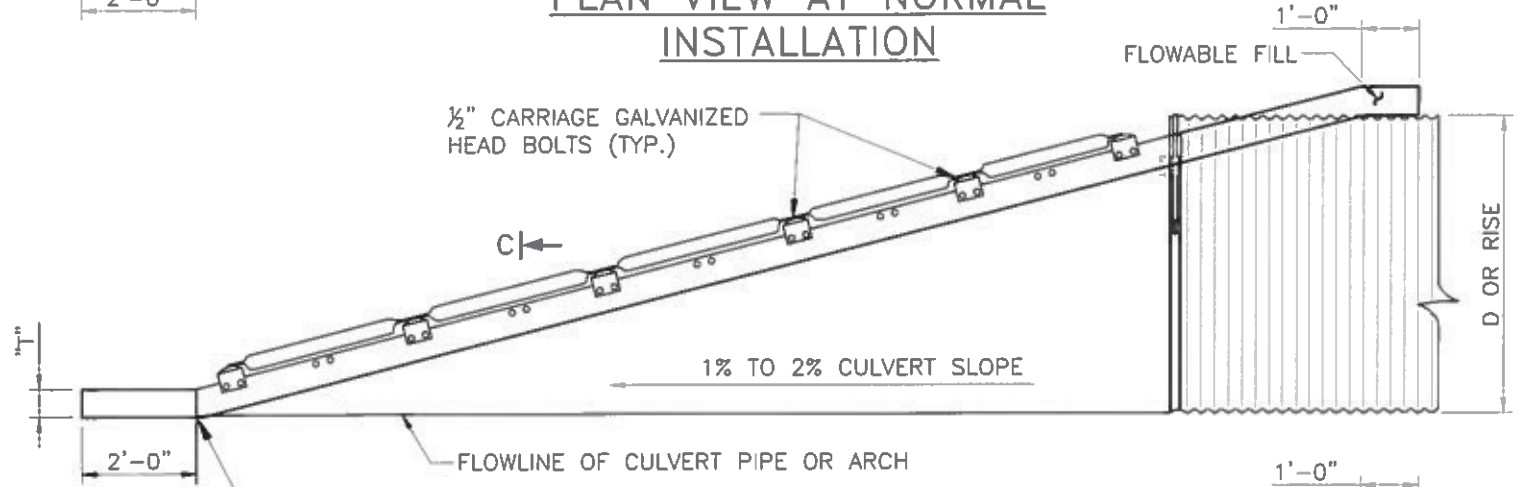
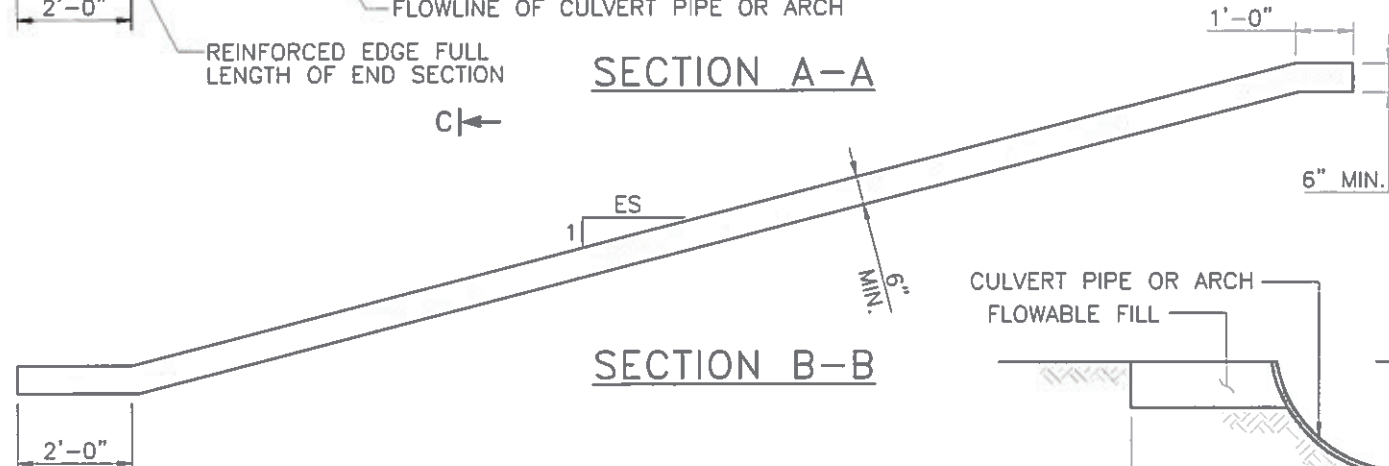


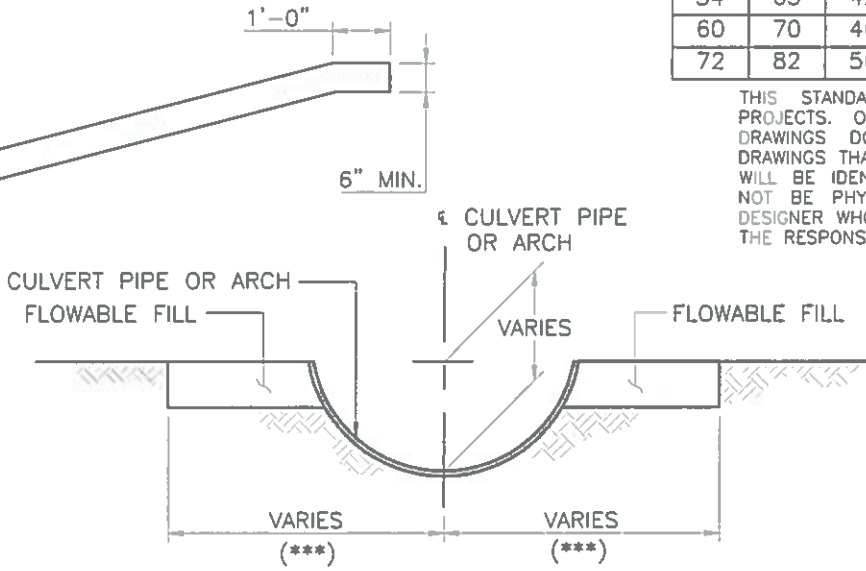
PLAN VIEW AT NORMAL INSTALLATION



SECTION A-A



SECTION B-B



SECTION C-C

(\*)  $B = \frac{1}{2}$  THE HORIZONTAL COMPONENT OF THE SLOPE RATIO (ES) IN FEET, SO AS TO PRODUCE A 6" MIN. COVER OVER THE CULVERT.  
 (\*\*) SPAN FOR ARCHED PIPES.  
 (\*\*\*) SEE PLAN VIEW FOR NORMAL INSTALLATIONS.

