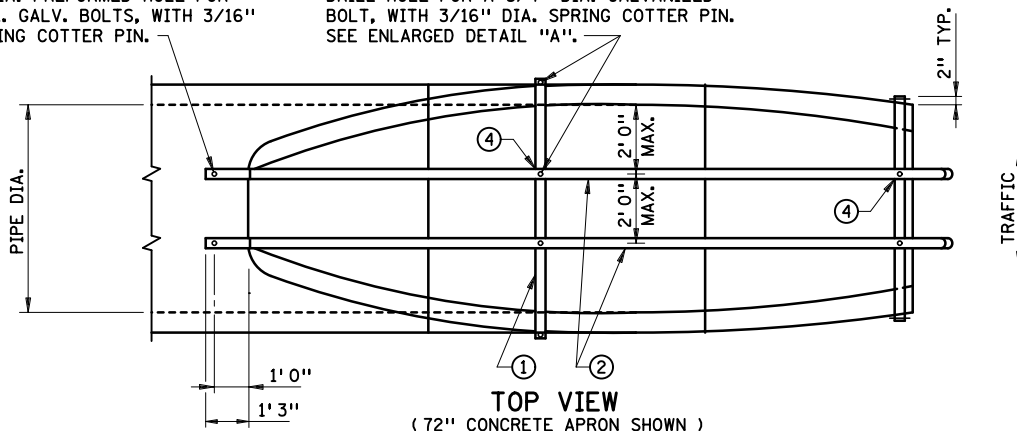


1-1/4" DIA. PREFORMED HOLE FOR 3/4" DIA. GALV. BOLTS, WITH 3/16" DIA. SPRING COTTER PIN.

DRILL HOLE FOR A 3/4" DIA. GALVANIZED BOLT, WITH 3/16" DIA. SPRING COTTER PIN. SEE ENLARGED DETAIL "A".



**TOP VIEW**  
( 72" CONCRETE APRON SHOWN )

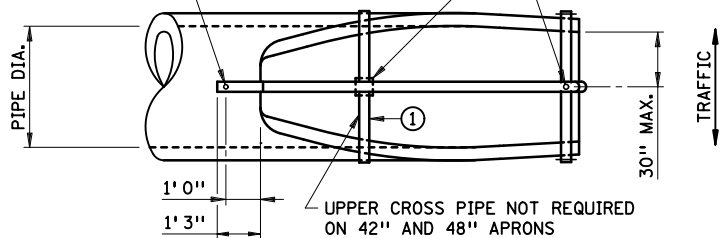
APRON SIZE	APPROX. PIPE LENGTHS		CROSS PIPES REQ'D.	ESTIMATED TOTAL WEIGHT LBS.
	LONG.	TRANS.		
42"	11' 8"	46"	1	135
48"	13' 8"	52"	1	145
54"	15' 10"	58"	2	225
60"	17' 11"	64"	2	260
72"	22' 0"	76"	2	500

②

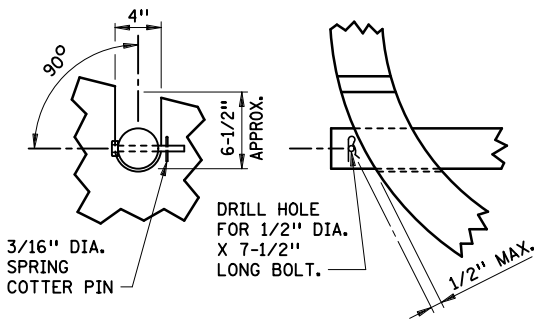
1-1/4" DIA. PREFORMED HOLE FOR 3/4" DIA. GALV. BOLTS, WITH 3/16" DIA. SPRING COTTER PIN.

SECURE PIPES WITH PIPE CLAMPS OR APPROVED EQUAL TO PREVENT TWISTING ④

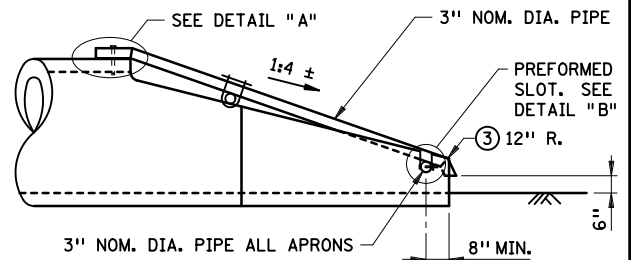
DRILL HOLE FOR A 3/4" DIA. X 8" LONG GALV. BOLT. SEE ENLARGED DETAIL "A". ④



**TOP VIEW**  
( 54" OR 60" CONCRETE APRON SHOWN )



**ENLARGED DETAIL "B"**

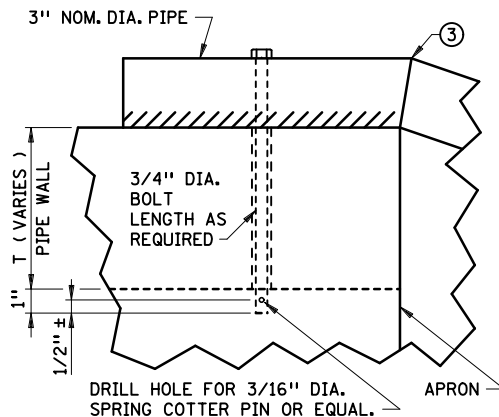


**SIDE VIEW**

**NOTES:**

ALL PIPE IS SCHEDULE 40 GALVANIZED PIPE AS PER SPEC. 3362, 3" NOMINAL DIA. 7.58 LBS. PER FT. GALVANIZE AFTER FABRICATION AS PER SPEC 2471.3L. GALVANIZE FASTENERS AS PER SPEC. 3392. SEE STANDARD PLATE 3022 ( 3 OF 3 ) FOR APRONS. NO GRATE OF ANY KIND IS ALLOWED ON AN OUTLET WITHOUT A GRATE BEING PLACED ON THE INLET ALSO.

- ① UPPER CROSS PIPE TO HAVE FIRM CONTACT WITH APRON AND LONGITUDINAL PIPE.
- ② TWO LONGITUDINAL PIPES EQUALLY SPACED REQUIRED ON 72" DIA. APRON.
- ③ BEND OR CUT AND WELD PIPE AS SHOWN.
- ④ WELDING AS PER SPEC. 2471 MAY BE USED AT ALL PIPE CONNECTIONS.



**ENLARGED DETAIL "A"**

APPROVED DEC. 18, 1996  
*Gerald J. Robinson*  
STATE DESIGN ENGINEER

STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION  
**GRATE FOR 1:4 PRECAST  
CONCRETE APRONS**  
FOR CROSS DRAINS WITH 42" TO 72" DIA. PIPE

SPECIFICATION  
REFERENCE  
3362  
2471  
REVISED  
3-12-2003

STANDARD  
PLATE  
NO.  
**3132A**