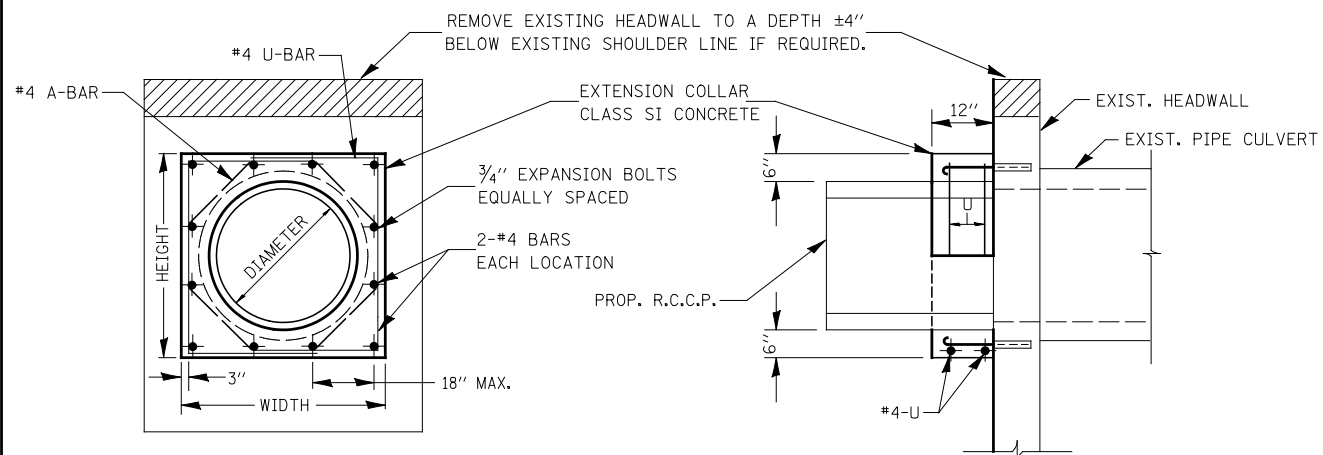
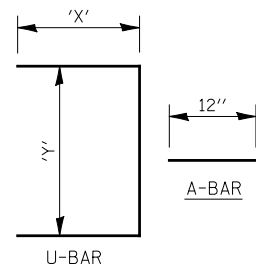


DATE \_\_\_\_\_ BY \_\_\_\_\_  
 SURVEYED \_\_\_\_\_ CHECKED \_\_\_\_\_  
 PLOTTED \_\_\_\_\_ AT \_\_\_\_\_  
 NOTE BOOK \_\_\_\_\_ NO. \_\_\_\_\_  
 FILE NAME \_\_\_\_\_



EXPANSION BOLTS SHALL CONSIST OF SELF DRILLING EXPANSION SHIELDS AND 3/4" DIA. HOOKED BOLTS. HOOKED BOLTS SHALL EXTEND A MINIMUM OF 9" INTO NEW CONCRETE.  
 MINIMUM CERTIFIED PROOF LOAD = 4,080 LBS



QUANTITIES ARE FOR ONE SIDE ONLY

LOCATION	EXISTING CULVERT SIZE	PIPE DIMENSION	PIPE AREA	EXTENSION COLLAR		A-BAR			U-BAR			CLASS SI CONC. COLLAR	REINFORCEMENT BARS	3/4" DIA. EXPANSION BOLTS
				WIDTH	HEIGHT	12	'X'	'Y'	IN.	IN.	IN.			
7005+35	24"	24"	1.8	42"	42"	12"	24"	36"	1.2	24	12			
8962+29	24"	24"	1.8	42"	42"	12"	24"	36"	1.2	24	12			

**COLLAR DETAIL (EXTENSION OF PIPE CULVERT)**

DATE \_\_\_\_\_ BY \_\_\_\_\_  
 SURVEYED \_\_\_\_\_ CHECKED \_\_\_\_\_  
 PLOTTED \_\_\_\_\_ AT \_\_\_\_\_  
 NOTE BOOK \_\_\_\_\_ NO. \_\_\_\_\_  
 FILE NAME \_\_\_\_\_

**GENERAL NOTES**

Grating details shown are intended for use with particular sizes of precast reinforced concrete flared end sections as shown on standards 542301.

Approximate quantity of steel shown includes total quantity of grating, bolts, nuts, washers and steel pipe.