GENERAL NOTES:

1. WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE NEW MEXICO DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION CURRENT EDITION.
2. FLOWABLE FILL SHALL CONFORM TO SECTION 516 FLOWABLE FILL. FLOWABLE FILL SHALL BE PAID UNDER ITEM NO. 516000-FLOWABLE FILL.
3. ES = EMBANKMENT SLOPE. SEE ROADWAY PLANS FOR "ES." WHEN EMBANKMENT SLOPE AT A STRUCTURE DIFFERS FROM THE ORDINARY ROADWAY EMBANKMENT SLOPE, THE CONTRACTOR WILL BE REQUIRED TO TRANSITION SLOPE AS SHOWN ON STANDARD DRAWING 511-13-3/3, "TYPICAL CONCRETE BLANKET DETAILS."
4. THESE DRAWINGS SHOULD ONLY BE USED FOR A 50 MPH DESIGN SPEED OR LESS WITH NO SKEW.
5. THE DRAWINGS FOLLOW THE TRANSPORTATION RESEARCH RECORD 868.

METAL END SECTIONS FOR ROUND PIPE CULVERT										
PIPE SIZE (DIA.) (IN.)	METAL THICK (MIN.) (IN./GAGE)	DIMENSIONS (IN.)					VOLUME OF FLOWABLE FILL (CU.YDS)			
		A	H	W	OVERALL WIDTH	L		ES=6:1	ES=10:1	
						ES=6:1	ES=10:1			
24	0.064/16	8	6	30	46	83	160	1.16	1.82	
30	0.109/12	12	9	36	60	118	220	1.69	2.68	
36	0.109/12	12	9	42	66	154	280	2.33	3.70	
42	0.109/12	16	12	48	80	189		3.05		
48	0.109/12	16	12	54	86	224		3.90		
54	0.109/12	16	12	60	92	260		4.86		
60	0.109/12	16	12	66	98	295		5.91		

METAL END SECTIONS FOR PIPE ARCH CULVERT												
EQUIV. (DIA.)	SPAN	RISE	PIPE SIZE (IN.)	METAL THICK (MIN.) (IN./GAGE)	DIMENSIONS (IN.)				VOLUME OF FLOWABLE FILL (CU.YDS)			
					A	H	W	OVERALL WIDTH	L		ES=6:1	ES=10:1
									ES=6:1	ES=10:1		
24	28	20	0.064/16	8	6	33	49	60	120	1.23	1.92	
30	35	24	0.109/12	12	9	40	64	83	160	1.73	2.72	
36	41	29	0.109/12	12	9	47	71	112	210	2.29	3.63	
42	48	32	0.109/12	16	12	54	86	136		2.95		
48	56	37	0.109/12	16	12	62	94	165		3.84		
54	63	42	0.109/12	16	12	69	101	195		4.77		
60	70	46	0.109/12	16	12	76	107	218		6.20		
72	82	56	0.109/12	16	12	88	120	278		7.85		

THIS STANDARD DRAWING IS FOR USE ON NMDOT PROJECTS. OTHERS WHO USE THE NMDOT STANDARD DRAWINGS DO SO AT THEIR OWN RISK. STANDARD DRAWINGS THAT ARE APPLICABLE TO A SPECIFIC PROJECT WILL BE IDENTIFIED ON THE PROJECT PLANS BUT WILL NOT BE PHYSICALLY INCLUDED IN THOSE PLANS. THE DESIGNER WHO SPECIFIES A STANDARD DRAWING ACCEPTS THE RESPONSIBILITY OF DETERMINING THEIR APPLICABILITY.

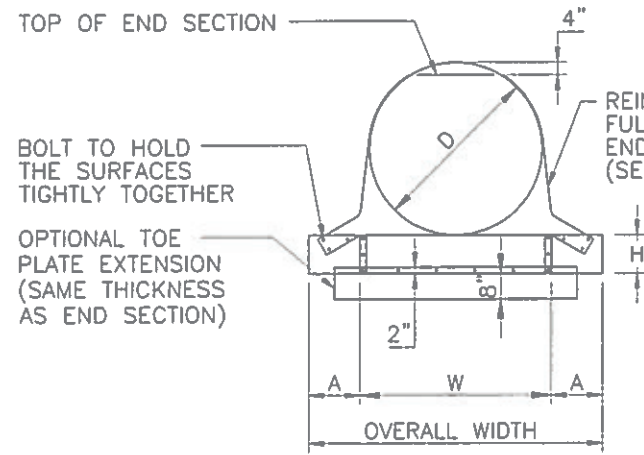
NO.	DATE	BY	DESCRIPTION

REVISIONS (OR CHANGE NOTICES)  
 NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD DRAWING

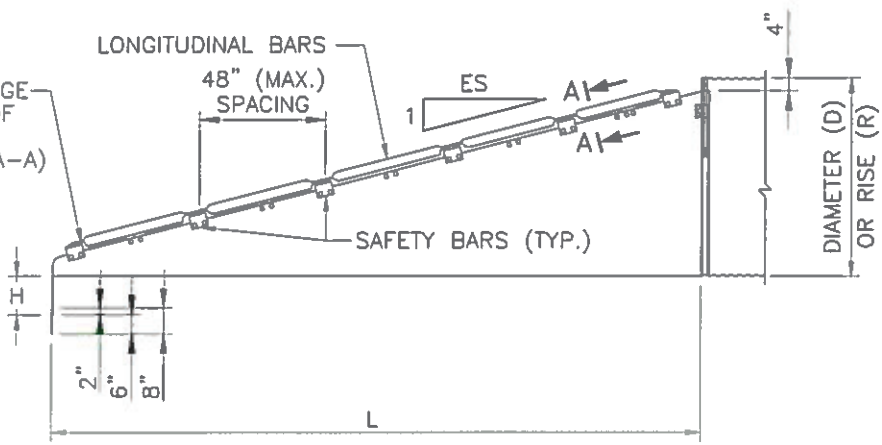
METAL END SECTION WITH SAFETY GRATES FOR METAL PIPES (CIRCULAR AND ARCHES)

