 IN. FRONT OF F.C.	
60 IN.	3-00	3-1/2 IN. FRONT OF F.C.	14 IN. LT.
	9-00	3-1/2 IN. FRONT OF F.C.	14 IN. RT.
	12-00	17 IN. FRONT OF F.C.	
72 IN.	3-00	3-1/2 IN. FRONT OF F.C.	20 IN. LT.
	9-00	3-1/2 IN. FRONT OF F.C.	20 IN. RT.
	12-00	23-1/2 IN. FRONT OF F.C.	
84 IN.	3-00	3-1/2 IN. FRONT OF F.C.	27 IN. LT.
	9-00	3-1/2 IN. FRONT OF F.C.	27 IN. RT.
	12-00	30 IN. FRONT OF F.C.	
96 IN.	3-00	3-1/2 IN. FRONT OF F.C.	33 IN. LT.
	9-00	3-1/2 IN. FRONT OF F.C.	33 IN. RT.
	12-00	36 IN. FRONT OF F.C.	
126 IN.	3-00	3-1/2 IN. FRONT OF F.C.	39 IN. LT.
	9-00	3-1/2 IN. FRONT OF F.C.	39 IN. RT.
	12-00	42-1/2 IN. FRONT OF F.C.	



A-A
 (FRONT VIEW)

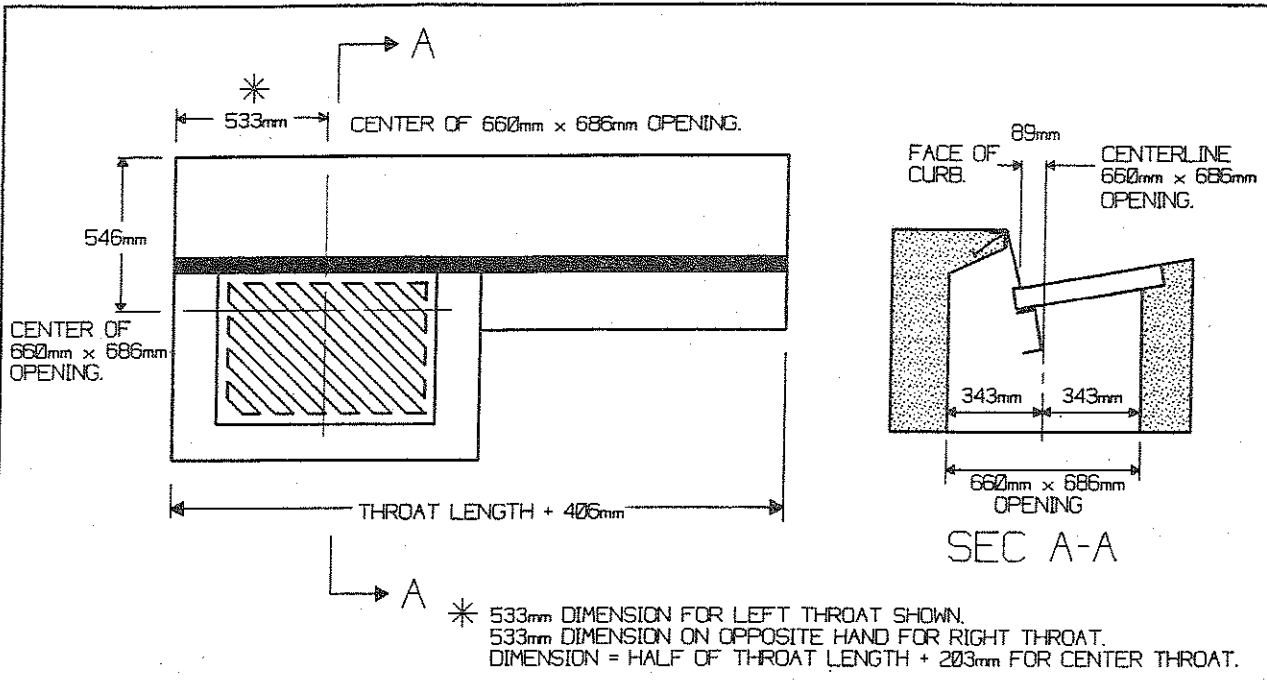
REV. 3-10-98

DI-2 A.B.C STAKE OUT METHOD FOR STANDARD AND NON-STANDARD ITEMS.

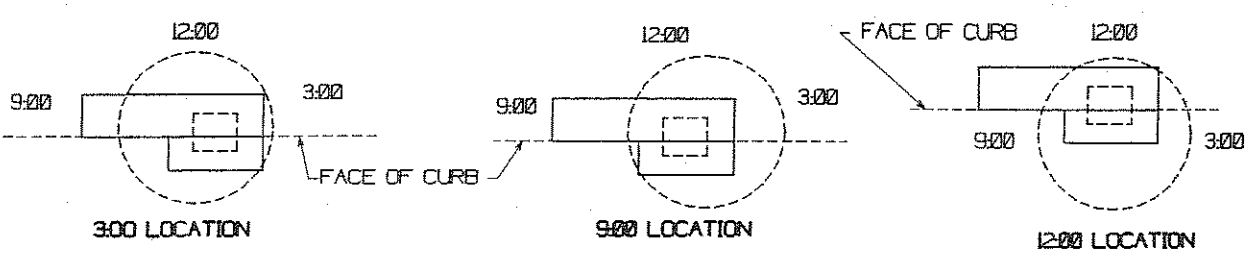
SCALE: NONE SHEET: 2 OF 2

PRECAST CONCRETE ASSOC. OF VIRGINIA

NOTE: REFER TO CURRENT VDOT ROAD AND BRIDGE STANDARDS FOR ALL DIMENSIONS NOT SHOWN.

