

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

\* STEEL PIPE GRATING  
BILL OF MATERIAL

DESCRIPTION	UNIT	QTY
5/8" X 10" Galv. Steel Bolts	Each	8
3 1/2" Galv. Steel Pipe	Ø4	7'-0"
3 1/2" Galv. Steel Pipe	Ø2	15'-8"
3 1/2" Galv. Pipe Caps	Each	12
1/2" X 4" X 14" Galv. Plate	Each	8
1/4" Galv. Steel Plate (9" Nominal)	Each	8

\*\* CONNECTION COLLAR  
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
x	26	4	1'-9"	—
x1	8	4	5'-2"	—
x2	8	4	7'-8"	—
x3	8	4	4'-4"	—
Concrete Structures		Cu. Yd.		1.3
Reinforcement Bars		Pound		120

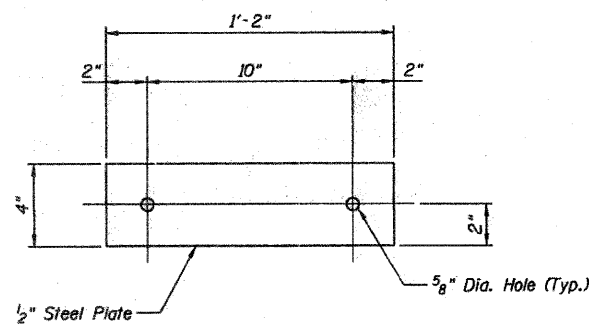
\*\* For informational purposes only. Cost to be included in the bid item "PRECAST CONCRETE BOX CULVERT 3'X5'".

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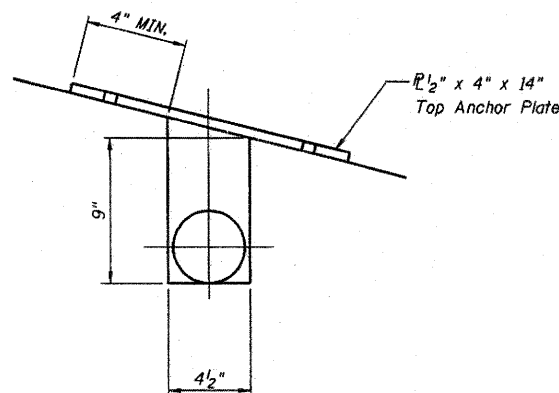
\*\*\* BOX CULVERT END SECTION NO. 2  
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a	36	5	6'-4"	—
d	7	4	4'-10"	—
h	15	5	16'-11"	—
h1	2	5	13'-9"	—
h2	2	5	9'-6"	—
h3	2	5	5'-3"	—
h4	2	5	0'-6"	—
h5	6	5	3'-7"	—
h6	2	5	2'-0"	—
h7	3	6	6'-4"	—
v	18	5	9'-8"	—
Concrete Structures		Cu. Yd.		6.2
Reinforcement Bars		Pound		790

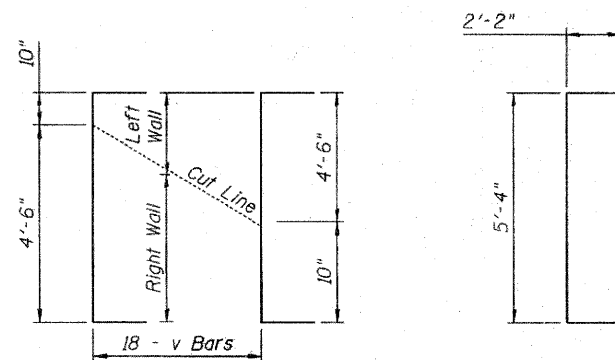
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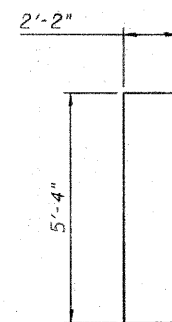
TOP ANCHOR PLATE  
(8 TOTAL)



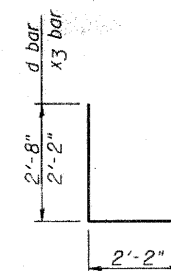
DETAIL 'A'



