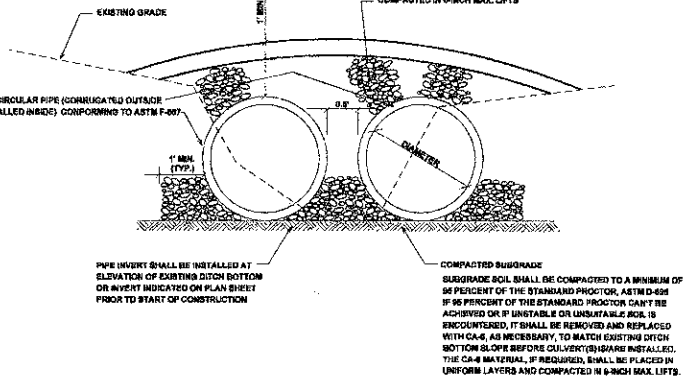
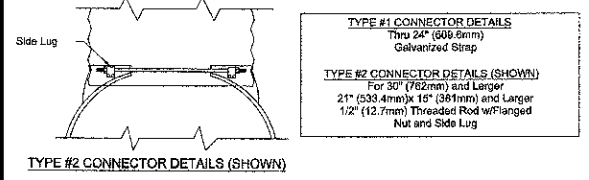
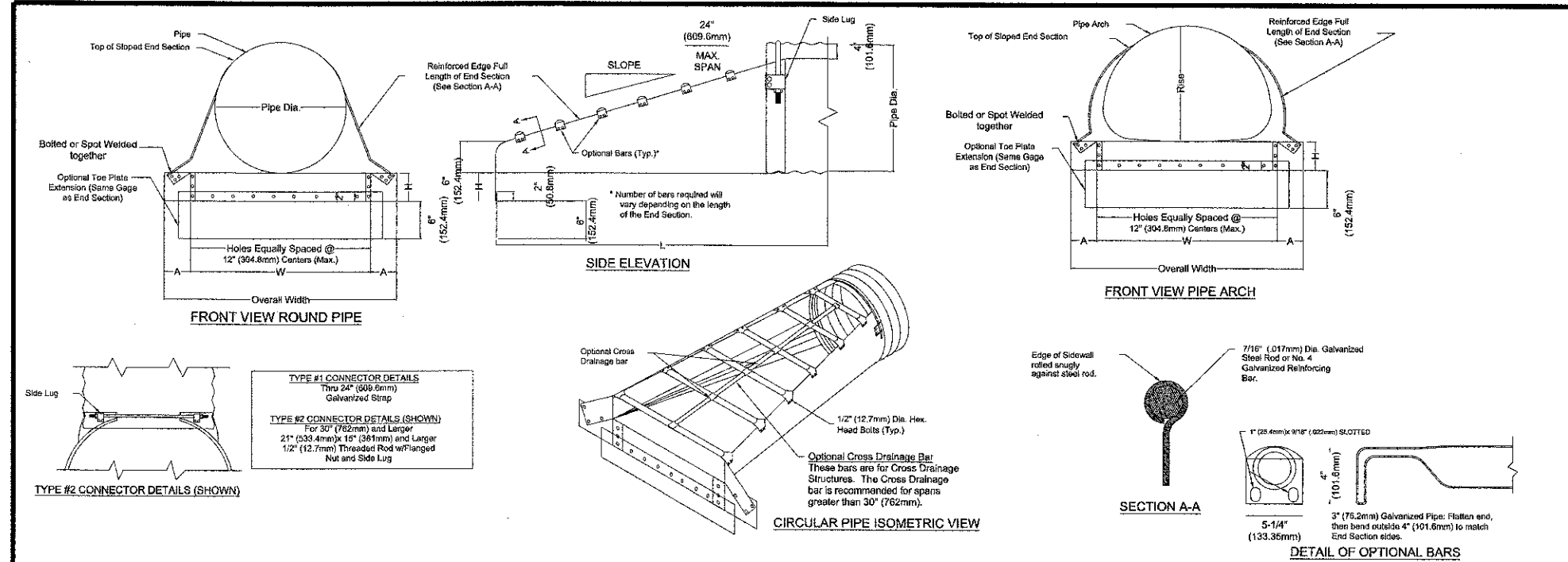


NOTES:

- CULVERTS TO BE INSTALLED TO MATCH EXISTING DITCH BOTTOM SLOPE, OR SLOPE INDICATED ON PLAN SHEETS.
- CULVERTS SHALL BE INSTALLED AS SPECIFIED BY THE MANUFACTURER WITH THE FOLLOWING END TREATMENTS TO ANCHOR THE CULVERTS IN PLACE:
 - FOR CULVERTS SHALL BE INSTALLED WITH APPROPRIATE PARALLEL SLOPE END TREATMENT.
 - CIRCULAR PIPE SHALL BE INSTALLED WITH APPROPRIATE FLARED END SECTION.
- JOINTS FOR CONCRETE PIPE SHALL TYPICALLY BE A TYPICAL APPLIED BITUMINOUS MASTIC COMPOUND IN ACCORDANCE WITH ASTM C-9.
- JOINTS FOR HDPE PIPE SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS.
- RIP-RAP SHALL BE INSTALLED AT THE UPSTREAM AND DOWNSTREAM END OF CULVERT(S), INSTALLED IN EXISTING CHANNELS, OR DITCH.
- CONTRACTOR TO PROVIDE PROPER DITCH TRANSITIONS PER DETAIL THIS SHEET. ALL DISTURBED DITCH SIZE SLOPES SHALL BE COMPACTED TO A MINIMUM 90% OF STANDARD PROCTOR.



TRAIL CULVERT CROSSING



Pipe Dia. (in.)		Min. Thick			Dimensions (inches)			L Dimensions			
		in.	Gage	A	H	W	Overall width	Slope	Length (in.)	Slope	Length (in.)
15	.064	16	8	6	21	37	6:1	30	4:1	20	
18	.064	16	8	8	24	40	6:1	48	4:1	32	
21	.064	16	8	8	27	43	6:1	66	4:1	44	
24	.064	16	8	8	30	46	6:1	84	4:1	56	
30	.109	12	12	9	36	60	6:1	120	4:1	80	

Pipe Dia. (mm)		Min. Thick			Dimensions (mm)			L Dimensions			
		mm	Gage	A	H	W	Overall width	Slope	Length (mm)	Slope	Length (mm)
381	1.626	16	203.2	152.4	533.4	939.8	6:1	762	4:1	508	
457.2	1.626	16	203.2	152.4	609.6	1016	6:1	1219.2	4:1	812.8	
533.4	1.626	16	203.2	152.4	685.8	1092.2	6:1	1676.4	4:1	1117.6	
609.6	1.626	16	203.2	152.4	762	1168.4	6:1	2133.6	4:1	1422.4	
762	2.769	12	304.8	228.6	914.4	1524	6:1	3048	4:1	2032	

Equip. Dia. (in.)		Min. Thick			Dimensions (inches)			L Dimensions					
		span	rise	in.	Gage	A	H	W	Overall width	Slope	Length (in.)	Slope	Length (in.)
18	21	15	.054	16	8	6	27	43	6:1	30	4:1	20	
21	24	18	.054	16	8	6	30	49	6:1	48	4:1	32	
24	28	20	.054	16	8	6	34	50	6:1	60	4:1	40	
30	36	24	.078	14	12	9	41	65	6:1	84	4:1	56	
36	42	29	.109	12	12	9	48	72	6:1	114	4:1	76	

Equip. Dia. (mm)		Min. Thick			Dimensions (mm)			L Dimensions					
		span	rise	in.	Gage	A	H	W	Overall width	Slope	Length (mm)	Slope	Length (in.)
457.2	533.4	381	1.626	16	203.2	152.4	685.8	1092.2	6:1	762	4:1	508	
533.4	609.6	457.2	1.626	16	203.2	152.4	762	1168.4	6:1	1219.2	4:1	812.8	
609.6	711.2	508	1.626	16	203.2	152.4	863.6	1270	6:1	1624	4:1	1016	
762	914.4	609.6	2.007	14	304.8	228.6	1041.4	1651	6:1	2133.6	4:1	1422.4	
914.4	1066.8	736.6	2.769	12	304.8	228.6	1219.2	1828.8	6:1	2895.6	4:1	1930.4	

GENERAL NOTES

- CONNECTORS-Round sizes thru 24\"/>
- TOE PLATE EXTENSIONS-When required, toe plate extensions are to be the same gage as End Section. Dimensions shall be Overall Width less 6\"/>
- OPTIONAL BARS-Bars when specified, shall be Schedule 40 Galvanized Steel Pipe.
- Typically parallel bars are placed on 24\"/>
- Typically the cross bars are used on cross drain applications.
- Holes for bar attachments shall be provided on all end sections.
- Dimensions are subject to manufacturing tolerances.
- These end sections are produced to imperial units (inches), metric units are shown on this drawing for the convenience of some users.



SLOPED END SECTIONS 4:1 & 6:1

DRAWING DATE	REVISION DATE	DRAWING NUMBER
2-11-91	8/27/01	10085016

FILE NAME: H:\PROJECTS\2013\Rollins\Design\Drawings\13-08210987\01-culvert-crossing-fes.dgn

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USER NAME	DESIGNED	REVISION
jkjalmon	-	-
DRAWN	CHECKED	REVISION
JLP	TJP	-
PLOT SCALE = 2.0000' / 1\"/>		
PLOT DATE = 4/8/2013	DATE	REVISION
	4/8/2013	-

MILLENNIUM TRAIL LAKE COUNTY FOREST PRESERVES

CULVERT CROSSING & FES DETAIL
ROLLINS ROAD UNDERPASS

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

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
181	12-F3000-01-BT	LAKE	118	66
FED. ROAD DIST. NO. - ILLINOIS FED. AID PROJECT				CONTRACT NO. 63807