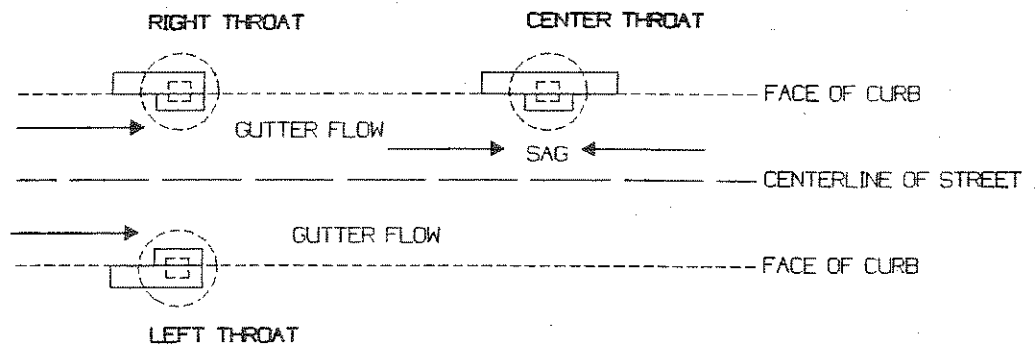


CLOCK LOCATION FOR 660mm x 686mm OPENING.



THROAT DIRECTION DESIGNATION

NOTE: THROAT DIRECTION DESIGNATION IS DETERMINED BY STANDING IN THE STREET AND LOOKING AT CURB.
 EXAMPLE: GUTTER FLOW FROM LEFT TO RIGHT WOULD BE A RIGHT THROAT.

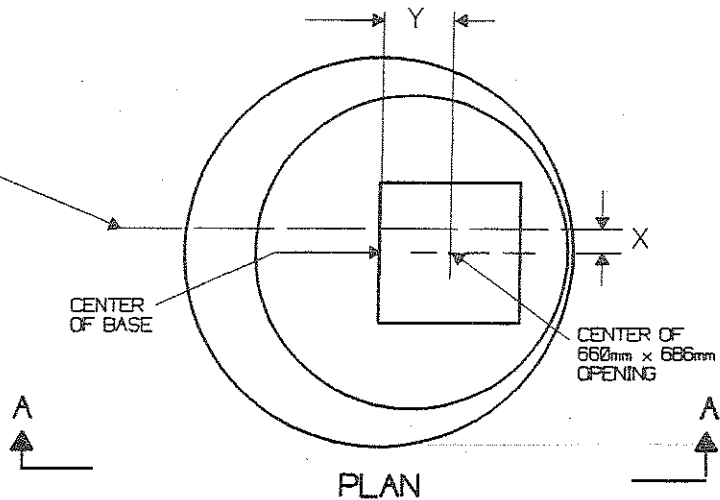
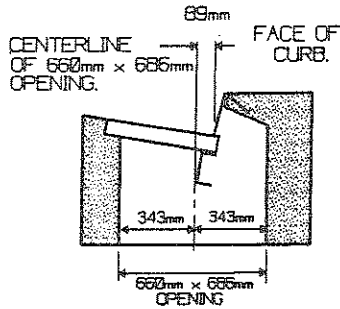


DI-2 A.B.C STAKE OUT METHODS FOR STANDARD AND NON-STANDARD ITEMS (METRIC)

SCALE: NONE | SHEET: 1 OF 2

PRECAST CONCRETE ASSOC. OF VIRGINIA

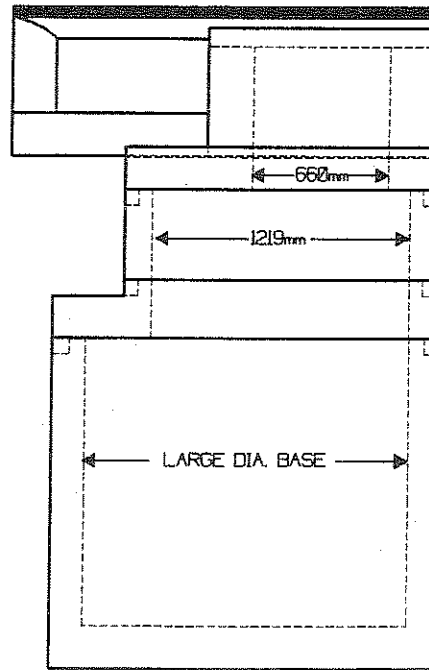
NOTE: REFER TO CURRENT VDOT ROAD AND BRIDGE STANDARDS FOR ALL DIMENSIONS NOT SHOWN.