511-51-1/2 1 of 2

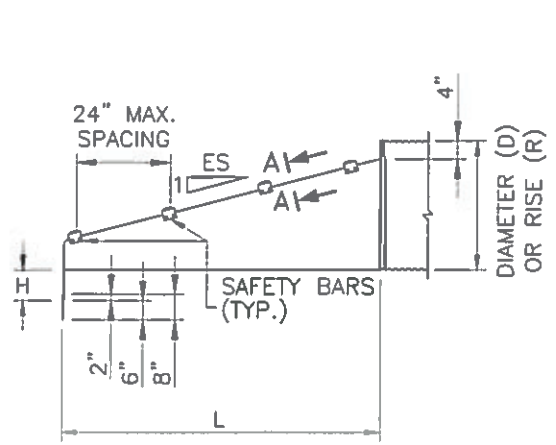




**FRONT VIEW ROUND PIPE CULVERT**

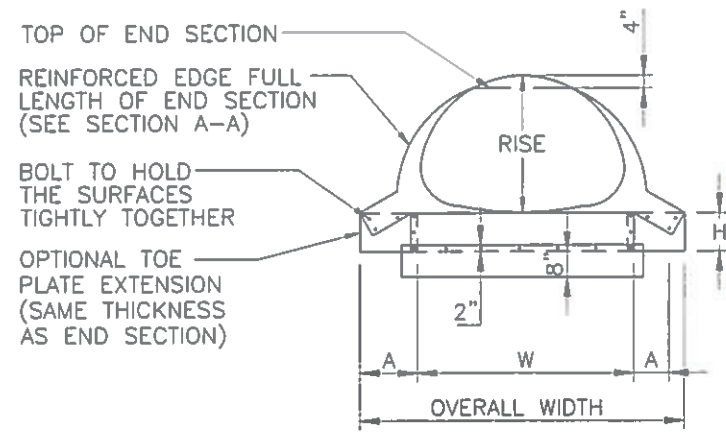


**ELEVATION CROSS DRAINAGE END SECTION**

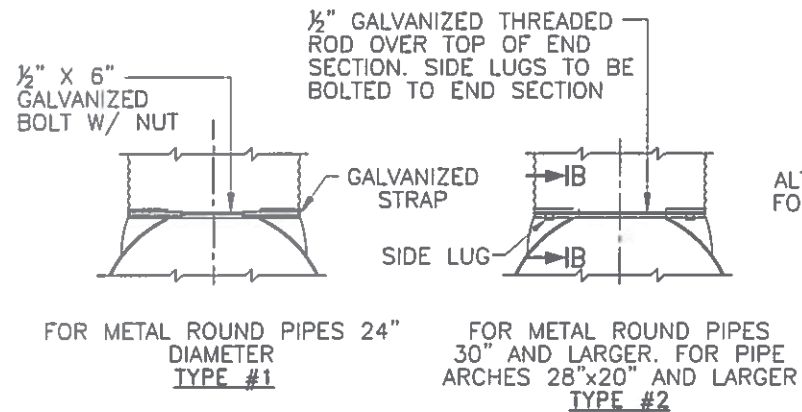


**ELEVATION PARALLEL DRAINAGE END SECTION**

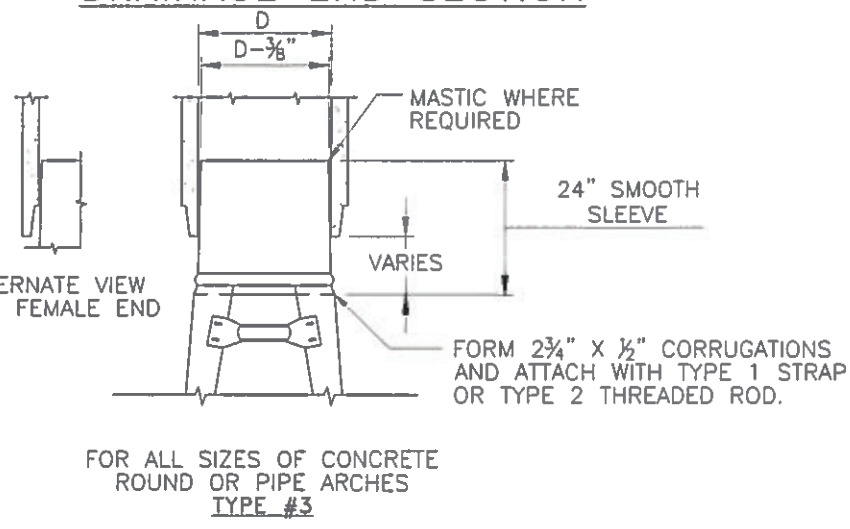
- NOTE:**
- USE END SECTIONS ON 1V:6H TO 1V:10H SLOPES ONLY. USE TOE PLATE EXTENSION WHERE SHOWN ON THE PLANS.
  - FABRICATE SAFETY AND LONGITUDINAL BARS FROM STEEL PIPE CONFORMING TO ASTM A53 SCHEDULE 40 SPECIFICATIONS. GALVANIZE BARS HOT DIPPED AFTER FABRICATION.
  - A LONGITUDINAL BAR IS REQUIRED FOR CROSS DRAINAGE END SECTIONS WHEN THE SPAN IS GREATER THAN 30". USE ADDITIONAL LONGITUDINAL BARS IF SPACING EXCEEDS 30" ON LARGER END SECTIONS.
  - SAFETY AND LONGITUDINAL BARS ARE NOT REQUIRED ON 30" AND SMALLER CROSS DRAINAGE ENDS SECTIONS.
  - 24" DIAMETER SLEEVES HAVE A THICKNESS OF 0.064", ALL OTHER ARE 0.109".