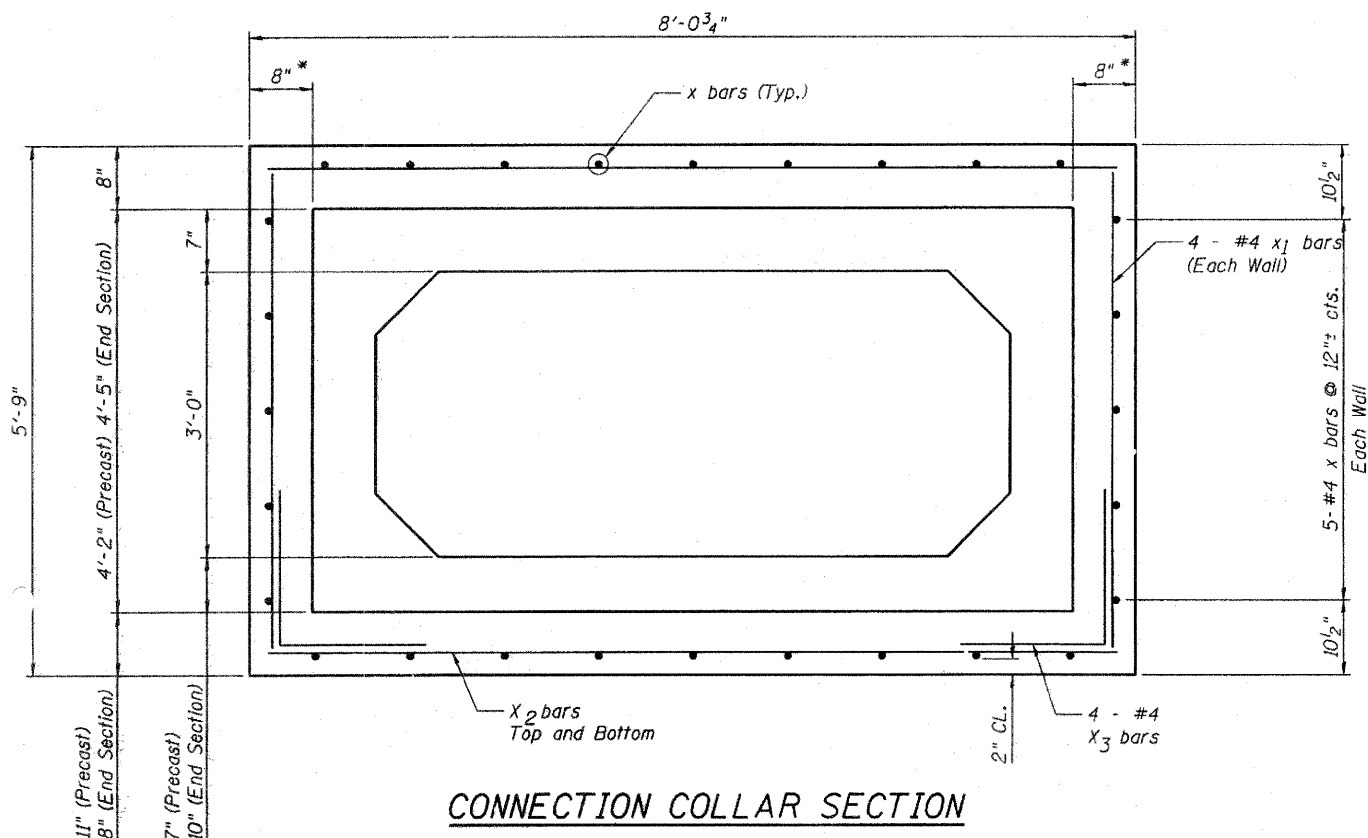
BAR v  
CUTTING DIAGRAM



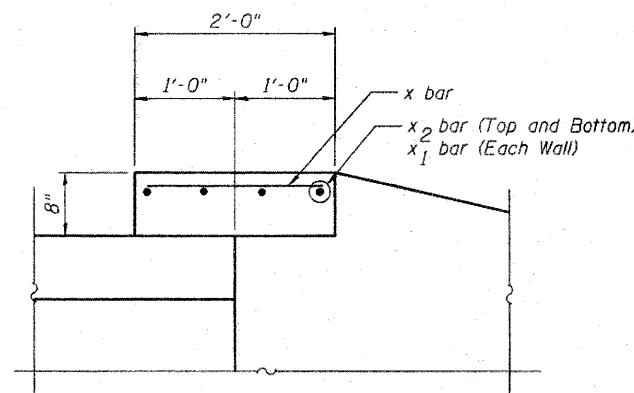
BAR v



BARS d and x3



CONNECTION COLLAR SECTION



COLLAR DETAIL

GENERAL NOTES

Reinforcement bars shall conform to the requirements of ASTM A707 GR. 60 (IL Modified), see Special Provisions.

Steel pipes shall conform to A.S.T.M. A-53 (TYPE E OR S) Grade B, Schedule 40, and shall be galvanized to A.S.T.M. A-120.

Steel plates shall conform to AASHTO M-183 and shall be galvanized conforming to AASHTO M-111.

Bolts, nuts, and washers shall be in accordance with Article 1006.08 of the Standard Specifications and shall be galvanized.

The contract unit price "EACH" for Grated End Section No. 2 shall include the Expansion Bolts, Galvanized Pipes, Class SI Concrete, Bolts, Nuts, Reinforcement, Washers, and Steel Plates.

Contractor shall field verify galvanized pipe length.

GRATED END SECTION NO. 2  
STATION 1201+61.08  
DETAILS

DESIGNED -	JLA
CHECKED -	SB
DRAWN -	AJP
CHECKED -	JLA

400 South Green Street - Suite 304  
Chicago, Illinois 60607  
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CIVIL ENGINEERING • PLANNING • DESIGN • LAND SURVEY • CONSTRUCTION MANAGEMENT



Jennifer L. Anderson 10/6/08  
JENNIFER L. ANDERSON, S.E., P.E.  
LICENSE NO: 081-005858  
EXPIRES: 11/2008

SHEET NO. 4 10 SHEETS	F.A.P. RTE. 316	SECTION 2T	COUNTY OGLE	TOTAL SHEETS 48	SHEET NO. 26
	D-92-003-03		CONTRACT NO. 64851		
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT					