

Note:

These examples were taken from old plans. The notes and Specifications may need to be updated.

CULVERT DROP BOXES

2. Culvert Drop Box for 30" Pipe
3. Culvert Drop Box for 30" Pipe
4. Culvert Drop Box for 36" Reinforced Concrete Pipe
5. Culvert Drop Box for 42" Reinforced Concrete Pipe
6. Culvert Drop Box for 42" Reinforced Concrete Pipe
7. Culvert Drop Box for 48" Reinforced Concrete Pipe
8. Culvert Drop Box for 54" Reinforced Concrete Pipe
9. Culvert Drop Box for 72" Pipe
10. Culvert Drop Box for 78" Pipe
11. Culvert Drop Box for 78" Pipe
12. Culvert Drop Box for 78" Pipe
13. Culvert Drop Box for 78" Pipe
14. Culvert Drop Box for 7'x5' Box Culvert
15. Culvert Drop Box for 8'x8" Precast Box Culvert

BOX CULVERT EXTENSIONS

- 16-17 Grated Culvert Extension for Two Existing 54" Pipe Culverts (Two Sheets)
- 18-20 Grated Culvert Extension for Two Existing 54" Pipe Culverts (Three Sheets)
21. Grated Culvert Extension for 3'x3 Box Culvert
22. Grated Culvert Extension for 3'X5' Box Culvert
23. Grated Culvert Extension for 3'X6' Box Culvert
24. Grated Culvert Extension for 3'X6' Box Culvert
25. Grated Culvert Extension for 3'X6' Box Culvert
26. Grated Culvert Extension for 3'X6' Box Culvert
27. Grated Culvert Extension for 3'X8' Box Culvert
28. Grated Culvert Extension for 5'X3' Box Culvert
29. Grated Culvert Extension for 5'X3' Box Culvert
30. Grated Culvert Extension for Existing 5'X10' Box Culvert
- 31-32 Grated Culvert Extension for Existing 5'X10' Box Culvert (Two Sheets)
33. Grated Culvert Extension for 5'X10' Box Culvert
- 34-35 Grated Culvert Extension for 5'X10' Box Culvert
36. Culvert Extension for 5.5'X4' Box Culvert
37. Culvert Extension for 6'X2' Box Culvert
38. Culvert Extension for 7'X6' Box Culvert
39. Culvert Extension for 9'X6' Box Culvert

PRECAST REINFORCED CONCRETE END SECTION

40. Precast Reinforced Concrete End Section

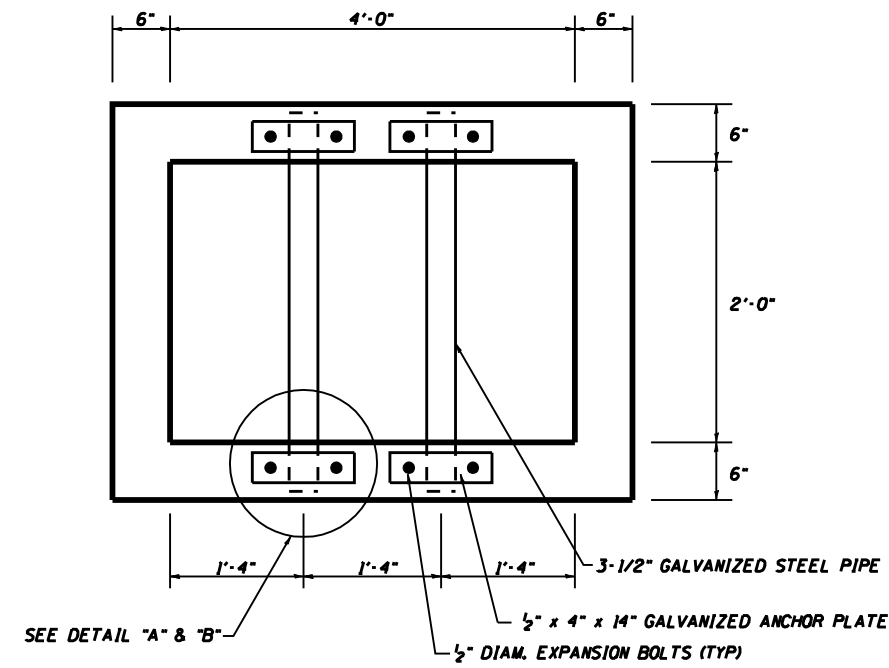
CONCRETE BOX CULVERT

- 41-42 Concrete Box Culvert 3'X10' (Two Sheets)
43. Concrete Box Culvert 4'X6'
- 44-52 Double Concrete Box Culvert 5'x3' at 35 Degree Skew with Grated End Sections (Nine Sheets)
- 53-54 Concrete Box Culvert 5'X8' (Two Sheets)
- 55-57 Five Cell Concrete Box Culvert 6'x3' with Grated End Sections (Three Sheets)
- 58-60 Double Concrete Box Culvert 6'X4' with Grated End Sections (Three Sheets)
- 61-63 Concrete Box Culvert 6'X10' Precast Box Culvert (Three Sheets)
- 64-72 Double Concrete Box Culvert 7'X4' at 40 Degree Skew with Flared End Sections (Nine Sheets)
- 73-75 Concrete Box Culvert 7'X12' (Three Sheets)
- 76-78 Double Concrete Box Culvert 8'X4' with grated End Sections (Three Sheets)
- 79-82 Concrete Box Culvert 8'X10' (Four Sheets)
- 83-87 Double Concrete Box culvert 10'x5' with Cast in Place End Sections (Five Sheets)

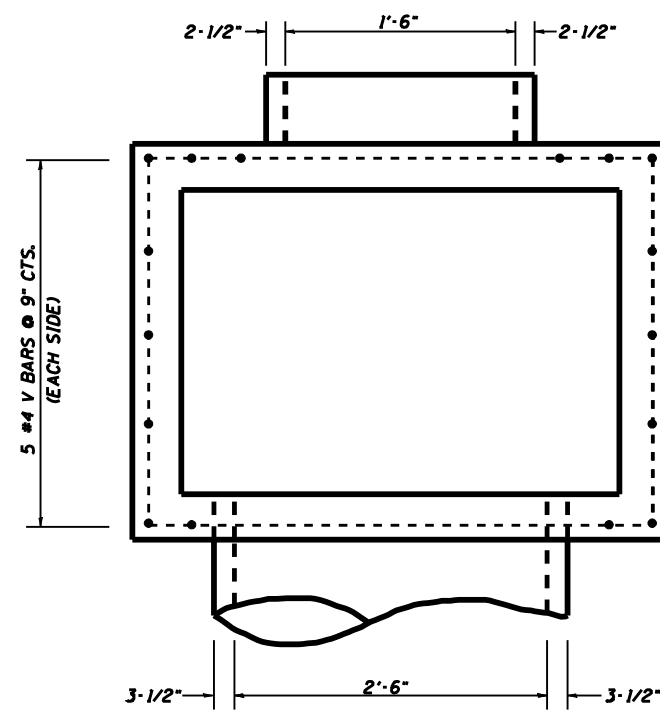
INLET BOX SPECIAL NO. 3

BILL OF MATERIALS

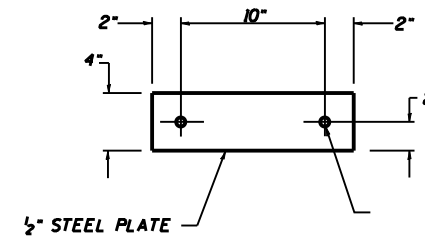
BAR	NUMBER	SIZE	LENGTH	QTY.
h	18	#6	2'-8"	72.10
h ₁	11	#6	4'-8"	77.10
h ₂	6	#4	2'-10"	11.36
v	16	#4	5'-8"	60.57
v ₁	3	#4	3'-6"	7.01
v ₂	5	#4	2'-4-1/2"	7.93
TOTAL REINFORCEMENT BARS			LB	236.07
CL SI CONCRETE			CU YD	1.50
3-1/2" GALV. STEEL PIPE			EACH	2 @ 2'-8"
1/2" x 4" x 14" GALV. ANCHOR PLATE			EACH	4
1/2" Ø GALV. EXP. BOLTS			EACH	8



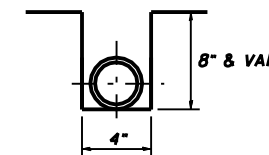
PLAN



TOP VIEW



DETAIL "A"



DETAIL "B"

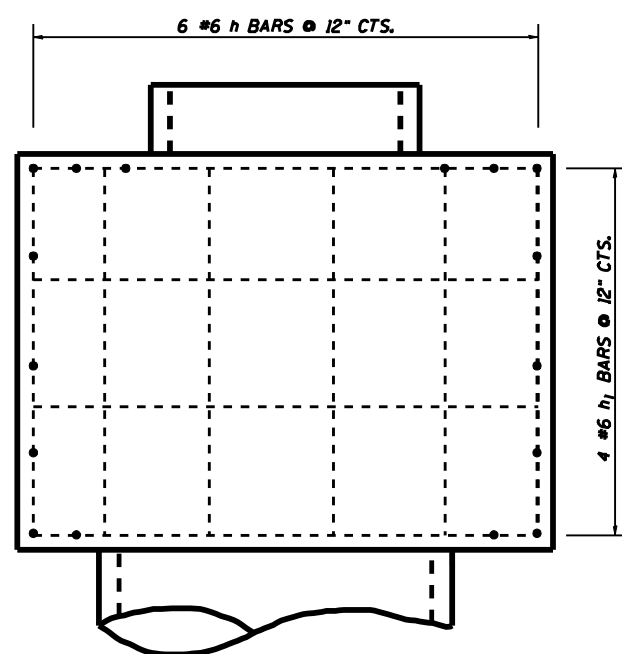
GENERAL NOTES:

STEEL PIPES SHALL CONFORM TO A.S.T.M. A-53 (TYPE E OR S) GRADE B, SCHEDULE 40, & SHALL BE GALVANIZED CONFORMING TO A.S.T.M. A-120.

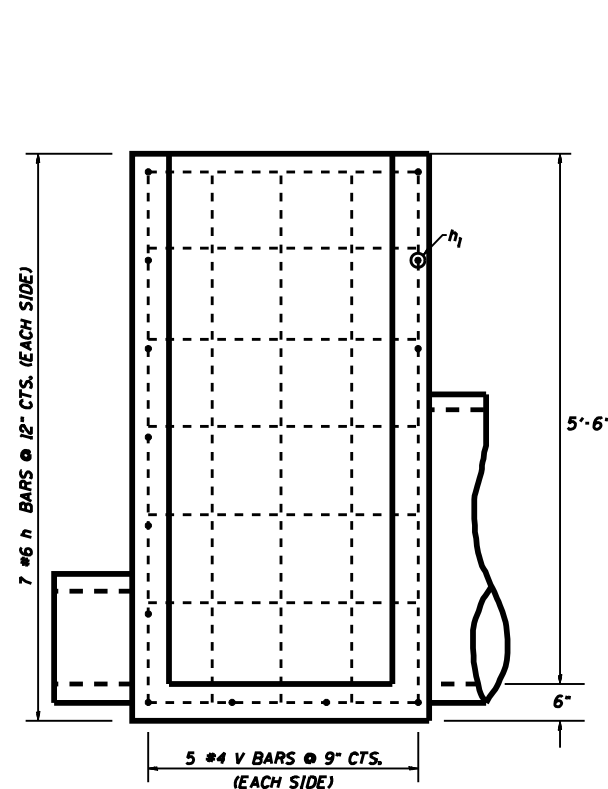
STEEL PLATES SHALL CONFORM TO AASHTO M-183 & SHALL BE GALVANIZED CONFORMING TO AASHTO M-111.

BOLTS, NUTS, & WASHERS SHALL BE IN ACCORDANCE WITH ARTICLE 1006.08 OF THE STANDARD SPECIFICATIONS AND SHALL BE GALVANIZED.

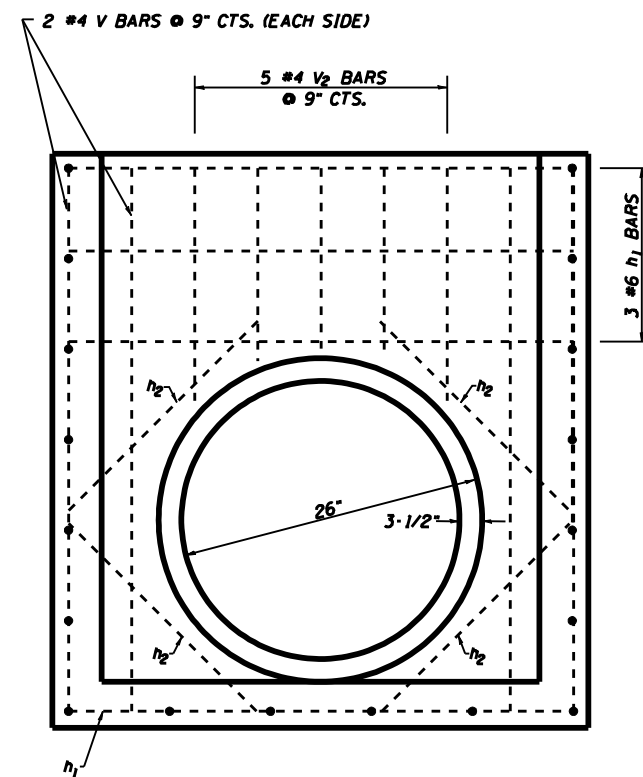
THE CONTRACT UNIT PRICE "EACH" FOR INLET BOX SPECIAL NO. 2 SHALL INCLUDE THE EXPANSION BOLTS, GALVANIZED PIPES, CL SI CONCRETE, BOLTS, NUTS, REINFORCEMENT, WASHERS, STEEL PLATES, EARTH EXCAVATION AND NECESSARY GRADING.



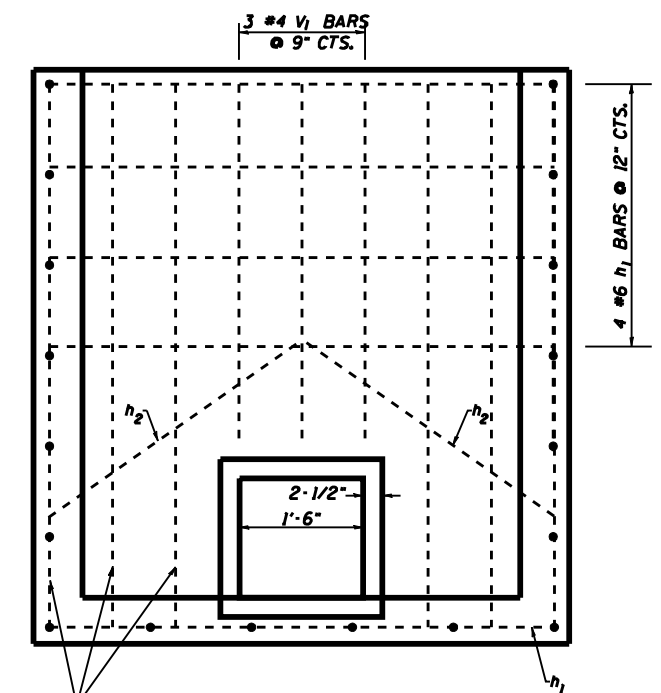
BOTTOM VIEW



SIDE VIEW



FRONT VIEW



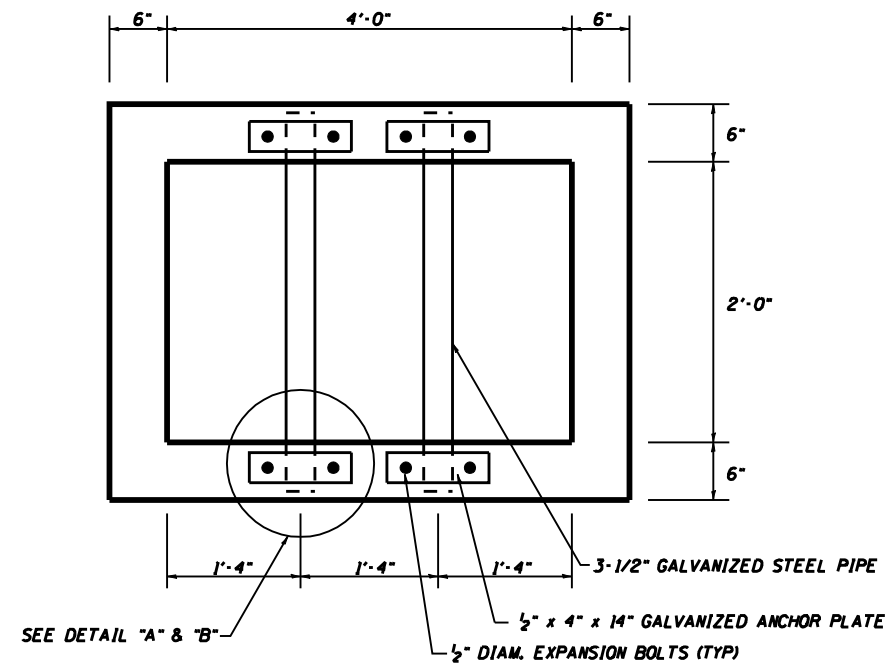
BACK VIEW

FILE NAME : District 2 Standard	USER NAME : I001/District 2	DESIGNED - DRAWN -	REVISED - 6-23-06 REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD			F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE : 2,0000' / IN.	CHECKED -	REVISED -		SCALE:	SHEET NO.	OF SHEETS	STA.	TO STA.	CONTRACT NO.		
	PLOT DATE : September 06 2007	DATE -	REVISED -		FED. ROAD DIST. NO.			ILLINOIS FED. AID PROJECT				

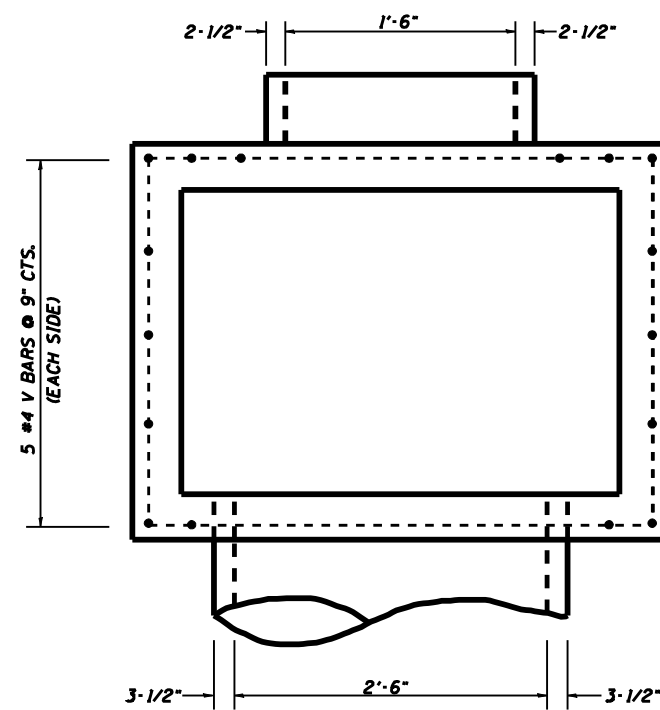
INLET BOX SPECIAL NO. 3

BILL OF MATERIALS

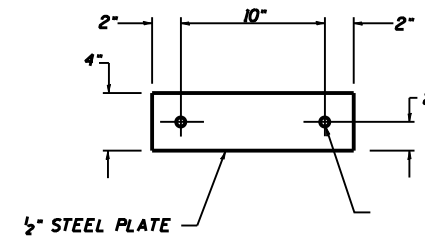
BAR	NUMBER	SIZE	LENGTH	QTY.
h	18	#6	2'-8"	72.10
h ₁	11	#6	4'-8"	77.10
h ₂	6	#4	2'-10"	11.36
v	16	#4	5'-8"	60.57
v ₁	3	#4	3'-6"	7.01
v ₂	5	#4	2'-4-1/2"	7.93
TOTAL REINFORCEMENT BARS			LB	236.07
CL SI CONCRETE			CU YD	1.50
3-1/2" GALV. STEEL PIPE			EACH	2 @ 2'-8"
1/2" x 4" x 14" GALV. ANCHOR PLATE			EACH	4
1/2" Ø GALV. EXP. BOLTS			EACH	8



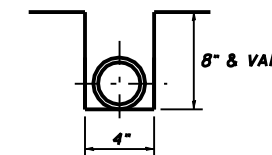
PLAN



TOP VIEW



DETAIL "A"



DETAIL "B"

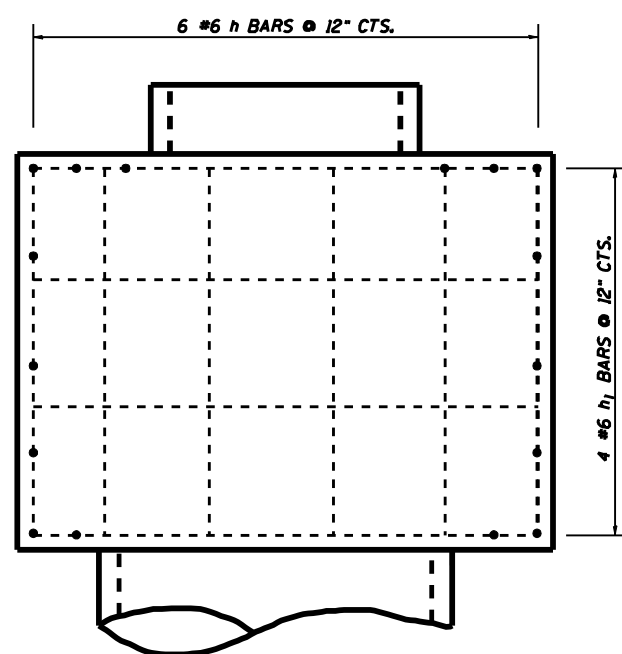
GENERAL NOTES:

STEEL PIPES SHALL CONFORM TO A.S.T.M. A-53 (TYPE E OR S) GRADE B, SCHEDULE 40, & SHALL BE GALVANIZED CONFORMING TO A.S.T.M. A-120.

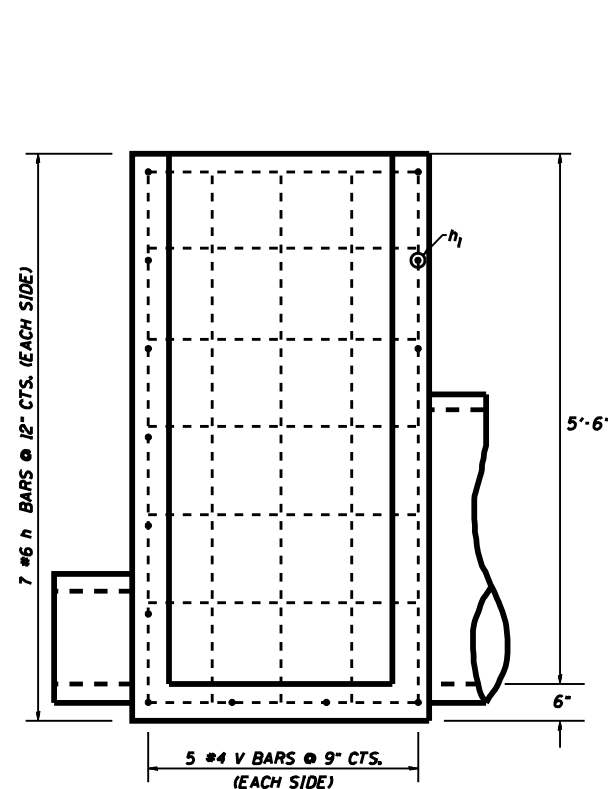
STEEL PLATES SHALL CONFORM TO AASHTO M-183 & SHALL BE GALVANIZED CONFORMING TO AASHTO M-111.

BOLTS, NUTS, & WASHERS SHALL BE IN ACCORDANCE WITH ARTICLE 1006.08 OF THE STANDARD SPECIFICATIONS AND SHALL BE GALVANIZED.

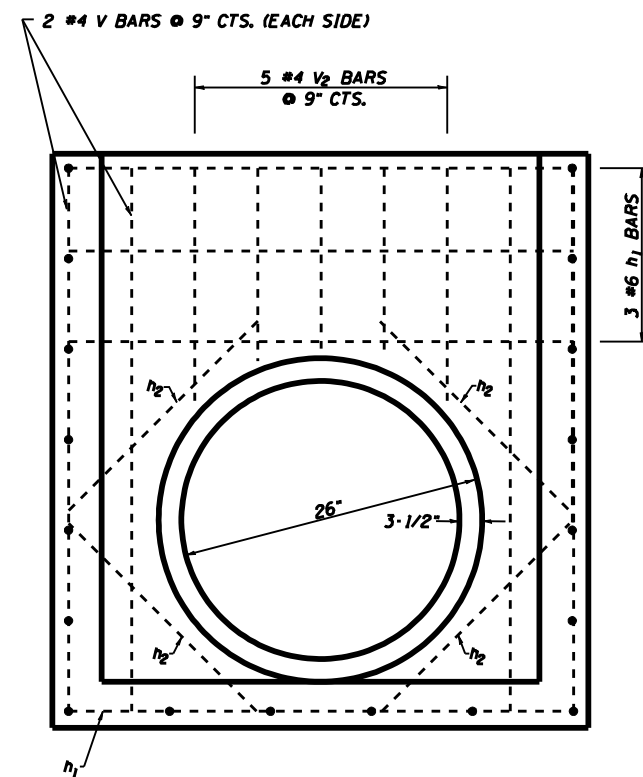
THE CONTRACT UNIT PRICE "EACH" FOR INLET BOX SPECIAL NO. 2 SHALL INCLUDE THE EXPANSION BOLTS, GALVANIZED PIPES, CL SI CONCRETE, BOLTS, NUTS, REINFORCEMENT, WASHERS, STEEL PLATES, EARTH EXCAVATION AND NECESSARY GRADING.



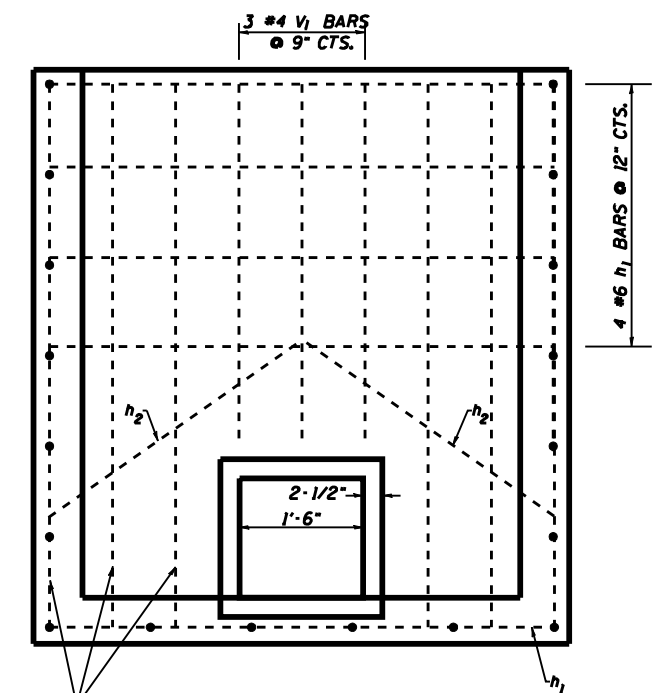
BOTTOM VIEW



SIDE VIEW



FRONT VIEW

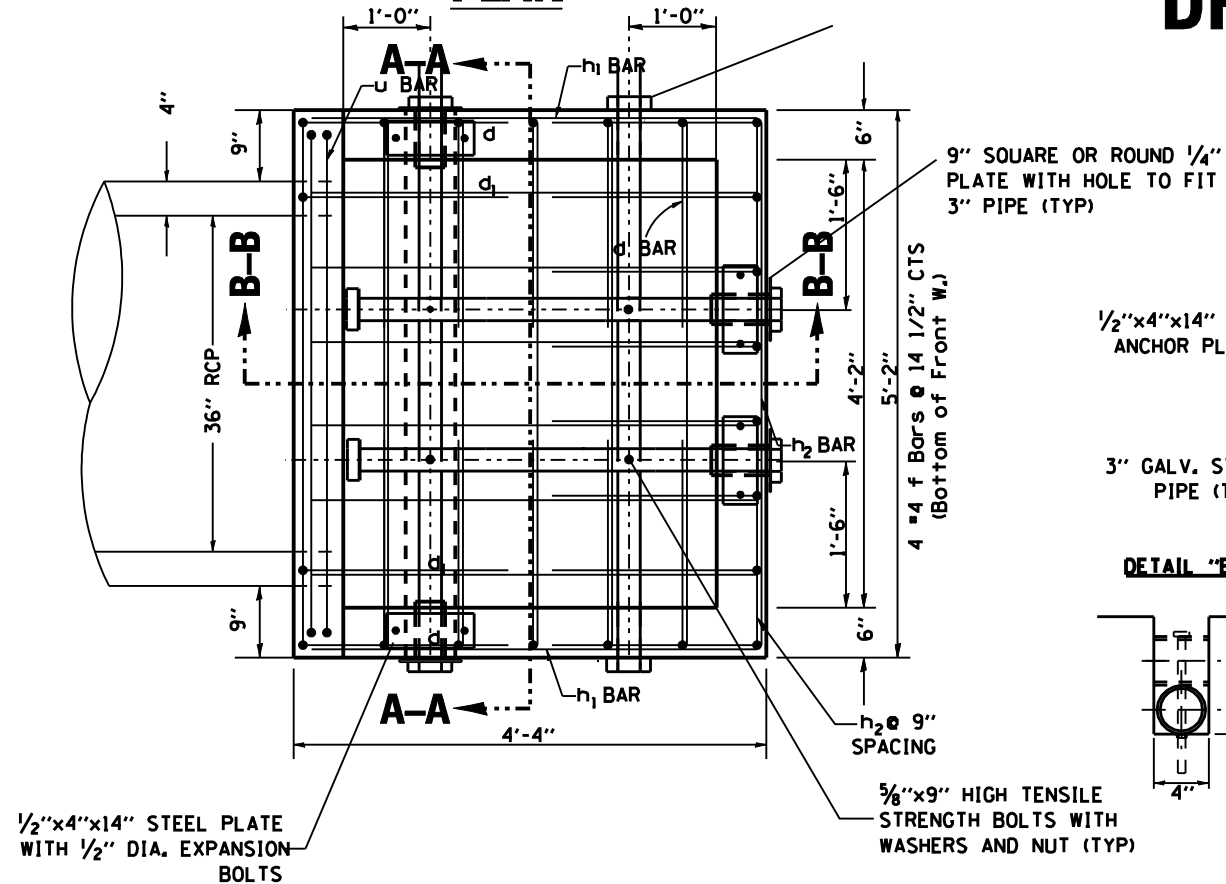


BACK VIEW

FILE NAME : District 2 Standard	USER NAME : I001/District 2	DESIGNED - DRAWN -	REVISED - 10-15-04 REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD			F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE : 2,0000' / IN.	CHECKED -	REVISED -		SCALE:	SHEET NO.	OF SHEETS	STA.	TO STA.	CONTRACT NO.		
	PLOT DATE : September 06 2007	DATE -	REVISED -					FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

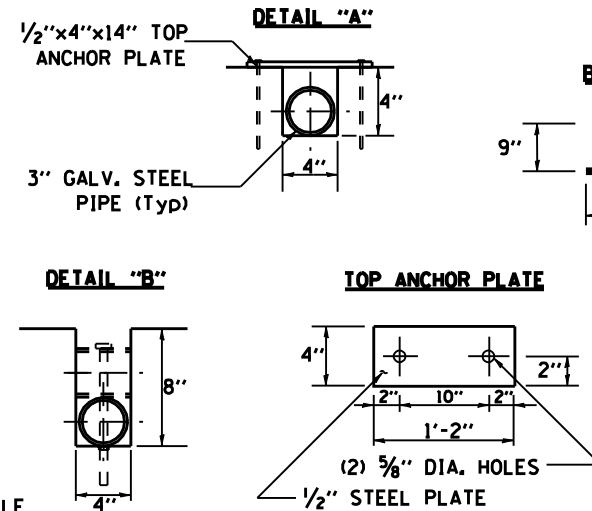
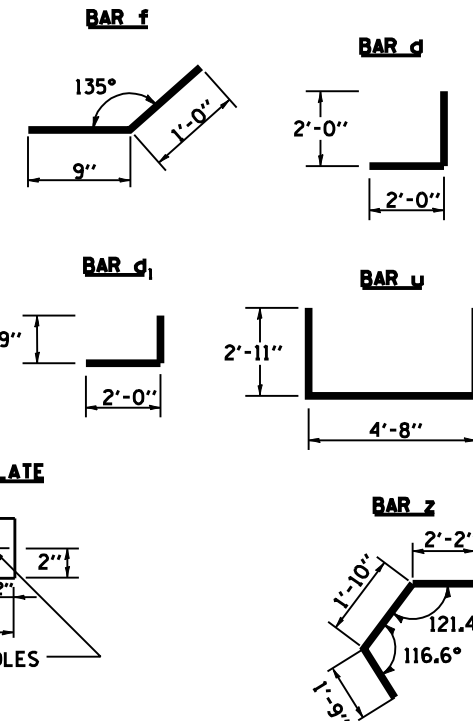
DROP BOX NO. 6

PLAN

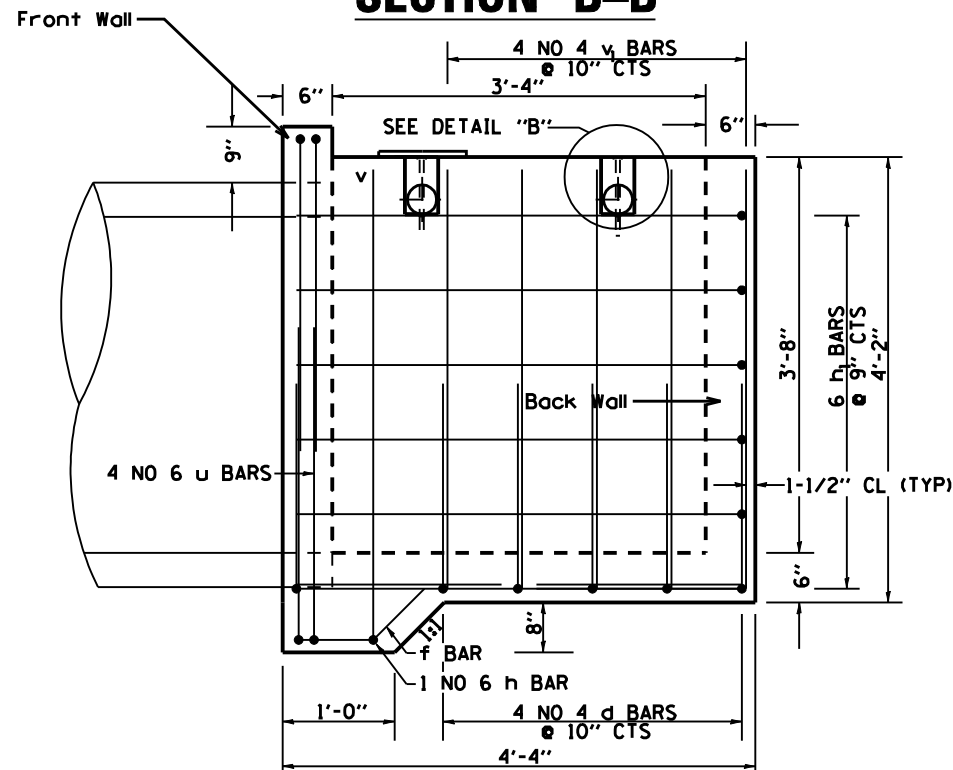


BILL OF MATERIAL

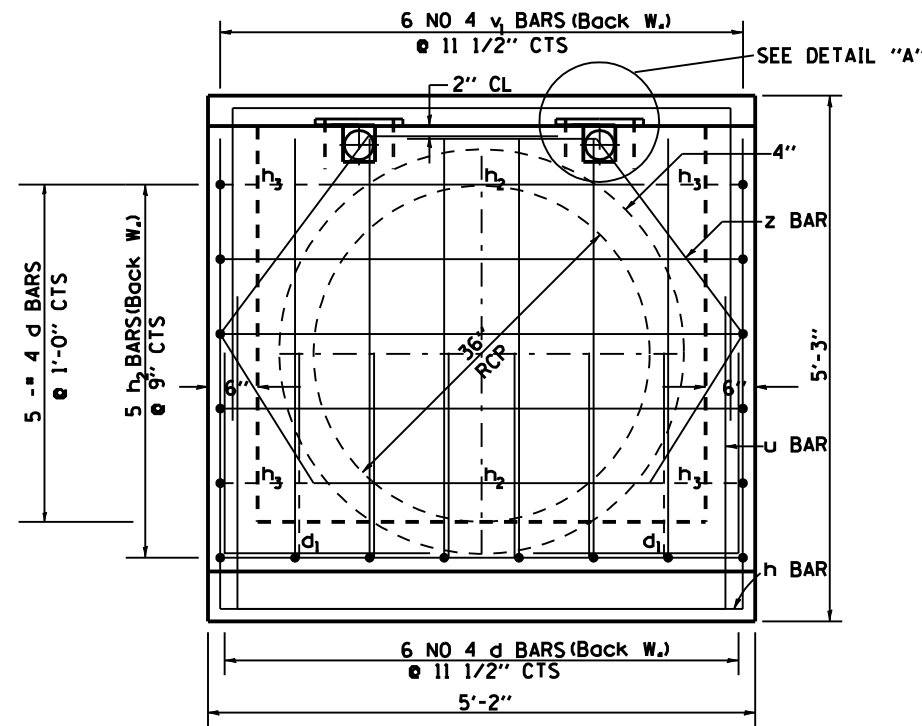
BAR	SIZE	NO.	LENGTH	WEIGHT (LB)
d	4	26	4'-0"	69.47
d1	4	2	2'-9"	3.67
f	4	4	1'-9"	4.68
h	6	1	4'-11"	7.38
h1	4	18	4'-0"	48.10
h2	4	12	4'-10"	38.74
h3	4	4	1'-0"	2.67
u	6	2	7'-7"	22.78
v	4	2	4'-6"	6.01
v1	4	14	3'-10"	35.85
z	4	2	5'-9"	7.68
DESCRIPTION			UNIT	QTY
CLASS "SI" CONCRETE			CU YD	1.75
REINFORCEMENT BARS			LB	247.04



SECTION B-B



SECTION A-A



GENERAL NOTES

This work shall be done according to the applicable portion of 503, 508, and 542 of the Standard Specifications. Class "SI" Concrete shall be used. Exposed edges shall be beveled 1/4".

The contract unit price "each" for DROP BOX NO. 6 shall include the Expansion Bolts, Galvanized Pipe, Class "SI" Concrete, Reinforcement Bars, Bolts, Nuts, Washers, Steel Plates, earth excavation where required, and necessary grading to fit the inlet as shown in the cross sections or to the slope.

Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-53, Grade 60.

STEEL PLATES SHALL CONFORM TO AASHTO M-183 AND SHALL BE GALVANIZED CONFORMING TO AASHTO M-111.

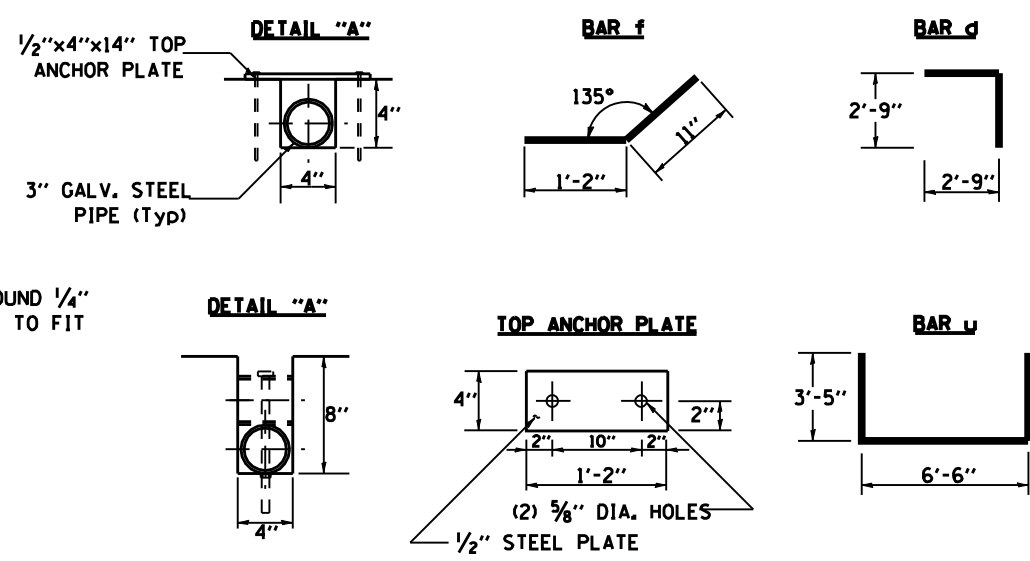
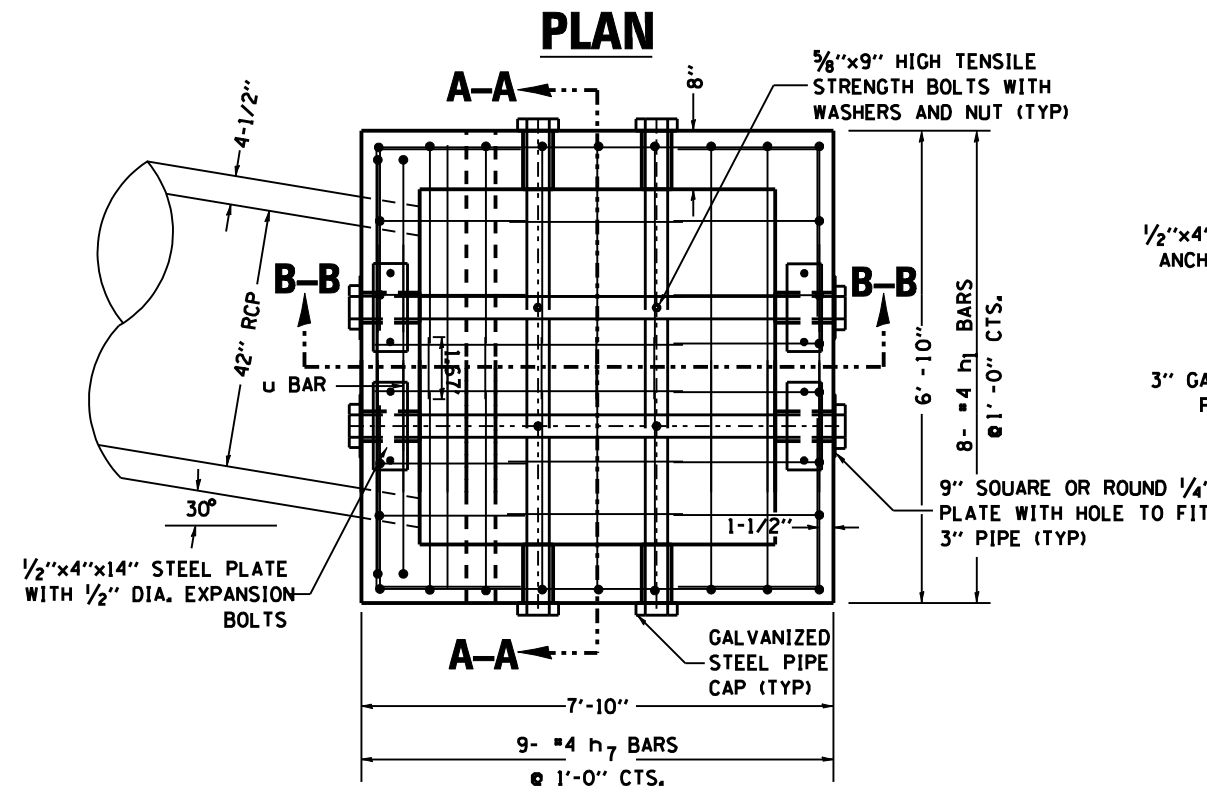
Contractor shall field verify pipe dimensions prior to ordering.

Bolts, Nuts, and Washers shall be in accordance with Article 710.11 of the Standard Specification and shall be galvanized.

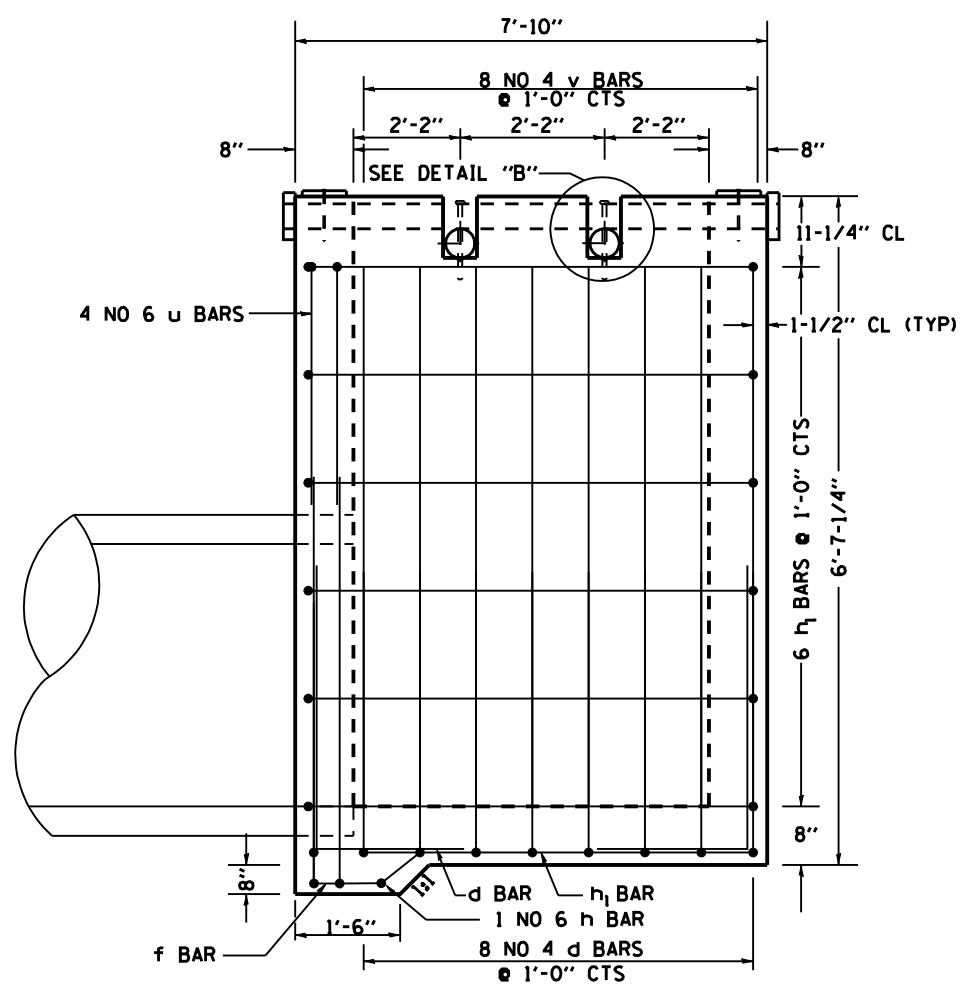
Order 3 h3 bars and 4 v2 bars full length for the front wall and cut to fit in the field

FILE NAME : District 2 Standard	USER NAME : 100T/District 2	DESIGNED -	REVISED - 6-29-06	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.		
		DRAWN -	REVISED -			CONTRACT NO.						
		CHECKED -	REVISED -			SCALE:	SHEET NO.	OF	SHEETS	STA.	TO	STA.
		DATE -	REVISED -			FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT						

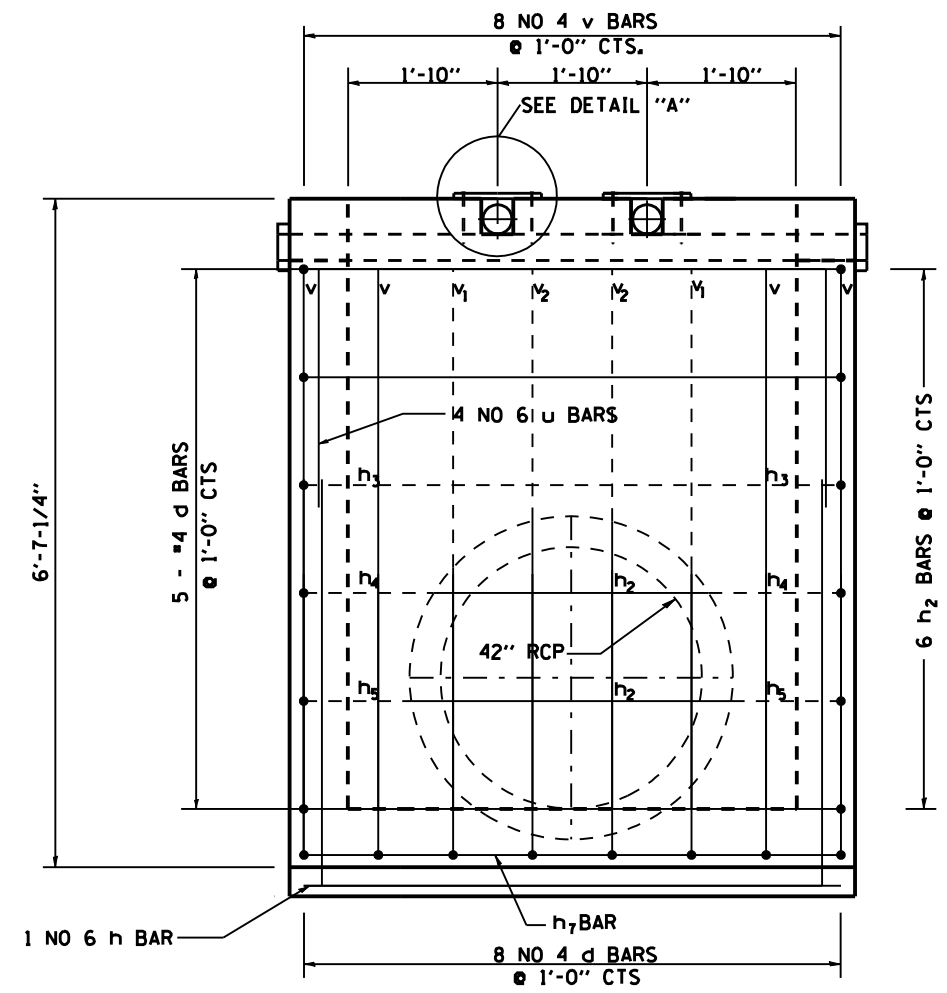
DROP BOX NO. 3



SECTION B-B



SECTION A-A



BILL OF MATERIAL

BAR	SIZE	NO.	LENGTH	BAR SHAPE
d	4	36	5'-6"	
f	4	3	2'-1"	
h	4	1	6'-6"	
h1	6	26	7'-7"	
h2	4	9	6'-7"	
h3	4	2	1'-6"	
h4	4	2	1'-0"	
h5	4	2	1'-2"	
h7	4	9	6'-7"	
u	6	4	9'-11"	
v	4	28	5'-6"	
v1	4	2	2'-7"	
v2	4	2	2'-2.5"	
DESCRIPTION		UNIT	QTY	
CLASS "SI" CONCRETE		CU YD	5.2	
REINFORCEMENT BARS		LB	689.84	
EXPANSION BOLTS 1/2"		EACH	8	
5/8" X 9" GAL. STEEL BOLTS		EACH	4	
3" GALV. STEEL PIPE		ø2	8'-2"	
		ø2	7'-2"	
3" GALV. PIPE CAPS		EACH	8	
1/2" X 4" X 14" GALV. PLATE		EACH	4	
1/4" GALV. STEEL PLATE (9" NOMINAL)		EACH	4	

GENERAL NOTES

This work shall be done according to the applicable portion of 503, 508, and 542 of the Standard Specifications.

Class "SI" Concrete shall be used. Exposed edges shall be beveled 1/4".

The contract unit price "each" for DROP BOX NO. 3 shall include the Expansion Bolts, Galvanized Pipe, Class "SI" Concrete, Reinforcement Bars, Bolts, Nuts, Washers, Steel Plates, earth excavation where required, and necessary grading to fit the inlet as shown in the cross sections or to the slope.

Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-53, Grade 60.

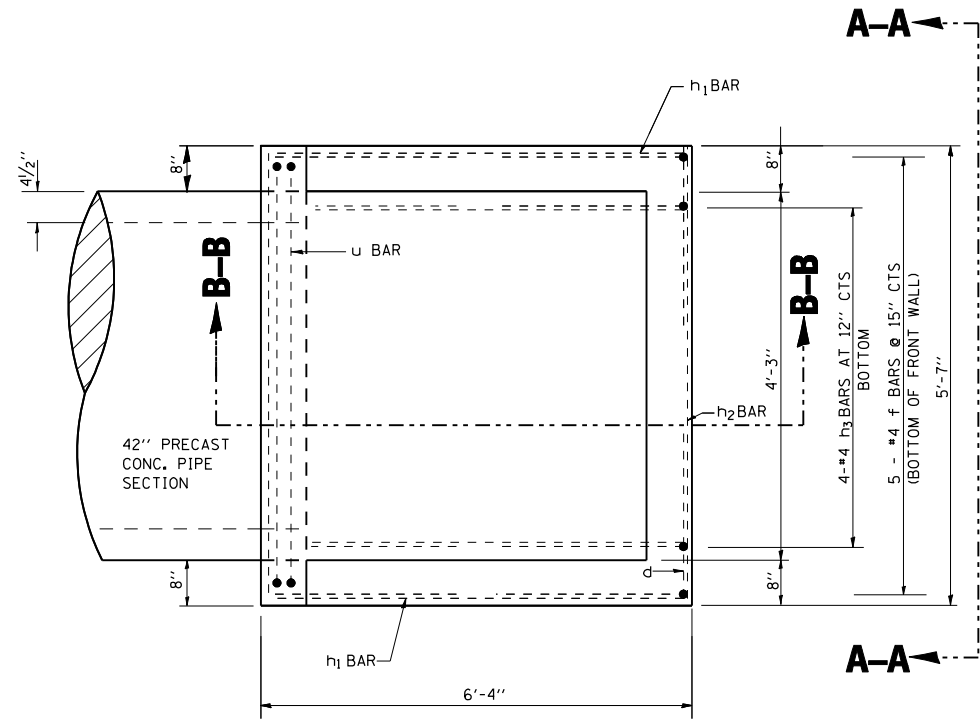
STEEL PLATES SHALL CONFORM TO AASHTO M-183 AND SHALL BE GALVANIZED CONFORMING TO AASHTO M-111.

Bolts, Nuts, and Washers shall be in accordance with Article 710.11 of the Standard Specification and shall be galvanized.

Contractor shall field verify Galvanized pipe length.

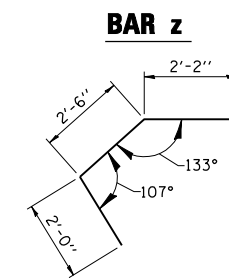
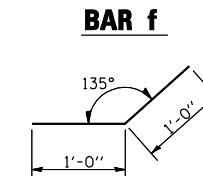
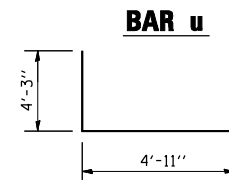
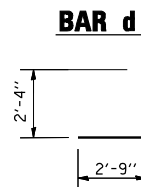
FILE NAME : District 2 Standard	USER NAME : ID07/District 2	DESIGNED -	REVISED - 6-29-06	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD			F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.			
		DRAWN -	REVISED -					CONTRACT NO.							
		CHECKED -	REVISED -					FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT							
		DATE -	REVISED -					SCALE:	SHEET NO.	OF SHEETS	STA.	TO STA.			

PLAN

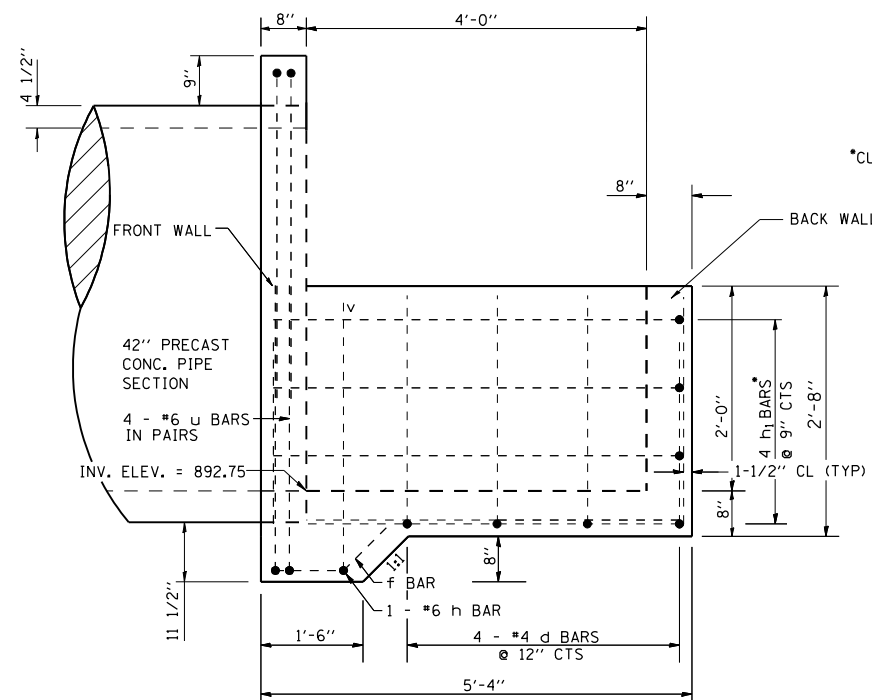


BILL OF MATERIALS
(FOR REINFORCEMENT)

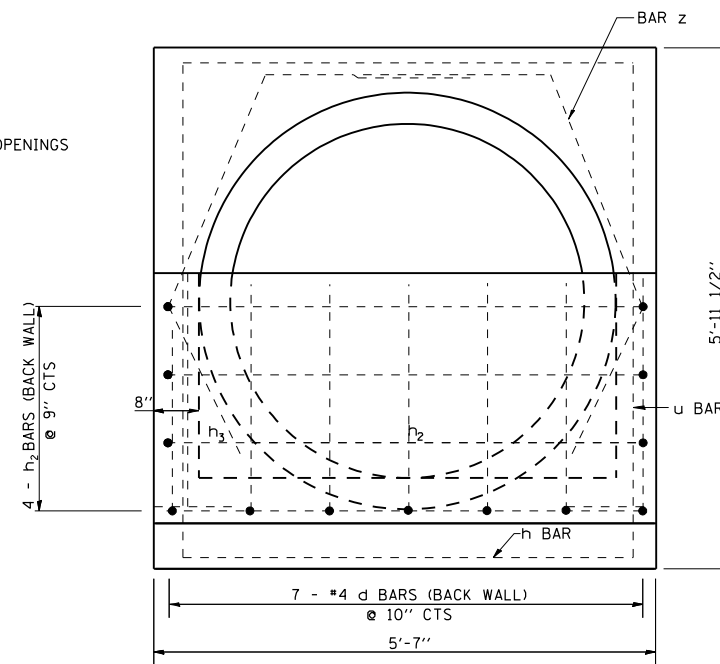
BAR	SIZE	NO.	LENGTH	WEIGHT (LB)
d	4	15	5'-1"	50.93
f	4	5	2'-0"	6.68
h	6	1	5'-3"	7.89
h ₁	4	8	5'-0"	26.72
h ₂	4	4	5'-3"	14.03
h ₃	4	4	4'-4"	11.57
u	6	4	13'-5"	80.66
v	4	2	3'-0"	4.01
z	4	2	6'-8"	8.91
DESCRIPTION			UNIT	QTY
CONCRETE STRUCTURES			CU YD	1.9
REINFORCEMENT BARS			LB	220



SECTION B-B



VIEW A-A



GENERAL NOTES:

SLOPE FLOW LINE OF THE DROP BOX AT THE SAME RATE AS THE FLOW LINE OF THE BOX.
SEE PLAN AND PROFILE SHEET 32 OF 137 FOR MORE INFORMATION.

FILE NAME =	USER NAME = meglilj	DESIGNED -	REVISED - 10-24-07
C:\Documents and Settings\mejlilj\Desktop\02CulvertExamples.cel		DRAWN -	REVISED -
PLOT SCALE = 2.0000' / IN.		CHECKED -	REVISED -
PLOT DATE = Thu Oct 25 09:07:36 2007		DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

REGION 2 / DISTRICT 2 STANDARD

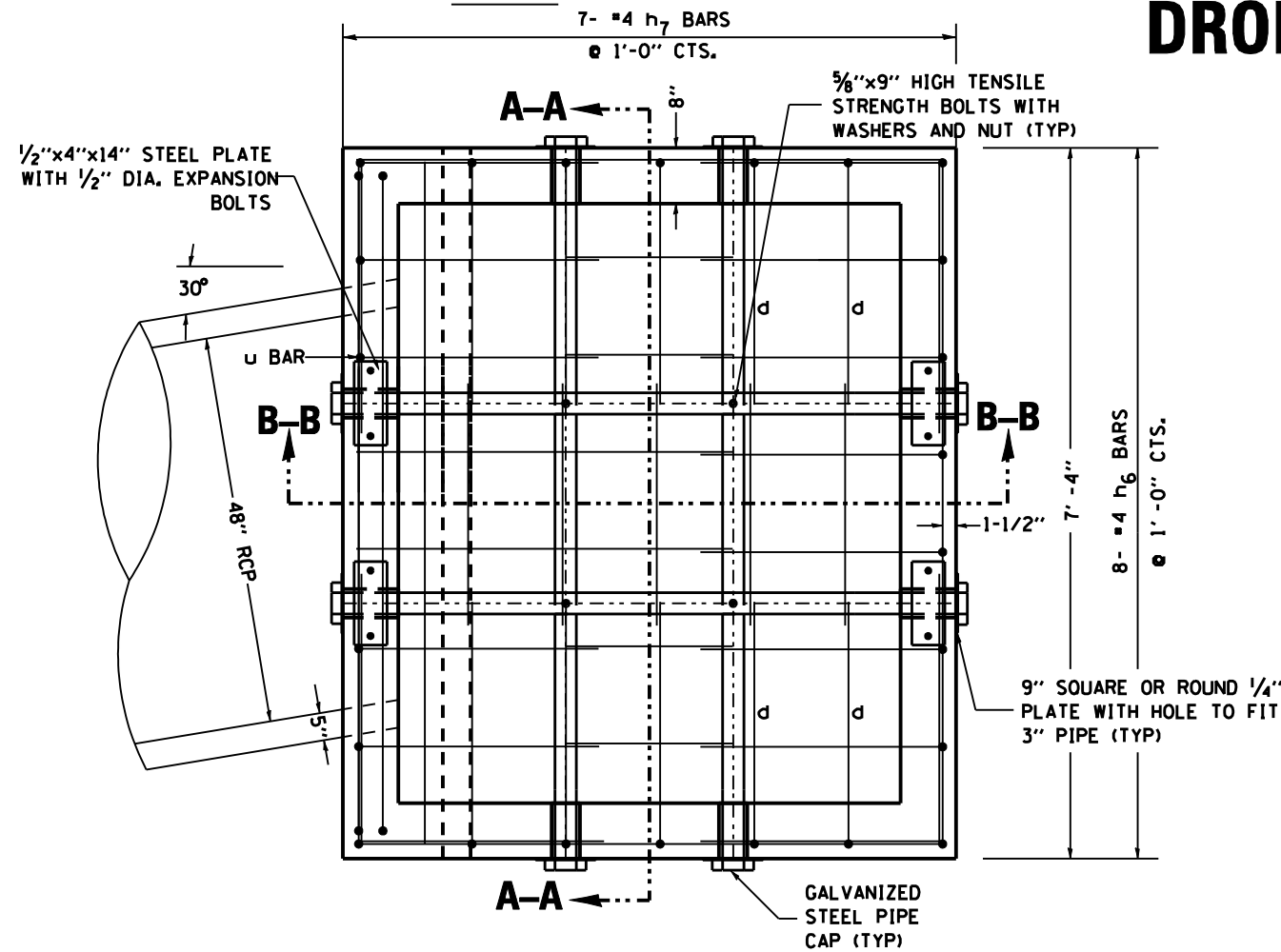
SCALE: _____ SHEET NO. ___ OF ___ SHEETS STA. _____ TO STA. _____

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CONTRACT NO. _____				
FED. ROAD DIST. NO. _____ ILLINOIS FED. AID PROJECT				

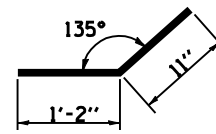
CULVERT DROP BOX FOR 42" REINFORCED CONCRETE PIPE

DROP BOX NO. 4

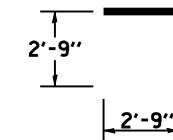
PLAN



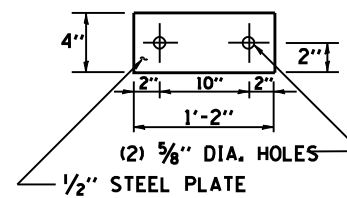
BAR f



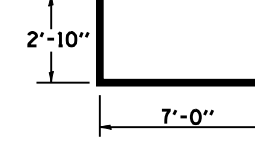
BAR d



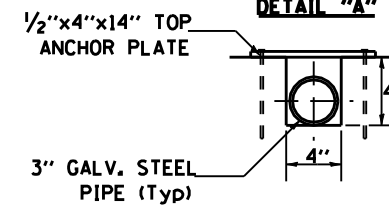
TOP ANCHOR PLATE



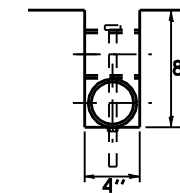
BAR u



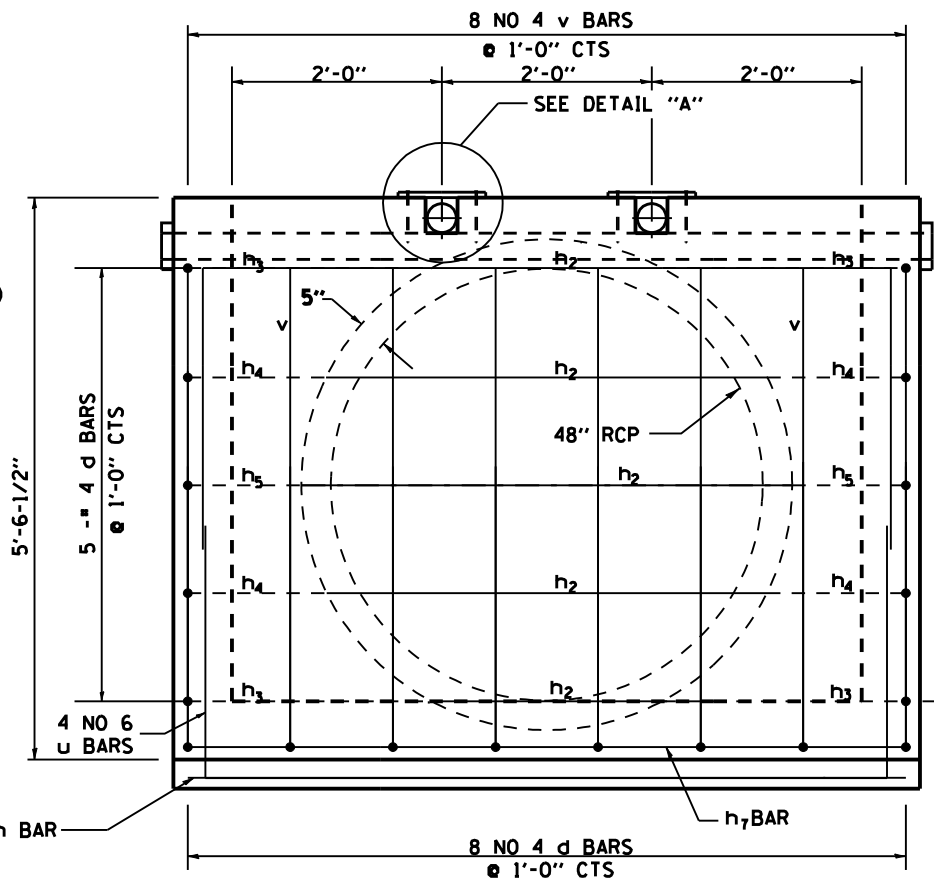
DETAIL "A"



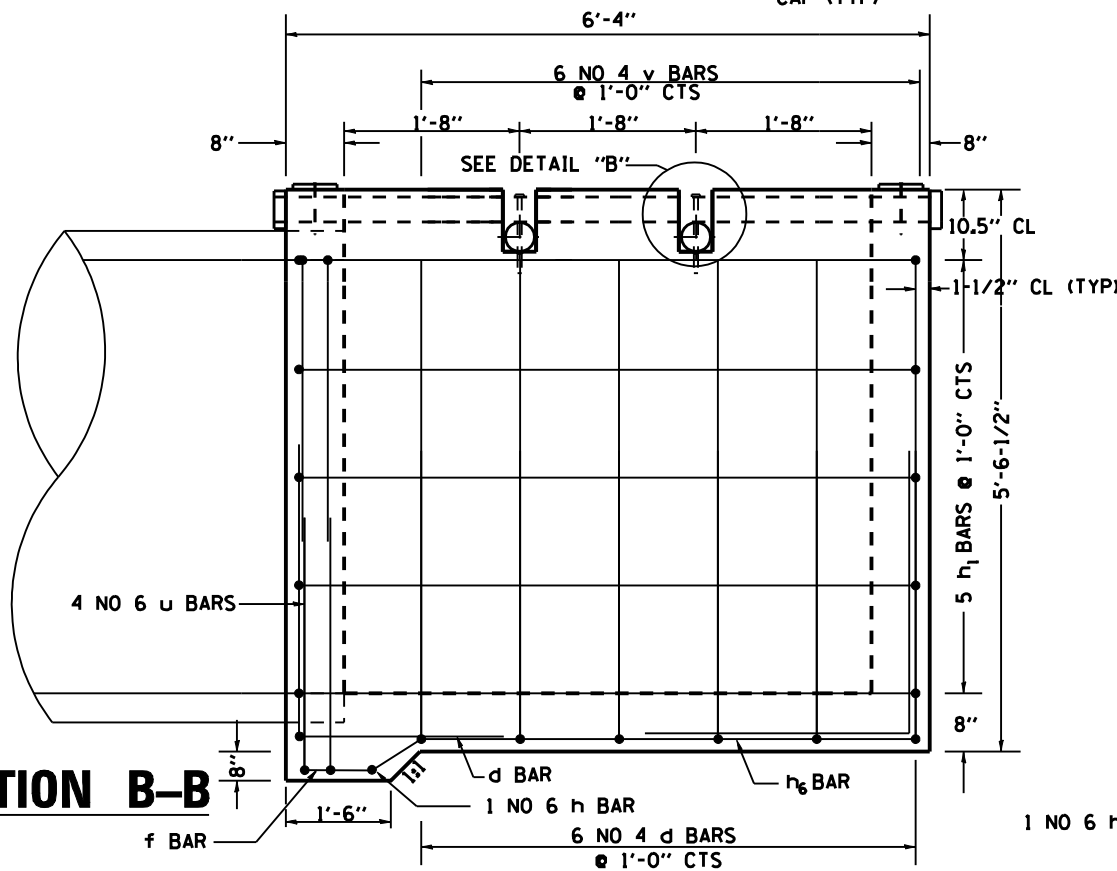
DETAIL "B"



SECTION A-A



SECTION B-B



BILL OF MATERIAL

BAR	SIZE	NO.	LENGTH	BAR SHAPE
d	4	34	5'-6"	
f	4	3	2'-1"	
h	6	1	7'-0"	
h1	4	10	6'-1"	
h2	4	5	7'-1"	
h3	4	4	2'-7"	
h4	4	4	1'-7"	
h5	4	2	1'-4"	
h6	4	8	6'-11"	
h7	4	7	7'-1"	
u	6	4	9'-10"	
v	4	20	4'-6"	
DESCRIPTION		UNIT	QTY	
CLASS "SI" CONCRETE		CU YD	4.0	
REINFORCEMENT BARS		LB	401.64	
EXPANSION BOLTS 1/2"		EACH	8	
5/8" X 9" GALV. STEEL BOLTS		EACH	4	
3" GALV. STEEL PIPE		ø2	7'-8"	
		ø2	6'-8"	
3" GALV. PIPE CAPS		EACH	8	
1/2" X 4" X 14" GALV. PLATE		EACH	4	
1/4" GALV STEEL PLATE (9" NOMINAL)		EACH	4	

GENERAL NOTES

This work shall be done according to the applicable portion of 503, 508, and 542 of the Standard Specifications.

Class "SI" Concrete shall be used. Exposed edges shall be beveled 3/4".

The contract unit price "each" for DROP BOX NO. 4 shall include the Expansion Bolts, Galvanized Pipe, Class "SI" Concrete, Reinforcement Bars, Bolts, Nuts, Washers, Steel Plates, earth excavation where required, and necessary grading to fit the inlet as shown in the cross sections or to the slope

Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-53, Grade 60.

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 710.11 of the Standard Specification and shall be galvanized.

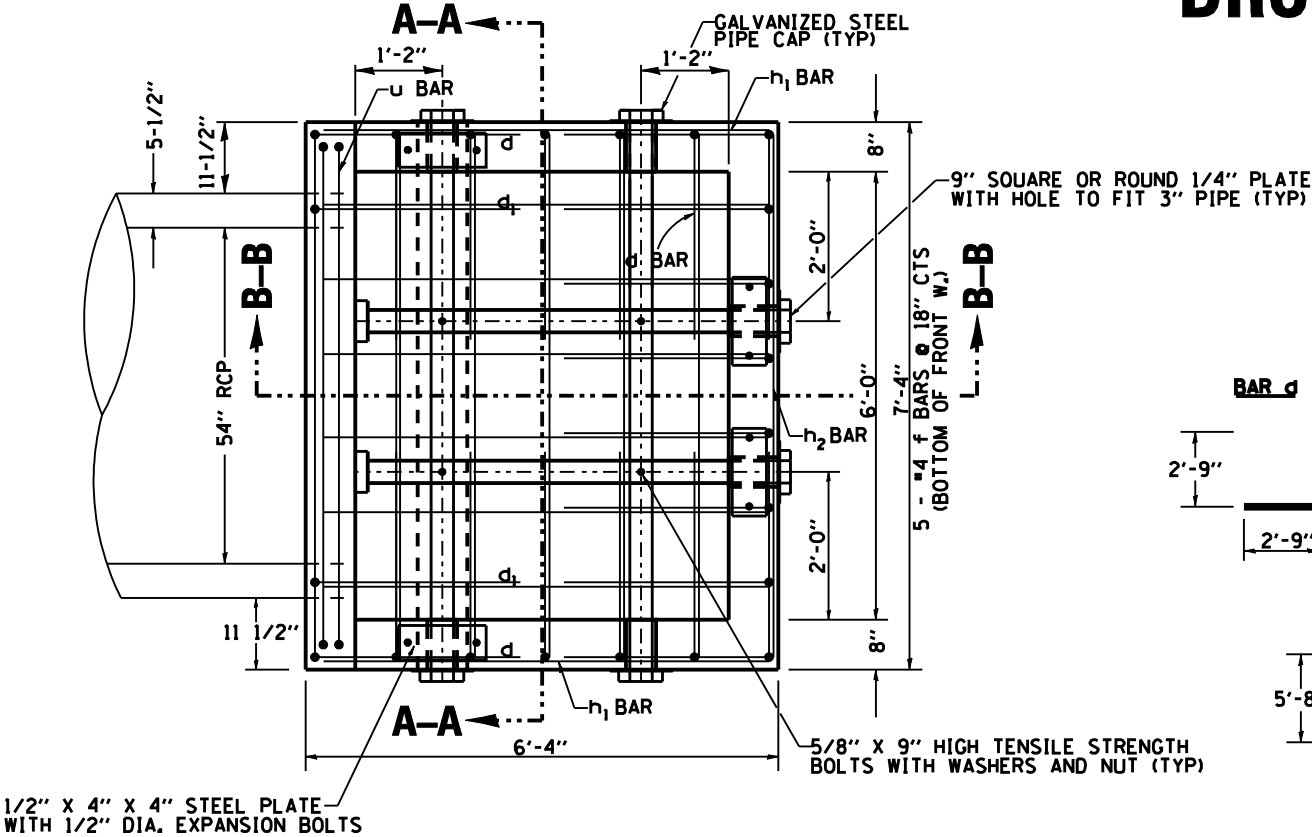
Contractor shall field verify Galvanized pipe length.

DROP BOX NO. 4
STA 530+06.47

FILE NAME : District 2 Standard	USER NAME : 100T/District 2	DESIGNED - DRAWN -	REVISED - 6-29-06 REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD	F.A. RTÉ.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE : 2,0000' / IN.	CHECKED -	REVISED -							
	PLOT DATE : September 06 2007	DATE -	REVISED -							
						SCALE:	SHEET NO. OF SHEETS	STA. TO STA.	CONTRACT NO.	
						FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

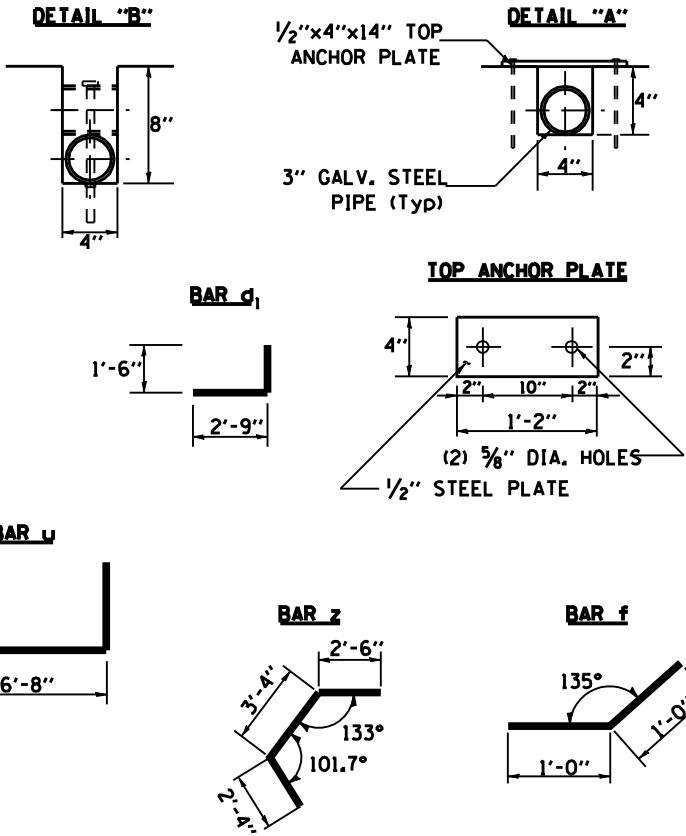
DROP BOX NO. 1

PLAN

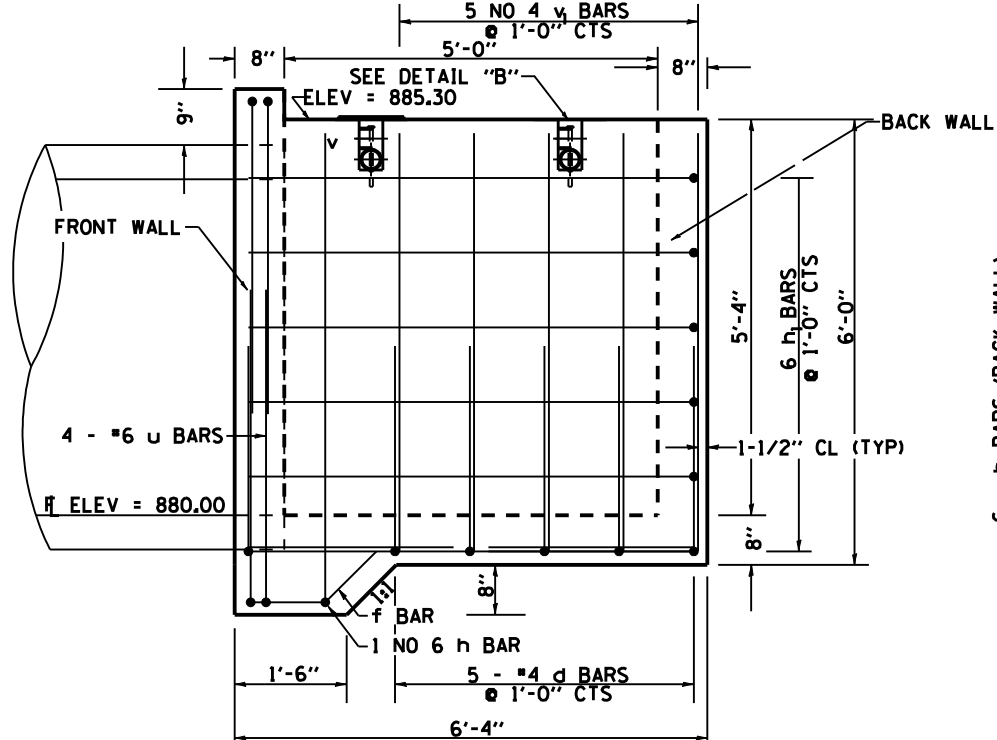


BILL OF MATERIAL

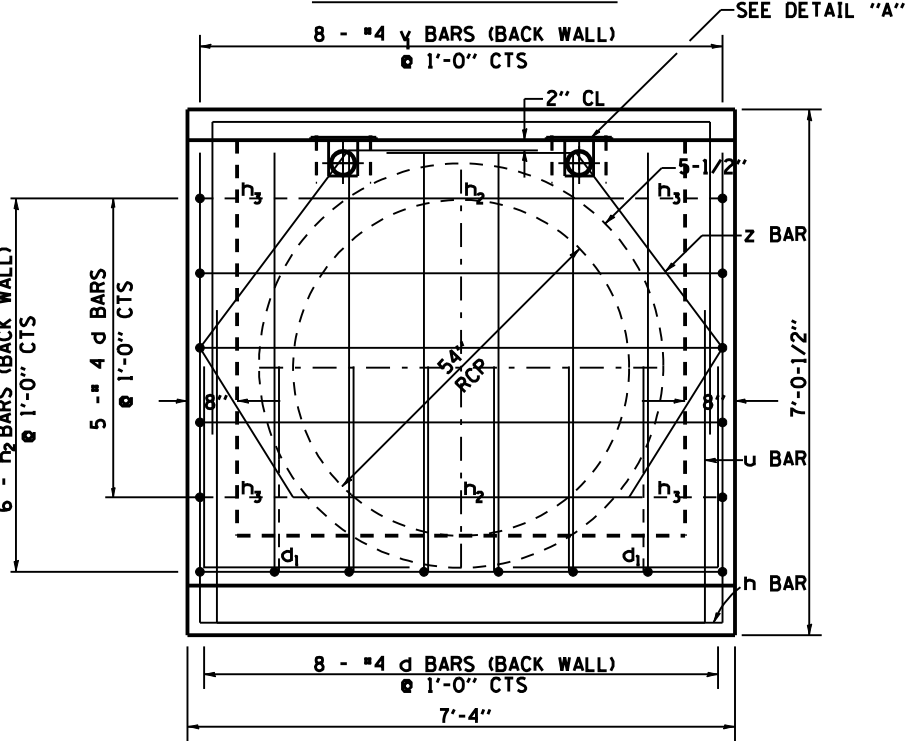
BAR	SIZE	NO.	LENGTH	WEIGHT (LB)
d	4	30	5'-6"	110.22
d1	4	2	4'-3"	5.68
f	4	5	2'-0"	6.68
h	6	1	7'-0"	10.51
h1	4	14	6'-0"	56.11
h2	4	7	7'-0"	32.73
h3	4	4	7'-0"	18.70
u	6	2	18'-0"	54.07
v	4	2	6'-5"	8.57
v1	4	18	5'-8"	68.14
z	4	2	8'-2"	10.92
DESCRIPTION			UNIT	QTY
CLASS "SI" CONCRETE			CU YD	4.7
REINFORCEMENT BARS			LB	382.33



SECTION B-B



SECTION A-A



GENERAL NOTES

This work shall be done according to the applicable portion of 503, 508, and 542 of the Standard Specifications.

Class "SI" Concrete shall be used. Exposed edges shall be beveled 3/4".

The contract unit price "each" for DROP BOX NO. 1 shall include the Expansion Bolts, Galvanized Pipe, Class "SI" Concrete, Reinforcement Bars, Bolts, Nuts, Washers, Steel Plates, earth excavation where required, and necessary grading to fit the inlet as shown in the cross sections or to the slope.

Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-53, Grade 60.

STEEL PLATES SHALL CONFORM TO AASHTO M-183 AND SHALL BE GALVANIZED CONFORMING TO AASHTO M-111.

Contractor shall field verify pipe dimensions prior to ordering.

Bolts, Nuts, and Washers shall be in accordance with Article 710.11 of the Standard Specification and shall be galvanized.

Order 3 h3 bars and 4 v2 bars full length for the front wall and cut to fit in the field

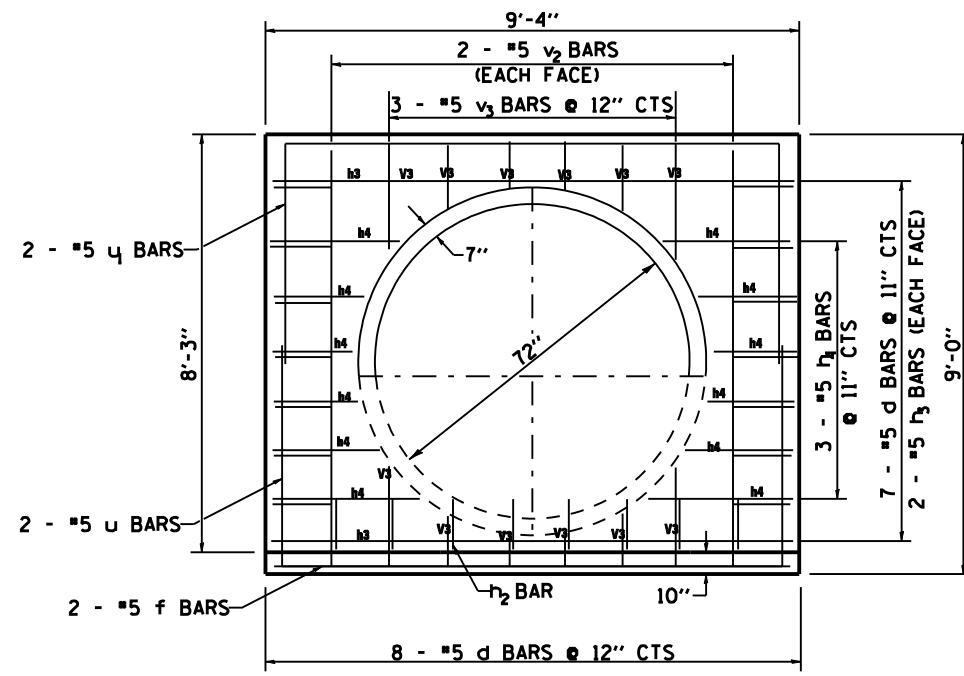
**DROP BOX NO. 1
STATION 496+41**

FILE NAME : District 2 Standard	USER NAME : I007/District 2	DESIGNED - DRAWN -	REVISED - 6-27-06 REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION		REGION 2 / DISTRICT 2 STANDARD		F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE : 2,0000' / IN.	CHECKED -	REVISIED -			SCALE:		SHEET NO. OF SHEETS		STA. TO STA.	CONTRACT NO.	
	PLOT DATE : September 06 2007	DATE -	REVISIED -					FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		

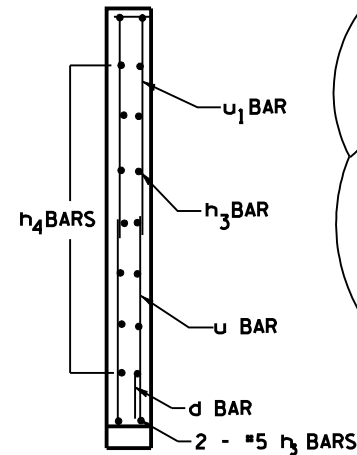
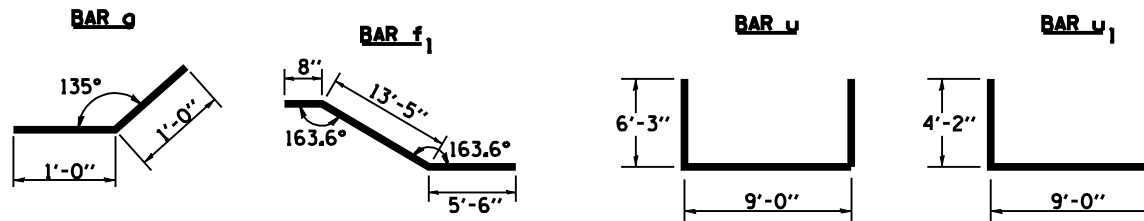
DROP BOX NO. 5

BILL OF MATERIAL

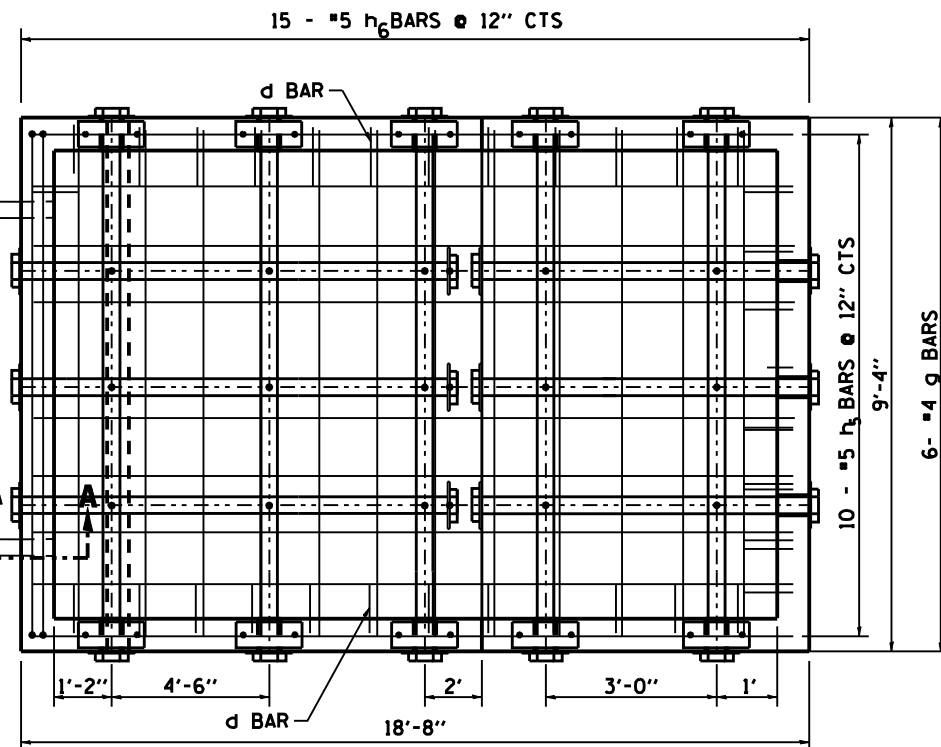
BAR	SIZE	NO.	LENGTH	SHAPE
d	5	71	5'-6"	
f	6	2	9'-0"	
f1	4	2	19'-7"	
g	4	6	2'-0"	
h	5	5	9'-0"	
h1	5	10	18'-5"	
h2	5	4	11'-0"	
h3	5	4	9'-1"	
h4	5	3	9'-0"	
h5	5	10	18'-5"	
h6	5	15	9'-1"	
h7	4	2	9'-0"	
v	5	19	4'-4"	
v1	5	12	13'-7"	
v2	5	4	8'-9"	
v3	5	3	8'-0"	
v4	4	9	3'-2"	
u	5	2	15'-3"	
u1	5	2	13'-3"	
DESCRIPTION	UNIT	QTY		
CLASS "SI" CONCRETE	CU YD	13.0		
REINFORCEMENT BARS	LB	1561.60		



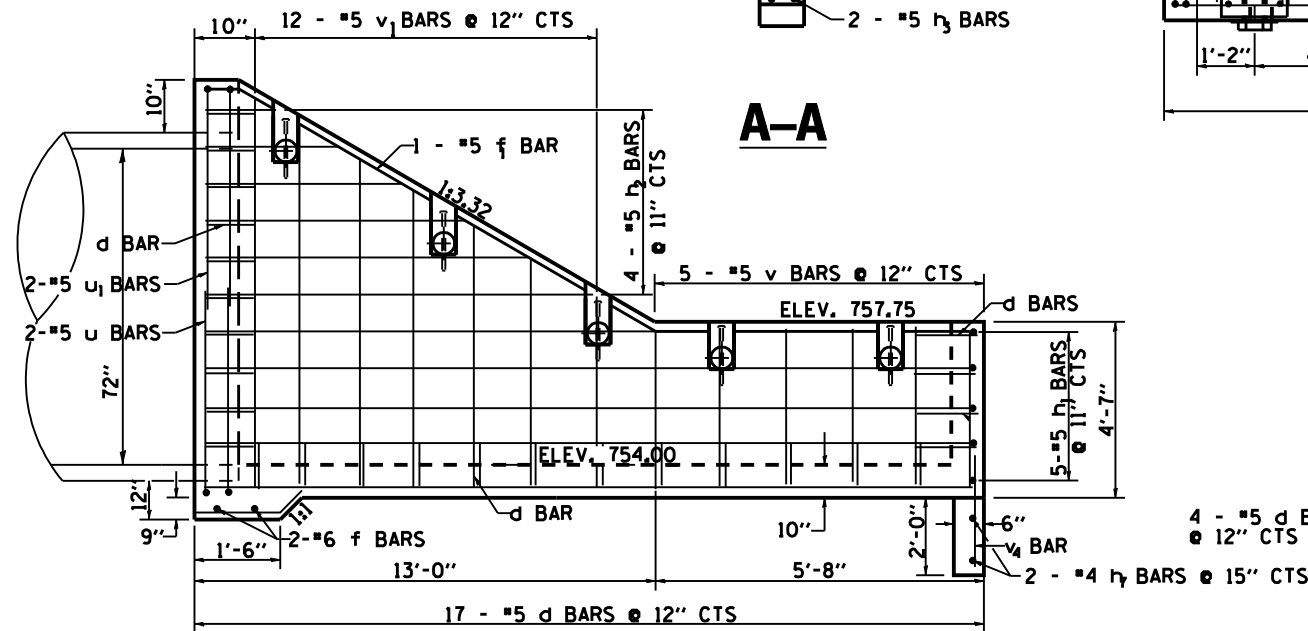
HEADWALL



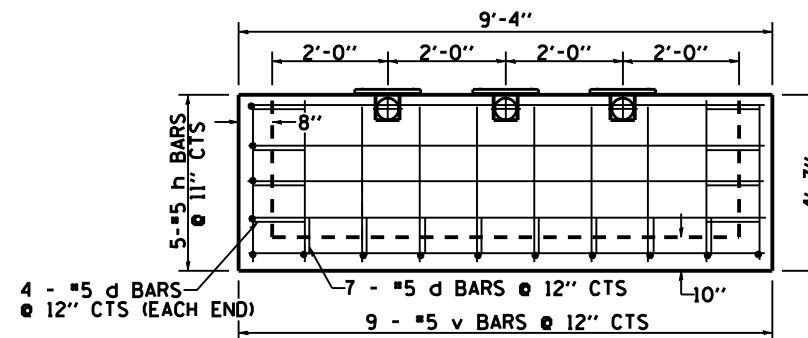
A-A



BOTTOM SLAB



SIDE WALL



BACK WALL

DESCRIPTION	UNIT	QTY.
3" GALVANIZED STEEL PIPE	5e	9'-7"
	3e	5'-8"
	3e	13'-0"
3" GALVANIZED PIPE CAPS	EACH	20
1/4" GALVANIZED STEEL PLATE (9" NOMINAL)	EACH	10
1/2"x4"x14" GALVANIZED STEEL PLATE	EACH	16
5/8"x9" GALVANIZED STEEL BOLTS	EACH	15

GENERAL NOTES

- Order h2 & v4 Bars Full length, Cut to fit in the field and use the remainder in the opposite walls
- Order 5-h4 & 3-v3 Bars Full Length and cut to fit in field
- This work shall be done according to the applicable portion of 503, 508, and 542 of the Standard Specifications.
- Contractor shall field verify Galvanized pipe length.
- Class "SI" Concrete shall be used. Exposed edges shall be beveled 3/4".
- The contract unit price "each" for DROP BOX NO. 5 shall include the Expansion Bolts, Galvanized Pipe, Class "SI" Concrete, Reinforcement Bars, Bolts, Nuts, Washers, Steel Plates, earth excavation where required, and necessary grading to fit the inlet as shown in the cross sections or to the slope
- Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-53, Grade 60.

FILE NAME : District 2 Standard	USER NAME : 1007/District 2	DESIGNED - DRAWN -	REVISED - 6-29-06 REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD			F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE : 2.0000' / IN.	CHECKED -	REVISED -		SCALE:	SHEET NO.	OF SHEETS	STA.	TO STA.	CONTRACT NO.		
	PLOT DATE : September 06 2007	DATE -	REVISED -		FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT						

INLET BOX SPECIAL NO. 1

BILL OF MATERIALS

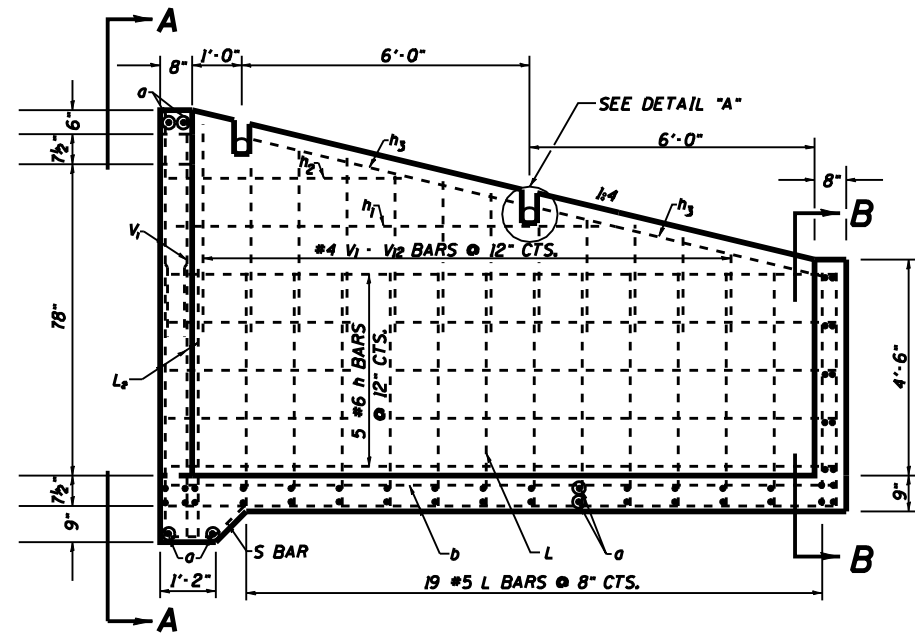
BAR	NUMBER	SIZE	LENGTH	QTY.
a	38	#5	9'-10"	389.73
b	26	#7	14'-0"	744.02
n	20	#6	14'-0"	420.56
n ₁	2	#6	10'-0"	30.04
n ₂	2	#6	6'-0"	18.02
n ₃	4	#6	5'-6"	33.04
n ₄	5	#6	9'-10"	73.85
L	51	#4	6'-6"	221.44
L ₁	4	#4	7'-1"	18.93
L ₂	10	#4	7'-7"	50.66
V ₁ - V ₁₂	34	#4	1'-10"-4'-7"	85.92
S	11	#4	3'-3"	23.88
TOTAL REINFORCEMENT BARS			10	2110.09
CL SI CONC.			CU YD	11.26
3/2" GALV. STEEL PIPE			EACH	4 @ 13'-9" 2 @ 10'-3"
1/2" x 4" x 14" GALV. ANCHOR PLATE			EACH	8
3/8" x 9" GALV. BOLTS			EACH	8
GALV. STEEL PIPE CAPS			EACH	12
1/2" Ø GALV. EXP. BOLTS			EACH	16
9" SO. OR ROUND 1/4" GALV. PLATE			EACH	8

GENERAL NOTES:
 STEEL PIPES SHALL CONFORM TO A.S.T.M. A-53 (TYPE E OR S) GRADE B, SCHEDULE 40, & SHALL BE GALVANIZED CONFORMING TO A.S.T.M. A-120.

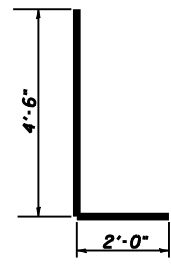
STEEL PLATES SHALL CONFORM TO AASHTO M-183 & SHALL BE GALVANIZED CONFORMING TO AASHTO M-111.

BOLTS, NUTS, & WASHERS SHALL BE IN ACCORDANCE WITH ARTICLE 1006.08 OF THE STANDARD SPECIFICATIONS AND SHALL BE GALVANIZED.

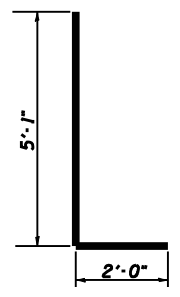
THE CONTRACT UNIT PRICE "EACH" FOR INLET BOX SPECIAL NO. 1 SHALL INCLUDE THE EXPANSION BOLTS, GALVANIZED PIPES, CL SI CONCRETE, BOLTS, NUTS, REINFORCEMENT, WASHERS, STEEL PLATES, EARTH EXCAVATION AND NECESSARY GRADING.



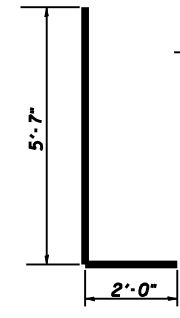
ELEVATION



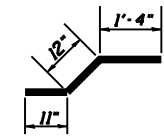
"L" BAR



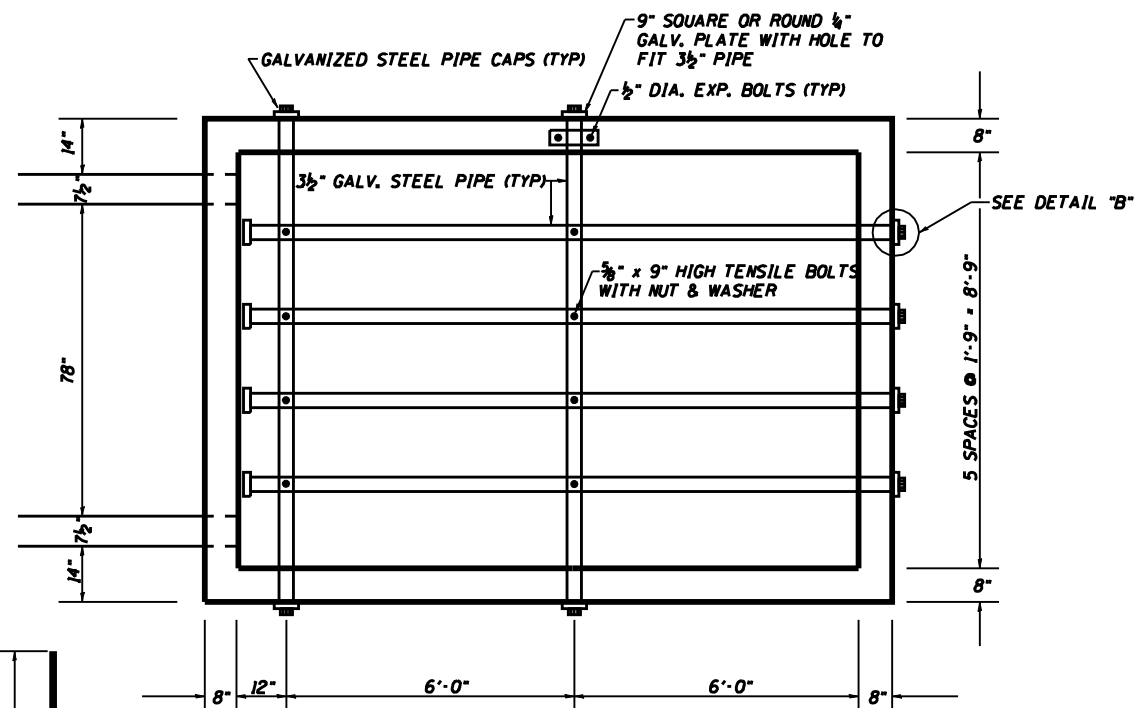
"L₁" BAR



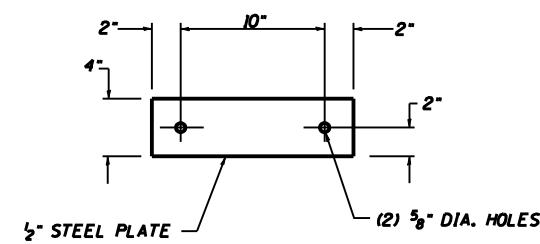
"L₂" BAR



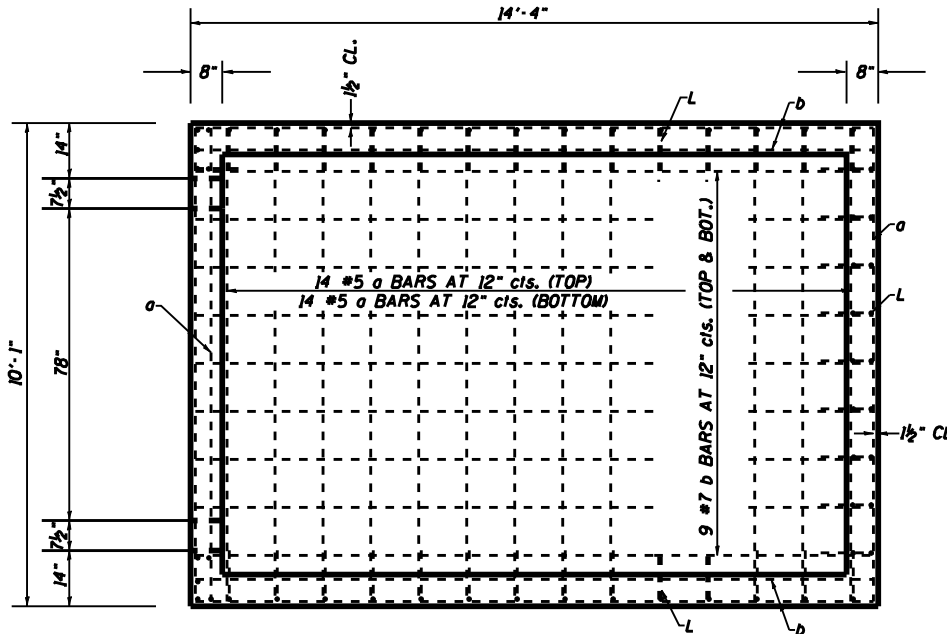
"S" BAR



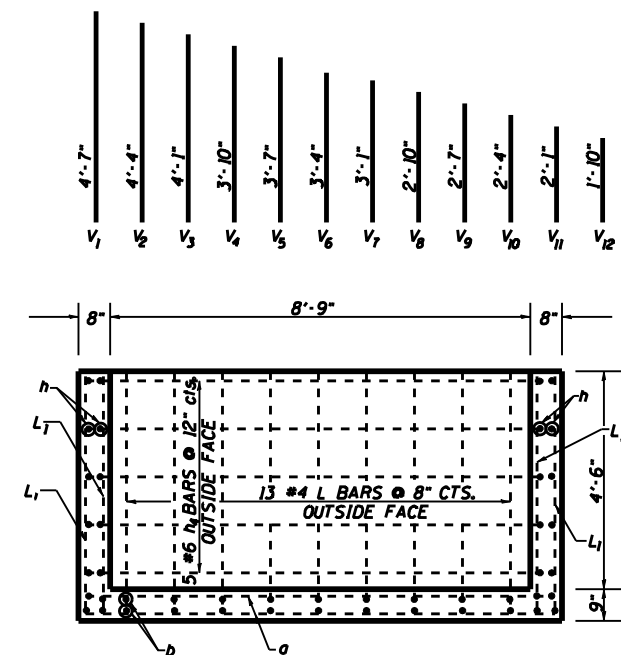
SECTION B-B



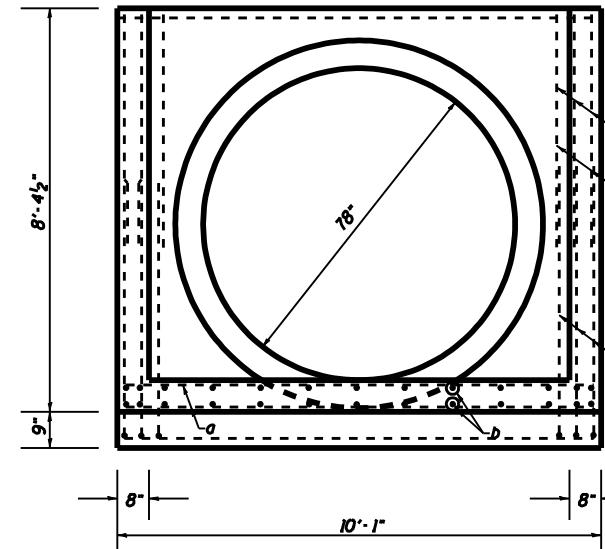
TOP ANCHOR PLATE



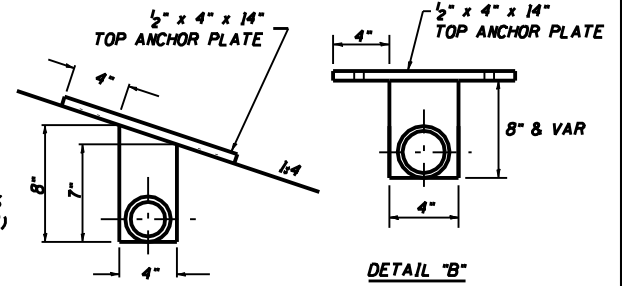
PLAN



SECTION A-A



SECTION A-A

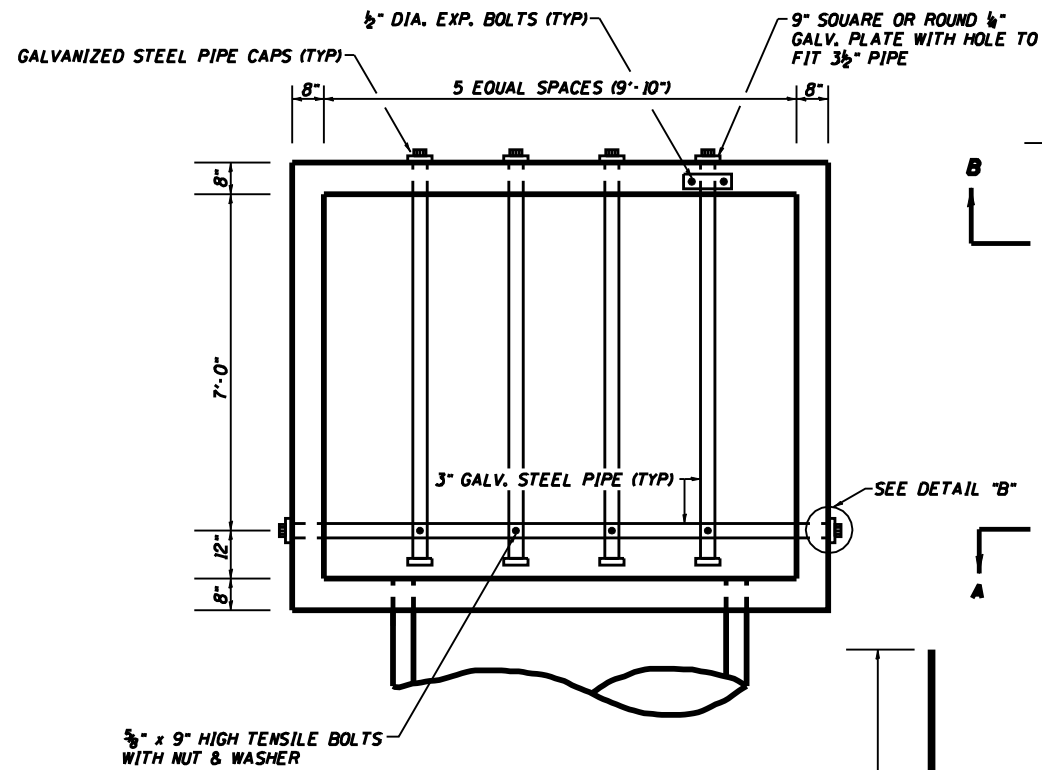


DETAIL "A"

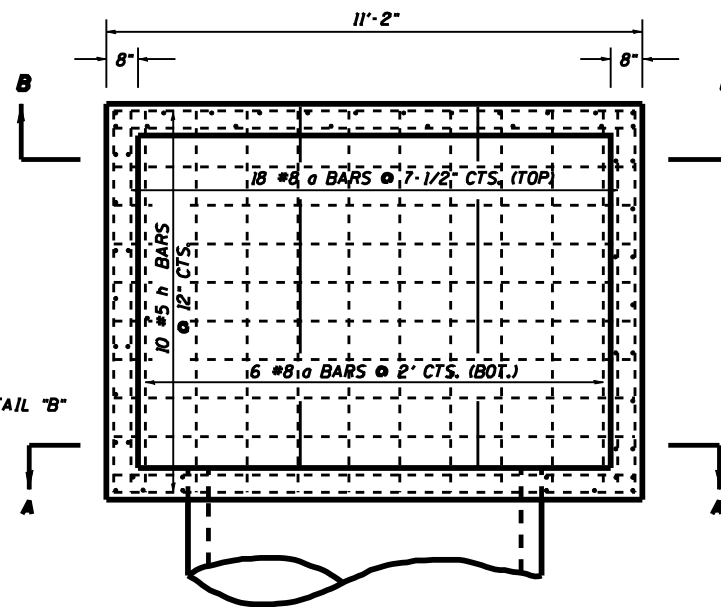
DETAIL "B"

FILE NAME : District 2 Standard	USER NAME : 1007/District 2	DESIGNED - DRAWN -	REVISED - 6-26-06 REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD			F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE : 2,0000' / IN.	CHECKED -	REVISED -		SCALE:	SHEET NO.	OF SHEETS	STA.	TO STA.	CONTRACT NO.		
	PLOT DATE : September 06 2007	DATE -	REVISED -					FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT			

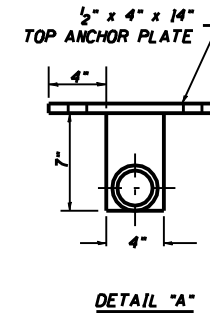
INLET BOX SPECIAL NO. 2



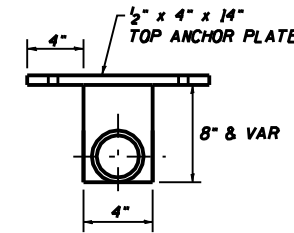
PLAN



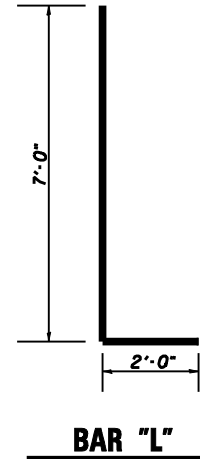
PLAN



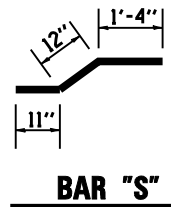
DETAIL "A"



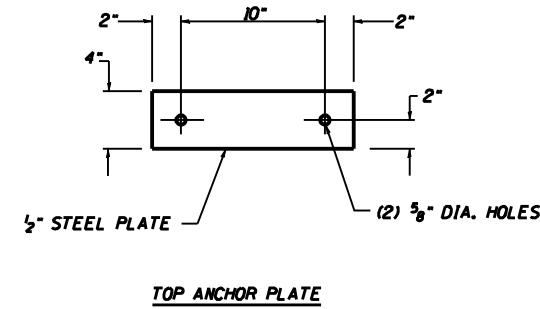
DETAIL "B"



BAR "L"



BAR "S"



TOP ANCHOR PLATE

BILL OF MATERIALS				
BAR	NUMBER	SIZE	LENGTH	QTY.
o	24	#8	7'-7"	485.94
h	36	#6	10'-11"	590.29
L	35	#4	9'	210.42
v	10	#4	8'-8"	57.92
v ₁	2	#4	8'-3"	11.02
v ₂	4	#4	8'-9"	23.38
h ₁	25	#5	8'-1"	210.77
S	12	#5	3'-3"	40.68
REINFORCEMENT BARS			LB	1630.42
CL SI CONC.			CU YD	9.45
3" GALV. STEEL PIPE			EACH	4 @ 9'-0" 1 @ 11'-4"
1/2" x 4" x 14" GALV. ANCHOR PLATE			EACH	6
3/8" x 9" GALV. BOLTS			EACH	4
GALV. STEEL PIPE CAPS			EACH	10
1/2" Ø GALV. EXP. BOLTS			EACH	12
9" SO. OR ROUND 1/4" GALV. PLATE			EACH	6

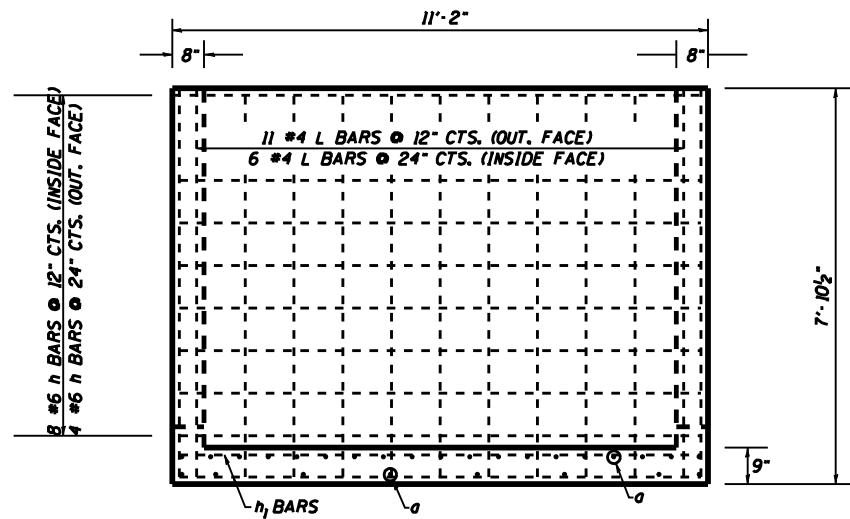
GENERAL NOTES:

STEEL PIPES SHALL CONFORM TO A.S.T.M. A-53 (TYPE E OR S) GRADE B, SCHEDULE 40, & SHALL BE GALVANIZED CONFORMING TO A.S.T.M. A-120.

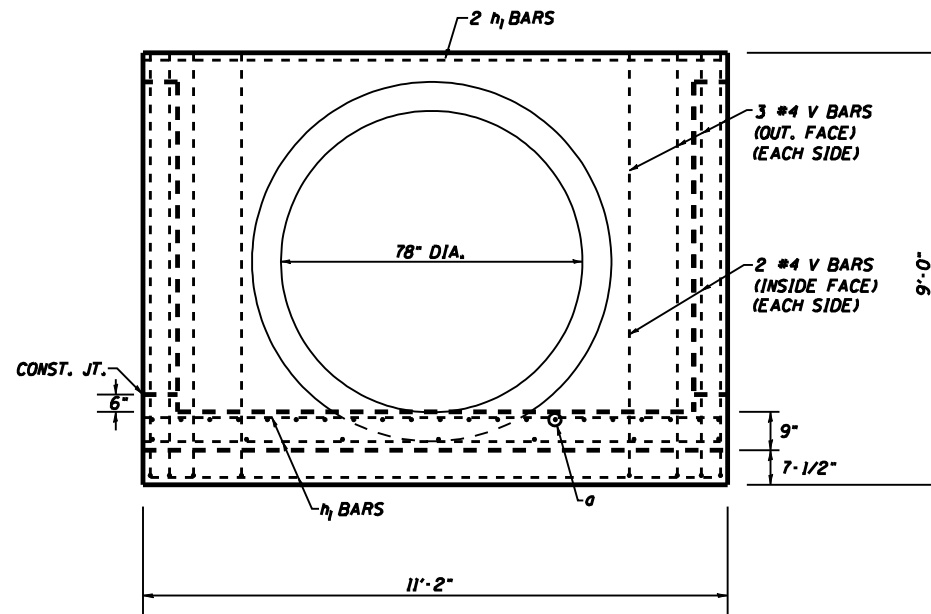
STEEL PLATES SHALL CONFORM TO AASHTO M-183 & SHALL BE GALVANIZED CONFORMING TO AASHTO M-111.

BOLTS, NUTS, & WASHERS SHALL BE IN ACCORDANCE WITH ARTICLE 1006.08 OF THE STANDARD SPECIFICATIONS AND SHALL BE GALVANIZED.

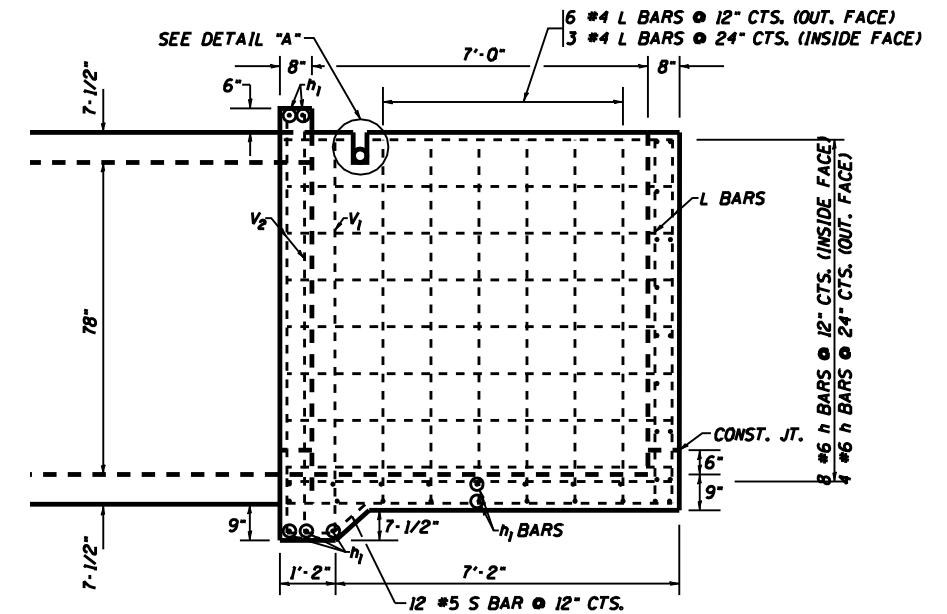
THE CONTRACT UNIT PRICE "EACH" FOR INLET BOX SPECIAL NO. 2 SHALL INCLUDE THE EXPANSION BOLTS, GALVANIZED PIPES, CL SI CONCRETE, BOLTS, NUTS, REINFORCEMENT, WASHERS, STEEL PLATES, EARTH EXCAVATION AND NECESSARY GRADING.



SECTION B-B



SECTION A-A



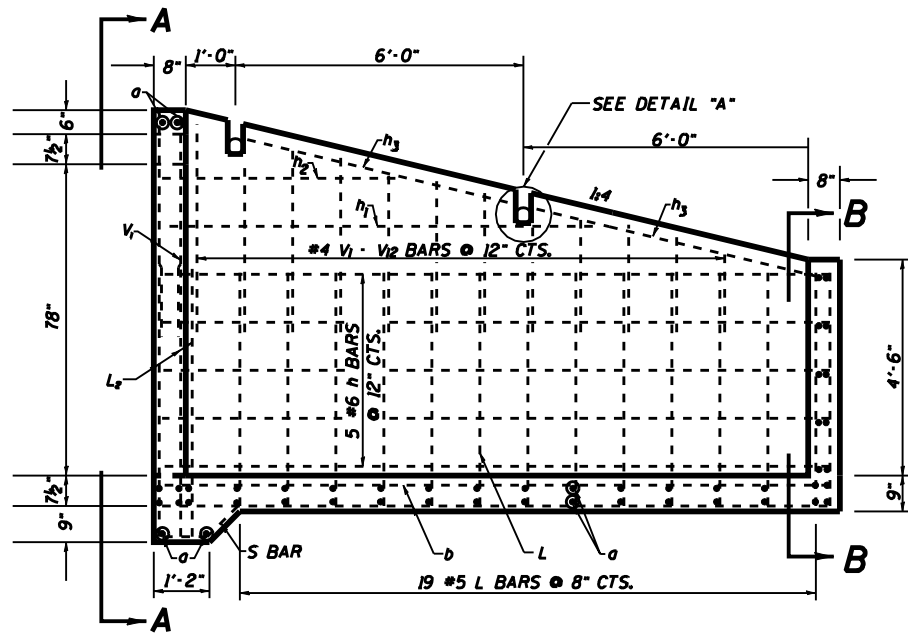
ELEVATION

FILE NAME : District 2 Standard	USER NAME : 1001/District 2	DESIGNED - DRAWN -	REVISED - 6-26-06 REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD			F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE : 2,0000' / IN.	CHECKED -	REVISED -		SCALE:	SHEET NO.	OF SHEETS	STA.	TO STA.	CONTRACT NO.		
	PLOT DATE : September 06 2007	DATE -	REVISED -		FED. ROAD DIST. NO.			ILLINOIS FED. AID PROJECT				

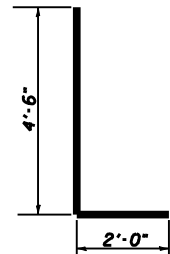
INLET BOX SPECIAL NO. 1

BILL OF MATERIALS

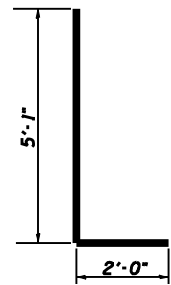
BAR	NUMBER	SIZE	LENGTH	QTY.
a	38	#5	9'-10"	389.73
b	26	#7	14'-0"	744.02
h	20	#6	14'-0"	420.56
h ₁	2	#6	10'-0"	30.04
h ₂	2	#6	6'-0"	18.02
h ₃	4	#6	5'-6"	33.04
h ₄	5	#6	9'-10"	73.85
L	51	#4	6'-6"	221.44
L ₁	4	#4	7'-1"	18.93
L ₂	10	#4	7'-7"	50.66
V ₁ - V ₁₂	34	#4	1'-10"-4'-7"	85.92
S	11	#4	3'-3"	23.88
TOTAL REINFORCEMENT BARS			10	2110.09
CL SI CONC.			CU YD	11.26
3/2" GALV. STEEL PIPE			EACH	4 @ 13'-9" 2 @ 10'-3"
1/2" x 4" x 14" GALV. ANCHOR PLATE			EACH	8
3/8" x 9" GALV. BOLTS			EACH	8
GALV. STEEL PIPE CAPS			EACH	12
1/2" Ø GALV. EXP. BOLTS			EACH	16
9" SO. OR ROUND 1/4" GALV. PLATE			EACH	8



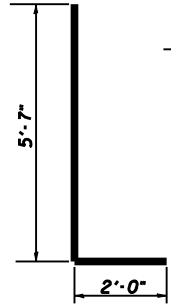
ELEVATION



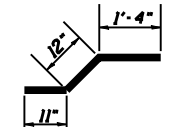
"L" BAR



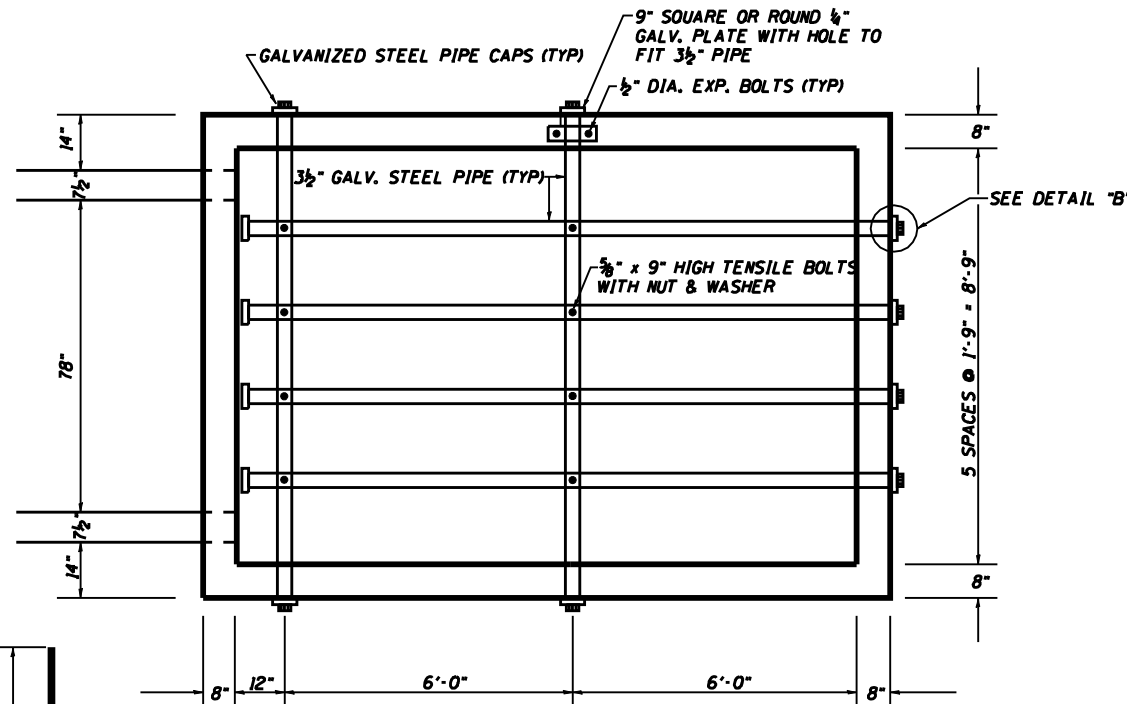
"L1" BAR



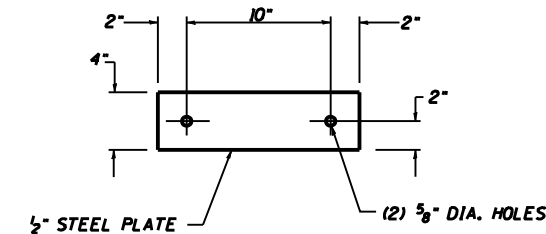
"L2" BAR



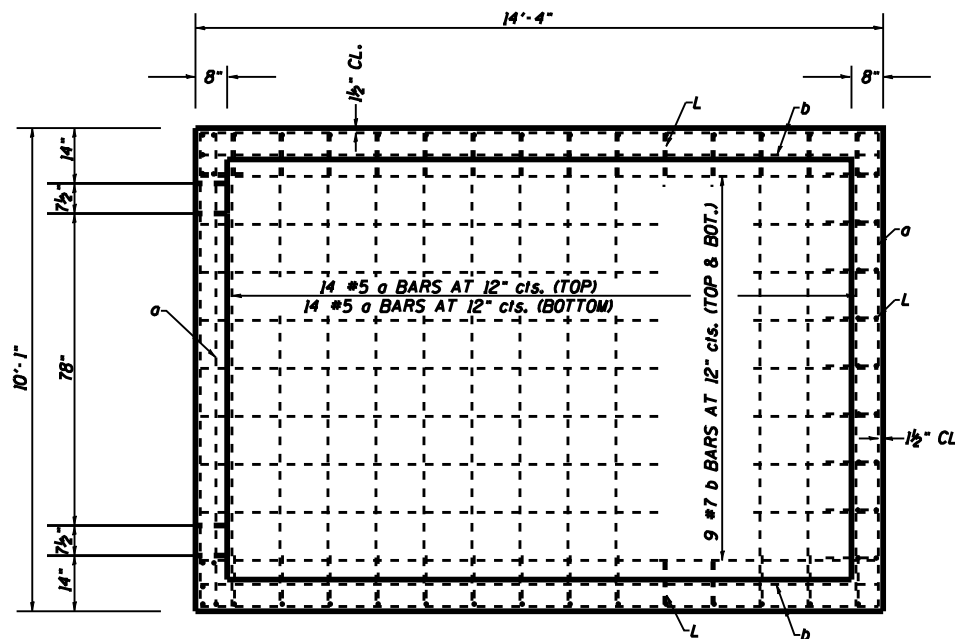
"S" BAR



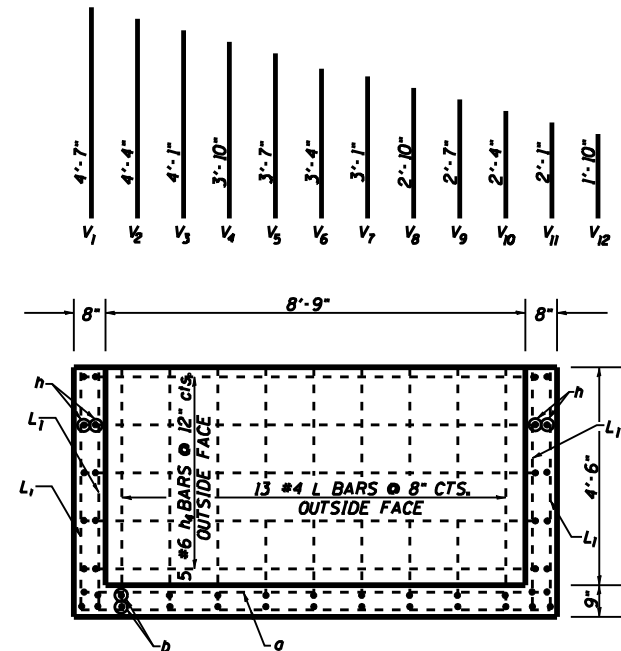
SECTION B-B



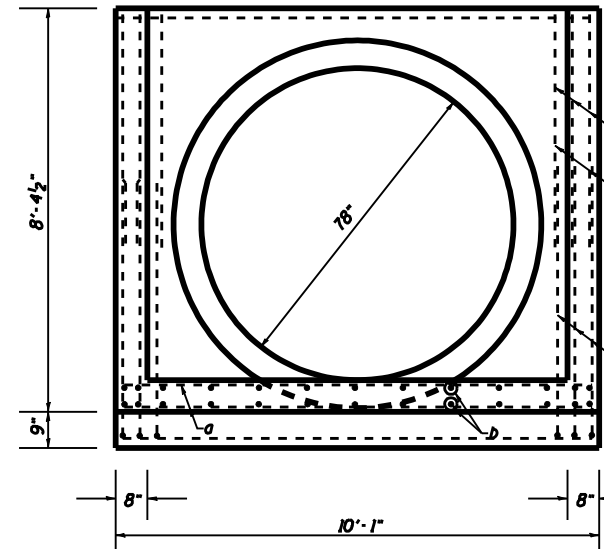
TOP ANCHOR PLATE



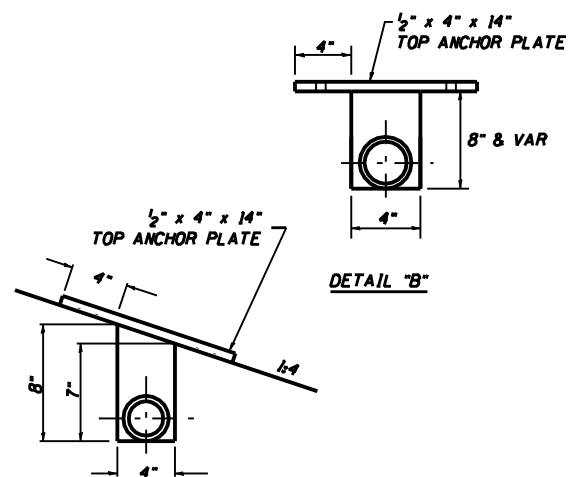
PLAN



SECTION A-A



3 #4 V₁ BARS (OUTSIDE FACE) (EACH SIDE)
2 #4 V₁ BARS (INSIDE FACE) (EACH SIDE)
3 #4 L₂ BARS (OUTSIDE FACE) (EACH SIDE)



DETAIL "A"

DETAIL "B"

FILE NAME : District 2 Standard	USER NAME : 1001/District 2	DESIGNED -	REVISED - 7-6-06
		DRAWN -	REVISED -
		CHECKED -	REVISED -
		DATE -	REVISED -

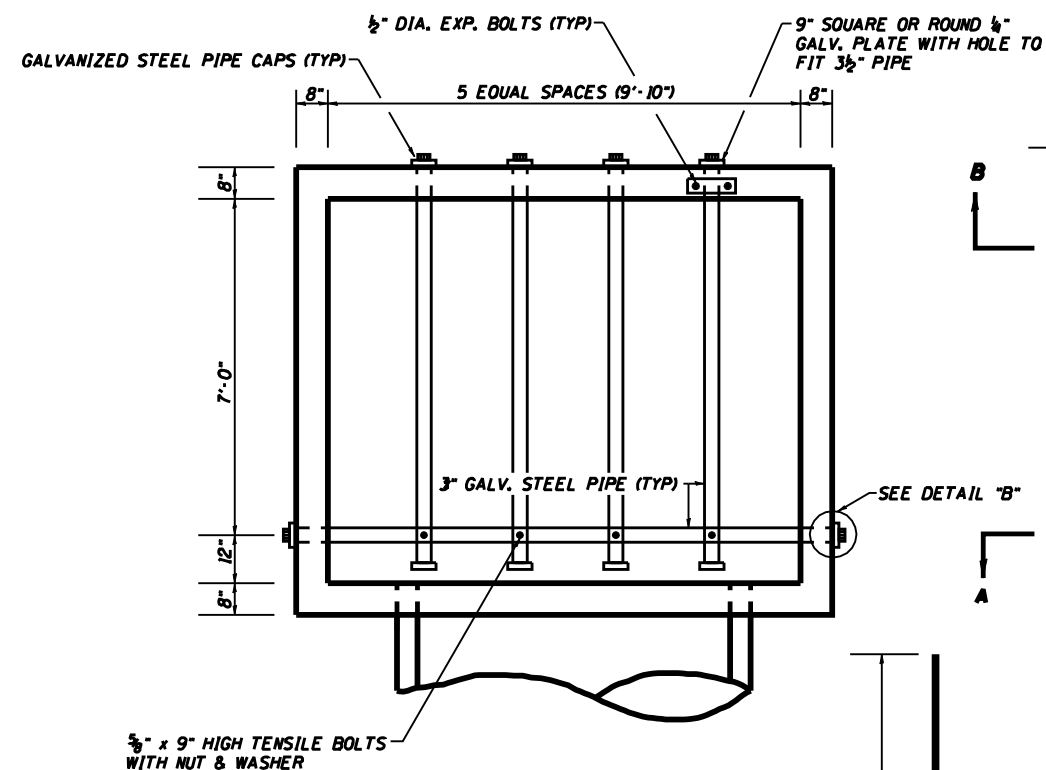
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

REGION 2 / DISTRICT 2 STANDARD

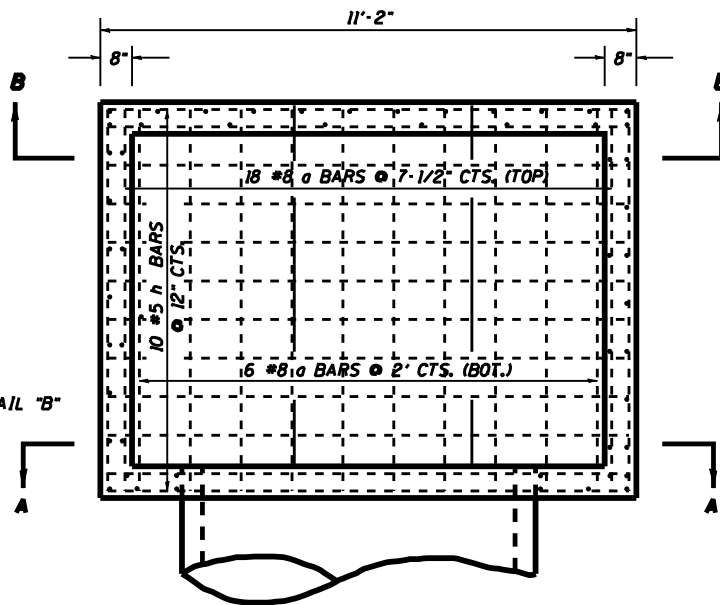
SCALE: SHEET NO. OF SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CONTRACT NO.				
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

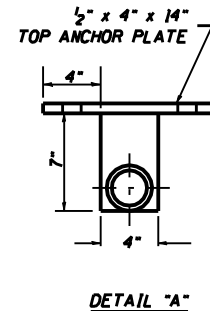
INLET BOX SPECIAL NO. 2



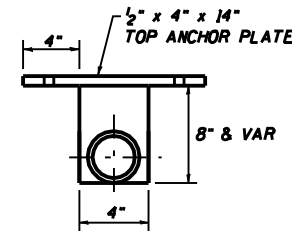
PLAN



PLAN

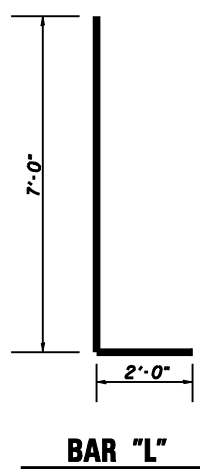


DETAIL "A"

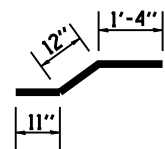


DETAIL "B"

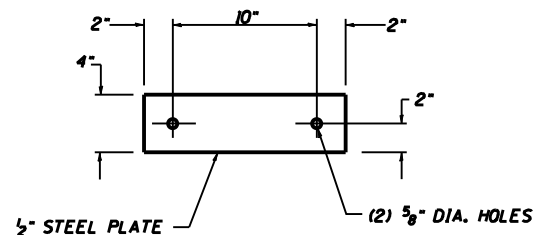
3/8" x 9" HIGH TENSILE BOLTS WITH NUT & WASHER



BAR "L"



BAR "S"



TOP ANCHOR PLATE

BILL OF MATERIALS

BAR	NUMBER	SIZE	LENGTH	QTY.
a	24	#8	7'-7"	485.94
h	36	#6	10'-11"	590.29
L	35	#4	9'	210.42
v	10	#4	8'-8"	57.92
v ₁	2	#4	8'-3"	11.02
v ₂	4	#4	8'-9"	23.38
h ₁	25	#5	8'-1"	210.77
S	12	#5	3'-3"	40.68
REINFORCEMENT BARS			LB	1630.42
CL SI CONC.			CU YD	9.45
3" GALV. STEEL PIPE			EACH	4 @ 9'-0" 1 @ 11'-4"
1/2" x 4" x 14" GALV. ANCHOR PLATE			EACH	6
3/8" x 9" GALV. BOLTS			EACH	4
GALV. STEEL PIPE CAPS			EACH	10
1/2" Ø GALV. EXP. BOLTS			EACH	12
9" SO. OR ROUND 1/4" GALV. PLATE			EACH	6

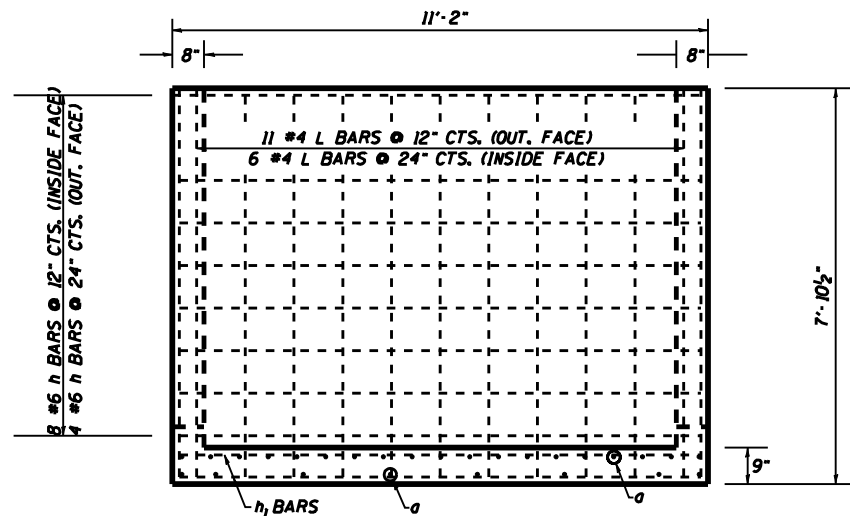
GENERAL NOTES:

STEEL PIPES SHALL CONFORM TO A.S.T.M. A-53 (TYPE E OR S) GRADE B, SCHEDULE 40, & SHALL BE GALVANIZED CONFORMING TO A.S.T.M. A-120.

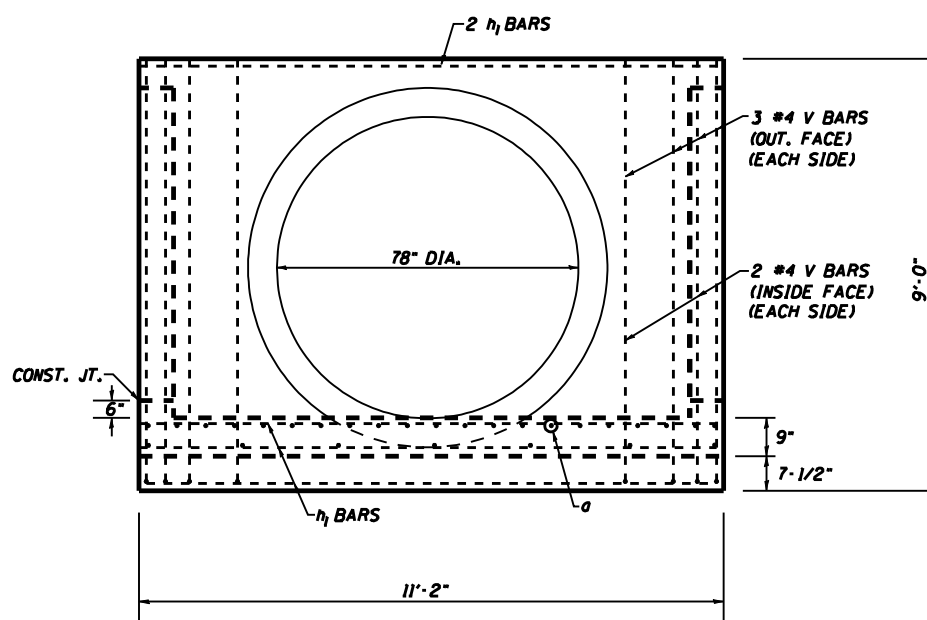
STEEL PLATES SHALL CONFORM TO AASHTO M-183 & SHALL BE GALVANIZED CONFORMING TO AASHTO M-111.

BOLTS, NUTS, & WASHERS SHALL BE IN ACCORDANCE WITH ARTICLE 1006.08 OF THE STANDARD SPECIFICATIONS AND SHALL BE GALVANIZED.

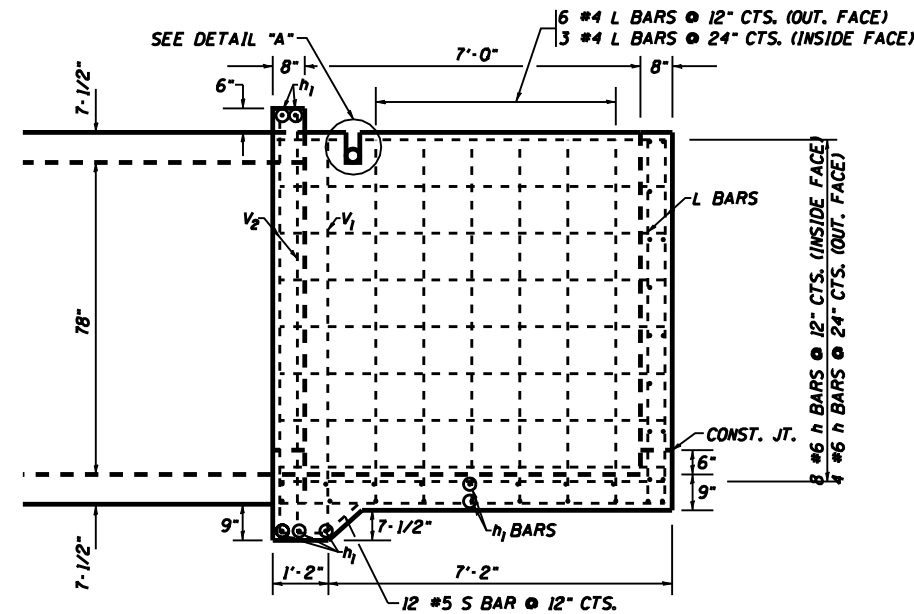
THE CONTRACT UNIT PRICE "EACH" FOR INLET BOX SPECIAL NO. 2 SHALL INCLUDE THE EXPANSION BOLTS, GALVANIZED PIPES, CL SI CONCRETE, BOLTS, NUTS, REINFORCEMENT, WASHERS, STEEL PLATES, EARTH EXCAVATION AND NECESSARY GRADING.



SECTION B-B



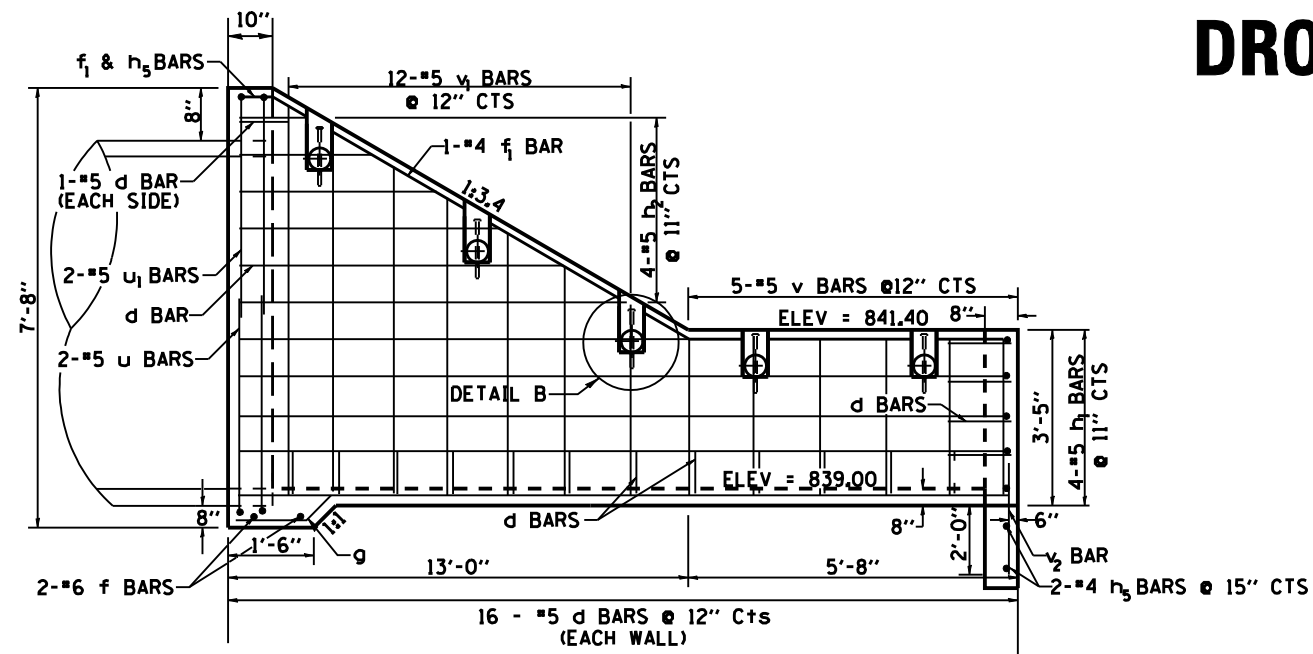
SECTION A-A



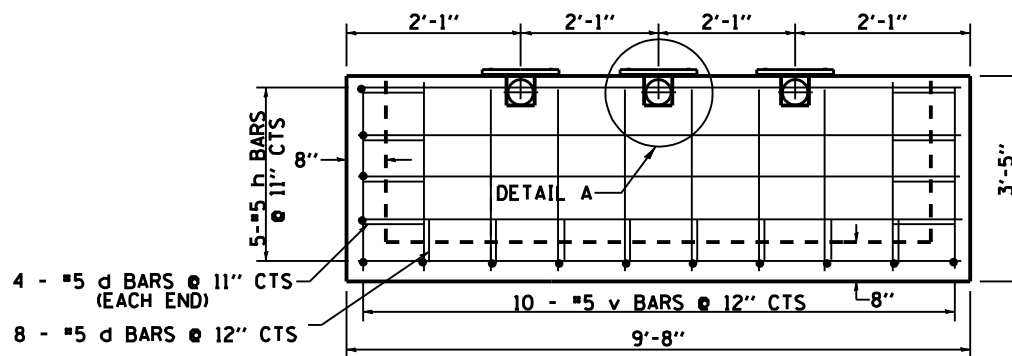
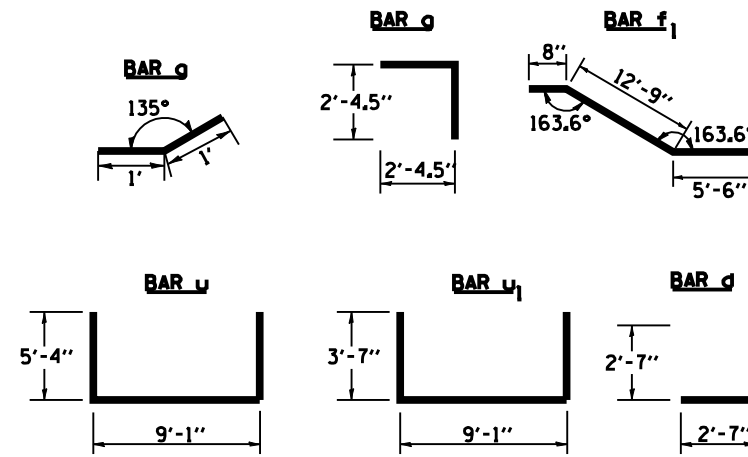
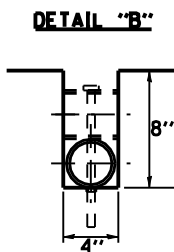
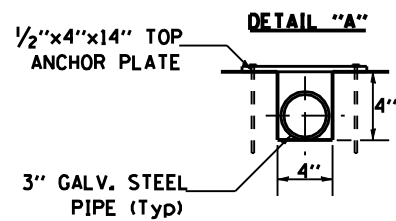
ELEVATION

FILE NAME : District 2 Standard	USER NAME : 1001/District 2	DESIGNED - DRAWN -	REVISED - 7-6-06 REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD			F.A. RTÉ.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE : 2,0000' / IN.	CHECKED -	REVISED -		SCALE:	SHEET NO.	OF SHEETS	STA.	TO STA.	CONTRACT NO.		
	PLOT DATE : September 06 2007	DATE -	REVISED -		FED. ROAD DIST. NO.			ILLINOIS FED. AID PROJECT				

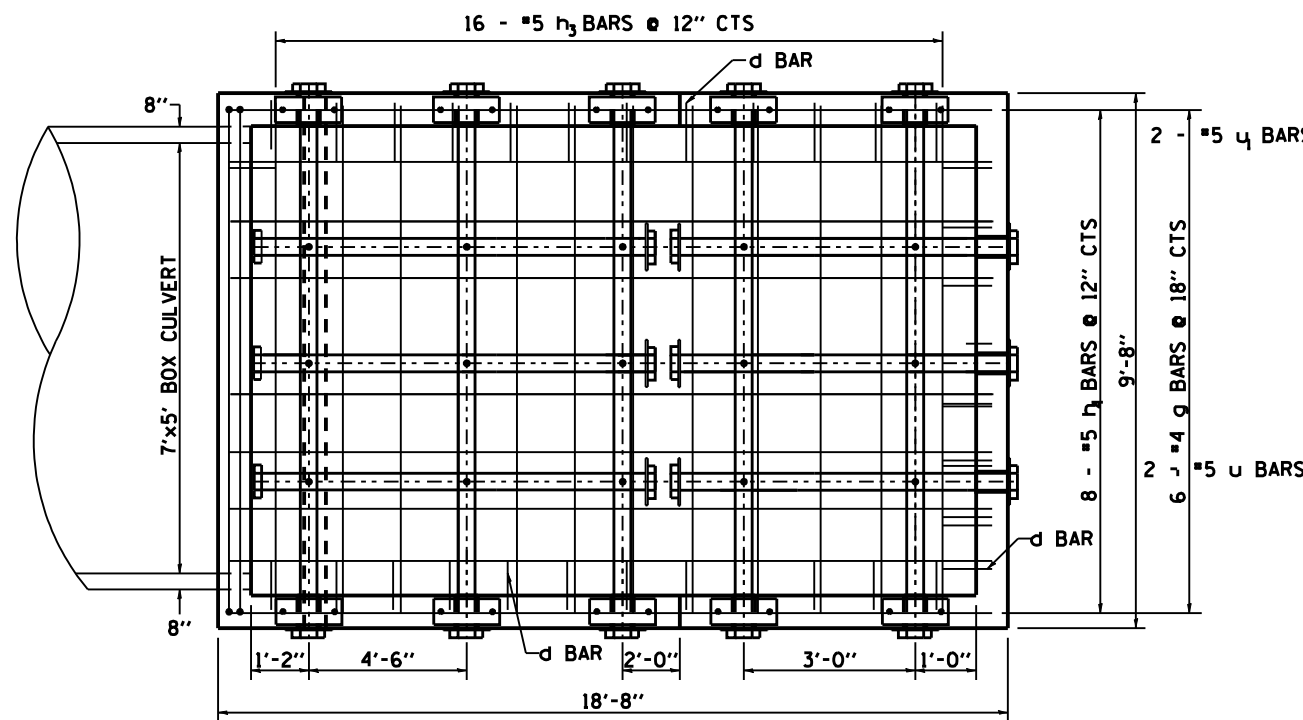
DROP BOX NO. 2



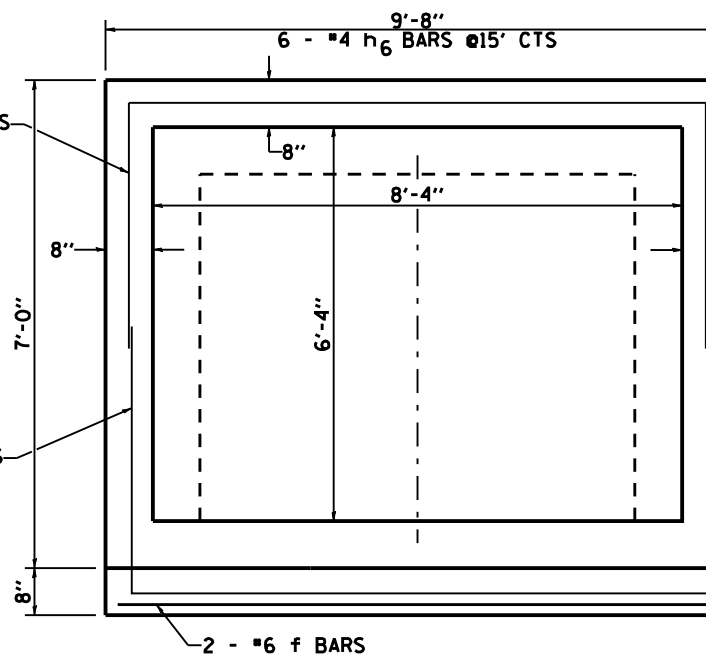
SIDEWALLS



BACK WALL



BOTTOM SLAB



HEADWALL

BILL OF MATERIAL

BAR	SIZE	NO.	LENGTH	SHAPE
d	5	50	5'-2"	
f	6	2	9'-5"	
f1	4	2	18'-11"	
g	4	6	2'-0"	
h	5	4	9'-5"	
h1	5	8	18'-5"	
h2	5	4	10'-9"	
h3	5	16	9'-5"	
h4	5	8	18'-5"	
h5	4	2	9'-5"	
h6	4	6	0'-9"	
v	5	20	3'-2"	
v1	5	12	10'-0"	
v2	4	10	3'-2"	
u	5	2	19'-10"	
u1	5	2	16'-1"	
DESCRIPTION	UNIT	QTY		
CLASS "SI" CONCRETE	CU YD	9.0		
REINFORCEMENT BARS	LB	1182.51		

DESCRIPTION	UNIT	QTY.
3" GALVANIZED STEEL PIPE	5e	10'-0"
	3e	5'-7"
	3e	12'-8"
3" GALVANIZED PIPE CAPS	EACH	22
1/4" GALVANIZED STEEL PLATE (9" NOMINAL)	EACH	10
1/2" x 4" x 14" GALVANIZED STEEL PLATE	EACH	13
5/8" x 9" GALVANIZED STEEL BOLTS	EACH	15

GENERAL NOTES

Order 4-h2 & 10-v1 Bars Full Length and cut to fit in field. Use Remainder in Opp. Wall

This work shall be done according to the applicable portion of 503, 508, and 542 of the Standard Specifications.

Contractor shall field verify Galvanized pipe length

Class "SI" Concrete shall be used. Exposed edges shall be beveled 3/4".

The contract unit price "each" for DROP BOX NO. 2 shall include the Expansion Bolts, Galvanized Pipe, Class "SI" Concrete, Reinforcement Bars, Bolts, Nuts, Washers, Steel Plates, earth excavation where required, and necessary grading to fit the inlet as shown in the cross sections or to the slope

Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-53, Grade 60.

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 710.11 of the Standard Specification and shall be galvanized.

DROP BOX NO. 2

FILE NAME : District 2 Standard	USER NAME : I001/District 2	DESIGNED -	REVISED - 6-29-06	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD			F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE : 2.0000' / IN.	DRAWN -	REVISED -		SCALE:	SHEET NO.	OF	SHEETS	STA.	TO STA.	CONTRACT NO.	
	PLOT DATE : September 06 2007	CHECKED -	REVISED -		FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT							
		DATE -	REVISED -		DROP BOX NO. 2							

CULVERT DROP BOX

Bill of Materials

BAR	NUMBER	SIZE	LENGTH
A	10	#5	9'-8"
H	11	#5	8'-8"
H1	22	#5	7'-6"
H2	18	#5	6'-5"
H3	4	#5	15'-0"
U	11	#6	25'-8"
V	41	#6	10'-3"
V1	8	#5	10'-2"
S	4	#5	21'-10"
ITEM	UNIT	QTY.	
CULVERT DROP BOX	EACH	1	
REINFORCEMENT BARS	LB	1787	
CLASS SI CONCRETE	CU. YD.	13.0	

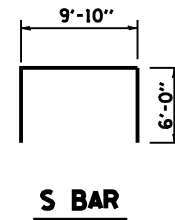
** QUANTITIES FOR REFERENCE ONLY

General Notes

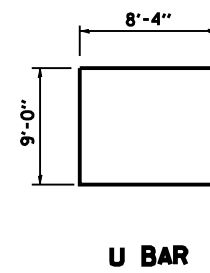
CLASS "SI" CONCRETE SHALL BE USED THROUGHOUT. EXPOSED EDGES SHALL BE CHAMFERED 3/4".

THE CONTRACT UNIT PRICE "EACH" FOR CULVERT DROP BOX SHALL INCLUDE CLASS SI CONCRETE, REINFORCEMENT BARS, POROUS GRANULAR BEDDING MATERIAL, EARTH EXCAVATION, AND NECESSARY GRADING TO FIT INLETS TO SLOPES.

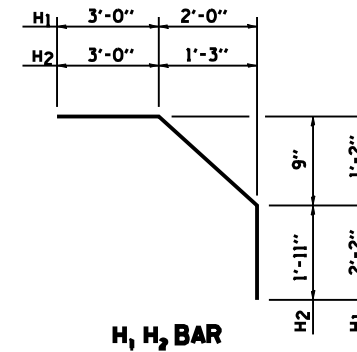
REINFORCEMENT BARS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-31 OR M-53, GRADE 60.



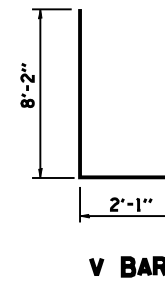
S BAR



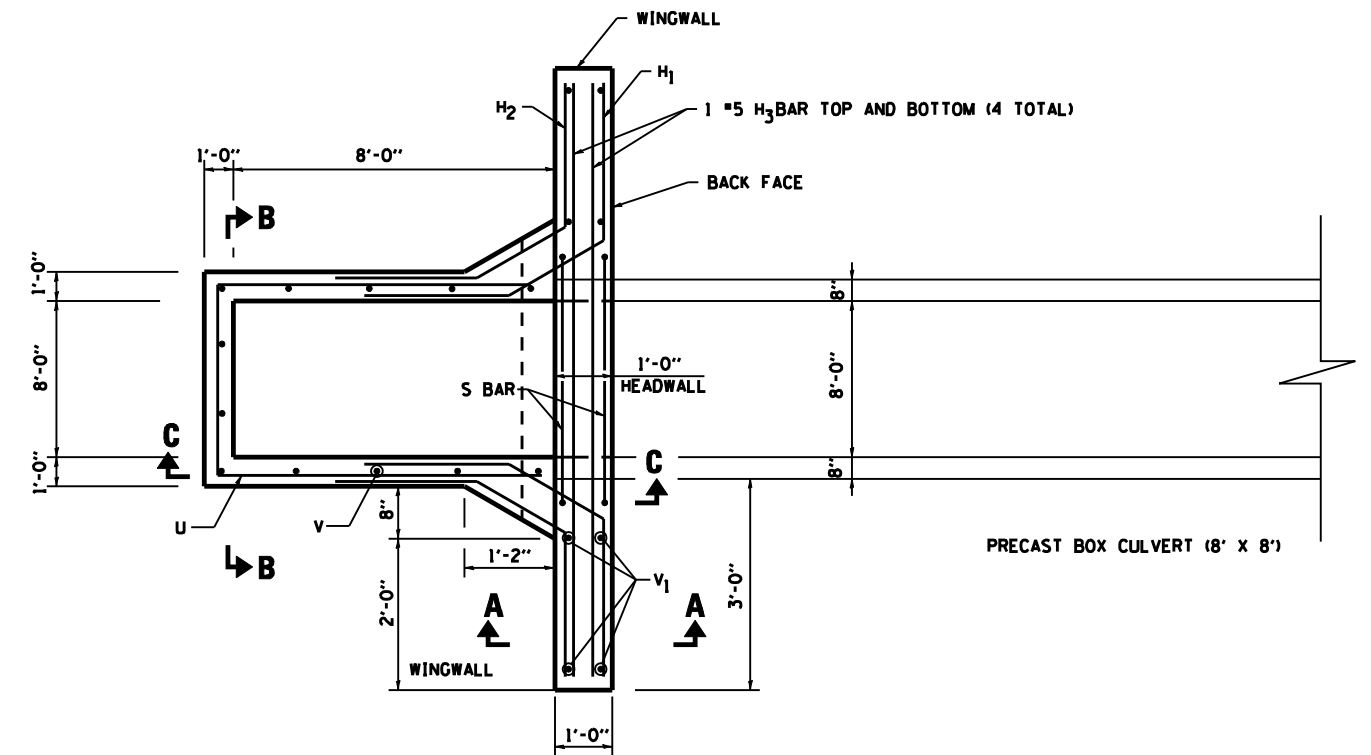
U BAR



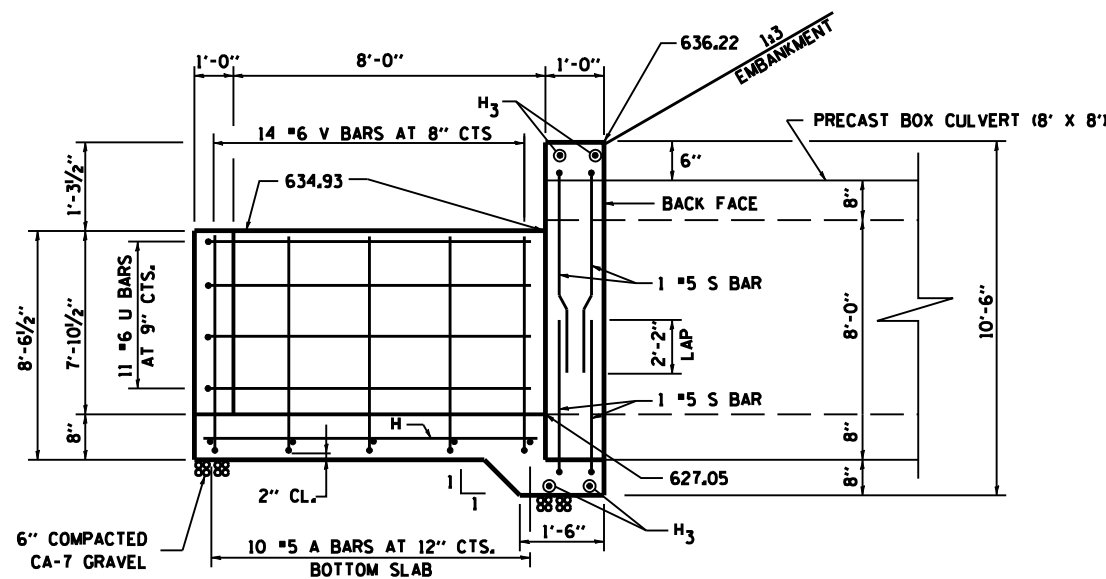
H₁ H₂ BAR



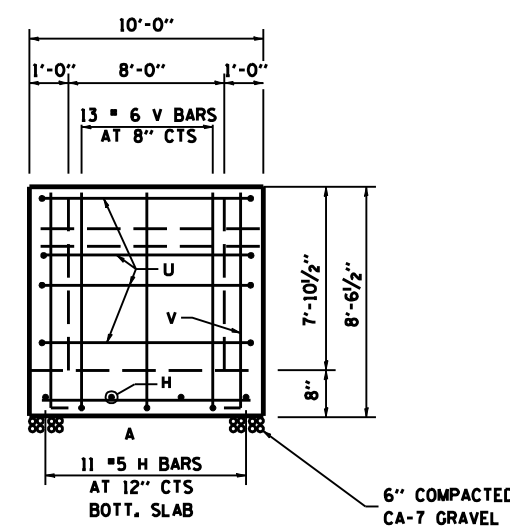
V BAR



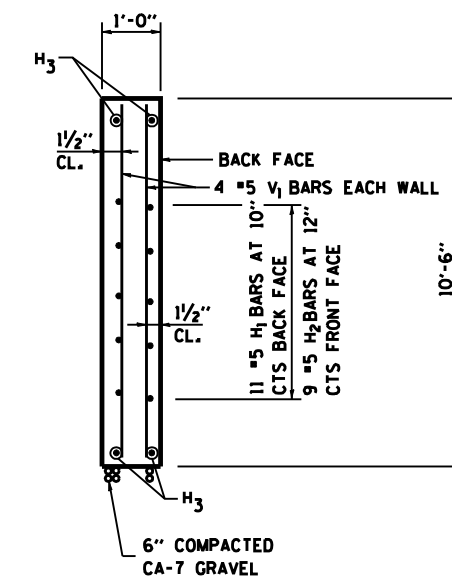
PLAN VIEW



SECTION C-C



SECTION B-B



SECTION A-A

FILE NAME : District 2 Standard	USER NAME : 1001/District 2	DESIGNED - DRAWN -	REVISED - 8-16-05 REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD			F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE : 2,0000' / IN.	CHECKED -	REVISED -					SCALE: SHEET NO. OF SHEETS STA. TO STA.			CONTRACT NO.	
	PLOT DATE : September 06 2007	DATE -	REVISED -		FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT							

CULVERT DROP BOX

GRADED CULVERT EXTENSION NO. 3

BILL OF MATERIALS

BAR	NUMBER	SIZE	LENGTH	QTY.
a	4	#4	6'-3"	16.7
d	14	#4	4'-4-1/2"	40.92
h	22	#4	16'-10"	247.38
h ₁	18	#4	13'-6"	162.32
L ₁ - L ₁₈	36	#5	2'-9"-6'-4"	252.58
h ₂	2	#4	15'-2-1/2"	20.32
h ₃	2	#4	11'-10-1/2"	15.87
h ₄	2	#4	7'-3"	9.69
TOTAL REINFORCEMENT BARS			LB	765.78
EXPANSION BOLTS 3/4" Ø			EACH	26
CL SI CONC.			CU YD	10.82
3/2" GALV. STEEL PIPE			EACH	6 @ 16'-11" 3 @ 15'-11"
1/2" x 4" x 14" GALV. ANCHOR PLATE			EACH	6
5/8" x 9" GALV. BOLTS			EACH	18
1/2" Ø GALV. EXP. BOLTS			EACH	12
9" SO. OR ROUND 1/4" GALV. PLATE			EACH	6
GALV. STEEL PIPE CAPS			EACH	18

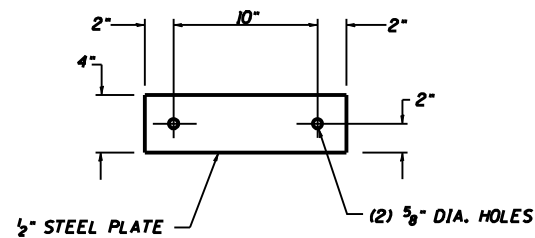
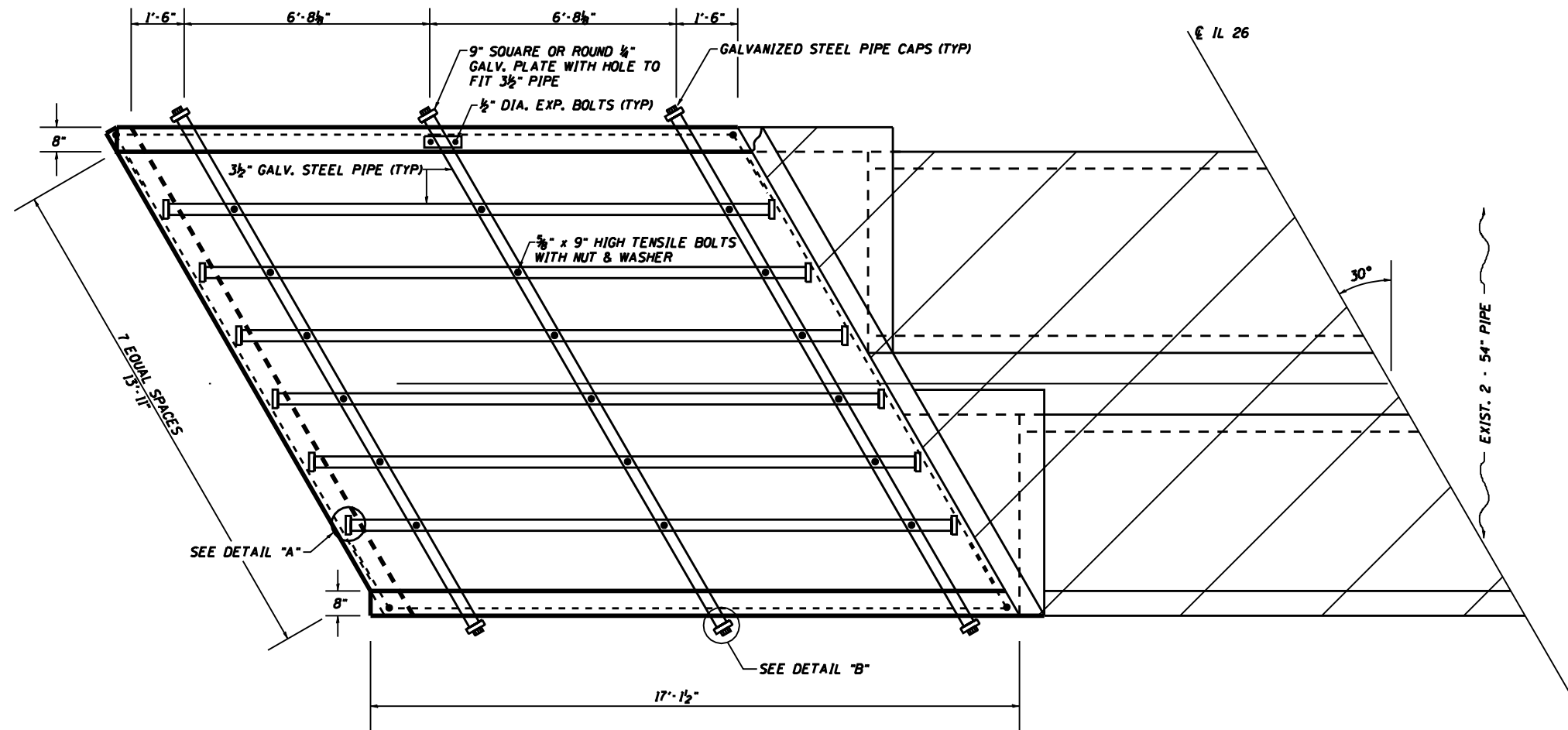
GENERAL NOTES:

STEEL PIPES SHALL CONFORM TO A.S.T.M. A-53 (TYPE E OR S) GRADE B, SCHEDULE 40, & SHALL BE GALVANIZED CONFORMING TO A.S.T.M. A-120.

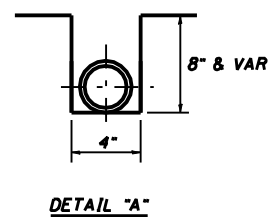
STEEL PLATES SHALL CONFORM TO AASHTO M-183 & SHALL BE GALVANIZED CONFORMING TO AASHTO M-111.

BOLTS, NUTS, & WASHERS SHALL BE IN ACCORDANCE WITH ARTICLE 1006.08 OF THE STANDARD SPECIFICATIONS AND SHALL BE GALVANIZED.

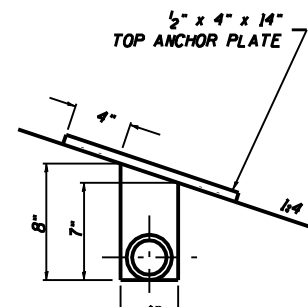
THE CONTRACT UNIT PRICE "EACH" FOR GRADED CULVERT EXTENSION NO. 3 SHALL INCLUDE THE REMOVAL OF WINGWALLS, EXPANSION BOLTS, GALVANIZED PIPES, CL SI CONCRETE, BOLTS, NUTS, REINFORCEMENT, WASHERS, STEEL PLATES, EARTH EXCAVATION AND NECESSARY GRADING.