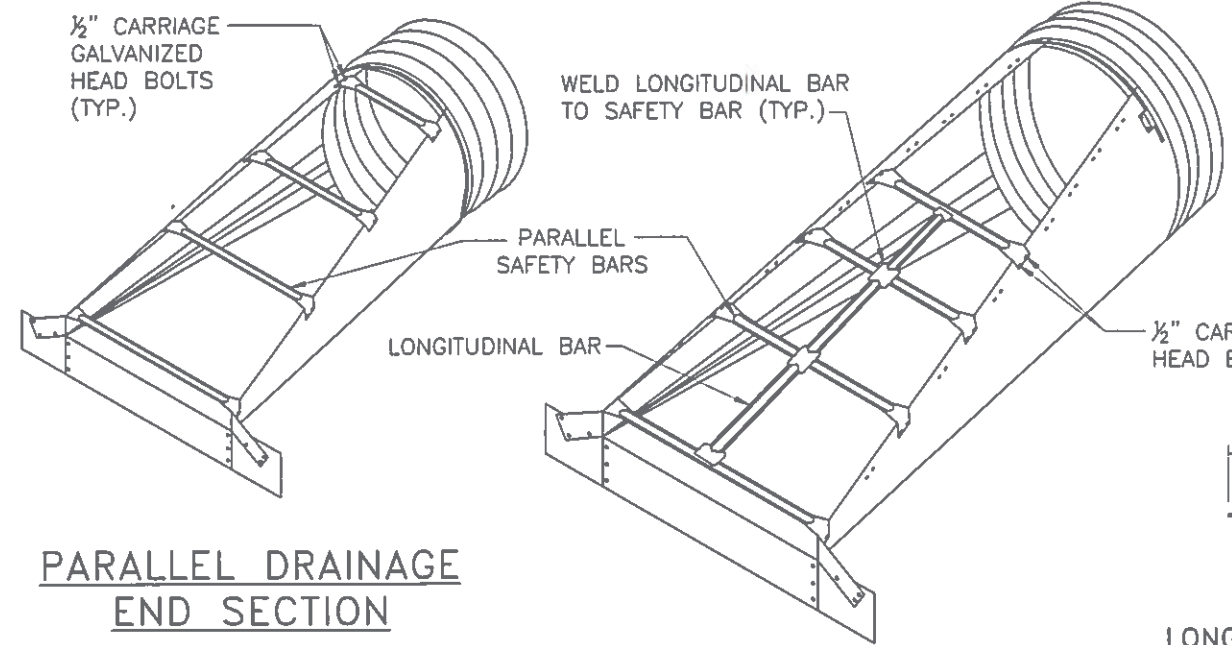
**FRONT VIEW PIPE ARCH CULVERT**



**CONNECTOR DETAILS**

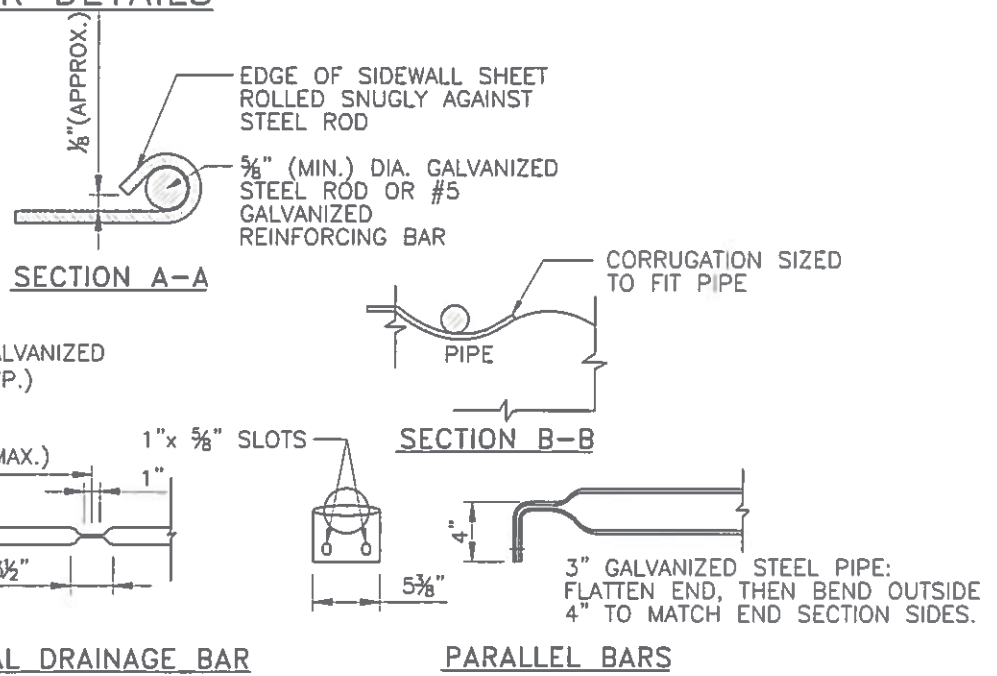


**FOR ALL SIZES OF CONCRETE ROUND OR PIPE ARCHES TYPE #3**



**PARALLEL DRAINAGE END SECTION**

**CROSS DRAINAGE END SECTION**



**LONGITUDINAL DRAINAGE BAR SAFETY BAR DETAILS**

**PARALLEL BARS**

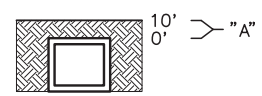
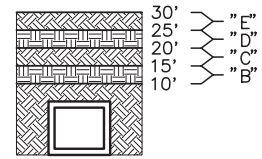
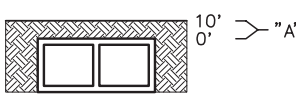
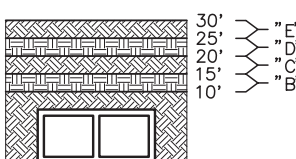
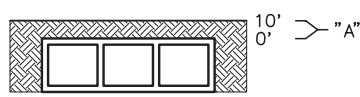
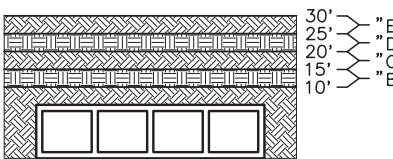
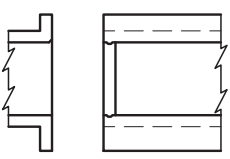