PLAN
LARGE DIA. BASE REDUCED TO 1219mm DIA. WITH 3:00 660mm x 686mm OPENING
LOCATION SHOWN. (DI-2 TOP NOT SHOWN IN PLAN VIEW FOR CLARITY).

Y = OFFSET FROM CENTER OF 660mm x 686mm OPENING TO CENTER OF BASE.
X = OFFSET FROM FACE OF CURB TO CENTER OF BASE.

BASE DIAMETER	660mm x 686mm LOCATION	X DIMENSION	Y DIMENSION
1219mm	3:00	89mm FRONT OF F.C.	176mm LT.
	9:00	89mm FRONT OF F.C.	176mm RT.
	12:00	254mm FRONT OF F.C.	
1524mm	3:00	89mm FRONT OF F.C.	356mm LT.
	9:00	89mm FRONT OF F.C.	356mm RT.
	12:00	432mm FRONT OF F.C.	
1829mm	3:00	89mm FRONT OF F.C.	508mm LT.
	9:00	89mm FRONT OF F.C.	508mm RT.
	12:00	597mm FRONT OF F.C.	
2134mm	3:00	89mm FRONT OF F.C.	666mm LT.
	9:00	89mm FRONT OF F.C.	666mm RT.
	12:00	762mm FRONT OF F.C.	
2438mm	3:00	89mm FRONT OF F.C.	836mm LT.
	9:00	89mm FRONT OF F.C.	836mm RT.
	12:00	914mm FRONT OF F.C.	
2743mm	3:00	89mm FRONT OF F.C.	991mm LT.
	9:00	89mm FRONT OF F.C.	991mm RT.
	12:00	1080mm FRONT OF F.C.	



A-A
(FRONT VIEW)

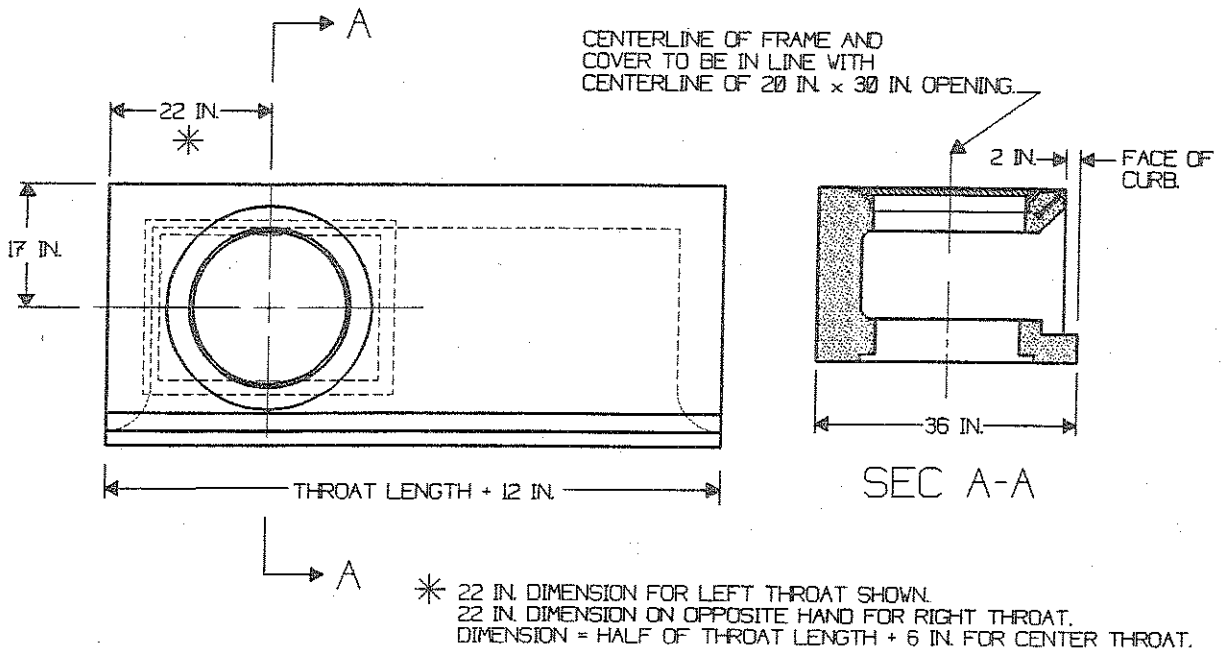
DI-2 A.B.C STAKE OUT METHOD FOR STANDARD AND NON-STANDARD ITEMS. (METRIC)

SCALE: NONE | SHEET: 2 OF 2

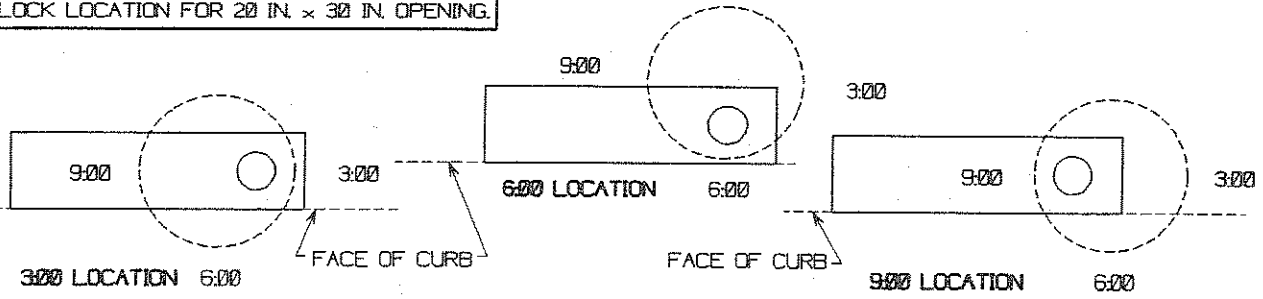
PRECAST CONCRETE ASSOC. OF VIRGINIA

NOTE: REFER TO CURRENT VDOT ROAD AND BRIDGE STANDARDS FOR ALL DIMENSIONS NOT SHOWN.

PRECAST DI-3 TOP: FRAME & COVER / 20 IN. x 30 IN. OPENING LOCATION.

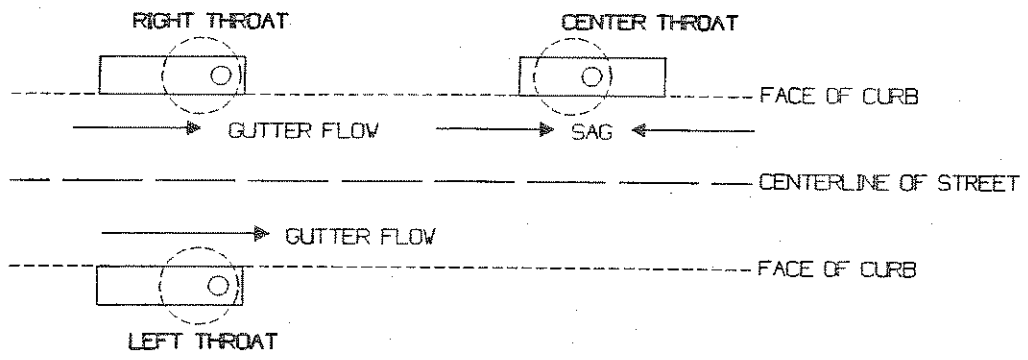


CLOCK LOCATION FOR 20 IN. x 30 IN. OPENING.



THROAT DIRECTION DESIGNATION

NOTE: THROAT DIRECTION DESIGNATION IS DETERMINED BY STANDING IN THE STREET AND LOOKING AT CURB.
 EXAMPLE: GUTTER FLOW FROM LEFT TO RIGHT WOULD BE A RIGHT THROAT.

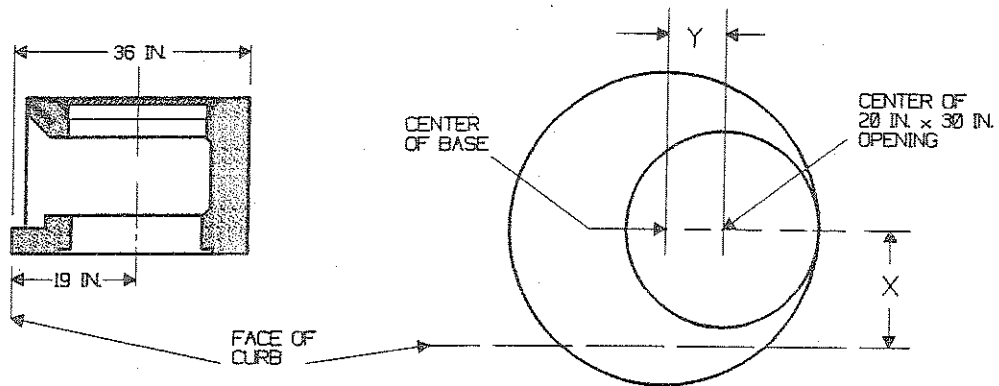


DI-3/DI-4 STAKE OUT METHOD FOR STANDARD AND NON-STANDARD ITEMS.

SCALE: NONE | SHEET: 1 OF 3

PRECAST CONCRETE ASSOC. OF VIRGINIA

NOTE: REFER TO CURRENT VDOT ROAD AND BRIDGE STANDARDS FOR ALL DIMENSIONS NOT SHOWN.



48 IN. DIA. BASE WITH 3:00 20 IN. x 30 IN. LOCATION SHOWN.

Y = OFFSET FROM CENTER OF 20 IN. x 30 IN. OPENING TO CENTER OF BASE.
 X = OFFSET FROM FACE OF CURB TO CENTER OF BASE.

BASE DIAMETER	20 IN. x 30 IN. LOCATION	X DIMENSION	Y DIMENSION
32 IN. x 32 IN.	3:00 & 9:00	19 IN. BACK OF F.C.	1 IN. LT. & RT.
	6:00	19 IN. BACK OF F.C.	
36 IN.	3:00 & 9:00	19 IN. BACK OF F.C.	3 IN. LT. & RT.
	6:00	19 IN. BACK OF F.C.	
48 IN.	3:00	19 IN. BACK OF F.C.	9 IN. LT.
	6:00	26 IN. BACK OF F.C.	
	9:00	19 IN. BACK OF F.C.	9 IN. RT.
60 IN.	3:00	19 IN. BACK OF F.C.	15 IN. LT.
	6:00	34 IN. BACK OF F.C.	
	9:00	19 IN. BACK OF F.C.	15 IN. RT.
72 IN.	3:00	19 IN. BACK OF F.C.	21 IN. LT.
	6:00	40 IN. BACK OF F.C.	
	9:00	19 IN. BACK OF F.C.	21 IN. RT.
84 IN.	3:00	19 IN. BACK OF F.C.	27 IN. LT.
	6:00	46 IN. BACK OF F.C.	
	9:00	19 IN. BACK OF F.C.	27 IN. RT.
96 IN.	3:00	19 IN. BACK OF F.C.	33 IN. LT.
	6:00	52 IN. BACK OF F.C.	
	9:00	19 IN. BACK OF F.C.	33 IN. RT.
108 IN.	3:00	19 IN. BACK OF F.C.	39 IN. LT.
	6:00	58 IN. BACK OF F.C.	
	9:00	19 IN. BACK OF F.C.	39 IN. RT.
126 IN.	3:00	19 IN. BACK OF F.C.	48 IN. LT.
	6:00	67 IN. BACK OF F.C.	
	9:00	19 IN. BACK OF F.C.	48 IN. RT.

DI-3/DI-4 STAKE OUT METHOD FOR STANDARD AND NON-STANDARD ITEMS.

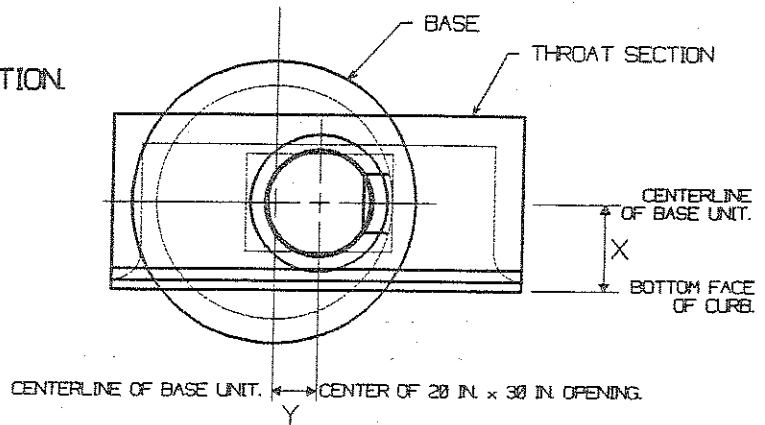
SCALE: NONE SHEET: 2 OF 3

PRECAST CONCRETE ASSOC. OF VIRGINIA

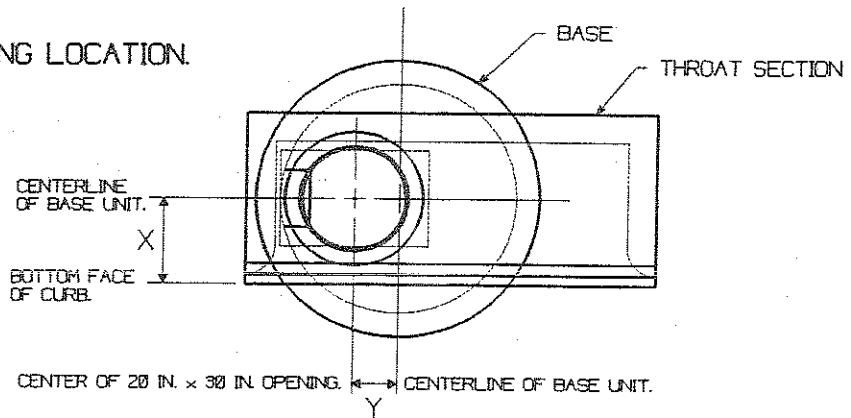
NOTE: REFER TO CURRENT VDOT ROAD AND BRIDGE STANDARDS FOR ALL DIMENSIONS NOT SHOWN.

EXAMPLES: 20 IN. x 30 IN. OPENING LOCATION/THROAT DESIGNATION

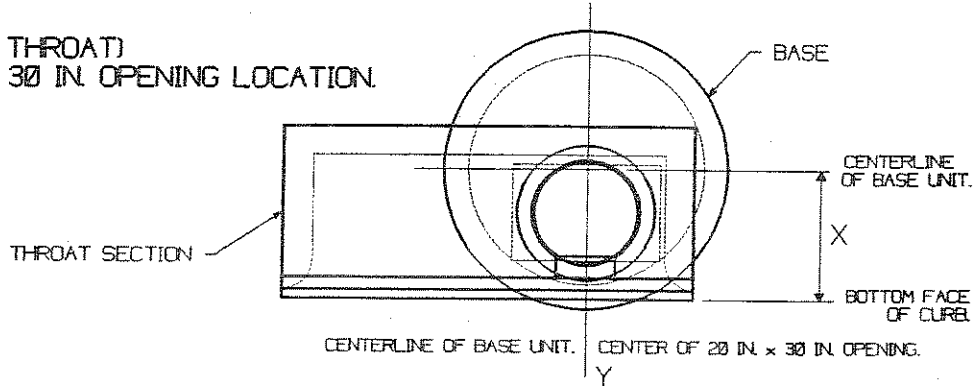
EXAMPLE #1:
DI-3C (CENTER THROAT)
3:00 20 IN. x 30 IN. OPENING LOCATION