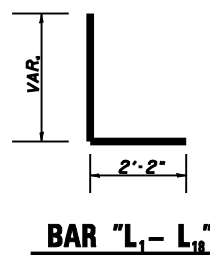
TOP ANCHOR PLATE



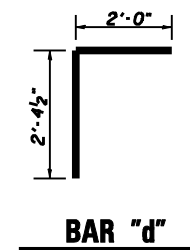
DETAIL "A"



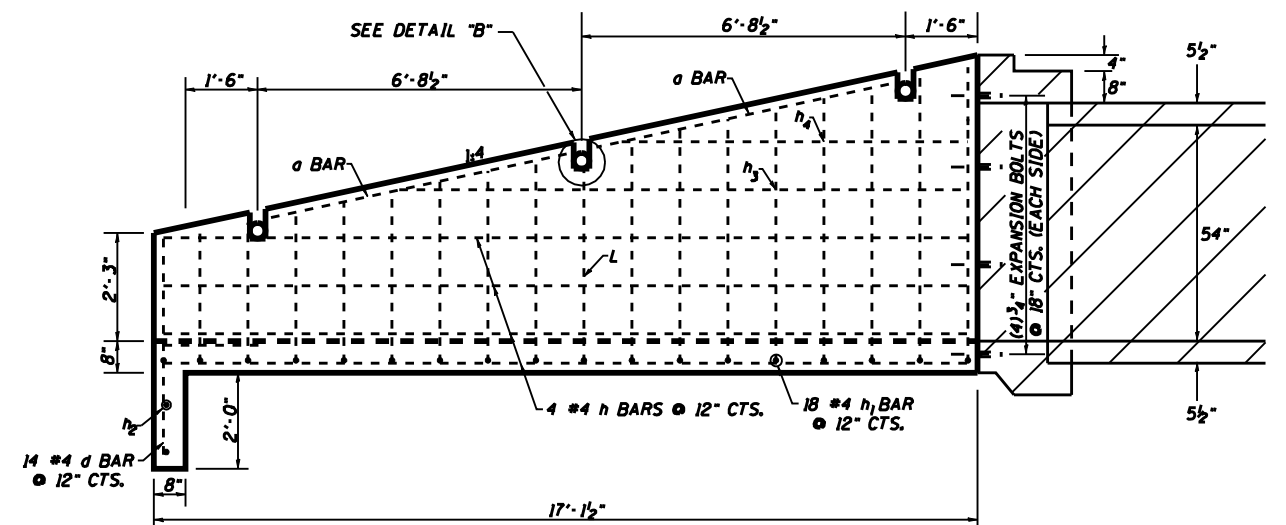
DETAIL "B"



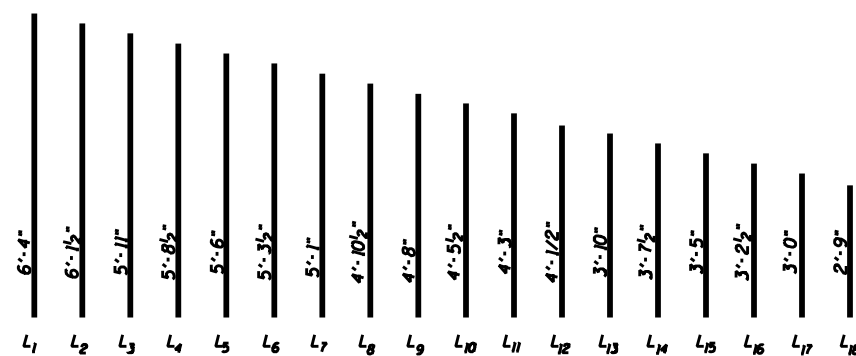
BAR "L₁-L₁₈"



BAR "d"

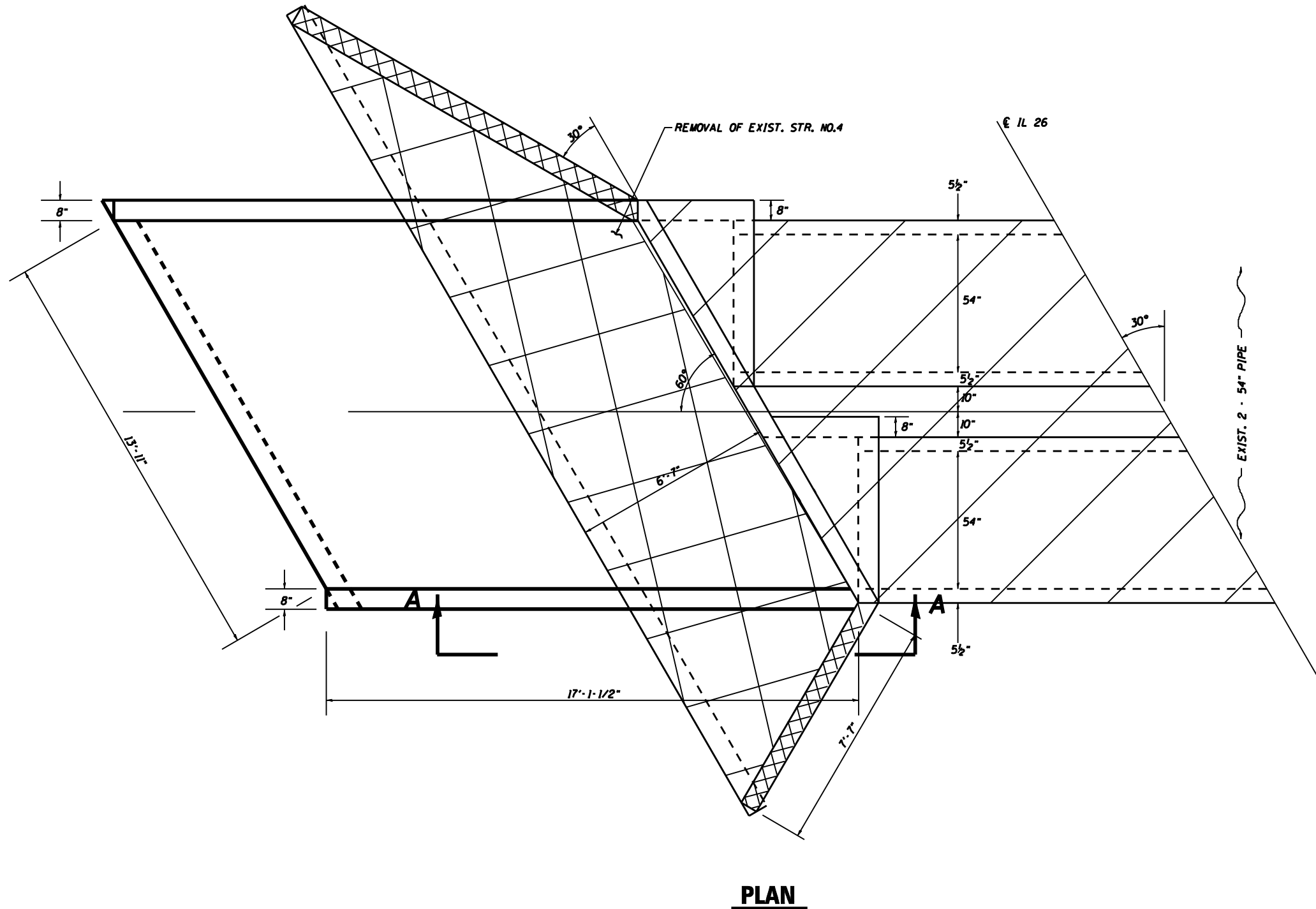


SECTION A-A



FILE NAME: District 2 Standard	USER NAME: 100T/District 2	DESIGNED -	REVISED - 6-27-06	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD			F.A. RTÉ.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE: 2.0000' / IN.	DRAWN -	REVISED -		SCALE:	SHEET NO.	OF SHEETS	STA.	TO STA.	CONTRACT NO.		
	PLOT DATE: September 06 2007	CHECKED -	REVISED -					FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT			
		DATE -	REVISED -		GRADED CULVERT EXTENSION NO. 3							

GRATED CULVERT EXTENSION NO. 3

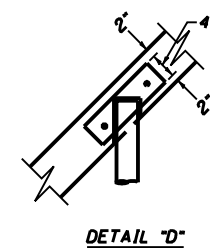
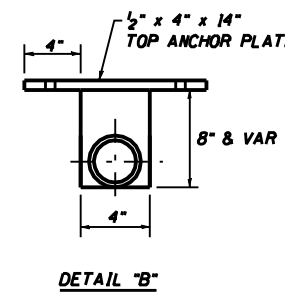
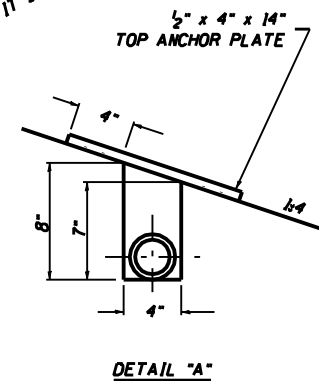
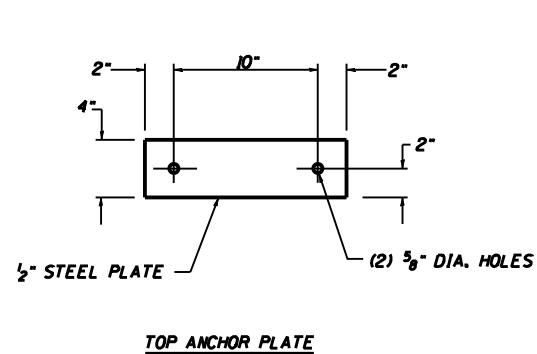
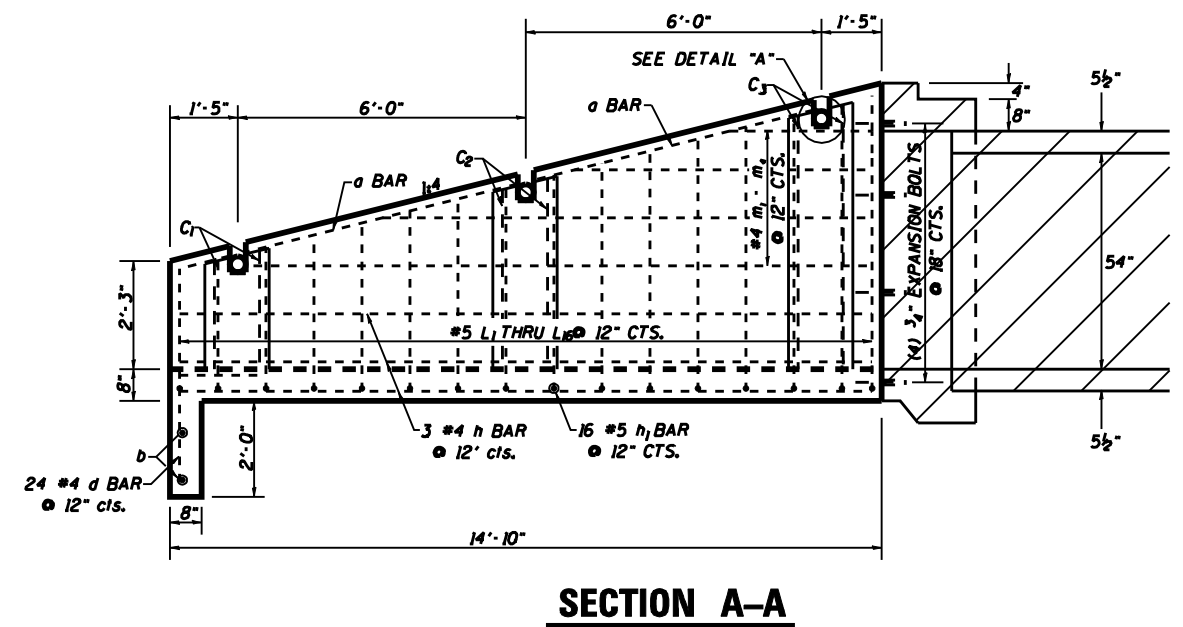
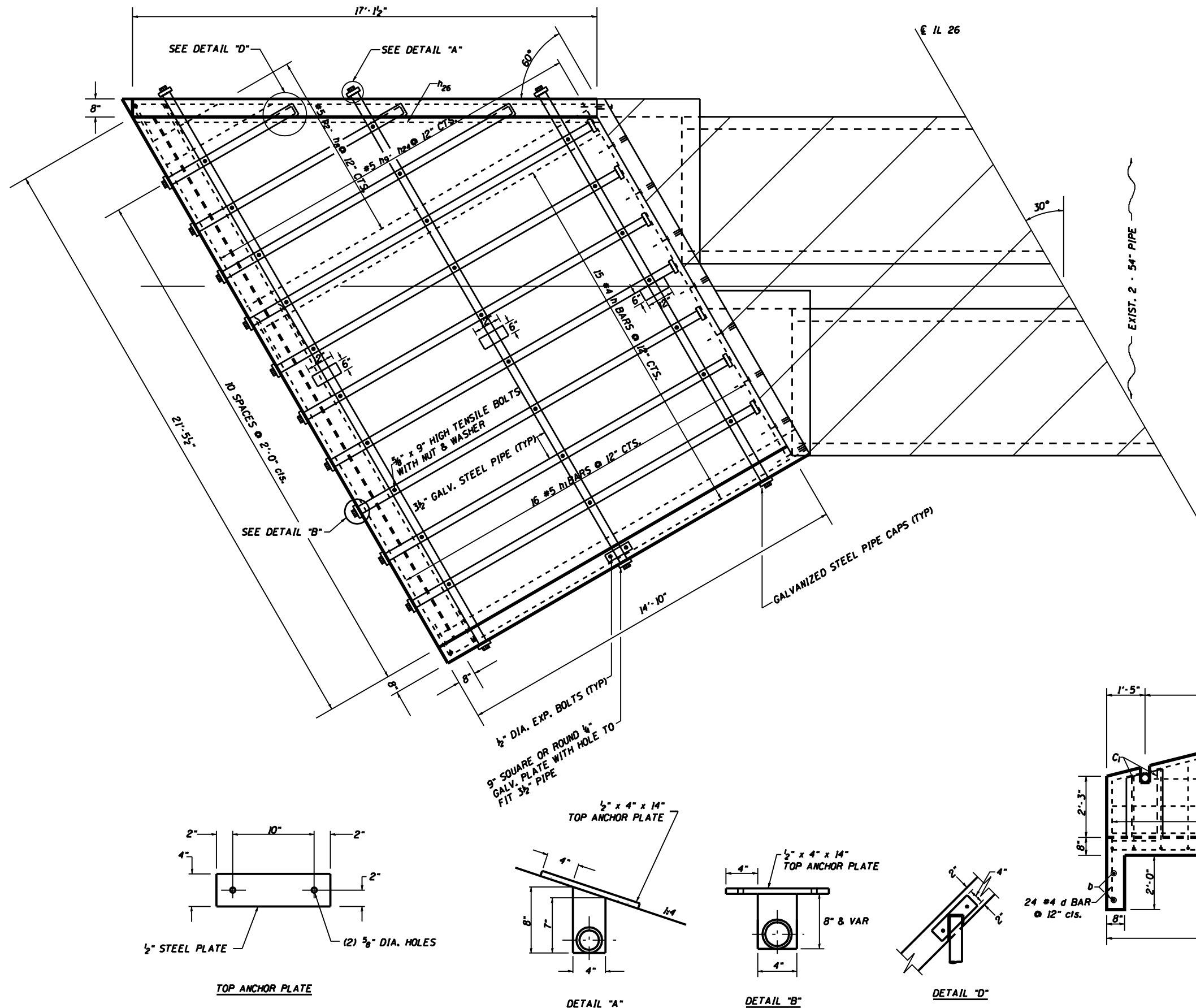


FILE NAME : District 2 Standard	USER NAME : 1001/District 2	DESIGNED -	REVISED - 6-27-06	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD				F.A. RTÉ.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE : 2.0000' / IN.	CHECKED -	REVISED -		SCALE: SHEET NO. OF SHEETS STA. TO STA.				CONTRACT NO.				
PLOT DATE : September 06 2007	DATE -	REVISED -						FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT					

GRADED CULVERT EXTENSION NO. 4

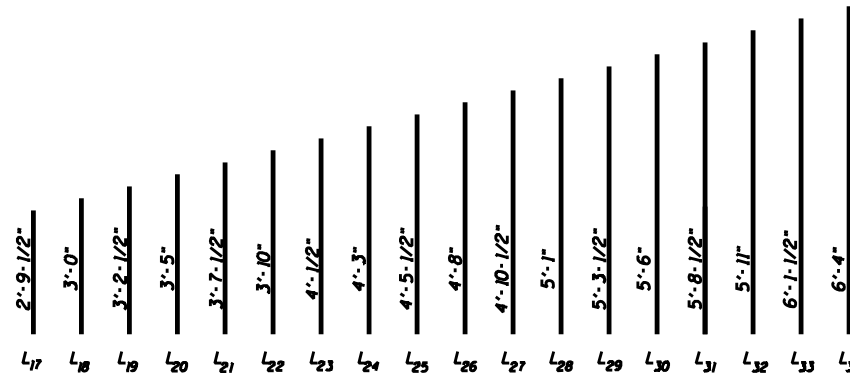
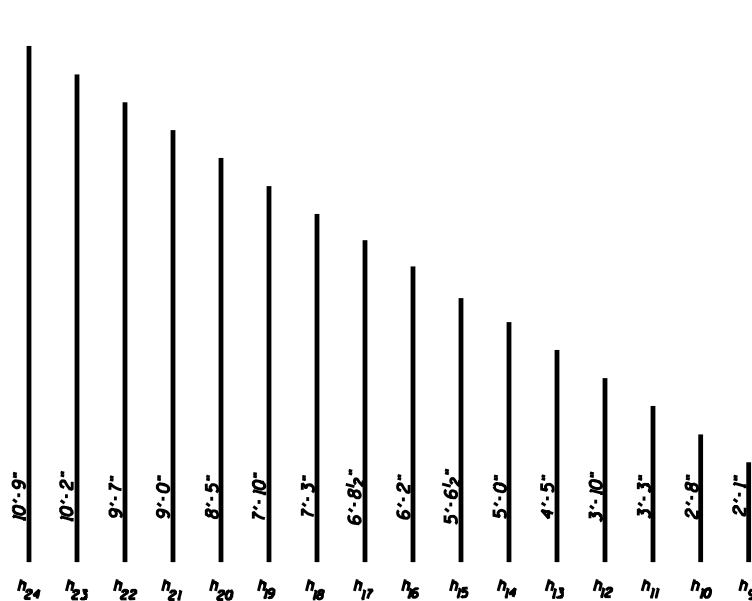
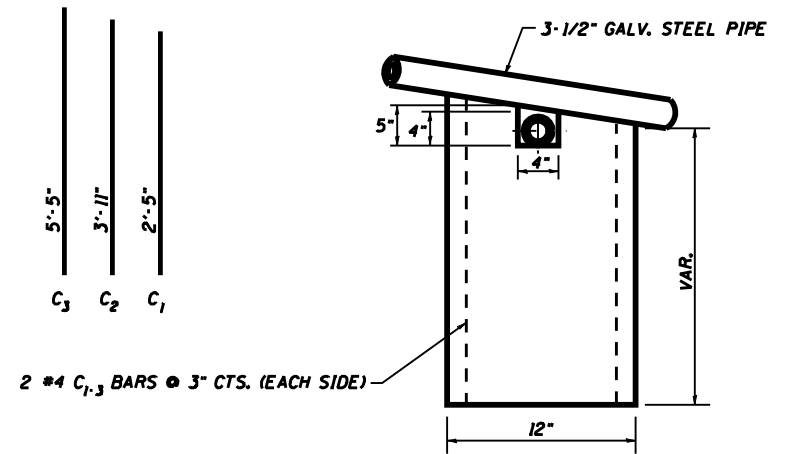
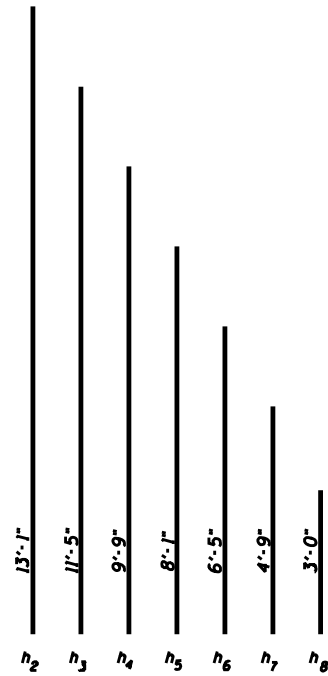
BILL OF MATERIALS

BAR	NUMBER	SIZE	LENGTH	QTY.
L ₁ - L ₁₆	16	#5	8'-6" - 4'-9"	110.56
d	24	#4	4'-4 1/2"	70.35
o	4	#4	5'-8"	15.20
h	18	#4	14'-7"	175.35
h ₁	16	#5	14'-5"	241.97
b	2	#4	22'-8"	30.29
h ₂ - h ₉	7	#5	3'-0" - 13'-1"	58.93
h ₉ - h ₂₄	16	#5	2'-1" - 10'-9"	107.1
h ₂₆	4	#5	16'-10"	70.23
m ₁ - m ₄	4	#4	3'-1" - 12'-11"	21.71
N ₁ - N ₄	4	#4	3'-7" - 14'-11"	25.11
C ₁ - C ₃	12	#4	2'-5" - 5'-5"	47.00
L ₁₇ - L ₂₄	18	#5	2'-9-1/2" - 6'-4"	126.33
REINFORCEMENT BARS				1100.13
CL SI CONC. MISC.			CU YD	9.83
EXP. BOLTS 3/4" Ø			EACH	26
3/2" GALV. STEEL PIPE			EACH	7 @ 14'-7" 1 @ 12'-3" 1 @ 8'-9" 1 @ 5'-4" 1 @ 22'-5" 1 @ 20'-5" 1 @ 16'-5"
1/2" x 4" x 14" GALV. ANCHOR PLATE			EACH	19
3/8" x 9" GALV. BOLTS			EACH	26
GALV. STEEL PIPE CAPS			EACH	23
1/2" Ø GALV. EXP. BOLTS			EACH	38
9" SQ. OR ROUND 1/4" GALV. PLATE			EACH	16

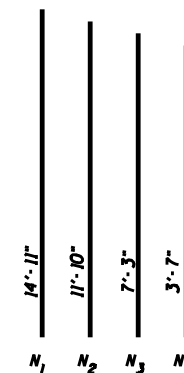
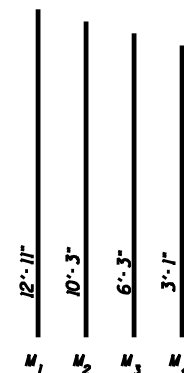
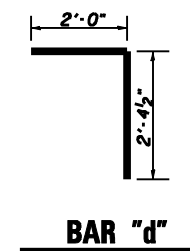
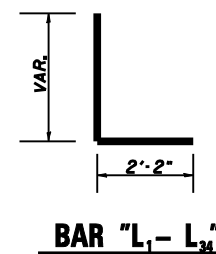


FILE NAME : District 2 Standard	USER NAME : 1001/District 2	DESIGNED - DRAWN -	REVISED - 6-27-06 REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION				REGION 2 / DISTRICT 2 STANDARD				F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
PLOT SCALE : 2,0000' / IN.		CHECKED -	REVISED -	SCALE:				SHEET NO.	OF SHEETS	STA.	TO STA.	CONTRACT NO.				
PLOT DATE : September 06 2007		DATE -	REVISED -	FED. ROAD DIST. NO.				ILLINOIS FED. AID PROJECT								

GRATED CULVERT EXTENSION NO. 4

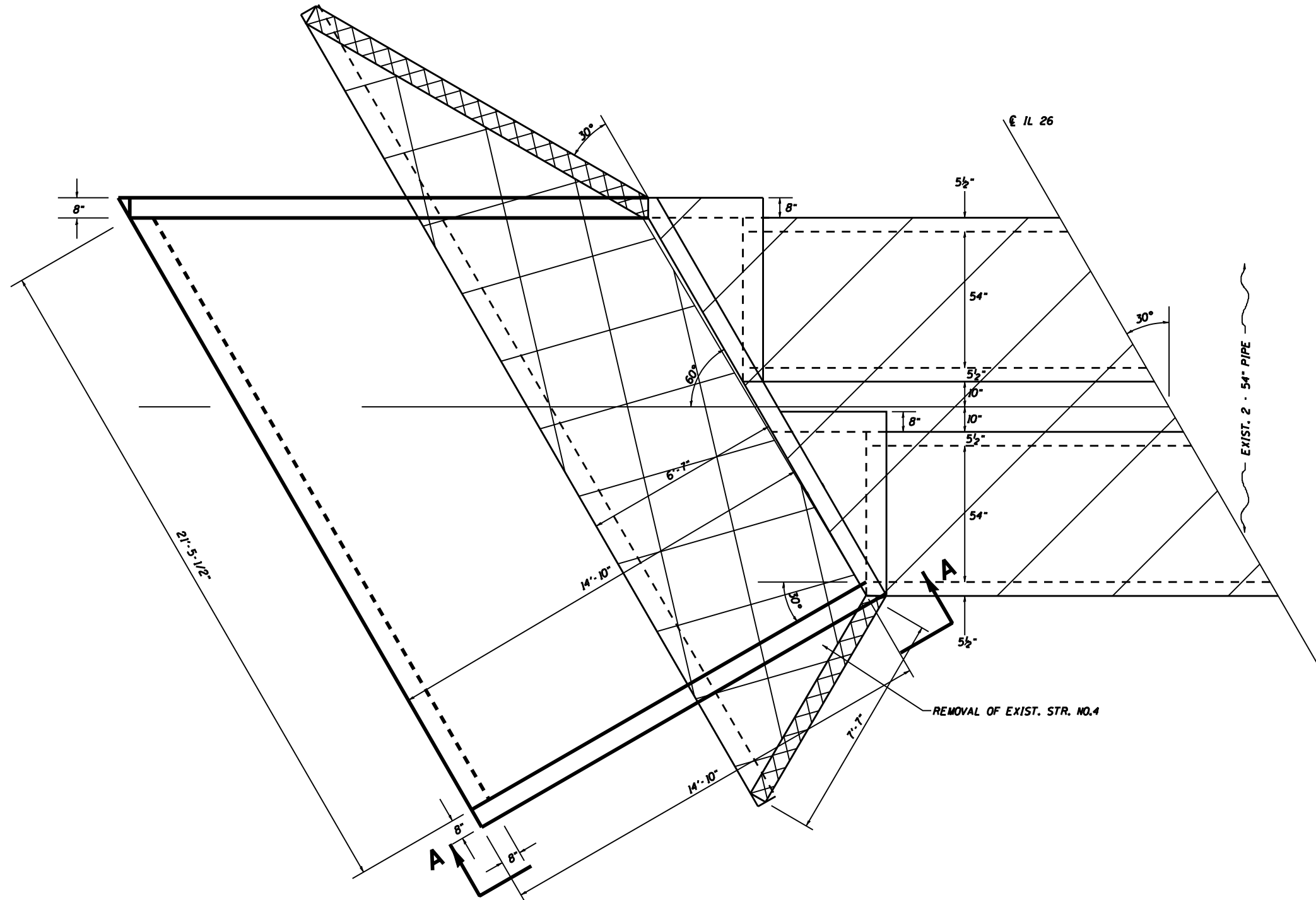


GENERAL NOTES:
 STEEL PIPES SHALL CONFORM TO A.S.T.M. A-53 (TYPE E OR S) GRADE B, SCHEDULE 40, & SHALL BE GALVANIZED CONFORMING TO A.S.T.M. A-120.
 STEEL PLATES SHALL CONFORM TO AASHTO M-183 & SHALL BE GALVANIZED CONFORMING TO AASHTO M-111.
 BOLTS, NUTS, & WASHERS SHALL BE IN ACCORDANCE WITH ARTICLE 1006.08 OF THE STANDARD SPECIFICATIONS AND SHALL BE GALVANIZED.
 THE CONTRACT UNIT PRICE "EACH" FOR GRATED CULVERT EXTENSION NO. 4 SHALL INCLUDE THE REMOVAL OF WINGWALLS, EXPANSION BOLTS, GALVANIZED PIPES, CL SI CONCRETE, BOLTS, NUTS, REINFORCEMENT, WASHERS, STEEL PLATES, EARTH EXCAVATION AND NECESSARY GRADING.



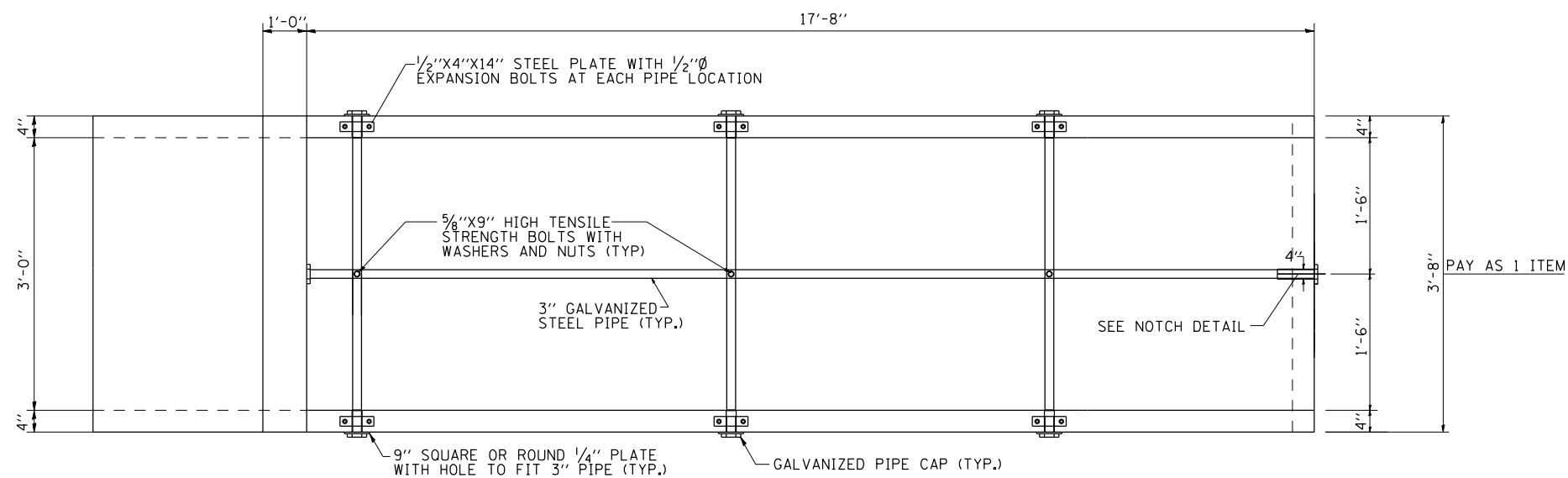
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PLOT SCALE : 2,000' / IN.												FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT	
PLOT DATE : September 06 2007												GRATED CULVERT EXTENSION NO. 4			

GRATED CULVERT EXTENSION NO. 4

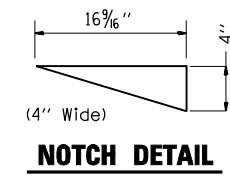


PLAN

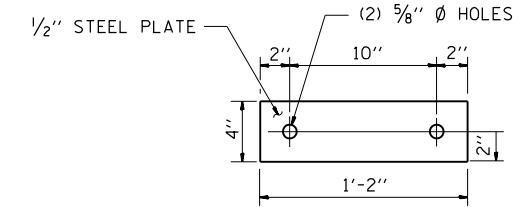
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	PLOT SCALE : 2.0000' / IN.	DRAWN -	REVISED -							
	PLOT DATE : September 06 2007	CHECKED -	REVISED -		SCALE:	SHEET NO.	OF	SHEETS	STA.	TO STA.
		DATE -	REVISED -							



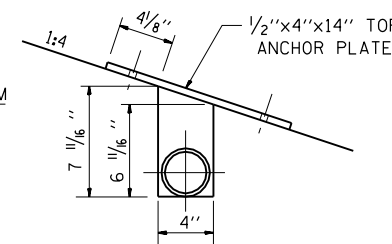
PLAN VIEW



NOTCH DETAIL



TOP ANCHOR PLATE



DETAIL "A"

BILL OF MATERIALS
(FOR ONE EXTENSION)

DESCRIPTION	UNIT	QTY.
Box Culvert End Section Culvert No. 1	EACH	2

GENERAL NOTES:

Slope flow line of the extension at the same rate as the flow line of the box.

Bolts, Nuts, and Washers shall be in accordance with Article 710.11 of the standard specification and shall be galvanized.

The contract unit price "Each" for Box Culvert End Section Culvert No. 1 shall be of precast construction. It shall also include the Galvanized Pipe, Bolts, Nuts, Washers, Steel Plates & all applicable work according to Section 540 of the Standard Specifications.

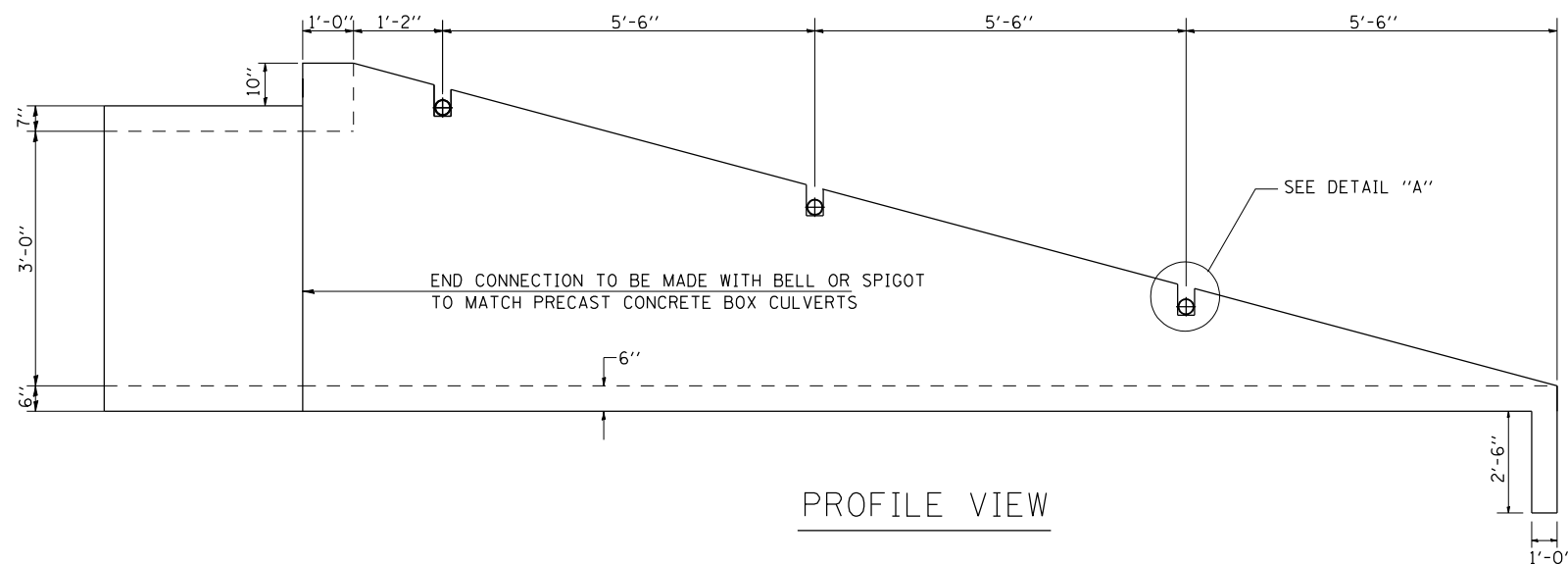
Steel pipes shall conform to A.S.T.M. A-53 (Type E or S) Grade B, Schedule 40, and shall be galvanized conforming to A.S.T.M. A-120. Contractor shall field verify pipe length.

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

See plan and profile sheet 26 of 137 for more information.

The Contractor shall submit four copies of the required shop drawings for review and approval to the Bureau of Bridges and Structures, 2300 South Dirksen Parkway, Springfield, IL. 62764. After approval of initial submittal, the contractor shall submit one set of shop drawings to the Engineer of Materials, 126 East Ash Street, Springfield, IL. 62706, and eight (8) sets of shop drawings, to be distributed to:

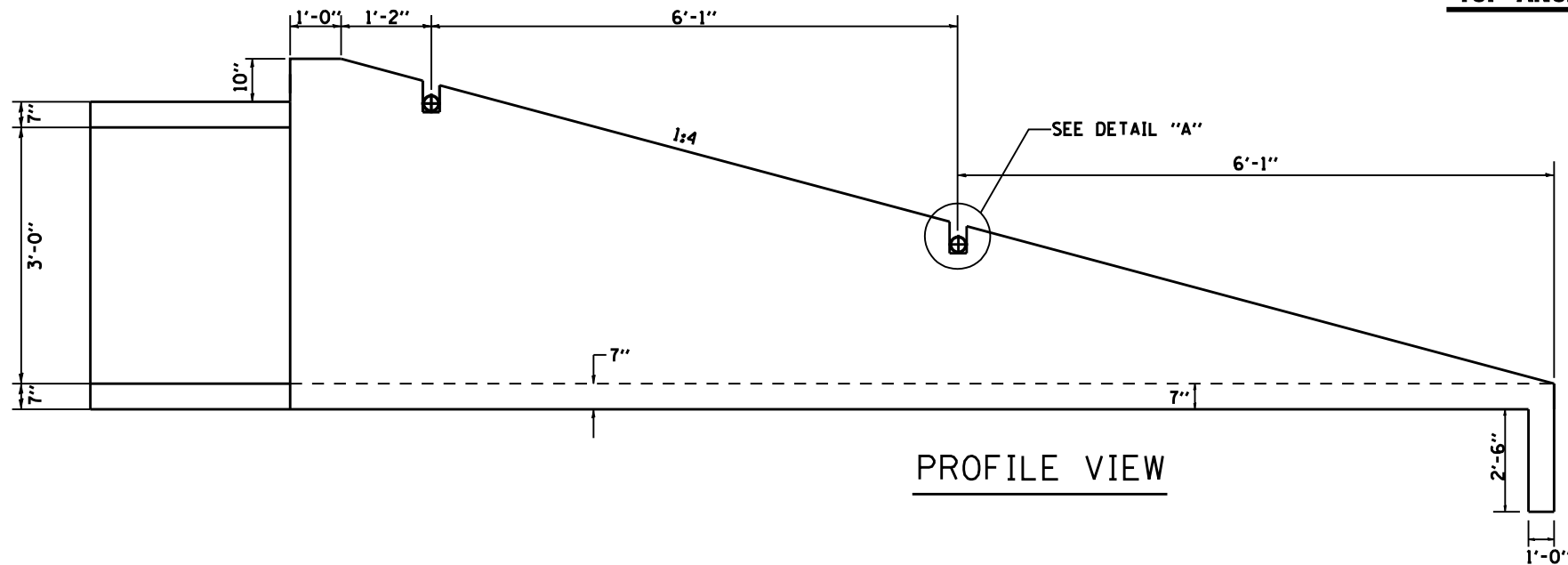
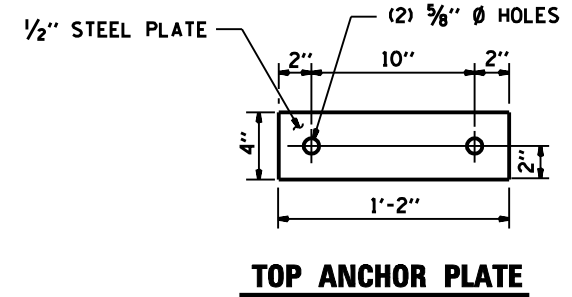
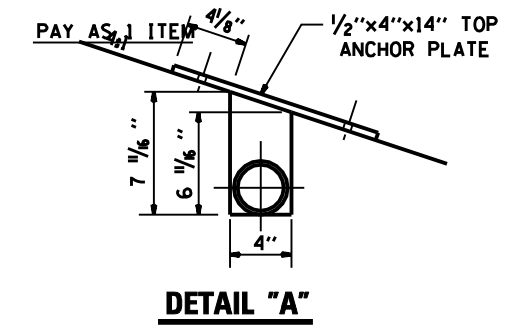
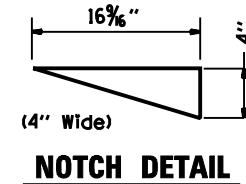
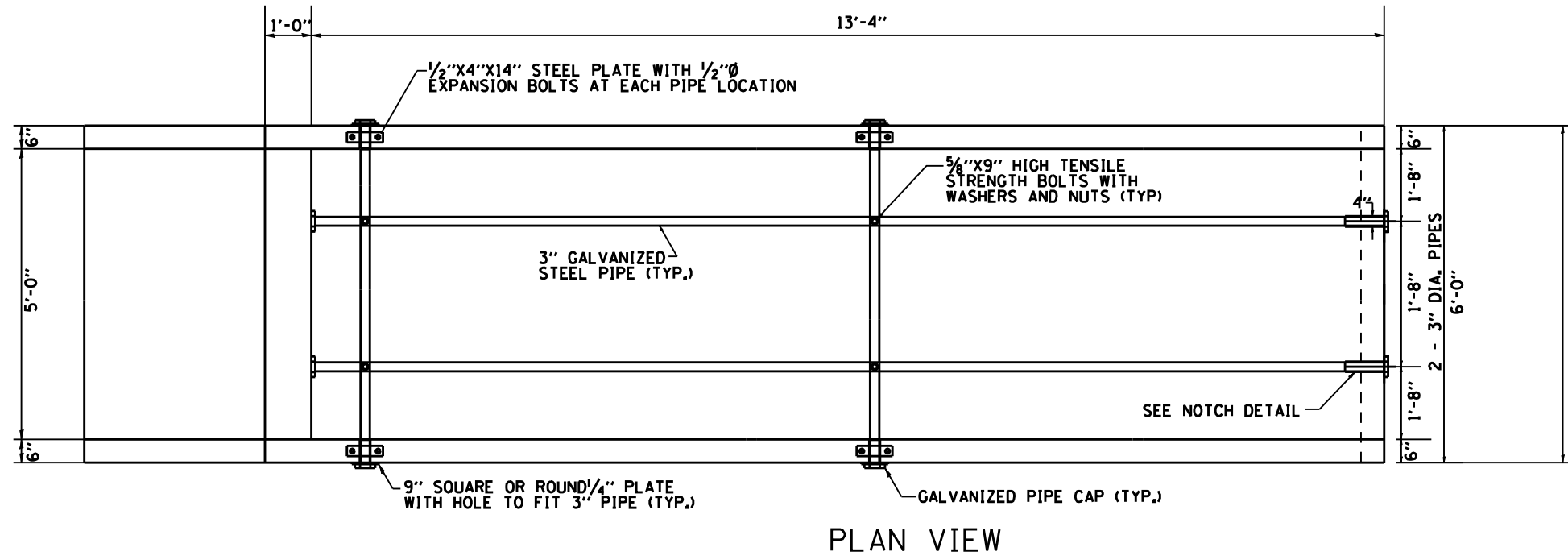
- District 2 District Engineer (1)
- Fabricator (1)
- Contractor (2)
- Resident Engineer (2)
- District 2 Bureau of Materials (2)



PROFILE VIEW

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PLOT SCALE = 2.0000' / IN.	CHECKED - ---	REVISED - ---	SCALE: -----					SHEET NO. -- OF -- SHEETS	STA. ----- TO STA. -----	CONTRACT NO. -----		
PLOT DATE = Thu Oct 25 09:44:15 2007	DATE - -----	REVISED - ---	FED. ROAD DIST. NO. -					ILLINOIS FED. AID PROJECT				
GRATED CULVERT EXTENSION FOR 3'X3' BOX CULVERT												

GRATED CULVERT EXTENSION NO. 5 & 6



BILL OF MATERIALS (FOR ONE EXTENSION)

DESCRIPTION	UNIT	QTY.
3" Galvanized Steel Pipe	2@	13'-4"
3" Galv Pipe Caps	2@	6'-4"
3" Galv Pipe Caps	EACH	8
1/4" Galv. Stl. Plate (9" Nominal)	EACH	4
1/2"x4"x14" Galv. Steel Plate	EACH	4
5/8"x9" Galv. Steel Bolts	EACH	4
Expansion Bolts 1/2"Ø	EACH	8

GENERAL NOTES:

Slope flow line of the extension at the same rate as the flow line of the box.

Bolts, Nuts, and Washers shall be in accordance with Article 710.11 of the standard specification and shall be galvanized.

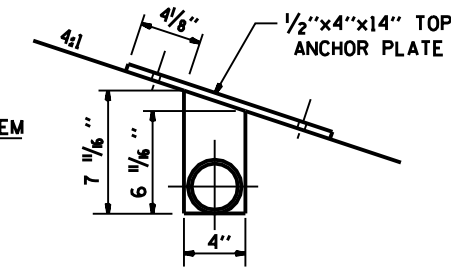
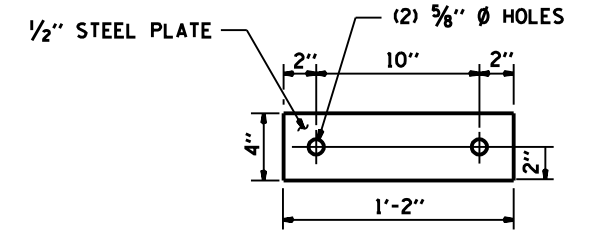
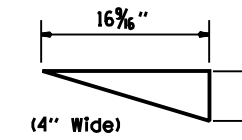
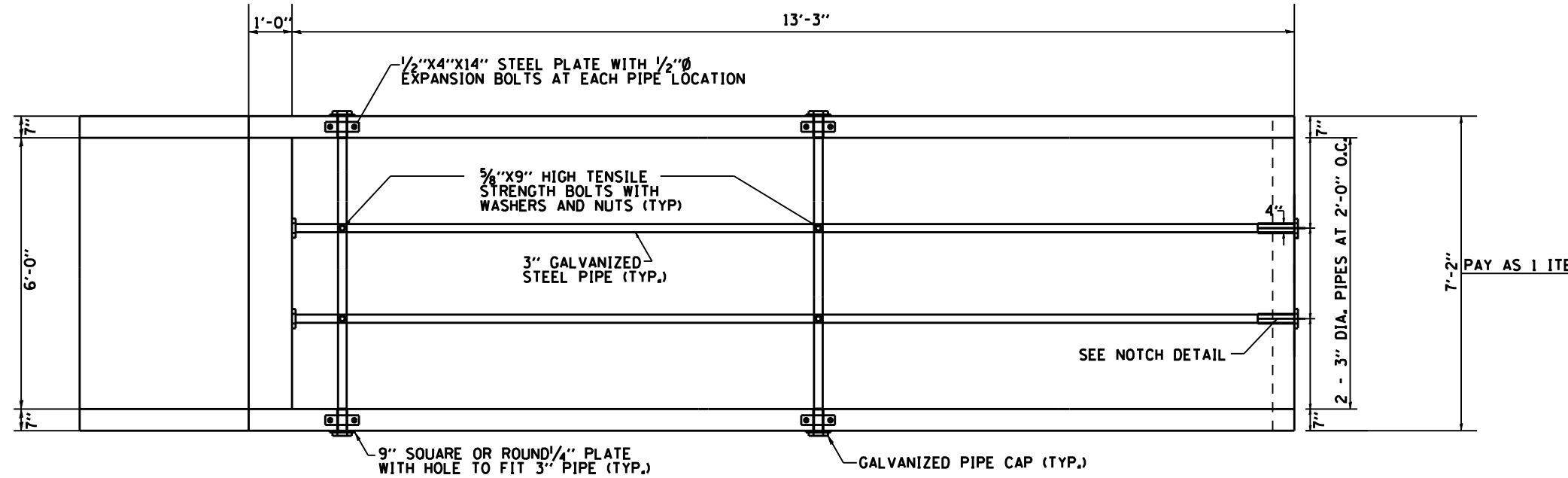
The contract unit price "Each" for Grated Culvert Extension No. 5 & 6 shall be of precast construction. It shall also include the Class SI Concrete for the Collar, Galvanized Pipe, Bolts, Nuts, Washers, Steel Plates.

Steel pipes shall conform to A.S.T.M. A-53 (Type E or S) Grade B, Schedule 40, and shall be galvanized conforming to A.S.T.M. A-120. Contractor shall field verify pipe length.

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

SEE PLAN AND PROFILE SHEET FOR MORE INFORMATION
SEE CULVERT LOCATION PLANS FOR MORE INFORMATION
SEE CULVERT STAGING PLANS FOR MORE INFORMATION

GRATED CULVERT EXTENSION NO. 3 RT STA. 651 + 37.00



PAY AS 1 ITEM

BILL OF MATERIALS (FOR ONE EXTENSION)

DESCRIPTION	UNIT	QTY.
3" Galvanized Steel Pipe	2e	13'-3"
	2e	7'-6"
3" Galv Pipe Caps	EACH	8
1/4" Galv. Stl. Plate (9" Nominal)	EACH	4
1/2"x4"x14" Galv. Steel Plate	EACH	4
5/8"x9" Galv. Steel Bolts	EACH	4
Expansion Bolts 1/2"Ø	EACH	8

GENERAL NOTES:

Slope flow line of the extension at the same rate as the flow line of the box.

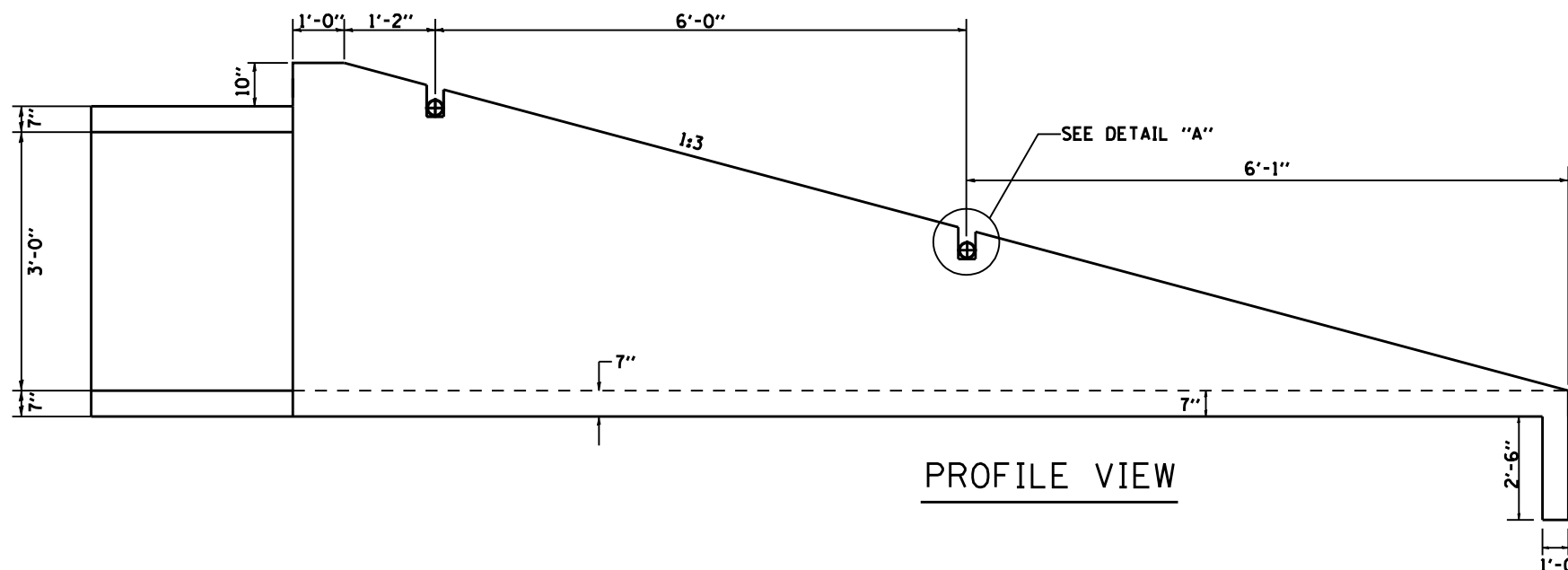
Bolts, Nuts, and Washers shall be in accordance with Article 710.11 of the standard specification and shall be galvanized.

The contract unit price "Each" for Grated Culvert Extension No. 3 shall be of precast construction. It shall also include the Class SI Concrete for the Collar, Galvanized Pipe, Bolts, Nuts, Washers, Steel Plates.

Steel pipes shall conform to A.S.T.M. A-53 (Type E or S) Grade B, Schedule 40, and shall be galvanized conforming to A.S.T.M. A-120. Contractor shall field verify pipe length.

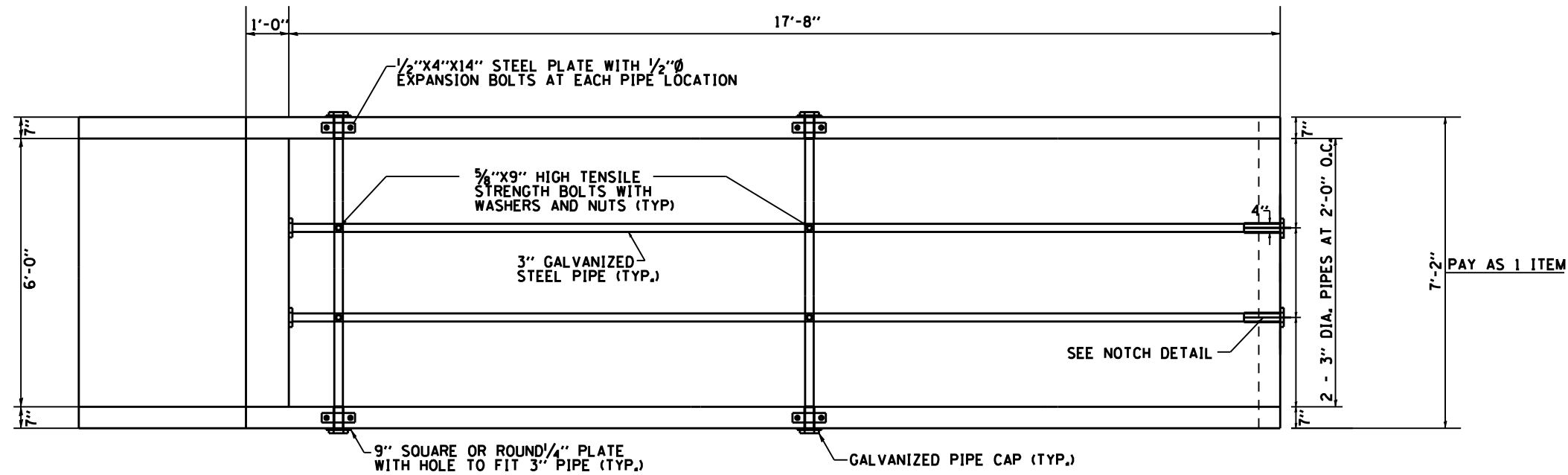
Steel Plates shall conform to AASHTO M-183 and shall be galvanized conforming to AASHTO M-111.

SEE PLAN AND PROFILE SHEET FOR MORE INFORMATION
SEE CULVERT LOCATION PLANS FOR MORE INFORMATION

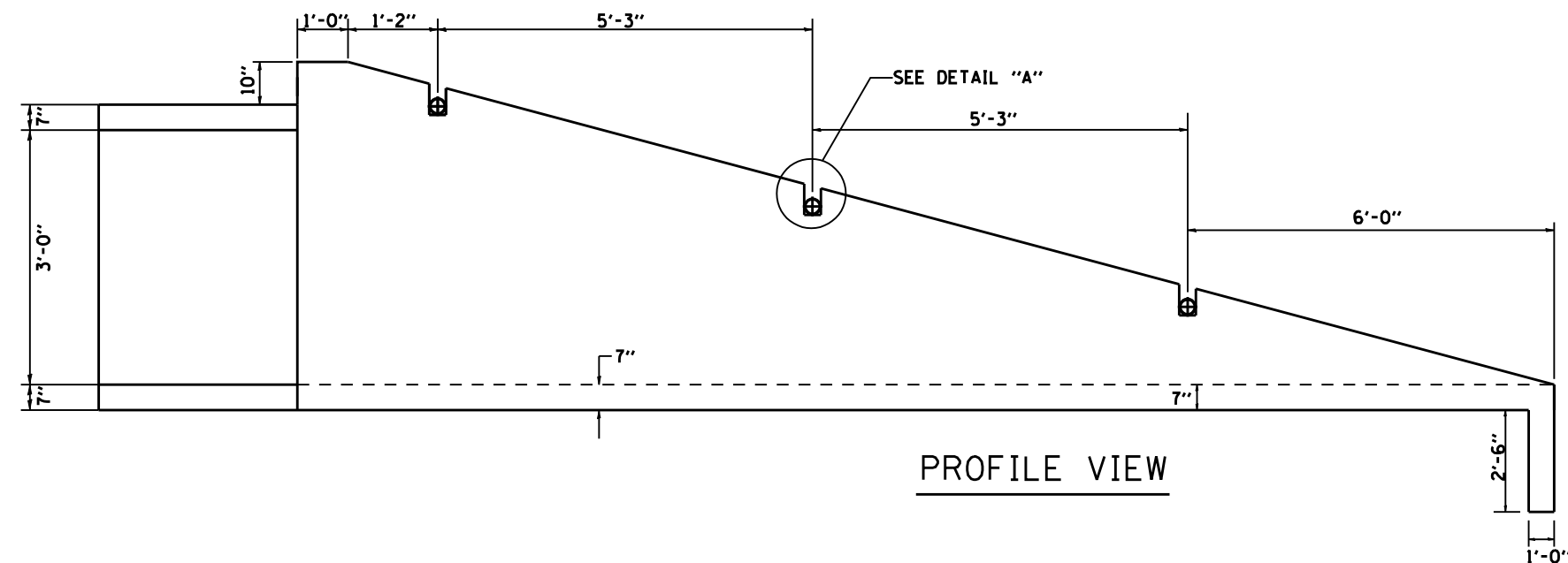
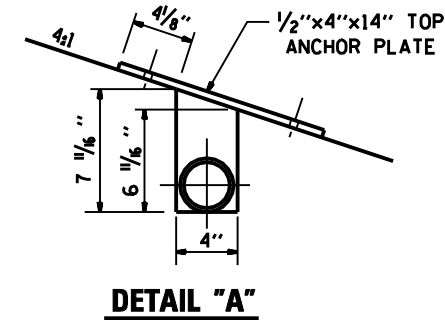
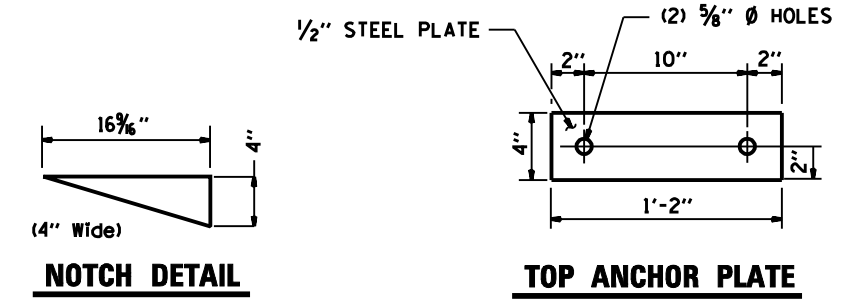


FILE NAME : District 2 Standard	USER NAME : 1001/District 2	DESIGNED -	REVISED - 6-29-06	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		DRAWN -	REVISED -							
		CHECKED -	REVISED -							
		DATE -	REVISED -							

GRATED CULVERT EXTENSION NO. 4



PLAN VIEW



PROFILE VIEW

BILL OF MATERIALS (FOR ONE EXTENSION)

DESCRIPTION	UNIT	QTY.
3" Galvanized Steel Pipe	2ø	17'-8"
	3ø	7'-6"
3" Galv Pipe Caps	EACH	10
1/4" Galv. Stl. Plate (9" Nominal)	EACH	6
1/2"x4"x14" Galv. Steel Plate	EACH	6
5/8"x9" Galv. Steel Bolts	EACH	6
Expansion Bolts 1/2"ø	EACH	12

GENERAL NOTES:

Slope flow line of the extension at the same rate as the flow line of the box.

Bolts, Nuts, and Washers shall be in accordance with Article 710.11 of the standard specification and shall be galvanized.

The contract unit price "Each" for Grated Culvert Extension No. 4 shall be of precast construction. It shall also include the Class SI Concrete for the Collar, Galvanized Pipe, Bolts, Nuts, Washers, Steel Plates.

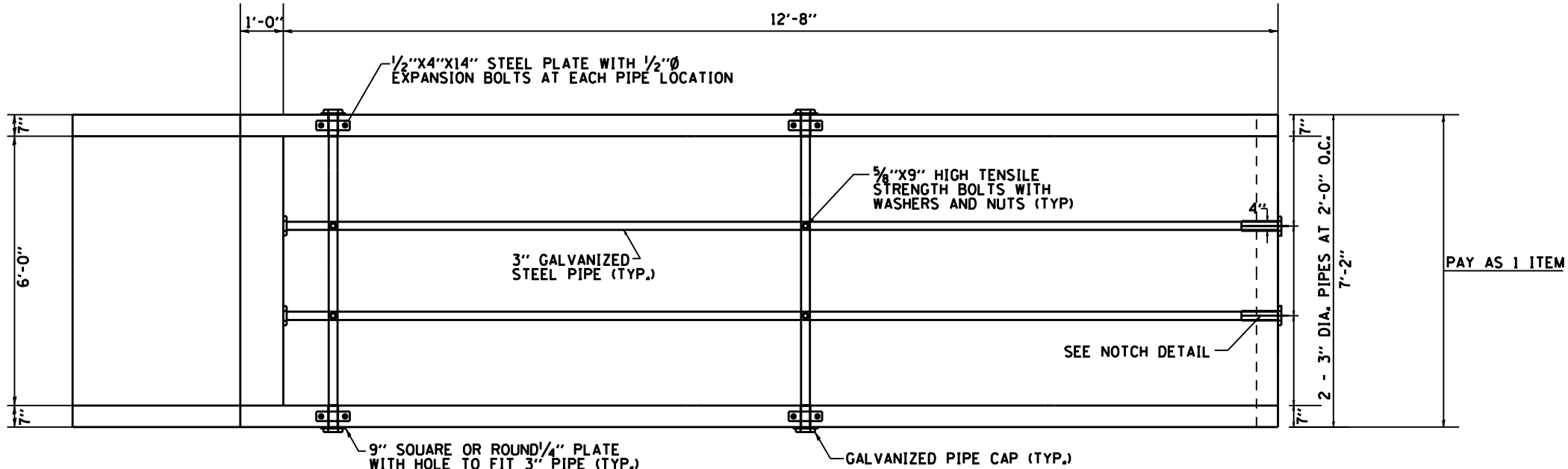
Steel pipes shall conform to A.S.T.M. A-53 (Type E or S) Grade B, Schedule 40, and shall be galvanized conforming to A.S.T.M. A-120. Contractor shall field verify pipe length.

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

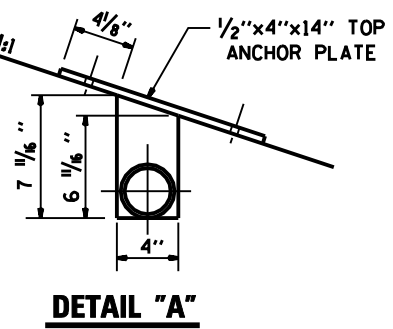
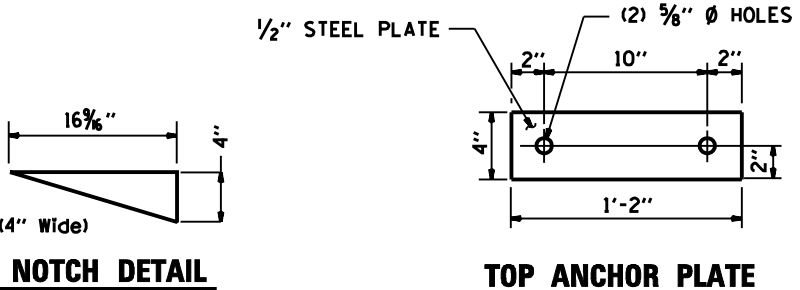
SEE PLAN AND PROFILE SHEET FOR MORE INFORMATION
SEE CULVERT LOCATION PLANS FOR MORE INFORMATION

FILE NAME : District 2 Standard	USER NAME : 1001/District 2	DESIGNED -	REVISED - 6-29-06	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD		F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
		DRAWN -	REVISED -		SCALE:	SHEET NO.	OF SHEETS	STA.	TO STA.	CONTRACT NO.		
		CHECKED -	REVISED -			FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT						
		DATE -	REVISED -			GRATED CULVERT EXTENSION NO. 4						

GRATED CULVERT EXTENSION NO. 7



PLAN VIEW



NOTCH DETAIL

TOP ANCHOR PLATE

DETAIL "A"

BILL OF MATERIALS
(FOR ONE EXTENSION)

DESCRIPTION	UNIT	QTY.
3" Galvanized Steel Pipe	2e	12'-10"
	2e	7'-6"
3" Galv Pipe Caps	EACH	8
1/4" Galv. Stl. Plate (9" Nominal)	EACH	4
1/2" x 4" x 14" Galv. Steel Plate	EACH	4
5/8" x 9" Galv. Steel Bolts	EACH	4
Expansion Bolts 1/2" Ø	EACH	8

GENERAL NOTES:

Slope flow line of the extension at the same rate as the flow line of the box.

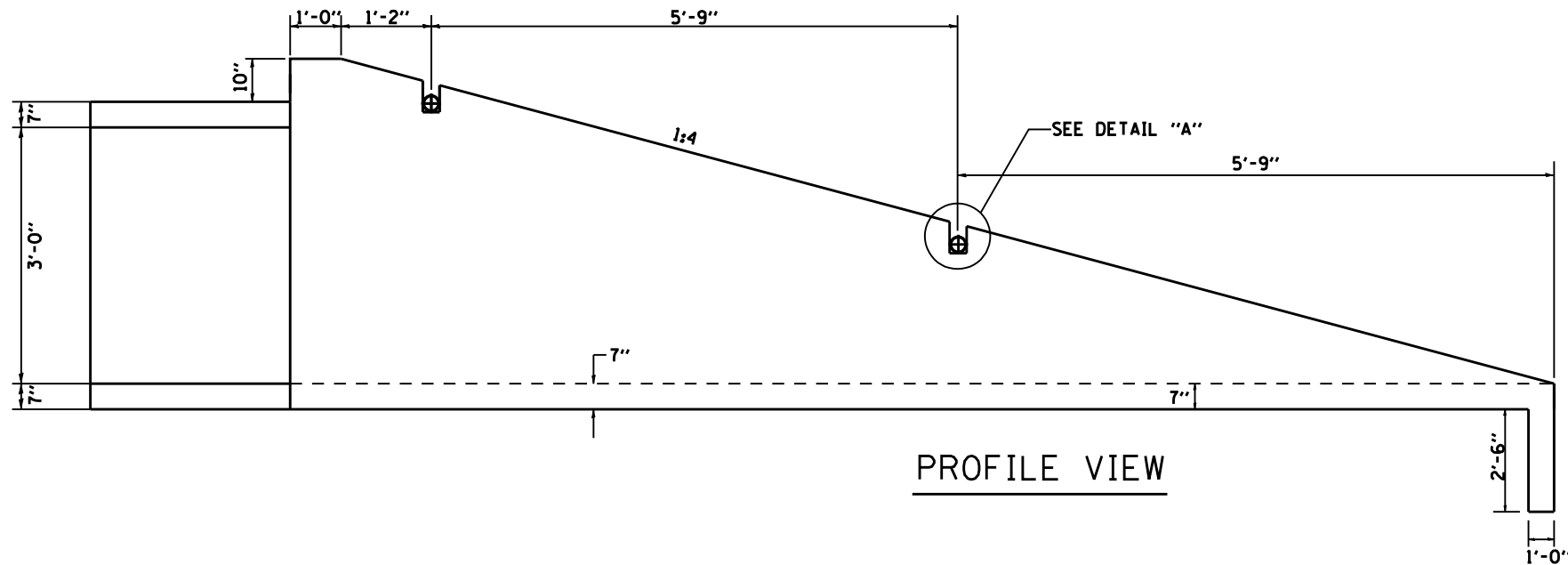
Bolts, Nuts, and Washers shall be in accordance with Article 710.11 of the standard specification and shall be galvanized.

The contract unit price "Each" for Grated Culvert Extension No. 7 shall be of precast construction. It shall also include the Class SI Concrete for the Collar, Galvanized Pipe, Bolts, Nuts, Washers, Steel Plates.

Steel pipes shall conform to A.S.T.M. A-53 (Type E or S) Grade B, Schedule 40, and shall be galvanized conforming to A.S.T.M. A-120. Contractor shall field verify pipe length.

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

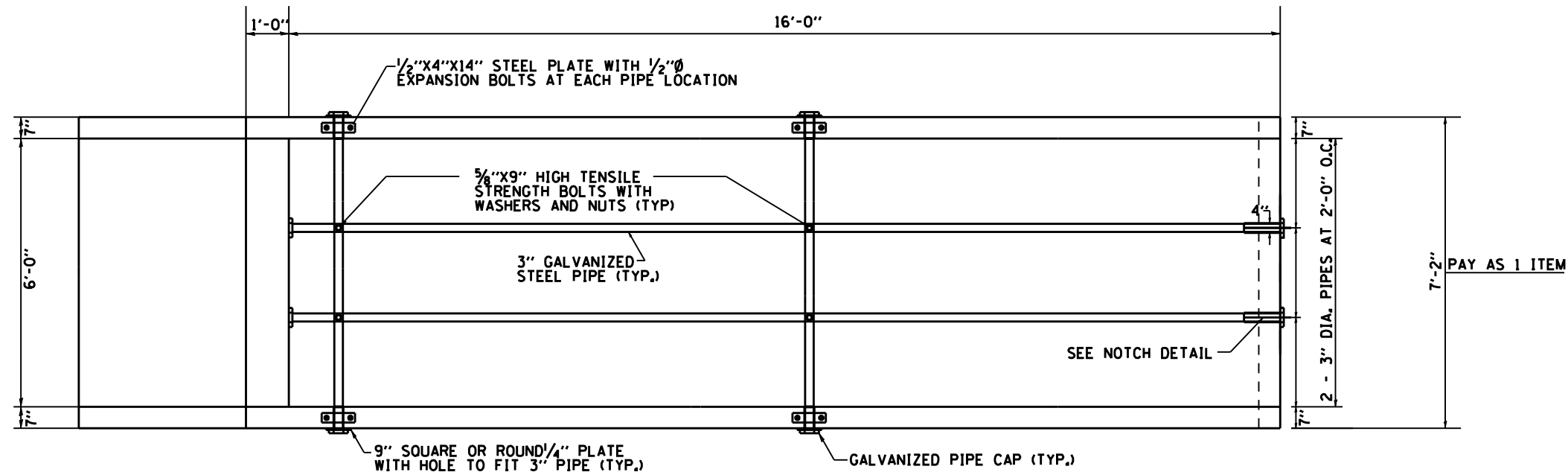
SEE PLAN AND PROFILE SHEET FOR MORE INFORMATION
SEE CULVERT LOCATION PLANS FOR MORE INFORMATION
SEE CULVERT STAGING PLANS FOR MORE INFORMATION



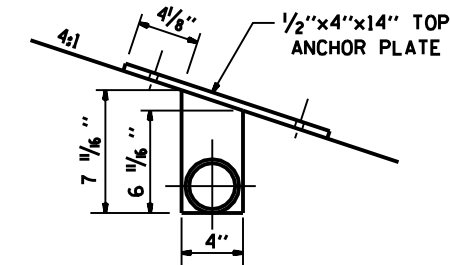
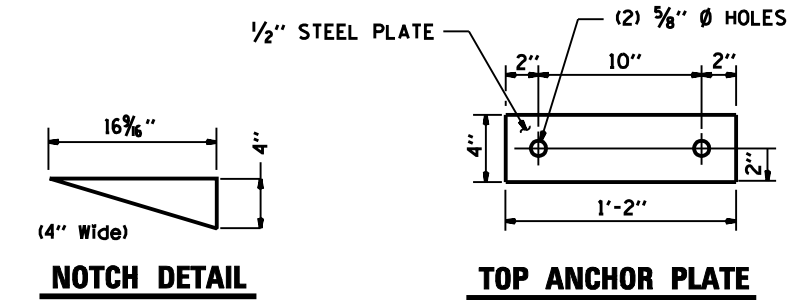
PROFILE VIEW

FILE NAME : District 2 Standard	USER NAME : I001/District 2	DESIGNED -	REVISED - 6-29-06	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		DRAWN -	REVISED -							
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GRATED CULVERT EXTENSION NO. 2



PLAN VIEW



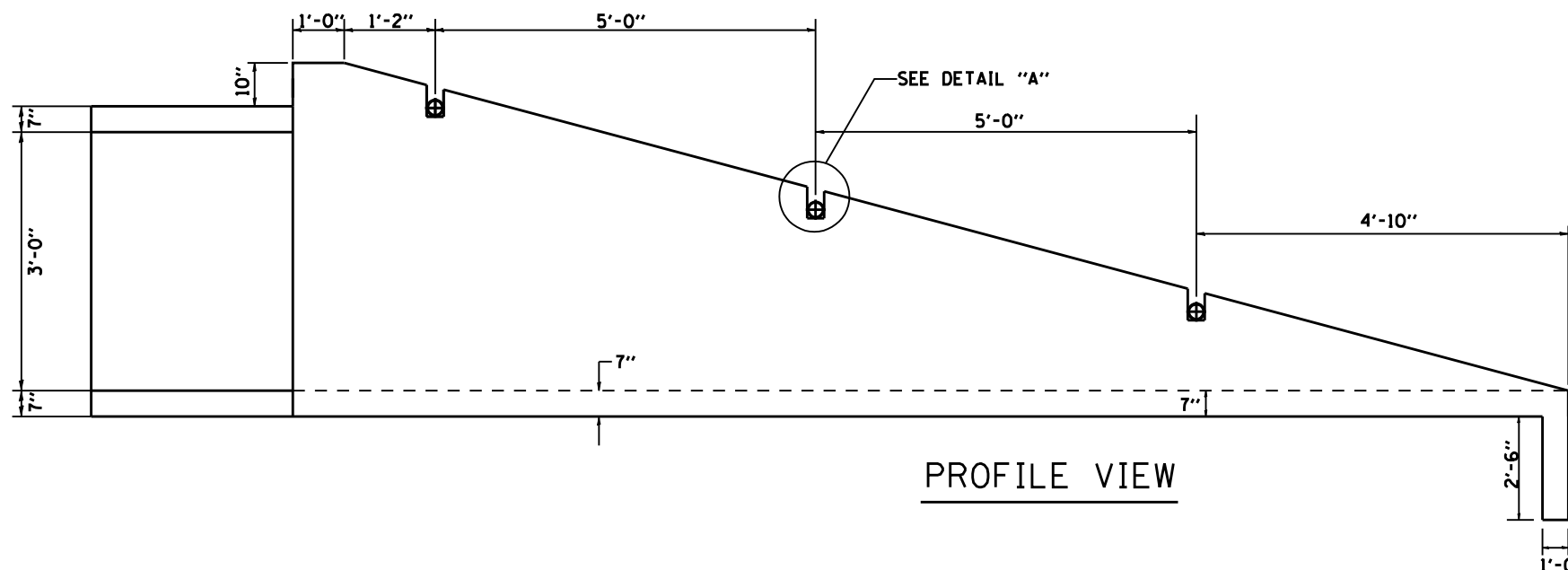
DETAIL "A"

BILL OF MATERIALS (FOR ONE EXTENSION)

DESCRIPTION	UNIT	QTY.
3" Galvanized Steel Pipe	2ø	16'-0"
	3ø	7'-6"
3" Galv Pipe Caps	EACH	10
1/4" Galv. Stl. Plate (9" Nominal)	EACH	6
1/2"x4"x14" Galv. Steel Plate	EACH	6
5/8"x9" Galv. Steel Bolts	EACH	6
Expansion Bolts 1/2"ø	EACH	12

GENERAL NOTES:

- Slope flow line of the extension at the same rate as the flow line of the box.
- Bolts, Nuts, and Washers shall be in accordance with Article 710.11 of the standard specification and shall be galvanized.
- The contract unit price "Each" for Grated Culvert Extension No. 2 shall be of precast construction. It shall also include the Class SI Concrete for the Collar, Galvanized Pipe, Bolts, Nuts, Washers, Steel Plates.
- Steel pipes shall conform to A.S.T.M. A-53 (Type E or S) Grade B, Schedule 40, and shall be galvanized conforming to A.S.T.M. A-120. Contractor shall field verify pipe length.
- Steel Plates shall conform to AASHTO M-183 and shall be galvanized conforming to AASHTO M-111.
- SEE PLAN AND PROFILE SHEET FOR MORE INFORMATION
SEE CULVERT LOCATION PLANS FOR MORE INFORMATION



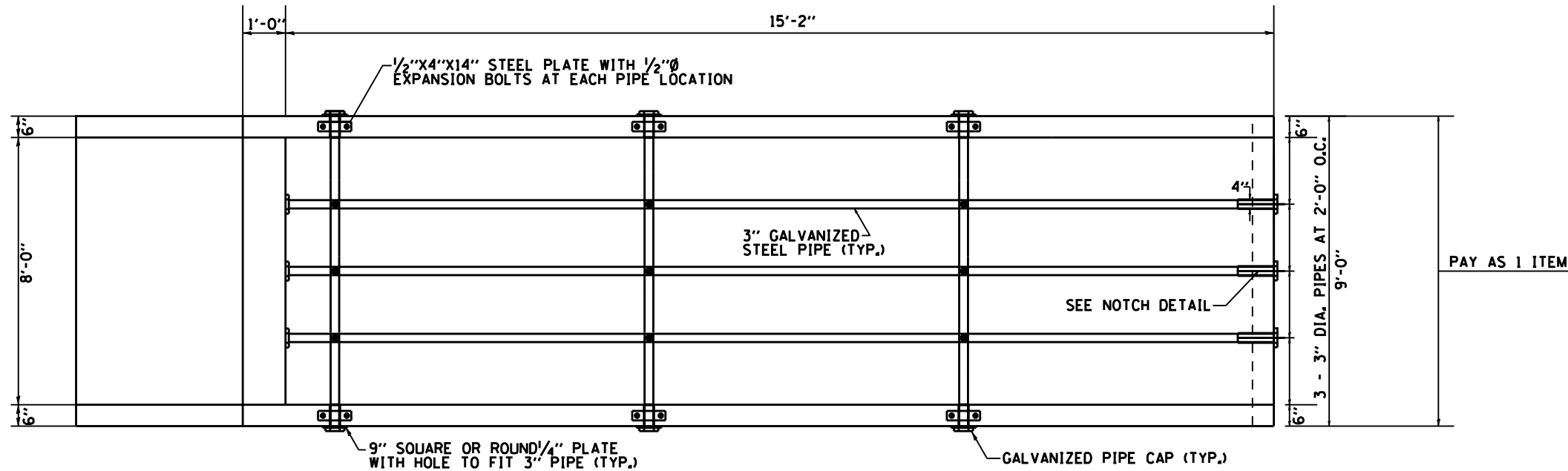
PROFILE VIEW

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	PLOT DATE : September 06 2007	CHECKED -	REVISED -		FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT							
		DATE -	REVISED -		GRATED CULVERT EXTENSION NO. 2							

GRATED CULVERT EXTENSION NO. 1

BILL OF MATERIALS (FOR ONE EXTENSION)

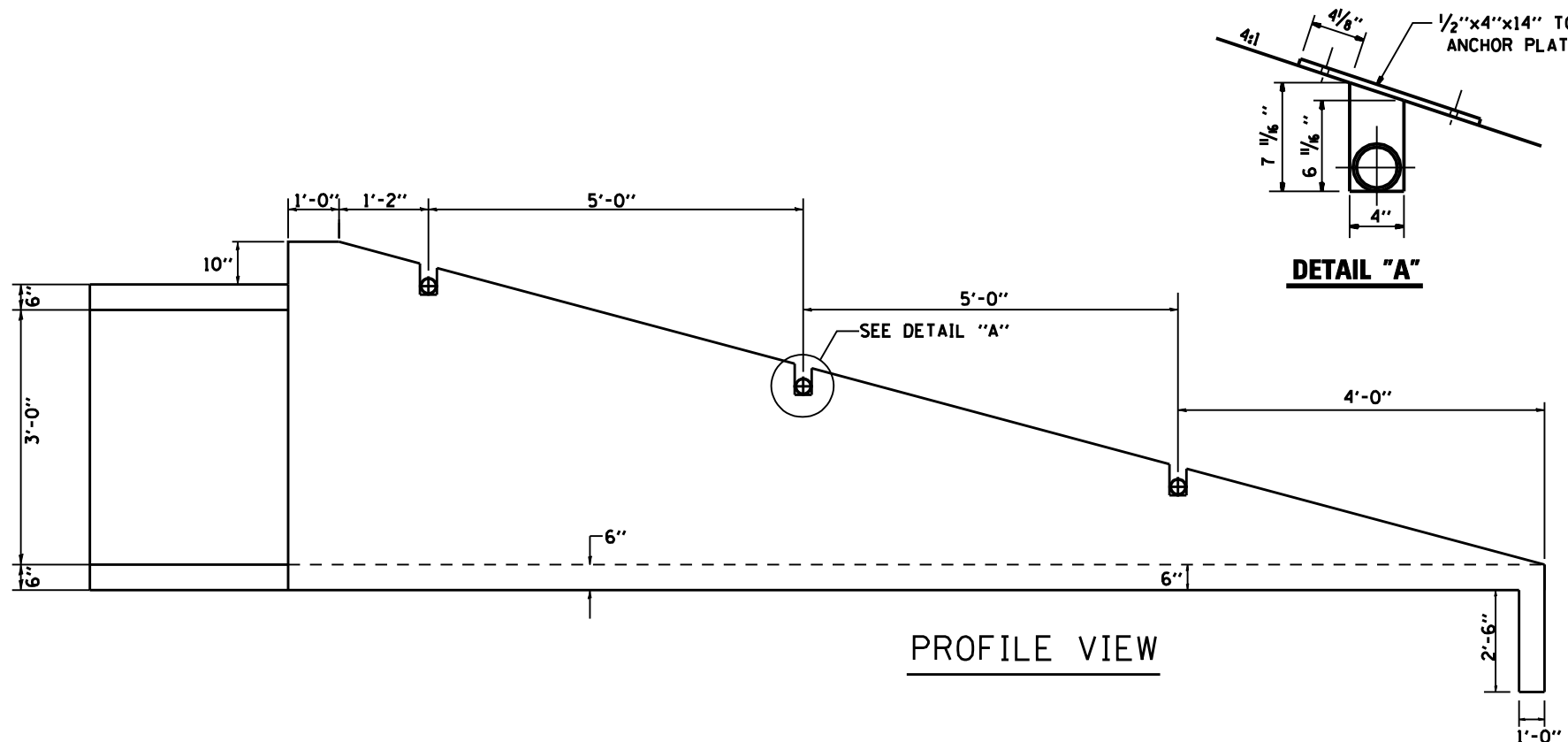
DESCRIPTION	UNIT	QTY.
3" Galvanized Steel Pipe	3@	15'-2"
	3@	9'-4"
3" Galv Pipe Caps	EACH	12
1/4" Galv. Stl. Plate (9" Nominal)	EACH	6
1/2"x4"x14" Galv. Steel Plate	EACH	6
3/8"x9" Galv. Steel Bolts	EACH	9
Expansion Bolts 1/2"Ø	EACH	12



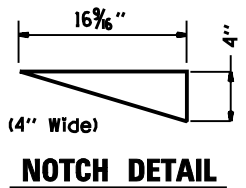
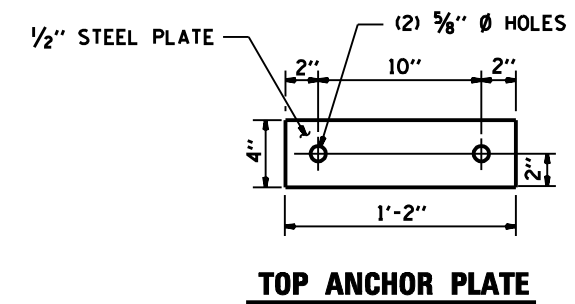
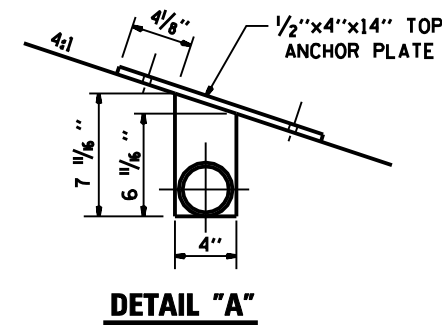
PLAN VIEW

GENERAL NOTES:

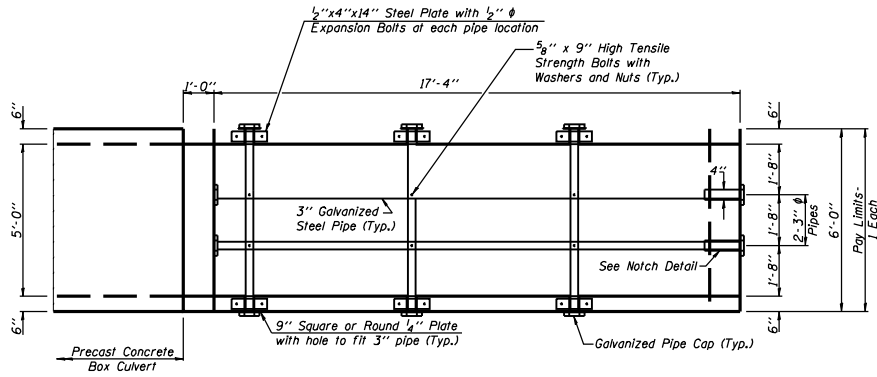
- Slope flow line of the extension at the same rate as the flow line of the box.
- Bolts, Nuts, and Washers shall be in accordance with Article 710.11 of the standard specification and shall be galvanized.
- The contract unit price "Each" for Grated Culvert Extension No. 1 shall be of precast construction. It shall also include the Class SI Concrete for the Collar, Galvanized Pipe, Bolts, Nuts, Washers, Steel Plates.
- Contractor shall field verify pipe length prior to order. Steel pipes shall conform to A.S.T.M. A-53 (Type E or S) Grade B, Schedule 40, and shall be galvanized conforming to A.S.T.M. A-120
- Steel Plates shall conform to AASHTO M-183 and shall be galvanized conforming to AASHTO M-111.
- SEE PLAN AND PROFILE SHEET FOR MORE INFORMATION
- SEE CULVERT LOCATION PLANS FOR MORE INFORMATION
- SEE CULVERT STAGING PLANS FOR MORE INFORMATION



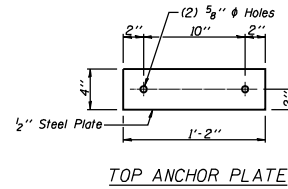
PROFILE VIEW



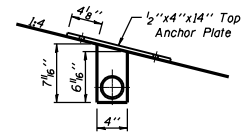
FILE NAME : District 2 Standard	USER NAME : I007/District 2	DESIGNED -	REVISED - 6-29-06	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD			F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE : 2.0000' / IN.	DRAWN -	REVISED -					SCALE: SHEET NO. OF SHEETS STA. TO STA.			CONTRACT NO.	
	PLOT DATE : September 06 2007	CHECKED -	REVISED -		FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT							
		DATE -	REVISED -		GRATED CULVERT EXTENSION NO.1							



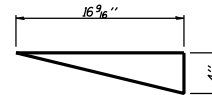
PLAN VIEW



TOP ANCHOR PLATE



DETAIL "A"



(4" Wide)

NOTCH DETAIL

BILL OF MATERIAL

DESCRIPTION	UNIT	QTY.
Box Culvert End Section, Culvert No. 9	Each	4
Name Plate	Each	1

GENERAL NOTES:

Slope flow line of the extension at the same rate as the flow line of the box.

Bolts, Nuts, and Washers shall be in accordance with Article 710.11 of the standard specification and shall be galvanized.

The contract unit price "Each" for Box Culvert End Section, Culvert No. 9 shall include the Galvanized Pipe, Bolts, Nuts, Washers, and Steel Plates, and all applicable work according to Section 540 of the Standard Specifications.

Steel Pipes shall conform to A.S.T.M. A-53 (Type E or S) Grade B, Schedule 40, and shall be galvanized conforming to A.S.T.M. A-120. Contractor shall field verify pipe length.

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

See Plan and Profile Sheet 36 of 137 for more information.

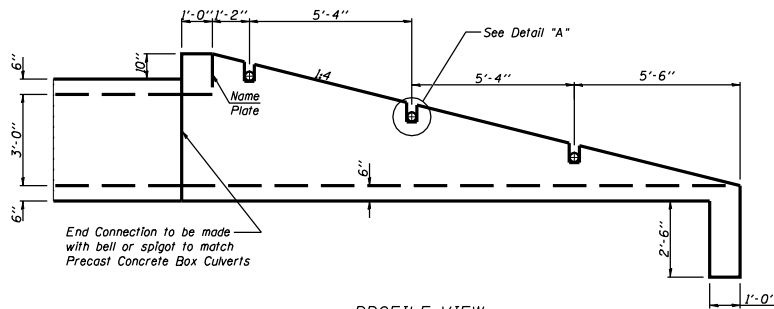
The Contractor shall submit four copies of the required shop drawings for review and approval to the Bureau of Bridges and Structures, 2300 South Dirksen Parkway, Springfield, IL, 62764. After approval of initial submittal, the contractor shall submit one set of shop drawings to the Engineer of Materials, 126 East Ash Street, Springfield, IL, 62706, and eight (8) sets of shop drawings, to be distributed to:

- District 2 District Engineer (1)
- Fabricator (1)
- Contractor (1)
- Resident Engineer (2)
- District Bureau of Materials (2)

STATION 10369+83.25
 BUILT 2007 BY
 STATE OF ILLINOIS
 F.A.P. RT. 505 SEC 110RS-1, 111RS-3
 LOADING HS20
 STR. NO. 089-1201

NAME PLATE

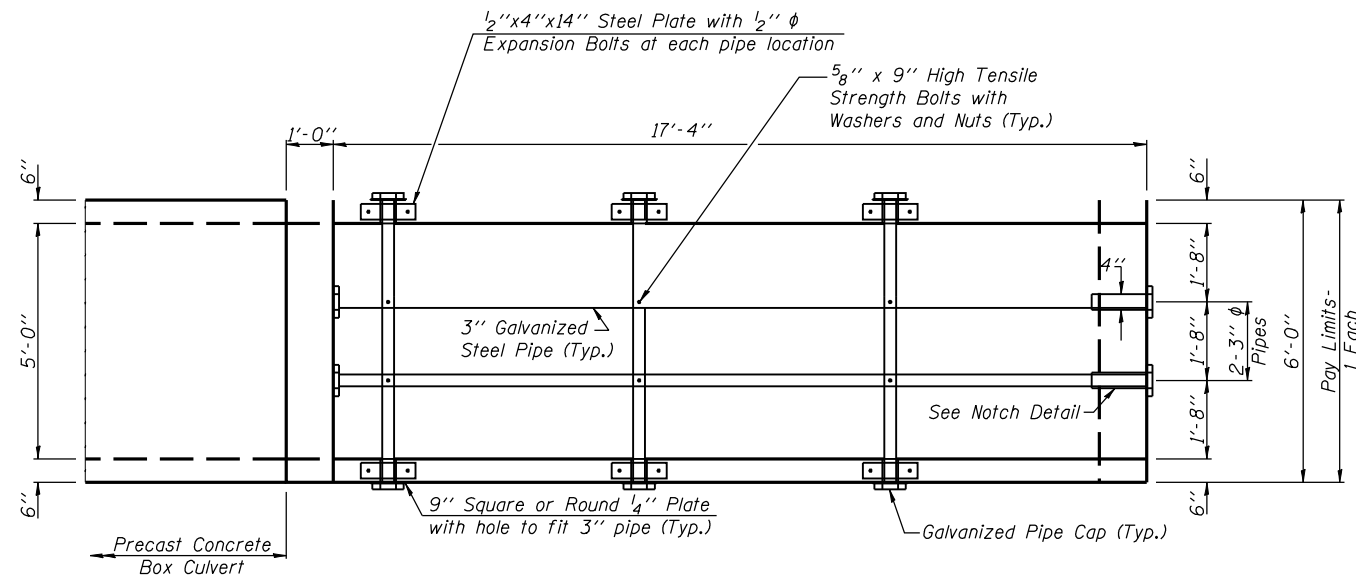
See Sid. 515001
 Located on the SE Headwall.



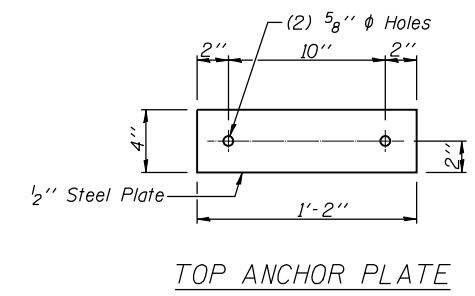
PROFILE VIEW

FILE NAME =	USER NAME = meglj	DESIGNED -	REVISED - 10-24-07	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD	P.A. SHEET	SECTION	COUNTY	TOTAL SHEETS
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	CHECKED -	REVISED -	CONTRACT NO.						
	DATE -	REVISED -							
	PLDT SCALE = 3/8" = 1' / IN.			SCALE: _____	SHEET NO. _____ OF _____ SHEETS	STA. _____ TO STA. _____	FED. ROAD DIST. NO. _____ ILLINOIS FED. AID PROJECT _____		
	PLDT DATE = Thu Oct 25 08:01:49 2007								

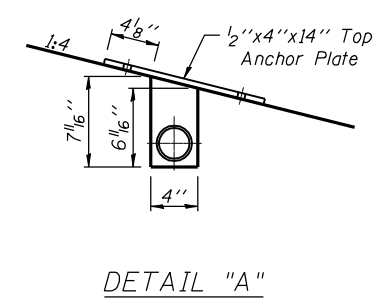
GRATED END SECTION FOR 5'x3'



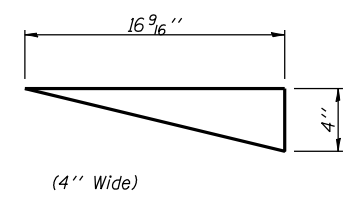
PLAN VIEW



TOP ANCHOR PLATE

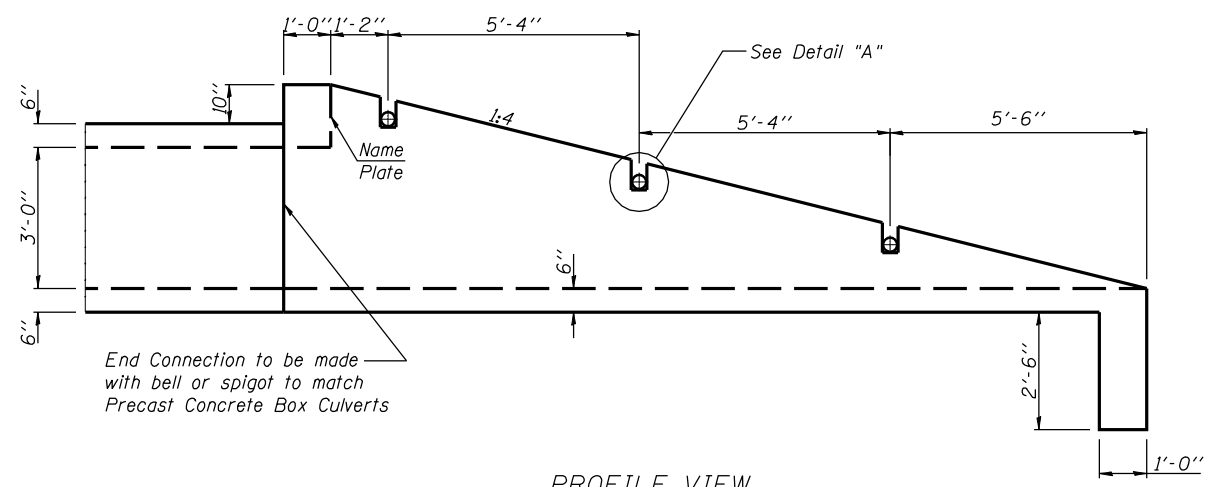


DETAIL "A"



(4" Wide)

NOTCH DETAIL



PROFILE VIEW

STATION 10369+83.25
 BUILT 2007 BY
 STATE OF ILLINOIS
 F.A.P. RT. 505 SEC 110RS-1, 111RS-3
 LOADING HS20
 STR. NO. 089-1201

NAME PLATE
 See Std. 515001
 Located on the SE Headwall.

BILL OF MATERIAL

DESCRIPTION	UNIT	QTY.
Box Culvert End Section, Culvert No. 9	Each	4
Name Plate	Each	1

GENERAL NOTES:

Slope flow line of the extension at the same rate as the flow line of the box.
 Bolts, Nuts, and Washers shall be in accordance with Article 710.11 of the standard specification and shall be galvanized.

The contract unit price "Each" for Box Culvert End Section, Culvert No. 9 shall include the Galvanized Pipe, Bolts, Nuts, Washers, and Steel Plates, and all applicable work according to Section 540 of the Standard Specifications.

Steel Pipes shall conform to A.S.T.M. A-53 (Type E or S) Grade B, Schedule 40, and shall be galvanized conforming to A.S.T.M. A-120. Contractor shall field verify pipe length.

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

See Plan and Profile Sheet 36 of 137 for more information.

The Contractor shall submit four copies of the required shop drawings for review and approval to the Bureau of Bridges and Structures, 2300 South Dirksen Parkway, Springfield, IL. 62764. After approval of initial submittal, the contractor shall submit one set of shop drawings to the Engineer of Materials, 126 East Ash Street, Springfield, IL. 62706, and eight (8) sets of shop drawings, to be distributed to:

- District 2 District Engineer (1)
- Fabricator (1)
- Contractor (1)
- Resident Engineer (2)
- District Bureau of Materials (2)

FILE NAME =	USER NAME = meglilj	DESIGNED - ---	REVISED - 10-24-07
C:\Documents and Settings\mejlilj\Desktop\02CulvertExamples.cel		DRAWN - ---	REVISED - ---
PLOT SCALE = 2.0000' / IN.		CHECKED - ---	REVISED - ---
PLOT DATE = Thu Oct 25 09:50:38 2007		DATE - ---	REVISED - ---

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

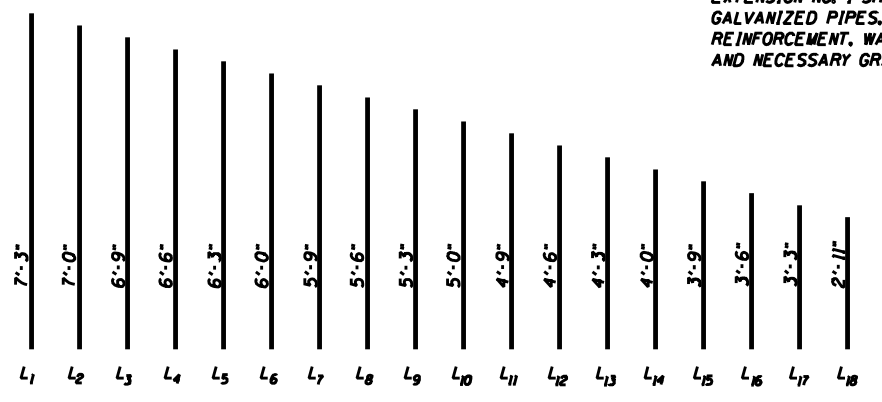
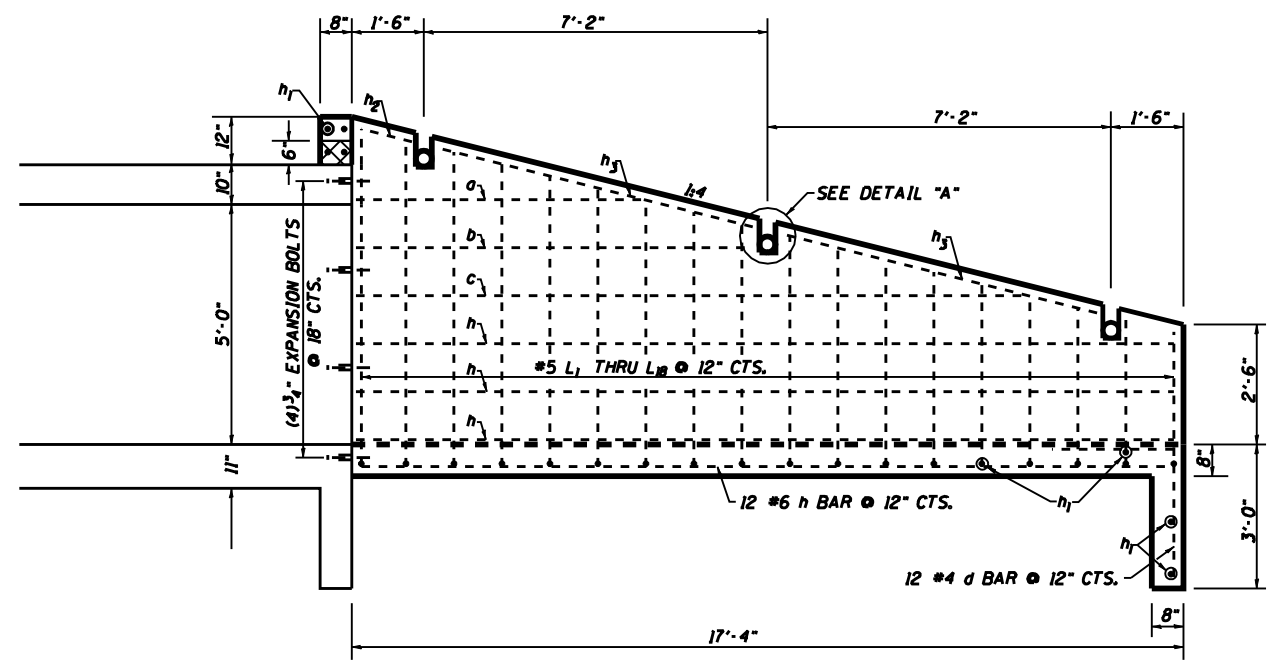
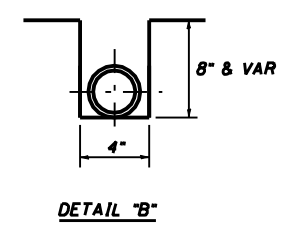
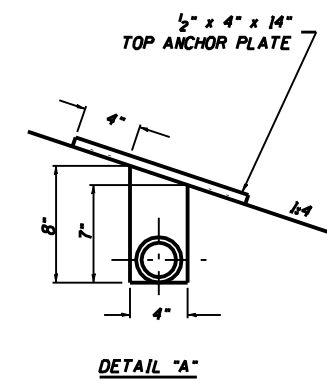
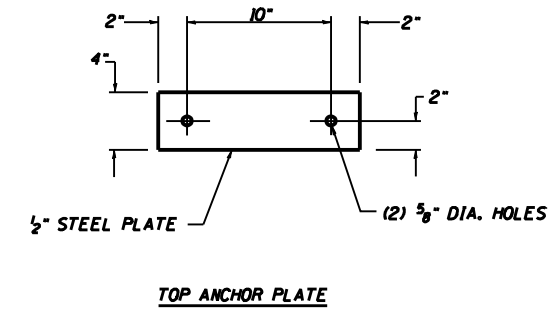
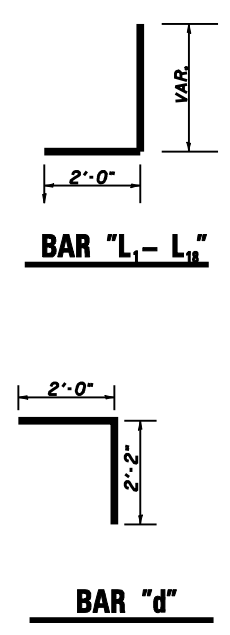
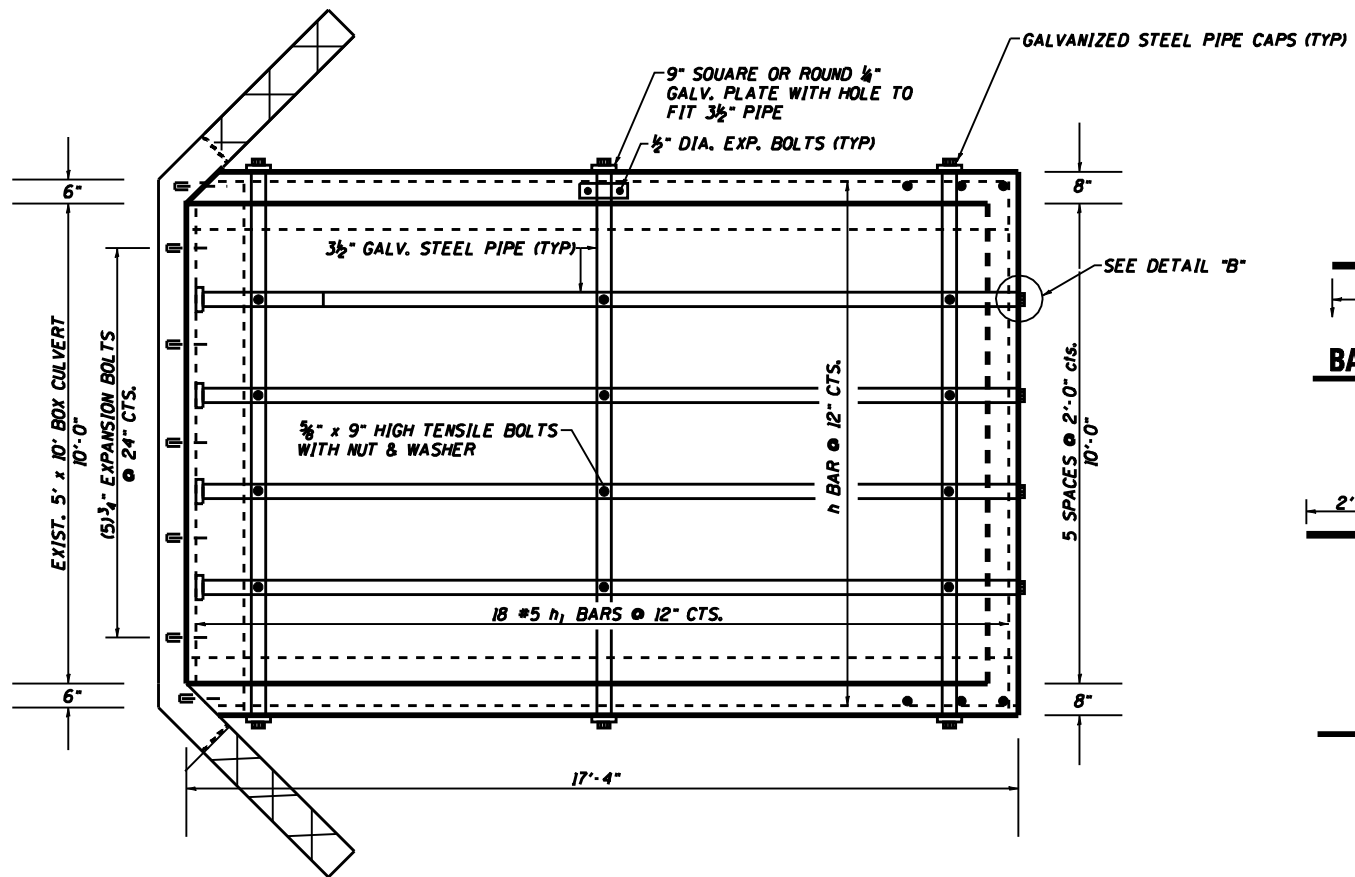
REGION 2 / DISTRICT 2 STANDARD

SCALE: _____ SHEET NO. ___ OF ___ SHEETS STA. _____ TO STA. _____

F.A. RTE:	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CONTRACT NO. _____				
FED. ROAD DIST. NO. _____ ILLINOIS FED. AID PROJECT				

GRATED CULVERT EXTENSION FOR 5'X3' BOX CULVERT

GRADED CULVERT EXTENSION NO. 1

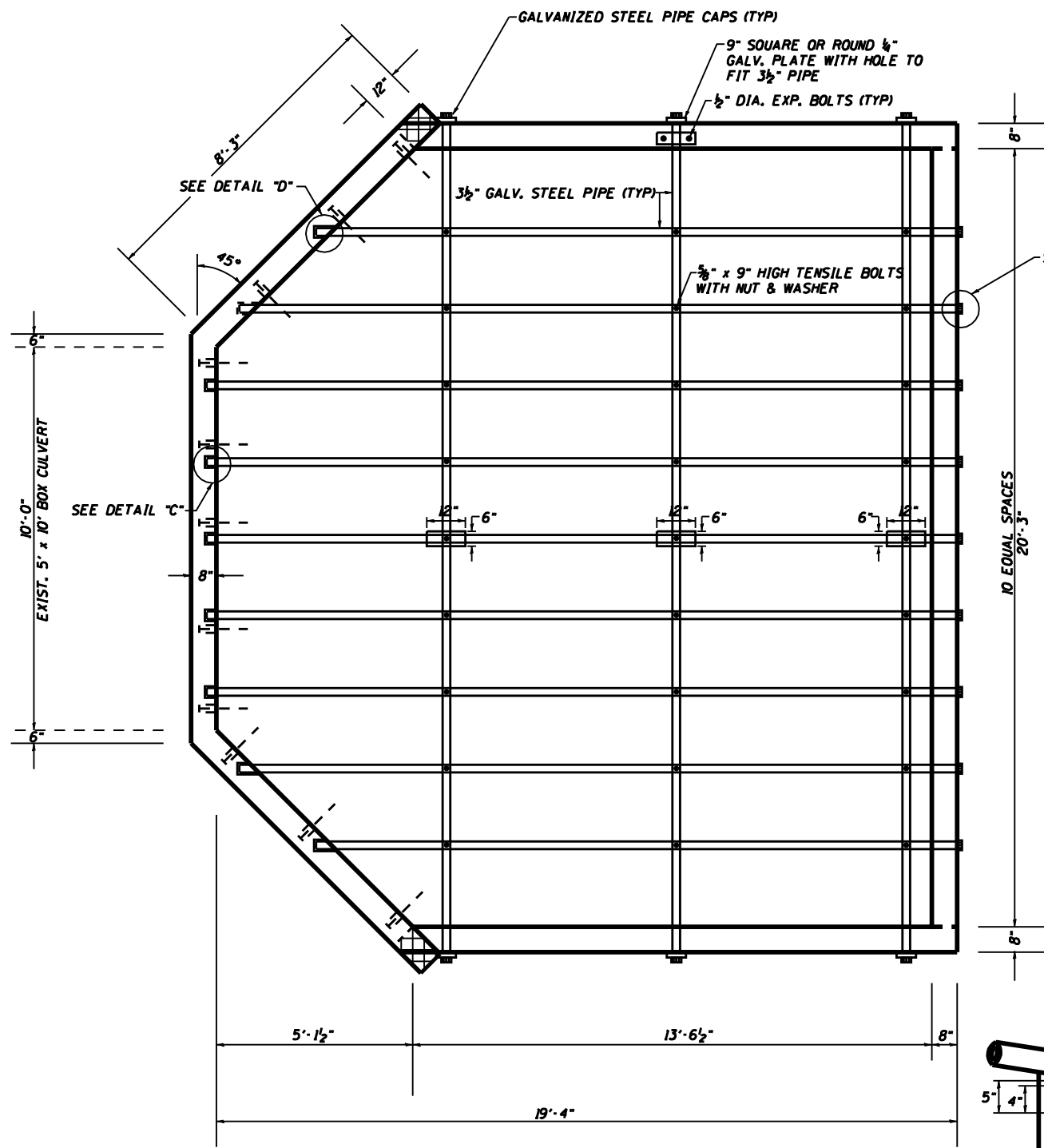


BILL OF MATERIALS

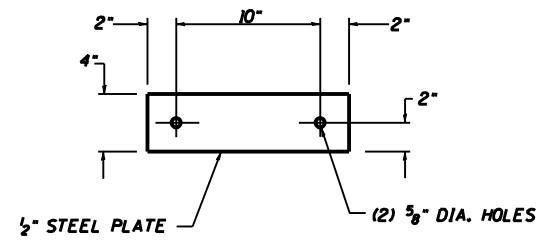
BAR	NUMBER	SIZE	LENGTH	QTY.
a	2	#4	6'-3"	8.35
b	2	#4	8'-3"	11.02
c	2	#4	14'-3"	19.04
d	12	#4	4'-9"	38.1
h ₁	18	#6	17'-1"	461.87
h ₂	25	#5	11'-1"	289.00
h ₃	2	#4	1'-8"	2.23
h ₄	4	#4	6'-8"	17.82
L ₁ -L ₁₈	36	#5	2'-11"-7'-3"	302.02
REINFORCEMENT BARS			LB	1149.45
CL SI CONC. MISC.			CU YD	9.83
3/2" GALV. STEEL PIPE			EACH	4 @ 17'-7" 3 @ 11'-6"
1/2" x 4" x 14" GALV. ANCHOR PLATE			EACH	6
5/8" x 9" GALV. BOLTS			EACH	12
GALV. STEEL PIPE CAPS			EACH	14
1/2" Ø GALV. EXP. BOLTS			EACH	12
9" SO. OR ROUND 1/4" GALV. PLATE			EACH	6
EXP. BOLTS 3/4" Ø			EACH	13

GENERAL NOTES:
 STEEL PIPES SHALL CONFORM TO A.S.T.M. A-53 (TYPE E OR S) GRADE B, SCHEDULE 40, & SHALL BE GALVANIZED CONFORMING TO A.S.T.M. A-120.
 STEEL PLATES SHALL CONFORM TO AASHTO M-183 & SHALL BE GALVANIZED CONFORMING TO AASHTO M-111.
 BOLTS, NUTS, & WASHERS SHALL BE IN ACCORDANCE WITH ARTICLE 1006.08 OF THE STANDARD SPECIFICATIONS AND SHALL BE GALVANIZED.
 THE CONTRACT UNIT PRICE "EACH" FOR GRADED CULVERT EXTENSION NO. 1 SHALL INCLUDE THE EXPANSION BOLTS, GALVANIZED PIPES, CL SI CONCRETE, BOLTS, NUTS, REINFORCEMENT, WASHERS, STEEL PLATES, EARTH EXCAVATION AND NECESSARY GRADING.

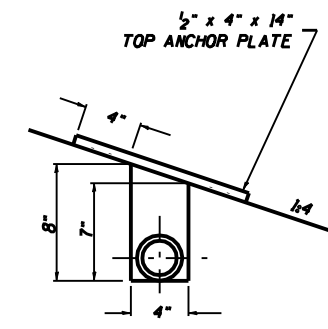
GRADED CULVERT EXTENSION NO. 2 LT STA. 704 + 95.61



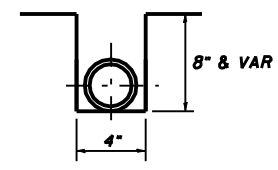
PLAN



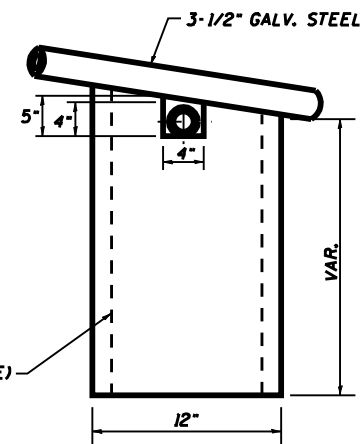
TOP ANCHOR PLATE



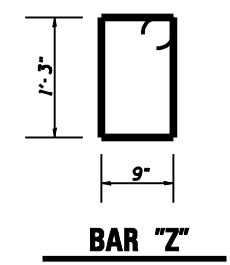
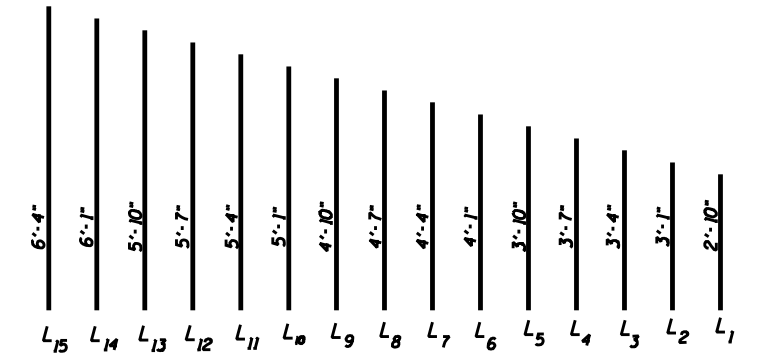
DETAIL "A"



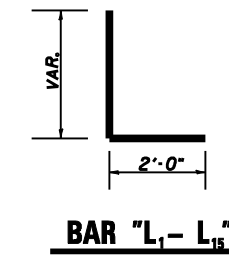
DETAIL "B"



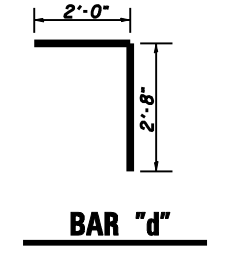
2 #4 C_{1,3} BARS @ 3" CTS. (EACH SIDE)



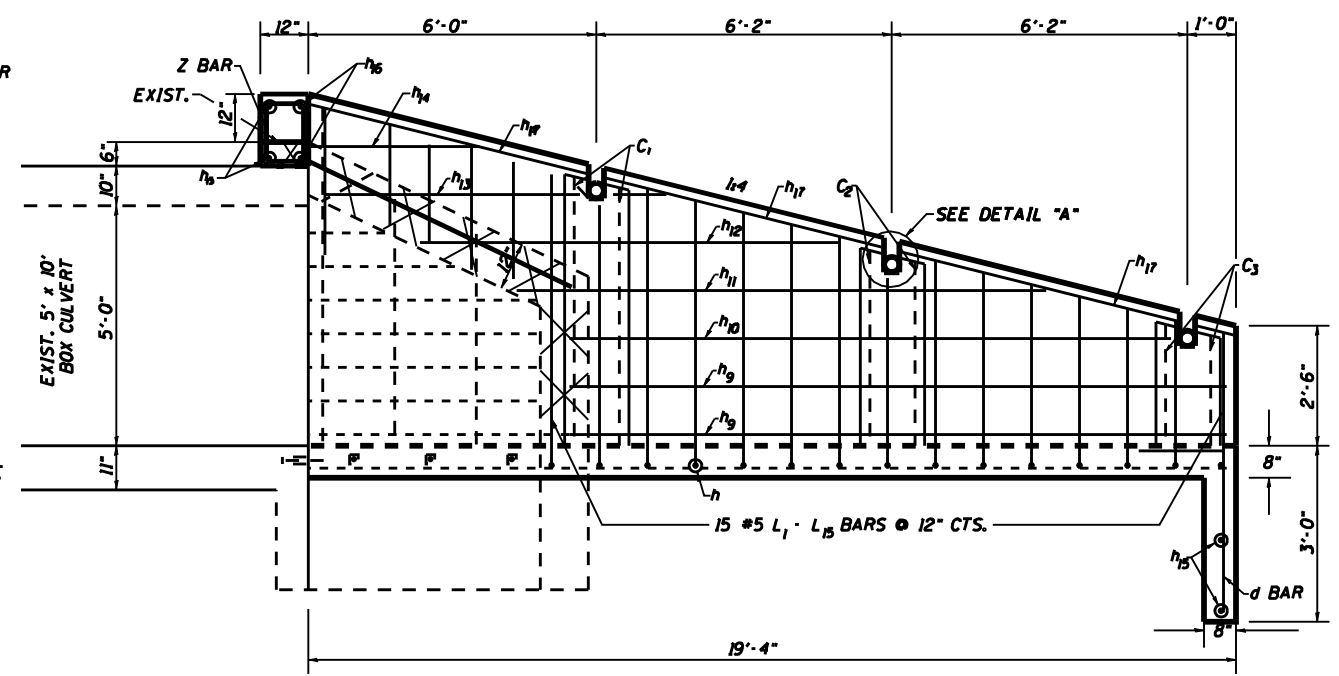
BAR "Z"



BAR "L₁-L₁₅"



BAR "d"



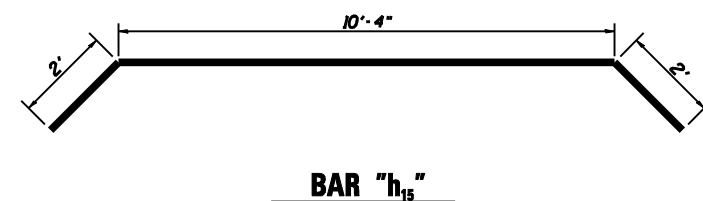
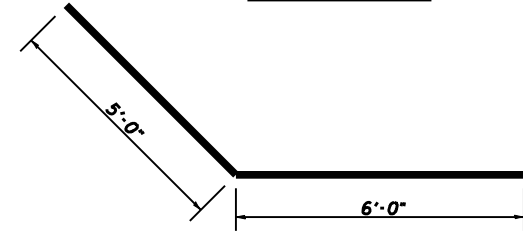
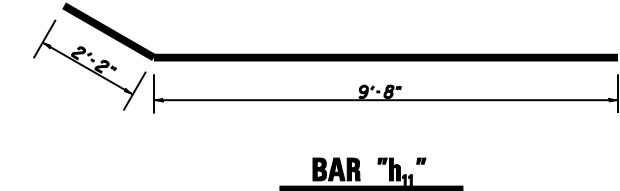
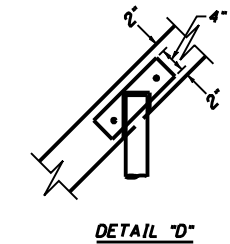
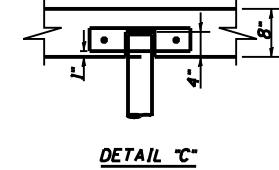
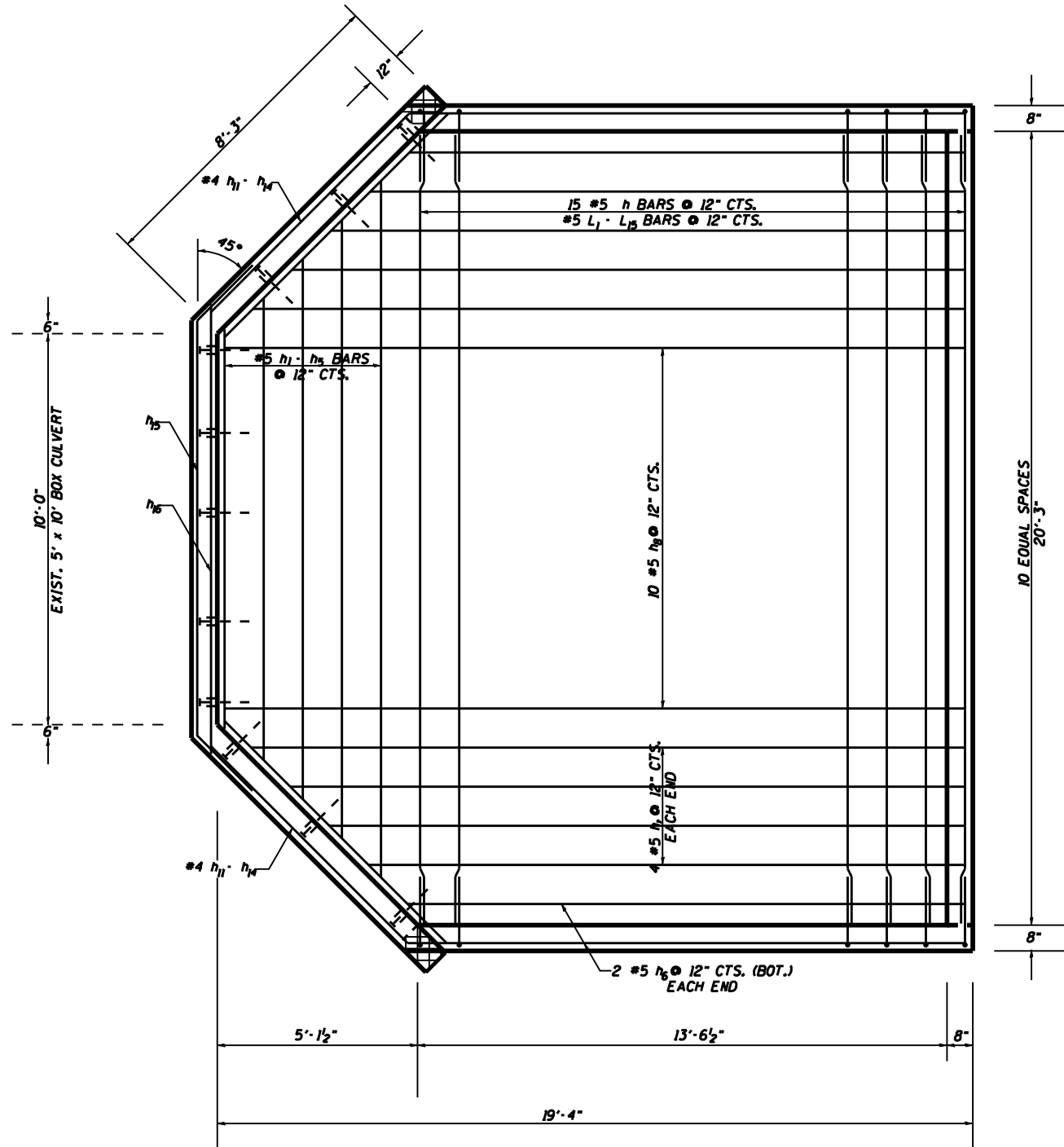
ELEVATION

FILE NAME : District 2 Standard	USER NAME : I001/District 2	DESIGNED -	REVISED - 7-6-06	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD			F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		DRAWN -	REVISED -									
		CHECKED -	REVISED -									
		DATE -	REVISED -									
				SCALE: SHEET NO. OF SHEETS STA. TO STA.			CONTRACT NO.					
							FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT					

GRADED CULVERT EXTENSION NO. 2

BILL OF MATERIALS

BAR	NUMBER	SIZE	LENGTH	QTY.
d	21	#4	4'-8"	65.46
h	15	#5	20'	312.9
h ₁ - h ₅	5	#5	10'-0"-18'-0"	73.01
h ₆	4	#5	14'-4"	59.8
h ₇	8	#5	15'-4"-18'-4"	140.46
h ₈	10	#5	19'	198.17
h ₉	4	#4	14'-4"	38.29
h ₁₀	2	#4	12'-8"	16.93
h ₁₁	2	#4	11'-10"	15.81
h ₁₂	2	#4	11'-0"	14.70
h ₁₃	2	#4	7'-9"	10.35
h ₁₄	2	#4	5'	6.68
h ₁₅	4	#4	14'-4"	38.30
h ₁₆	2	#4	11'-5"	15.25
h ₁₇	6	#5	6'-0"	37.55
L ₁ - L ₁₅	30	#5	2'-10"-6'-4"	205.99
Z	11	#4	4'-0"	29.39
C ₁	4	#4	5'-8"	15.14
C ₂	4	#4	4'-1"	10.91
C ₃	4	#4	2'-7"	6.90
TOTAL REINFORCEMENT BARS			LB	1311.99
CL SI CONC.			CU YD	15.68
3/2" GALV. STEEL PIPE			EACH	3 @ 21'-9" 2 @ 17'-3" 2 @ 19'-4" 5 @ 19'-9"
1/2" x 4" x 14" GALV. ANCHOR PLATE			EACH	15
3/8" x 9" GALV. BOLTS			EACH	27
1/2" Ø GALV. EXP. BOLTS			EACH	30
9" SO. OR ROUND 1/4" GALV. PLATE			EACH	6
GALV. STEEL PIPE CAPS			EACH	15
EXPANSION BOLTS 3/4" Ø			EACH	11

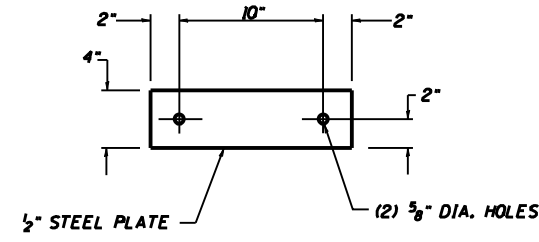
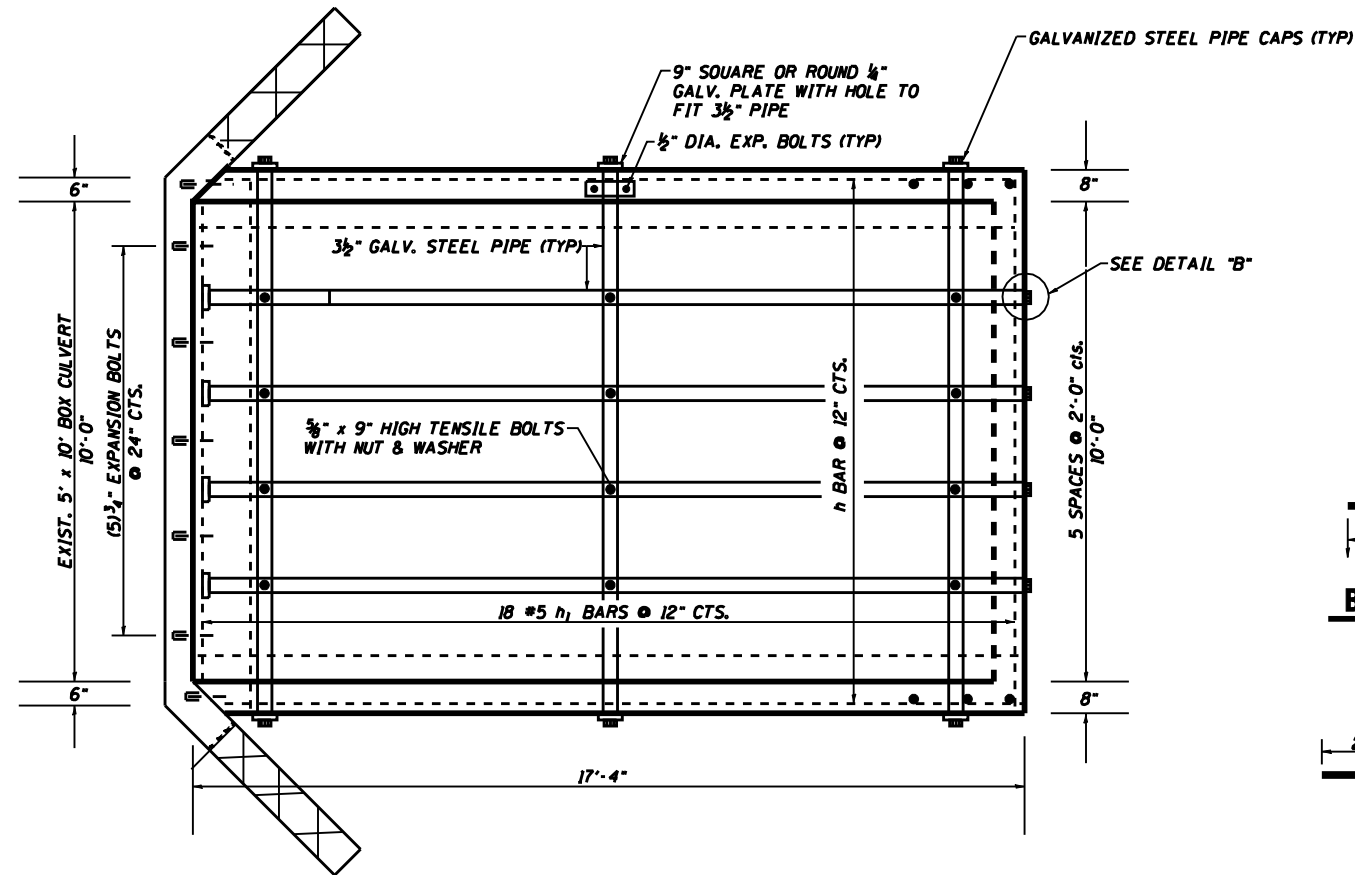


GENERAL NOTES:
 STEEL PIPES SHALL CONFORM TO A.S.T.M. A-53 (TYPE E OR S) GRADE B, SCHEDULE 40, & SHALL BE GALVANIZED CONFORMING TO A.S.T.M. A-120.
 STEEL PLATES SHALL CONFORM TO AASHTO M-183 & SHALL BE GALVANIZED CONFORMING TO AASHTO M-111.
 BOLTS, NUTS, & WASHERS SHALL BE IN ACCORDANCE WITH ARTICLE 1006.08 OF THE STANDARD SPECIFICATIONS AND SHALL BE GALVANIZED.
 THE CONTRACT UNIT PRICE "EACH" FOR GRADED CULVERT EXTENSION NO. 2 SHALL INCLUDE THE EXPANSION BOLTS, CONCRETE REMOVAL, GALVANIZED PIPES, CL SI CONCRETE, BOLTS, NUTS, REINFORCEMENT, WASHERS, STEEL PLATES, EARTH EXCAVATION AND NECESSARY GRADING.

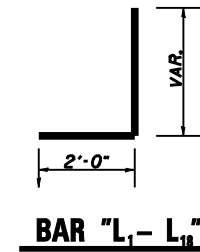
FILE NAME : District 2 Standard	USER NAME : I007/District 2	DESIGNED - DRAWN -	REVISED - 7-6-06 REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD			F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
PLOT SCALE : 2.0000' / IN.	CHECKED -	REVISED -	CONTRACT NO.									
PLOT DATE : September 06 2007	DATE -	REVISED -	SCALE:					SHEET NO.	OF SHEETS	STA.	TO STA.	FED. ROAD DIST. NO.

GRADED CULVERT EXTENSION NO. 2

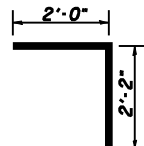
GRADED CULVERT EXTENSION NO. 1



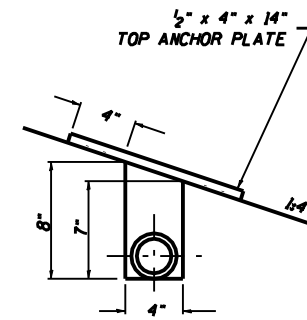
TOP ANCHOR PLATE



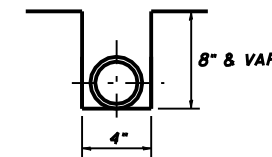
BAR "L₁-L₁₁"



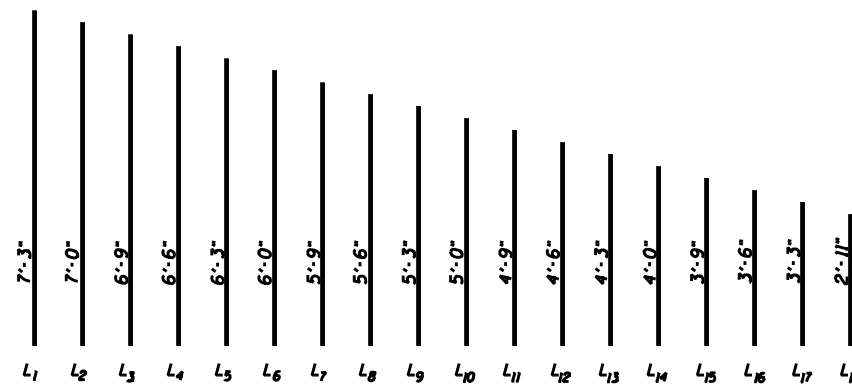
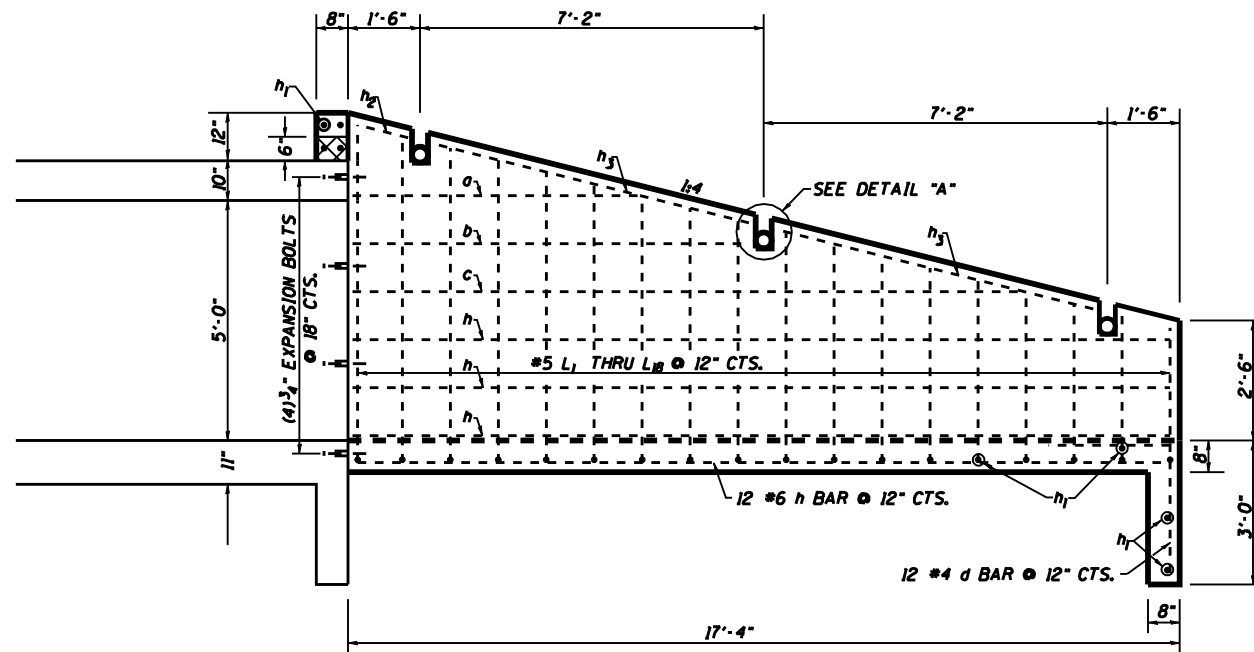
BAR "d"



DETAIL "A"



DETAIL "B"



BILL OF MATERIALS

BAR	NUMBER	SIZE	LENGTH	QTY.
a	2	#4	6'-3"	8.35
b	2	#4	8'-3"	11.02
c	2	#4	14'-3"	19.04
d	12	#4	4'-9"	38.1
h ₁	18	#6	17'-1"	461.87
h ₂	2	#4	1'-8"	2.23
h ₃	4	#4	6'-8"	17.82
L ₁ - L ₁₈	36	#5	2'-11"-7'-3"	302.02
REINFORCEMENT BARS			LB	1149.45
CL SI CONC. MISC.			CU YD	9.83
3/2" GALV. STEEL PIPE			EACH	4 @ 17'-7"
1/2" x 4" x 14" GALV. ANCHOR PLATE			EACH	3 @ 11'-6"
3/8" x 9" GALV. BOLTS			EACH	12
GALV. STEEL PIPE CAPS			EACH	14
1/2" Ø GALV. EXP. BOLTS			EACH	12
9" SO. OR ROUND 1/4" GALV. PLATE			EACH	6
EXP. BOLTS 3/4" Ø			EACH	13

GENERAL NOTES:

STEEL PIPES SHALL CONFORM TO A.S.T.M. A-53 (TYPE E OR S) GRADE B, SCHEDULE 40, & SHALL BE GALVANIZED CONFORMING TO A.S.T.M. A-120.

STEEL PLATES SHALL CONFORM TO AASHTO M-183 & SHALL BE GALVANIZED CONFORMING TO AASHTO M-111.

BOLTS, NUTS, & WASHERS SHALL BE IN ACCORDANCE WITH ARTICLE 1006.08 OF THE STANDARD SPECIFICATIONS AND SHALL BE GALVANIZED.

THE CONTRACT UNIT PRICE "EACH" FOR GRADED CULVERT EXTENSION NO. 1 SHALL INCLUDE THE EXPANSION BOLTS, GALVANIZED PIPES, CL SI CONCRETE, BOLTS, NUTS, REINFORCEMENT, WASHERS, STEEL PLATES, EARTH EXCAVATION AND NECESSARY GRADING.

FILE NAME : District 2 Standard	USER NAME : 1001/District 2	DESIGNED -	REVISED - 6-27-06
	PLOT SCALE : 2,0000' / IN.	DRAWN -	REVISED -
	PLOT DATE : September 06 2007	CHECKED -	REVISED -
		DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

REGION 2 / DISTRICT 2 STANDARD

SCALE: SHEET NO. OF SHEETS STA. TO STA.

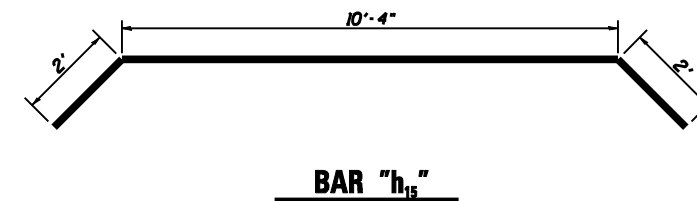
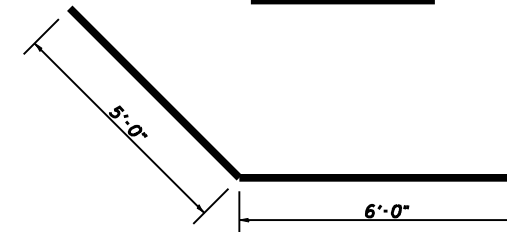
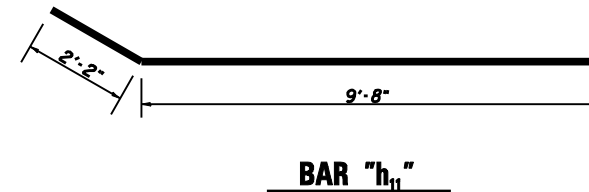
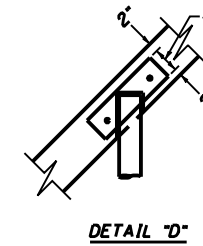
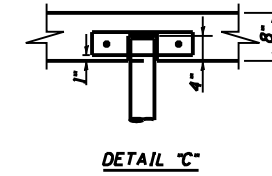
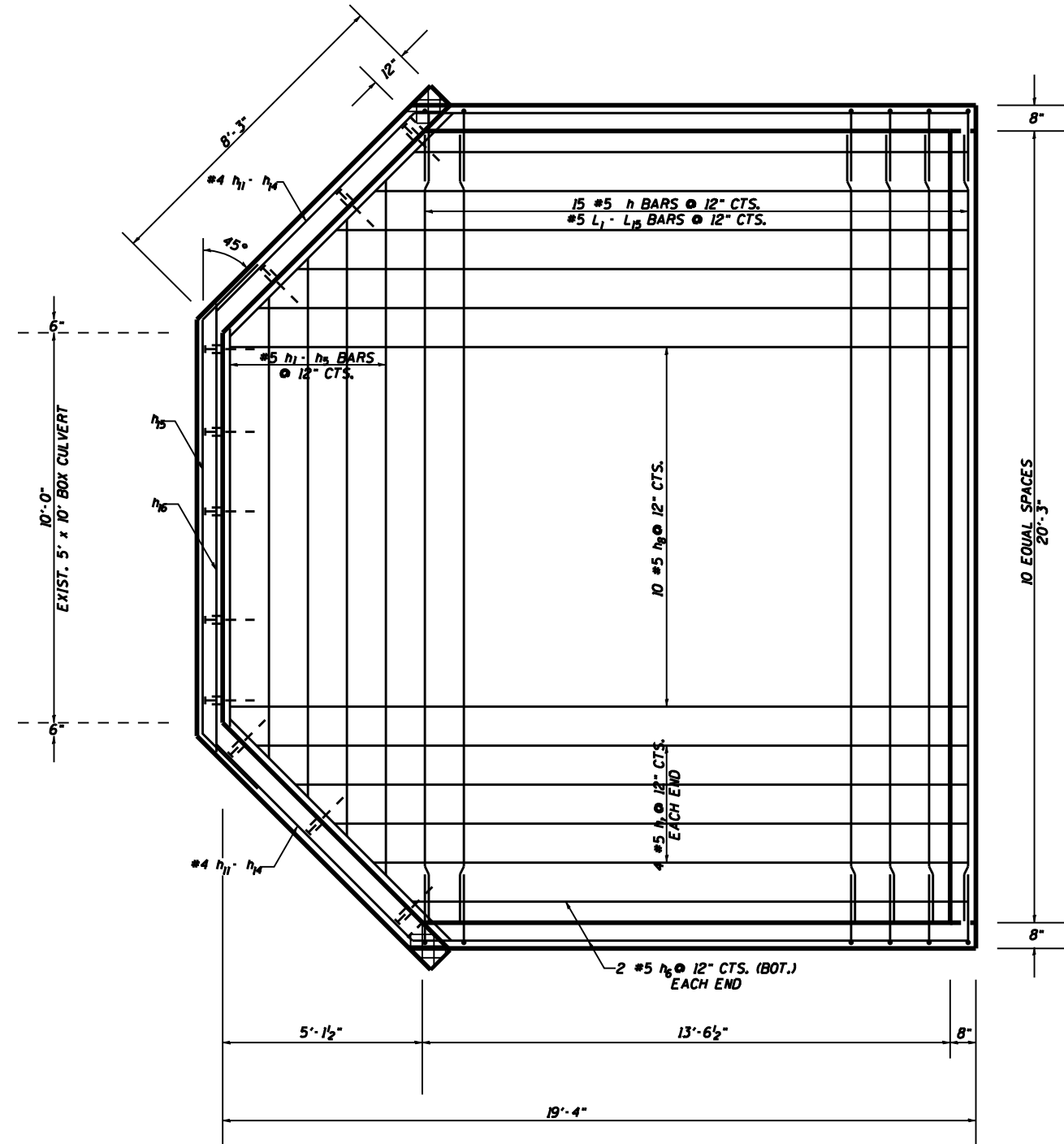
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CONTRACT NO.				
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

GRADED CULVERT EXTENSION NO. 1

GRADED CULVERT EXTENSION NO. 2

BILL OF MATERIALS

BAR	NUMBER	SIZE	LENGTH	QTY.
d	21	#4	4'-8"	65.46
h	15	#5	20'	312.9
h ₁ - h ₅	5	#5	10'-0"-18'-0"	73.01
h ₆	4	#5	14'-4"	59.8
h ₇	8	#5	15'-4"-18'-4"	140.46
h ₈	10	#5	19'	198.17
h ₉	4	#4	14'-4"	38.29
h ₁₀	2	#4	12'-8"	16.93
h ₁₁	2	#4	11'-10"	15.81
h ₁₂	2	#4	11'-0"	14.70
h ₁₃	2	#4	7'-9"	10.35
h ₁₄	2	#4	5'	6.68
h ₁₅	4	#4	14'-4"	38.30
h ₁₆	2	#4	11'-5"	15.25
h ₁₇	6	#5	6'-0"	37.55
L ₁ - L ₁₅	30	#5	2'-10"-6'-4"	205.99
Z	11	#4	4'-0"	29.39
C ₁	4	#4	5'-8"	15.14
C ₂	4	#4	4'-1"	10.91
C ₃	4	#4	2'-7"	6.90
TOTAL REINFORCEMENT BARS			LB	1311.99
CL SI CONC.			CU YD	15.68
3 1/2" GALV. STEEL PIPE			EACH	3 @ 21'-9" 2 @ 17'-3" 2 @ 19'-4" 5 @ 19'-9"
1/2" x 4" x 14" GALV. ANCHOR PLATE			EACH	15
3/8" x 9" GALV. BOLTS			EACH	27
1/2" Ø GALV. EXP. BOLTS			EACH	30
9" SO. OR ROUND 1/4" GALV. PLATE			EACH	6
GALV. STEEL PIPE CAPS			EACH	15
EXPANSION BOLTS 3/4" Ø			EACH	11



GENERAL NOTES:

STEEL PIPES SHALL CONFORM TO A.S.T.M. A-53 (TYPE E OR S) GRADE B, SCHEDULE 40, & SHALL BE GALVANIZED CONFORMING TO A.S.T.M. A-120.

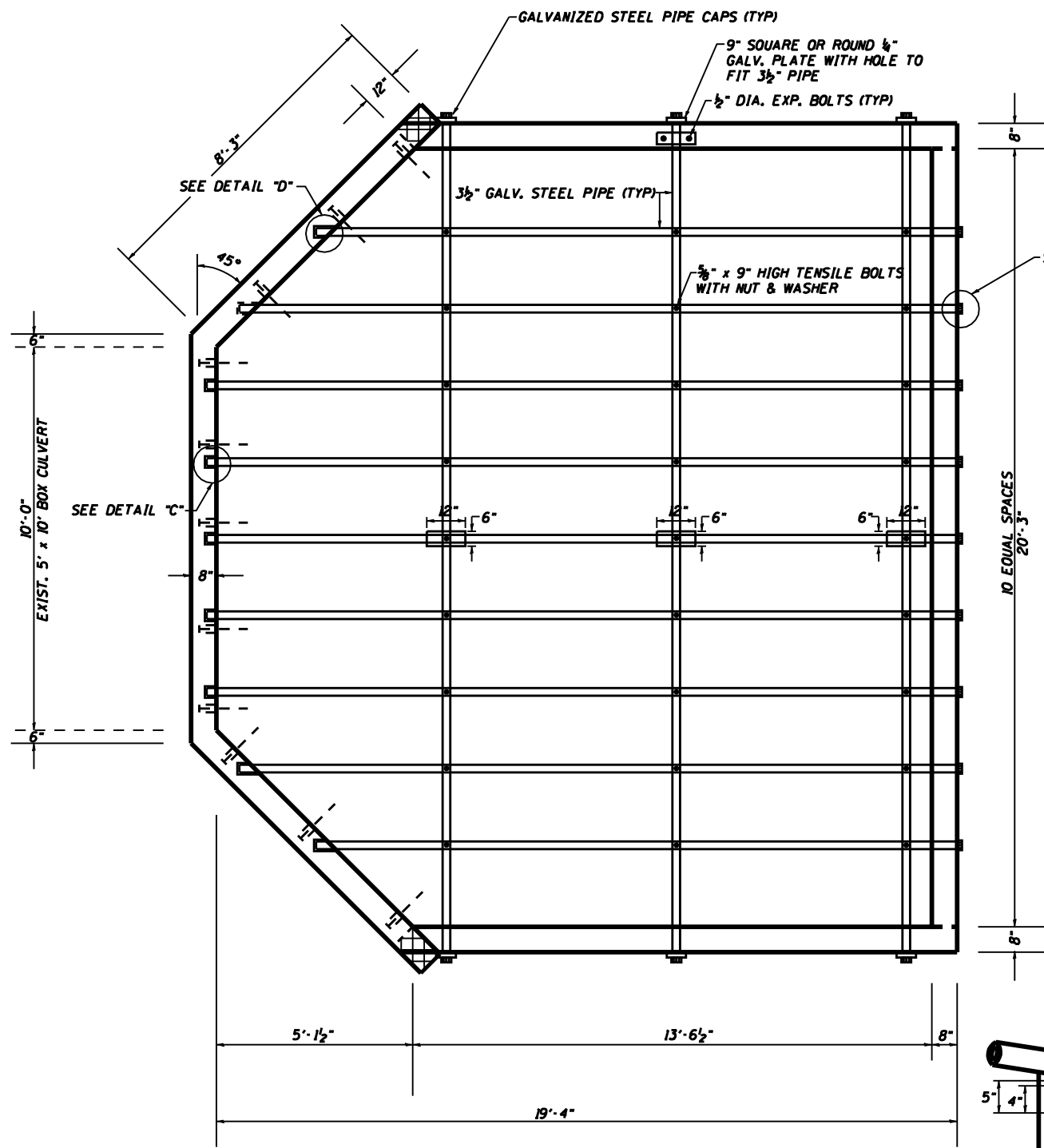
STEEL PLATES SHALL CONFORM TO AASHTO M-183 & SHALL BE GALVANIZED CONFORMING TO AASHTO M-111.

BOLTS, NUTS, & WASHERS SHALL BE IN ACCORDANCE WITH ARTICLE 1006.08 OF THE STANDARD SPECIFICATIONS AND SHALL BE GALVANIZED.

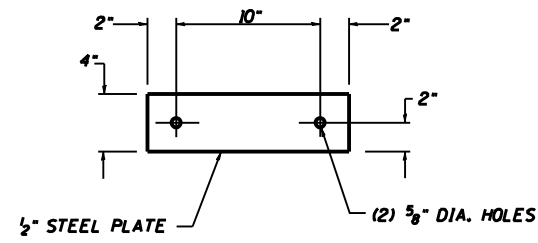
THE CONTRACT UNIT PRICE "EACH" FOR GRADED CULVERT EXTENSION NO. 2 SHALL INCLUDE THE EXPANSION BOLTS, CONCRETE REMOVAL, GALVANIZED PIPES, CL SI CONCRETE, BOLTS, NUTS, REINFORCEMENT, WASHERS, STEEL PLATES, EARTH EXCAVATION AND NECESSARY GRADING.

FILE NAME : District 2 Standard	USER NAME : I007/District 2	DESIGNED - DRAWN -	REVISED - 6-27-06 REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD			F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.			
	PLOT SCALE : 2,000' / IN.	CHECKED -	REVISED -					SCALE:	SHEET NO. OF SHEETS	STA.	TO STA.	CONTRACT NO.			
	PLOT DATE : September 06 2007	DATE -	REVISED -					FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT							

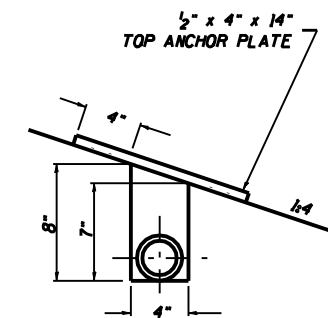
GRATED CULVERT EXTENSION NO. 2



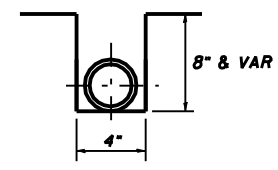
PLAN



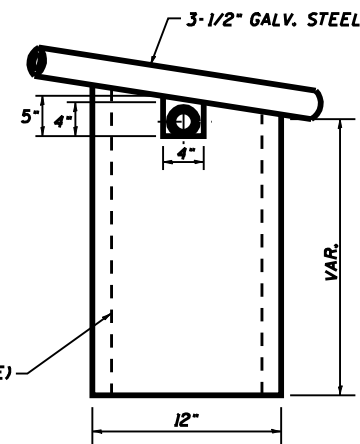
TOP ANCHOR PLATE



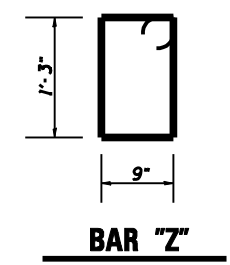
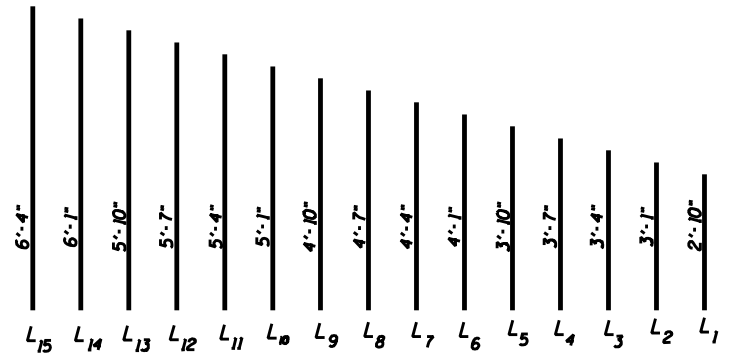
DETAIL "A"



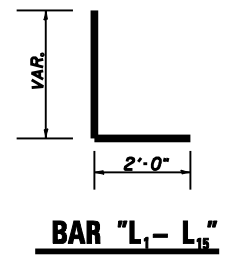
DETAIL "B"



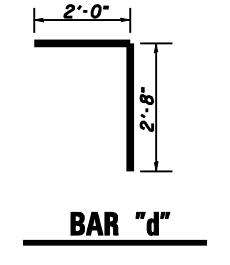
3-1/2" GALV. STEEL PIPE



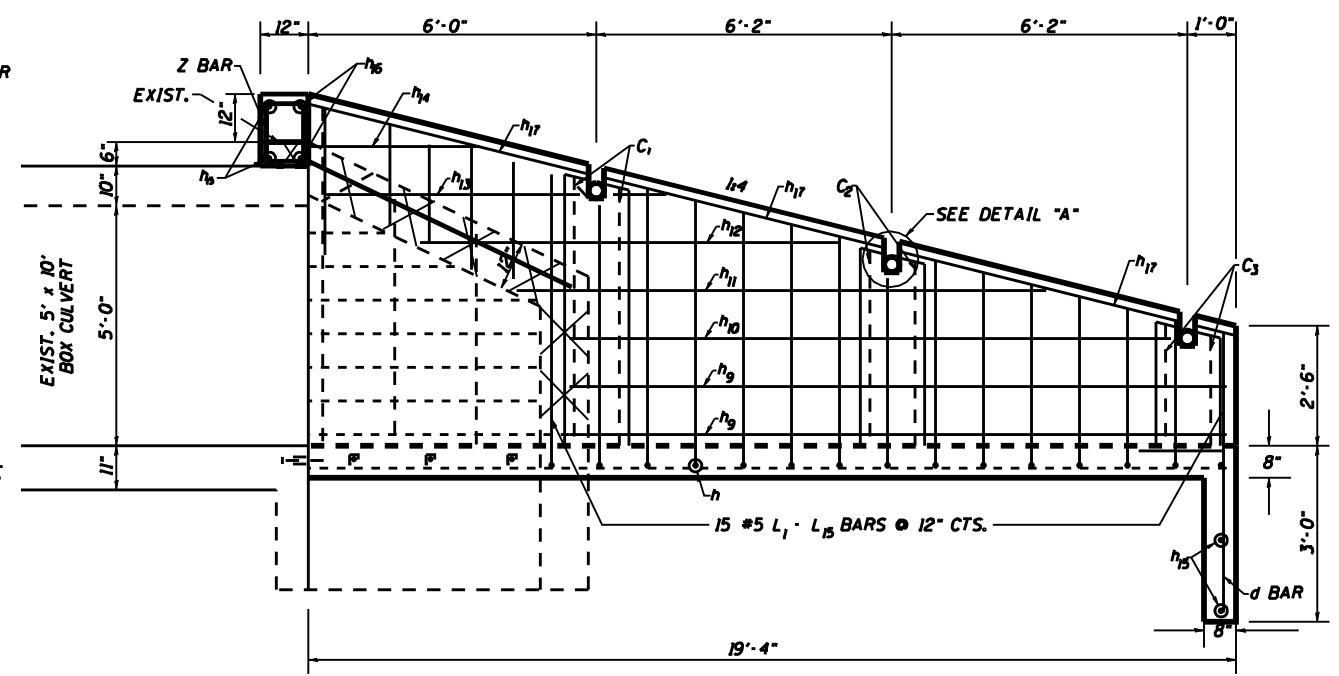
BAR "Z"



BAR "L₁-L₁₅"



BAR "d"



ELEVATION

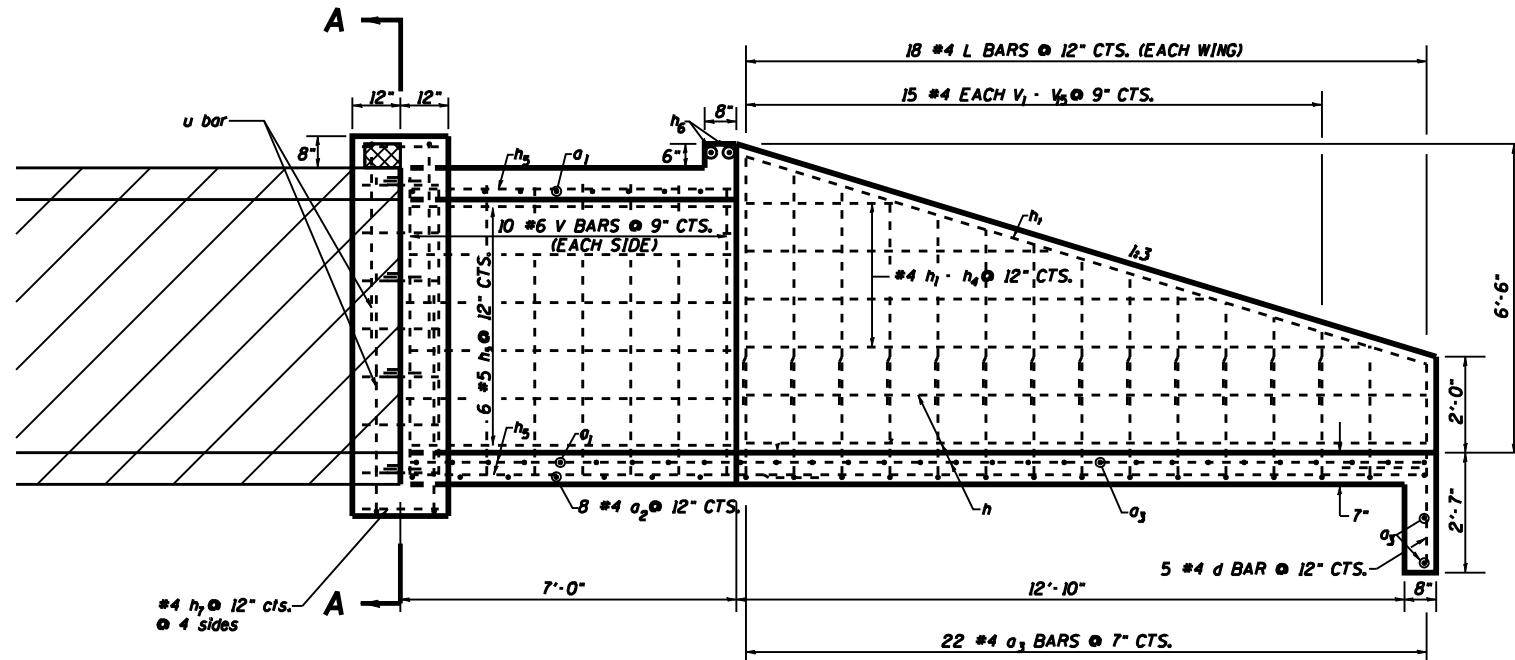
2 #4 C_{1,3} BARS @ 3' CTS. (EACH SIDE)

FILE NAME : District 2 Standard	USER NAME : 1001/District 2	DESIGNED - DRAWN -	REVISED - 6-27-06 REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD			F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
	PLOT SCALE : 2,0000' / IN.	CHECKED -	REVISED -		SCALE:	SHEET NO.	OF SHEETS	STA.	TO STA.	CONTRACT NO.			
	PLOT DATE : September 06 2007	DATE -	REVISED -							FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT		
GRATED CULVERT EXTENSION NO. 2													

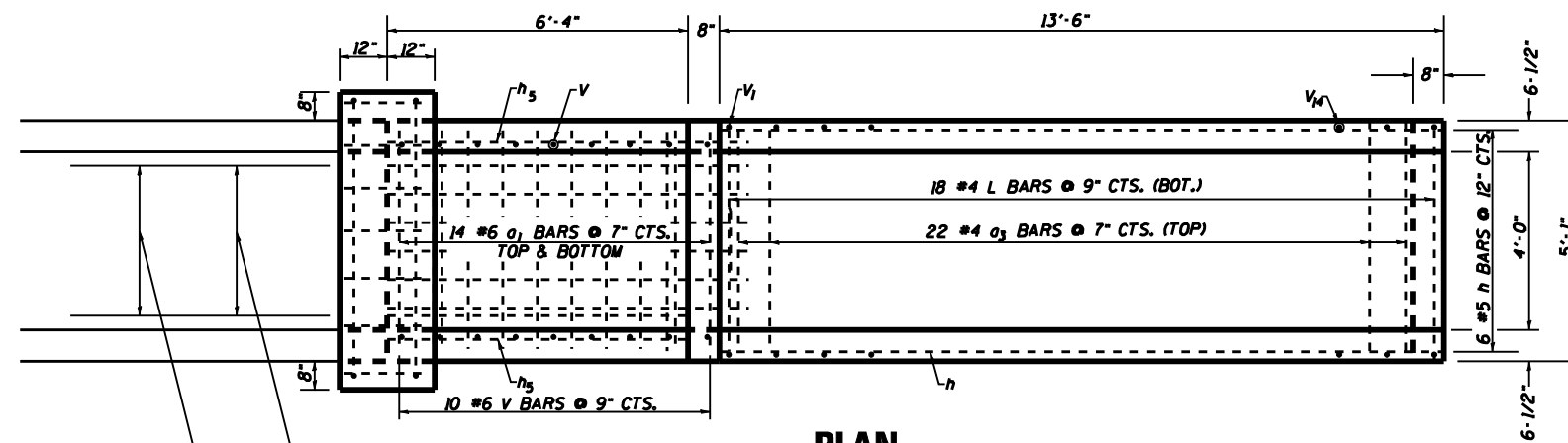
BOX CULVERT EXTENSION

BILL OF MATERIALS

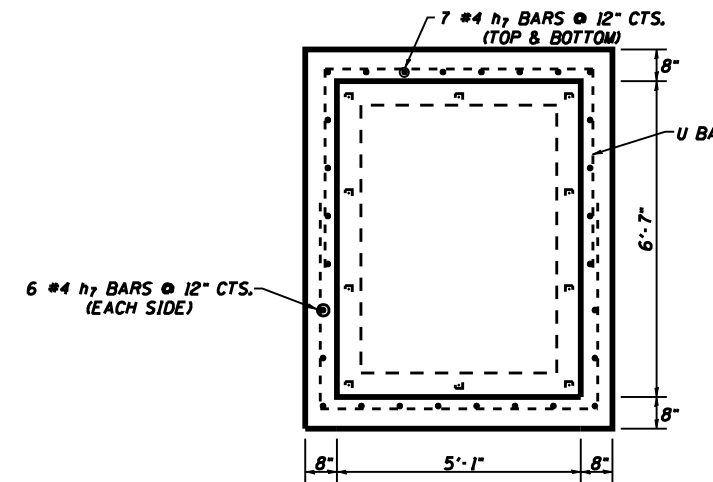
BAR	NUMBER	SIZE	LENGTH	QTY.
a ₁	28	#6	6'-0"	252.34
a ₂	8	#4	4'-6"	24.05
a ₃	24	#4	4'-6"	72.14
d	5	#4	4'-2"	13.92
h	9	#5	13'-2"	123.60
h ₁ - h ₄	8	#4	3'-0"-12'-0"	40.08
h ₅	27	#5	7'-6"	211.21
h ₆	2	#6	4'-9"	14.27
h ₇	26	#4	1'-6"	26.05
v	20	#6	6'-3"	187.75
v ₁ - v ₅	30	#4	2'-1"-5'-7"	38.41
L	36	#4	5'-5"	130.26
u	4	#4	15'-0"	40.08
TOTAL REINFORCEMENT			LB	1174.16
CL SI CONC. MISC.			CU YD	9.15
EXP. BOLTS 3/4"			EACH	14



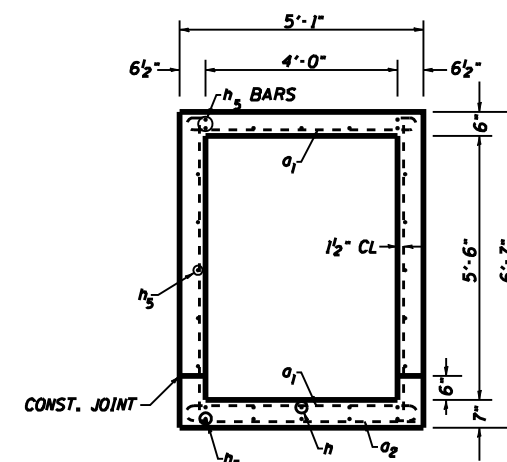
ELEVATION



PLAN



SECTION A-A (COLLAR)



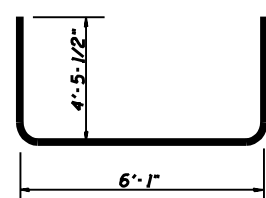
SECTION THRU BARREL

GENERAL NOTES:

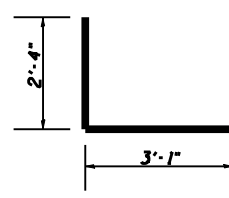
CLASS SI CONCRETE SHALL BE USED IN ACCORDANCE WITH SECTION 503 OF THE STANDARD SPECIFICATIONS.

REINFORCEMENT BARS SHALL CONFORM TO SECTION 508 OF THE STANDARD SPECIFICATIONS.

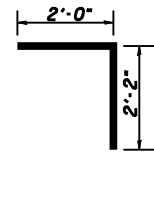
THE CONCRETE WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR CLASS SI CONCRETE MISC. REINFORCEMENT WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER POUND FOR REINFORCEMENT BARS. EXPANSION BOLTS WILL BE PAID FOR AT THE CONTRACT UNIT PRICE EACH FOR EXPANSION BOLTS OF THE SIZE INDICATED, WHICH PRICE SHALL INCLUDE FURNISHING, DRILLING HOLES, AND INSTALLING THE EXPANSION BOLTS COMPLETE IN PLACE. THESE BOLTS SHALL EXTEND AT LEAST 8 INCHES INTO THE NEW CONCRETE.



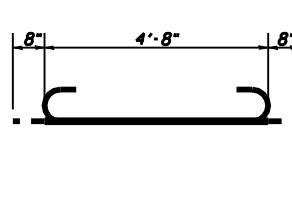
BAR u



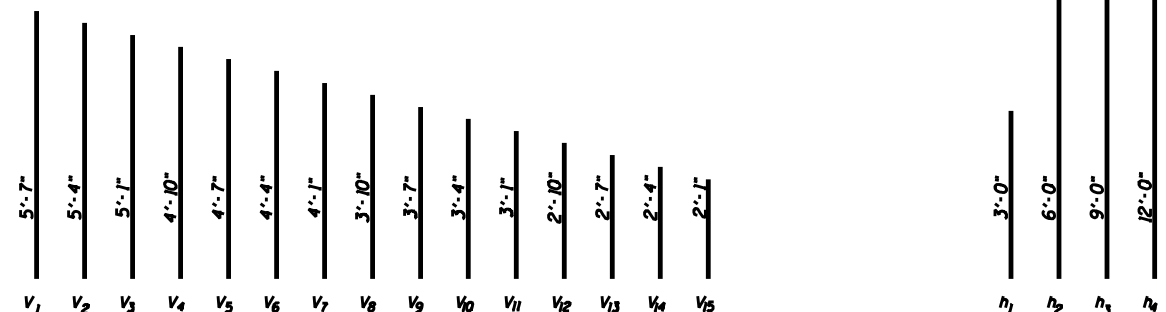
BAR "L"



BAR "d"



BAR "a1"



FILE NAME : District 2 Standard	USER NAME : 1007/District 2	DESIGNED -	REVISED - 6-27-06
		DRAWN -	REVISED -
	PLOT SCALE : 2,0000' / IN.	CHECKED -	REVISED -
	PLOT DATE : September 06 2007	DATE -	REVISED -

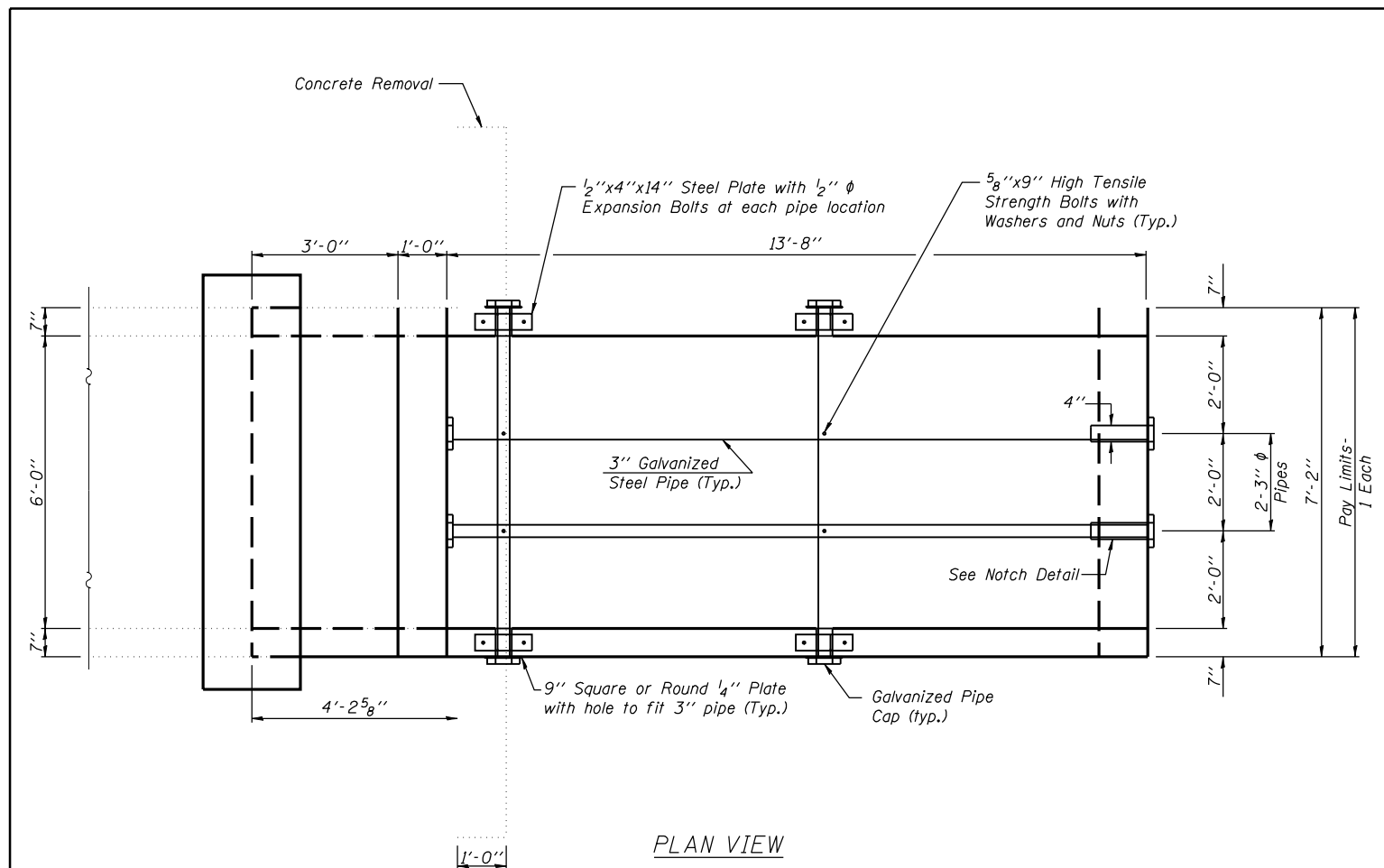
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

REGION 2 / DISTRICT 2 STANDARD

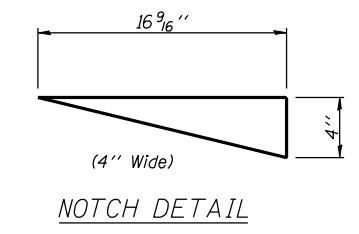
SCALE: SHEET NO. OF SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CONTRACT NO.				
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

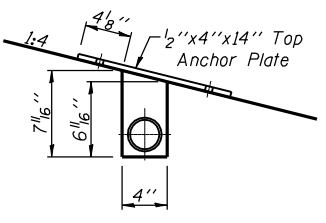
BOX CULVERT EXTENSION



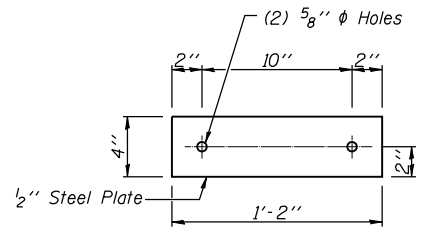
PLAN VIEW



NOTCH DETAIL



DETAIL "A"



TOP ANCHOR PLATE

BILL OF MATERIAL

DESCRIPTION	UNIT	QTY.
Box Culvert End Section, Culvert No. 2	Each	1
Precast Concrete Box Culvert 6x2	Foot	3
Concrete Removal	Cu. Yd.	3.2

GENERAL NOTES:

Bolts, Nuts, and Washers shall be in accordance with Article 710.11 of the standard specification and shall be galvanized.

The contract unit price "Each" for Box Culvert End Section, Culvert No. 2 shall include the Galvanized Pipe, Bolts, Nuts, Washers, and Steel Plates, and all applicable work according to Section 540 of the Standard Specifications.

Steel Pipes shall conform to A.S.T.M. A-53 (Type E or S) Grade B, Schedule 40, and shall be galvanized conforming to A.S.T.M. A-120. Contractor shall field verify pipe length.

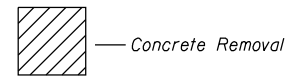
Steel Plates shall conform to AASHTO M-183 and shall be galvanized conforming to AASHTO M-111.

See Plan and Profile Sheet 27 of 137 for more information.

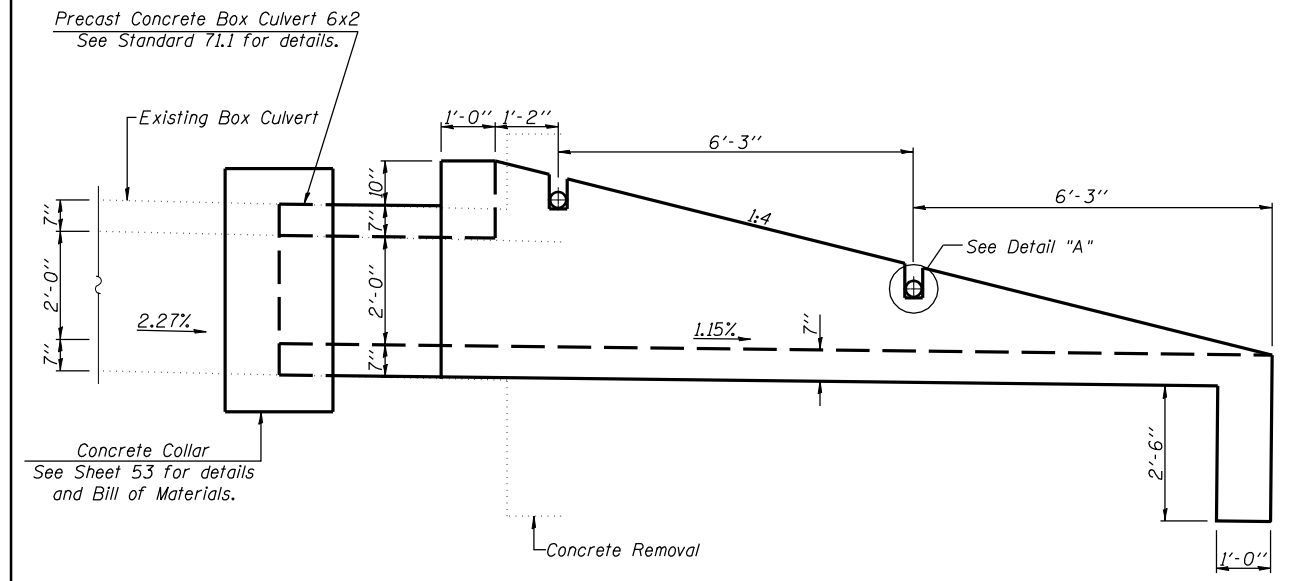
The Contractor shall submit four copies of the required shop drawings for review and approval to the Bureau of Bridges and Structures, 2300 South Dirksen Parkway, Springfield, IL. 62764. After approval of initial submittal, the contractor shall submit one set of shop drawings to the Engineer of Materials, 126 East Ash Street, Springfield, IL. 62706, and eight (8) sets of shop drawings, to be distributed to:

- District 2 District Engineer (1)
- Fabricator (1)
- Contractor (1)
- Resident Engineer (2)
- District Bureau of Materials (2)

LEGEND:



Concrete Removal



PROFILE VIEW

FILE NAME =	USER NAME = meglilj	DESIGNED - ---	REVISED - 1Q-24-07
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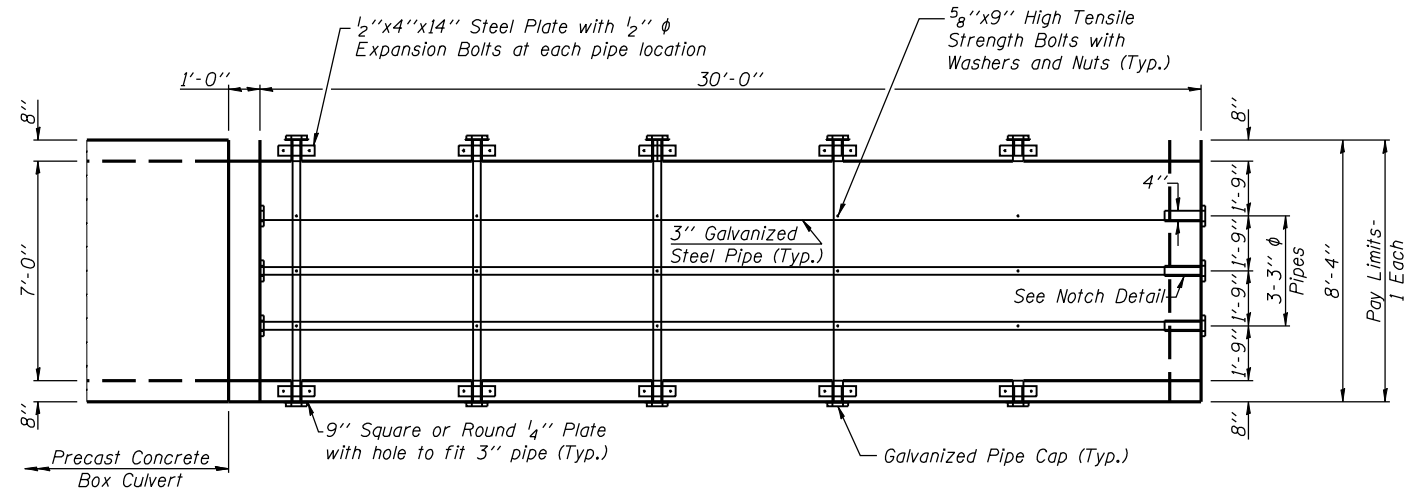
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

REGION 2 / DISTRICT 2 STANDARD

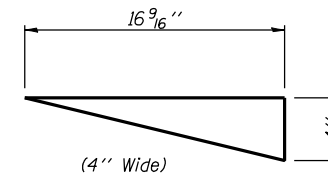
SCALE: _____ SHEET NO. ____ OF ____ SHEETS STA. _____ TO STA. _____

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FED. ROAD DIST. NO. _ ILLINOIS FED. AID PROJECT			CONTRACT NO. _____	

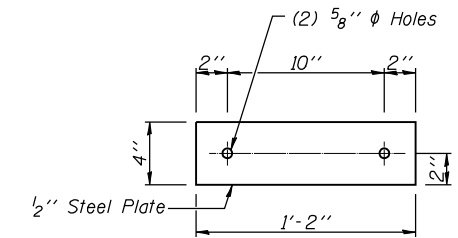
GRATED CULVERT EXTENSION FOR 6'X2' BOX CULVERT



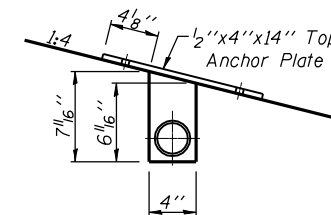
PLAN VIEW



NOTCH DETAIL



TOP ANCHOR PLATE



DETAIL "A"

BILL OF MATERIAL

DESCRIPTION	UNIT	QTY.
Box Culvert End Section, Culvert No. 5	Each	4
Name Plate	Each	1

GENERAL NOTES:

Slope flow line of the extension at the same rate as the flow line of the box.

Bolts, Nuts, and Washers shall be in accordance with Article 710.11 of the standard specification and shall be galvanized.

The contract unit price "Each" for Box Culvert End Section, Culvert No. 5 shall include the Galvanized Pipe, Bolts, Nuts, Washers, and Steel Plates, and all applicable work according to Section 540 of the Standard Specifications.

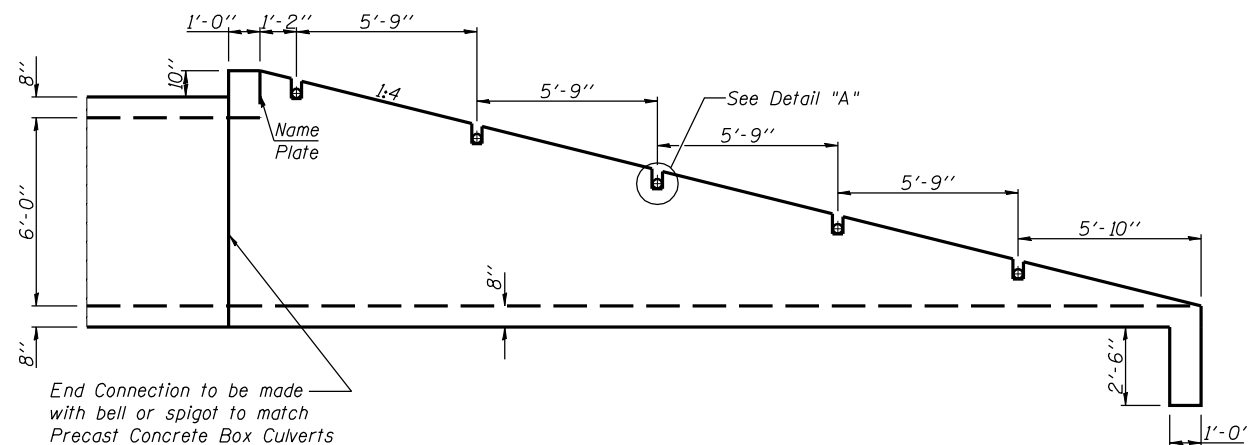
Steel Pipes shall conform to A.S.T.M. A-53 (Type E or S) Grade B, Schedule 40, and shall be galvanized conforming to A.S.T.M. A-120. Contractor shall field verify pipe length.

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

See Plan and Profile Sheet 29 of 137 for more information.

The Contractor shall submit four copies of the required shop drawings for review and approval to the Bureau of Bridges and Structures, 2300 South Dirksen Parkway, Springfield, IL. 62764. After approval of initial submittal, the contractor shall submit one set of shop drawings to the Engineer of Materials, 126 East Ash Street, Springfield, IL. 62706, and eight (8) sets of shop drawings, to be distributed to:

- District 2 District Engineer (1)
- Fabricator (1)
- Contractor (1)
- Resident Engineer (2)
- District Bureau of Materials (2)



PROFILE VIEW

STATION 10263+22.87
 BUILT 2007 BY
 STATE OF ILLINOIS
 F.A.P. RT. 505 SEC 110RS-1, 111RS-3
 LOADING HS20
 STR. NO. 089-1102

NAME PLATE

See Std. 515001
 Located on the SE Headwall.

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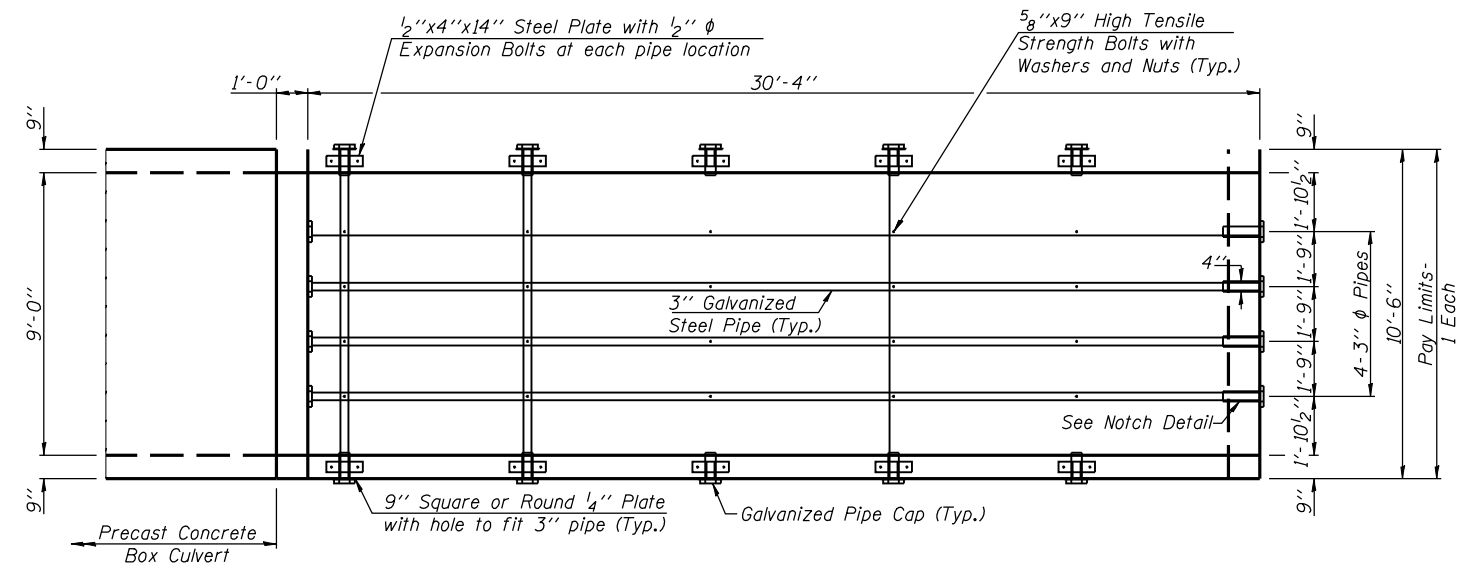
STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

REGION 2 / DISTRICT 2 STANDARD

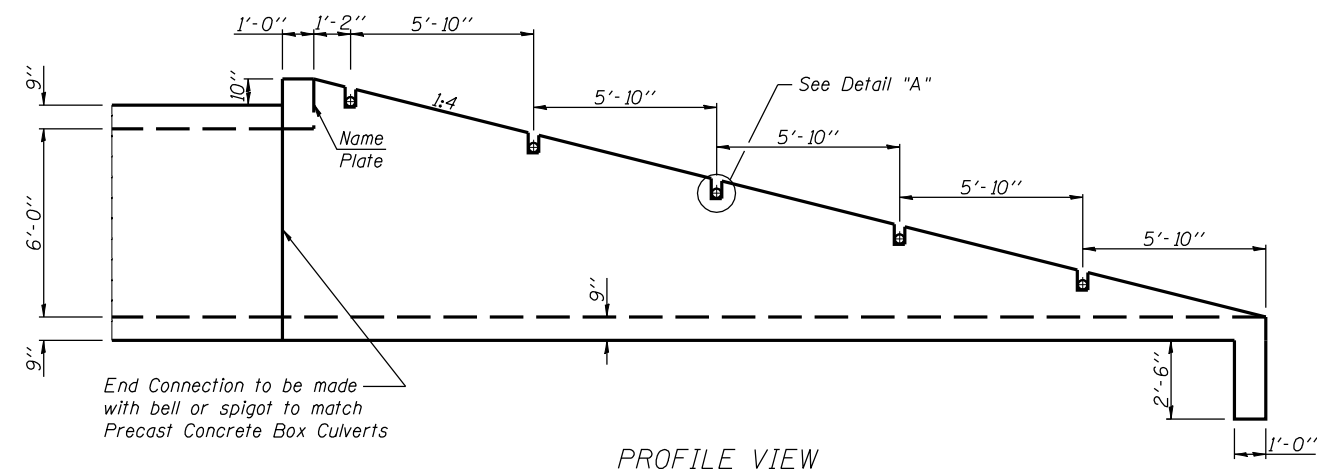
SCALE: _____ SHEET NO. ___ OF ___ SHEETS STA. _____ TO STA. _____

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CONTRACT NO. _____				
FED. ROAD DIST. NO. _____ ILLINOIS FED. AID PROJECT				

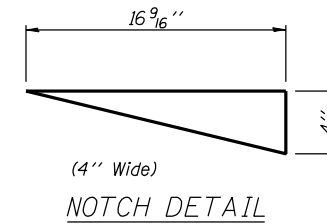
GRADED END SECTION FOR 7'X6'



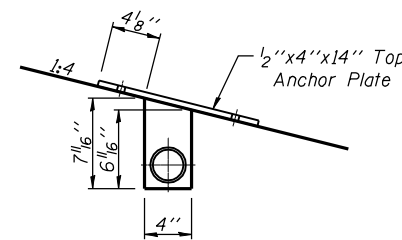
PLAN VIEW



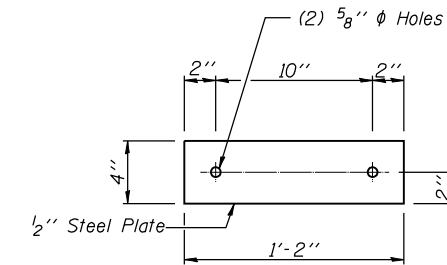
PROFILE VIEW



NOTCH DETAIL



DETAIL "A"



TOP ANCHOR PLATE

BILL OF MATERIAL

DESCRIPTION	UNIT	QTY.
Box Culvert End Section, Culvert No. 7	Each	6
Box Culvert End Section, Culvert No. 8	Each	6
Name Plate	Each	2

GENERAL NOTES:

Slope flow line of the extension at the same rate as the flow line of the box.

Bolts, Nuts, and Washers shall be in accordance with Article 710.11 of the standard specification and shall be galvanized.

The contract unit price "Each" for Box Culvert End Section, Culvert No. 7 & 8 shall include the Galvanized Pipe, Bolts, Nuts, Washers, and Steel Plates, and all applicable work according to Section 540 of the Standard Specifications.

Steel Pipes shall conform to A.S.T.M. A-53 (Type E or S) Grade B, Schedule 40, and shall be galvanized conforming to A.S.T.M. A-120. Contractor shall field verify pipe length.

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

See Plan and Profile Sheet 34 & 36 of 137 for more information.

The Contractor shall submit four copies of the required shop drawings for review and approval to the Bureau of Bridges and Structures, 2300 South Dirksen Parkway, Springfield, IL. 62764. After approval of initial submittal, the contractor shall submit one set of shop drawings to the Engineer of Materials, 126 East Ash Street, Springfield, IL. 62706, and eight (8) sets of shop drawings, to be distributed to:

- District 2 District Engineer (1)
- Fabricator (1)
- Contractor (1)
- Resident Engineer (2)
- District Bureau of Materials (2)

STATION 10332+15.63
BUILT 2007 BY
STATE OF ILLINOIS
F.A.P. RT. 505 SEC 110RS-1, 111RS-3
LOADING HS20
STR. NO. 089-2020

NAME PLATE
See Std. 515001
Located on the SE Headwall.

STATION 10357+11.85
BUILT 2007 BY
STATE OF ILLINOIS
F.A.P. RT. 505 SEC 110RS-1, 111RS-3
LOADING HS20
STR. NO. 089-2019

NAME PLATE
See Std. 515001
Located on the SE Headwall.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

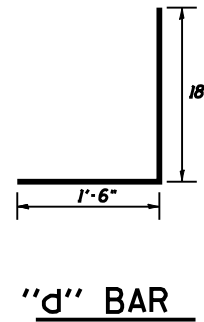
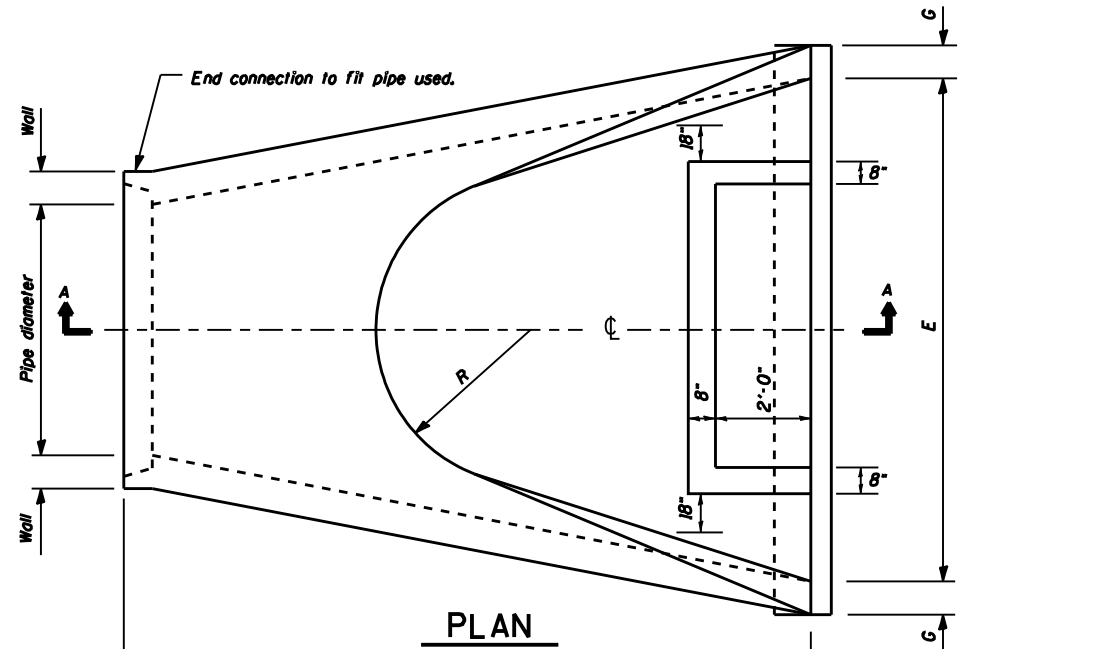
REGION 2 / DISTRICT 2 STANDARD

SCALE: _____ SHEET NO. ___ OF ___ SHEETS STA. _____ TO STA. _____

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CONTRACT NO. _____				
FED. ROAD DIST. NO. _____ ILLINOIS FED. AID PROJECT				

GRATED CULVERT EXTENSION FOR 9'X6' BOX CULVERT

PRECAST REINFORCED CONCRETE FLARED END SECTION



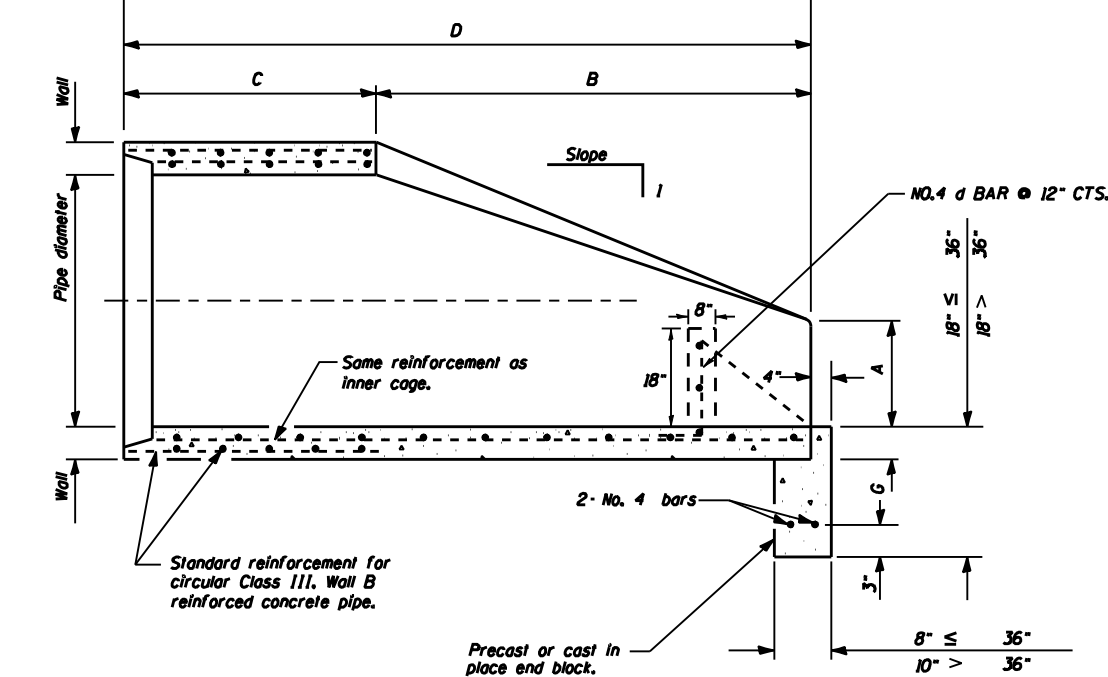
PIPE DIA.	APPROX. QTY. kg (lbs)	WALL	A	B	C	D	E	G	R	APPROX. SLOPE
(78)	(14770)	(7½)	(36)	(7'-6")	(21)	(9'-3")	(9'-6")	(6½)	*	h:lB

* Radius as furnished by manufacturer

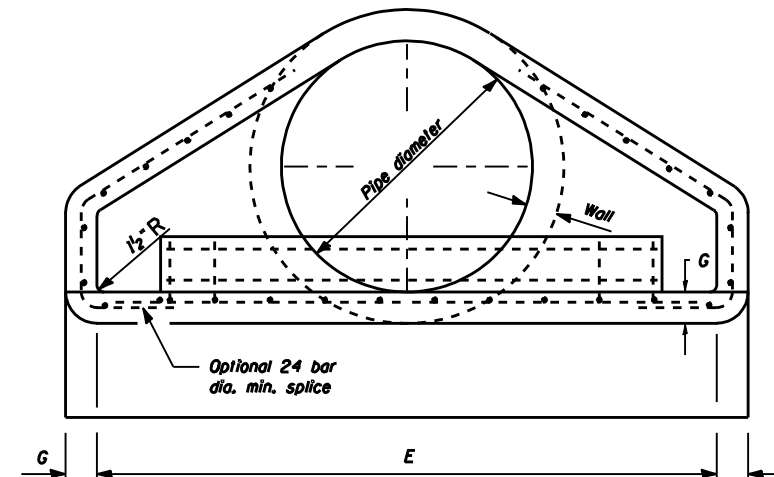
THIS WORK SHALL BE DONE IN ACCORDANCE WITH SECTION 542 OF THE STANDARD SPECIFICATION AND AS SHOWN IN THE PLAN. THE UNIT PRICE "EACH" FOR PCC FLARED END SECTION SHALL INCLUDE THE PRECAST END SECTION AS SHOWN IN THE PLAN AND ALL THE NECESSARY WORK.

