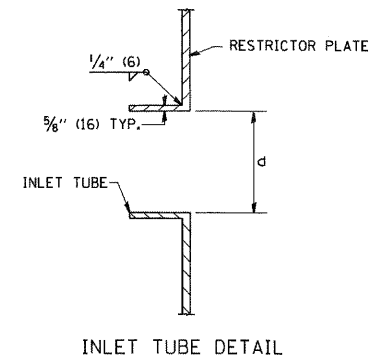


- NOTES:
1. ALL STEEL ANGLES AND PLATES TO BE GALVANIZED AFTER FABRICATION.
 2. ALL RESTRICTOR PLATES, ANGLES AND HARDWARE TO BE INCLUDED IN THE COST OF THE MANHOLE.
 3. BASIS OF PAYMENT: "MANHOLES, TYPE A, 6 FT. (1.8 m)-DIAMETER, TYPE 1 FRAME, CLOSED LID, RESTRICTOR PLATE" EACH



STRUCTURE 401

STATION	MANHOLE DIAMETER	FRAME AND GRATE	RESTRICTOR TYPE	INSIDE RESTRICTOR TYPE DIAMETER in. (mm) (d)	INVERT OF RESTRICTOR TYPE	ELEVATION OF TOP OF PLATE OVERFLOW
104+43.28	6'	TYPE 1	SHARP EDGED	18"	767.00	773.00

Control Structure Sizing

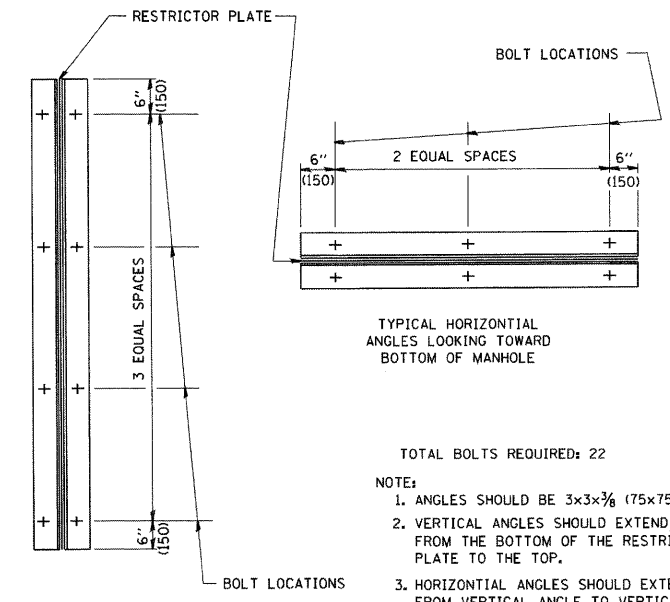
$$Q = C_d A (2gH)^{0.5} = 19.70 \text{ ft}^3/\text{sec}$$

Where:

$$A = \pi r^{0.5} = 1.77 \text{ ft}^2$$

$$C_d = 0.61$$

$$g = 32.2 \text{ ft}^2/\text{sec}$$

$$H = 772.93 - 767.75 = 5.18 \text{ ft}$$


- TOTAL BOLTS REQUIRED: 22
- NOTE:
1. ANGLES SHOULD BE 3x3x3/8 (75x75x75)
 2. VERTICAL ANGLES SHOULD EXTEND FROM THE BOTTOM OF THE RESTRICTOR PLATE TO THE TOP.
 3. HORIZONTAL ANGLES SHOULD EXTEND FROM VERTICAL ANGLE TO VERTICAL ANGLE.

RESTRICTOR TYPE					
1	2	3	4	5	6
RE-ENTRANT TUBE	SHARP EDGED	SQUARE EDGED	RE-ENTRANT TUBE	SQUARE EDGED	ROUNDED
LENGTH: 1/2 TO 1 DIA.		STREAM CLEARS SIDES	LENGTH: 2-1/2 DIA.	LENGTH: 2-1/2 DIA.	
C=.52	C=.61	C=.61	C=.73	C=.82	C=.98

VALUES OF "C" FOR CIRCULAR AND SQUARE ORIFICES

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

MANHOLE WITH RESTRICTOR PLATE

ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
347	LY (HB & VB)	DUPAGE/KANE	421	79
DU-12			CONTRACT NO. 60122	
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				

SCALE: NONE SHEET NO. 1 OF 1 SHEETS STA. TO STA.

FILE NAME = D:\60122-SHT-DRAIN12.dgn
USER NAME = YK1m
DESIGNED - YSK
DRAWN - YSK
CHECKED - EJG
PLOT DATE = 10/14/2011

REVISIONS:
REVISED -
REVISED -
REVISED -
REVISED -