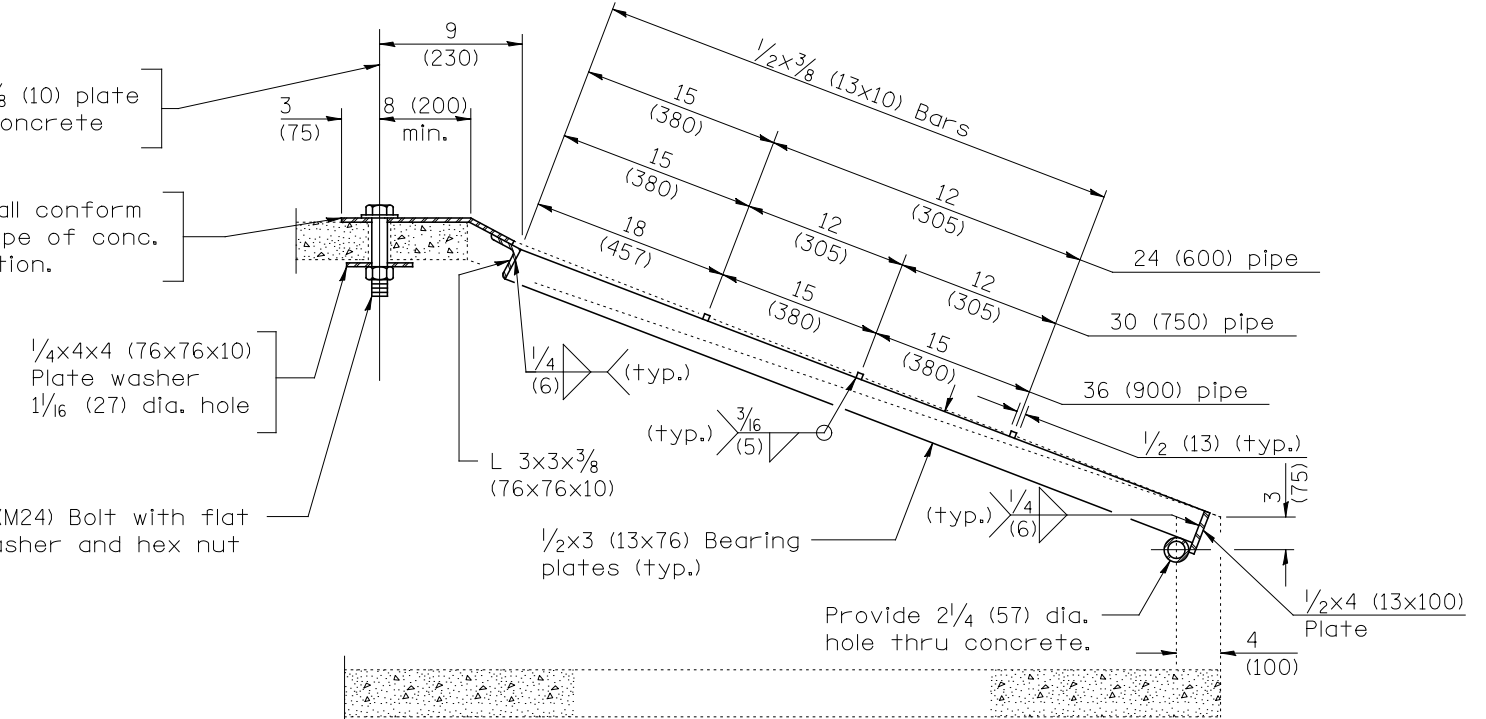
Holes in the precast concrete flared end sections shall be cored to the diameters noted. If cone-out on the other end of the hole occurs, the hole shall be filled with grout to correct the diameter of the hole.

1/8 (28) Dia. hole thru 3/8 (10) plate  
 1/4 (30) Dia. hole thru concrete

3/8 (10) Plate shall conform to surface shape of conc. flared end section.

1/4x4x4 (76x76x10) Plate washer  
 1/16 (27) dia. hole

1 (M24) Bolt with flat washer and hex nut



**SECTION A-A**

All dimensions are in inches (millimeters) unless otherwise shown.

**GRATING FOR REINFORCED CONCRETE FLARED END SECTION**

A ↑

↑ A

**PLAN**

Quantity of steel = 210 lbs. (95 kg)

FILE NAME =	USER NAME = #USER#	DESIGNED <i>JWM</i>	REVISED -
*FILEL#		DRAWN <i>KES</i>	REVISED -
		CHECKED <i>JRS</i>	REVISED -
		DATE <i>10/15/2012</i>	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**DRAINAGE DETAILS**

SCALE: NONE SHEET NO. 1 OF 3 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	361
<b>DD-01</b>			CONTRACT NO. 60131	
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				