GENERAL NOTES

All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).



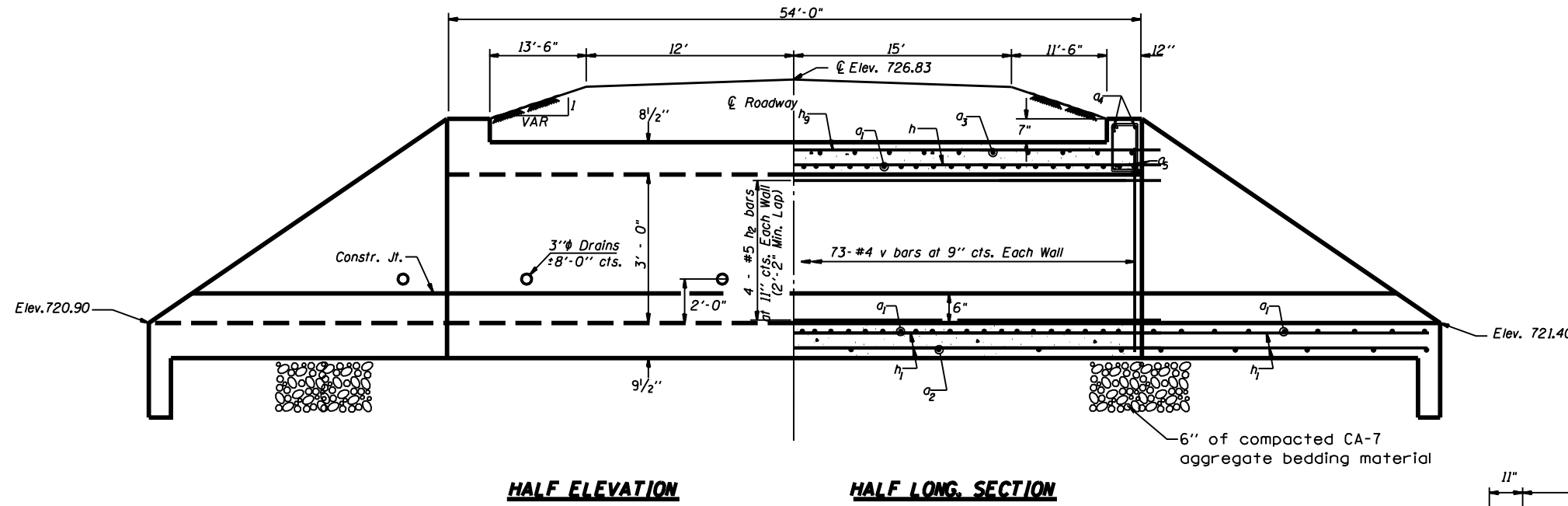
SECTION A-A



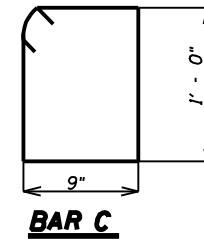
END VIEW

FILE NAME : District 2 Standard	USER NAME : 1001/District 2	DESIGNED - DRAWN -	REVISED - 6-26-06 REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD			F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE : 2.0000' / IN.	CHECKED -	REVISED -		SCALE:	SHEET NO.	OF SHEETS	STA.	TO STA.	CONTRACT NO.		
	PLOT DATE : September 06 2007	DATE -	REVISED -		FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT							

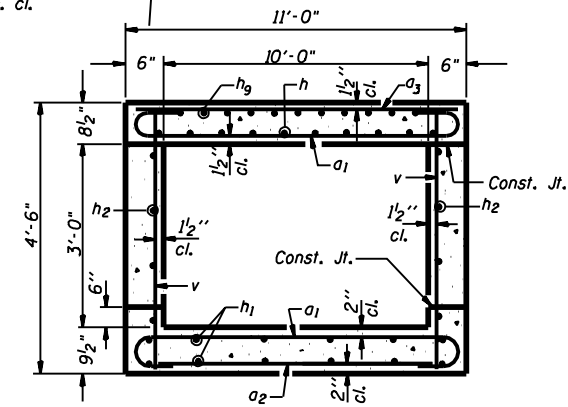
CONCRETE BOX CULVERTS



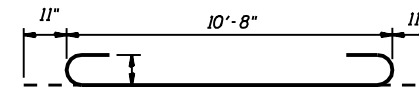
Tilt hook of a_1 bars if necessary for 1/2" min. cl.



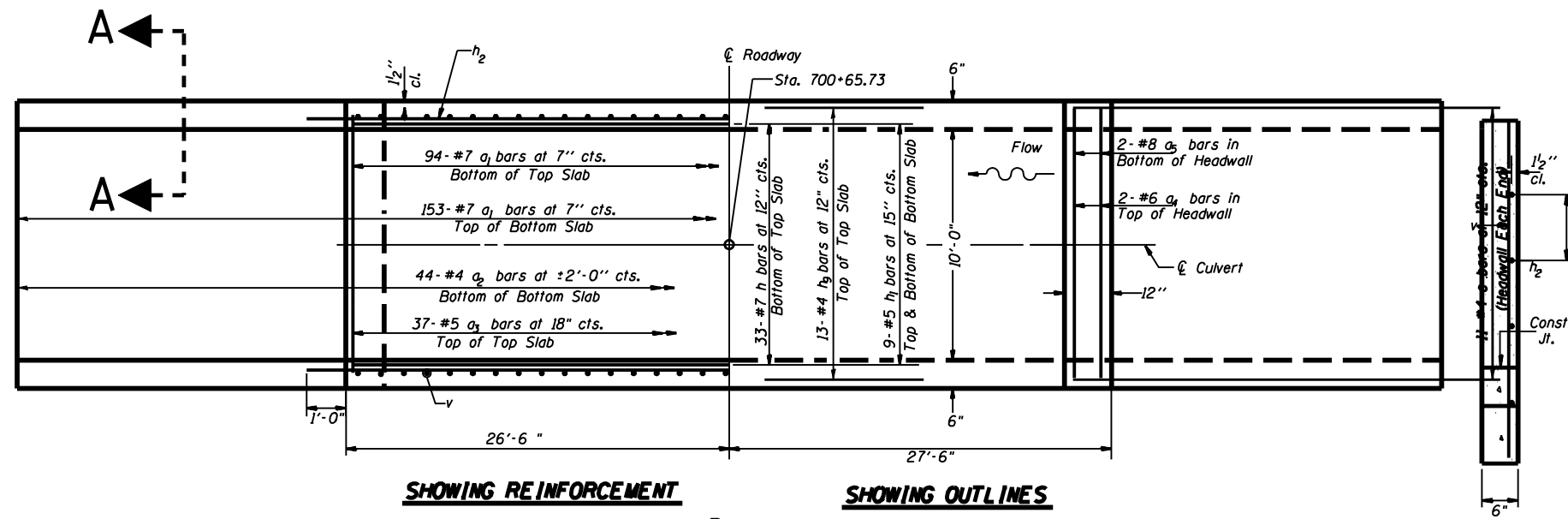
BAR C



SECTION THRU BARREL



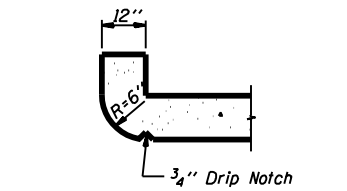
BAR a1



SHOWING REINFORCEMENT

SHOWING OUTLINES

PLAN



SECTION THRU HEADWALL
(Up Stream End Only)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a_1	247	#7	12'-6"	C
a_2	45	#4	10'-3"	—
a_3	37	#5	10'-9"	—
a_4	4	#6	10'-9"	—
a_5	4	#8	10'-9"	—
h	22	#7	31'-3"	—
$h_1(B)$	36	#5	30'-10"	—
$h_1(W)$	36	#5	19'-2"	—
h_2	16	#5	31'-4"	—
h_g	26	#4	28'-4"	—
v	146	#4	4'-3"	—
C	22	#4	3'-6"	—
Conc. Box Culvert(s)(B)			Cu. Yd.	39.47
Reinforcement Bars			Pound	11976.66

B= Barrel
W= Wingwalls

NOTES

A distance of half the length of the wingwall but not less than six feet of the barrel shall be poured monolithically with the wingwalls.
Reinforcement Bars shall conform to the requirements of AASHTO M-31, M-42 or M-53, Grade 60.
Bars indicated thus 12 x 4-#5 etc. indicates 12 lines of bars with 4 lengths per line.

All construction joints shall be bonded.

6" of compacted CA-7 aggregate bedding material shall be placed beneath the box culvert. The cost for the CA-7 aggregate shall be included in the cost of Concrete Box Culverts.

The cost of excavation and backfilling shall be included in the cost of Concrete Box Culverts.

LOADING HS20-44 & ALT.

DESIGN SPECIFICATIONS

1996 AASHTO with 1997, 1998, 1999 and 2000 Interims

DESIGN STRESSES

FIELD UNITS

$f_y = 60,000$ psi

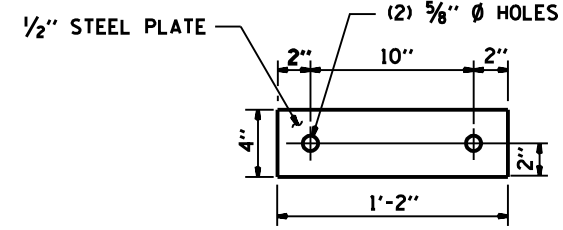
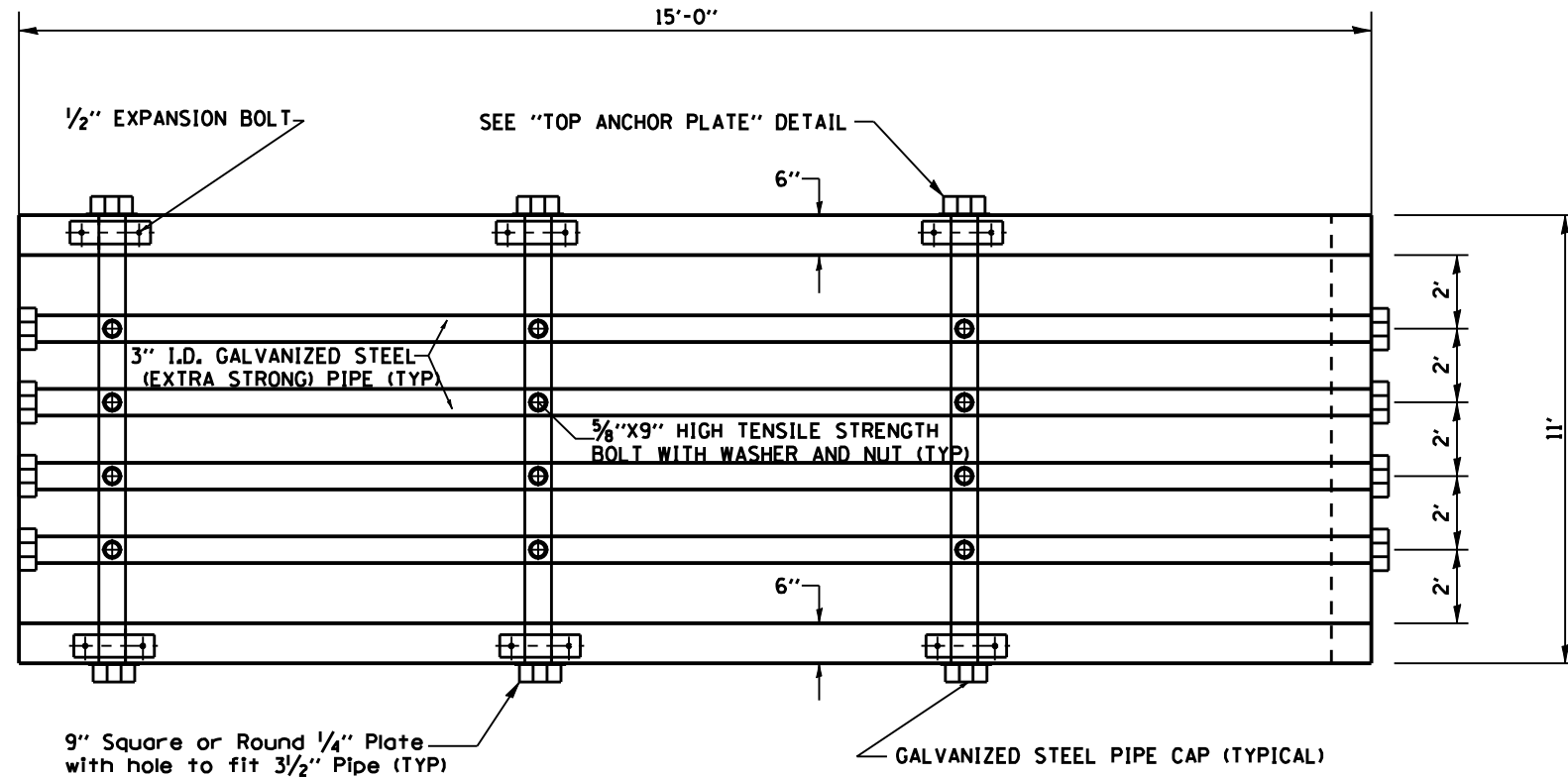
$f'_c = 3,500$ psi

WATERWAY INFORMATION

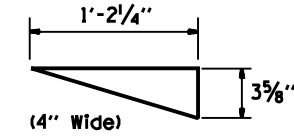
DRAINAGE AREA = 0.80sq mi		LOW GRADE ELEV. (FT) 765.24 (Exist) 765.49 (Proposed) @ Sta. 419+57							
FLOOD	FREQUENCY (YEAR)	0 C.F.S.	OPENING (SO. FT.)		NAT. H.W. ELEV. (FT)	HEAD (FT)		HEADWATER ELEV. (FT)	
			EXIST.	PROP.		EXIST.	PROP.	EXIST.	PROP.
DESIGN	10	271	45.8	54.7	761.36	2.02	2.00	763.38	763.36
BASE	100	482	47.7	57.0	761.55	2.05	1.40	763.60	762.95
OVERTOP EX	385	599	55.0		762.28	2.97		765.25	
MAX CALC	500	630		60.0	762.30		2.34		764.64

FILE NAME : District 2 Standard	USER NAME : 1001/District 2	DESIGNED -	REVISD - 7-05-06	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD			F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		DRAWN -	REVISD -		SCALE:	SHEET NO.	OF SHEETS	STA.	TO STA.	CONTRACT NO.		
		CHECKED -	REVISD -		FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT							
		DATE -	REVISD -		CONCRETE BOX CULVERTS STA 700+65.73 SHEET 1 OF 2							

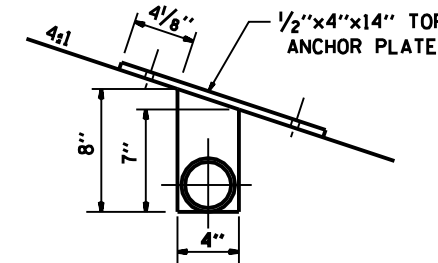
CONCRETE BOX CULVERT END SECTION



TOP ANCHOR PLATE



NOTCH DETAIL



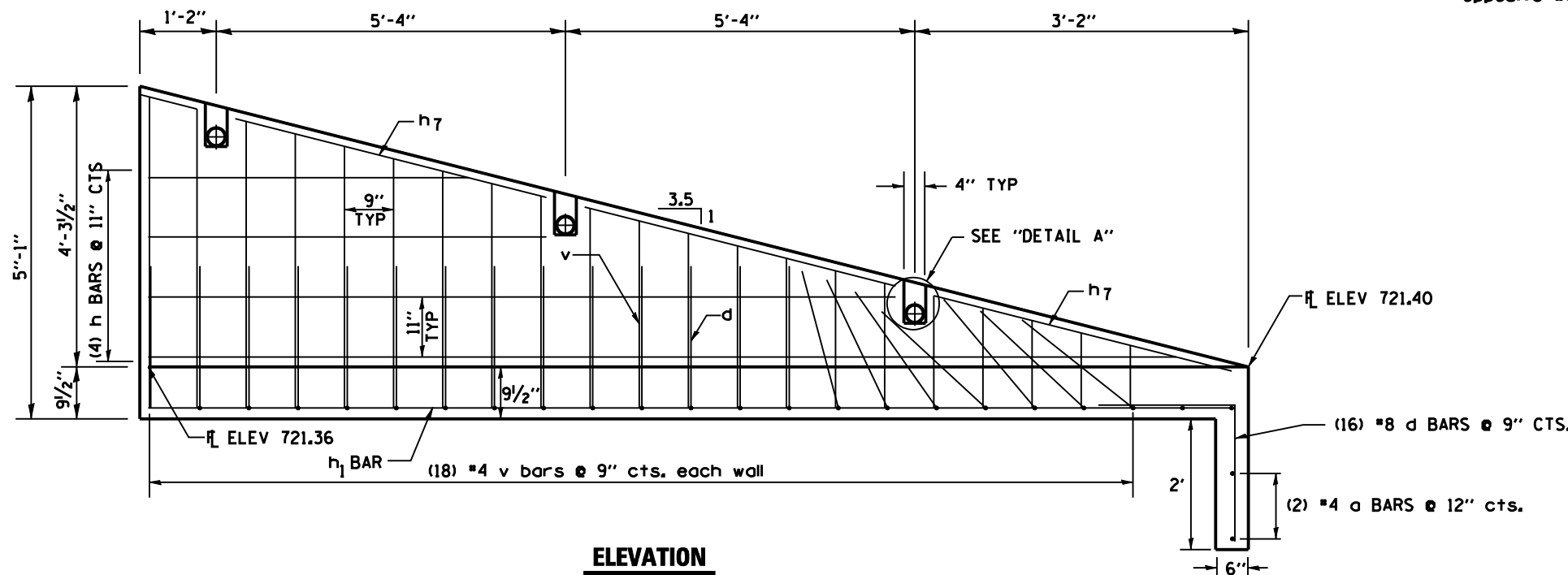
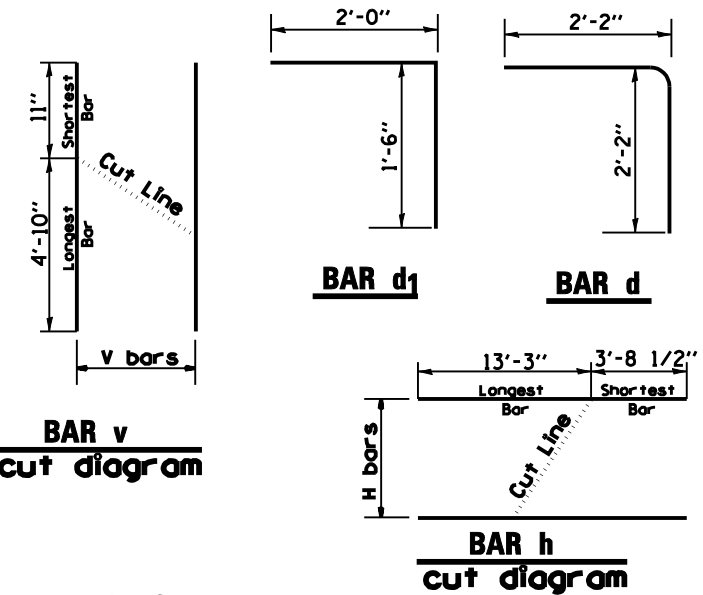
DETAIL "A"

Order v AND h bars full length
Cut to fit as shown and
use remainder of bars in
opposite wall.

BILL OF MATERIALS (Both Ends)

BAR	NUMBER	SIZE	LENGTH
h	8	#5	14'-0"
v	36	#4	5'-9"
d	2	#8	4'-4"
a	2	#4	10'-9"
d1	18	#5	3'-6"

DESCRIPTION	UNIT	QTY.
Class "SI" Concrete	CU. YD	14.3
Reinforcement Bars	LBS.	716.6
3" I.D. Galvanized Steel Pipe	4e	15'-4"
3" Galv Pipe Caps	3e	11'-4"
3" Galv Pipe Caps	EACH	14
1/4" Galv. Stl. Plate (9" Nominal)	EACH	6
1/2"x4"x14" Galv. Steel Plate	EACH	6
5/8"x9" Galv. Steel Bolts	EACH	12
Expansion Bolts 1/2"	EACH	12



ELEVATION

GENERAL NOTES:

Class "SI" concrete shall be used throughout. Exposed edges shall be beveled 3/4".

Bolts, Nuts, and Washers shall be in accordance with Article 540 of the standard specification and shall be galvanized.

All work and materials incorporated (Except Rein. Bars) into the construction of the Box Culvert, End Sections and grates shall be paid for at the contract unit price cu yd for CONCRETE BOX CULVERTS, bars will be paid for at the contract unit price pound for REINFORCEMENT BARS

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

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

Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-53, grade 60.

FILE NAME : District 2 Standard	USER NAME : 1007/District 2	DESIGNED - DRAWN -	REVISED - 7-05-06 REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD		F.A. RTÉ.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
	PLOT SCALE : 2,0000' / IN.	CHECKED -	REVISED -		SCALE:	SHEET NO.	OF SHEETS	STA.	TO STA.	CONTRACT NO.		
	PLOT DATE : September 06 2007	DATE -	REVISED -		FED. ROAD DIST. NO.			ILLINOIS FED. AID PROJECT				

PRECAST BOX CULVERT & CULVERT DROP BOX DETAILS

GENERAL NOTES

THIS WORK CONSISTS OF FURNISHING AND INSTALLING A PRECAST BOX CULVERT AT STA. 517+98 AS SHOWN ON THE PLANS AND SPECIFIED HEREIN.

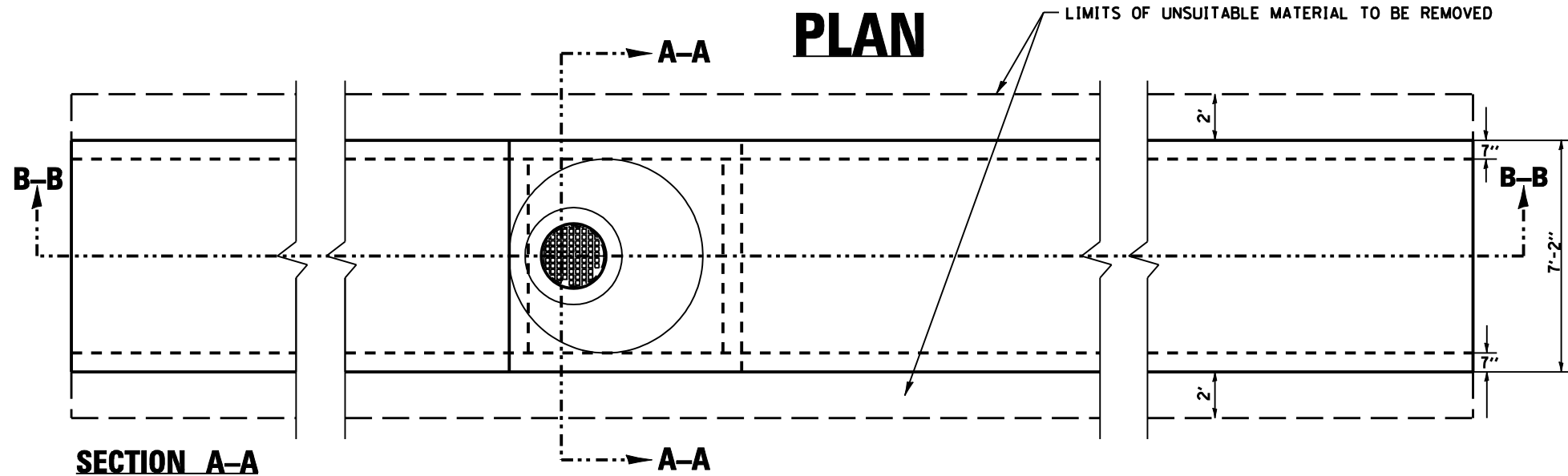
THE EXCAVATION AND BACKFILLING FOR PRECAST CONCRETE BOX CULVERT SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 502 OF THE STANDARD SPECIFICATIONS EXCEPT A LAYER OF POROUS GRANULAR BACKFILL, AT LEAST 6" IN THICKNESS, SHALL BE PLACED BELOW THE ELEVATION OF THE BOTTOM OF THE BOX. THE POROUS GRANULAR BACKFILL SHALL BE PLACED TO EXTEND AT LEAST 2 FT EACH SIDE OF THE BOX. THE PRECAST CONCRETE BOX CULVERT SHALL BE LAID IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF ARTICLE 542.04 (d) OF THE STANDARD SPECIFICATIONS SHOP PLANS FOR THE PRECAST CONCRETE BOX CULVERT SECTIONS SHALL BE SUBMITTED IN ACCORDANCE WITH THE REQUIREMENTS OF ARTICLE 504.04 (a) OF THE STANDARD SPECIFICATIONS.

THE PRECAST CONCRETE BOX CULVERT, EXCLUDING END SECTIONS AND CULVERT DROP BOX, SHALL BE MEASURED ON A LINEAR FOOT BASIS. THE PRECAST BOX CULVERT WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER LINEAR FOOT FOR PRECAST CONCRETE BOX CULVERT OF THE SIZE SPECIFIED, AND INCLUDES TRENCH BACKFILL, AND ALL EARTH EXCAVATION, EXCEPT THE REMOVAL OF ALL UNSUITABLE MATERIAL BELOW BEDDING GRADE.

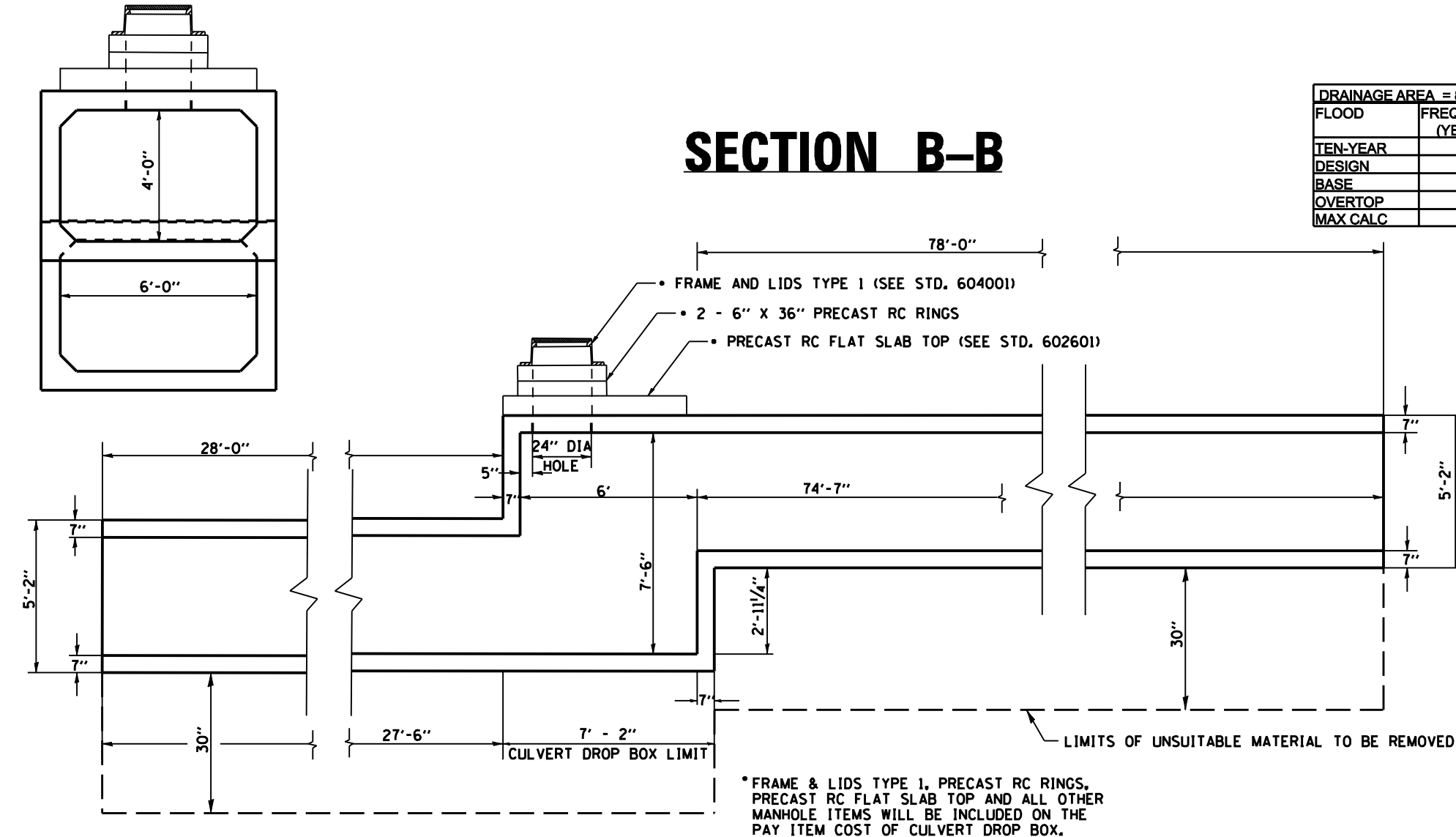
THE CULVERT DROP BOX SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER EACH.

WATER WAY INFORMATION

DRAINAGE AREA = 83 Ac		LOW GRADE ELE (FT) 860.61(Exist) 860.86 (Proposed) @ Sta 518+00							
FLOOD	FREQUENCY (YEAR)	Q C.F.S.	OPENING (SQ. FT.) EXIST.	PROP.	NAT. H.W. ELEV. (Ft)	HEAD (Ft) EXIST.	PROP.	HEADWATER ELE. (Ft) EXIST.	PROP.
TEN-YEAR	10	63	8.8	16.3	852.22	1.17	0.00	853.39	851.93
DESIGN	50	118	11.9	20.0	852.83	1.86	0.29	854.69	853.12
BASE	100	140	13.0	21.3	853.05	2.15	0.52	855.20	853.57
OVERTOP									
MAX CALC	500	191	15.0	23.6	853.44	2.85	1.36	856.29	854.80



SECTION B-B



BILL OF MATERIALS

DESCRIPTION	UNIT	QTY.
Culvert Drop Box	EACH	1
Precast Concrete Box Culvert 6' x 4'	FOOT	107
Removal & Disposal of Unsult. Matl	CU YD	118
Breaker-Run Crushed Stone	TON	194
Box Culvert End Sec. Culv. No.3	EACH	2

FILE NAME : District 2 Standard	USER NAME : ID07/District 2	DESIGNED -	REVISED - 6-30-06	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD				F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		DRAWN -	REVISED -		SCALE:	SHEET NO.	OF SHEETS	STA.	TO STA.	CONTRACT NO.			
		CHECKED -	REVISED -		FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT							
		DATE -	REVISED -		STA 517+98 PRECAST BOX CULVERT & DROP BOX CULVERT DETAILS								

BENCH MARK: BM 454
 STA. 53+62.30, 32.65 RT., EL. 961.413
 TOP OF ROW MARKER SW QUAD OF IL 72
 & FORK CREEK ROAD, EAST OF CULVERT

EXISTING STRUCTURE:
 SINGLE 6'-0" X 4'-6" X 42'-0" CONCRETE BOX CULVERT.

NO SALVAGE.

PROPOSED IMPROVEMENTS:
 EXISTING STRUCTURE TO BE REMOVED AND REPLACED
 WITH A 2 CELL - 5'-0" X 3'-0" PRECAST CONCRETE BOX
 CULVERT WITH CONCRETE BOX CULVERT END SECTIONS.

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

STATION 38+85.17
 BUILT 200 BY
 STATE OF ILLINOIS
 IL 72 SECT. 114T-1
 LOADING HS20
 STR. NO. 071-1150

DESIGN SPECIFICATIONS

AASHTO 2002 SPECIFICATIONS
 LOADING HS20-44
 ALLOW 50#/SQ. FT. FOR FUTURE WEARING SURFACE.

DESIGN STRESSES

FIELD UNITS
 $f'_c = 3,500$ PSI
 $f_y = 60,000$ PSI (REINFORCEMENT)

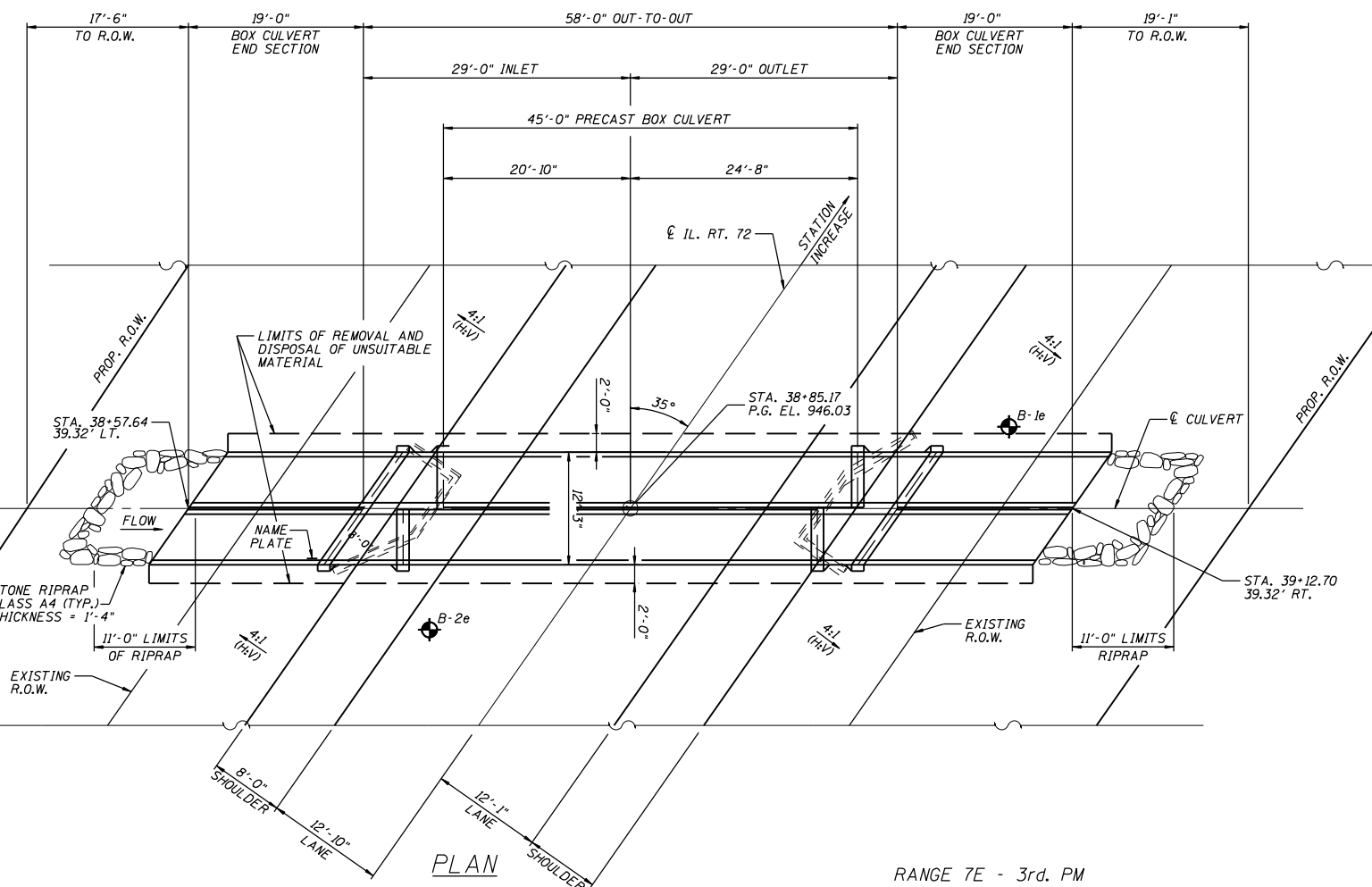
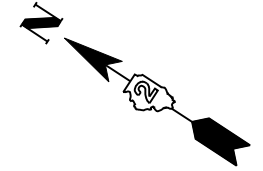
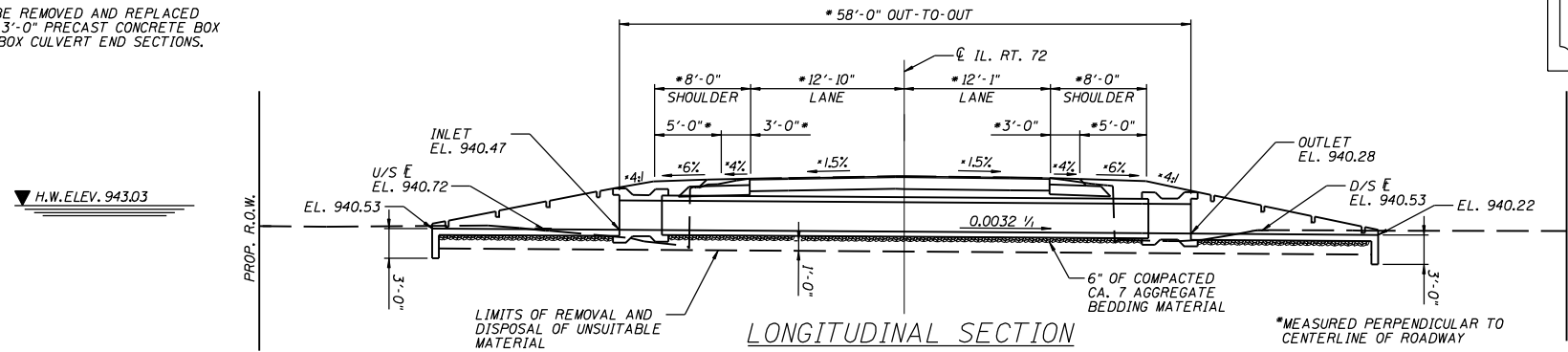
PRECAST UNITS
 $f'_c = 5,000$ PSI
 $f_y = 60,000$ PSI (REINFORCEMENT)

NAME PLATE

NOTE: SEE STANDARD DRAWING 515001
 FOR NAME PLATE DETAILS.

TOTAL BILL OF MATERIALS

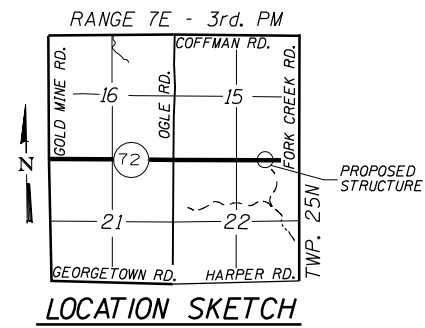
ITEM	UNIT	QUANTITY
CONCRETE BOX CULVERTS	CU. YD.	16.5
BOX CULVERT END SECTIONS NO. 2	EACH	4
PRECAST CONCRETE BOX CULVERT 5' x 3'	FOOT	90
REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL	CU. YD.	65
BREAKER-RUN CRUSHED STONE	TON	100
REMOVAL OF EXISTING STRUCTURE NO. 4	EACH	1
STONE RIPRAP, CLASS A4	SO. YD.	35
FILTER FABRIC	SO. YD.	35
REINFORCEMENT BARS	LB	3,082
NAME PLATES	EACH	1



GENERAL NOTES

- REINFORCEMENT BARS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A706 GR 60 (IL MODIFIED), SEE SPECIAL PROVISION.
- EXPOSED EDGES SHALL HAVE A 3/4" CHAMFER.
- CULVERT FLOWS MUST BE MAINTAINED THROUGHOUT THE PROJECT. NORMAL FLOW SHALL BE ALLOWED TO PASS AT THE RATE IT ENTERS THE JOBSITE. HIGH FLOWS SHALL BE ALLOWED TO PASS WITHOUT CAUSING DAMAGE TO UPSTREAM PROPERTIES.
- THE CONTRACTOR SHALL CLEAN OUT CULVERT STREAM FLOW TO THE RIGHT OF WAY LINES. THE COST SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR "PRECAST CONCRETE BOX CULVERT 5'x3'".
- STRUCTURE EXCAVATION AND GRADING AROUND ENDS OF CULVERT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR "PRECAST CONCRETE BOX CULVERT 5'x3'".
- PLACEMENT AND COMPACTION OF THE BACKFILL FOR CULVERT SHALL CONFORM TO SECTION 502.10 OF THE STANDARD SPECIFICATIONS. EXCEPT THE MATERIAL SHALL CONFORM TO SECTION 1004.05 OF THE STANDARD SPECIFICATION FOR COARSE AGGREGATE FOR TRENCH BACKFILL AND SHALL BE COMPACTED TO MINIMUM OF 95% OF THE STANDARD LABORATORY DENSITY. THE ENTIRE EXCAVATION, WITHIN 2 FEET OUTSIDE OF EACH SHOULDER, SHALL BE BACKFILLED WITH TRENCH BACKFILL MATERIAL TO THE BOTTOM OF THE PROPOSED SUBGRADE. THIS TRENCH BACKFILL MATERIAL WILL NOT BE MEASURED FOR PAYMENT, BUT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR THE CLASS OF CONCRETE INVOLVED OR OTHER UNIT PRICE ITEM OF THE WORK FOR WHICH IT IS REQUIRED.
- PRECAST CONCRETE BOX CULVERT SLAB & WALL THICKNESS TAKEN FROM AASHTO MATERIAL SPECIFICATIONS. IF FABRICATOR CHOOSES TO ALTER DIMENSIONS, IT MUST BE APPROVED BY THE ENGINEER, AND THE CALCULATIONS SHALL BE PREPARED AND SEALED BY AN ILLINOIS LICENSED STRUCTURAL ENGINEER.
- BOX CULVERT END SECTIONS NO. 2 CAN BE EITHER PRECAST OR CAST-IN-PLACE. DETAILS SHOWN ARE FOR CAST-IN-PLACE END SECTIONS. IF THE CONTRACTOR ELECTS TO USE PRECAST END SECTIONS, THE DESIGN OF THE END SECTION IS THE CONTRACTOR'S RESPONSIBILITY AND ALL CALCULATIONS SHALL BE PREPARED AND SEALED BY AN ILLINOIS LICENSED STRUCTURAL ENGINEER. IF PRECAST END SECTIONS ARE USED, EACH END SECTION (4 TOTAL) SHALL BE COMPLETELY FABRICATED PRIOR TO SITE DELIVERY.
- THE NEW NUMBER FOR THIS STRUCTURE WILL BE 071-1150.
- THE PRECAST CONCRETE BOX CULVERT SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M273 (DESIGN FILL HEIGHT < 2'-0")

WATERWAY INFORMATION				
DRAINAGE AREA (ACRES) = 135.0		LOW GRADE ELEV. (FEET) EXIST = 946.04 @ STA. 38+85 PROPOSED = 946.04 @ STA. 38+85		
FLOOD	FREQ. YR.	DISCHARGE C.F.S.	HEADWATER ELEVATION	
			EXISTING	PROPOSED
TEN-YEAR	10	92	942.55	941.78
DESIGN	50	189	944.64	943.03
BASE	100	251	945.80	944.33
EX OVT	109	259	946.04	
PR OVT	177	318		946.04



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PLOT DATE = Thu Oct 25 10:38:04 2007		DATE -	REVISED -

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

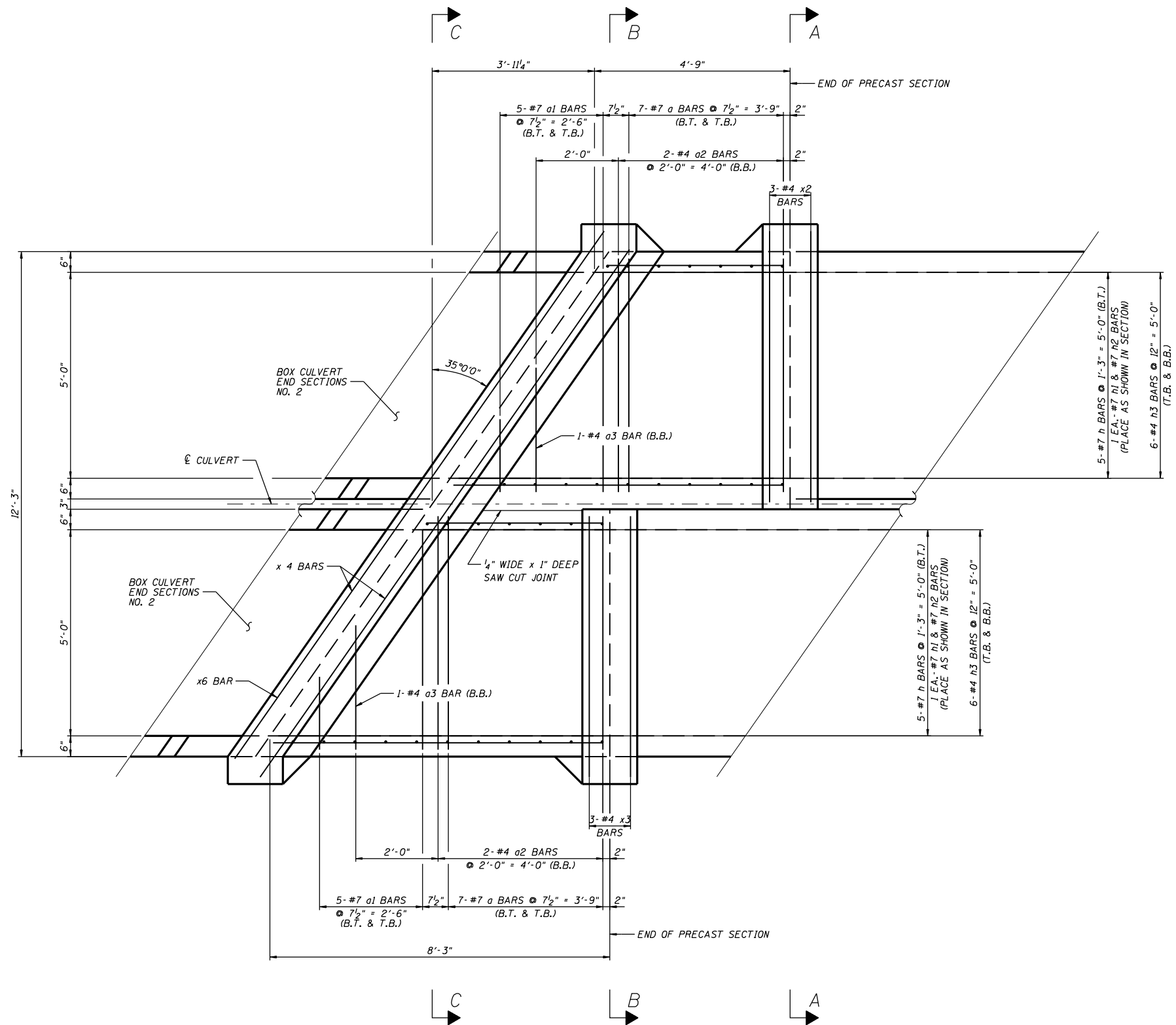
REGION 2 / DISTRICT 2 STANDARD

SCALE: _____ SHEET NO. ____ OF _____ SHEETS STA. _____ TO STA. _____

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CONTRACT NO. _____				
FED. ROAD DIST. NO. _____ ILLINOIS FED. AID PROJECT				

DOUBLE CONCRETE BOX CULVERT 5'X3' AT 35 DEGREE SKEW WITH GRATED END SECTIONS (SHEET 1 OF 9)

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



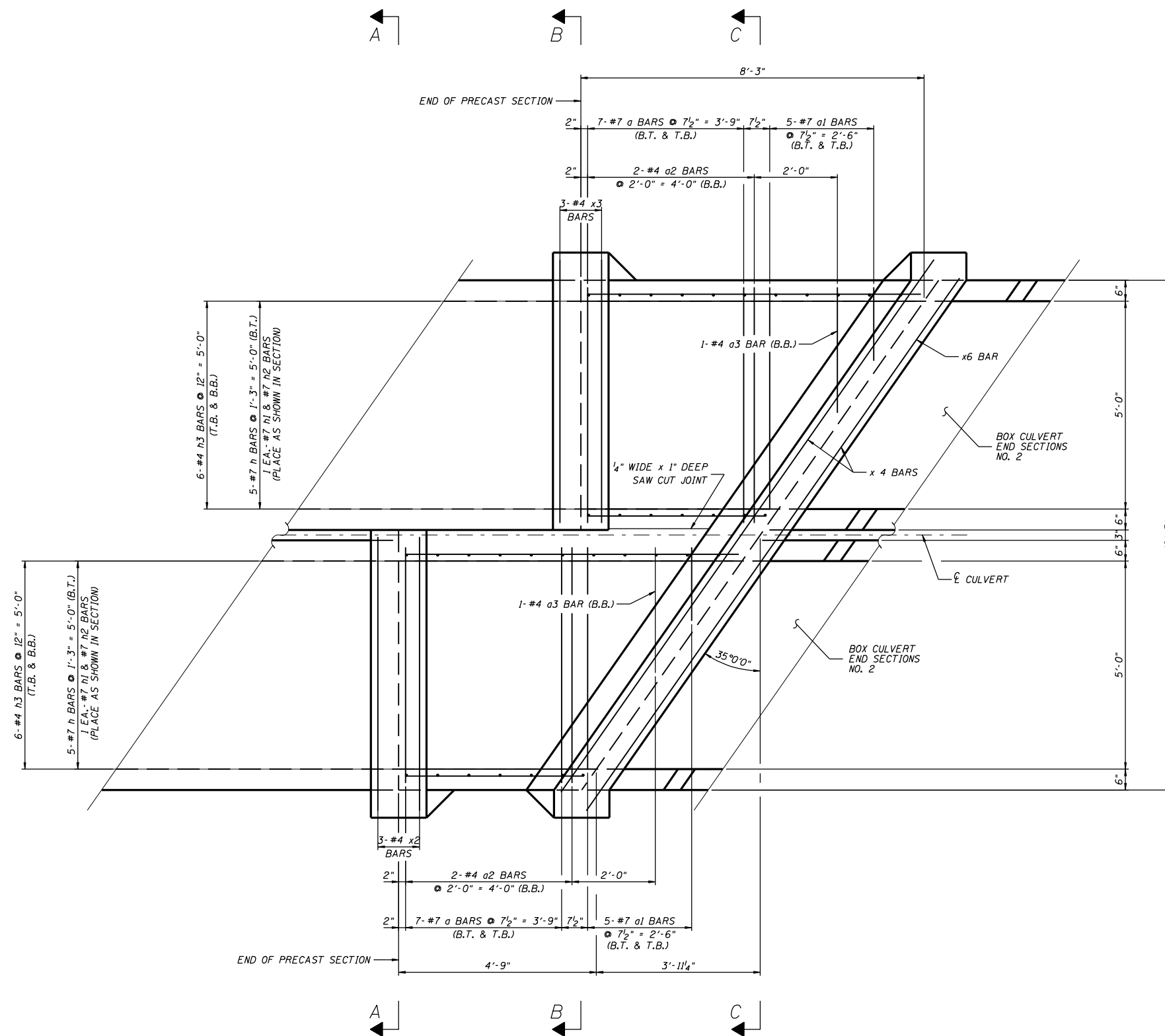
INLET PLAN

LEGEND

T.T. = TOP OF TOP SLAB
B.T. = BOTTOM OF TOP SLAB
T.B. = TOP OF BOTTOM SLAB
B.B. = BOTTOM OF BOTTOM SLAB

FILE NAME =	USER NAME = meglilj	DESIGNED -	REVISED - 10-24-07	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD		F.A. RT#:	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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PLOT DATE = Thu Oct 25 10:38:15 2007	DATE -	REVISED -									

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

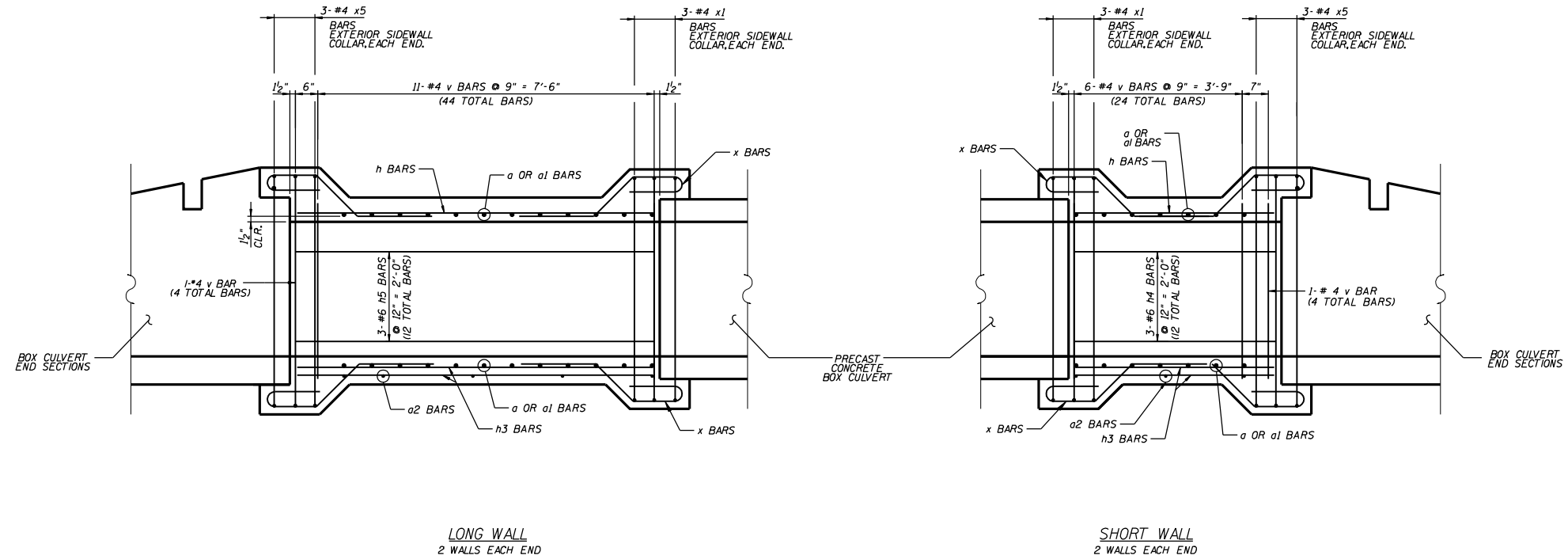


OUTLET PLAN

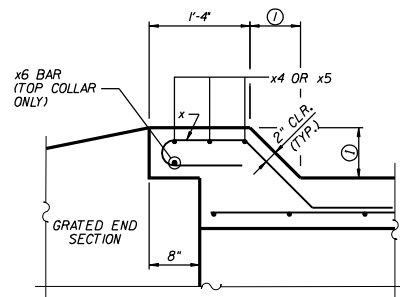
LEGEND
T.T. = TOP OF TOP SLAB
B.T. = BOTTOM OF TOP SLAB
T.B. = TOP OF BOTTOM SLAB
B.B. = BOTTOM OF BOTTOM SLAB

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PLOT SCALE = 2.0000' / IN.	CHECKED - ---	REVISED - ---	REVISED - ---		SCALE: _____	SHEET NO. ___ OF ___ SHEETS	STA. _____ TO STA. _____	CONTRACT NO. _____				
PLOT DATE = Thu Oct 25 10:38:28 2007	DATE - _____	REVISED - ---	REVISED - ---		FED. ROAD DIST. NO. _____ ILLINOIS FED. AID PROJECT							
DOUBLE CONCRETE BOX CULVERT 5'X3' AT 35 DEGREE SKEW WITH GRATED END SECTIONS (SHEET 3 OF 9)												

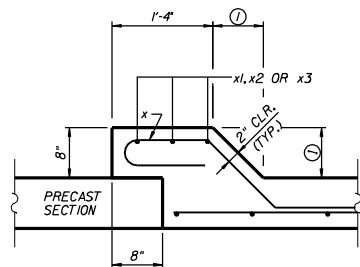
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



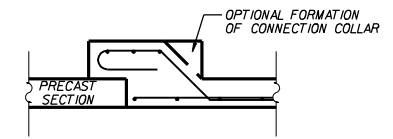
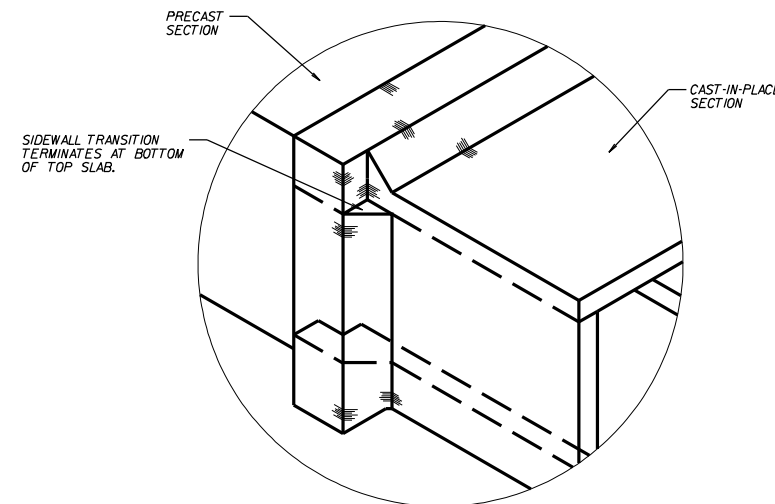
ELEVATION



① TOP SLAB - 8"
BOTTOM SLAB - 8"
SIDEWALLS - 8"



① TOP SLAB - 7 1/2"
BOTTOM SLAB - 8"
SIDEWALLS - 8"



OPTIONAL PRECAST TO CAST-IN-PLACE
CONNECTION COLLAR

NOTE:
ADDITIONAL CONCRETE USED FOR THE
OPTIONAL COLLAR FORMATION WILL BE
PROVIDED AT THE CONTRACTOR'S EXPENSE.

FILE NAME =	USER NAME = meglilj	DESIGNED - ---	REVISED - 10-24-07
C:\Documents and Settings\meglilj\Desktop\02CulvertExamples.cel		DRAWN - ---	REVISED - ---
		CHECKED - ---	REVISED - ---
PLOT DATE = Thu Oct 25 10:38:41 2007		DATE - ---	REVISED - ---

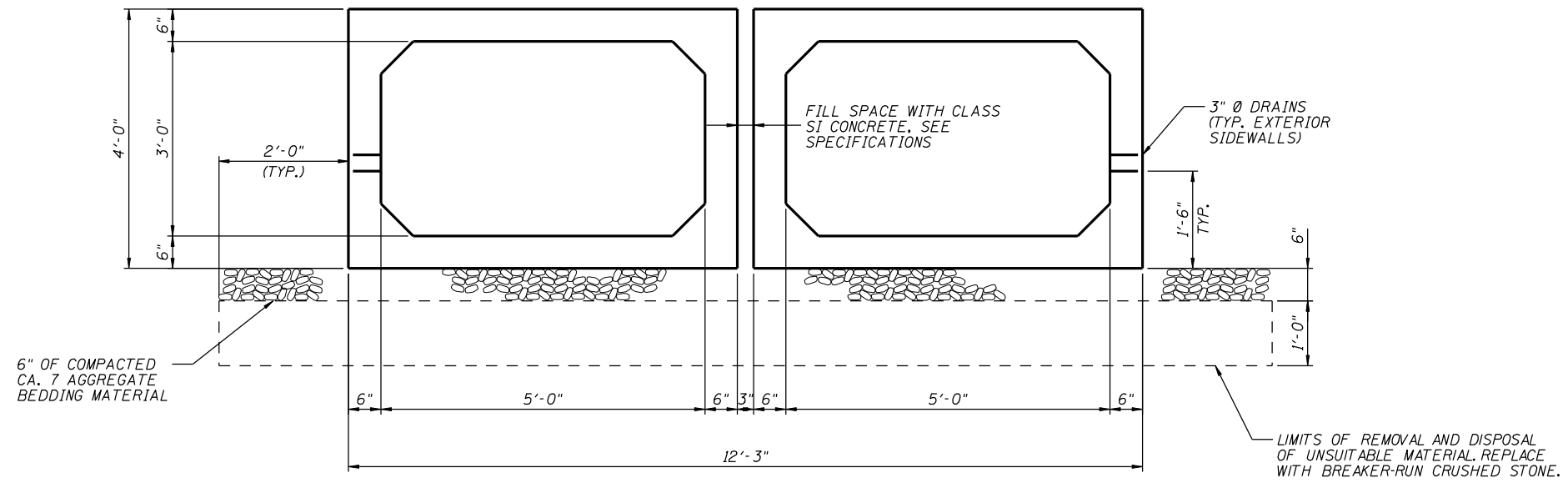
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

REGION 2 / DISTRICT 2 STANDARD

SCALE: _____ SHEET NO. ___ OF ___ SHEETS STA. _____ TO STA. _____

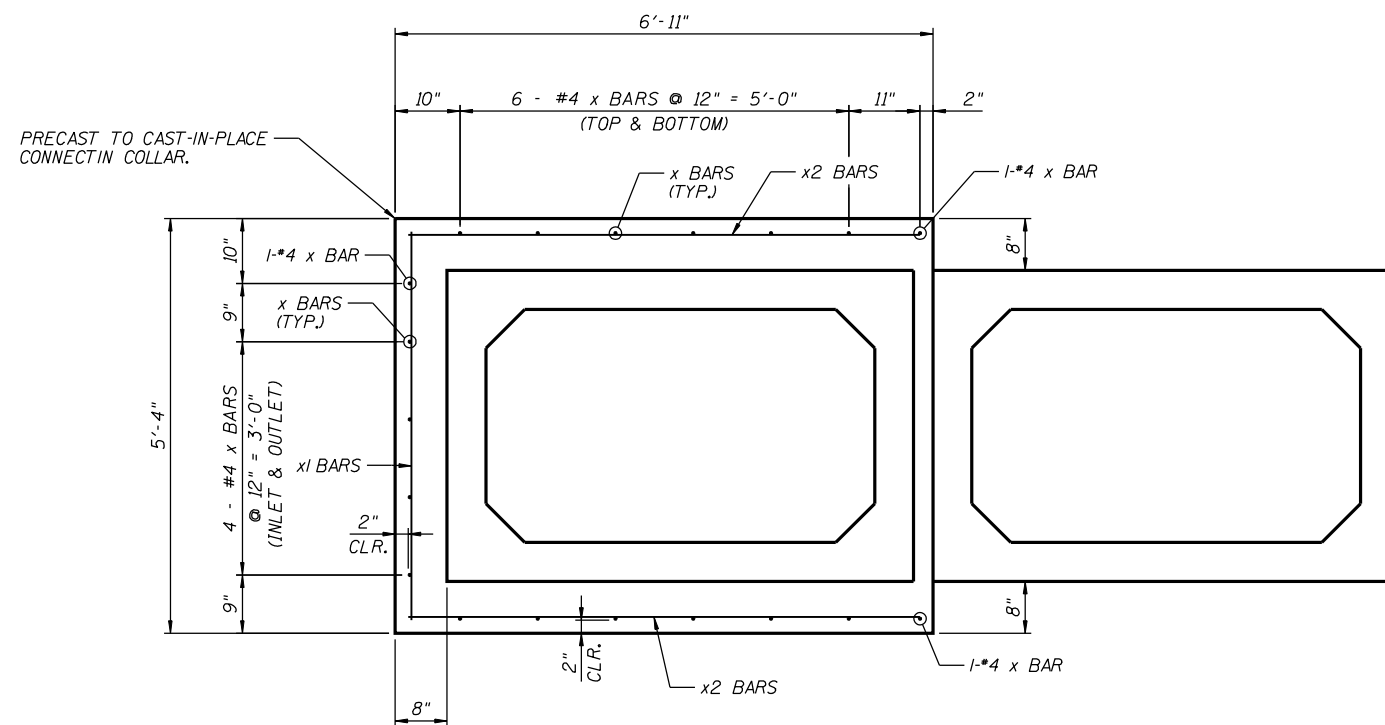
F.A. RTE.:	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CONTRACT NO. _____				
FED. ROAD DIST. NO. _____ ILLINOIS FED. AID PROJECT				

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



PRECAST TYPICAL SECTION

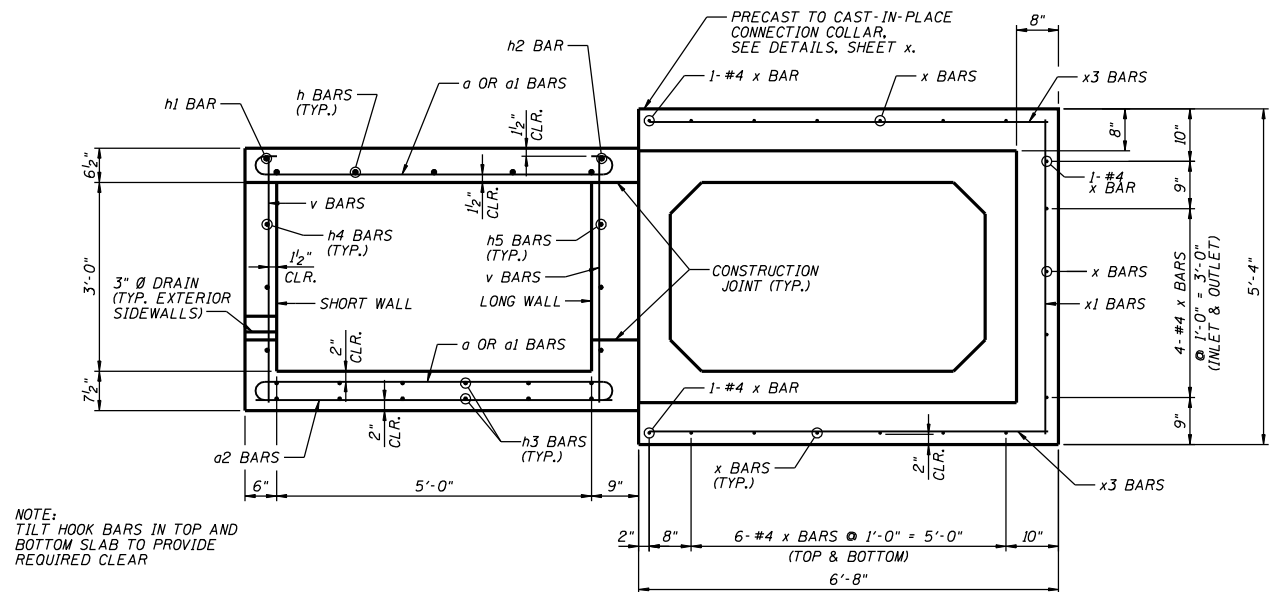
NOTE:
CLASS SI CONCRETE TO BE POURED
BETWEEN PRECAST SECTIONS PRIOR
TO FORMING AND POURING OF
CAST-IN-PLACE SECTIONS.



SECTION A-A & A1-A1

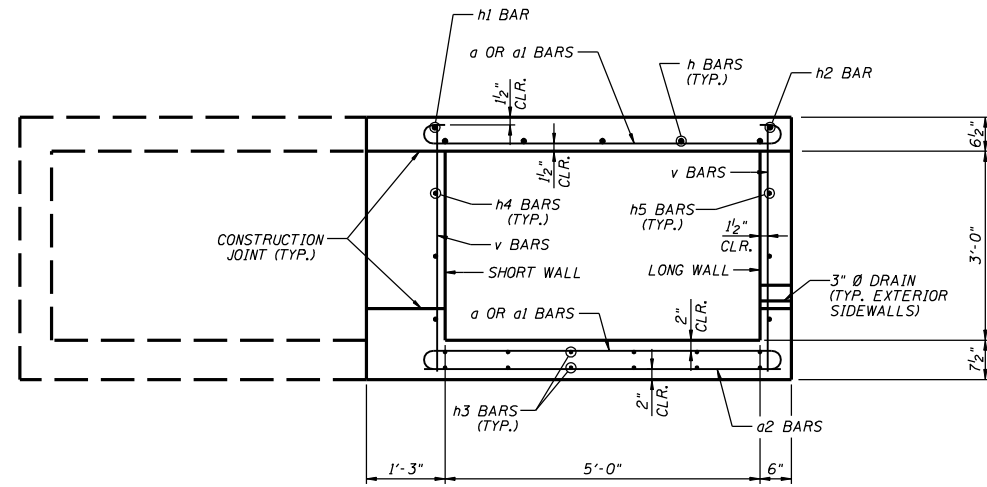
FILE NAME =	USER NAME = meglilj	DESIGNED - ---	REVISED - 10-24-07	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD	F.A. RTE:	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
C:\Documents and Settings\mejlilj\Desktop\02CulvertExamples.cel	DRAWN - ---	REVISED - ---	SCALE: _____			SHEET NO. ___ OF ___ SHEETS	STA. _____ TO STA. _____	CONTRACT NO. _____			
PLOT SCALE = 2.0000' / IN.	CHECKED - ---	REVISED - ---	FED. ROAD DIST. NO. _____ ILLINOIS FED. AID PROJECT								
PLOT DATE = Thu Oct 25 10:38:55 2007	DATE - _____	REVISED - ---									

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



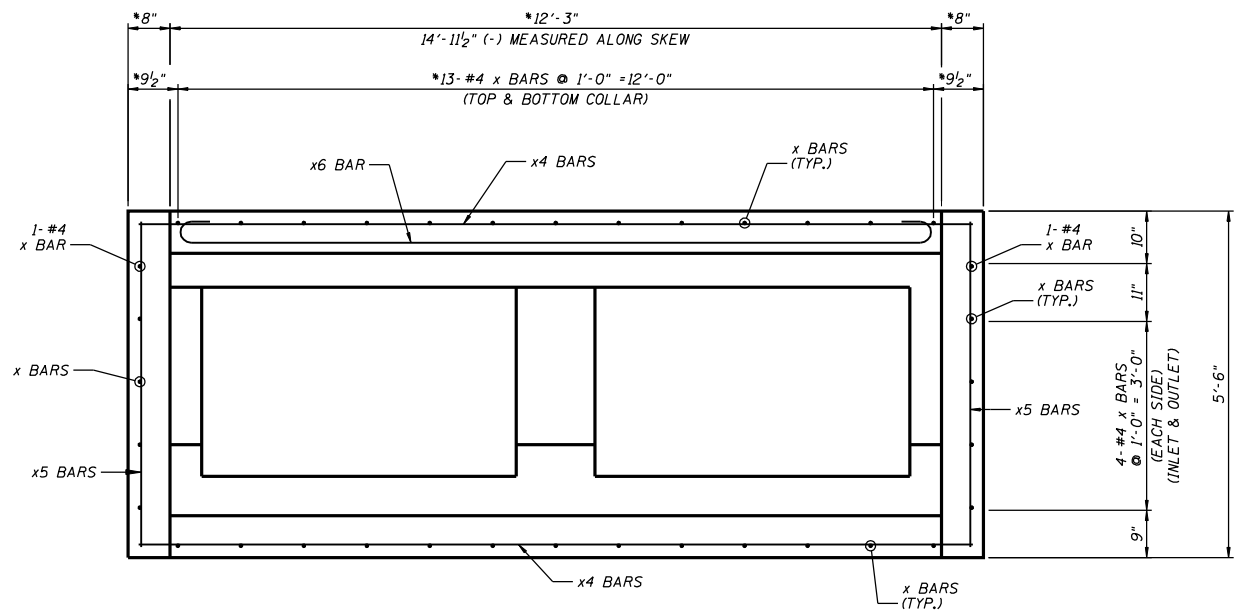
NOTE:
TILT HOOK BARS IN TOP AND
BOTTOM SLAB TO PROVIDE
REQUIRED CLEAR

PRECAST TYPICAL SECTION



NOTE:
TILT HOOK BARS IN TOP AND
BOTTOM SLAB TO PROVIDE
REQUIRED CLEAR

SECTION A-A & A1-A1



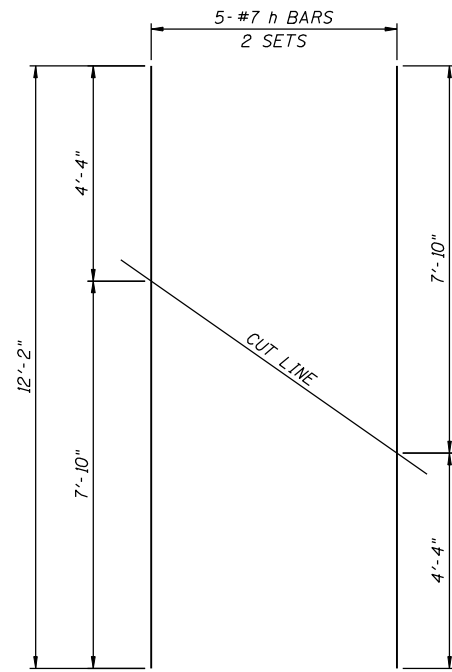
CAST-IN-PLACE BARREL TO END
SECTIONS CONNECTION COLLAR VIEW

* MEASURED PERPENDICULAR TO CULVERT SIDEWALLS

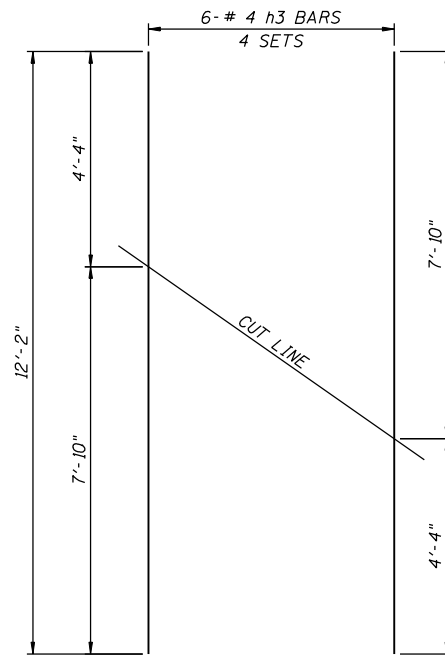
NOTE:
TILT x6 BAR IN COLLAR
TO PROVIDE REQUIRED CLEAR.

FILE NAME =	USER NAME = meglilj	DESIGNED -	REVISED - 10-24-07	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SCALE: _____ SHEET NO. ____ OF ____ SHEETS STA. _____ TO STA. _____		F.A. RTE. _____	SECTION _____	COUNTY _____	TOTAL SHEETS _____	SHEET NO. _____	
C:\Documents and Settings\meglilj\Desktop\02CulvertExamples.cel	DRAWN -	REVISOR -	REVISOR -		CONTRACT NO. _____		FED. ROAD DIST. NO. _____ ILLINOIS FED. AID PROJECT _____					
PLOT SCALE = 2.0000' / IN.	CHECKED -	REVISOR -	REVISOR -									
PLOT DATE = Thu Oct 25 10:34:05 2007	DATE -	REVISOR -	REVISOR -									

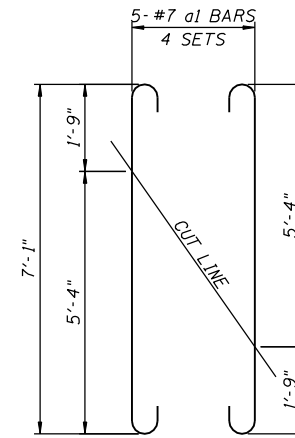
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



BARS *h*



BARS *h3*



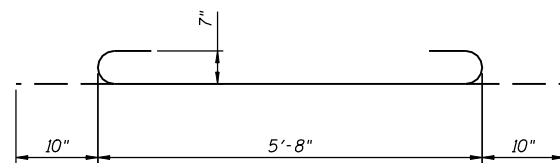
BARS *a1*

FIELD CUTTING DIAGRAMS

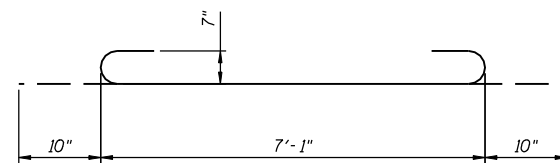
ORDER BARS FULL LENGTH. CUT AS SHOWN AND
USE REMAINDER OF BARS IN OPPOSITE END.

BILL OF MATERIAL

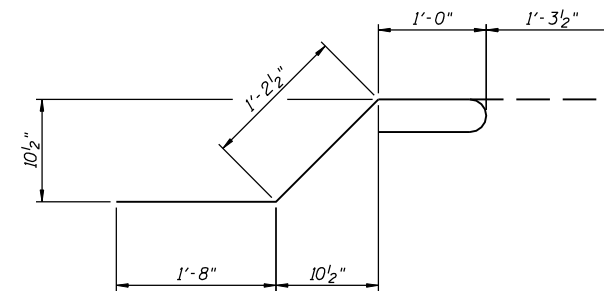
Bar	No.	Size	Length	Shape
a	56	7	7'-4"	
a1	20	7	8'-9"	
a2	8	4	5'-8"	————
a3	4	4	3'-0"	————
h	10	7	12'-2"	————
h1	4	7	4'-3"	————
h2	4	7	8'-0"	————
h3	24	4	12'-2"	————
h4	12	6	4'-3"	————
h5	12	6	8'-0"	————
v	76	4	3'-10"	————
x	148	4	5'-2"	
x1	12	4	5'-0"	————
x2	12	4	6'-7"	————
x3	12	4	6'-4"	————
x4	12	4	15'-7"	————
x5	12	4	5'-2"	————
x6	2	7	16'-3"	————
Concrete Structures			Cu. Yd.	16.6
Reinforcement Bars, Epoxy Coated			Pound	3,082



BARS *a*



BARS *a1*



BAR *x*

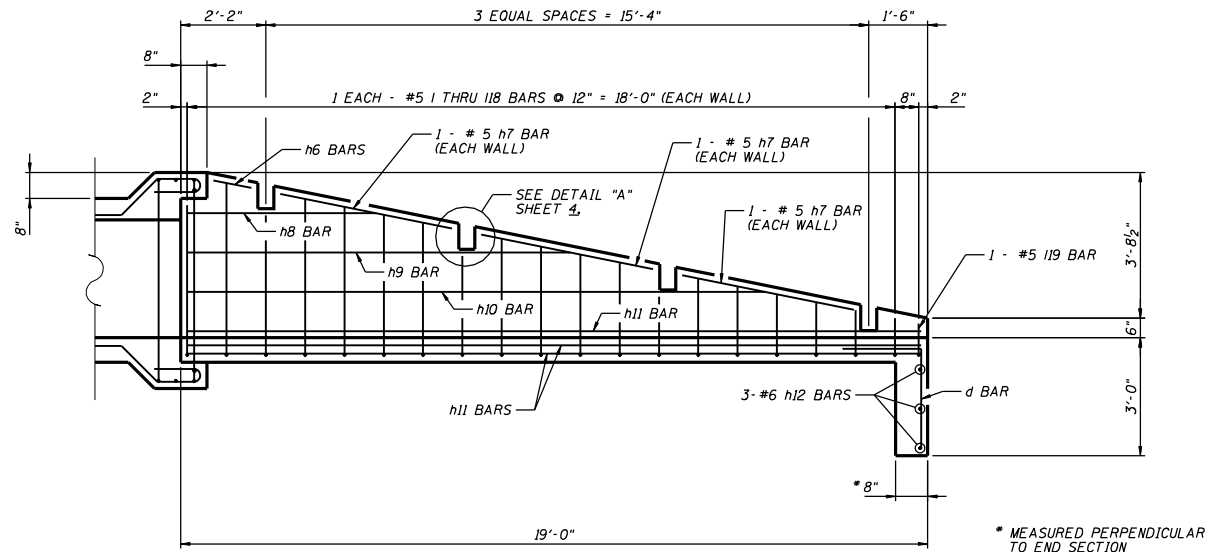
FILE NAME =	USER NAME = megilj	DESIGNED -	REVISD - 10-24-07
C:\Documents and Settings\megilj\Desktop\02CulvertExamples.cel		DRAWN -	REVISD -
	PLOT SCALE = 2.0000' / IN.	CHECKED -	REVISD -
	PLOT DATE = Thu Oct 25 10:39:14 2007	DATE -	REVISD -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

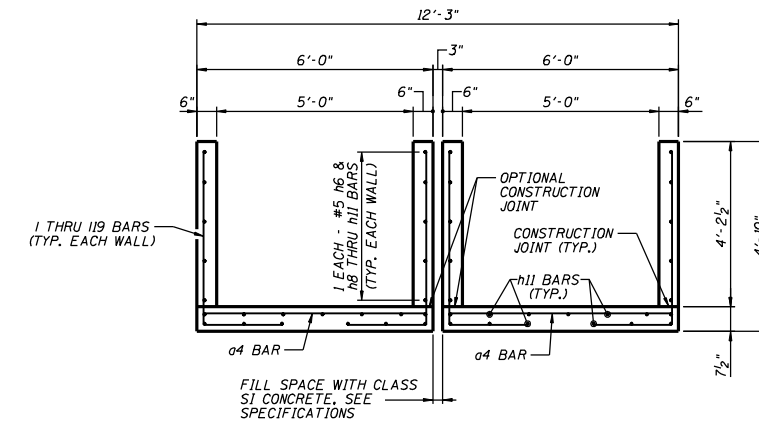
SCALE: _____ SHEET NO. ___ OF ___ SHEETS STA. _____ TO STA. _____

F.A. RTE.:	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CONTRACT NO.				
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

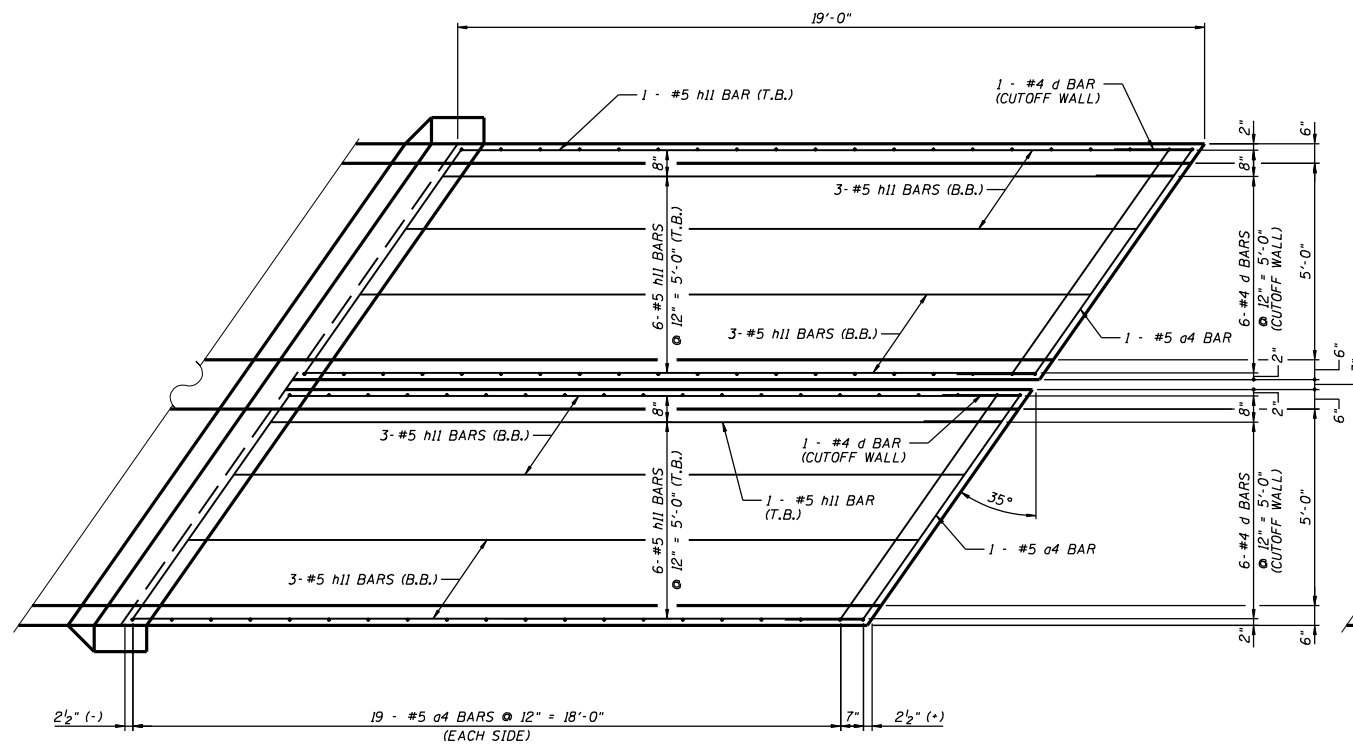
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



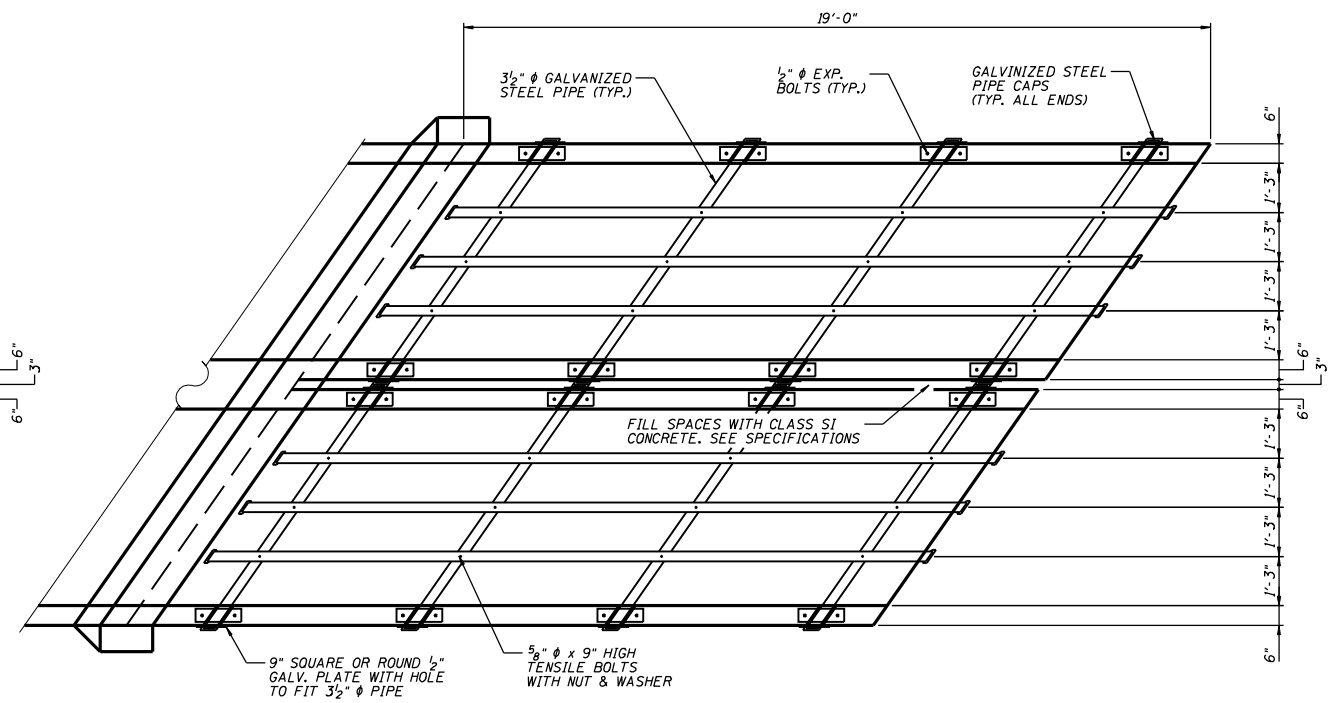
INLET/OUTLET ELEVATION
(2 END SECTIONS, EACH END)
(4 TOTAL)



SECTION A-A



INLET/OUTLET PLAN



GRATE INLET/OUTLET PLAN
(2 END SECTIONS, EACH END)
(4 TOTAL)

LEGEND

T.B. = TOP OF BOTTOM SLAB
B.B. = BOTTOM OF BOTTOM SLAB

FILE NAME =	USER NAME = meglilj	DESIGNED -	REVISED - 10-24-07
C:\Documents and Settings\meglilj\Desktop\02CulvertExamples.cel		DRAWN -	REVISED -
PLOT SCALE = 2.0000' / IN.		CHECKED -	REVISED -
PLOT DATE = Thu Oct 25 10:39:24 2007		DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SCALE: _____ SHEET NO. ____ OF ____ SHEETS STA. _____ TO STA. _____

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CONTRACT NO. _____				
FED. ROAD DIST. NO. _____ ILLINOIS FED. AID PROJECT				

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

**** BOX CULVERT
END SECTIONS NO. 2
BILL OF MATERIAL**

*** BOX CULVERT END SECTIONS NO. 2
BILL OF MATERIAL**

ITEM	UNIT	QUANTITY
3 1/2" Ø GALV. STEEL PIPE	EACH	3 @ 18'-7" 4 @ 7'-6 3/8"
1/2" x 4" x 14" GALV. ANCHOR PLATE	EACH	8
5/8" Ø x 9" GALV. BOLTS	EACH	12
1/2" Ø GALV. EXP. BOLTS	EACH	16
9" SQ. OR ROUND 1/2" GALV. PLATE	EACH	8
GALV. STEEL PIPE CAPS	EACH	14

* QUANTITIES GIVEN ARE FOR EACH BOX CULVERT END SECTION. FOR INFORMATIONAL PURPOSES ONLY. COST TO BE INCLUDED IN THE BID ITEM "BOX CULVERT END SECTIONS NO. 2"

Bar	No.	Size	Length	Shape
a4	80	5	6'-11"	—
d	28	4	4'-8"	└┘
h6	8	5	0'-11"	—
h7	24	5	4'-5"	—
h8	8	5	4'-9"	—
h9	8	5	9'-9"	—
h10	8	5	14'-8"	—
h11	60	5	18'-8"	—
h12	12	6	6'-11"	—
1	8	5	5'-9"	└┘
11	8	5	6'-4"	└┘
12	8	5	5'-6"	└┘
13	8	5	5'-11"	└┘
14	8	5	5'-9"	└┘
15	8	5	5'-6"	└┘
16	8	5	5'-4"	└┘
17	8	5	4'-6"	└┘
18	8	5	4'-11"	└┘
19	8	5	4'-9"	└┘
110	8	5	4'-6"	└┘
111	8	5	4'-4"	└┘
112	8	5	3'-5"	└┘
113	8	5	3'-11"	└┘
114	8	5	3'-8"	└┘
115	8	5	3'-6"	└┘
116	8	5	3'-4"	└┘
117	8	5	3'-1"	└┘
118	8	5	2'-11"	└┘
119	8	5	2'-9"	└┘
CONCRETE STRUCTURES	CU. YD.	18.8		
REINFORCEMENT BARS	POUND	3,413		

** BILL OF MATERIAL IS TOTAL FOR ALL END SECTIONS. FOR INFORMATIONAL PURPOSES ONLY

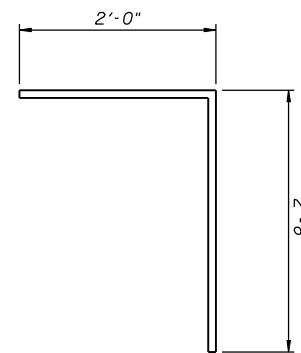
GENERAL NOTES

STEEL PIPES SHALL CONFORM TO A.S.T.M. A-53 (TYPE E OR S) GRADE B, SCHEDULE 40, & SHALL BE GALVANIZED CONFORMING TO A.S.T.M. A-120.

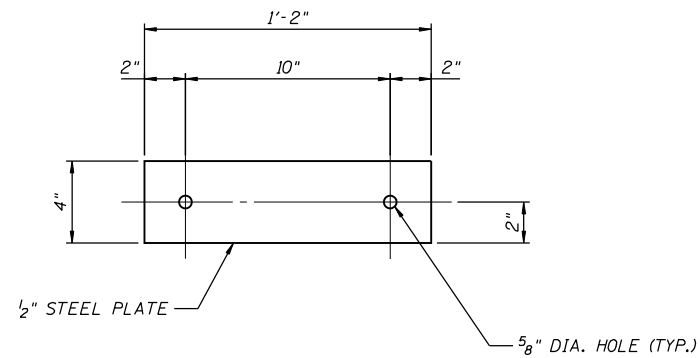
STEEL PLATES SHALL CONFORM TO AASHTO M-183 & SHALL BE GALVANIZED CONFORMING TO AASHTO M-111.

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 BOX CULVERT END SECTION NO. 2 SHALL INCLUDE THE EXPANSION BOLTS, GALVANIZED PIPES, CLASS SI CONCRETE, BOLTS, NUTS, REINFORCEMENT, WASHERS, AND STEEL PLATES.