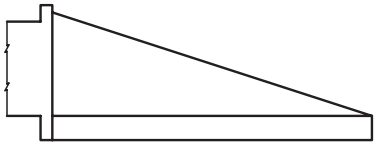
THIS STANDARD DRAWING IS FOR USE ON NMDOT PROJECTS. OTHERS WHO USE THE NMDOT STANDARD DRAWINGS DO SO AT THEIR OWN RISK. STANDARD DRAWINGS THAT ARE APPLICABLE TO A SPECIFIC PROJECT WILL BE IDENTIFIED ON THE PROJECT PLANS BUT WILL NOT BE PHYSICALLY INCLUDED IN THOSE PLANS. THE DESIGNER WHO SPECIFIES A STANDARD DRAWING ACCEPTS THE RESPONSIBILITY OF DETERMINING THEIR APPLICABILITY.

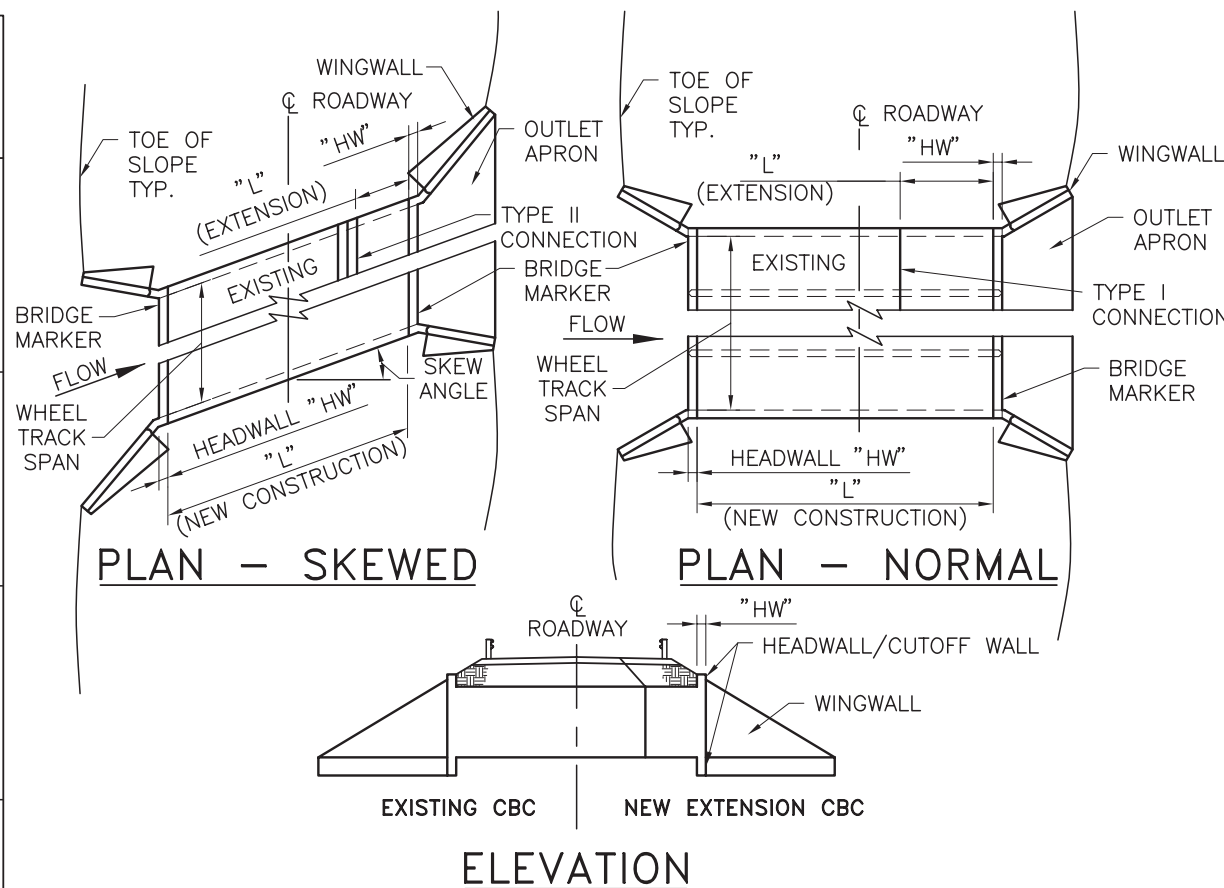
NO.	DATE	BY	DESCRIPTION

REVISIONS (OR CHANGE NOTICES)

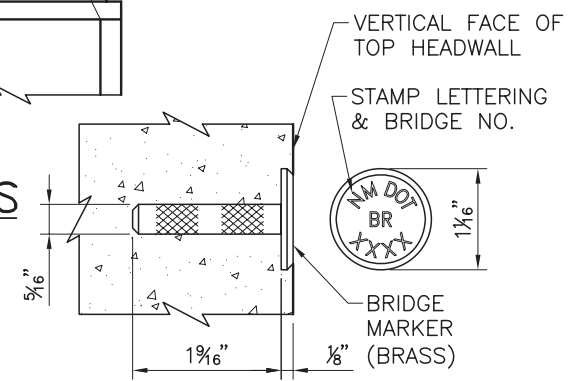
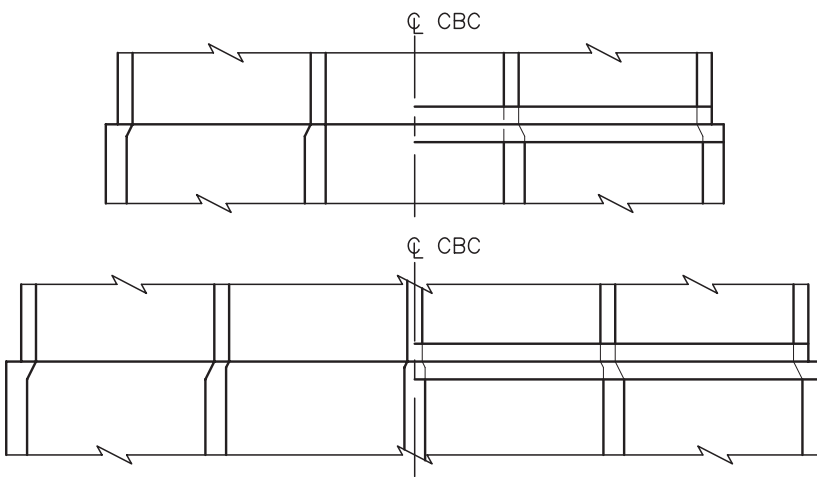
**NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD DRAWING**