EXAMPLE #2:
DI-3B (LEFT THROAT)
9:00 20 IN. x 30 IN. OPENING LOCATION



EXAMPLE #3:
DI-3B (RIGHT THROAT)
6:00 20 IN. x 30 IN. OPENING LOCATION



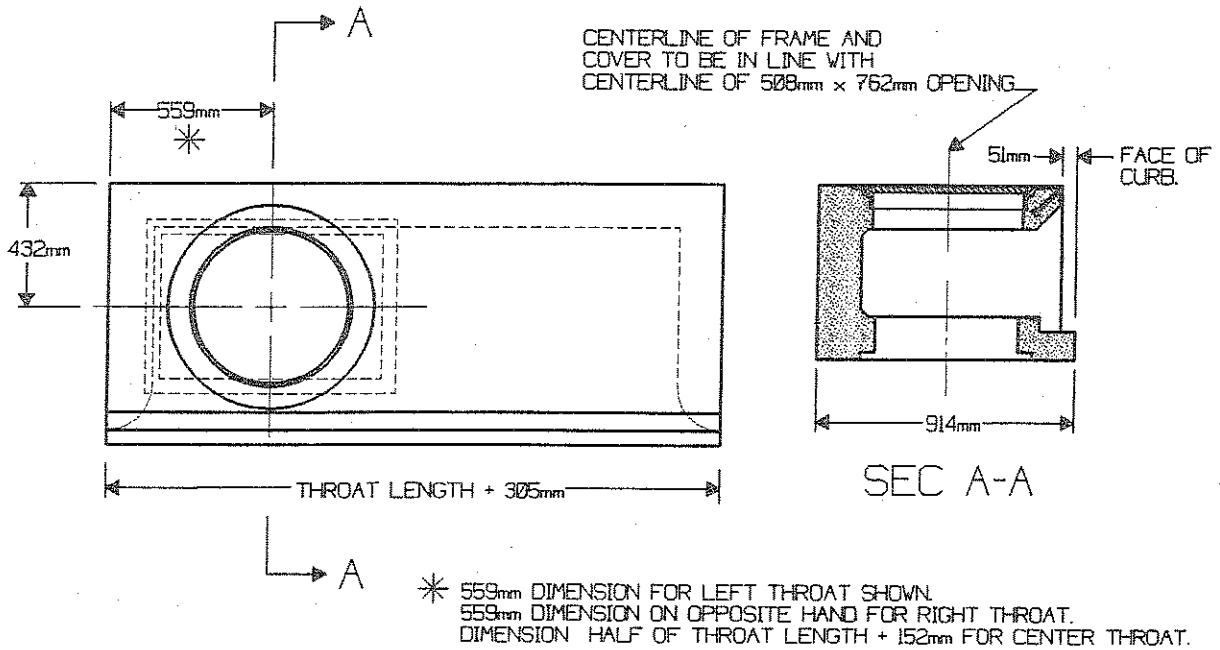
DI-3/DI-4 STAKE OUT METHOD FOR
STANDARD AND NON-STANDARD ITEMS.

SCALE: NONE SHEET: 3 OF 3

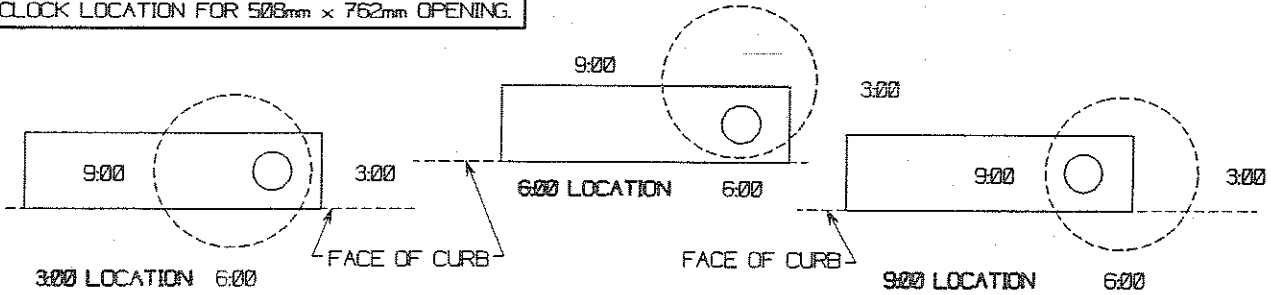
PRECAST CONCRETE ASSOC. OF VIRGINIA

NOTE: REFER TO CURRENT VDOT
ROAD AND BRIDGE STANDARDS
FOR ALL DIMENSIONS NOT SHOWN.

PRECAST DI-3 TOP: FRAME & COVER / 508mm x 762mm OPENING LOCATION.

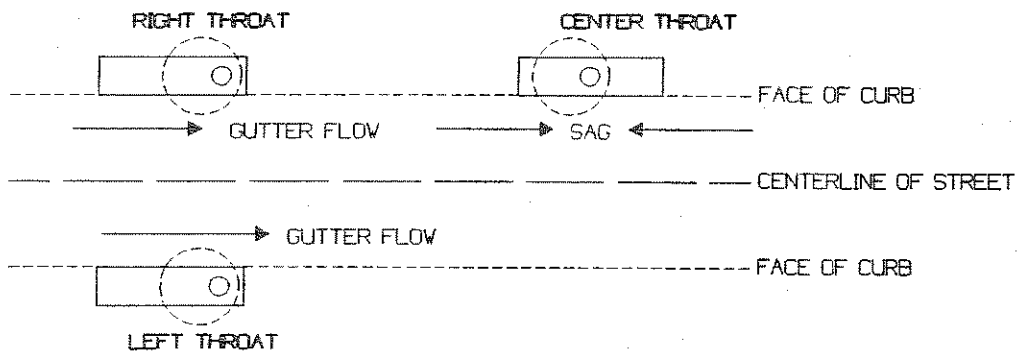


CLOCK LOCATION FOR 508mm x 762mm OPENING.



THROAT DIRECTION DESIGNATION

NOTE: THROAT DIRECTION DESIGNATION IS DETERMINED BY STANDING IN THE STREET AND LOOKING AT CURB.
EXAMPLE: GUTTER FLOW FROM LEFT TO RIGHT WOULD BE A RIGHT THROAT.

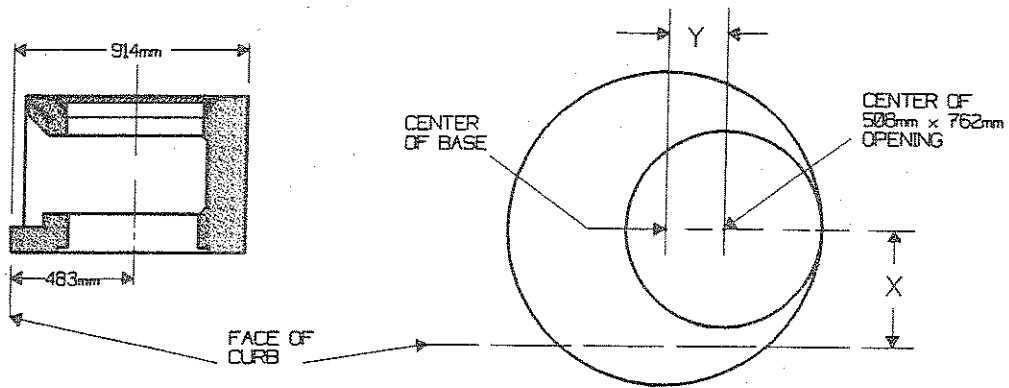


DI-3/DI-4 STAKE OUT METHOD FOR STANDARD AND NON-STANDARD ITEMS. (METRIC)

SCALE: NONE | SHEET: 1 OF 3

PRECAST CONCRETE ASSOC. OF VIRGINIA

NOTE: REFER TO CURRENT VDOT ROAD AND BRIDGE STANDARDS FOR ALL DIMENSIONS NOT SHOWN.



1219mm DIA. BASE WITH 3:00 508mm x 762mm LOCATION SHOWN.

Y = OFFSET FROM CENTER OF 508mm x 762mm OPENING TO CENTER OF BASE.
 X = OFFSET FROM FACE OF CURB TO CENTER OF BASE.

BASE DIAMETER	508mm x 762mm LOCATION	X DIMENSION	Y DIMENSION
813mm x 813mm	3:00 & 9:00	483mm BACK OF F.C.	25mm LT. & RT.
	6:00	483mm BACK OF F.C.	
914mm	3:00 & 9:00	483mm BACK OF F.C.	76mm LT. & RT.
	6:00	483mm BACK OF F.C.	
1219mm	3:00	483mm BACK OF F.C.	229mm LT.
	6:00	711mm BACK OF F.C.	
	9:00	483mm BACK OF F.C.	229mm RT.
1524mm	3:00	483mm BACK OF F.C.	381mm LT.
	6:00	864mm BACK OF F.C.	
	9:00	483mm BACK OF F.C.	381mm RT.
1829mm	3:00	483mm BACK OF F.C.	533mm LT.
	6:00	1016mm BACK OF F.C.	
	9:00	483mm BACK OF F.C.	533mm RT.
2134mm	3:00	483mm BACK OF F.C.	686mm LT.
	6:00	1168mm BACK OF F.C.	
	9:00	483mm BACK OF F.C.	686mm RT.
2438mm	3:00	483mm BACK OF F.C.	838mm LT.
	6:00	1321mm BACK OF F.C.	
	9:00	483mm BACK OF F.C.	838mm RT.
2743mm	3:00	483mm BACK OF F.C.	991mm LT.
	6:00	1473mm BACK OF F.C.	
	9:00	483mm BACK OF F.C.	991mm RT.