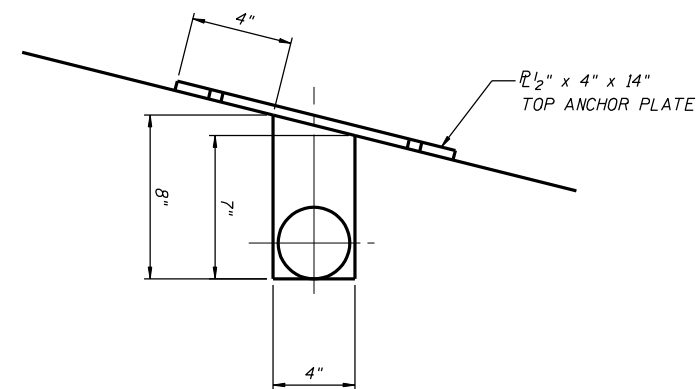


BAR d

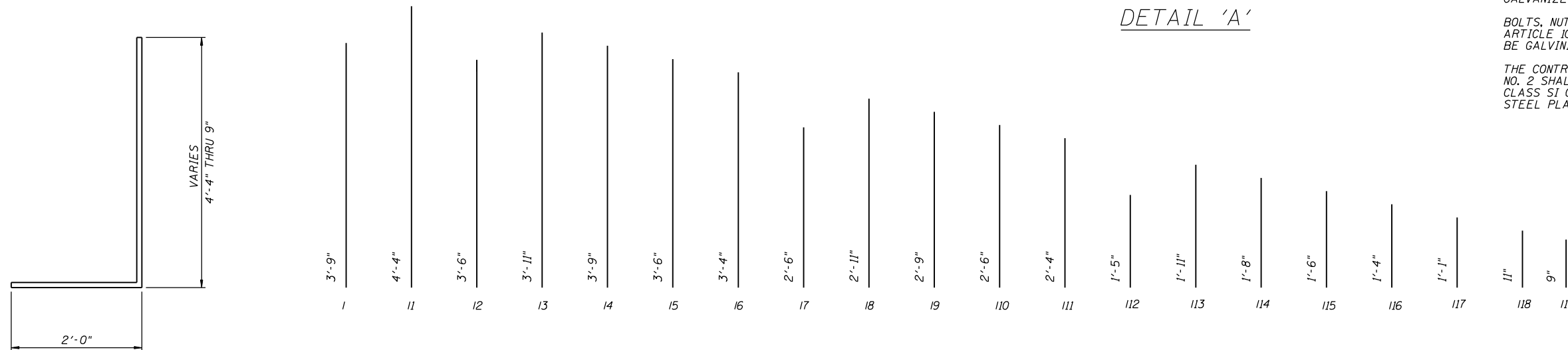


TOP ANCHOR PLATE

(8 EACH SECTION)
(32 TOTAL)



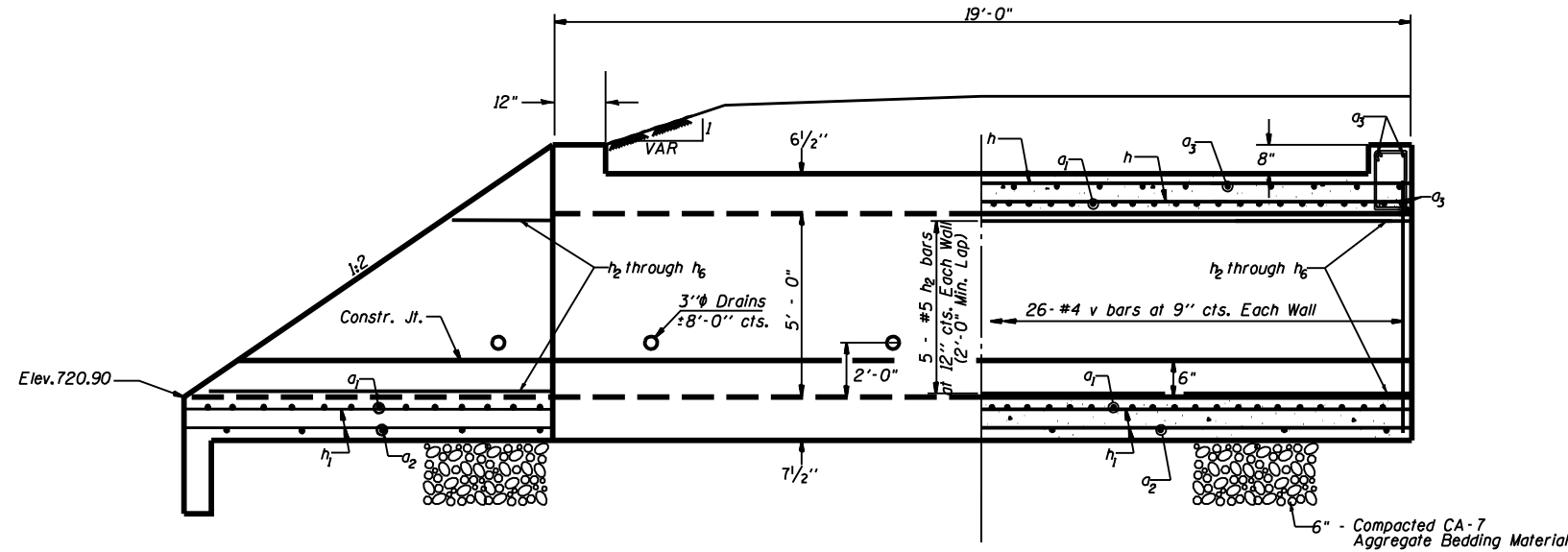
DETAIL 'A'



BARS 1 THRU 119

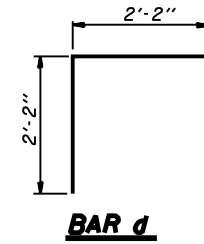
FILE NAME =	USER NAME = meglilj	DESIGNED -	REVISED - 10-24-07	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SCALE: _____		SHEET NO. ___ OF ___ SHEETS		STA. _____ TO STA. _____		F.A. RTE.:	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C:\Documents and Settings\mevlilj\Desktop\22CulvertExamples.cel		DRAWN -	REVISED -		CONTRACT NO. _____										
		CHECKED -	REVISED -		FED. ROAD DIST. NO. _____ ILLINOIS FED. AID PROJECT										
		DATE -	REVISED -												

CONCRETE BOX CULVERTS

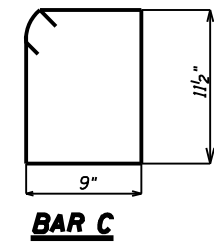


HALF ELEVATION

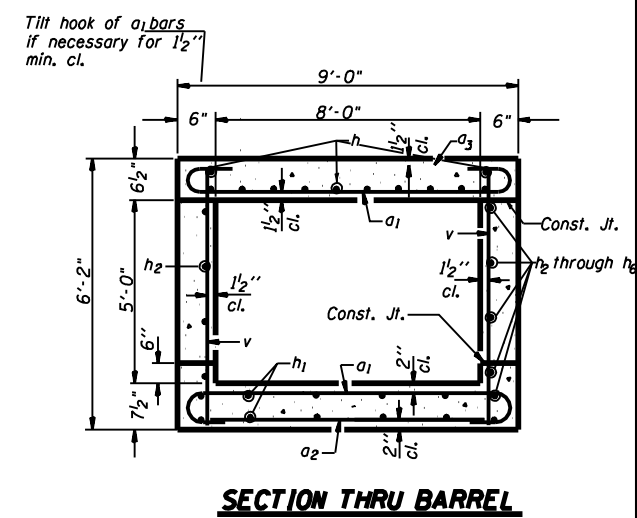
HALF LONG SECTION



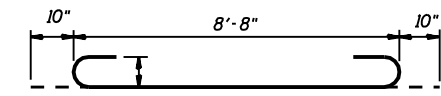
BAR d



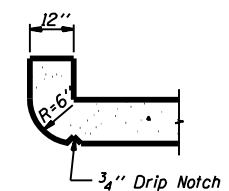
BAR c



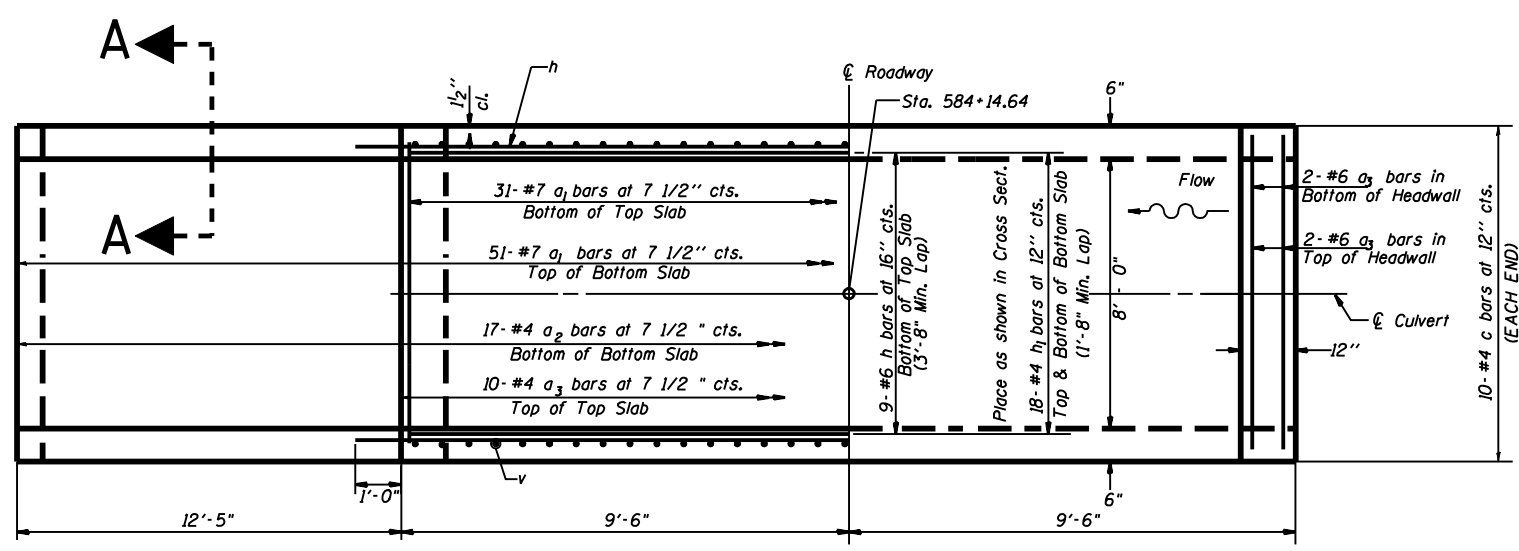
SECTION THRU BARREL



BAR a1



SECTION THRU HEADWALL
(Up Stream End Only)



SHOWING REINFORCEMENT

SHOWING OUTLINES

PLAN

NOTES

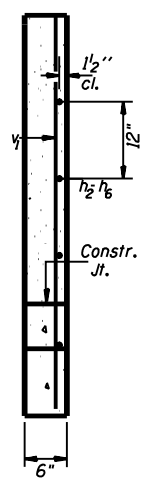
- A distance of half the length of the wingwall but not less than six feet of the barrel shall be poured monolithically with the wingwalls.
- Reinforcement Bars shall conform to the requirements of AASHTO M-31, M-42 or M-53, Grade 60.
- Bars indicated thus 12 x 4-#5 etc. indicates 12 lines of bars with 4 lengths per line.
- All construction joints shall be bonded.
- 6" of compacted CA-7 aggregate bedding material shall be place beneath the box culvert. The cost for the Ca-7 aggregate shall be included in the cost of Concrete Box Culverts.
- The cost of excavation and backfilling shall be included in the cost of Concrete Box Culverts.

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a	3	#4	8'-9"	—
a1	82	#7	10'-4"	U
a2	17	#4	8'-3"	—
a3	18	#6	8'-9"	—
d	10	#5	4'-4"	—
h	9	#6	18'-9"	—
h1	18	#4	31'-3"	—
h2	2	#5	21'-8"	—
h3	2	#5	23'-8"	—
h4	2	#5	25'-8"	—
h5	2	#5	27'-8"	—
h6	2	#5	29'-8"	—
h7	2	#5	13'-5"	—
v	52	#4	5'-10"	—
v1	15	#4	7'-4"	—
c	20	#4	3'-6 3/4"	—
Concrete Box Culverts			Cu. Yd.	15.70
Reinforcement Bars			Pound	3372.80
Expansion Bolts, 3/4"			Each	16

DESIGN STRESSES

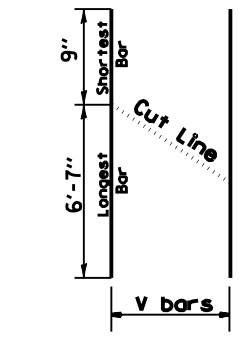
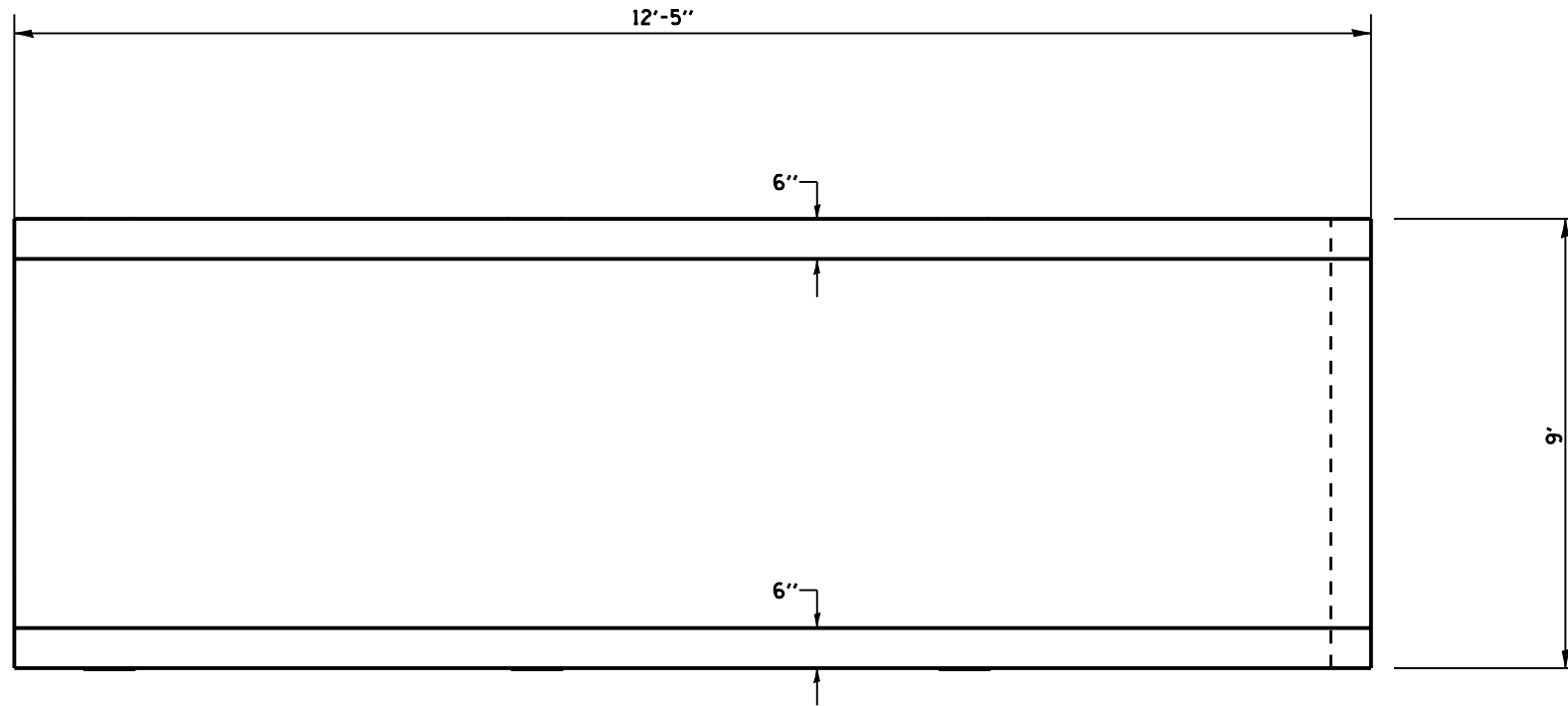
$f_y = 60,000 \text{ psi}$
 $f'_c = 3,500 \text{ psi}$



SECTION A-A

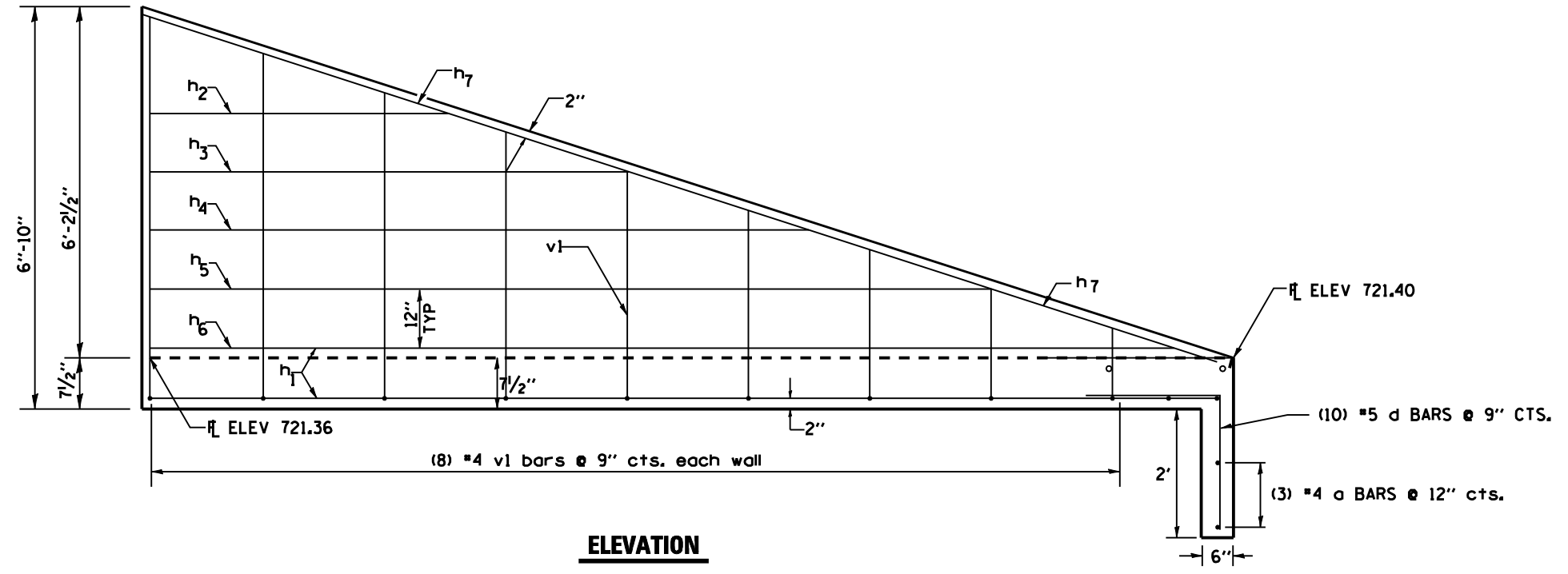
LOADING HS 20-44 & ALT.

CONCRETE BOX CULVERT END SECTION



**BAR v₁
cut diagram**

Order V₁ bars full length
Cut to fit as shown and
use remainder of bars in
opposite wall.



ELEVATION

FILE NAME : District 2 Standard	USER NAME : 100T/District 2	DESIGNED -	REVISED - 7-05-06	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD			F.A. RTÉ.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE : 2,0000' / IN.	DRAWN -	REVISED -		SCALE:	SHEET NO.	OF SHEETS	STA.	TO STA.	CONTRACT NO.		
PLOT DATE : September 06 2007	DATE -	CHECKED -	REVISED -					FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

BENCH MARK: BM 406
 STA. 117+19.06, 32.97' RT., EL. 905.316
 TOP OF ROW MARKER SOUTH OF IL 72
 WEST OF CULVERT & CONTROL POINT 6.

EXISTING STRUCTURE:
 DOUBLE 7'-0" X 4'-0" X 36'-0" CONCRETE BOX CULVERT.

NO SALVAGE.

PROPOSED IMPROVEMENTS:
 EXISTING STRUCTURE TO BE REMOVED AND REPLACED
 WITH A 5 CELL - 6'-0" X 3'-0" PRECAST CONCRETE BOX
 CULVERT WITH PRECAST CONCRETE BOX CULVERT END
 SECTIONS.

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

STATION 121+43.48
 BUILT 200 BY
 STATE OF ILLINOIS
 IL 72 SECT. 114T-1
 LOADING HS20
 STR. NO. 071-1151

DESIGN SPECIFICATIONS

AASHTO 2002 SPECIFICATIONS
 LOADING HS20-44
 ALLOW 50#/SQ. FT. FOR FUTURE WEARING SURFACE.

DESIGN STRESSES

FIELD UNITS
 f'c = 3,500 PSI
 fy = 60,000 PSI (REINFORCEMENT)

PRECAST UNITS
 f'c = 5,000 PSI
 fy = 60,000 PSI (REINFORCEMENT)

NAME PLATE

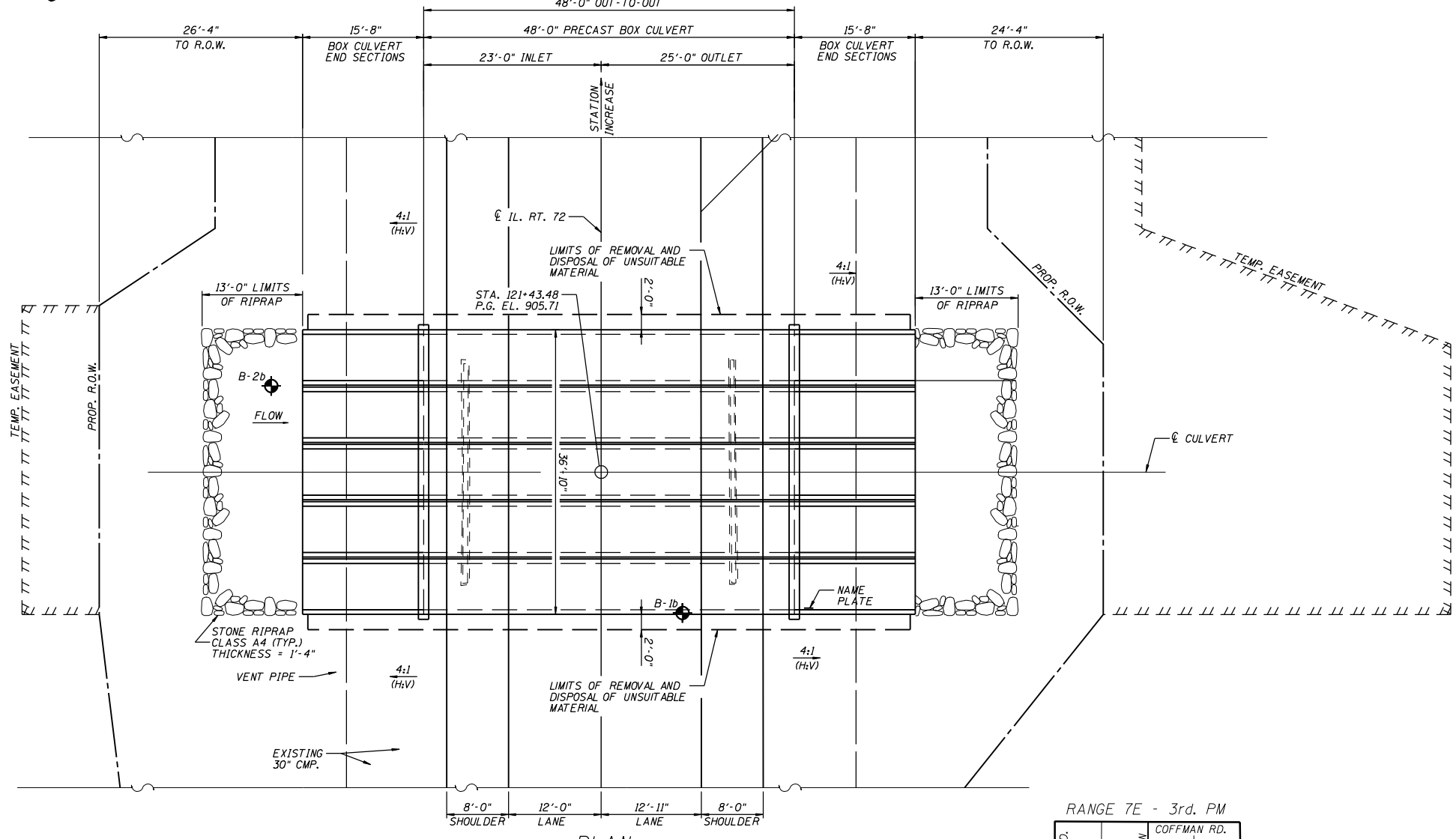
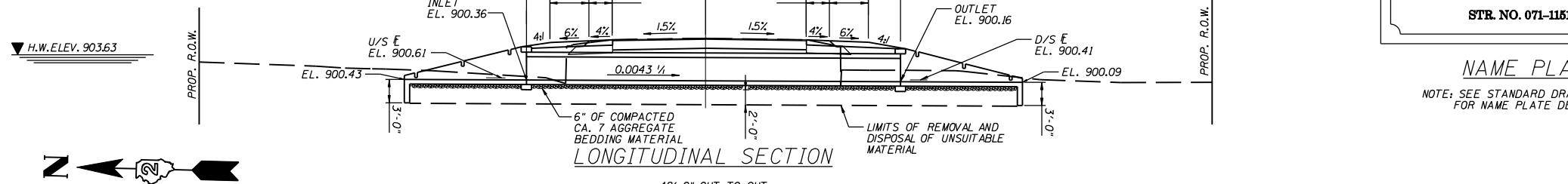
NOTE: SEE STANDARD DRAWING 515001
 FOR NAME PLATE DETAILS.

TOTAL BILL OF MATERIALS

ITEM	UNIT	QUANTITY
BOX CULVERT END SECTIONS NO. 3	EACH	10
PRECAST CONCRETE BOX CULVERT 6' x 3'	FOOT	240
NAME PLATES	EACH	1
REMOVAL OF EXISTING STRUCTURE NO. 5	EACH	1
STONE RIPRAP, CLASS A4	SQ. YD.	110
FILTER FABRIC	SQ. YD.	110
REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL	CU. YD.	255
BREAKER-RUN CRUSHED STONE	TON	410

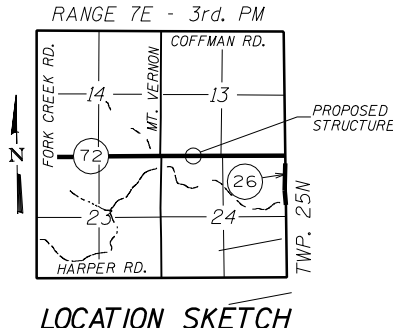
GENERAL NOTES

- REINFORCEMENT BARS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A706 GR 60 (IL MODIFIED). SEE SPECIAL PROVISION.
- EXPOSED EDGES SHALL HAVE A 3/4" CHAMFER.
- CULVERT FLOWS MUST BE MAINTAINED THROUGHOUT THE PROJECT. NORMAL FLOW SHALL BE ALLOWED TO PASS AT THE RATE IT ENTERS THE JOBSITE. HIGH FLOWS SHALL BE ALLOWED TO PASS WITHOUT CAUSING DAMAGE TO UPSTREAM PROPERTIES.
- THE CONTRACTOR SHALL CLEAN OUT CULVERT STREAM FLOW TO THE RIGHT OF WAY LINES. THE COST SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR "PRECAST CONCRETE BOX CULVERT 6'x3'".
- STRUCTURE EXCAVATION AND GRADING AROUND ENDS OF CULVERT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR "PRECAST CONCRETE BOX CULVERT 6' x 3'".
- PLACEMENT AND COMPACTION OF THE BACKFILL FOR CULVERT SHALL CONFORM TO SECTION 502.10 OF THE STANDARD SPECIFICATIONS. THE MATERIAL SHALL CONFORM TO SECTION 1004.05 OF THE STANDARD SPECIFICATIONS FOR COARSE AGGREGATE FOR TRENCH BACKFILL, AND SHALL BE COMPACTED TO MINIMUM OF 95% OF THE STANDARD LABORATORY DENSITY. THE ENTIRE EXCAVATION, WITHIN 2 FEET OUTSIDE OF EACH SHOULDER, SHALL BE BACKFILLED WITH TRENCH BACKFILL MATERIAL TO THE BOTTOM OF THE PROPOSED SUBGRADE. THIS TRENCH BACKFILL MATERIAL WILL NOT BE MEASURED FOR PAYMENT, BUT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR THE CLASS OF CONCRETE INVOLVED OR OTHER UNIT PRICE ITEM OF THE WORK FOR WHICH IT IS REQUIRED.
- PRECAST CONCRETE BOX CULVERT SLAB & WALL THICKNESS TAKEN FROM AASHTO MATERIAL SPECIFICATIONS. IF FABRICATOR CHOOSES TO ALTER DIMENSIONS, IT MUST BE APPROVED BY THE ENGINEER, AND THE CALCULATIONS SHALL BE PREPARED AND SEALED BY AN ILLINOIS LICENSED STRUCTURAL ENGINEER.
- ALL LABOR AND MATERIAL REQUIRED FOR THE CONSTRUCTION OF THE CONNECTION COLLAR SHALL BE INCLUDED IN THE BID ITEM "PRECAST CONCRETE BOX CULVERT 6' x 3'".
- STRUCTURE EXCAVATION AND GRADING AROUND ENDS OF CULVERT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR "PRECAST CONCRETE BOX CULVERT 6'x3'".
- BOX CULVERT END SECTIONS ARE TO BE PRECAST. CONTRACTOR HAS THE OPTION OF USING CAST-IN-PLACE END SECTIONS, BUT THE DESIGN OF THE REINFORCEMENT IS THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE APPROVED BY THE ENGINEER. IF THE CONTRACTOR ELECTS TO USE CAST-IN-PLACE END SECTIONS, NO ADJUSTMENTS IN COSTS OF THE END SECTIONS WILL BE ALLOWED.
- THE NEW NUMBER FOR THIS STRUCTURE WILL BE 071-1151.
- THE PRECAST CONCRETE BOX CULVERT SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M273 (DESIGN FILL HEIGHT < 2'-0")



WATERWAY INFORMATION

DRAINAGE AREA (ACRES) = 251.0		LOW GRADE ELEV. (FEET) EXIST = 904.76 @ STA. 109+94 PROPOSED = 904.76 @ STA. 109+94		
FLOOD	FREQ. YR.	DISCHARGE C.F.S.	HEADWATER ELEVATION	
			EXISTING	PROPOSED
TEN-YEAR	10	170	902.42	902.44
DESIGN	50	351	904.08	903.63
BASE	100	465	904.92	904.25
EX OVT	78	416	904.76	
PR OVT	162	568		904.76



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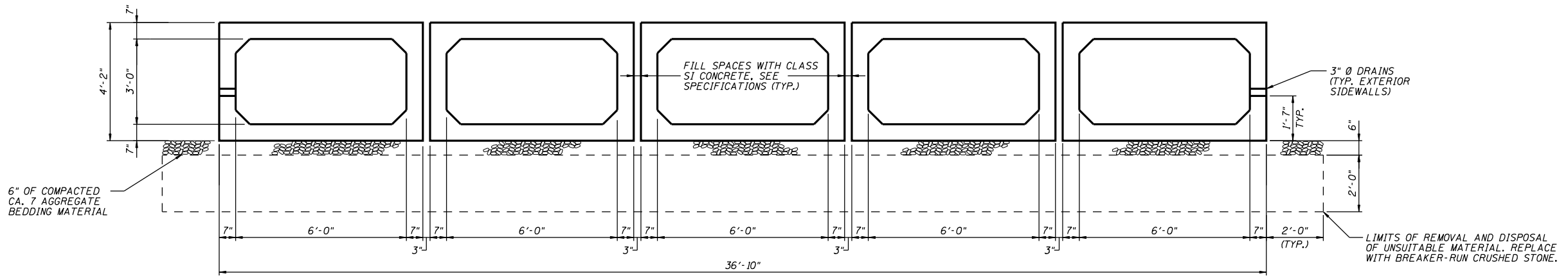
STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

REGION 2 / DISTRICT 2 STANDARD

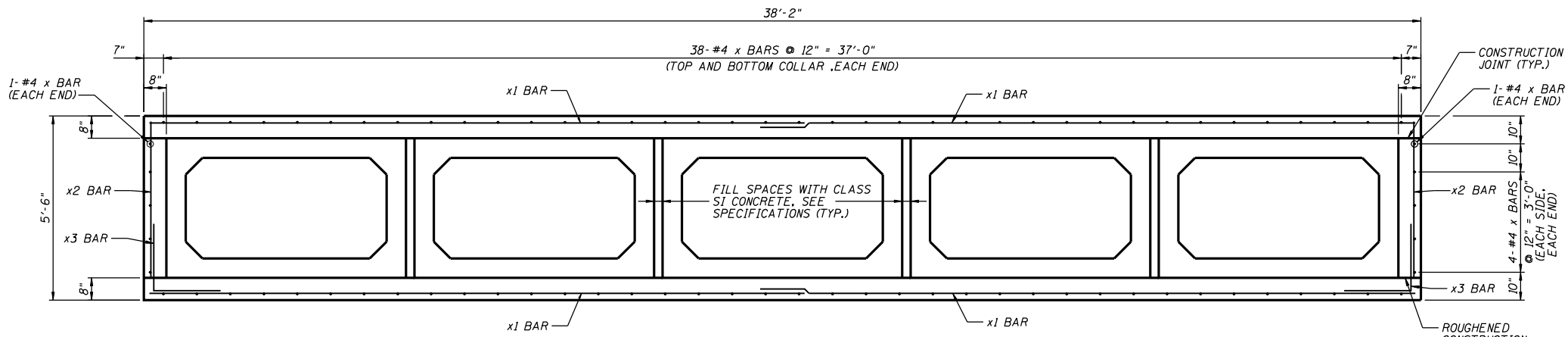
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F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CONTRACT NO. _____				
FED. ROAD DIST. NO. _____ ILLINOIS FED. AID PROJECT				

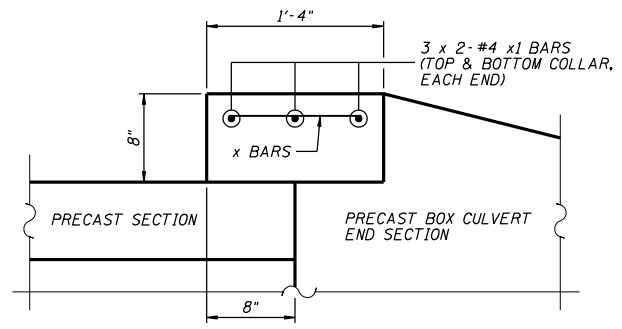
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



PRECAST TYPICAL SECTION



CONNECTION COLLAR SECTION

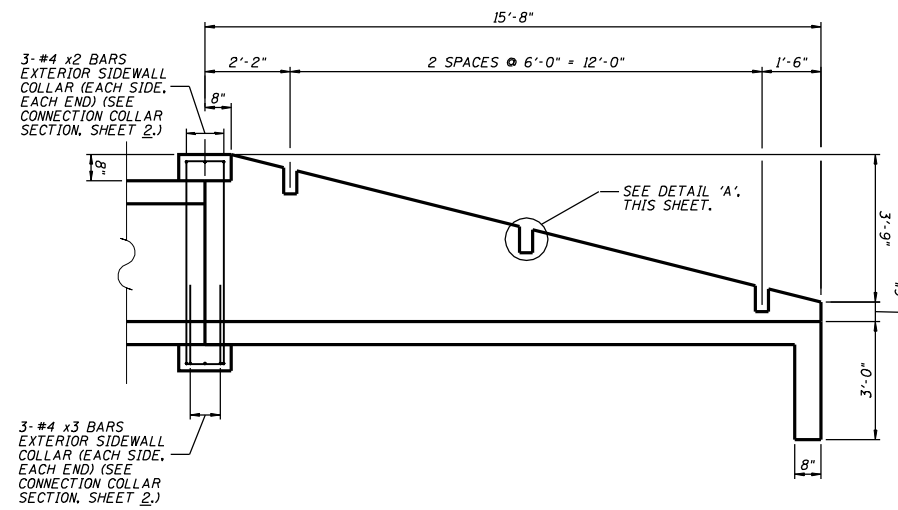


COLLAR DETAIL

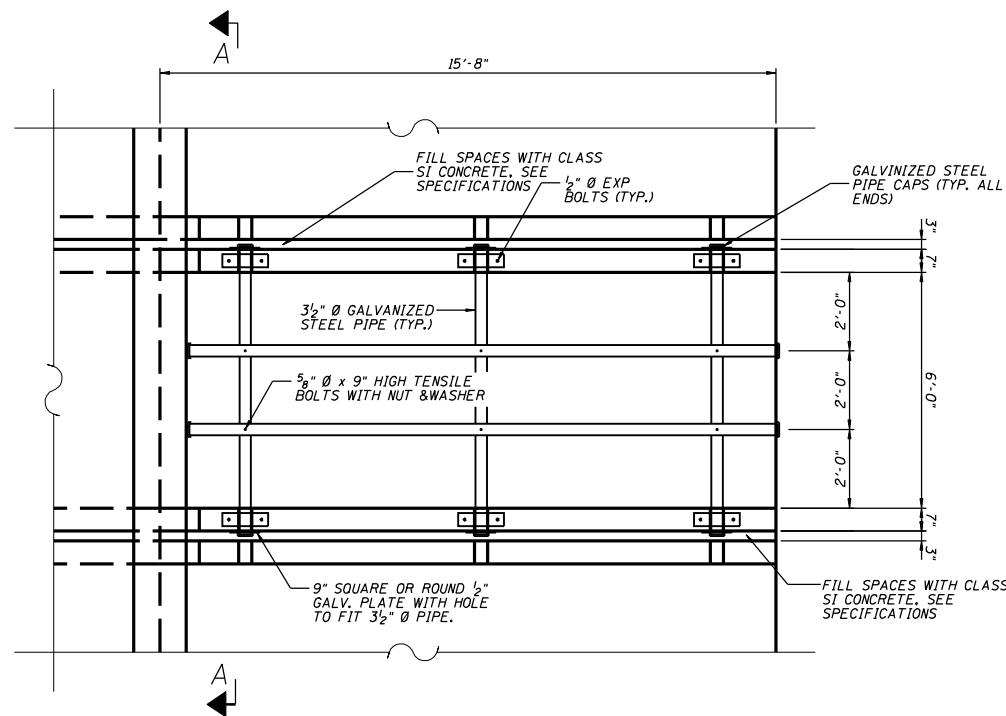
NOTE:
BARS INDICATED THUS 3x2-#4 x1 BARS
INDICATES 3 LINES OF BARS WITH 2
LENGTHS PER LINE.

FILE NAME =	USER NAME = meglilj	DESIGNED - ---	REVISED - 10-24-07	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD			F.A. RTE:	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		CHECKED - ---	REVISED - ---									
		DATE - ---	REVISED - ---									
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								FED. ROAD DIST. NO. _____ ILLINOIS FED. AID PROJECT				

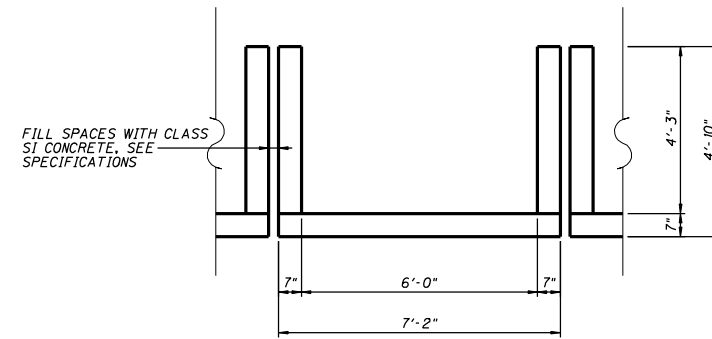
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



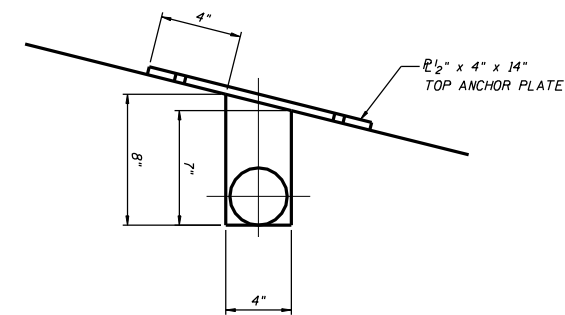
INLET/OUTLET ELEVATION
(5 END SECTIONS,
EACH END 10 TOTAL)



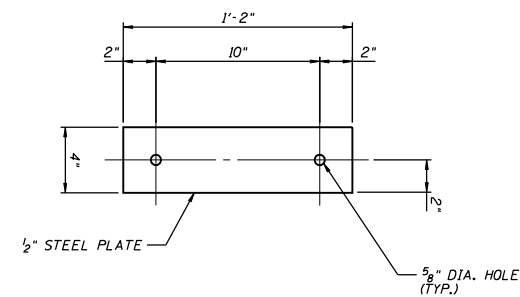
INLET/OUTLET PLAN
(5 END SECTIONS,
EACH END, 10 TOTAL)



SECTION A-A



DETAIL 'A'

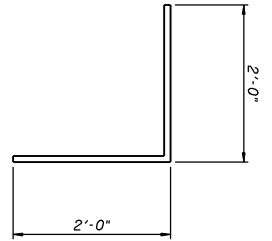


TOP ANCHOR PLATE
(6 EACH SECTION)
(60 TOTAL)

* CONNECTION COLLAR
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
x	172	4	1'-0"	—
x1	24	4	19'-7"	—
x2	12	4	4'-8"	—
x3	12	4	4'-0"	—
CONCRETE STRUCTURES		CU. YD.	5.6	
REINFORCEMENT BARS		POUND	508	

* FOR INFORMATIONAL PURPOSES ONLY.
COST TO BE INCLUDED IN THE BID ITEM
"PRECAST CONCRETE BOX CULVERT 6'x3'"



BAR x3

** BOX CULVERT END SECTIONS NO. 3
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
3 1/2" Ø GALV. STEEL PIPE	EACH	2 @ 15'-4"
		3 @ 7'-4"
1/2" x 4" x 14" GALV. ANCHOR PLATE	EACH	6
5/8" Ø x 9" GALV. BOLTS	EACH	6
1/2" Ø GALV. EXP. BOLTS	EACH	12
9" SQ. OR ROUND 1/2" GALV. PLATE	EACH	6
GALV. STEEL PIPE CAPS	EACH	10

** QUANTITIES GIVEN ARE FOR EACH BOX
CULVERT END SECTION FOR INFORMATIONAL
PURPOSES ONLY. COST TO BE INCLUDED
IN THE BID ITEM "BOX CULVERT END
SECTIONS NO. 3".

GENERAL NOTES

STEEL PIPES SHALL CONFORM TO A.S.T.M. A-53 (TYPE E OR S) GRADE B, SCHEDULE 40, & SHALL BE GALVANIZED CONFORMING TO A.S.T.M. A-120.

STEEL PLATES SHALL CONFORM TO AASHTO M-183 & 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 BOX CULVERT END SECTIONS NO. 3 SHALL INCLUDE THE EXPANSION BOLTS, GALVANIZED PIPES, CLASS SI CONCRETE, BOLTS, NUTS, REINFORCEMENT, WASHERS AND STEEL PLATES.

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PLOT DATE = Thu Oct 25 09:37:31 2007		DATE - ---	REVISED - ---

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

--- REGION 2 / DISTRICT 2 STANDARD ---

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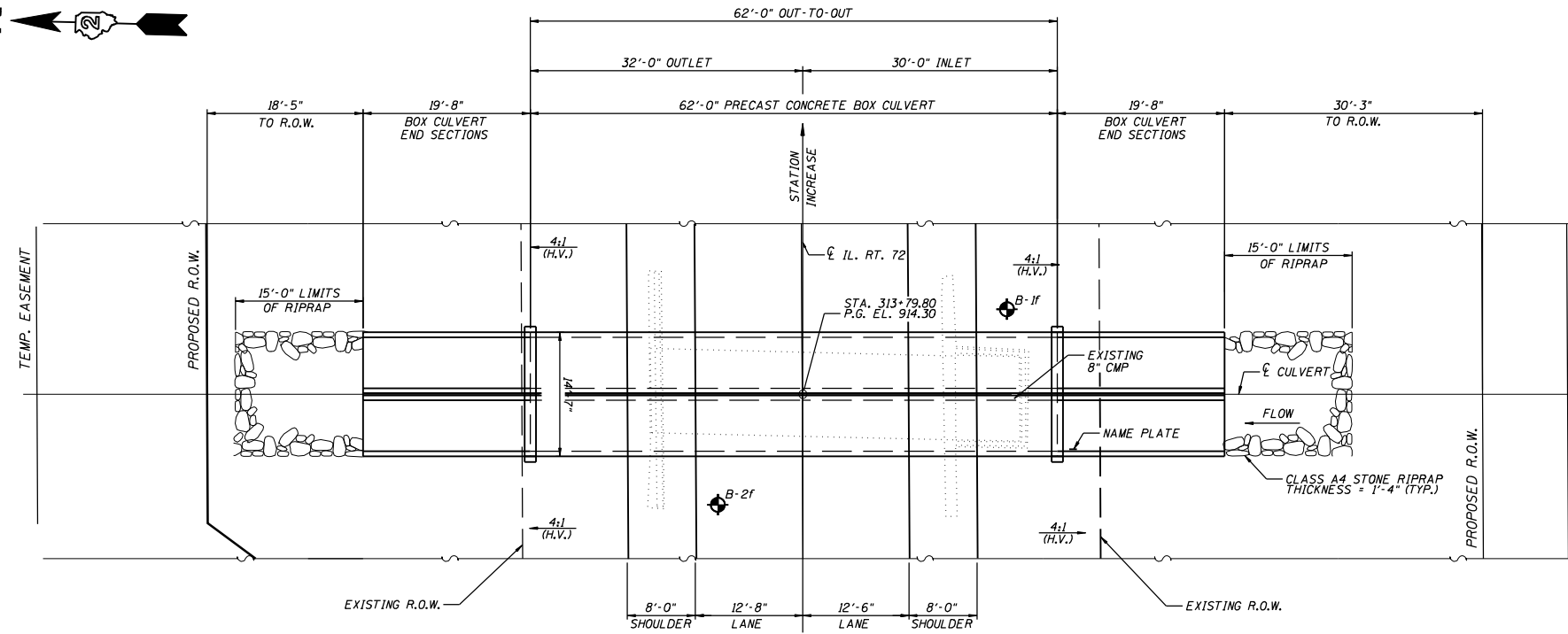
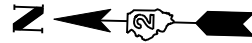
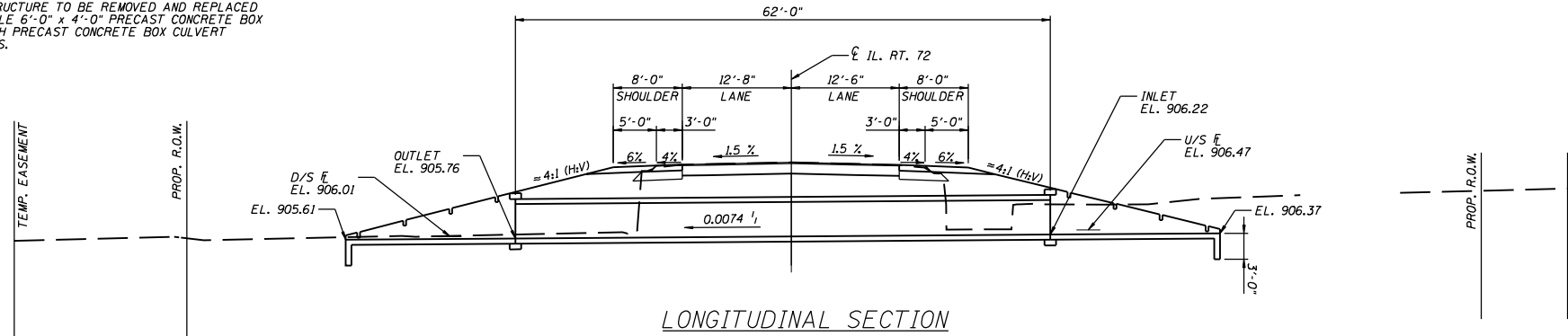
F.A. RTE.:	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CONTRACT NO.				
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXISTING STRUCTURE:
SINGLE 10'-0" x 5'-0" x 36'-0"
CONCRETE BOX CULVERT WITH
10'-0" x 7'-0" WEIR @ INLET END.

NO SALVAGE.

PROPOSED IMPROVEMENTS:
EXISTING STRUCTURE TO BE REMOVED AND REPLACED
WITH A DOUBLE 6'-0" x 4'-0" PRECAST CONCRETE BOX
CULVERT WITH PRECAST CONCRETE BOX CULVERT
END SECTIONS.



PLAN

DESIGN SPECIFICATIONS

AASHTO 2002 SPECIFICATIONS

LOADING HS20-44

ALLOW 50#/SQ. FT. FOR FUTURE WEARING SURFACE.

DESIGN STRESSES

FIELD UNITS

$f'_c = 3,500$ PSI
 $f_y = 60,000$ PSI (REINFORCEMENT)

PRECAST UNITS

$f'_c = 5,000$ PSI
 $f_y = 60,000$ PSI (REINFORCEMENT)

TOTAL BILL OF MATERIALS

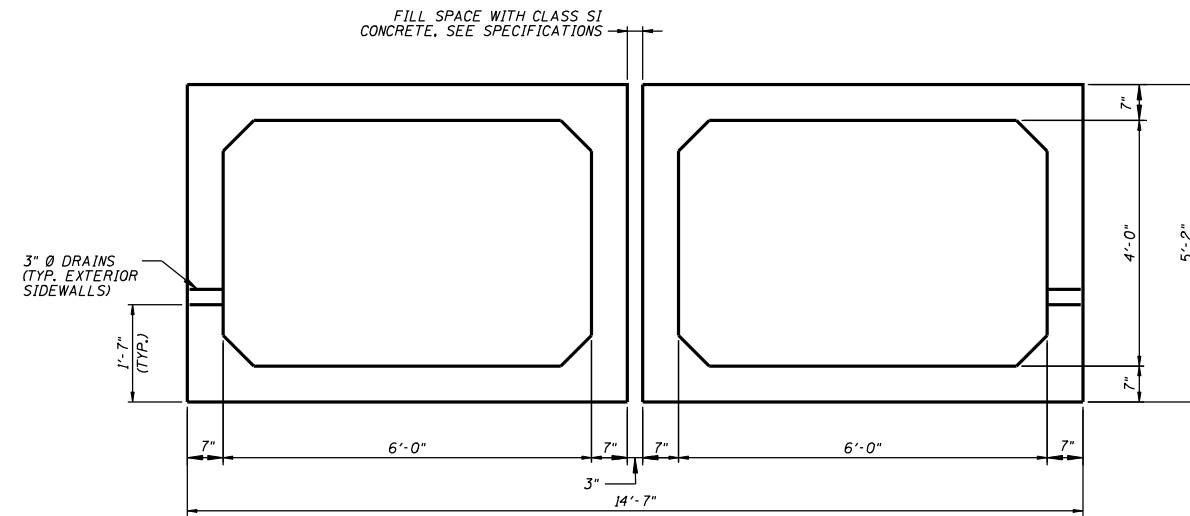
ITEM	UNIT	QUANTITY
BOX CULVERT END SECTIONS NO. 1	EACH	4
PRECAST CONCRETE BOX CULVERT 6' x 4'	FOOT	124
REMOVAL OF EXISTING STRUCTURE NO.2	EACH	1
STONE RIPRAP, CLASS A4	SQ. YD.	50
FILTER FABRIC	SQ. YD.	50
NAME PLATES	EACH	1

GENERAL NOTES

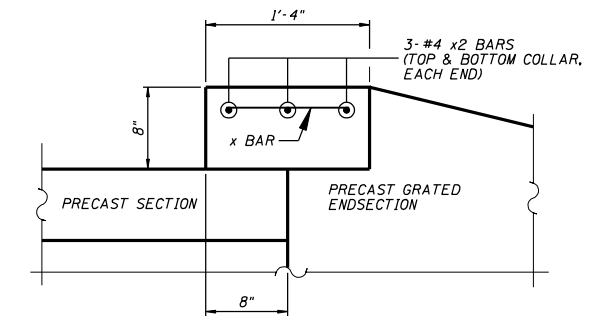
- REINFORCEMENT BARS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A706 GR 60 (IL MODIFIED), SEE SPECIAL PROVISION.
- EXPOSED EDGES SHALL HAVE A $\frac{3}{4}$ " CHAMFER.
- CULVERT FLOWS MUST BE MAINTAINED THROUGHOUT THE PROJECT. NORMAL FLOW SHALL BE ALLOWED TO PASS AT THE RATE IT ENTERS THE JOBSITE. HIGH FLOWS SHALL BE ALLOWED TO PASS WITHOUT CAUSING DAMAGE TO UPSTREAM PROPERTIES.
- THE CONTRACTOR SHALL CLEAN OUT CULVERT STREAM FLOW TO THE RIGHT OF WAY LINES. THE COST SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR "PRECAST CONCRETE BOX CULVERT 6'x4'".
- STRUCTURE EXCAVATION AND GRADING AROUND ENDS OF CULVERT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR "PRECAST CONCRETE BOX CULVERT 6'x4'".
- PLACEMENT AND COMPACTION OF THE BACKFILL FOR CULVERT SHALL CONFORM TO SECTION 502.10 OF THE STANDARD SPECIFICATIONS. THE MATERIAL SHALL CONFORM TO SECTION 1004.05 OF THE STANDARD SPECIFICATIONS FOR COARSE AGGREGATE FOR TRENCH BACKFILL, AND SHALL BE COMPACTED TO MINIMUM OF 95% OF THE STANDARD LABORATORY DENSITY. THE ENTIRE EXCAVATION, WITHIN 2 FEET OUTSIDE OF EACH SHOULDER, SHALL BE BACKFILLED WITH TRENCH BACKFILL MATERIAL TO THE BOTTOM OF THE PROPOSED SUBGRADE. THIS TRENCH BACKFILL MATERIAL WILL NOT BE MEASURED FOR PAYMENT, BUT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR THE CLASS OF CONCRETE INVOLVED OR OTHER UNIT PRICE ITEM OF THE WORK FOR WHICH IT IS REQUIRED.
- ALL LABOR AND MATERIAL REQUIRED FOR THE CONSTRUCTION OF THE CONNECTION COLLAR SHALL BE INCLUDED IN THE BID ITEM "PRECAST CONCRETE BOX CULVERT 6'x4'".
- PRECAST CONCRETE BOX CULVERT SLAB & WALL THICKNESS TAKEN FROM AASHTO MATERIAL SPECIFICATIONS. IF FABRICATOR CHOOSES TO ALTER DIMENSIONS, IT MUST BE APPROVED BY THE ENGINEER AND THE CALCULATIONS SHALL BE PREPARED AND SEALED BY AN ILLINOIS LICENSED STRUCTURAL ENGINEER.
- BOX CULVERT END SECTIONS ARE TO BE PRECAST. CONTRACTOR HAS THE OPTION OF USING CAST-IN-PLACE END SECTIONS. FOR EITHER TYPE OF END SECTION, THE CONTRACTOR IS REQUIRED TO SUBMIT DESIGN CALCULATIONS TO BE APPROVED BY THE ENGINEER. THE DESIGN CALCULATIONS SHALL BE PREPARED AND SEALED BY AN ILLINOIS LICENSED STRUCTURAL ENGINEER. IF THE CONTRACTOR ELECTS TO USE CAST-IN-PLACE END SECTIONS, NO ADJUSTMENTS IN COSTS OF THE END SECTIONS WILL BE ALLOWED.
- THE NEW NUMBER FOR THIS STRUCTURE WILL BE 008-1092.
- THE PRECAST CONCRETE BOX CULVERT SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M259 (DESIGN FILL HEIGHT = 3'-0")

FILE NAME =	USER NAME = meglilj	DESIGNED - ---	REVISED - 10-24-07	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD			F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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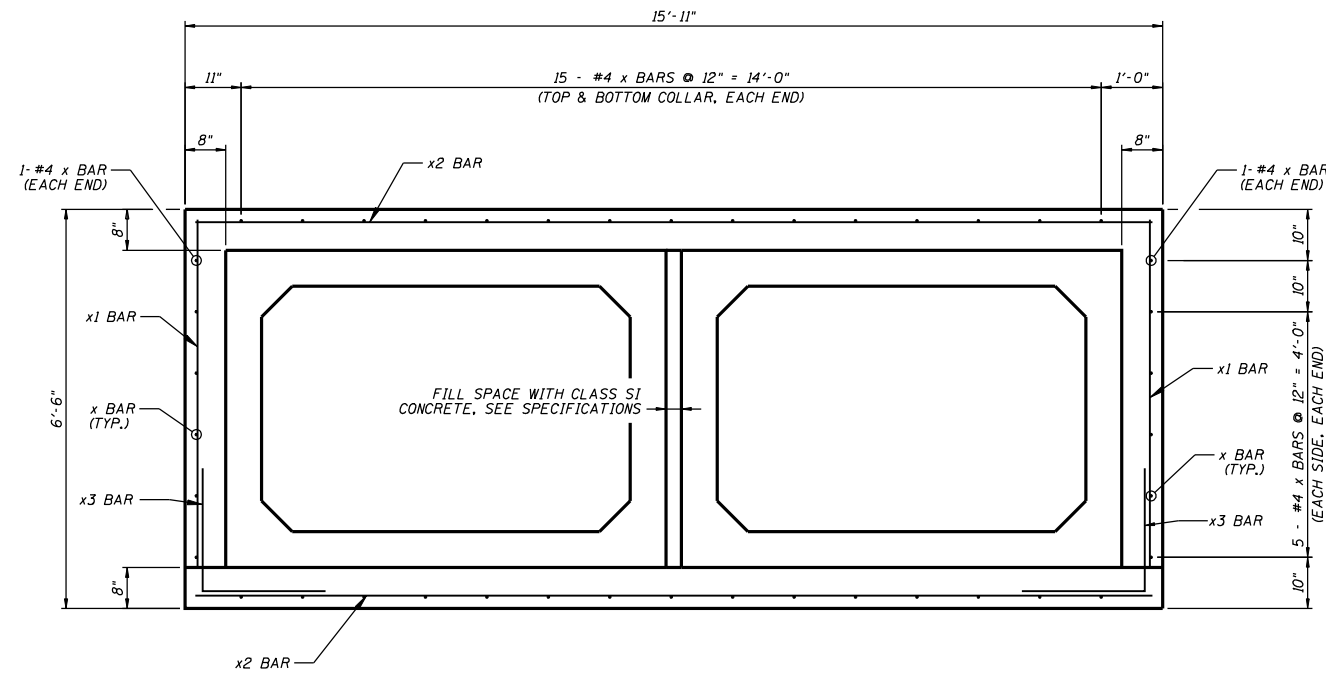
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



PRECAST TYPICAL SECTION



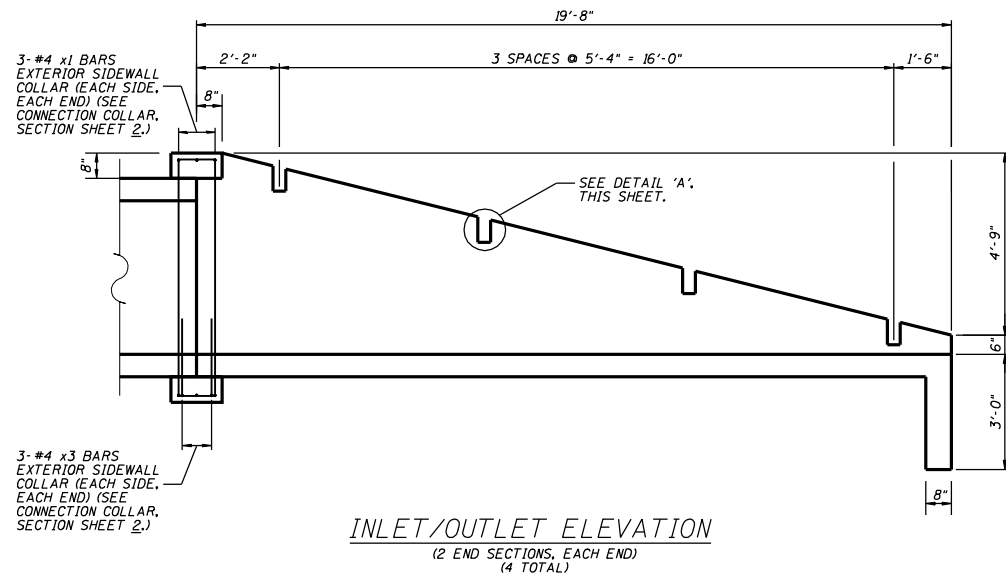
COLLAR DETAIL



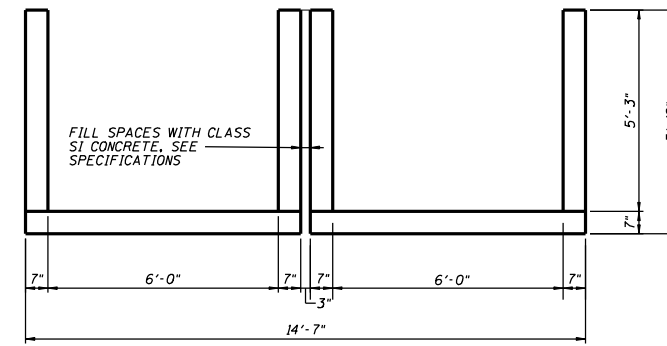
CONNECTION COLLAR SECTION

FILE NAME =	USER NAME = meglilj	DESIGNED -	REVISED - 10-24-07	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD			F.A. RTÉ:	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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PLOT DATE = Thu Oct 25 09:17:10 2007	DATE -	REVISED -	REVISED -									

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



INLET/OUTLET ELEVATION
(2 END SECTIONS, EACH END)
(4 TOTAL)

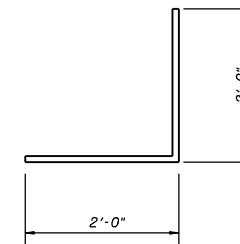


SECTION A-A

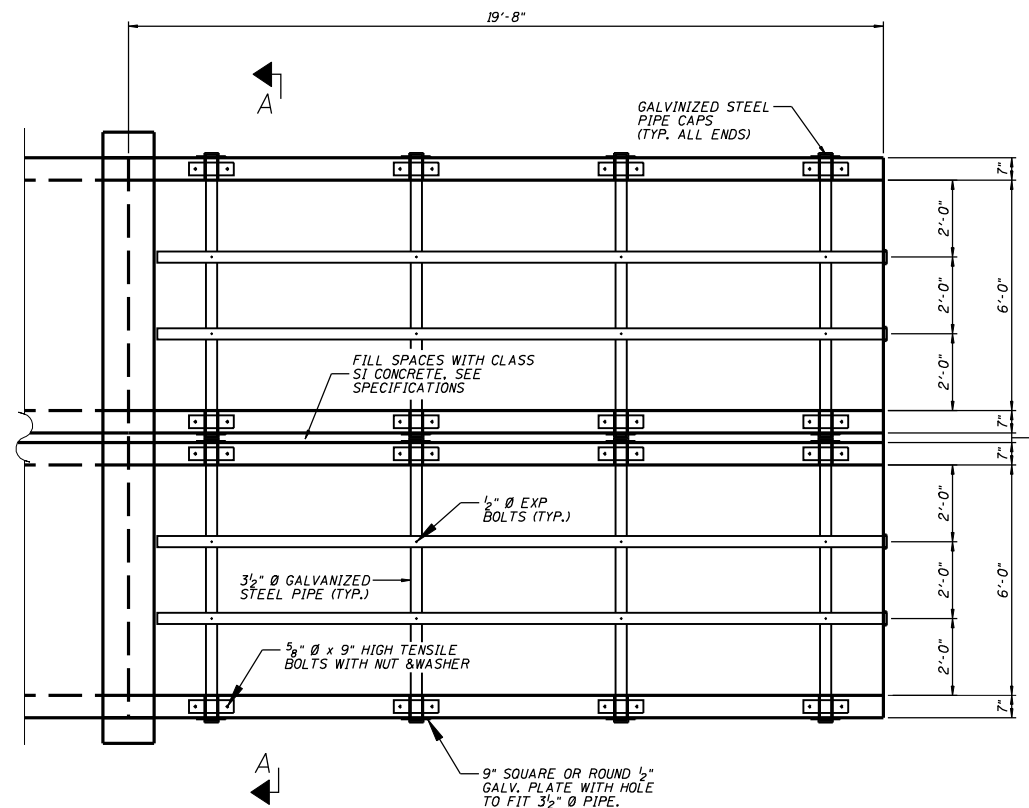
* CONNECTION COLLAR
BILL OF MATERIAL

Bar	No.	Size	Length	Shape	
x	84	4	1'-0"		
x1	12	4	5'-8"		
x2	12	4	15'-7"		
x3	12	4	4'-0"		
CONCRETE STRUCTURES				CU. YD.	2.8
REINFORCEMENT BARS				POUND	265

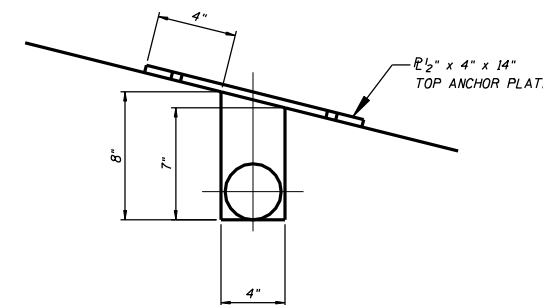
* FOR INFORMATIONAL PURPOSES ONLY.
COST TO BE INCLUDED IN THE BID ITEM
"PRECAST CONCRETE BOX CULVERT 6'x4' "



BAR x3



INLET/OUTLET PLAN
(2 END SECTIONS, EACH END)
(4 TOTAL)



DETAIL 'A'

** BOX CULVERT END SECTIONS NO. 1
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
3 1/2" Ø GALV. STEEL PIPE	EACH	2 @ 19'-5"
1/2" x 4" x 14" GALV. ANCHOR PLATE	EACH	4 @ 7'-4"
5/8" Ø x 9" GALV. BOLTS	EACH	8
1/2" Ø GALV. EXP. BOLTS	EACH	16
9" SQ. OR ROUND 1/2" GALV. PLATE	EACH	8
GALV. STEEL PIPE CAPS	EACH	12

** QUANTITIES GIVEN ARE FOR EACH BOX CULVERT END SECTION. FOR INFORMATIONAL PURPOSES ONLY. COST TO BE INCLUDED IN THE BID ITEM "BOX CULVERT END SECTIONS NO. 1"

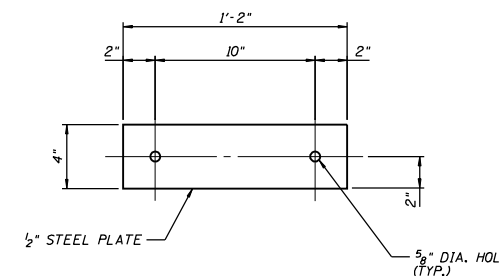
GENERAL NOTES

STEEL PIPES SHALL CONFORM TO A.S.T.M. A-53 (TYPE E OR S) GRADE B, SCHEDULE 40, & SHALL BE GALVANIZED CONFORMING TO A.S.T.M. A-120.

STEEL PLATES SHALL CONFORM TO AASHTO M-183 & 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 BOX CULVERT END SECTION NO. 1 SHALL INCLUDE THE EXPANSION BOLTS, GALVANIZED PIPES, CLASS SI CONCRETE, BOLTS, NUTS, REINFORCEMENT, WASHERS, AND STEEL PLATES.



TOP ANCHOR PLATE
(8 EACH SECTION)
(32 TOTAL)

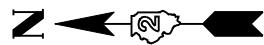
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

REGION 2 / DISTRICT 2 STANDARD

SCALE: _____ SHEET NO. ____ OF ____ SHEETS STA. _____ TO STA. _____

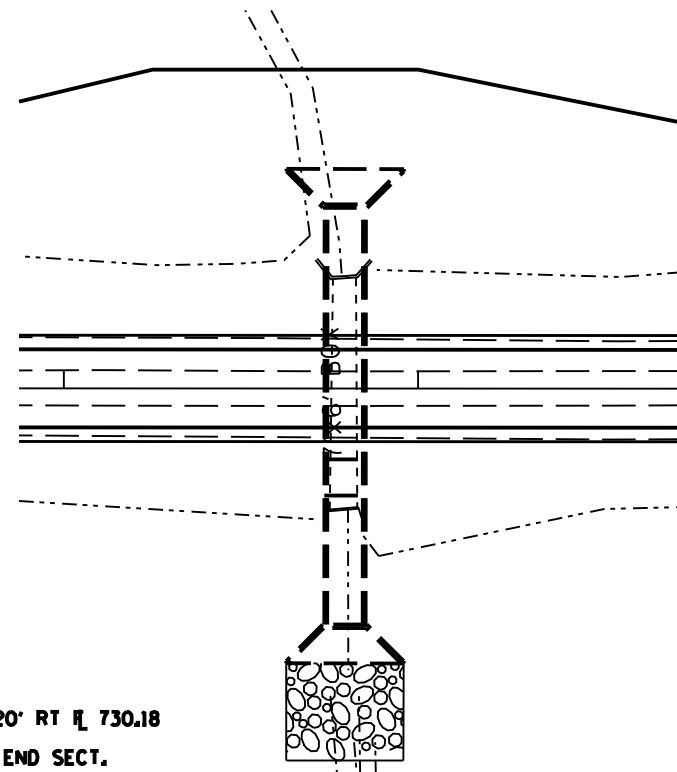
F.A. RTE.:	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CONTRACT NO. _____				
FED. ROAD DIST. NO. _____ ILLINOIS FED. AID PROJECT				



PLAN

CULVERT LOCATION NO.1

STA. 122+79.39
SHEET 1 OF 3



STA. 122+79.39
51' LT \bar{R} 730.54 - 20' RT \bar{R} 730.18
71' PCBC 10' x 6'
1 EA. BOX CULVERT END SECT.
24.3'
1 EA. CULVERT DROP BOX
28.6' RT \bar{R} 725.85 - 64.6' RT \bar{R} 725.66
38' PCBC 10' x 6'
1 EA. BOX CULVERT END SECT.

CROSS SECTION

GENERAL NOTES

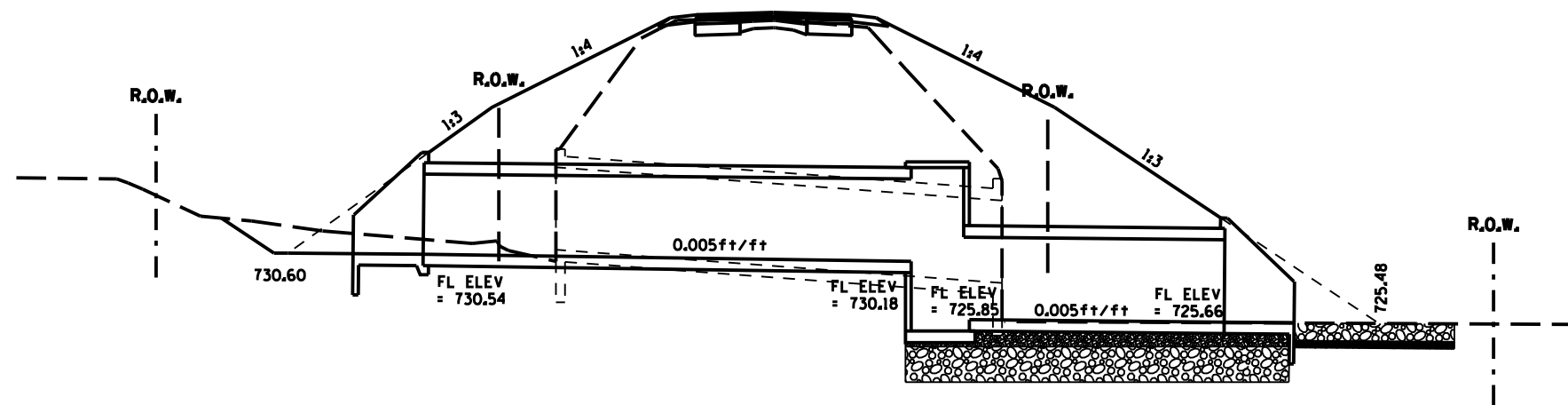
Build tops of headwalls parallel to grade line.

Class "SI" concrete shall be used throughout. Exposed edges shall be beveled $\frac{3}{4}$ inch.

The contract unit price "Each" for cast in place Reinforced Concrete End Section shall include the Class SI Concrete, Reinforcement Bars, earth excavation where required, and necessary grading to fit inlets to slopes.

Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-53, grade 60.

A LAYER OF PORUS GRANULAR BEDDING MATERIAL (MIN. 6") SHALL BE PLACED BELOW THE ELEVATION OF THE BOTTOM OF THE BOX CULVERT AND EXTEND AT LEAST 2 FEET BEYOND EACH SIDE OF THE BOX CULVERT.



BILL OF MATERIALS

Description	Unit	QTY.
Precast Concrete Box Culvert 10' x 6'	Foot	109
Box Culvert End Section	Each	2
Culvert Drop Box	Each	1
Non Porous Gran Emb	Cu. Yd.	2629
Class C Patch	Sq. Yd.	64.5
Removal Of Existing Structure No. 1	Each	1
Stone Rip Rap Class A4	Sq. Yd.	110
Filter Fabric for use with RipRap	Sq. Yd.	110

WATERWAY INFORMATION TABLE

DRAINAGE AREA = 0.64 sq mi		LOW GRADE ELEV. (FT) 747.32 (Exist) 747.65 (Proposed)		Sta. 123+02		
FLOOD	FREQUENCY (YEAR)	Q c.f.s.	OPENING (sq. ft.)	NAT. H.W. ELEV. (FT)	HEAD (FT)	HEADWATER ELEV. (FT)
			EXIST.	PROP.	EXIST.	PROP.
DESIGN	30	432	23.5	41.9	734.19	739.13
BASE	100	578	27.2	47.2	734.72	742.35
OVERTOP	435	750	31.1		735.28	747.33
MAX CALC	500	766		53.2	735.32	740.55

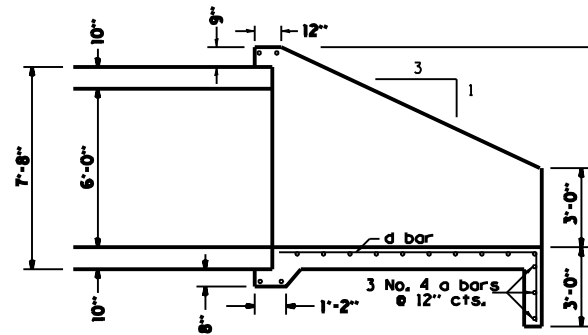
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	PLOT SCALE : 2.0000' / IN.	DRAWN -	REVISED -		SCALE:	SHEET NO.	OF SHEETS	STA.	TO STA.	CONTRACT NO.		
	PLOT DATE : September 06 2007	CHECKED -	REVISED -		FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT							
		DATE -	REVISED -		CULVERT LOCATION NO.1							

CULVERT LOCATION NO.1

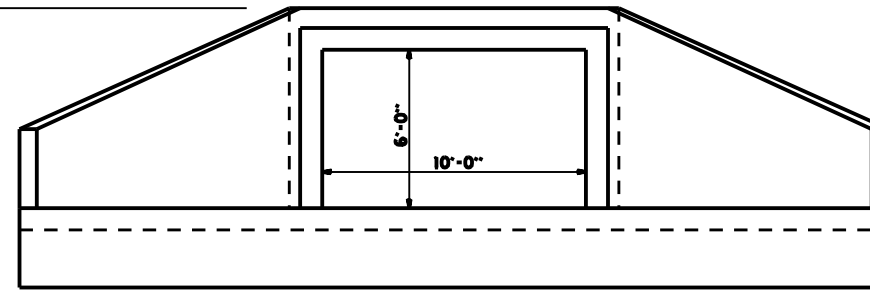
BOX CULVERT END SECTION

STA. 122 + 79.39

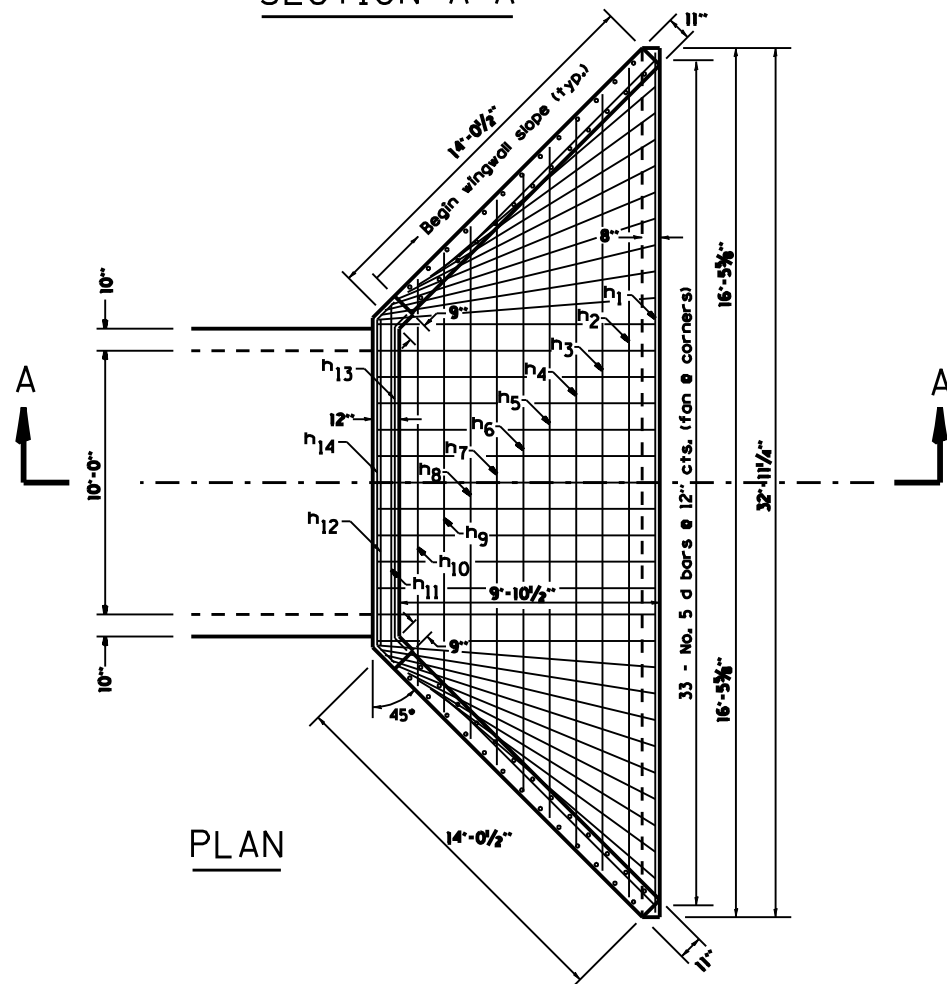
SHEET 2 OF 3



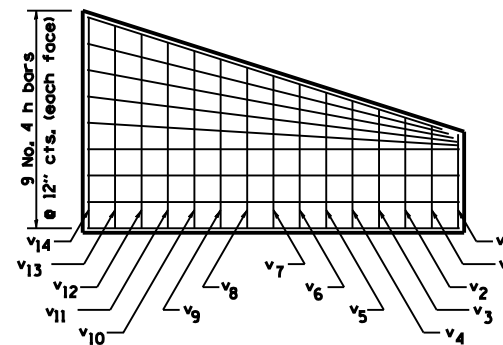
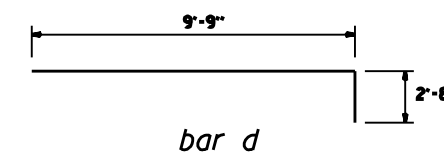
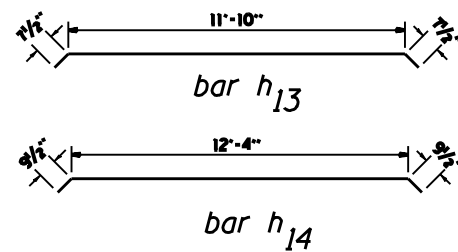
SECTION A-A



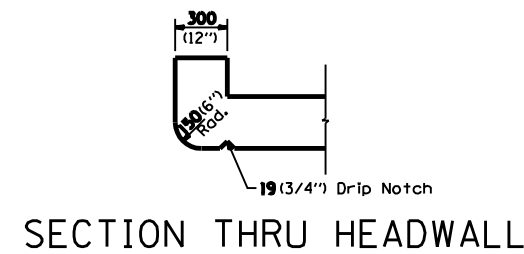
END VIEW



PLAN



WING



SECTION THRU HEADWALL

BILL OF MATERIALS

BAR	NUMBER	SIZE	LENGTH
o	3	#4	32'-7"
d	33	#5	12'-5"
h	36	#5	14'-1"
h ₁	1	#5	32'-7"
h ₂	1	#5	31'-5"
h ₃	1	#5	29'-5"
h ₄	1	#5	27'-5"
h ₅	1	#5	25'-5"
h ₆	1	#5	23'-5"
h ₇	1	#5	21'-5"
h ₈	1	#5	19'-5"
h ₉	1	#5	17'-5"
h ₁₀	1	#5	15'-5"
h ₁₁	1	#5	13'-5"
h ₁₂	1	#5	12'-4"
h ₁₃	1	#5	13'-1"
h ₁₄	1	#5	13'-11"
v	4	#5	3'-7"
v ₁	4	#5	3'-10"
v ₂	4	#5	4'-2"
v ₃	4	#5	4'-6"
v ₄	4	#5	4'-10"
v ₅	4	#5	5'-2"
v ₆	4	#5	5'-5"
v ₇	4	#5	5'-9"
v ₈	4	#5	6'-1"
v ₉	4	#5	6'-5"
v ₁₀	4	#5	6'-9"
v ₁₁	4	#5	7'-1"
v ₁₂	4	#5	7'-4"
v ₁₃	4	#5	7'-8"
v ₁₄	4	#5	8'-0"

DESCRIPTION	UNIT	QTY.
CLASS SI CONCRETE	CU YDS	16.0
REINFORCEMENT BARS	lbs.	1692

FILE NAME : District 2 Standard	USER NAME : I001/District 2	DESIGNED -	REVISED - 7-6-06
	PLOT SCALE : 2.0000' / IN.	DRAWN -	REVISED -
	PLOT DATE : September 06 2007	CHECKED -	REVISED -
		DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

REGION 2 / DISTRICT 2 STANDARD

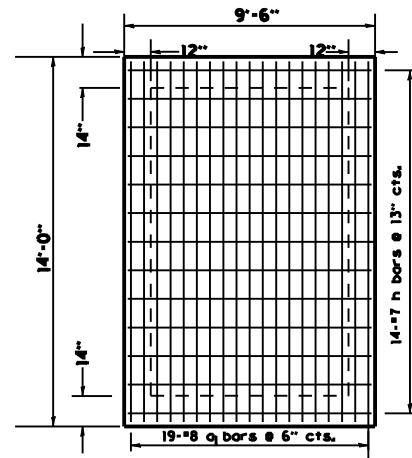
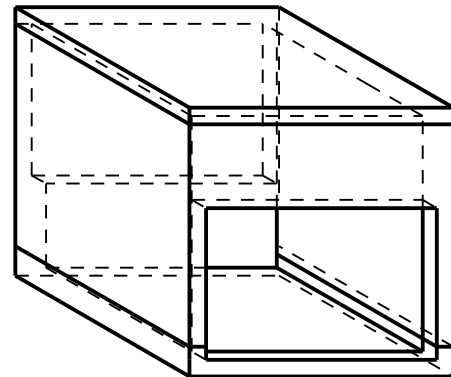
SCALE: SHEET NO. OF SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CONTRACT NO.				
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

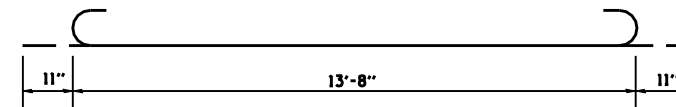
CULVERT LOCATION NO.1

CULVERT LOCATION NO.1

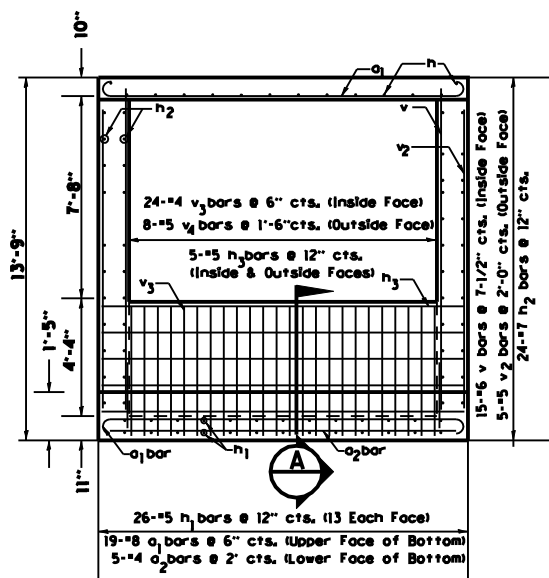
CULVERT DROP BOX
 STA. 122 + 79.39
 SHEET 3 OF 3



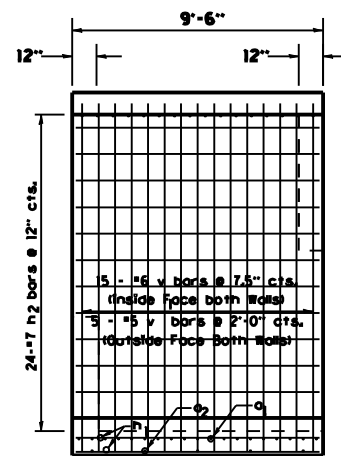
TOP



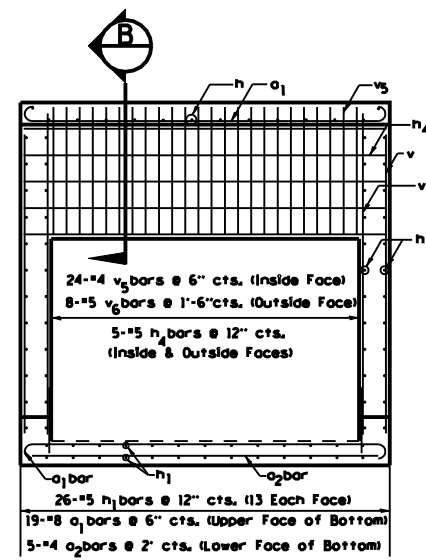
bar a₁



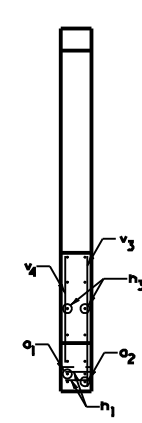
EAST SIDE



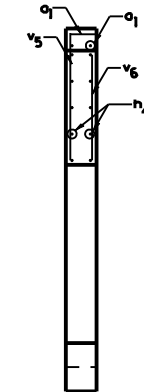
NORTH & SOUTH SIDES



WEST SIDE



SECTION A-A



SECTION B-B

BILL OF MATERIALS

BAR	NUMBER	SIZE	LENGTH	
a ₁	38	8	15'-6"	
a ₂	5	4	12'-3"	
h	14	7	9'-3"	
h ₁	26	5	9'-3"	
h ₂	48	7	9'-3"	
h ₃	10	5	13'-9"	
h ₄	10	5	13'-9"	
v	30	6	9'-3"	
v ₁	30	6	2'-6"	
v ₂	10	5	11'-4"	
v ₃	24	4	4'-11"	
v ₄	8	5	4'-0"	
v ₅	24	4	4'-10"	
v ₆	8	5	4'-0"	
DESCRIPTION			UNIT	QTY.
CLASS S1 CONCRETE			Cu. Yds.	27.75
REINFORCEMENT BARS			LBS.	4521

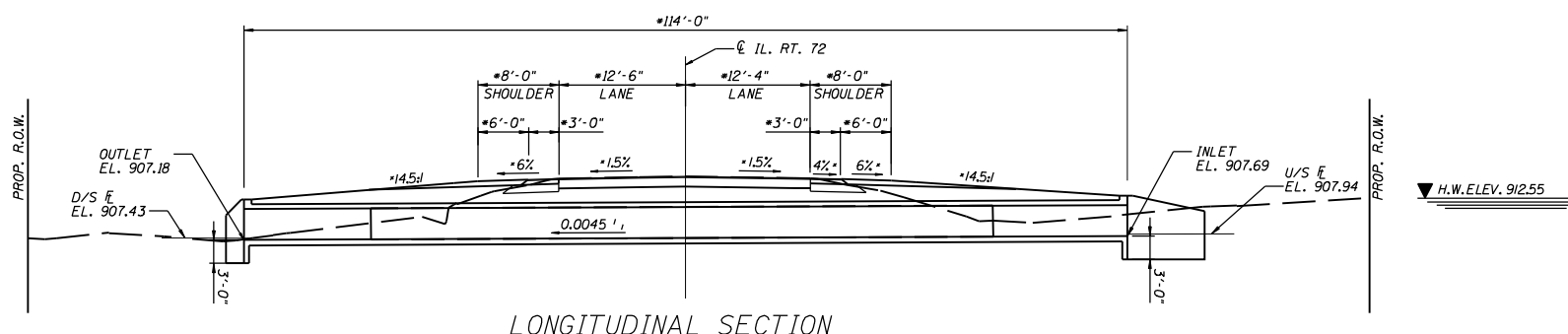
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BENCH MARK: TBM 403
STA. 317+30.56, 25.89' LT., EL. 913.497
CUT SQUARE ON HEADWALL IN NW
QUAD IL 72 & GOLD MINE ROAD, WEST
OF CULVERT.

EXISTING STRUCTURE:
SINGLE 8'-0" X 5'-0" X 43'-0" CONCRETE BOX CULVERT.

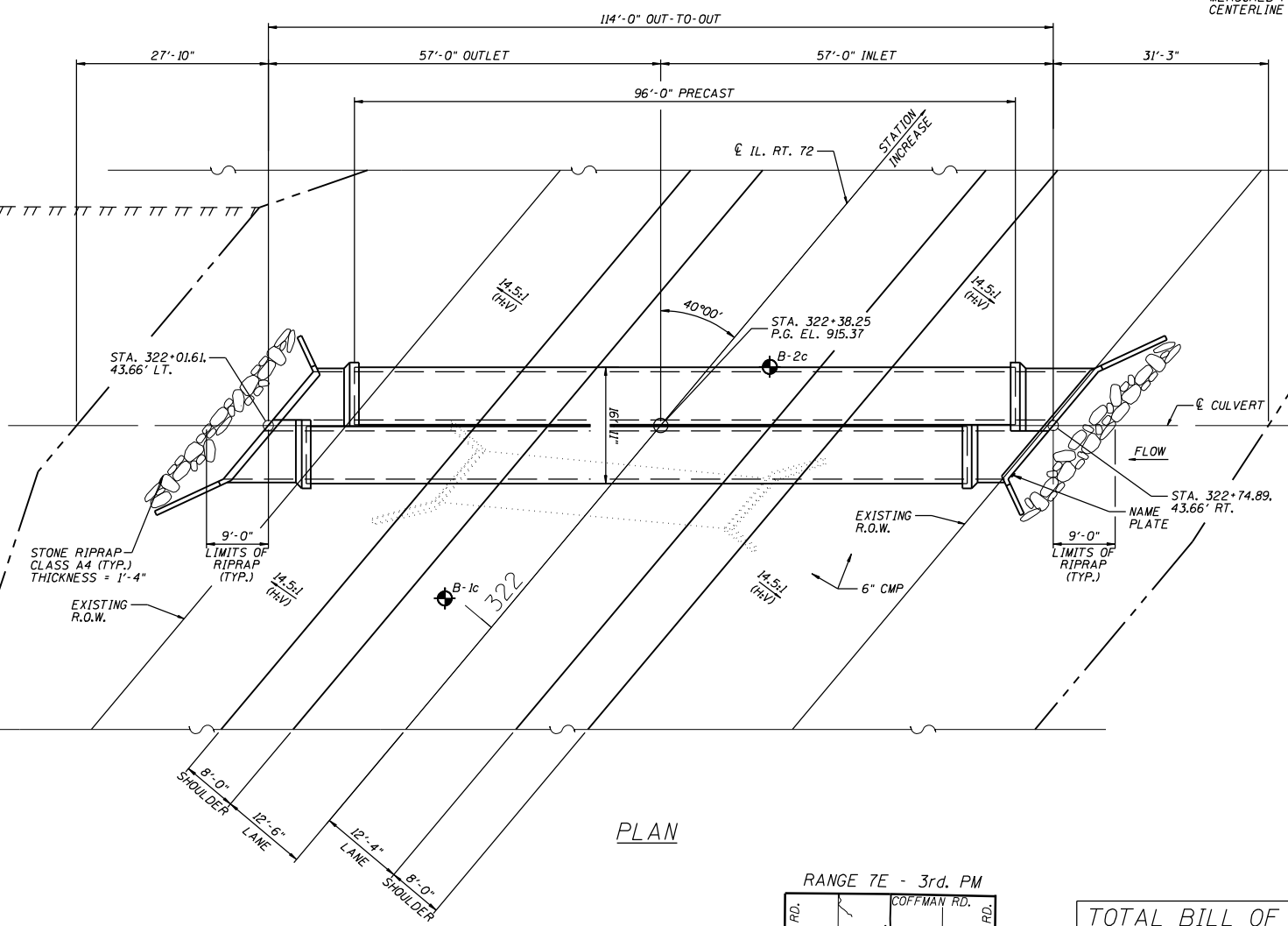
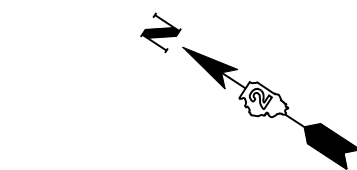
NO SALVAGE.

PROPOSED IMPROVEMENTS:
EXISTING STRUCTURE TO BE REMOVED AND REPLACED
WITH A 2 CELL - 7'-0" X 4'-0" PRECAST CONCRETE BOX
CULVERT WITH CAST-IN-PLACE END SECTIONS.



LONGITUDINAL SECTION

*MEASURED PERPENDICULAR TO
CENTERLINE OF ROADWAY



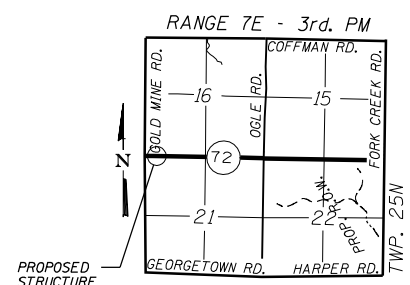
PLAN

STATION 322+38.25
BUILT 200 BY
STATE OF ILLINOIS
IL 72 SECT. 114T-1
LOADING HS20
STR. NO. 008-1091

NAME PLATE

NOTE: SEE STANDARD DRAWING 515001
FOR NAME PLATE DETAILS.