**METAL END SECTION WITH SAFETY GRATES FOR METAL PIPES (CIRCULAR AND ARCHES)**

BOX TYPE	CONFIGURATION	DESIGN FILL	DRAWINGS
SINGLE BARREL CBC		"A"	511-60-1/2 511-60-2/2
SINGLE BARREL CBC		"B" "C" "D" "E"	511-61-1/2 511-61-2/2
DOUBLE BARREL CBC		"A"	511-62-1/2 511-62-2/2
DOUBLE BARREL CBC		"B" "C" "D" "E"	511-63-1/2 511-63-2/2
TRIPLE AND QUADRUPLE BARREL CBC		"A"	511-64-1/3 511-64-2/3 511-64-3/3
TRIPLE AND QUADRUPLE BARREL CBC		"B" "C" "D" "E"	511-65-1/3 511-65-2/3 511-65-3/3
CBC HEADWALL/CUTOFF WALL & MISC. DETAILS		"A" "B" "C" "D" "E"	511-66-1/6 511-66-2/6 511-66-3/6 511-66-4/6 511-66-5/6 511-66-6/6
WINGWALL & APRON		"A" "B" "C" "D" "E"	511-67-1/2 511-67-2/2



NOTE: IF THE WHEEL TRACK SPAN DIMENSION (PARALLEL TO  $\phi$  OF ROADWAY AS SHOWN ABOVE) IS GREATER THAN 20' THE CBC IS CONSIDERED A BRIDGE AND A MAJOR STRUCTURE. FOR CBC EXTENSIONS RE-MARK BRIDGE NUMBER. NEW CBC SHALL BE MARKED AS PER DETAIL ON THIS SHEET. BRIDGE NUMBER SHALL BE OBTAINED BY REQUEST AT THE NMDOT BRIDGE MANAGEMENT SECTION. MARK SHALL BE PLACED AT UPPER LEFT SIDE OF VERTICAL FACE OF HEADWALL, BOTH INLET AND OULET.



**PAYMENT**

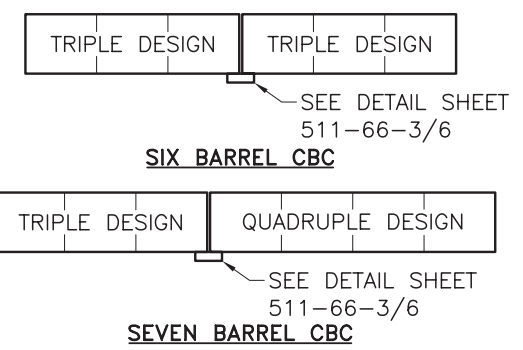
PAYMENT FOR CBC'S IS BASED ON "LIN. FT." UNIT OF MEASUREMENT FOR THE TOTAL LENGTH OF ALL NEW BARRELS CONSTRUCTED AT THE CENTERLINE OF BARREL. LENGTH OF BARREL SHALL NOT INCLUDE "HW" WHICH SHALL BE PAID FOR SEPARATELY.

PAYMENT FOR HEADWALL/CUTOFF WALL IS BASED ON "EACH" UNIT OF MEASUREMENT FOR EACH NEW BARREL CONSTRUCTED. IN CASE OF TYPE II CONNECTION EACH HEAD/CUTOFF WALL UNIT SHALL BE PAID FOR, I.E. TWO PER BARREL PER CULVERT EXTENSION.

PAYMENT FOR WINGWALL IS BASED ON "SQ. FT." UNIT OF MEASUREMENT BASED ON SOIL SIDE VERTICAL FACE AREA FOR EACH INDIVIDUAL HEIGHT OF INTERIOR BARREL DIMENSION. PAYMENT FOR OUTLET APRON IS BASED ON "SQ. FT." UNIT OF MEASUREMENT BASED ON PLAN AREA OF APRON.

ALTERNATIVELY, A COMPLETE CONCRETE BOX CULVERT MAY BE PAID FOR UNDER CLASS "AA" CONCRETE BY "CU. YD." ITEM 511030 AND GRADE 60 REBAR BY "LBS." ITEM 540060.

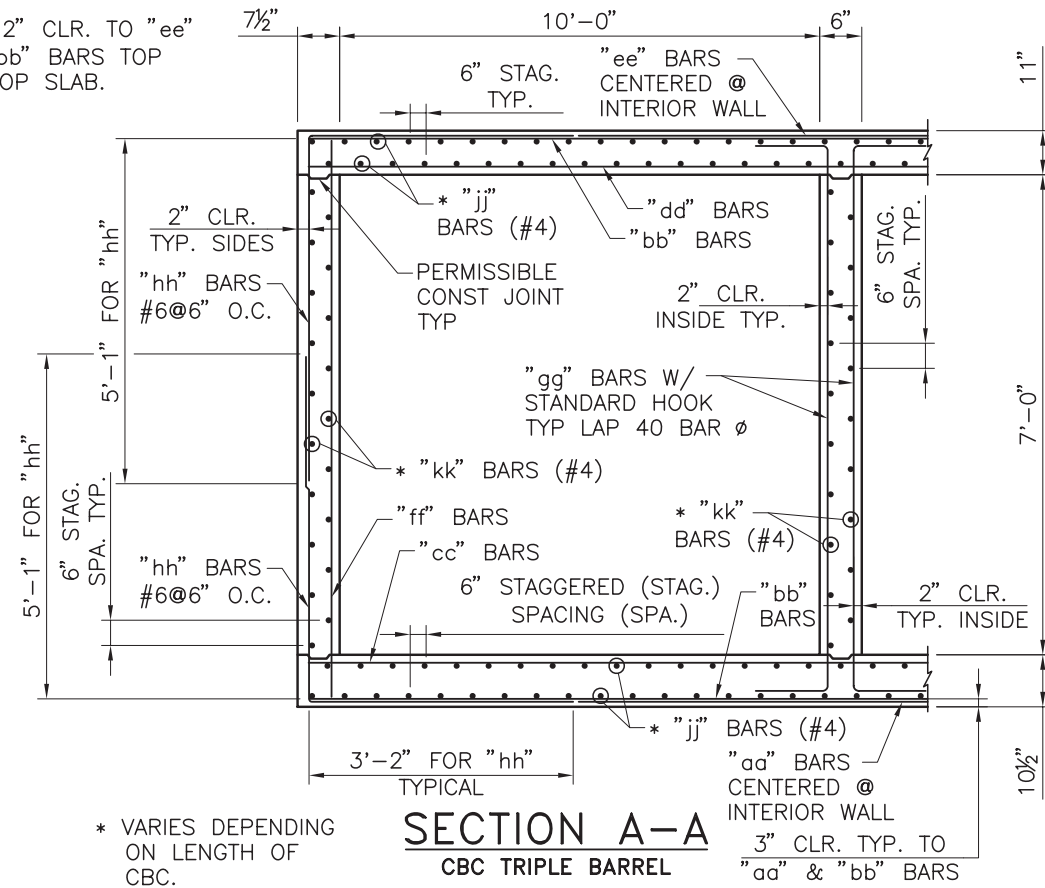
REBAR, CONCRETE, FORMING, DEMOLITION, AND ALL OTHER WORK AND MATERIAL REQUIRED FOR A COMPLETE CBC, HEADWALL/CUTOFF WALL, WINGWALL, AND APRON CONSTRUCTION SHALL BE INCLUDED IN THE UNIT COST FOR EACH AND NO FURTHER PAYMENT SHALL BE MADE FOR THESE INCIDENTAL ITEMS.



NO.	DATE	REV. BY	DESCRIPTION
REVISIONS (OR CHANGE NOTICES)			
NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD DRAWING			
CONCRETE BOX CULVERT INDEX OF SHEETS EXPLANATION OF USE OF DRAWINGS			
APPROVED	DESIGN ENGINEER		DATE
DESIGNED BY	DRAWN BY	CHECKED BY	

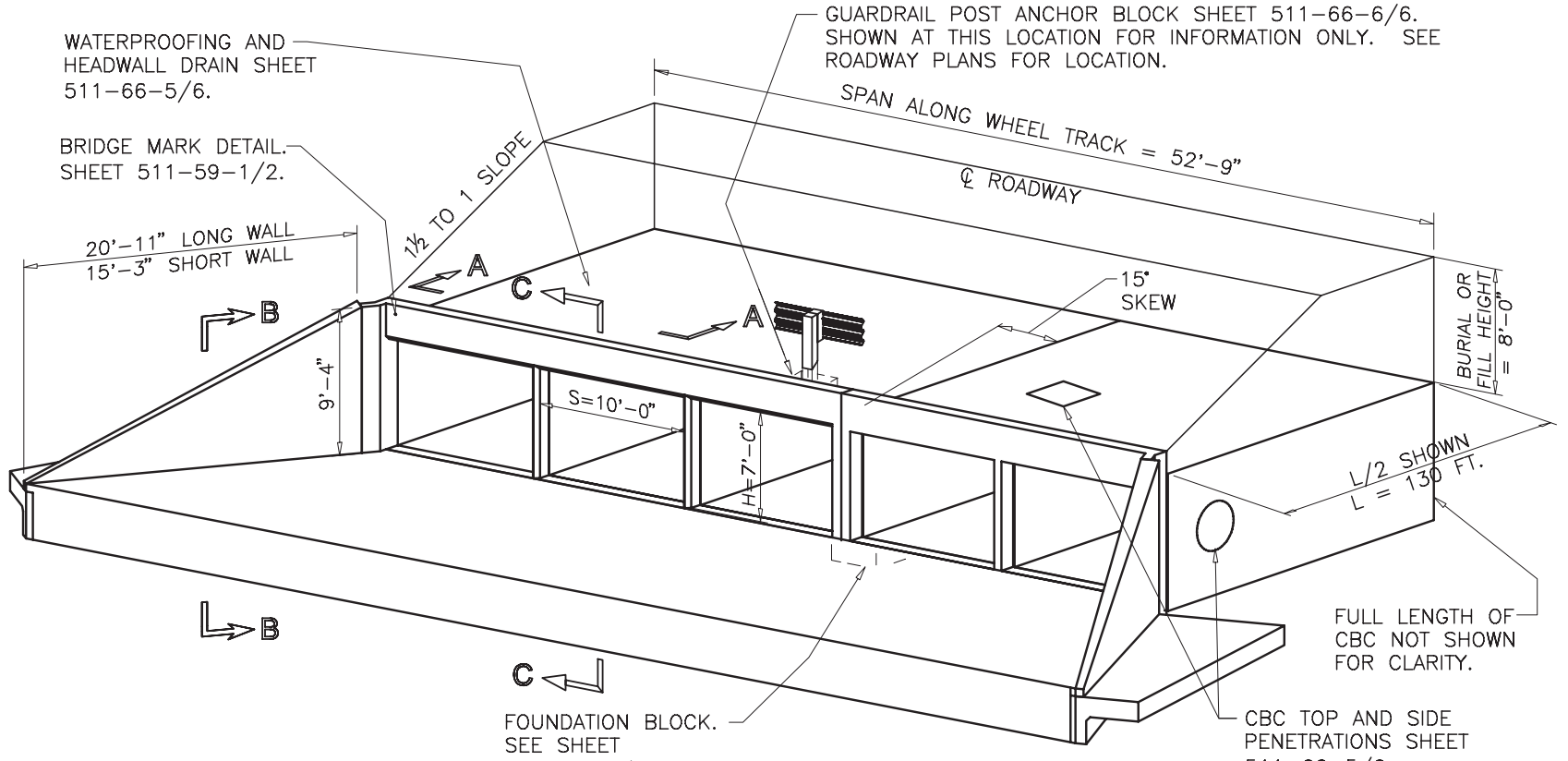


NOTE: 2" CLR. TO "ee" AND "bb" BARS TOP MAT, TOP SLAB.