DI-3/DI-4 STAKE OUT METHOD FOR STANDARD AND NON-STANDARD ITEMS. (METRIC)

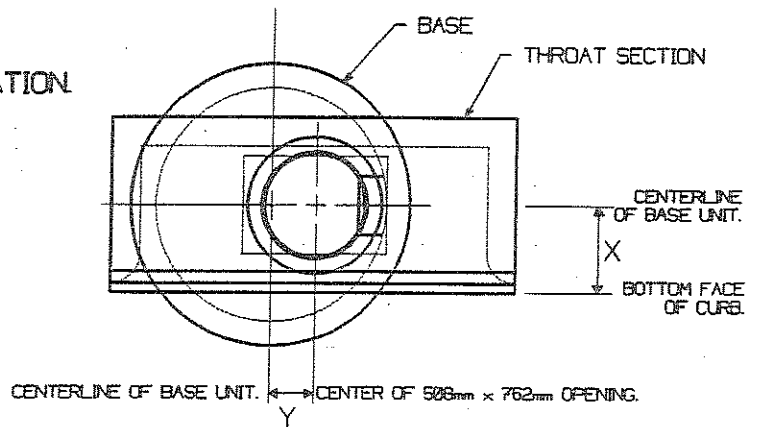
SCALE: NONE | SHEET: 2 OF 3

PRECAST CONCRETE ASSOC. OF VIRGINIA

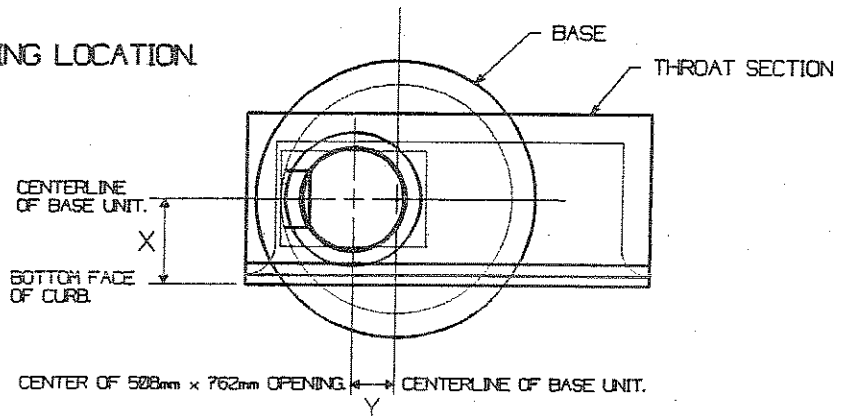
NOTE: REFER TO CURRENT VDOT ROAD AND BRIDGE STANDARDS FOR ALL DIMENSIONS NOT SHOWN.

EXAMPLES: 508mm x 762mm OPENING LOCATION/THROAT DESIGNATION

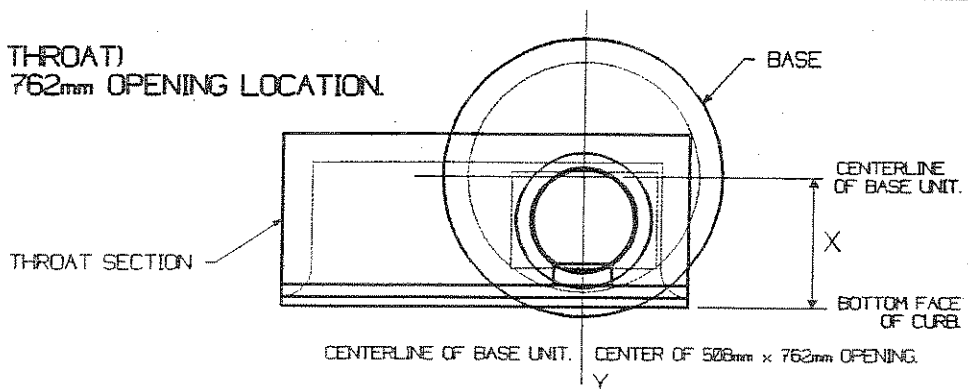
EXAMPLE #1:
DI-3C (CENTER THROAT)
3:00 508mm x 762mm OPENING LOCATION



EXAMPLE #2:
DI-3B (LEFT THROAT)
9:00 508mm x 762mm OPENING LOCATION



EXAMPLE #3:
DI-3B (RIGHT THROAT)
6:00 508mm x 762mm OPENING LOCATION



DI-3/DI-4 STAKE OUT METHOD FOR
STANDARD AND NON-STANDARD ITEMS. (METRIC)

SCALE: NONE SHEET: 3 OF 3

PRECAST CONCRETE ASSOC. OF VIRGINIA

NOTE: REFER TO CURRENT VDOT
ROAD AND BRIDGE STANDARDS
FOR ALL DIMENSIONS NOT SHOWN.