WATERWAY INFORMATION				
DRAINAGE AREA (ACRES) = 221.0		LOW GRADE ELEV. (FEET) EXIST = 913.94 @ STA. 314+92 PROPOSED = 913.94 @ STA. 314+92		
FLOOD	FREQ. YR.	DISCHARGE C.F.S.	HEADWATER ELEVATION	
			EXISTING	PROPOSED
TEN-YEAR	10	150	912.26	911.64
DESIGN	50	309	914.16	912.55
BASE	100	410	914.30	913.29
EX OVT	33	252	913.94	---
PR OVT	145	475	---	913.94



LOCATION SKETCH

TOTAL BILL OF MATERIALS

ITEM	UNIT	QUANTITY
CONCRETE BOX CULVERTS	CU. YD.	36.0
PRECAST CONCRETE BOX CULVERT 7' x 4'	FOOT	192
REINFORCEMENT BARS	POUND	5,253
REMOVAL OF EXISTING STRUCTURE NO. 3	EACH	1
STONE RIPRAP, CLASS A4	SO. YD.	50
FILTER FABRIC	SO. YD.	50
NAME PLATES	EACH	1

DESIGN SPECIFICATIONS

AASHTO 2002 SPECIFICATIONS
LOADING HS20-44
ALLOW 50# / SQ. FT. FOR FUTURE WEARING SURFACE.

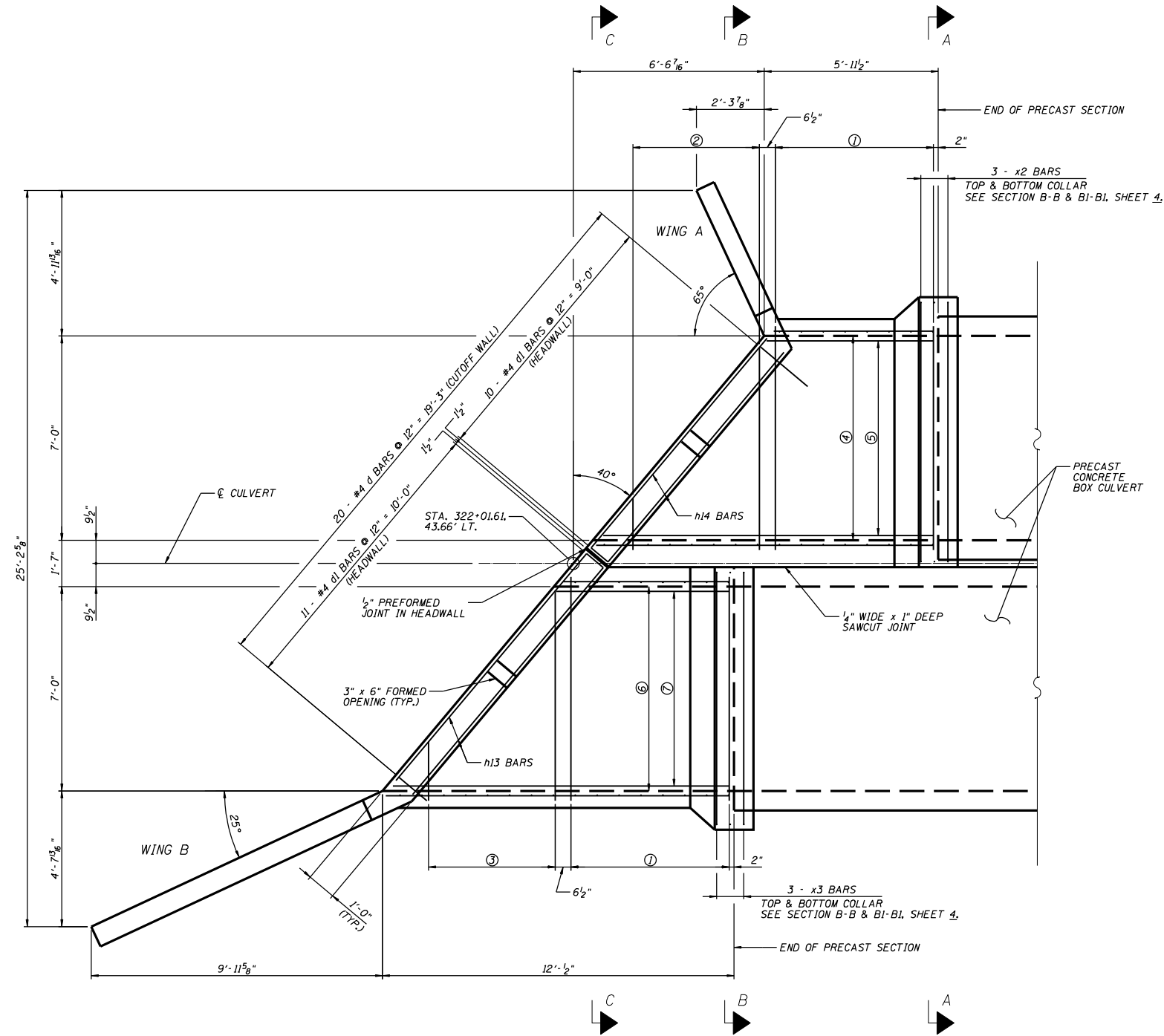
DESIGN STRESSES

FIELD UNITS
f'c = 3,500 PSI
fy = 60,000 PSI (REINFORCEMENT)
PRECAST UNITS
f'c = 5,000 PSI
fy = 60,000 PSI (REINFORCEMENT)

GENERAL NOTES

- REINFORCEMENT BARS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A706 GR 60 (IL MODIFIED). SEE SPECIAL PROVISION.
- CAST-IN-PLACE BARREL SHALL BE POURED MONOLITHICALLY WITH WING WALLS.
- EXPOSED EDGES SHALL HAVE A 3/4" CHAMFER.
- CULVERT FLOWS MUST BE MAINTAINED THROUGHOUT THE PROJECT. NORMAL FLOW SHALL BE ALLOWED TO PASS AT THE RATE IT ENTERS THE JOBSITE. HIGH FLOWS SHALL BE ALLOWED PASS TO WITHOUT CAUSING DAMAGE TO UPSTREAM PROPERTIES.
- THE CONTRACTOR SHALL CLEAN OUT CULVERT STREAM FLOW TO THE RIGHT OF WAY LINES. THE COST SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR "PRECAST CONCRETE BOX CULVERT 7'x4'".
- PLACEMENT AND COMPACTION OF THE BACKFILL FOR CULVERT SHALL CONFORM TO SECTION 502.10 OF THE STANDARD SPECIFICATIONS. THE MATERIAL SHALL CONFORM TO SECTION 1004.05 OF THE STANDARD SPECIFICATIONS FOR COARSE AGGREGATE FOR TRENCH BACKFILL, AND SHALL BE COMPACTED TO MINIMUM OF 95% OF THE STANDARD LABORATORY DENSITY. THE ENTIRE EXCAVATION, WITHIN 2 FEET OUTSIDE OF EACH SHOULDER, SHALL BE BACKFILLED WITH TRENCH BACKFILL MATERIAL TO THE BOTTOM OF THE PROPOSED SUBGRADE. THIS TRENCH BACKFILL MATERIAL WILL NOT BE MEASURED FOR PAYMENT, BUT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR THE CLASS OF CONCRETE INVOLVED OR OTHER UNIT PRICE ITEM OF THE WORK FOR WHICH IT IS REQUIRED.
- PRECAST CONCRETE BOX CULVERT SLAB & WALL THICKNESS TAKEN FROM AASHTO MATERIAL SPECIFICATIONS. IF FABRICATOR CHOOSES TO ALTER DIMENSIONS, IT MUST BE APPROVED BY THE ENGINEER AND THE CALCULATIONS SHALL BE PREPARED AND SEALED BY AN ILLINOIS LICENSED STRUCTURAL ENGINEER.
- STRUCTURE EXCAVATION AND GRADING AROUND ENDS OF CULVERT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR "PRECAST CONCRETE BOX CULVERT 7'x4'".
- THE PRECAST CONCRETE BOX CULVERT SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M273 (DESIGN FILL HEIGHT = 2'-0").
- THE NEW NUMBER FOR THIS STRUCTURE WILL BE 008-1091.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



PLAN

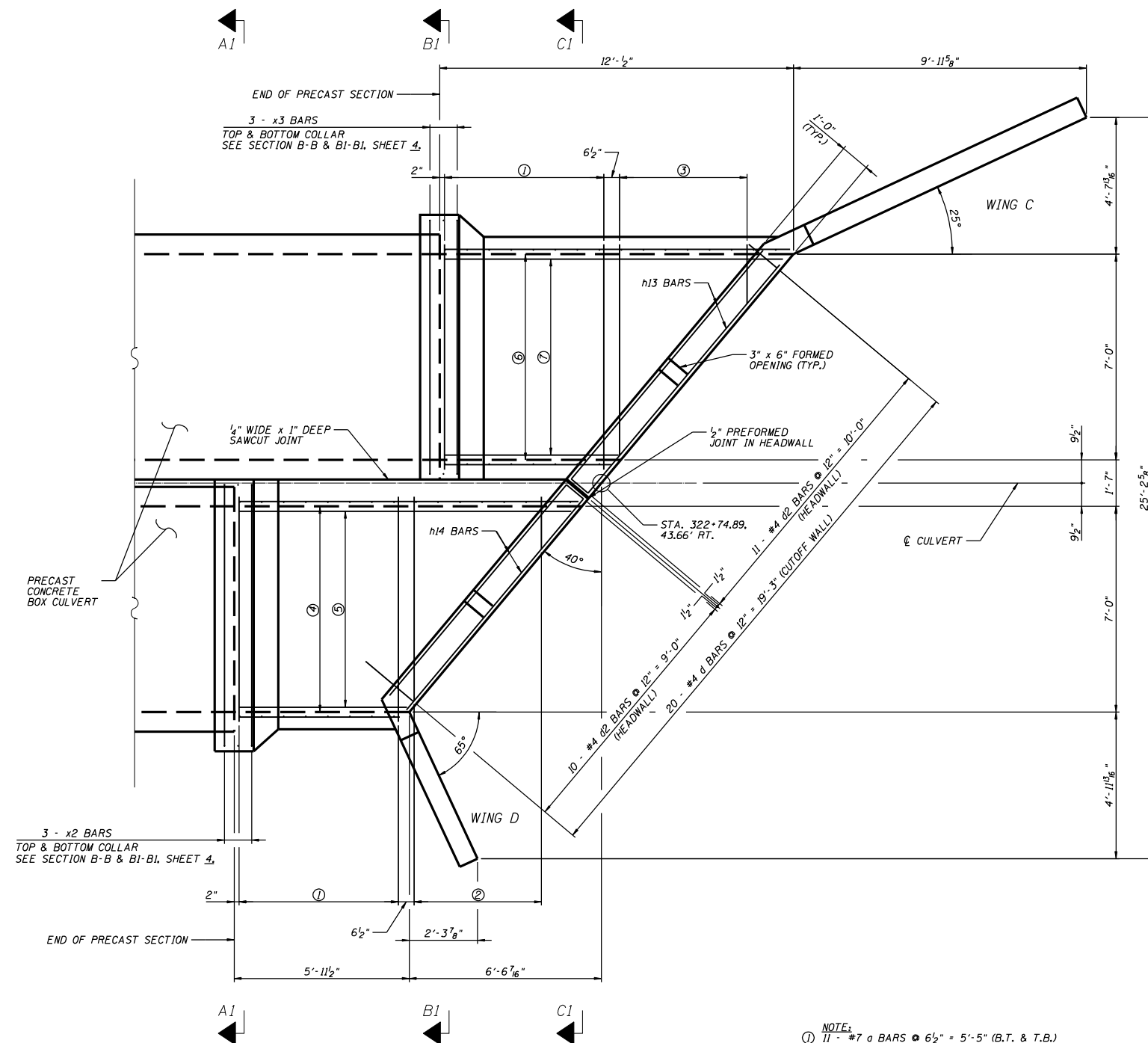
LEGEND

T.T. = TOP OF TOP SLAB
B.T. = BOTTOM OF TOP SLAB
T.B. = TOP OF BOTTOM SLAB
B.B. = BOTTOM OF BOTTOM SLAB

- NOTE:
- ① 11 - #7 ϕ BARS @ 6 1/2" = 5'-5" (B.T. & T.B.)
3 - #4 ϕ 3 BARS @ 24" = 4'-0" (B.B.)
 - ② 9 - #7 ϕ 1 BARS @ 6 1/2" = 4'-4" (B.T. & T.B.)
3 - #4 ϕ 4 BARS @ 24" = 4'-0" (B.B.)
 - ③ 9 - #7 ϕ 2 BARS @ 6 1/2" = 4'-4" (B.T. & T.B.)
3 - #4 ϕ 5 BARS @ 24" = 4'-0" (B.B.)
 - ④ 7 - #6 ϕ h BARS @ 14" = 7'-0" (B.T.)
 - ⑤ 6 - #5 ϕ 10 BARS @ 16" = 6'-8" (B.B. & T.B.)
 - ⑥ 7 - #6 ϕ 1 BARS @ 14" = 7'-0" (B.T.)
 - ⑦ 6 - #5 ϕ 10 BARS @ 16" = 6'-8" (B.B. & T.B.)

FILE NAME =	USER NAME = meglilj	DESIGNED - ---	REVISED - 10-24-07	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD			F.A. RTE:	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C:\Documents and Settings\meglilj\Desktop\02CulvertExamples.cel	DRAWN - ---	REVISOR - ---	SCALE: _____					SHEET NO. ___ OF ___ SHEETS	STA. _____ TO STA. _____	CONTRACT NO. _____		
PLOT SCALE = 2.0000' / IN.	CHECKED - ---	REVISOR - ---				FED. ROAD DIST. NO. _____ ILLINOIS FED. AID PROJECT						
PLOT DATE = Thu Oct 25 09:22:13 2007	DATE - _____	REVISOR - ---										

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



PLAN

LEGEND

T.T. = TOP OF TOP SLAB
B.T. = BOTTOM OF TOP SLAB
T.B. = TOP OF BOTTOM SLAB
B.B. = BOTTOM OF BOTTOM SLAB

- NOTE:
- ① 11 - #7 @ BARS @ 6 1/2" = 5'-5" (B.T. & T.B.)
3 - #4 @3 BARS @ 24" = 4'-0" (B.B.)
 - ② 9 - #7 @1 BARS @ 6 1/2" = 4'-4" (B.T. & T.B.)
3 - #4 @4 BARS @ 24" = 4'-0" (B.B.)
 - ③ 9 - #7 @2 BARS @ 6 1/2" = 4'-4" (B.T. & T.B.)
3 - #4 @5 BARS @ 24" = 4'-0" (B.B.)
 - ④ 7 - #6 h BARS @ 14" = 7'-0" (B.T.)
 - ⑤ 6 - #5 h10 BARS @ 16" = 6'-8" (B.B. & T.B.)
 - ⑥ 7 - #6 h1 BARS @ 14" = 7'-0" (B.T.)
 - ⑦ 6 - #5 h10 BARS @ 16" = 6'-8" (B.B. & T.B.)

FILE NAME =	USER NAME = meglilj	DESIGNED -	REVISED - 10-24-07
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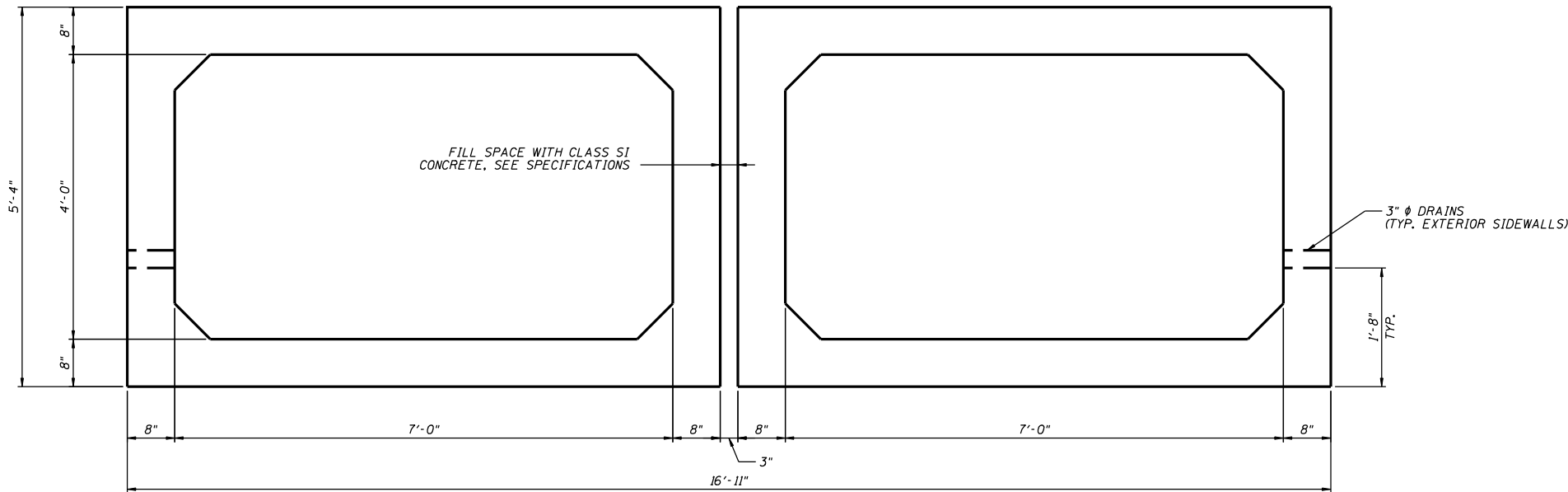
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

REGION 2 / DISTRICT 2 STANDARD

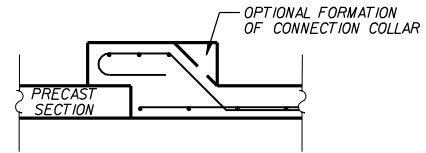
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F.A. RTE.:	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CONTRACT NO. _____				
FED. ROAD DIST. NO. _____ ILLINOIS FED. AID PROJECT				

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



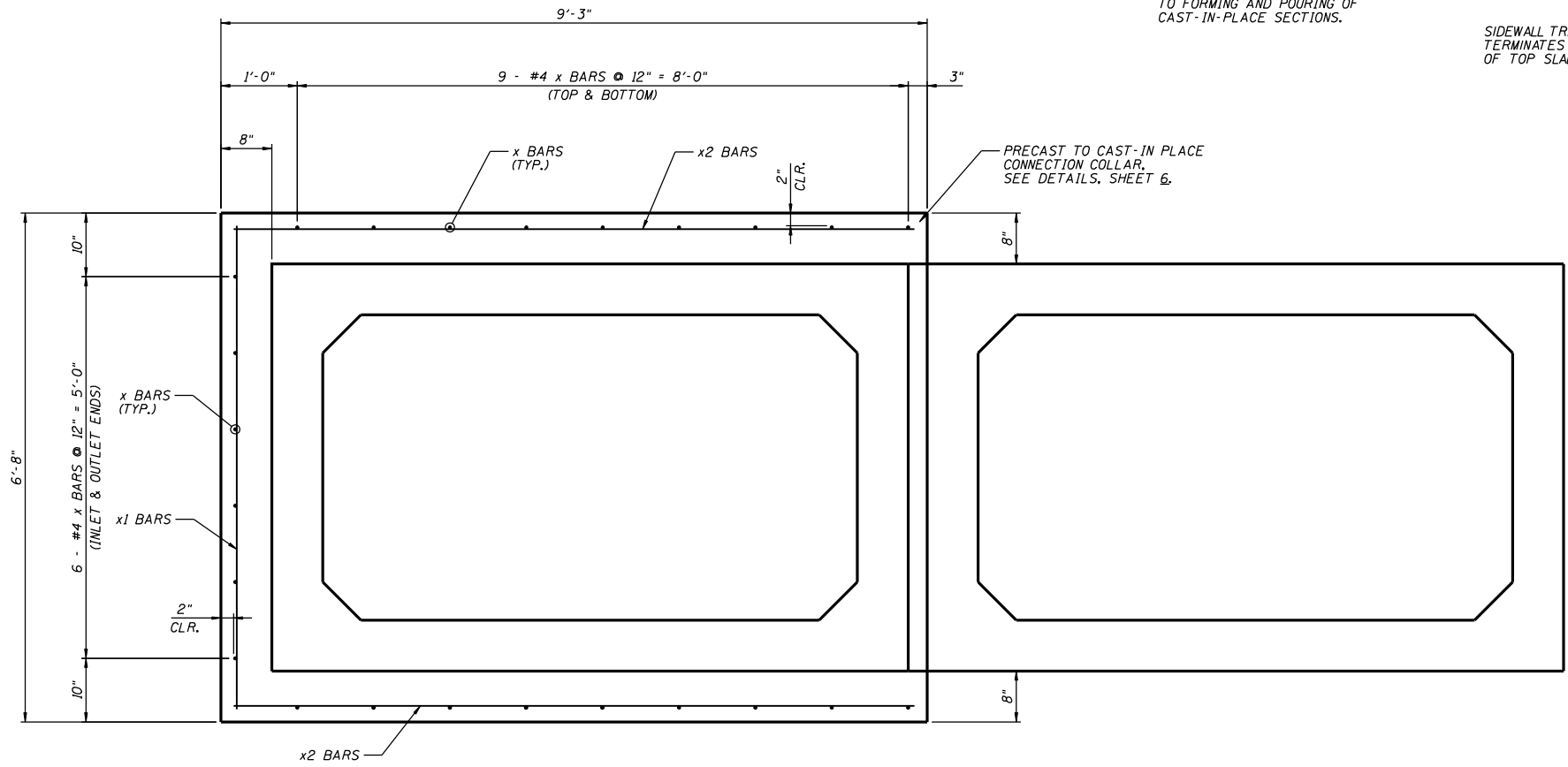
PRECAST TYPICAL SECTION



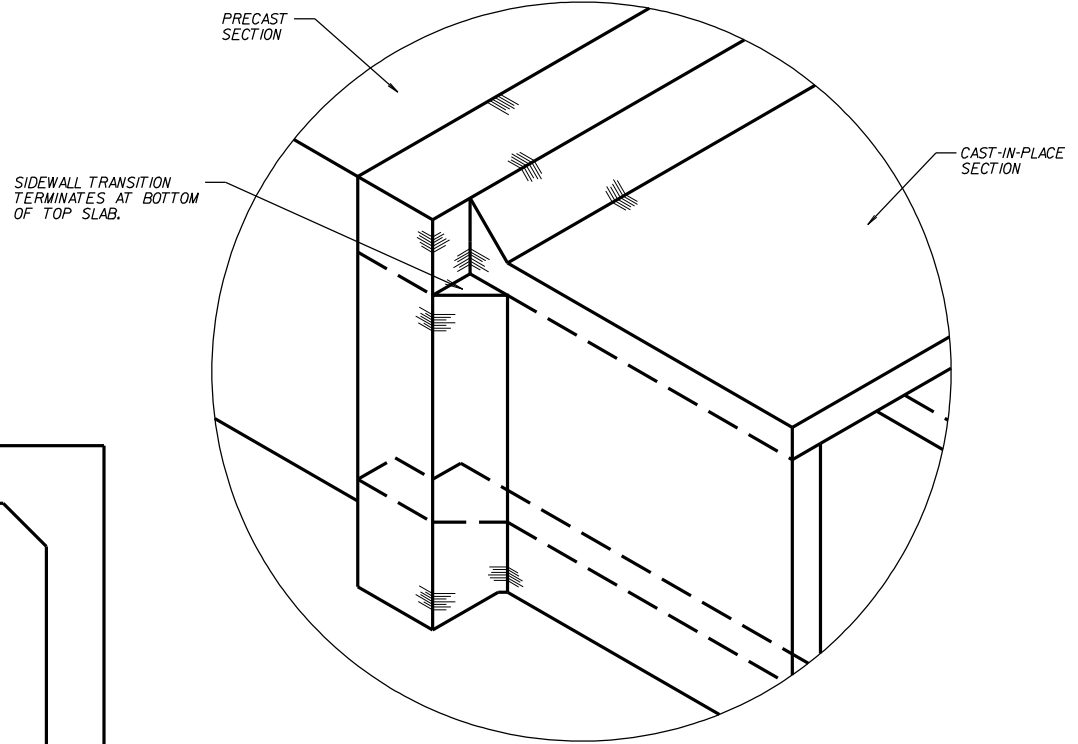
OPTIONAL PRECAST TO CAST-IN-PLACE
CONNECTION COLLAR

NOTE:
ADDITIONAL CONCRETE USED FOR THE
OPTIONAL COLLAR FORMATION WILL BE
PROVIDED AT THE CONTRACTOR'S EXPENSE.

NOTE:
CLASS S1 CONCRETE TO BE POURED
BETWEEN PRECAST SECTIONS PRIOR
TO FORMING AND POURING OF
CAST-IN-PLACE SECTIONS.



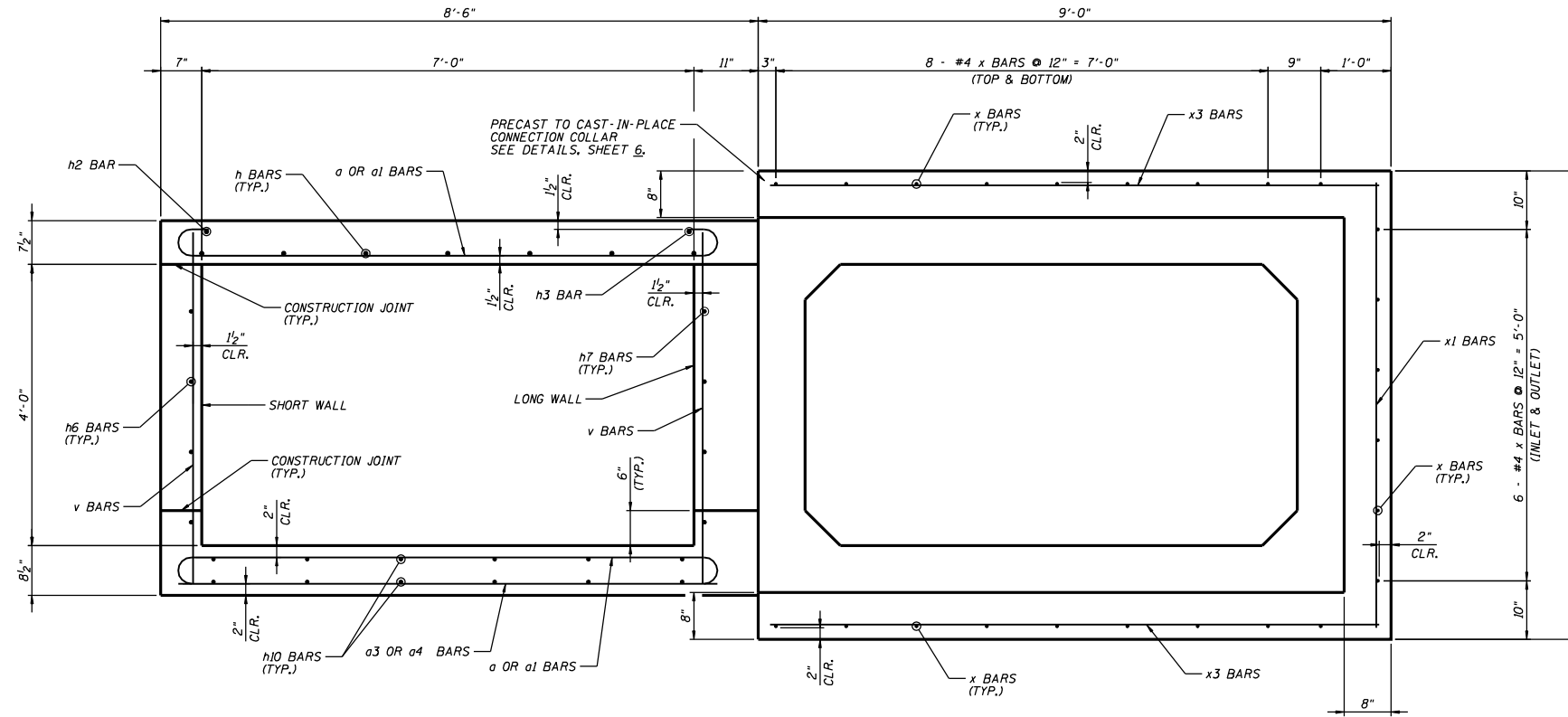
SECTION A-A & A1-A1



ISOMETRIC VIEW OF
CONNECTION COLLAR

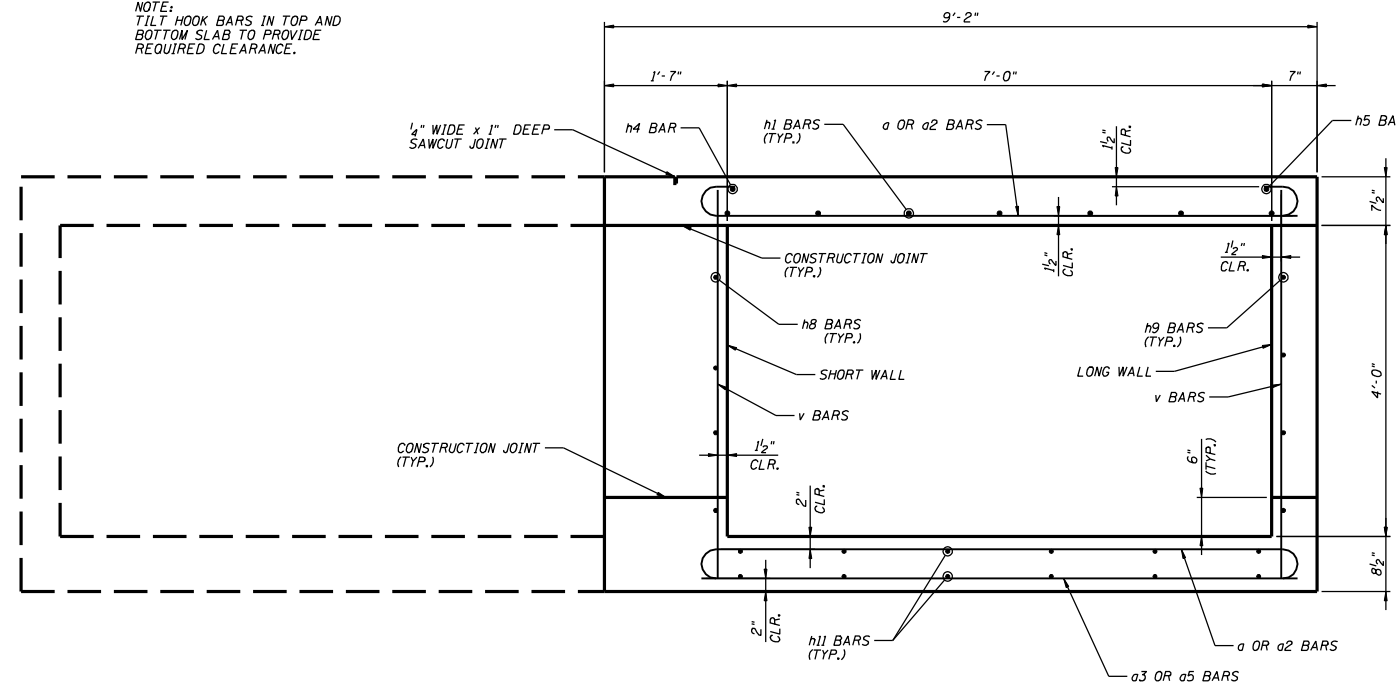
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C:\Documents and Settings\meglilj\Desktop\02CulvertExamples.cel		DRAWN -	REVISED -		SCALE: _____	SHEET NO. ___ OF ___ SHEETS	STA. _____ TO STA. _____	CONTRACT NO. _____				
PLOT SCALE = 2.0000' / IN.		CHECKED -	REVISED -		FED. ROAD DIST. NO. _____ ILLINOIS FED. AID PROJECT							
PLOT DATE = Thu Oct 25 09:22:34 2007		DATE -	REVISED -									

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



SECTION B-B & B1-B1

NOTE:
TILT HOOK BARS IN TOP AND
BOTTOM SLAB TO PROVIDE
REQUIRED CLEARANCE.

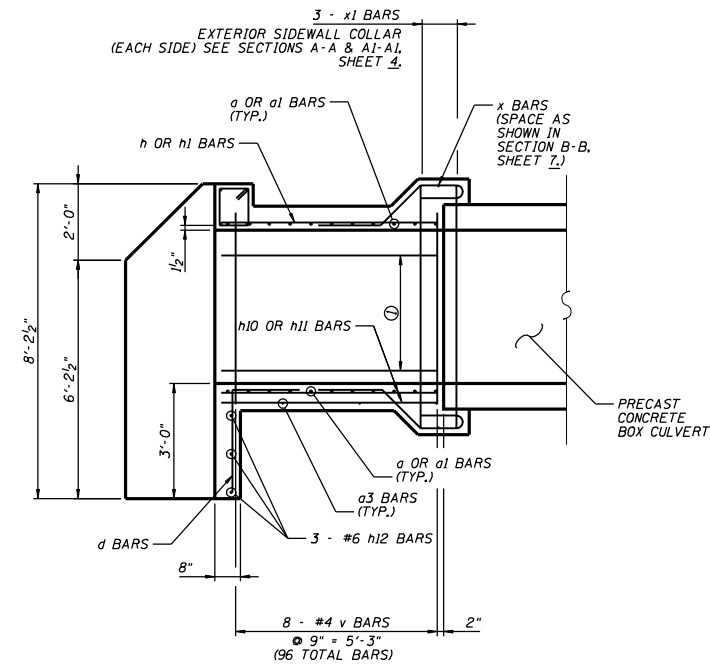


SECTION C-C & C1-C1

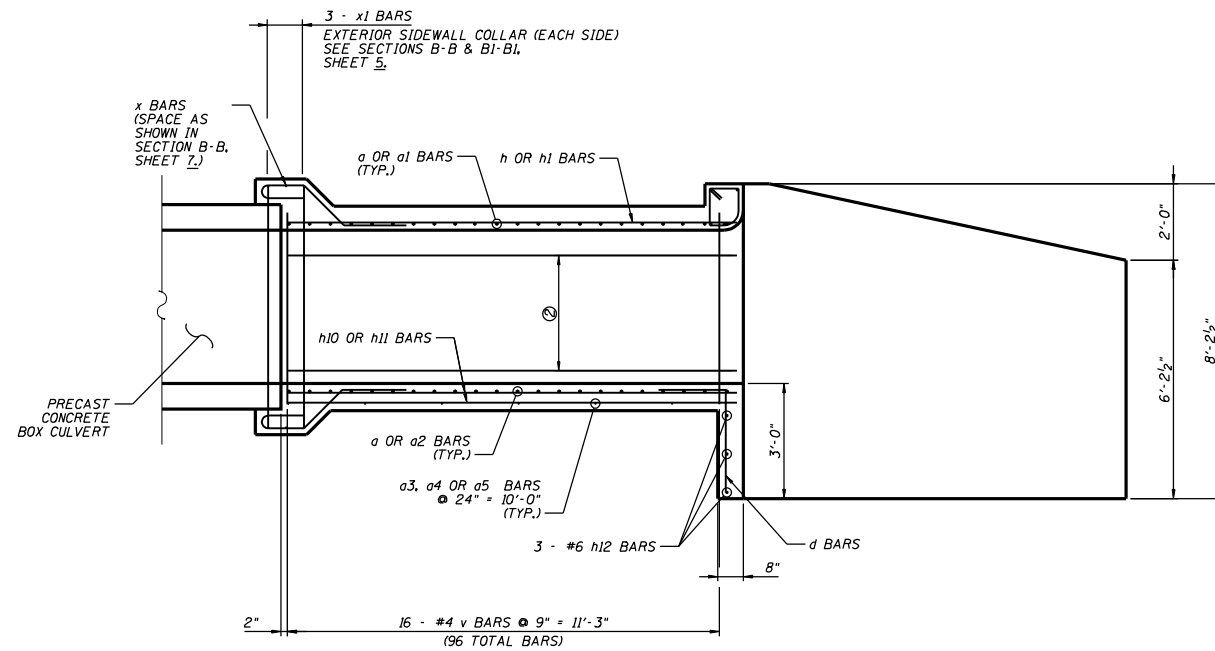
NOTE:
TILT HOOK BARS IN TOP AND
BOTTOM SLAB TO PROVIDE
REQUIRED CLEARANCE.

FILE NAME =	USER NAME = meglilj	DESIGNED - ---	REVISED - 10-24-07	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD	F.A. RTE.:	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
C:\Documents and Settings\mejlilj\Desktop\02CulvertExamples.cel	DRAWN - ---	REVISED - ---	SCALE: _____ SHEET NO. ___ OF ___ SHEETS			STA. _____ TO STA. _____	CONTRACT NO. _____				
PLOT SCALE = 2.0000' / IN.	CHECKED - ---	REVISED - ---	FED. ROAD DIST. NO. _____ ILLINOIS FED. AID PROJECT								
PLOT DATE = Thu Oct 25 09:22:45 2007	DATE - _____	REVISED - ---									

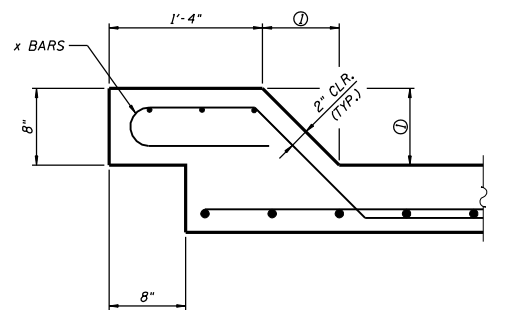
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



SHORT WALL
① 4 - #5 h6 OR h8 BARS @ 12" = 3'-0"
(16 TOTAL BARS EACH)

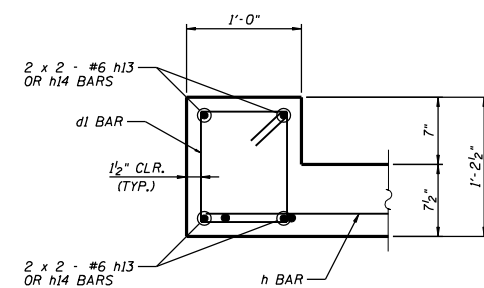


LONG WALL
② 4 - #5 h7 OR h9 BARS @ 12" = 3'-0"
(16 TOTAL BARS EACH)

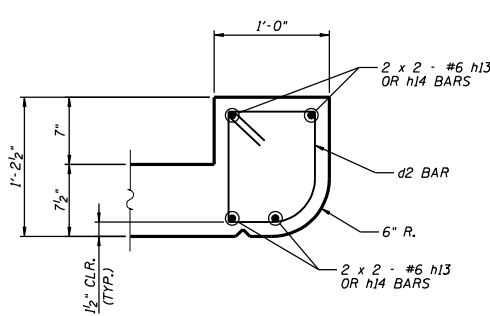


PRECAST TO CAST-IN-PLACE
CONNECTION COLLAR

① TOP SLAB = 8 1/2"
SIDEWALLS = 9"
BOTTOM SLAB = 7 1/2"



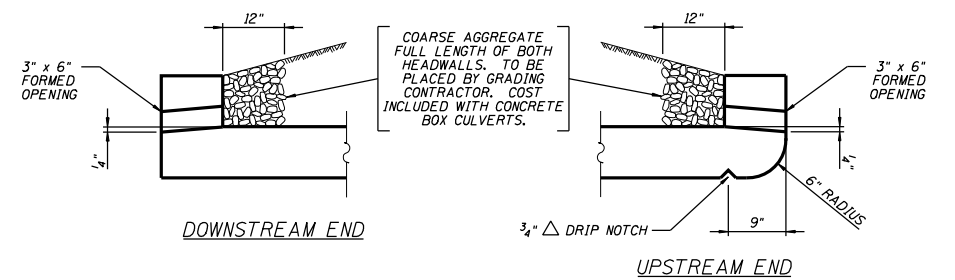
DOWNSTREAM END



UPSTREAM END

HEADWALL DETAILS

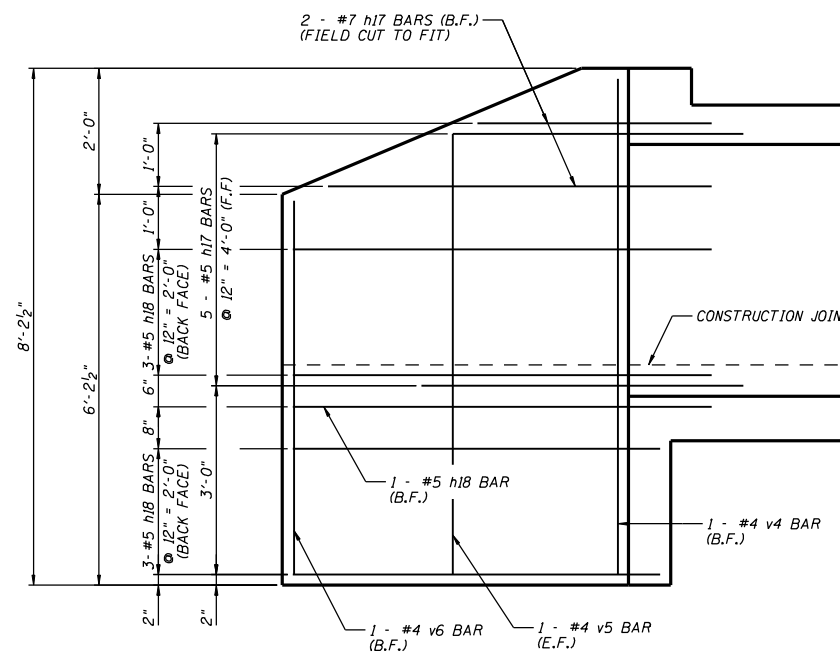
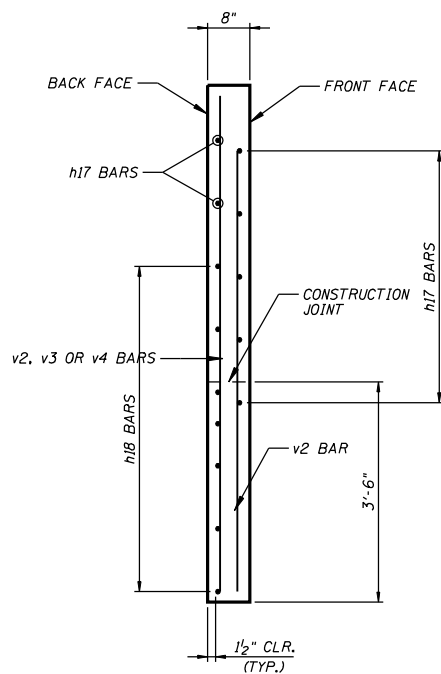
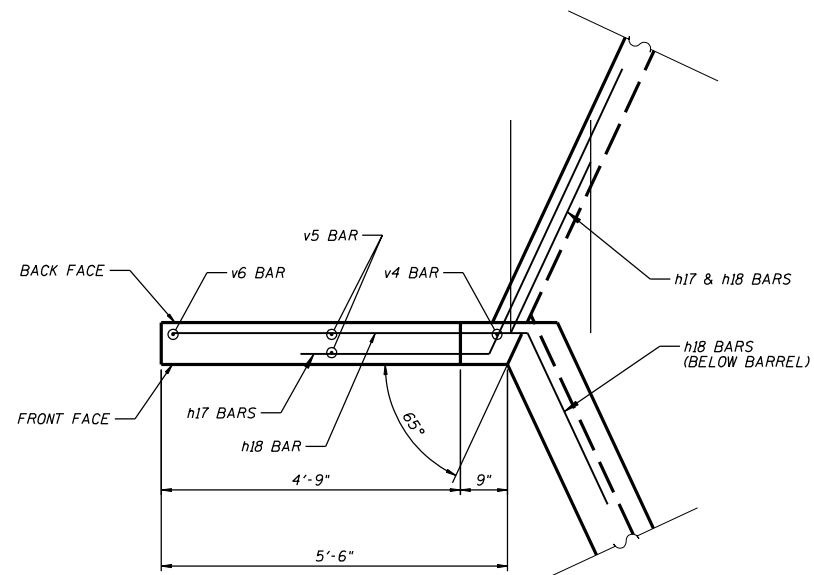
NOTE:
BARS INDICATED THUS 2 x 3-#6 ETC.
INDICATES 2 LINES OF BARS WITH 3
LENGTHS PER LINE.



DRAIN DETAILS

FILE NAME =	USER NAME = meglilj	DESIGNED -	REVISED - 10-24-07	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SCALE: _____ SHEET NO. ____ OF ____ SHEETS		F.A. RTE. _____	SECTION _____	COUNTY _____	TOTAL SHEETS _____	SHEET NO. _____	
C:\Documents and Settings\meglilj\Desktop\02CulvertExamples.cel		DRAWN -	REVISED -		STA. _____ TO STA. _____	CONTRACT NO. _____		ILLINOIS FED. AID PROJECT				
		CHECKED -	REVISED -									
		DATE -	REVISED -									

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



LEGEND
B.F. = BACK FACE
F.F. = FRONT FACE

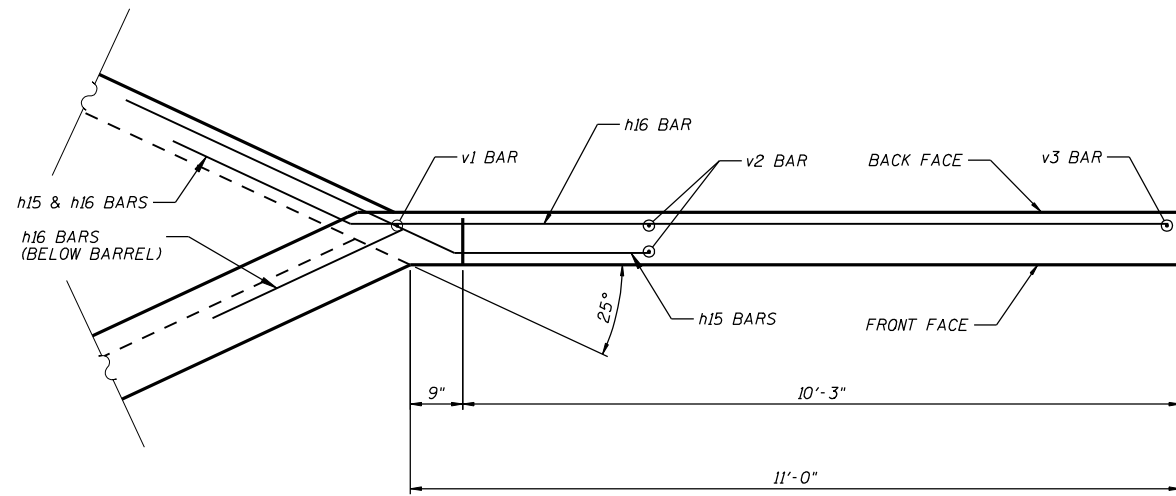
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C:\Documents and Settings\meglilj\Desktop\02CulvertExamples.cel		DRAWN -	REVISD -
PLOT SCALE = 2.0000' / IN.		CHECKED -	REVISD -
PLOT DATE = Thu Oct 25 09:23:10 2007		DATE -	REVISD -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

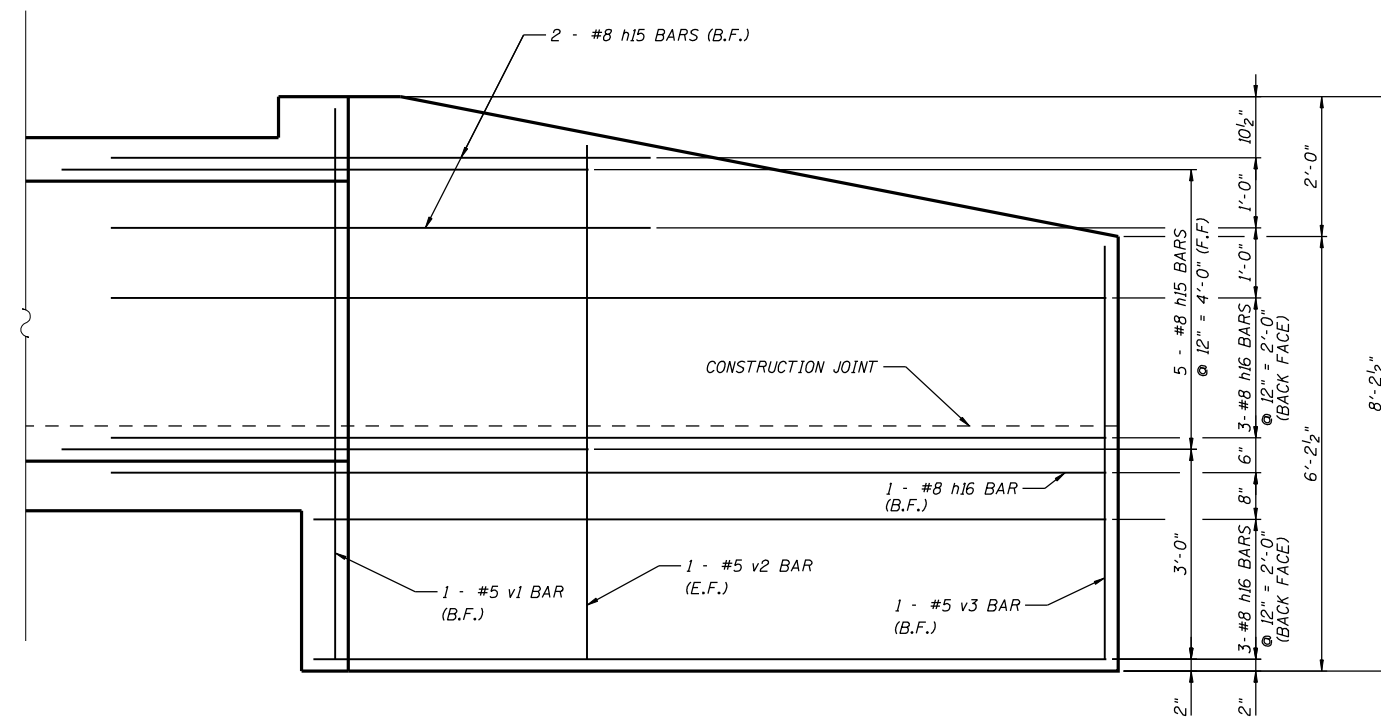
SCALE: _____ SHEET NO. ____ OF ____ SHEETS STA. _____ TO STA. _____

F.A. RTE:	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CONTRACT NO. _____				
FED. ROAD DIST. NO. _____ ILLINOIS FED. AID PROJECT				

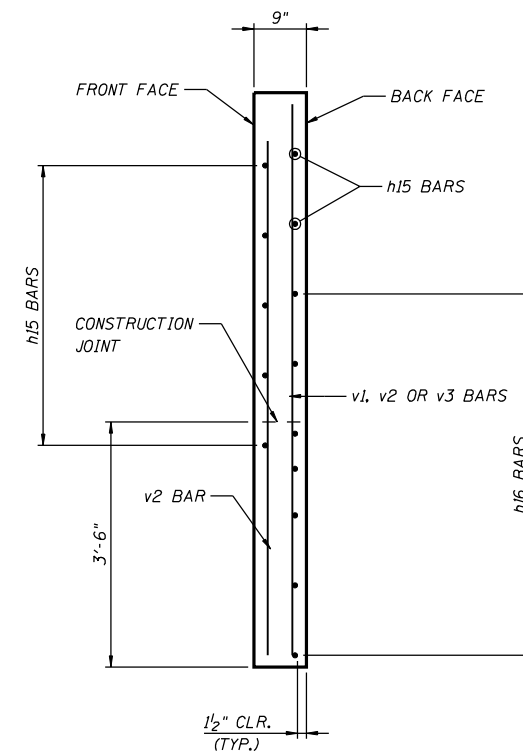
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



WINGS B & C PLAN



WINGS B & C ELEVATION



WINGS B & C TYPICAL SECTION

LEGEND
B.F. = BACK FACE
F.F. = FRONT FACE

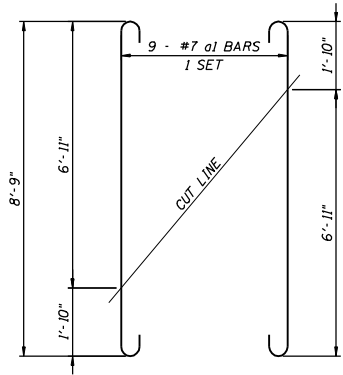
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

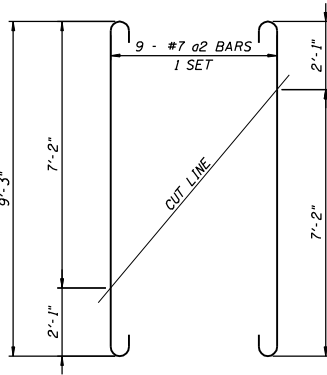
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F.A. RTE:	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CONTRACT NO. _____				
FED. ROAD DIST. NO. _____ ILLINOIS FED. AID PROJECT				

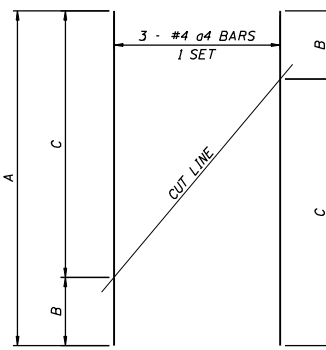
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



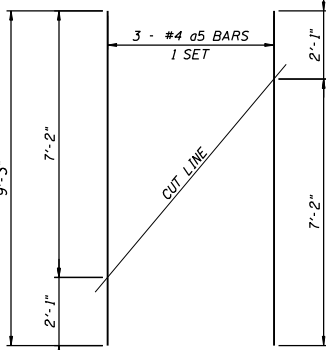
BARS a1



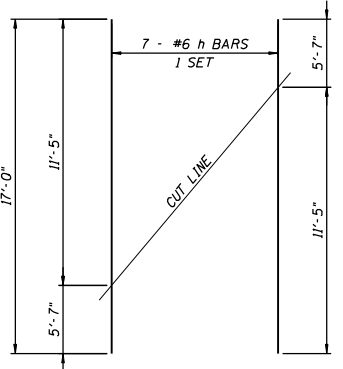
BARS a2



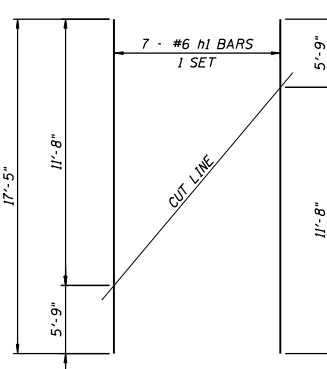
BARS a4



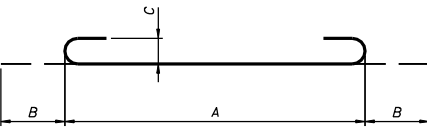
BARS a5



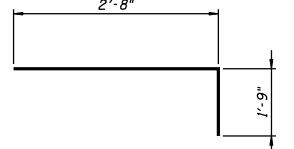
BARS h



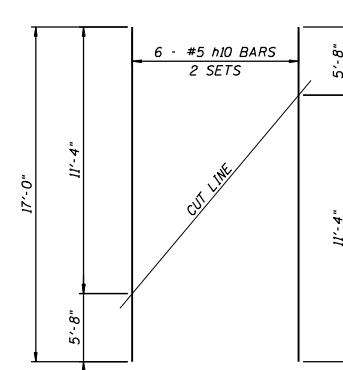
BARS h1



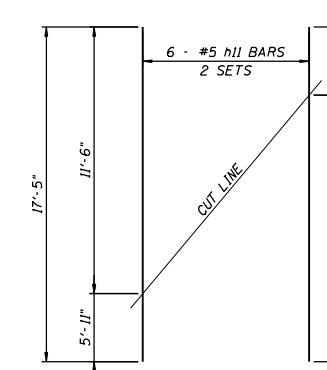
BARS a, a1 & a2



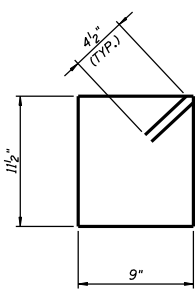
BAR d



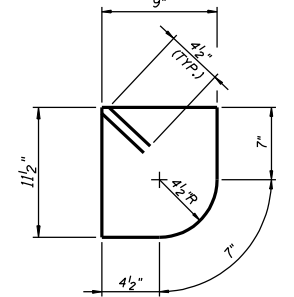
BARS h10



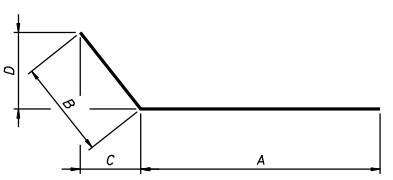
BARS h11



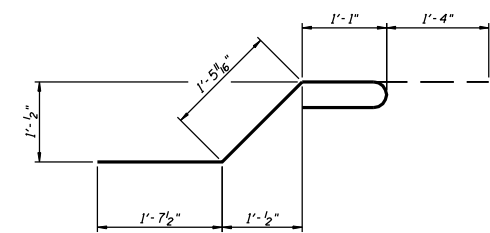
BAR d1



BAR d2



BARS h15 THRU h18



BAR x

* CULVERT
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a	88	7	9'-4"	U
a1	18	7	10'-5"	U
a2	18	7	10'-11"	U
a3	12	4	7'-8"	U
a4	3	4	8'-9"	U
a5	3	4	9'-3"	U
d	40	4	4'-5"	I
d1	21	4	4'-2"	I
d2	21	4	4'-0"	I
h	7	6	17'-0"	I
h1	7	6	17'-5"	I
h2	2	6	5'-7"	I
h3	2	6	11'-5"	I
h4	2	6	5'-9"	I
h5	2	6	11'-8"	I
h6	8	5	5'-5"	I
h7	8	5	11'-6"	I
h8	8	5	5'-8"	I
h9	8	5	11'-9"	I
h10	12	5	17'-0"	I
h11	12	5	17'-5"	I
h12	6	6	20'-0"	I
h13	8	6	10'-1"	I
h14	8	6	9'-4"	I
h15	7	8	8'-0"	I
h16	7	8	14'-6"	I
h17	7	5	8'-0"	I
h18	7	5	8'-8"	I
v	96	4	5'-0"	I
v1	2	5	7'-10"	I
v2	4	5	7'-4"	I
v3	2	5	5'-11"	I
v4	2	4	7'-10"	I
v5	4	4	7'-0"	I
v6	2	4	5'-11"	I
x	96	4	5'-5"	I
x1	12	4	6'-4"	I
x2	12	4	8'-11"	I
x3	12	4	8'-8"	I
Concrete Box Culverts			Cu. Yd.	36.0
Reinforcement Bars			Pound	5,253

* BILL OF MATERIAL IS THE TOTAL FOR BOTH END SECTIONS.

BAR BENDING DIAGRAMS

Bar	A		B		C		D	
	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
a	7	8	0	10	0	7	-	-
a1	8	9	0	10	0	7	-	-
a2	9	3	0	10	0	7	-	-
h15	5	0	3	0	2	8 1/2	1	3
h16	11	6	3	0	2	8 1/2	1	3
h17	5	0	3	0	1	3	2	8 1/2
h18	5	8	3	0	1	3	2	8 1/2

FIELD CUTTING DIAGRAMS
ORDER BARS FULL LENGTH. CUT AS SHOWN AND USE REMAINDER OF BARS IN OPPOSITE END.

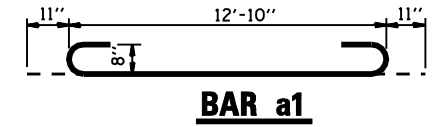
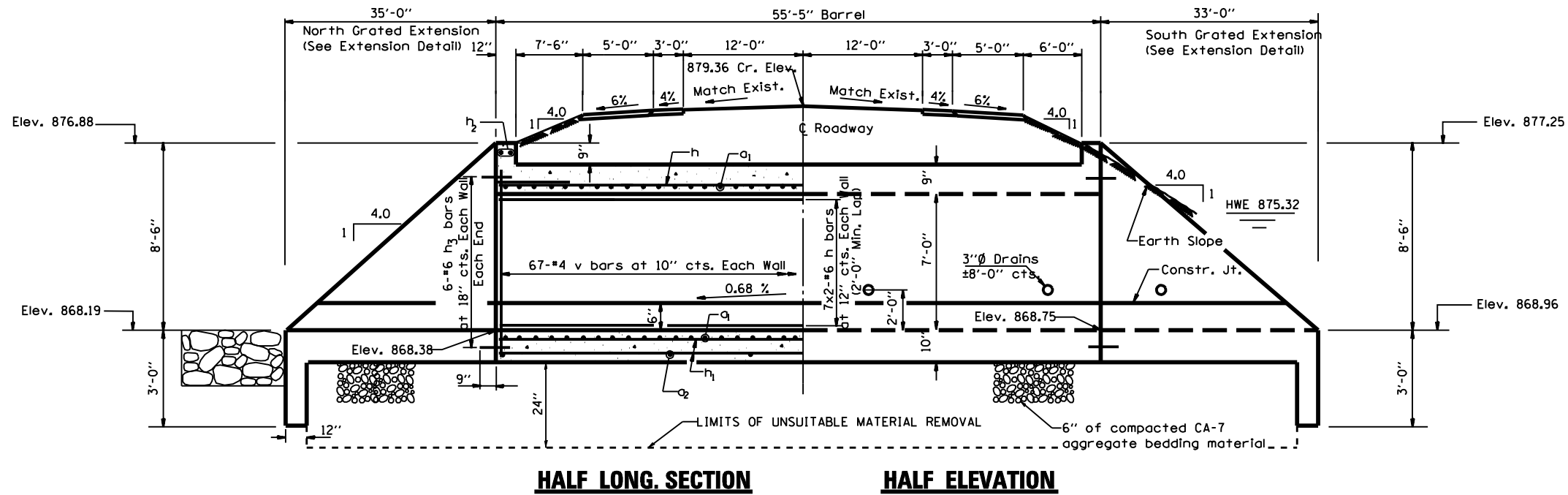
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C:\Documents and Settings\meglilj\Desktop\02CulvertExamples.cel		DRAWN -	REVISED -
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

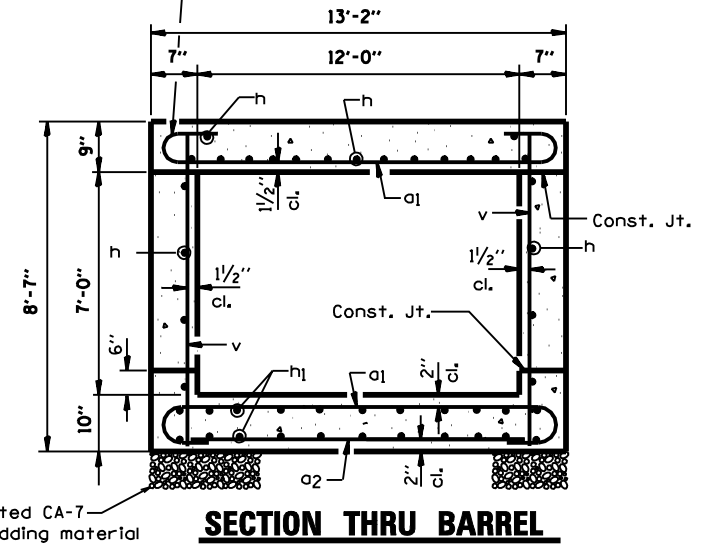
SCALE: -----	SHEET NO. -- OF -- SHEETS	STA. ----- TO STA. -----
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F.A. RTE.:	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CONTRACT NO. -----				
FED. ROAD DIST. NO. - ILLINOIS FED. AID PROJECT				

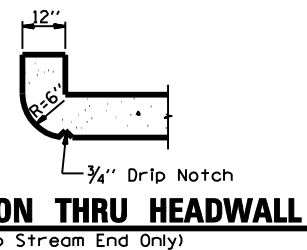
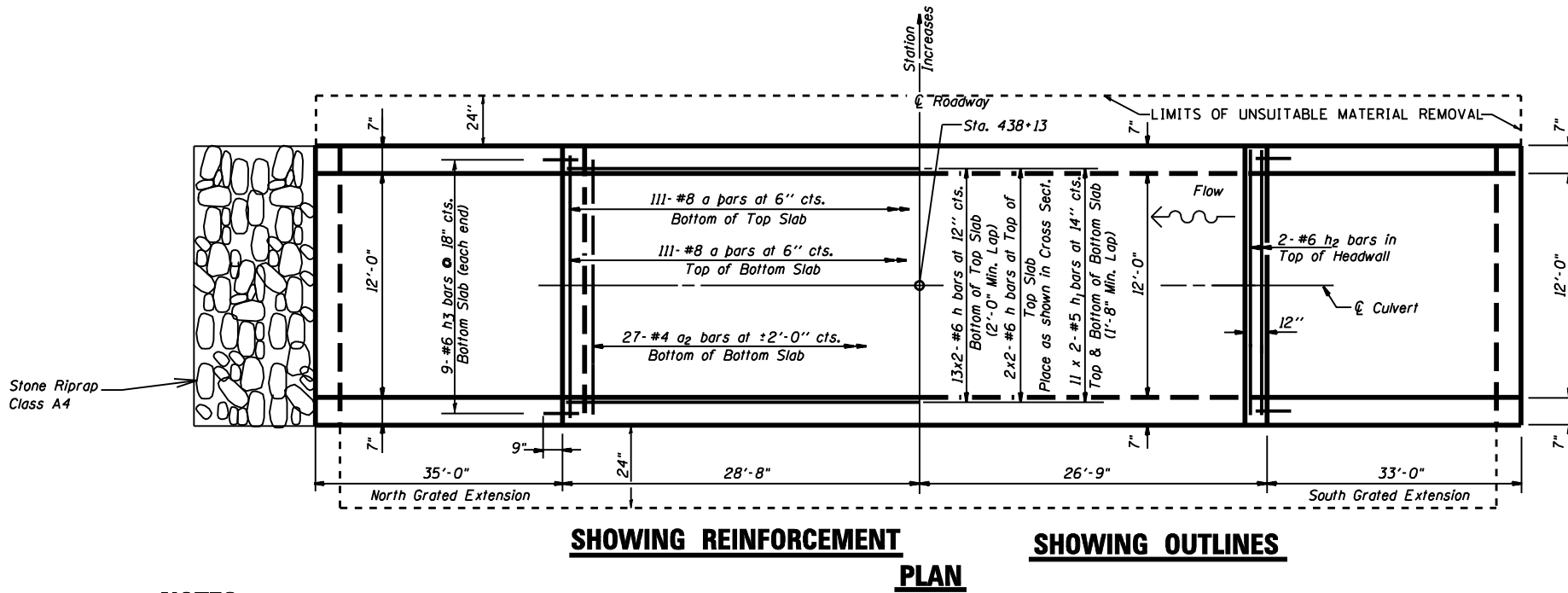
CONCRETE BOX CULVERTS STA 438+13



Tilt hook of a bars
If necessary for 1/2"
min. cl.



6" of compacted CA-7
aggregate bedding material



NOTES

- A distance of half the length of the wingwall but not less than six feet of the barrel shall be poured monolithically with the wingwalls.
- Reinforcement Bars shall conform to the requirements of AASHTO M-31, M-42 or M-53, Grade 60.
- Bars indicated thus 12 x 4-#5 etc. indicates 12 lines of bars with 4 lengths per line.
- All construction joints shall be bonded.
- 6" of compacted CA-7 aggregate bedding material shall be place beneath the box culvert. The cost for the Ca-7 aggregate shall be included in the cost of Concrete Box Culverts.
- The cost of excavation and backfilling shall be included in the cost of Concrete Box Culverts.

WATERWAY INFORMATION

Drainage Area = 1.2 sq mi Low Grade Elev. 879.39 (Exist) 879.58 (Proposed)
Sta 438+13

Flood Yr.	Freq.	0 C.F.S.	Opening Sq. Ft.	Nat. H.W.E.	Head - Ft.	Headwater El.
		Exist.	Prop.	Exist.	Prop.	Exist.
Ten-Year	10	384	48.7	71.4	874.70	0.99 0.33 875.69 875.03
Design	50	596	56.2	78.8	875.32	2.05 1.14 877.37 876.46
Base	100	685	58.6	81.2	875.52	2.53 1.62 878.05 877.14
Overtop (Ex.)	250	805	76.3	-	877.00	2.39 - 879.39 -
Overtop (Pr.)	500	897	-	84.0	875.85	- 3.16 - 879.01

DESIGN STRESSES

f_y = 60,000 psi
f'_c = 3,500 psi

LOADING HS 20-44 & ALT.

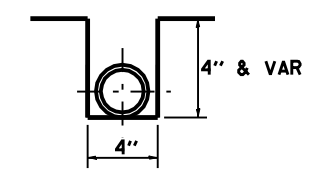
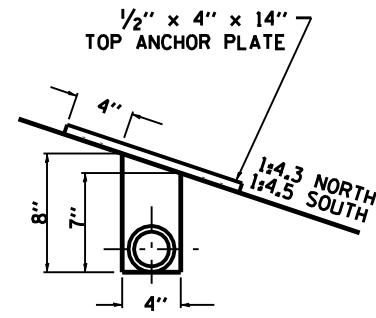
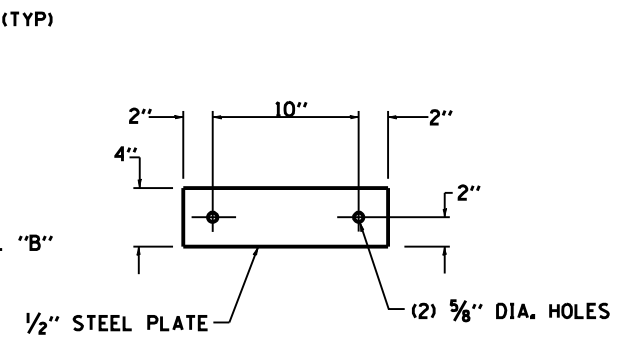
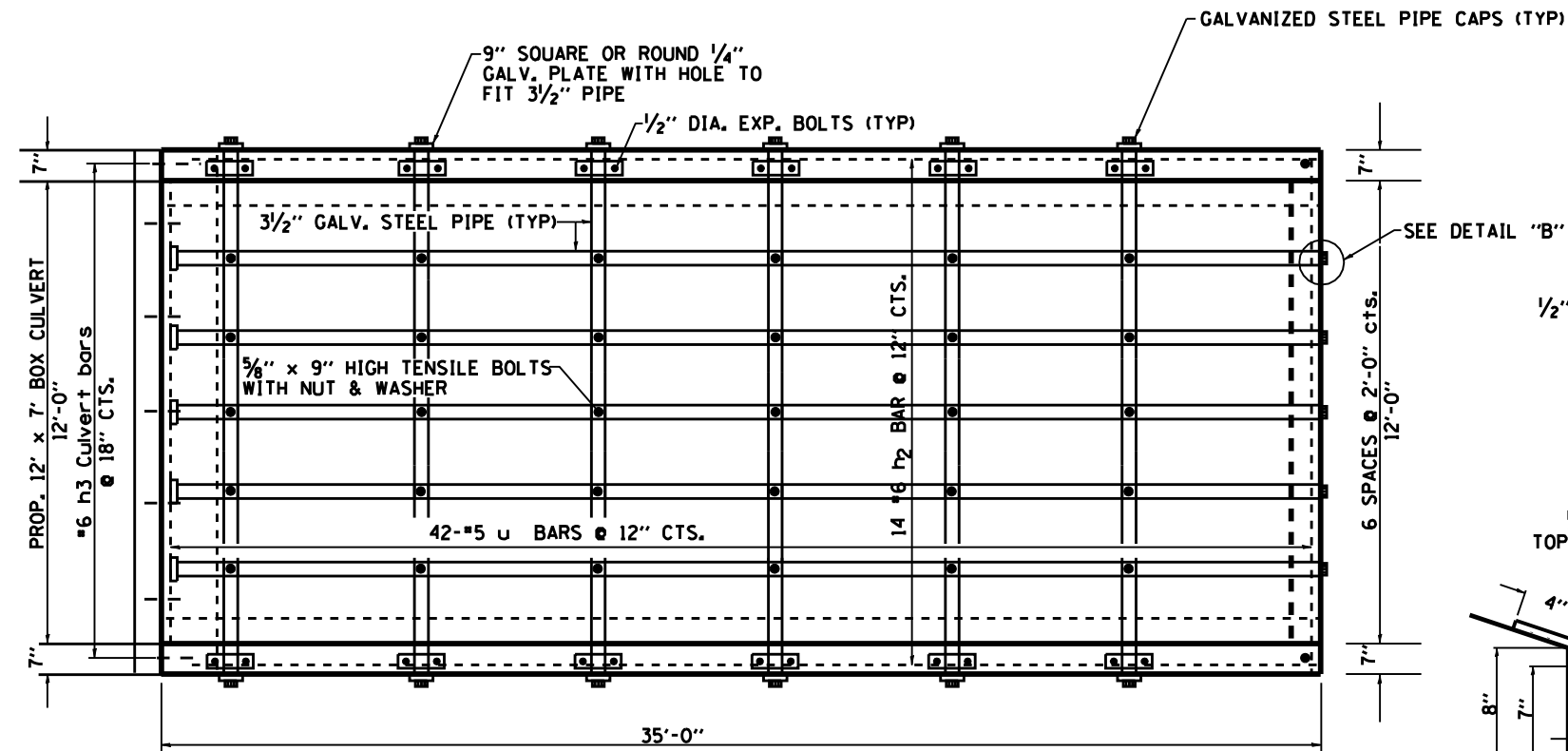
BILL OF MATERIAL

(Barrel Only)

Bar	No.	Size	Length	Shape
a ₁	222	#8	14'-8"	
a ₂	27	#4	12'-10"	
h	58	#6	31'-5"	
h ₁	44	#5	30'-8"	
h ₂	4	#6	12'-10"	
h ₃	42	#6	1'-6"	
v	134	#4	8'-3"	
Concrete Box Culverts			Cu. Yd.	60.6
Reinforcement Bars			Ton	13979.43
Remove Unsuitable Material			Cu. Yd.	137.3
Breaker-Run Stone			Ton	211

CONCRETE BOX CULVERT END SECTION STA 438+13 LT

BILL OF MATERIALS



DETAIL "A"

DETAIL "B"

BAR	NUMBER	SIZE	LENGTH	QTY.
d	14	#4	4'-6"	42.08
h	9	#4	35'-0"	210.42
h ₁	2	#4	35'-6"	47.43
h ₂	14	#6	34'-9"	730.72
h ₃	3	#5	12'-11"	40.42
u	42	#5	17'-9"	777.56
v	42	#5	10'-2"	445.63
REINFORCEMENT BARS			LB	2293.99
CONCRETE BOX CULVERTS			CU YD	20.7
3/2" GALV. STEEL PIPE			EACH	5 @ 35'-3" 6 @ 13'-4"
1/2" x 4" x 14" GALV. ANCHOR PLATE			EACH	12
5/8" x 9" GALV. BOLTS			EACH	27
GALV. STEEL PIPE CAPS			EACH	22
1/2" Ø GALV. EXP. BOLTS			EACH	22
9" SO. OR ROUND 1/4" GALV. PLATE			EACH	12

GENERAL NOTES:

STEEL PIPES SHALL CONFORM TO A.S.T.M. A-53 (TYPE E OR S) GRADE B, SCHEDULE 40, & SHALL BE GALVANIZED CONFORMING TO A.S.T.M. A-120.

STEEL PLATES SHALL CONFORM TO AASHTO M-183 & SHALL BE GALVANIZED CONFORMING TO AASHTO M-111.

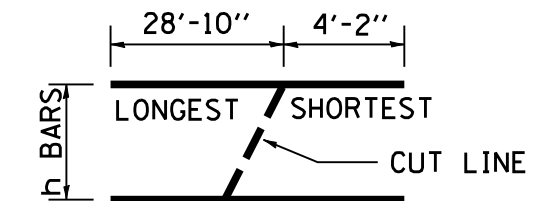
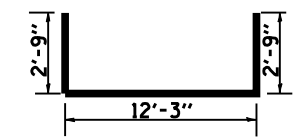
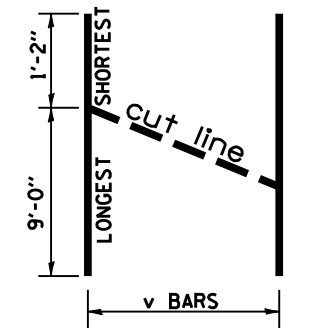
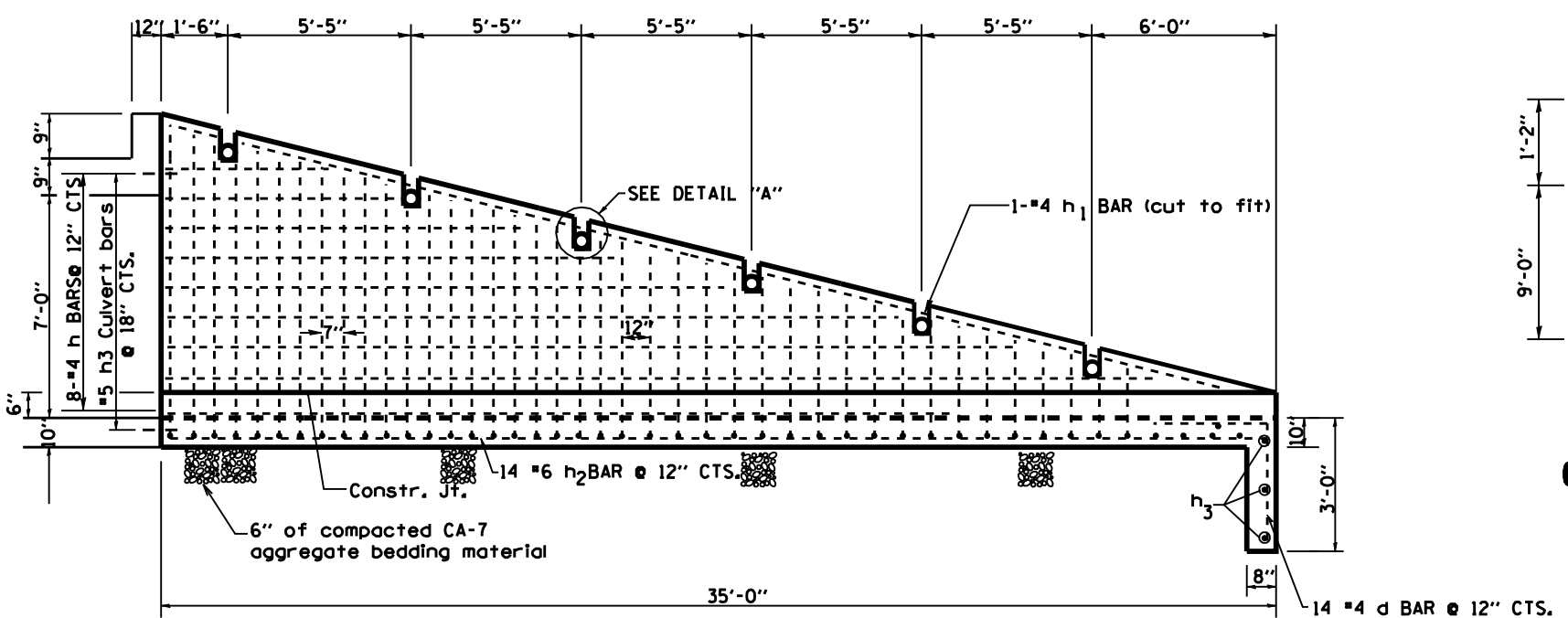
BOLTS, NUTS, & WASHERS SHALL BE IN ACCORDANCE WITH ARTICLE 1006.08 OF THE STANDARD SPECIFICATIONS AND SHALL BE GALVANIZED.

6" OF COMPACTED CA-7 AGGREGATE SHALL BE PLACED BENEATH THE EXTENSION

THE CONTRACT UNIT PRICE "CU YD" FOR CONCRETE BOX CULVERTS SHALL INCLUDE THE GALVANIZED PIPES, BOLTS, NUTS, WASHERS, STEEL PLATES, EARTH EXCAVATION, BACKFILLING, COMPACTED CA-7 AGGREGATE BEDDING MATERIAL AND NECESSARY GRADING.

REINFORCEMENT BARS WILL BE PAID FOR SEPARATELY

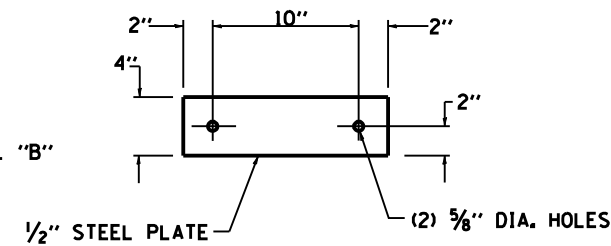
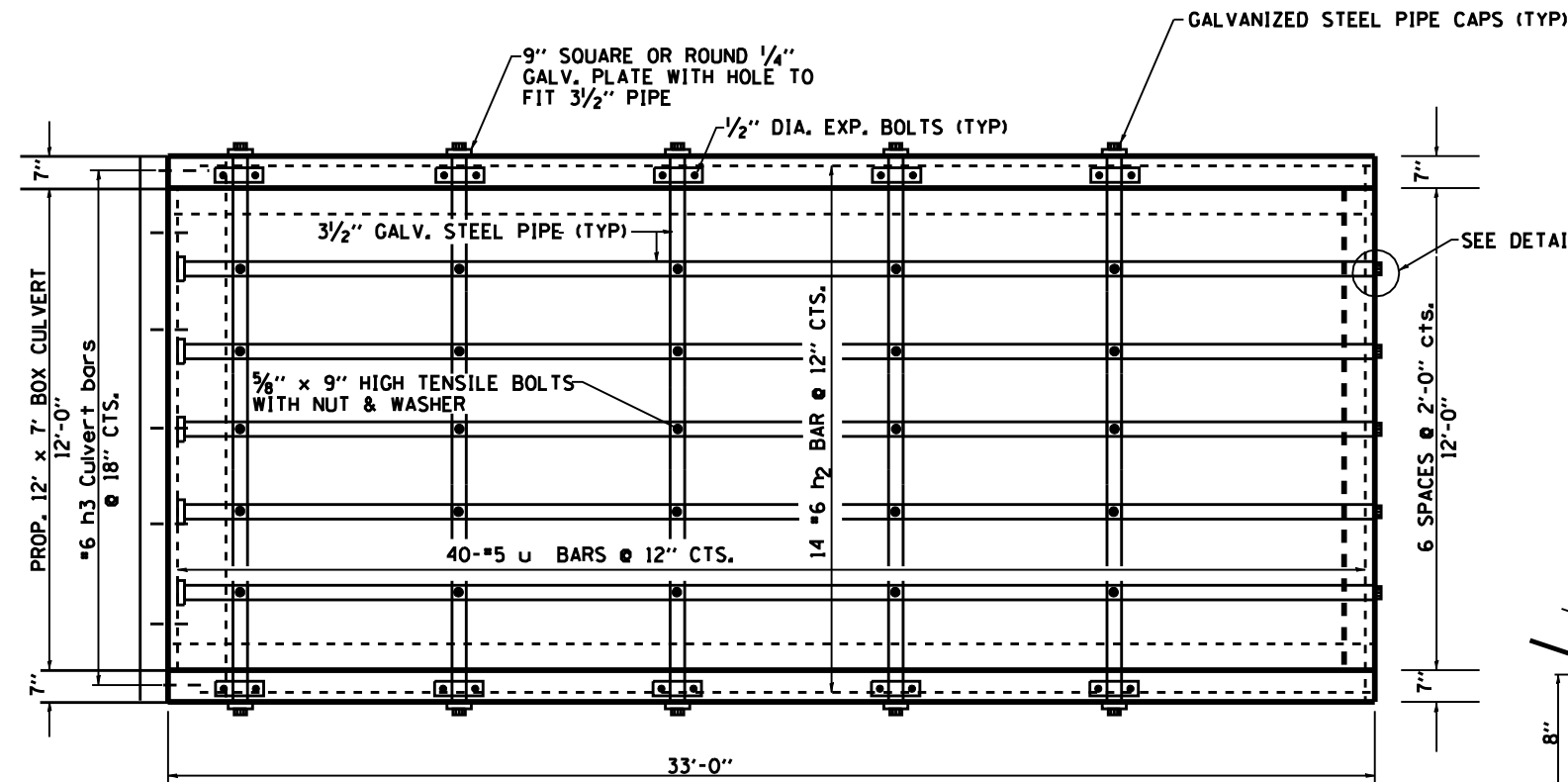
ORDER v AND h BARS @ FULL LENGTH, CUT TO FIT AS SHOWN AND USE REMAINDER OF BARS IN OPPOSITE WALL.



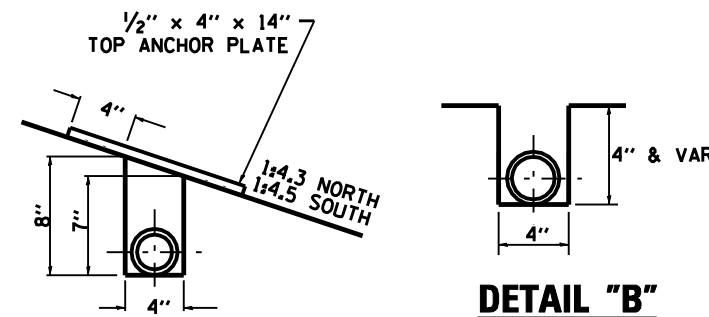
FILE NAME : District 2 Standard	USER NAME : 1007/District 2	DESIGNED - DRAWN -	REVISED - 6-30-06 REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD			F.A. RTÉ.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE : 2.0000' / IN.	CHECKED -	REVISED -		SCALE:	SHEET NO.	OF SHEETS	STA.	TO STA.	CONTRACT NO.		
	PLOT DATE : September 06 2007	DATE -	REVISED -		FED. ROAD DIST. NO.			ILLINOIS FED. AID PROJECT				

CONCRETE BOX CULVERTS STA 438+13

BILL OF MATERIALS



TOP ANCHOR PLATE



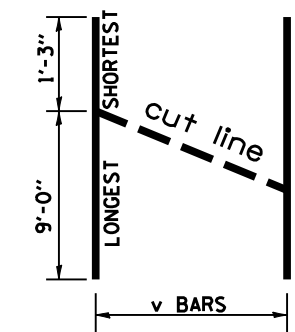
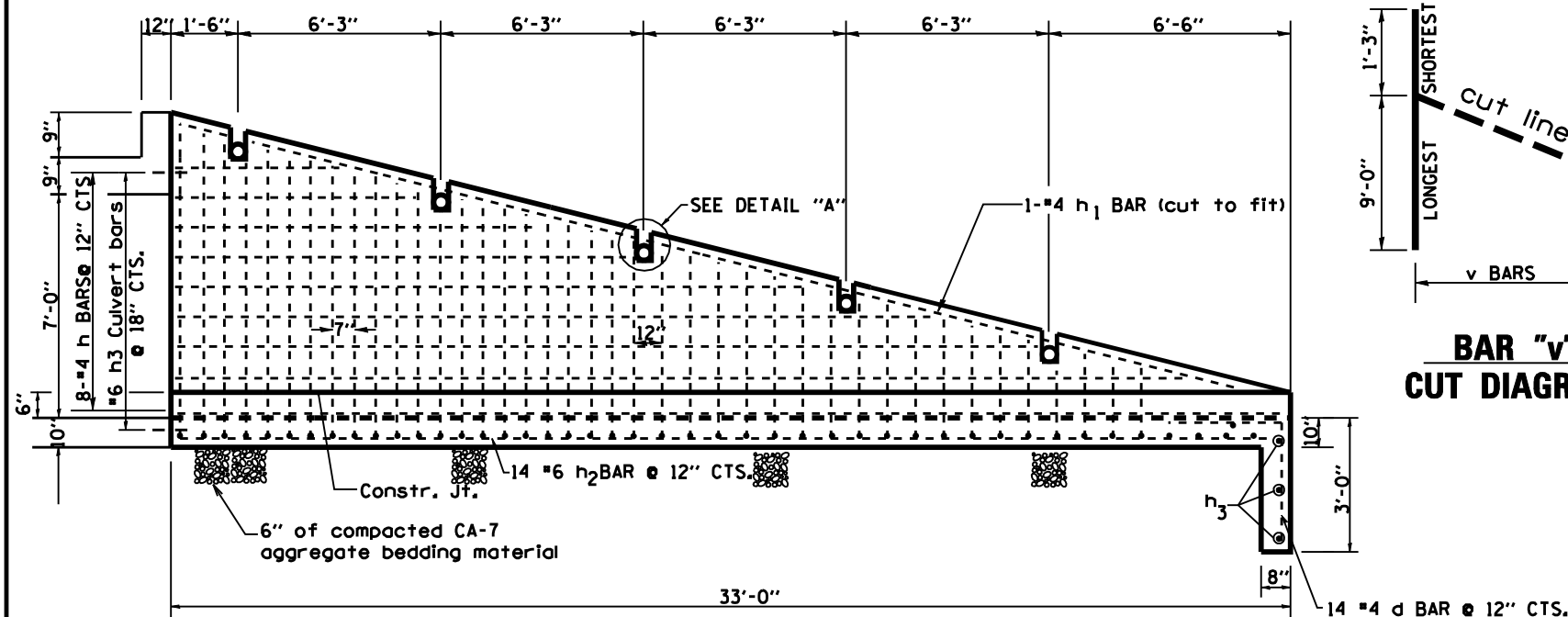
DETAIL "A"

DETAIL "B"

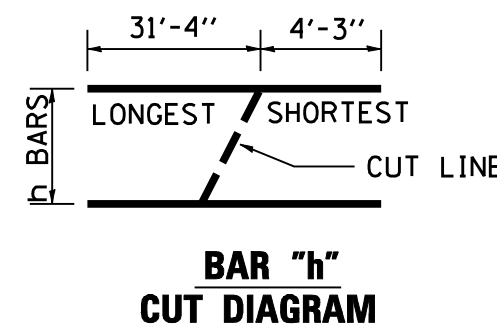
BAR	NUMBER	SIZE	LENGTH	QTY.
d	14	#4	4'-6"	42.08
h	9	#4	33'-0"	198.4
h ₁	2	#4	33'-7"	44.87
h ₂	14	#6	32'-9"	688.61
h ₃	3	#5	12'-11"	40.42
u	40	#5	17'-9"	740.53
v	40	#5	10'-3"	427.63
REINFORCEMENT BARS			LB	2182.59
CONCRETE BOX CULVERTS			CU YD	19.6
3 1/2" GALV. STEEL PIPE			EACH	5 @ 33'-2" 5 @ 13'-4"
1/2" x 4" x 14" GALV. ANCHOR PLATE			EACH	10
5/8" x 9" GALV. BOLTS			EACH	25
GALV. STEEL PIPE CAPS			EACH	20
1/2" Ø GALV. EXP. BOLTS			EACH	20
9" SO. OR ROUND 1/4" GALV. PLATE			EACH	10

GENERAL NOTES:

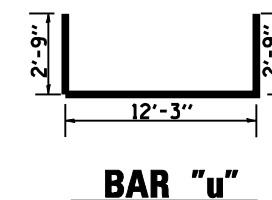
REINFORCEMENT BARS WILL BE PAID FOR SEPARATELY



BAR "v" CUT DIAGRAM



BAR "h" CUT DIAGRAM



BAR "u"

FILE NAME : District 2 Standard	USER NAME : 1001/District 2	DESIGNED - DRAWN -	REVISED - 6-30-06 REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD			F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE : 2,0000' / IN.	CHECKED -	REVISED -		SCALE:	SHEET NO.	OF SHEETS	STA.	TO STA.	CONTRACT NO.		
	PLOT DATE : September 06 2007	DATE -	REVISED -					FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT			

BENCH MARK: BM 408
 STA. 142+21.13, 32.12' RT., EL. 915.984
 TOP OF ROW MARKER WEST OF CULVERT
 AND NORTH OF IL 72.

EXISTING STRUCTURE:
 DOUBLE 6'-0" X 5'-0" X 36'-0" CONCRETE BOX CULVERT.

NO SALVAGE.

PROPOSED IMPROVEMENTS:
 EXISTING STRUCTURE TO BE REMOVED AND REPLACED
 WITH A 2 CELL - 8'-0" X 4'-0" PRECAST CONCRETE BOX
 CULVERT WITH PRECAST CONCRETE BOX CULVERT
 END SECTIONS.

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

STATION 145+06.61
 BUILT 200 BY
 STATE OF ILLINOIS
 IL 72 SECT. 114T-1
 LOADING HS20
 STR. NO. 071-1152

DESIGN SPECIFICATIONS

AASHTO 2002 SPECIFICATIONS
 LOADING HS20-44
 ALLOW 50#/SQ. FT. FOR FUTURE WEARING SURFACE.

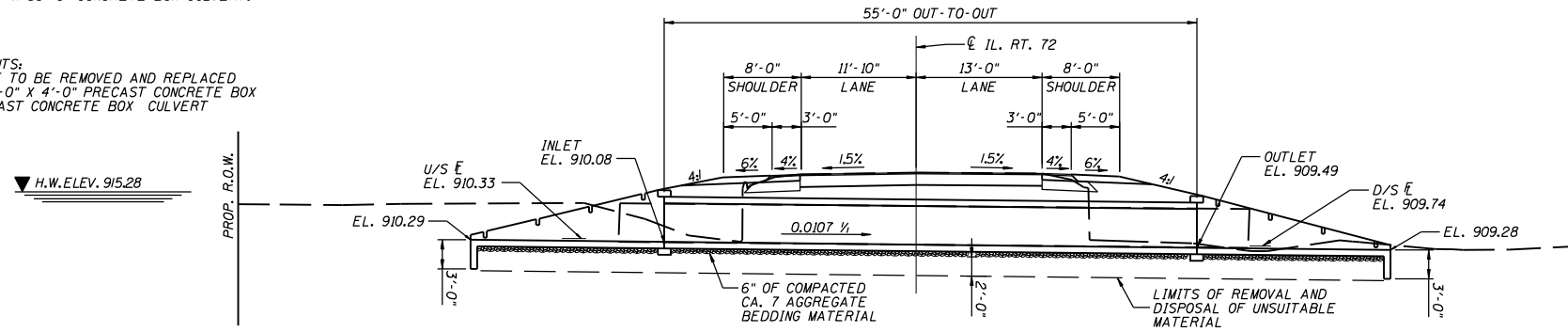
DESIGN STRESSES

FIELD UNITS
 $f'_c = 3,500$ PSI
 $f_y = 60,000$ PSI (REINFORCEMENT)

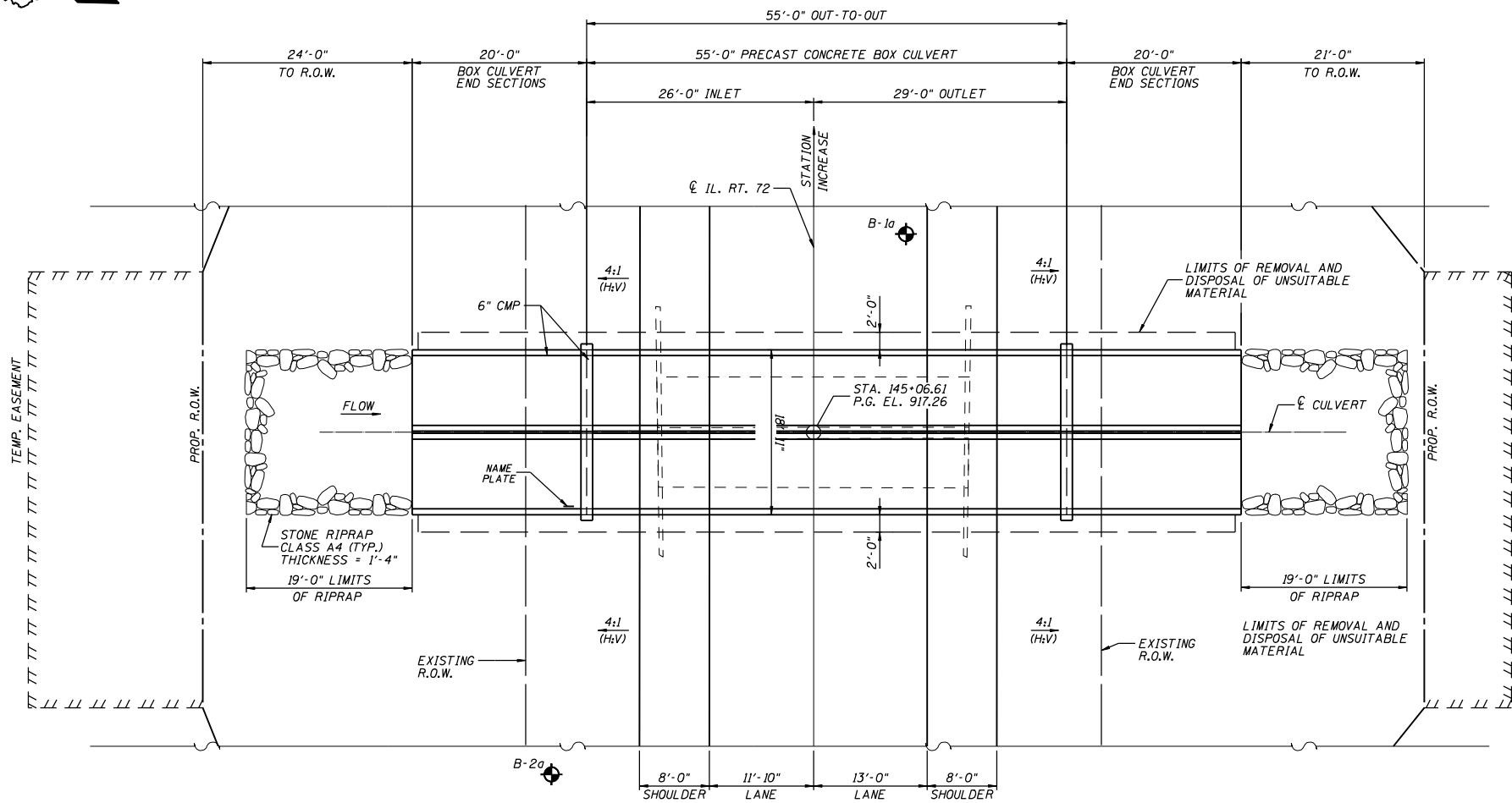
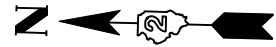
PRECAST UNITS
 $f'_c = 5,000$ PSI
 $f_y = 60,000$ PSI (REINFORCEMENT)

NAME PLATE

NOTE: SEE STANDARD DRAWING 515001
 FOR NAME PLATE DETAILS.

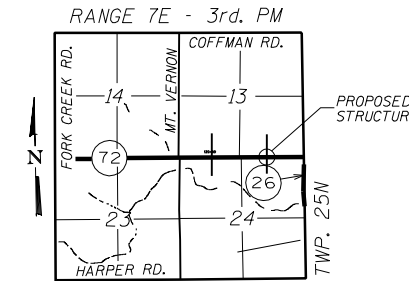


LONGITUDINAL SECTION



PLAN

WATERWAY INFORMATION				
DRAINAGE AREA (ACRES) = 296.0		LOW GRADE ELEV. (FEET) EXIST = 916.54 @ STA. 143+57 PROPOSED = 916.54 @ STA. 143+57		
FLOOD	FREQ. YR.	DISCHARGE C.F.S.	HEADWATER ELEVATION	
			EXISTING	PROPOSED
TEN-YEAR	10	192	913.54	913.40
DESIGN	50	395	915.56	915.28
BASE	100	522	916.77	916.42
EX OVT	93	498	916.64	
PR OVT	113	542		916.64



LOCATION SKETCH

GENERAL NOTES

- REINFORCEMENT BARS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A706 GR 60 (IL MODIFIED), SEE SPECIAL PROVISION.
- EXPOSED EDGES SHALL HAVE A 3/4" CHAMFER.
- CULVERT FLOWS MUST BE MAINTAINED THROUGHOUT THE PROJECT. NORMAL FLOW SHALL BE ALLOWED TO PASS AT THE RATE IT ENTERS THE JOBSITE. HIGH FLOWS SHALL BE ALLOWED TO WITHOUT CAUSING DAMAGE TO UPSTREAM PROPERTIES.
- THE CONTRACTOR SHALL CLEAN OUT CULVERT STREAM FLOW TO THE RIGHT OF WAY LINES. THE COST SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR "PRECAST CONCRETE BOX CULVERT 8'x4'".
- STRUCTURE EXCAVATION AND GRADING AROUND ENDS OF CULVERT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR "PRECAST CONCRETE BOX CULVERT 8'x4'".
- PLACEMENT AND COMPACTION OF THE BACKFILL FOR CULVERT SHALL CONFORM TO SECTION 502.10 OF THE STANDARD SPECIFICATIONS. THE MATERIAL SHALL CONFORM TO SECTION 1004.05 OF THE STANDARD SPECIFICATIONS FOR COARSE AGGREGATE FOR TRENCH BACKFILL, AND SHALL BE COMPACTED TO MINIMUM OF 95% OF THE STANDARD LABORATORY DENSITY. THE ENTIRE EXCAVATION, WITHIN 2 FEET OUTSIDE OF EACH SHOULDER, SHALL BE BACKFILLED WITH TRENCH BACKFILL MATERIAL TO THE BOTTOM OF THE PROPOSED SUBGRADE. THIS TRENCH BACKFILL MATERIAL WILL NOT BE MEASURED FOR PAYMENT, BUT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR THE CLASS OF CONCRETE INVOLVED OR OTHER UNIT PRICE ITEM OF THE WORK FOR WHICH IT IS REQUIRED.
- PRECAST CONCRETE BOX CULVERT SLAB & WALL THICKNESS TAKEN FROM AASHTO MATERIAL SPECIFICATIONS. IF FABRICATOR CHOOSES TO ALTER DIMENSIONS, IT MUST BE APPROVED BY THE ENGINEER, AND THE CALCULATIONS SHALL BE PREPARED AND SEALED BY AN ILLINOIS LICENSED STRUCTURAL ENGINEER.
- ALL LABOR AND MATERIAL REQUIRED FOR THE CONSTRUCTION OF THE CONNECTION COLLAR SHALL BE INCLUDED IN THE BID ITEM "PRECAST CONCRETE BOX CULVERT 8' x 4'".
- BOX CULVERT END SECTIONS ARE TO BE PRECAST. CONTRACTOR HAS THE OPTION OF USING CAST-IN-PLACE END SECTIONS, BUT THE DESIGN OF THE REINFORCEMENT IS THE CONTRACTORS RESPONSIBILITY AND SHALL BE APPROVED BY THE ENGINEER. IF THE CONTRACTOR ELECTS TO USE CAST-IN-PLACE END SECTIONS, NO ADJUSTMENTS IN COSTS OF THE END SECTIONS WILL BE ALLOWED.
- THE NEW NUMBER FOR THIS STRUCTURE WILL BE 071-1151.
- THE PRECAST CONCRETE BOX CULVERT SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M273 (DESIGN FILL HEIGHT 2'-0")

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PLOT DATE = Thu Oct 25 09:40:43 2007		DATE -	REVISED -

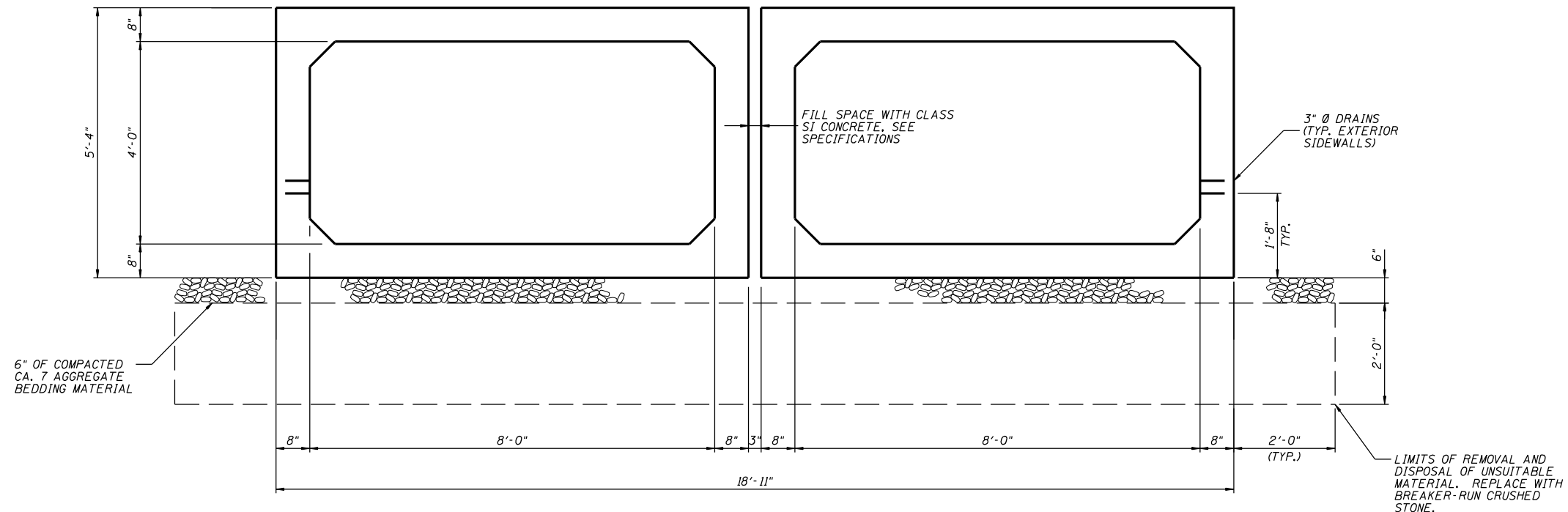
STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

REGION 2 / DISTRICT 2 STANDARD

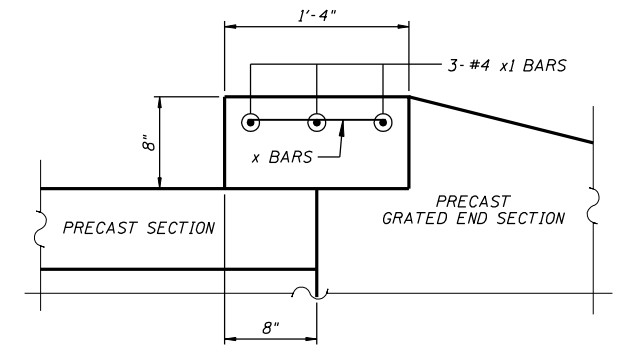
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F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CONTRACT NO. _____				
FED. ROAD DIST. NO. _____ ILLINOIS FED. AID PROJECT				

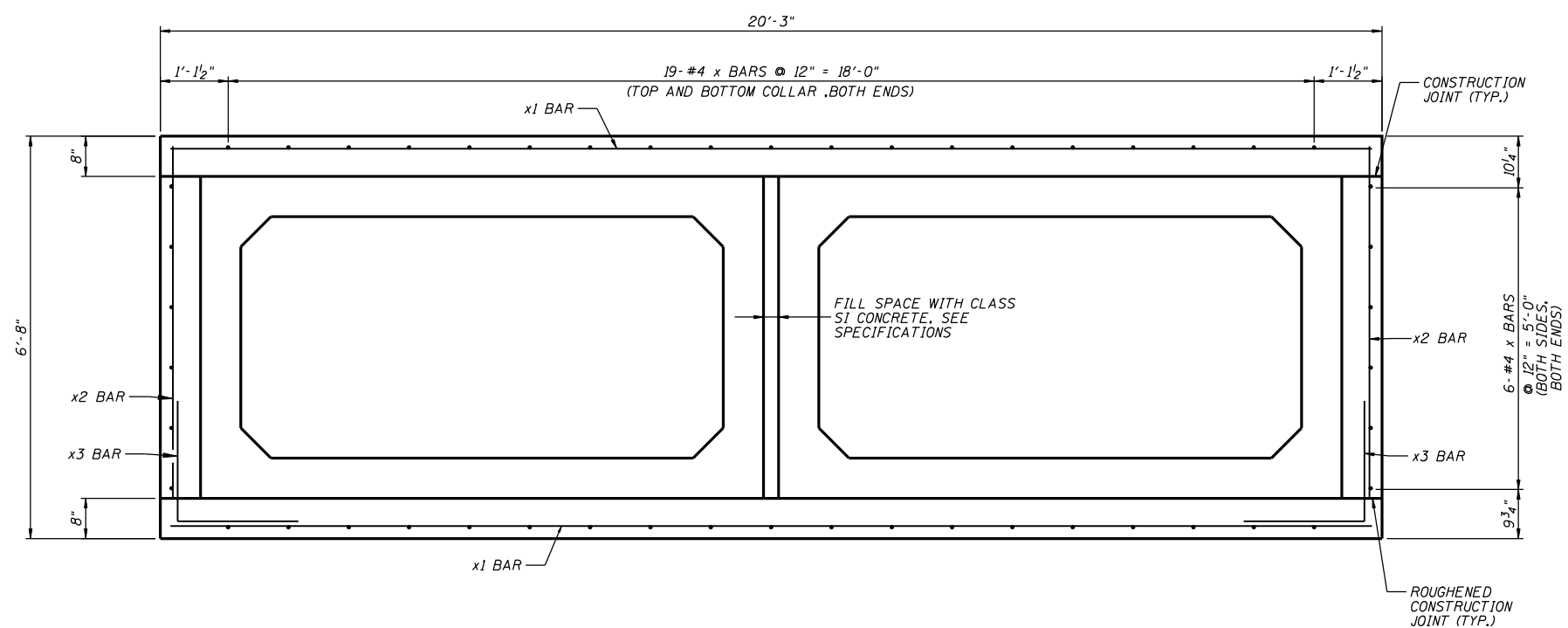
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



PRECAST TYPICAL SECTION



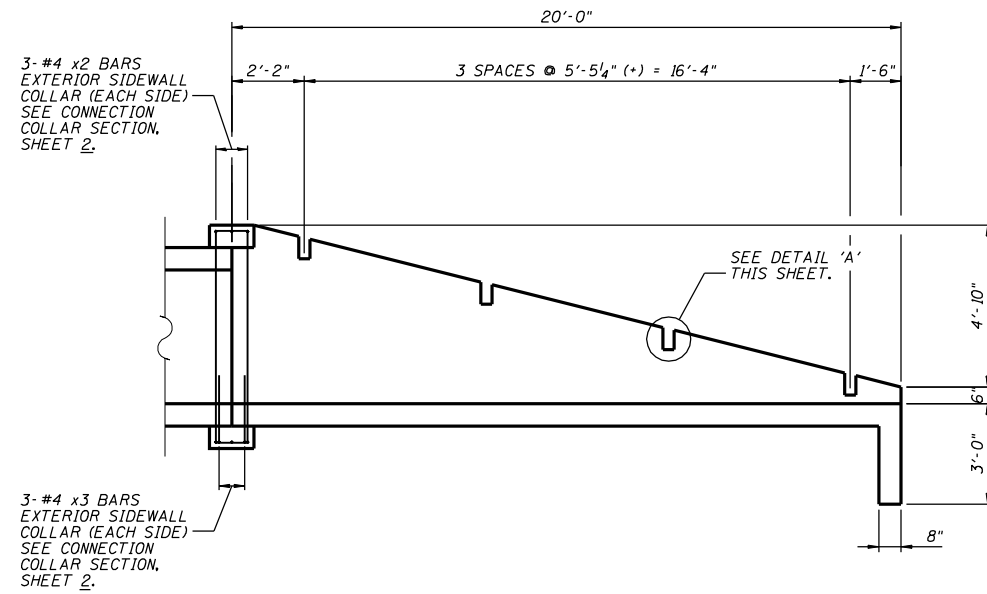
COLLAR DETAIL



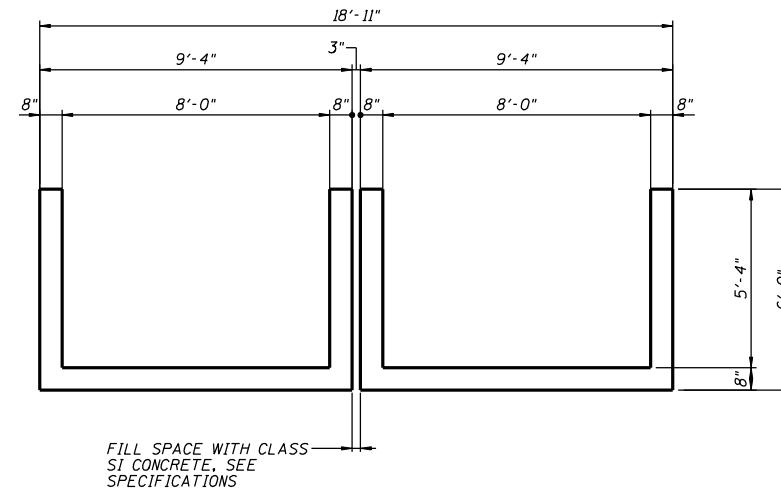
CONNECTION COLLAR SECTION

FILE NAME =	USER NAME = meglilj	DESIGNED -	REVISED - 10-24-07	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REGION 2 / DISTRICT 2 STANDARD			F.A. RTÉ:	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C:\Documents and Settings\mejlilj\Desktop\02CulvertExamples.cel		DRAWN -	REVISED -		SCALE: _____	SHEET NO. ____ OF _____ SHEETS	STA. _____ TO STA. _____	CONTRACT NO. _____				
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PLOT DATE = Thu Oct 25 09:40:55 2007		DATE -	REVISED -									

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



INLET/OUTLET ELEVATION
(2 END SECTIONS EACH END, 4 TOTAL)

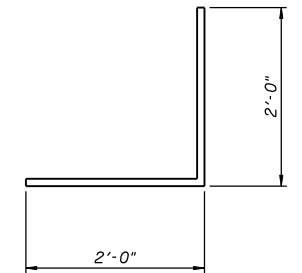


SECTION A-A

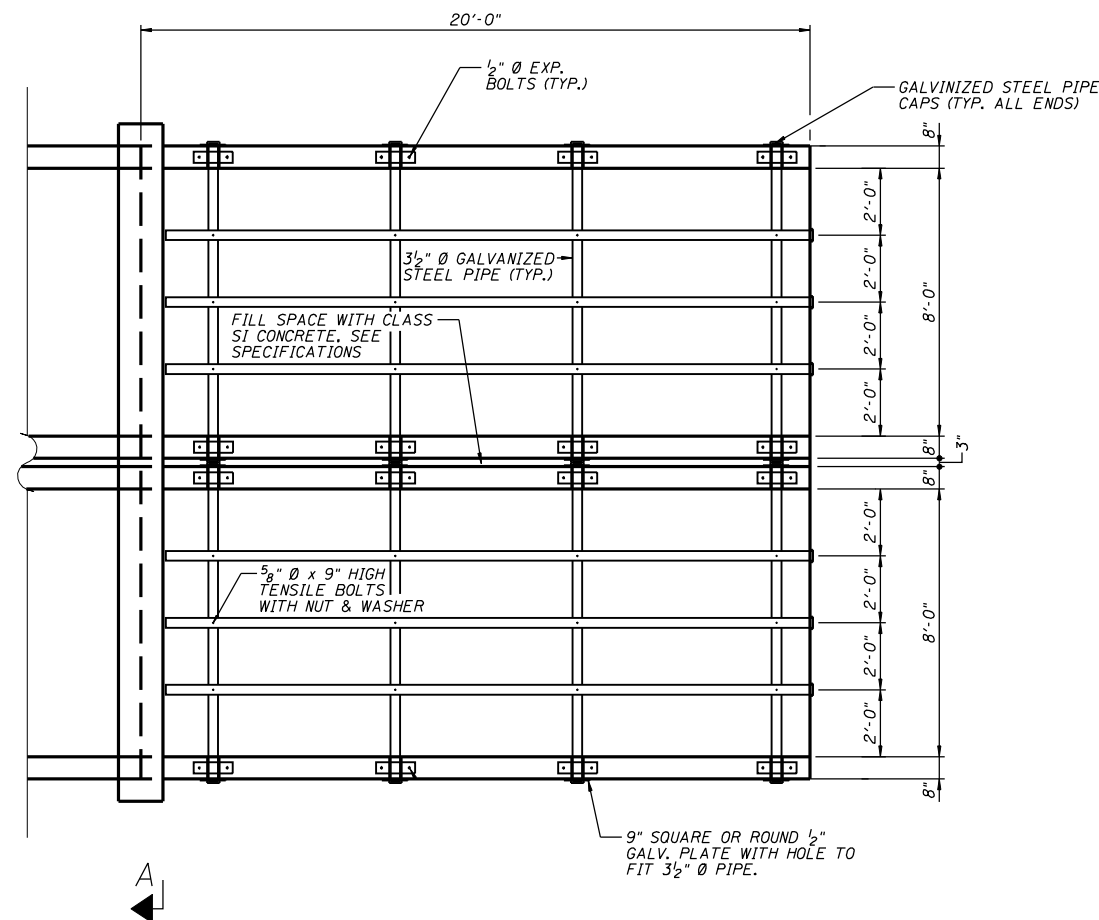
*** CONNECTION COLLAR
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
x	100	4	1'-0"	
x1	12	4	19'-11"	
x2	12	4	5'-10"	
x3	12	4	4'-0"	
CONCRETE STRUCTURES			CU. YD.	3.4
REINFORCEMENT BARS			POUND	312

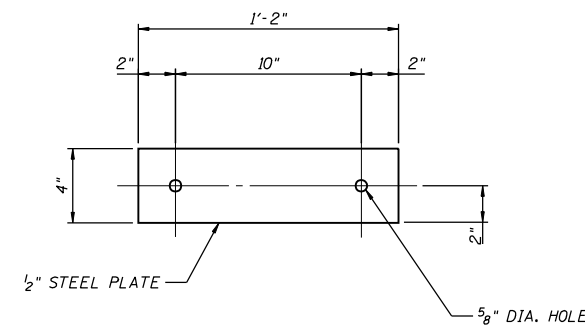
** FOR INFORMATIONAL PURPOSES ONLY. COST TO BE INCLUDED IN THE BID ITEM "PRECAST CONCRETE BOX CULVERT 8'x4'".



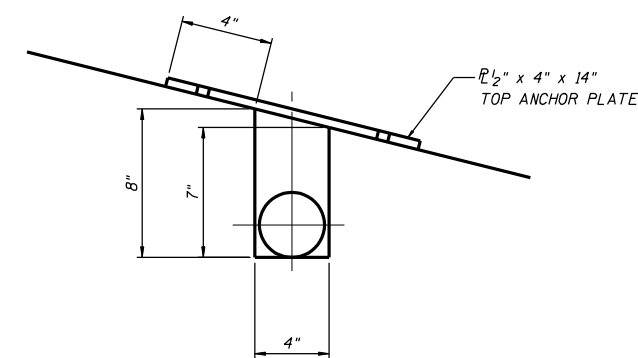
BAR x3



INLET/OUTLET PLAN
(2 END SECTIONS EACH END, 4 TOTAL)



TOP ANCHOR PLATE
(8 EACH SECTION)
(32 TOTAL)



DETAIL 'A'

**** BOX CULVERT END SECTIONS NO. 4
BILL OF MATERIAL**

ITEM	UNIT	QUANTITY
3 1/2" Ø GALV. STEEL PIPE	EACH	3 @ 19'-9" 4 @ 9'-6"
1/2" x 4" x 14" GALV. ANCHOR PLATE	EACH	8
5/8" Ø x 9" GALV. BOLTS	EACH	12
1/2" Ø GALV. EXP. BOLTS	EACH	16
9" SQ. OR ROUND 1/4" GALV. PLATE	EACH	8
GALV. STEEL PIPE CAPS	EACH	14

** QUANTITIES GIVEN ARE FOR EACH BOX CULVERT END SECTION. FOR INFORMATIONAL PURPOSES ONLY. COST TO BE INCLUDED IN THE BID ITEM "BOX CULVERT END SECTIONS NO. 4"

GENERAL NOTES

STEEL PIPES SHALL CONFORM TO A.S.T.M. A-53 (TYPE E OR S) GRADE B, SCHEDULE 40, & SHALL BE GALVANIZED CONFORMING TO A.S.T.M. A-120.

STEEL PLATES SHALL CONFORM TO AASHTO M-183 & 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 BOX CULVERT END SECTION NO. 4 SHALL INCLUDE THE EXPANSION BOLTS, GALVANIZED PIPES, CLASS SI CONCRETE, BOLTS, NUTS, REINFORCEMENT, WASHERS, AND STEEL PLATES.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

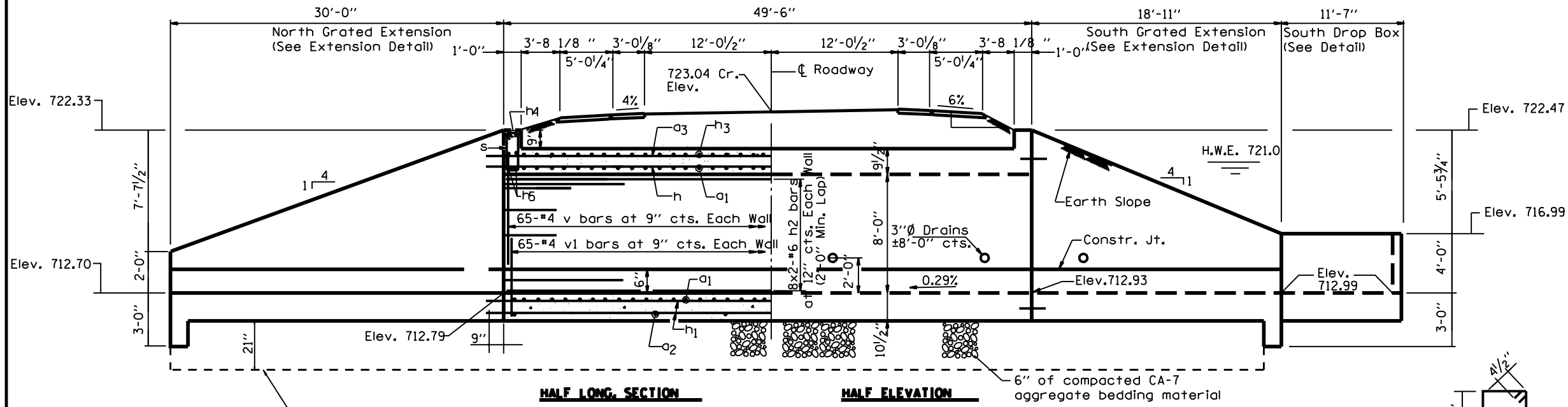
REGION 2 / DISTRICT 2 STANDARD

SCALE: _____	SHEET NO. ____ OF ____ SHEETS	STA. _____ TO STA. _____	F.A. RTE. _____	SECTION _____	COUNTY _____	TOTAL SHEETS _____	SHEET NO. _____
			CONTRACT NO. _____				
			FED. ROAD DIST. NO. _____ ILLINOIS FED. AID PROJECT _____				

CONCRETE BOX CULVERTS STA 732 + 53

BILL OF MATERIAL

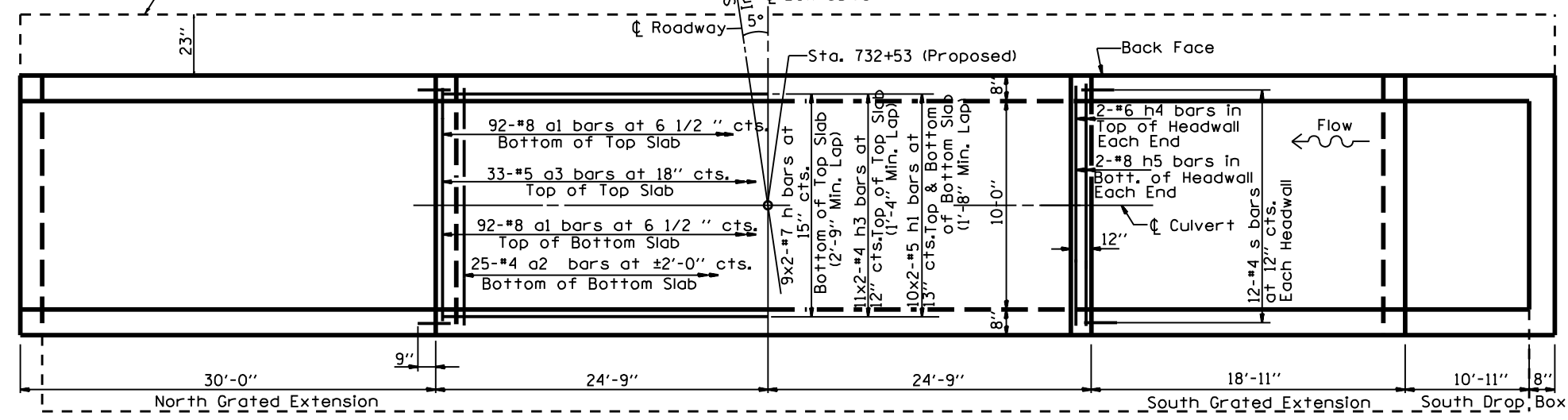
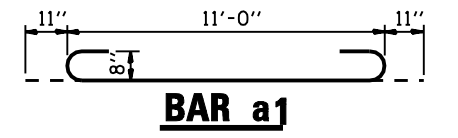
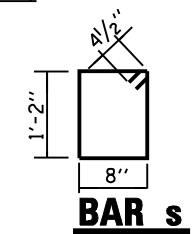
Bar	No.	Size	Length	Shape
a1	184	#8	12'-10"	
a2	25	#4	11'-0"	
a3	33	#5	11'-0"	
h	18	#7	26'-9"	
h1	40	#5	29'-0"	
h2	32	#6	29'-4"	
h3	22	#4	26'-0"	
h4	4	#6	11'-0"	
h5	4	#8	11'-0"	
s	24	#4	4'-5"	
v	130	#4	8'-2"	
v1	130	#4	2'-5"	
Concrete Box Culverts			Cu. Yd.	55.0
Reinforcement Bars			Pound	12026.54
Rem. of Unsuitable Material			Cu. Yd.	109
Breaker-Run Stone			Ton	159
Concrete Box Culvert Total			Cu. Yd.	96.2
Reinforcement Bars Total			Pound	18,742



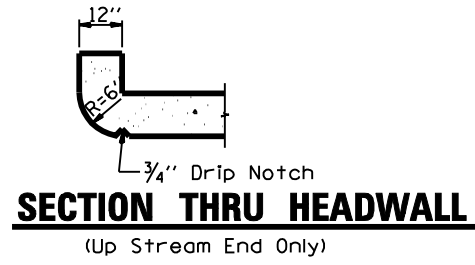
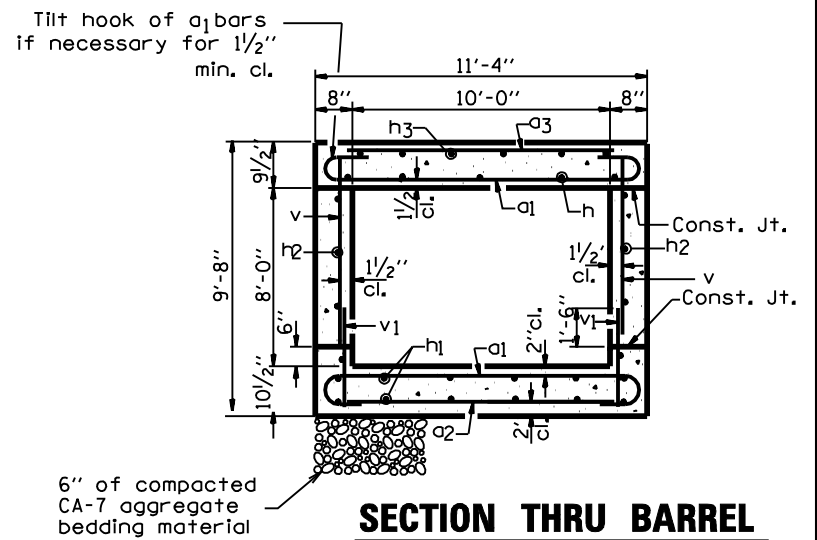
HALF LONG SECTION HALF ELEVATION

ELEVATION
Dimensions shown along ϕ of Culvert

LIMITS OF UNSUITABLE MATERIAL REMOVAL



SHOWING REINFORCEMENT SHOWING OUTLINES



NOTES

Reinforcement Bars shall conform to the requirements of AASHTO M-31, M-42 or M-53, Grade 60.

Bars indicated thus 11 x 2-#4 etc. indicates 11 lines of bars with 2 lengths per line.

All construction joints shall be bonded.

6" of compacted CA-7 aggregate bedding material shall be place beneath the box culvert. The cost for the Ca-7 aggregate shall be included in the cost of Concrete Box Culverts.

The cost of excavation and backfilling shall be included in the cost of Concrete Box Culverts.

WATERWAY INFORMATION

Drainage Area = 0.51 sq mi Low Grade Elev. 723.42 (Exist) 723.61 (Proposed) @ Sta 732+53

Flood	Freq. Yr.	0 C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft. Headwater El.			
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Ten-Year Design	10	285	72.4	80.0	721.00	1.14	1.14	722.14	722.14
Base	50	450	72.4	80.0	721.00	2.75	2.75	723.75	723.75
Overtop (Ex.)	100	521	72.4	80.0	721.00	3.14	3.13	724.14	724.13
Overtop (Pr.)	37	417	72.4	-	721.00	2.43	-	723.43	-
	42	432	-	80.0	721.00	-	2.62	-	723.62

DESIGN STRESSES

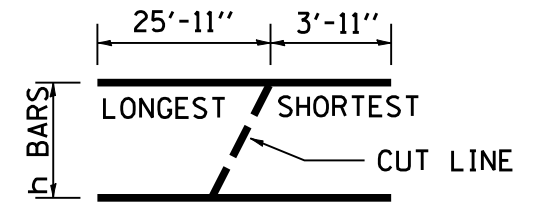
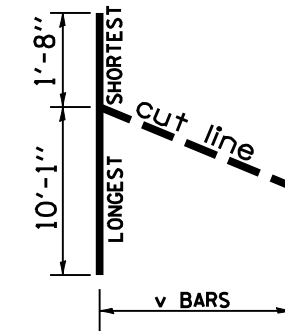
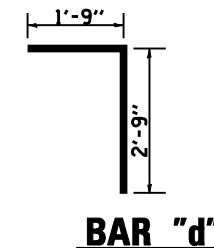
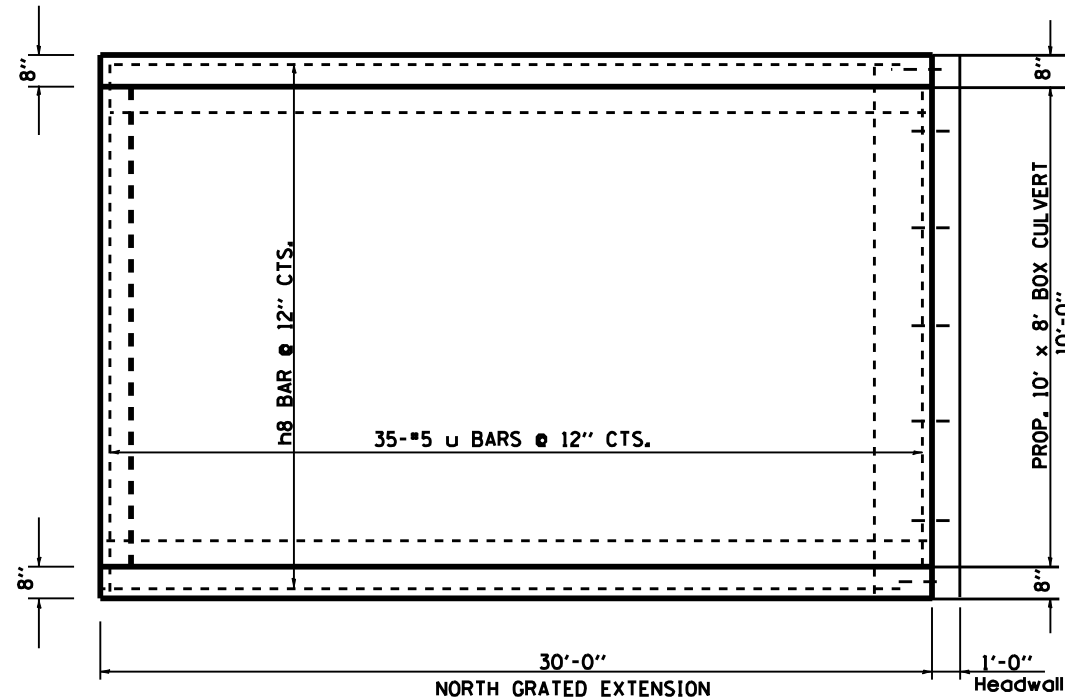
f_y = 60,000 psi
f'_c = 3,500 psi

LOADING HS 20-44 & ALT.

CONCRETE BOX CULVERT END SECTION NORTH SIDE STA 732+53 LT

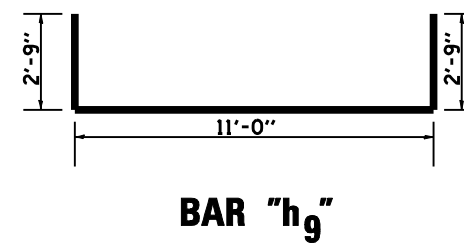
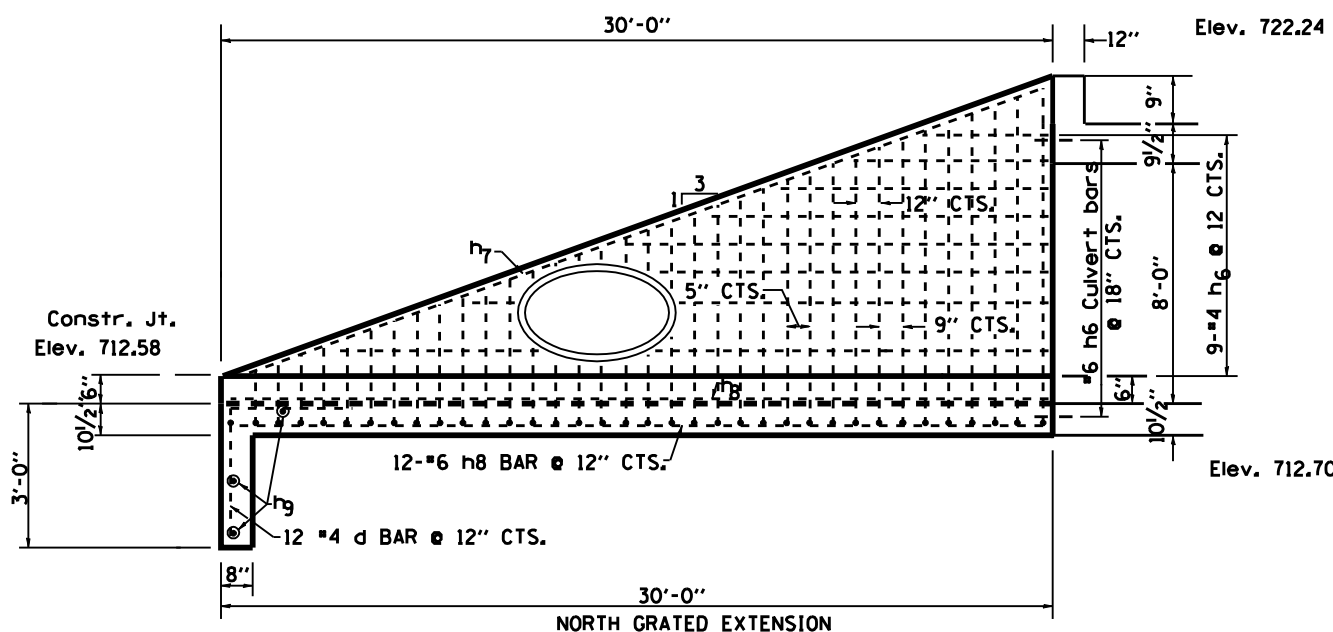
BILL OF MATERIALS NORTHSIDE GRATED EXTENSION ONLY

BAR	NUMBER	SIZE	LENGTH	QTY.
d	12	#4	4'-6"	36.07
h ₆	10	#4	30'-0"	200.40
h ₇	2	#4	30'-11"	41.30
h ₈	14	#4	29'-6"	275.88
h ₉	3	#4	11'-0"	22.04
u	35	#6	16'-6"	867.41
v	31	#5	11'-9"	379.91
REINFORCEMENT BARS			LB	1823.02
CONCRETE BOX CULVERTS			CU YD	17.4



**BAR "v"
CUT DIAGRAM**

BAR "h₇"



BAR "h₉"

GENERAL NOTES:

STEEL PIPES SHALL CONFORM TO A.S.T.M. A-53 (TYPE E OR S) GRADE B, SCHEDULE 40, & SHALL BE GALVANIZED CONFORMING TO A.S.T.M. A-120.

6" OF COMPACTED CA-7 AGGREGATE SHALL BE PLACED BENEATH THE EXTENSION

THE CONTRACT UNIT PRICE "CU YD" FOR CONCRETE BOX CULVERTS SHALL INCLUDE THE EARTH EXCAVATION, BACKFILLING, COMPACTED CA-7 AGGREGATE BEDDING MATERIAL AND NECESSARY GRADING.

REINFORCEMENT BARS WILL BE PAID FOR SEPARATELY

ORDER v AND h BARS FULL LENGTH. CUT TO FIT AS SHOWN AND USE REMAINDER OF BARS IN OPPOSITE WALL.

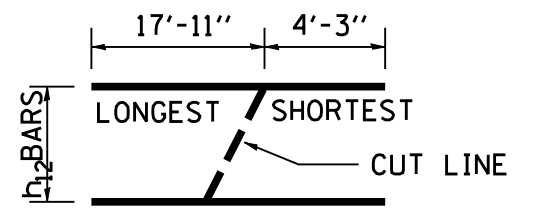
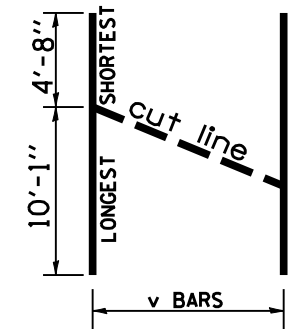
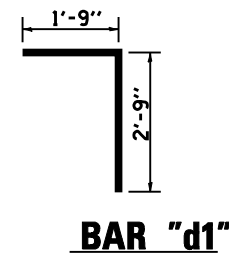
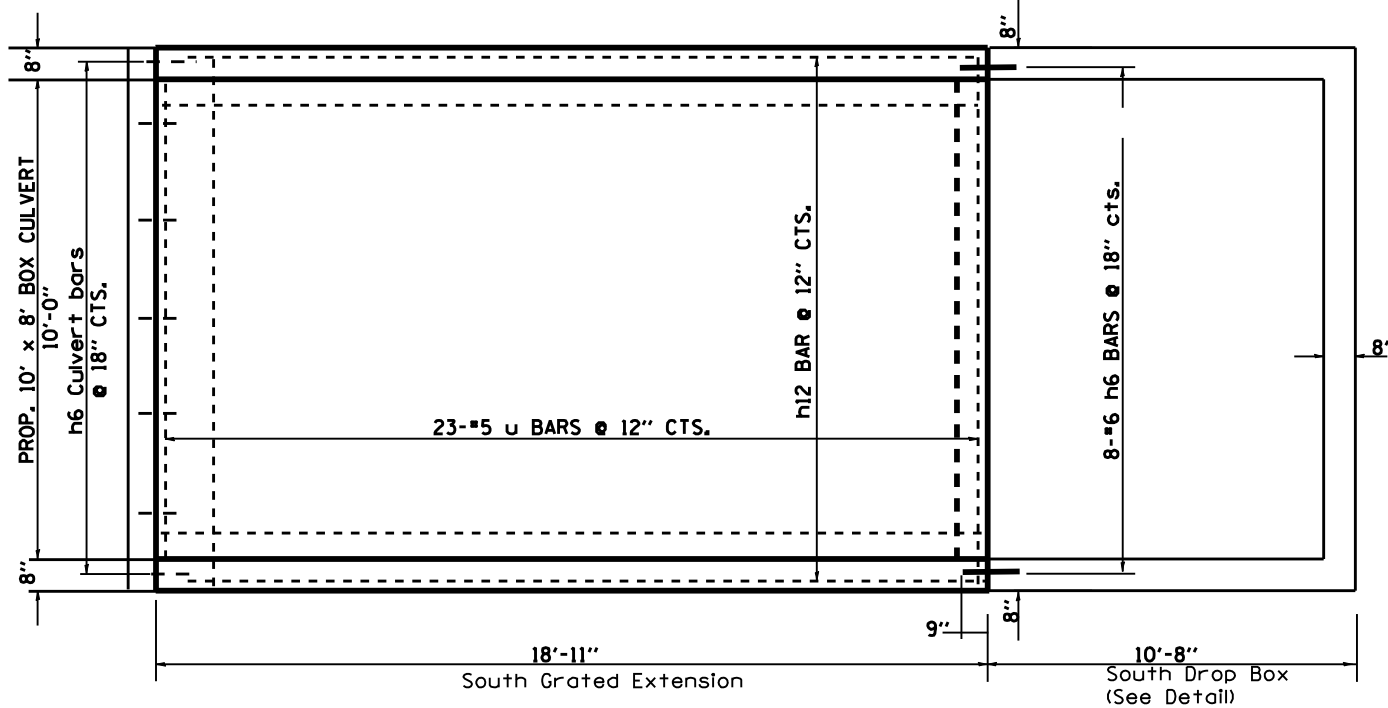
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	PLOT SCALE : 2.0000' / IN.	DRAWN -	REVISED -							
	PLOT DATE : September 06 2007	CHECKED -	REVISED -							
		DATE -	REVISED -							
						SCALE:	SHEET NO. OF SHEETS	STA. TO STA.	CONTRACT NO.	
						FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

CONCRETE BOX CULVERT END SECTION SOUTH SIDE STA 732+53 RT

BILL OF MATERIALS

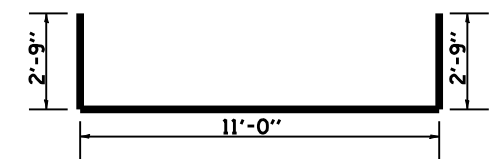
For South Grated Extension Only

BAR	NUMBER	SIZE	LENGTH	QTY.
d1	12	#4	4'-6"	36.07
h1	2	#4	35'-0"	46.76
h2	26	#6	18'-8"	728.97
h3	3	#5	12'-11"	40.42
u	23	#5	16'-6"	395.82
v	23	#5	14'-9"	353.84
REINFORCEMENT BARS			LB	1601.88
CONCRETE BOX CULVERTS			CU YD	14.3



**BAR "v"
CUT DIAGRAM**

BAR "h12"



BAR "u"

GENERAL NOTES:

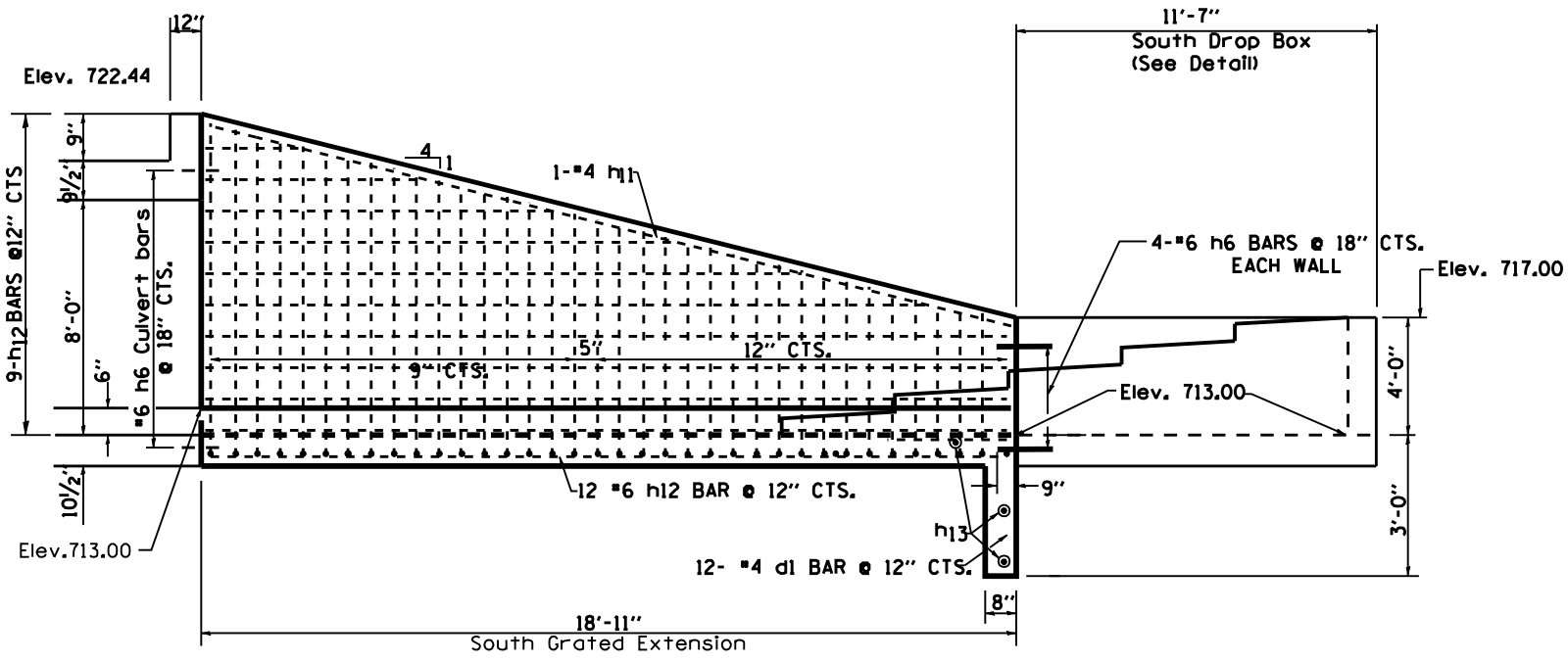
STEEL PIPES SHALL CONFORM TO A.S.T.M. A-53 (TYPE E OR S) GRADE B, SCHEDULE 40, & SHALL BE GALVANIZED CONFORMING TO A.S.T.M. A-120.

6" OF COMPACTED CA-7 AGGREGATE SHALL BE PLACED BENEATH THE EXTENSION

THE CONTRACT UNIT PRICE "CU YD" FOR CONCRETE BOX CULVERTS SHALL INCLUDE THE EARTH EXCAVATION, BACKFILLING, COMPACTED CA-7 AGGREGATE BEDDING MATERIAL AND NECESSARY GRADING.

REINFORCEMENT BARS WILL BE PAID FOR SEPARATELY

ORDER v AND h BARS FULL LENGTH, CUT TO FIT AS SHOWN AND USE REMAINDER OF BARS IN OPPOSITE WALL.



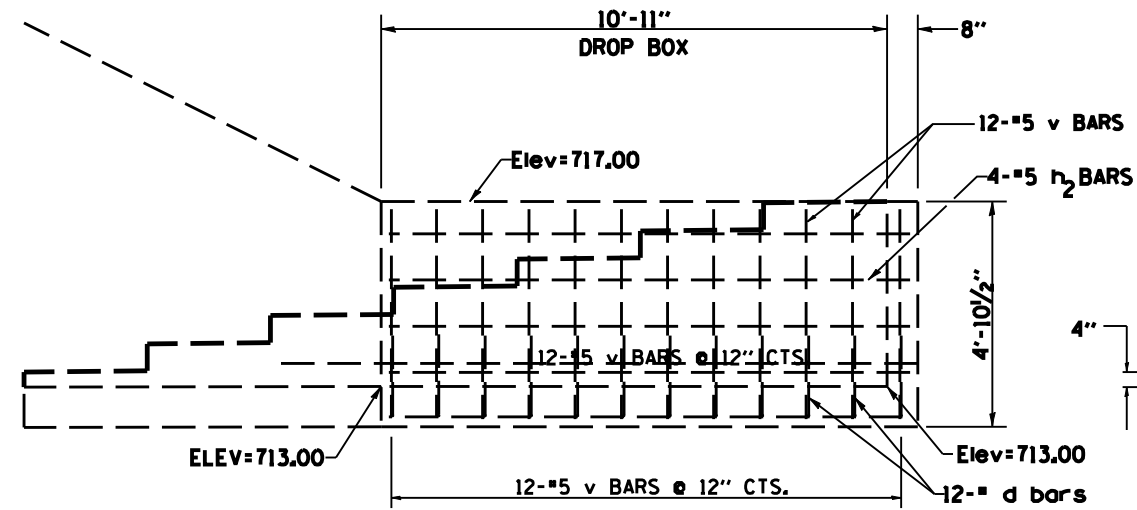
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	PLOT SCALE : 2.0000' / IN.	CHECKED -	REVISIED -								
	PLOT DATE : September 06 2007	DATE -	REVISIED -		SCALE:	SHEET NO.	OF SHEETS	STA.	TO STA.	CONTRACT NO.	
						FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT				

BILL OF MATERIALS

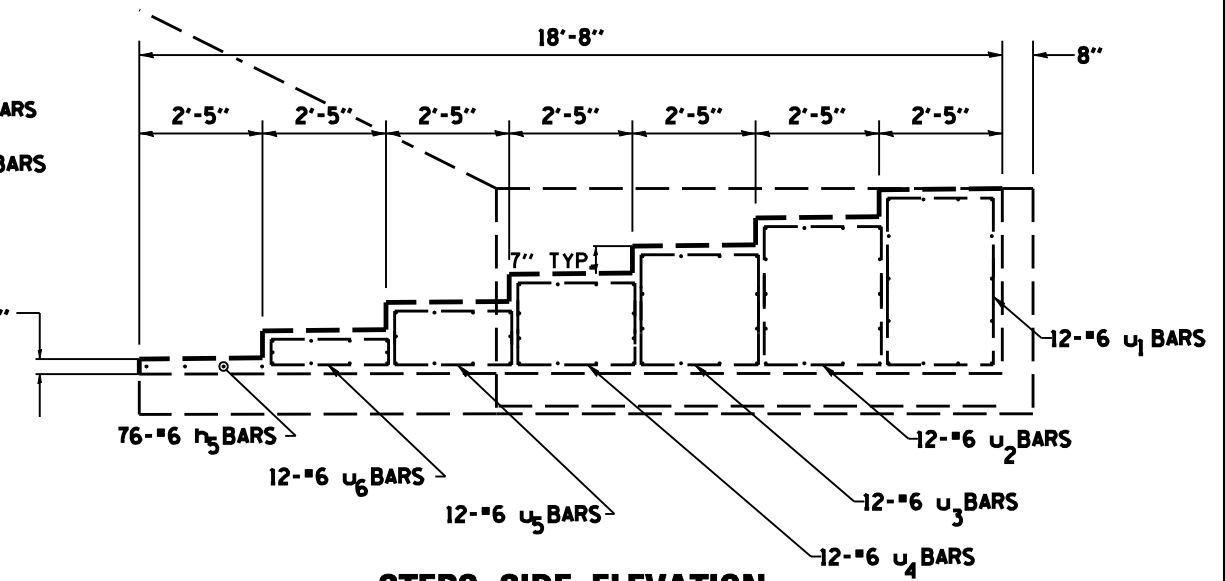
BAR	NUMBER	SIZE	LENGTH
o ₁	21	#8	13'-6"
o ₂	8	#4	10'-4"
d	43	#5	4'-0"
h ₁	20	#5	11'-3.5"
h ₂	8	#5	11'-3.5"
h ₃	4	#5	11'-0"
v	35	#5	4'-6"
u ₁	12	#6	7'-2"
u ₂	12	#6	6'-8"
u ₃	12	#6	6'-2"
u ₄	12	#6	5'-1"
u ₅	12	#6	4'-4"
u ₆	12	#6	2'-6"
h ₄	6	#5	31'-8"
h ₅	76	#5	4'-6"
d ₁	18	#5	3'-0"

DESCRIPTION	UNIT	QTY.
CONCRETE BOX CULVERTS	CU YD	7.1
Reinforcement Bars	LB	3290.58

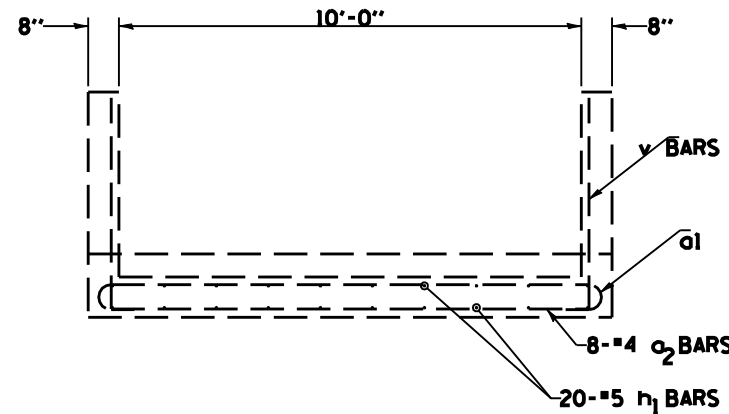
**CONCRETE BOX CULVERT DROP BOX
STA 732+53 RT**



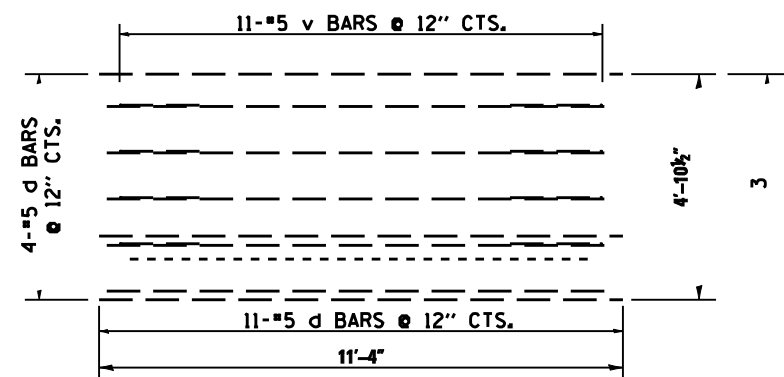
SIDE ELEVATION



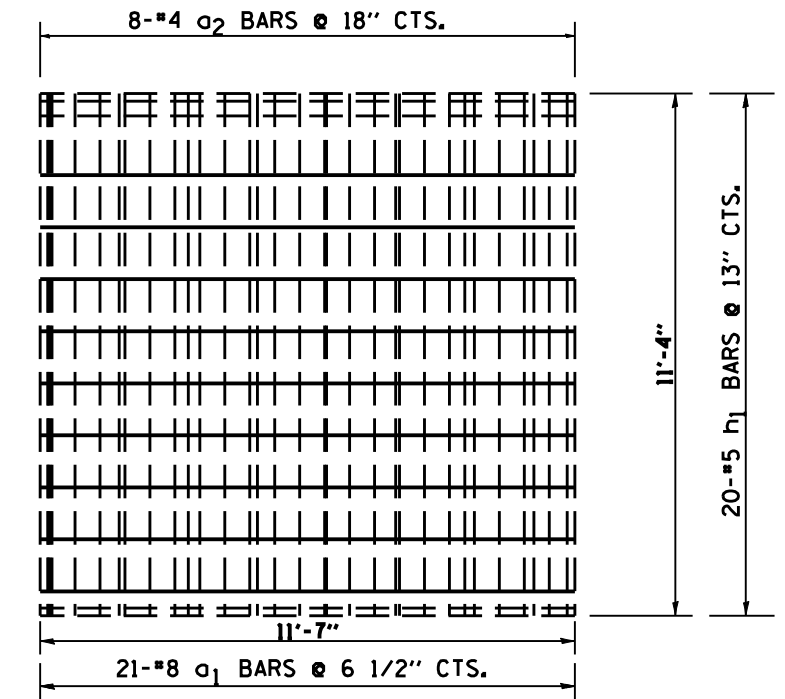
STEPS SIDE ELEVATION



FRONT ELEVATION



BACK ELEVATION



BOTTOM

GENERAL NOTES:

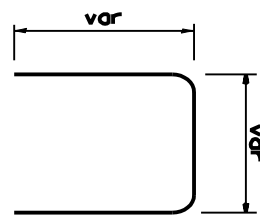
6" Compacted CA-7 gravel shall be placed beneath drop boxes (See Culvert Extension Detail)

Class "SI" concrete shall be used throughout. Exposed edges shall be beveled 3/4".

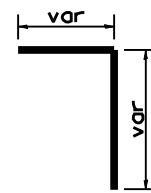
All work and materials incorporated into the onstruction of the Concrete Box Culvert, the end sections and drop box will be paid for at the contract unit price "cu yd" for CONCRETE BOX CULVERTS.

Reinforcement bars, Rem. of unsuitable mat'l, and breaker-run will be paid for Separately.

Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-53, grade 60.



u BARS



d BARS

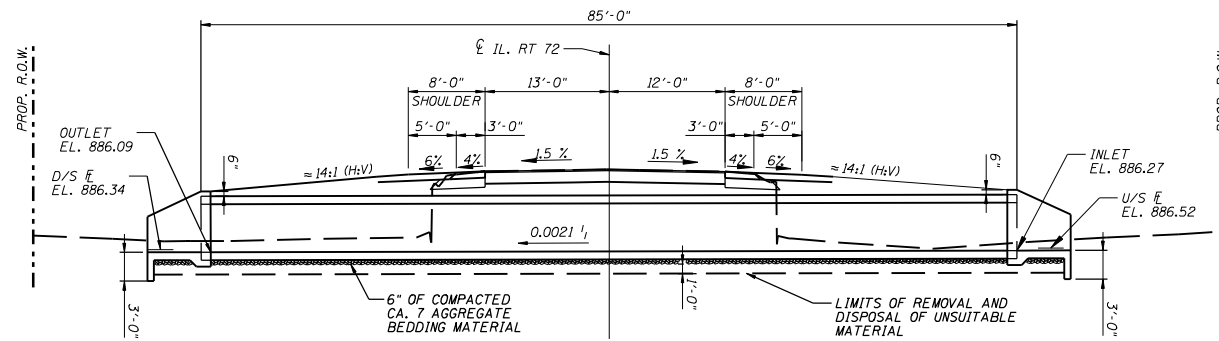
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

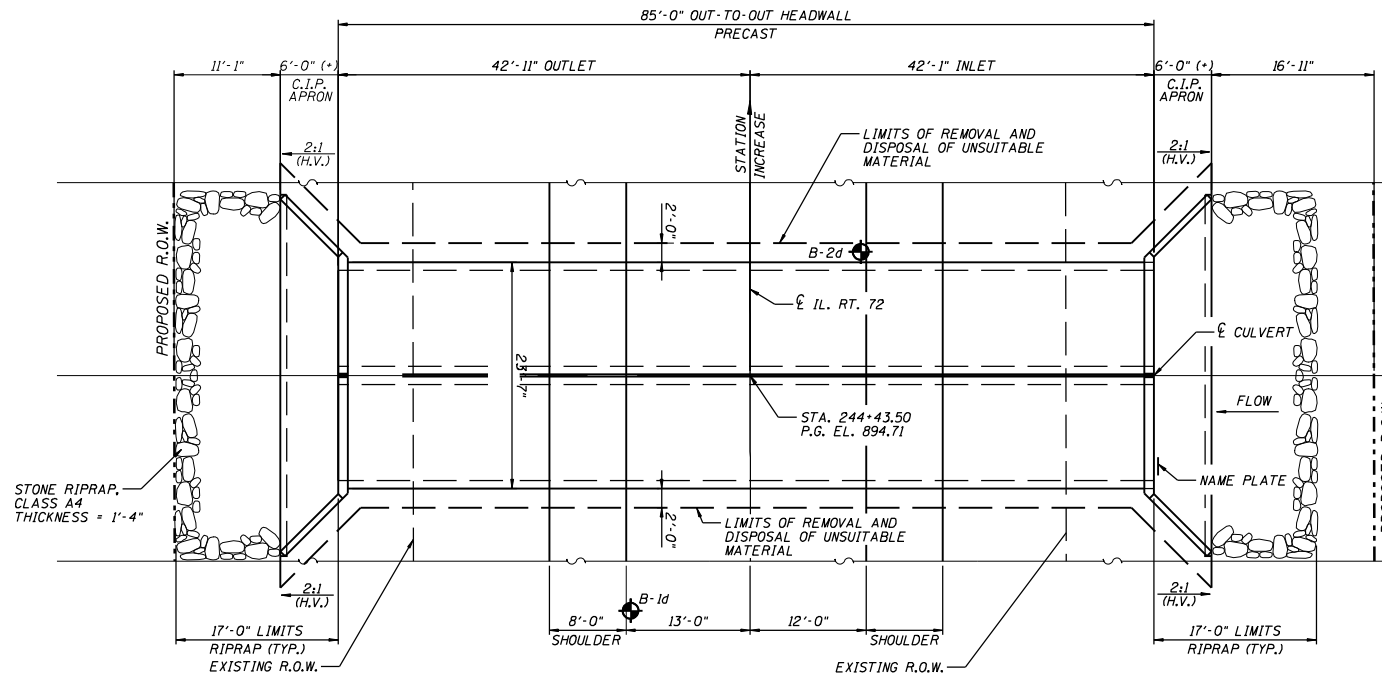
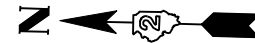
EXISTING STRUCTURE:
SINGLE 10'-0" x 6'-0" x 36'-0" CONCRETE BOX CULVERT.

NO SALVAGE.

PROPOSED IMPROVEMENTS:
EXISTING STRUCTURE TO BE REMOVED AND REPLACED
WITH A DOUBLE 10'-0" x 5'-0" PRECAST CONCRETE BOX
CULVERT WITH CAST IN PLACE END SECTIONS.



LONGITUDINAL SECTION



PLAN

DESIGN SPECIFICATIONS

AASHTO 2002 SPECIFICATIONS
LOADING HS20-44
ALLOW 50#/#SQ. FT. FOR FUTURE WEARING SURFACE.

DESIGN STRESSES

FIELD UNITS
f'c = 3,500 PSI
fy = 60,000 PSI (REINFORCEMENT)
PRECAST UNITS
f'c = 5,000 PSI
fy = 60,000 PSI (REINFORCEMENT)

TOTAL BILL OF MATERIALS

ITEM	UNIT	QUANTITY
CONCRETE BOX CULVERTS	CU. YD.	24.5
PRECAST CONCRETE BOX CULVERT 10' x 5'	FOOT	170
REINFORCEMENT BARS	POUND	1,637
NAME PLATES	EACH	1
REMOVAL OF EXISTING STRUCTURE NO. 1	EACH	1
STONE RIPRAP, CLASS A4	SO. YD.	140
FILTER FABRIC	SO. YD.	140
REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL	CU. YD.	105
BREAKER-RUN CRUSHED STONE	TON	171

GENERAL NOTES

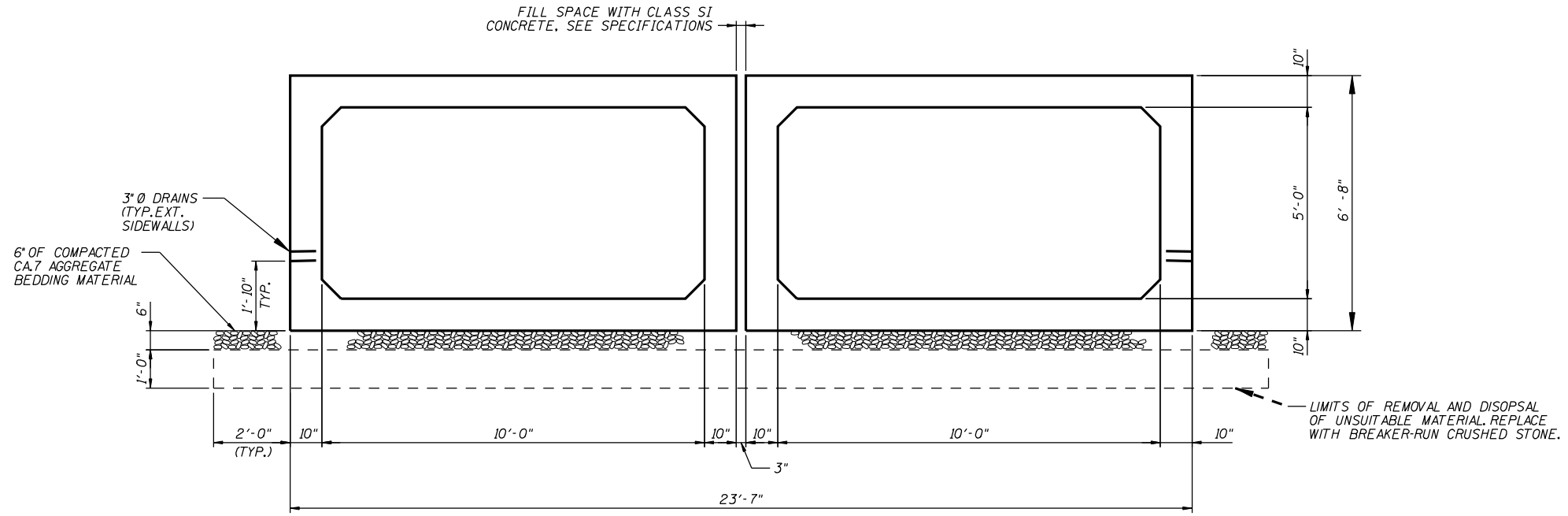
- REINFORCEMENT BARS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A706 GR 60 (IL MODIFIED). SEE SPECIAL PROVISION.
- EXPOSED EDGES SHALL HAVE A 3/4" CHAMFER.
- CULVERT FLOWS MUST BE MAINTAINED THROUGHOUT THE PROJECT. NORMAL FLOW SHALL BE ALLOWED TO PASS AT THE RATE IT ENTERS THE JOBSITE. HIGH FLOWS SHALL BE ALLOWED TO PASS WITHOUT CAUSING DAMAGE TO UPSTREAM PROPERTIES.
- THE CONTRACTOR SHALL CLEAN OUT CULVERT STREAM FLOW TO THE RIGHT OF WAY LINES. THE COST SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR "PRECAST CONCRETE BOX CULVERT 10'x5'".
- STRUCTURE EXCAVATION AND GRADING AROUND ENDS OF CULVERT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR "PRECAST CONCRETE BOX CULVERT 10' x 5'".
- PLACEMENT AND COMPACTION OF THE BACKFILL FOR CULVERT SHALL CONFORM TO SECTION 502.10 OF THE STANDARD SPECIFICATIONS. EXCEPT THAT THE MATERIAL SHALL CONFORM TO SECTION 1004.05 OF THE STANDARD SPECIFICATIONS FOR COARSE AGGREGATE FOR TRENCH BACKFILL, AND SHALL BE COMPACTED TO MINIMUM OF 95% OF THE STANDARD LABORATORY DENSITY. THE ENTIRE EXCAVATION, WITHIN 2 FEET OUTSIDE OF EACH SHOULDER, SHALL BE BACKFILLED WITH TRENCH BACKFILL MATERIAL TO THE BOTTOM OF THE PROPOSED SUBGRADE. THIS TRENCH BACKFILL MATERIAL WILL NOT BE MEASURED FOR PAYMENT, BUT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR THE CLASS OF CONCRETE INVOLVED OR OTHER UNIT PRICE ITEM OF THE WORK FOR WHICH IT IS REQUIRED.
- PRECAST SUBSTITUTION IS NOT ALLOWED FOR CULVERT APRONS AND WINGWALLS.
- PRECAST CONCRETE BOX CULVERT SLAB & WALL THICKNESS TAKEN FROM AASHTO MATERIAL SPECIFICATIONS. IF FABRICATOR CHOOSES TO ALTER DIMENSIONS, IT MUST BE APPROVED BY THE ENGINEER, AND THE CALCULATIONS SHALL BE PREPARED AND SEALED BY AN ILLINOIS LICENSED STRUCTURAL ENGINEER.
- THE NEW NUMBER FOR THIS STRUCTURE WILL BE 008-1090.
- THE PRECAST CONCRETE BOX CULVERT SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M273 (DESIGN FILL HEIGHT = 2'-0")

WATERWAY INFORMATION

DRAINAGE AREA (SQ. MI.) = 1.33		LOW GRADE ELEV. (FEET) EXIST = 894.59 @ STA. 243.62 PROPOSED = 894.59 @ STA. 243.62							
FLOOD	FREQ. YR.	DISCHARGE C.F.S.	WATERWAY OPENING (SQ. FT.)		NATURAL H.W.E.	HEAD (FT.)		HEADWATER ELEVATION	
			EXISTING	PROPOSED		EXISTING	PROPOSED	EXISTING	PROPOSED
TEN-YEAR	10	509	44.4	87.2	890.87	3.08	0.68	893.95	891.55
DESIGN	50	1046	53.8	100.0	891.80	3.77	2.70	895.57	894.50
BASE	100	1381	59.0	100.0	892.32	3.63	2.99	895.95	895.31
EX OVT	13	581	46.0	90.4	891.02	3.57		894.59	
PR OVT	61	1100	54.6	100.0	891.88		2.71		894.59
MAX CALC.	500	2513	60.0	100.0	893.27	3.41	3.28	896.68	896.55

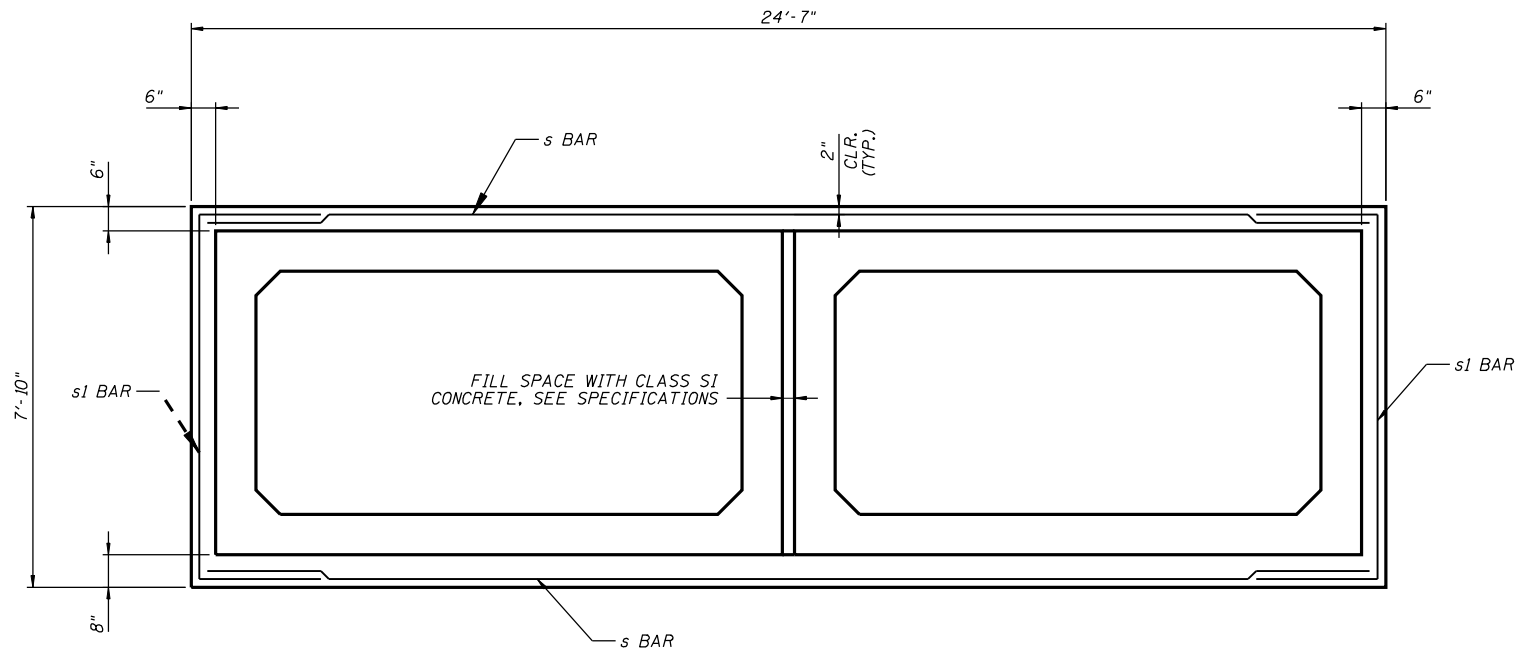
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PLOT DATE = Thu Oct 25 09:13:04 2007	DATE -	REVISOR -									
SCALE: _____ SHEET NO. ____ OF ____ SHEETS STA. _____ TO STA. _____						FED. ROAD DIST. NO. _____ ILLINOIS FED. AID PROJECT					

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



NOTE:
CLASS S1 CONCRETE TO BE
POURED BETWEEN PRECAST
SECTIONS PRIOR TO FORMING
AND POURING CAST-IN-PLACE
APRONS.

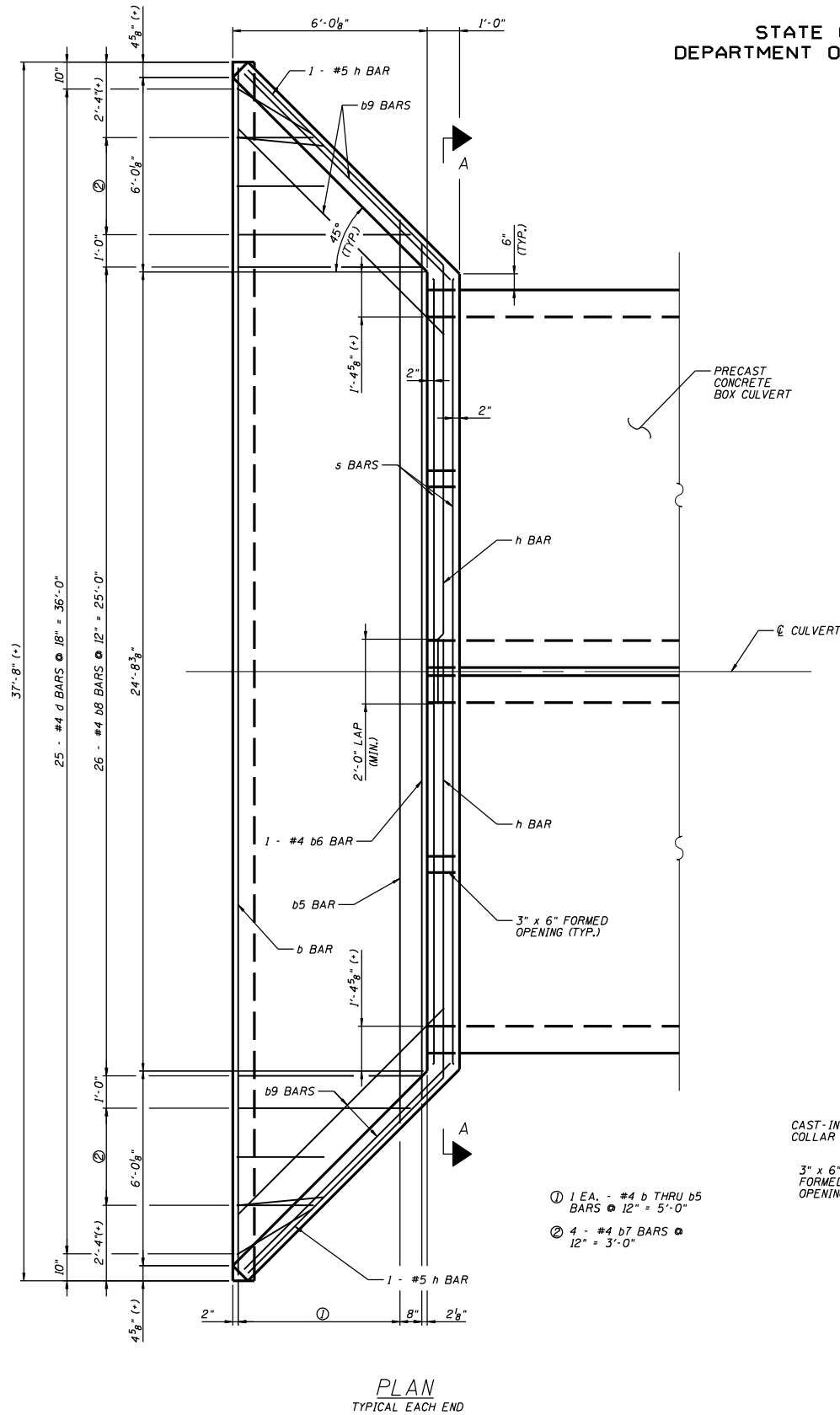
PRECAST TYPICAL SECTION



PRECAST TO CAST-IN-PLACE CONNECTION COLLAR
SECTION A-A

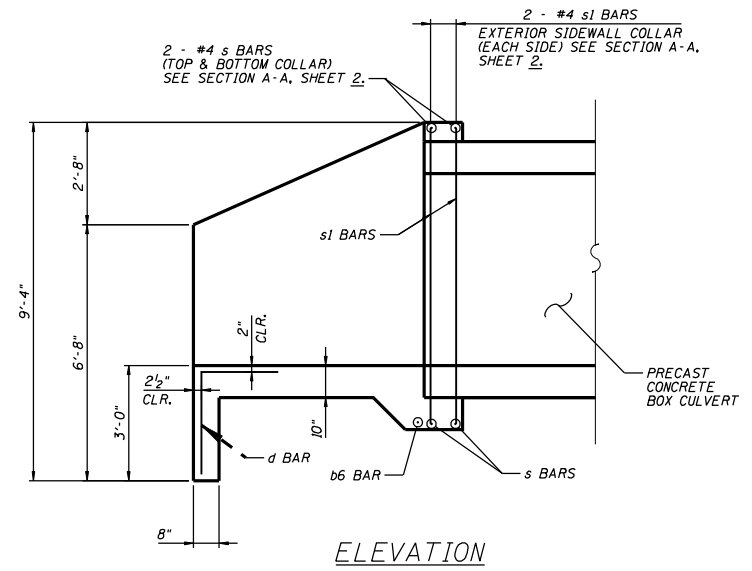
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

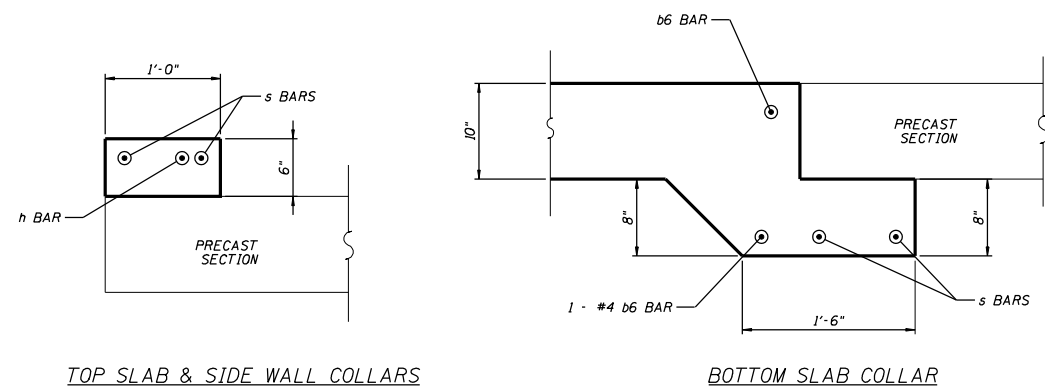


PLAN
TYPICAL EACH END

- ① 1 EA. - #4 b THRU b5 BARS @ 12" = 5'-0"
- ② 4 - #4 b7 BARS @ 12" = 3'-0"



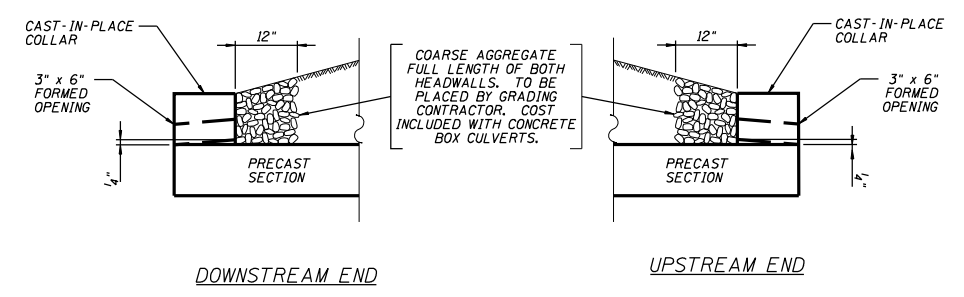
ELEVATION



TOP SLAB & SIDE WALL COLLARS

BOTTOM SLAB COLLAR

PRECAST TO CAST-IN-PLACE CONNECTION COLLAR



DOWNSTREAM END

UPSTREAM END

DRAIN DETAILS

FILE NAME =	USER NAME = meglilj	DESIGNED -	REVISED - 10-24-07
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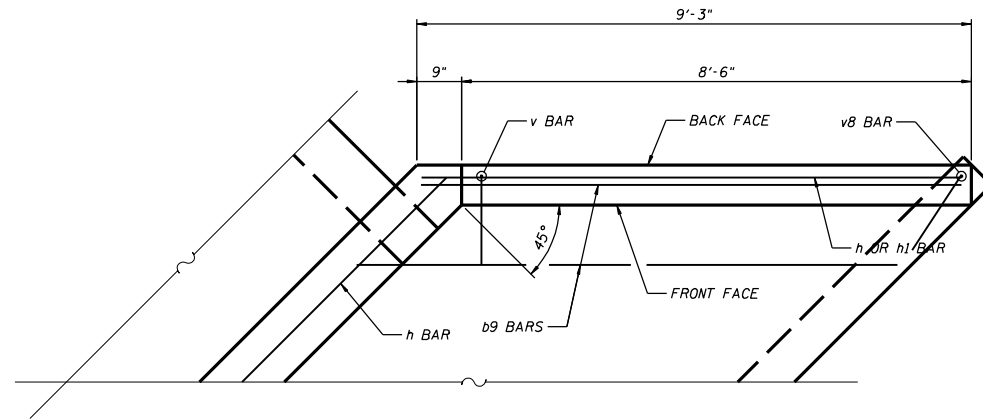
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

REGION 2 / DISTRICT 2 STANDARD

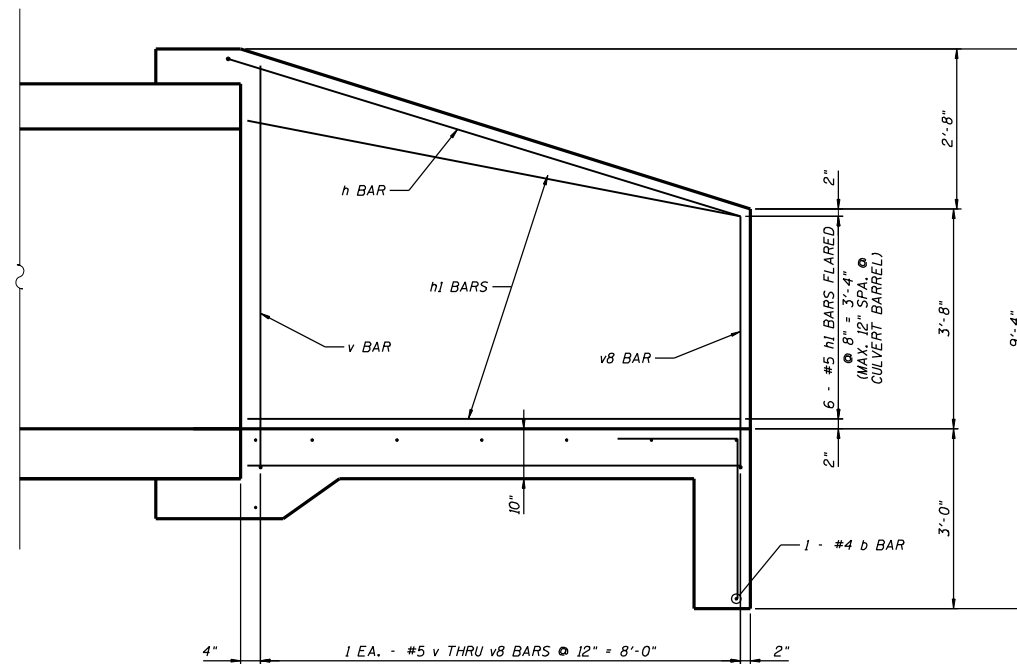
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CONTRACT NO. _____				
FED. ROAD DIST. NO. _____ ILLINOIS FED. AID PROJECT				

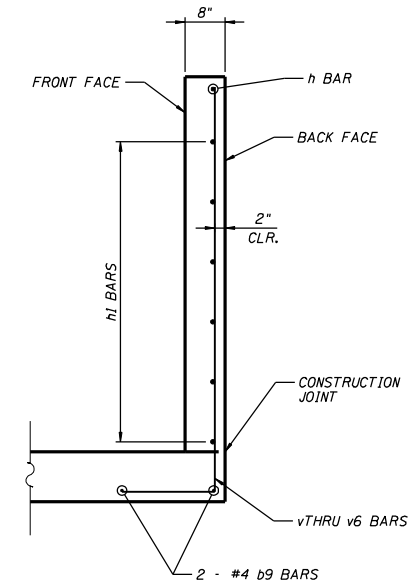
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



WING PLAN
SIMILAR ALL WINGS (4 TOTAL)



WING ELEVATION
SIMILAR ALL WINGS (4 TOTAL)



WING TYPICAL SECTION
SIMILAR ALL WINGS (4 TOTAL)

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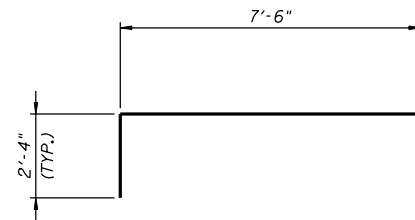
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

REGION 2 / DISTRICT 2 STANDARD

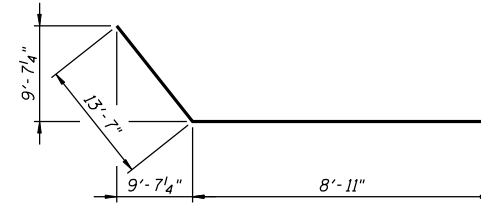
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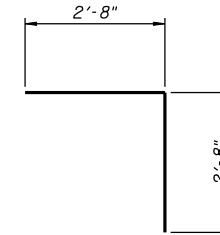
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



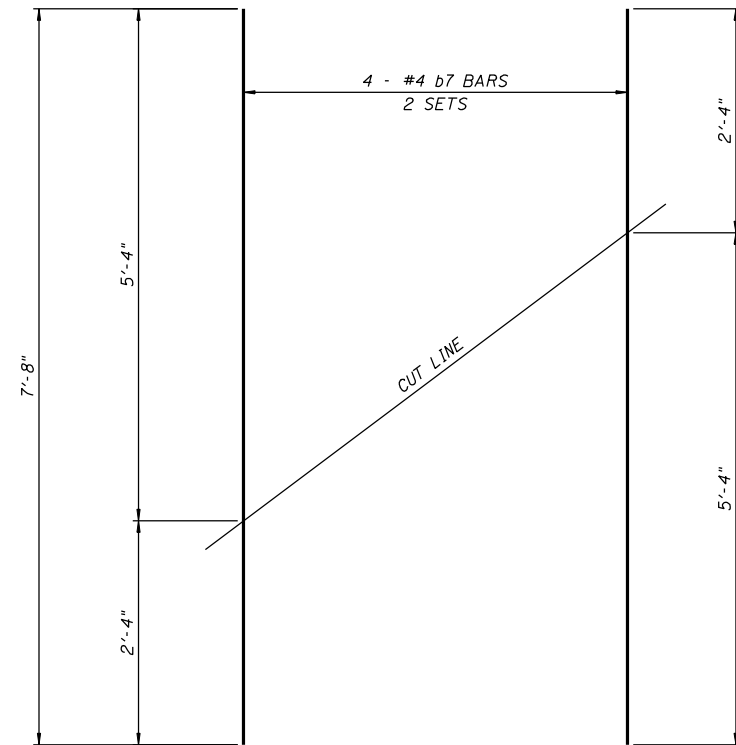
BAR s1



BAR h



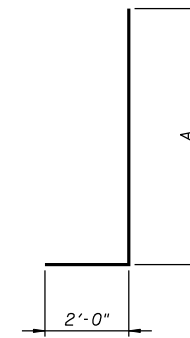
BAR d



BARS b7

FIELD CUTTING DIAGRAM

ORDER BARS FULL LENGTH, CUT AS SHOWN
AND USE REMAINDER OF BAR IN OPPOSITE END.



BARS v THRU v8

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
b	4	4	37'-3"	=====
b1	2	4	35'-9"	=====
b2	2	4	33'-9"	=====
b3	2	4	31'-9"	=====
b4	2	4	29'-9"	=====
b5	2	4	27'-9"	=====
b6	4	4	26'-5"	=====
b7	8	4	7'-8"	=====
b8	52	4	5'-8"	=====
b9	8	4	9'-0"	=====
d	50	4	5'-4"	=====
h	4	5	22'-6"	=====
h1	24	5	9'-0"	=====
s	8	5	24'-1"	=====
s1	8	5	12'-4"	=====
v	4	5	8'-8"	=====
v1	4	5	8'-4"	=====
v2	4	5	8'-0"	=====
v3	4	5	7'-8"	=====
v4	4	5	7'-5"	=====
v5	4	5	7'-1"	=====
v6	4	5	6'-9"	=====
v7	4	5	6'-5"	=====
v8	4	5	6'-2"	=====
Reinforcement Bars		Pound	1637	

BAR BENDING DIAGRAMS

Bar	A	
	Ft.	In.
v	6	8
v1	6	4
v2	6	0
v3	5	8
v4	5	5
v5	5	1
v6	4	9
v7	4	5
v8	4	2

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

REGION 2 / DISTRICT 2 STANDARD

SCALE: _____ SHEET NO. ___ OF ___ SHEETS STA. _____ TO STA. _____

F.A. RTE:	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				