**SECTION A-A**  
CBC TRIPLE BARREL

\* VARIES DEPENDING ON LENGTH OF CBC.

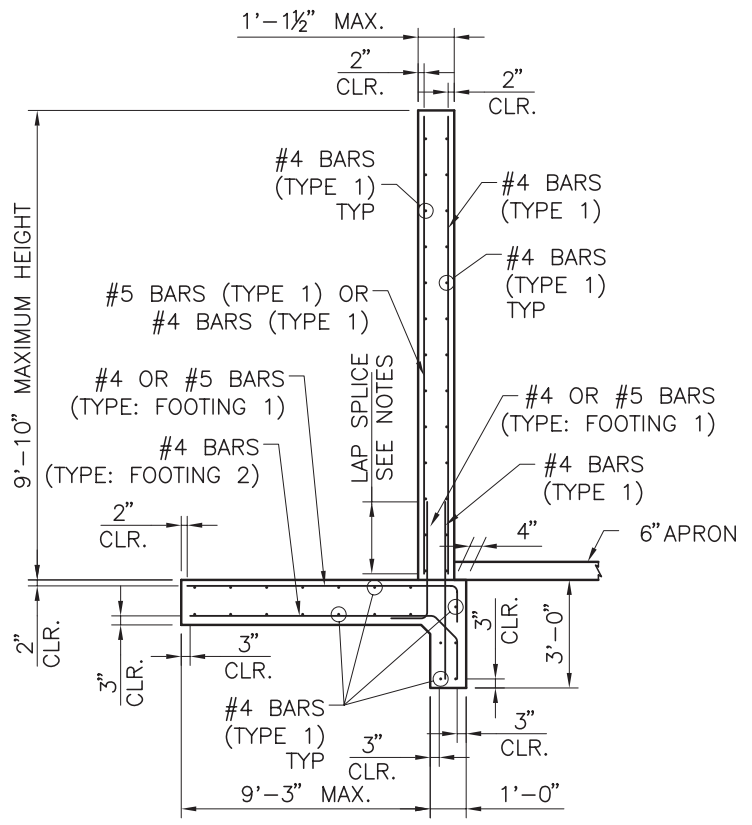


**PERSPECTIVE OF 5 BARREL CBC**

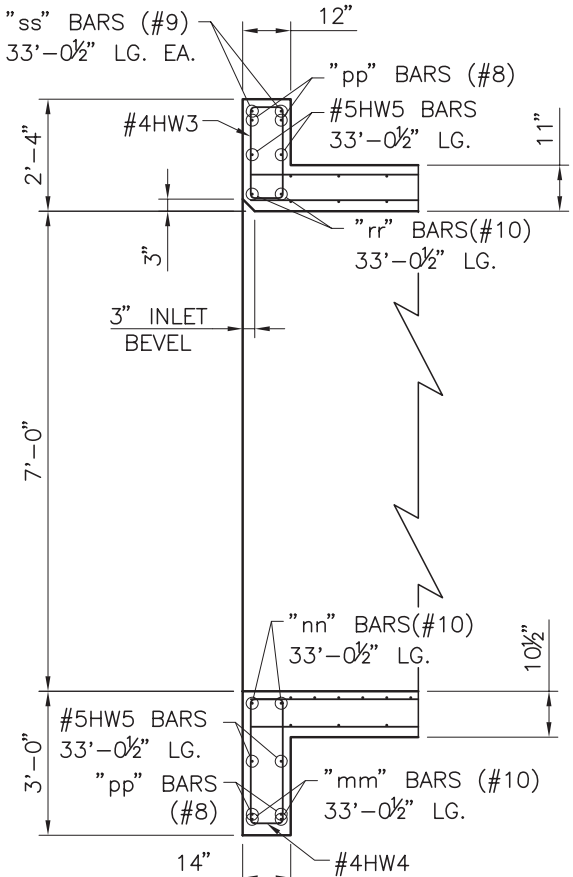
10' SPAN, 7' HEIGHT, 15' SKEW, 8' FILL HT.

**NOTES**

1. THE PURPOSE OF THIS DRAWING IS TO PROVIDE AN EXAMPLE OF USE OF THESE SERIAL CBC DRAWINGS. THIS EXAMPLE IS BASED ON A 5 BARREL, 10'S X 7'H, 15' SKEW, W/ 8' BURIAL DEPTH TO FINISHED Q ROADWAY. THIS 8' BURIAL REQUIRES THE DESIGN FILL "A" 0'-10' CATERGORY. INFORMATION PRESENTED ON THIS SHEET IS FROM DRAWINGS 511-62-1/2 & 2/2, 511-64-1/3 & 2/3, 511-66-1/6 THRU 6/6, AND 511-67-1/2 THRU 2/2. PLEASE REFER TO THESE SHEETS TO FOLLOW THE EXAMPLE.
2. PAYMENT FOR THE CBC BARREL CONSTRUCTION IS BY THE LINEAL FOOT OF BARREL. PAYMENT FOR THE FIVE BARREL IS 5\*L, UNDER PAY ITEM 511668, CBC DESIGN "A" 10X7, "L" BEING 130FT, FOR A TOTAL LINEAL FOOT PAYMENT UNDER THIS ITEM OF 650 FT. PAYMENT FOR THE WINGWALLS CONSTRUCTION IS BY THE SQUARE FOOT OF SOIL SIDE VERTICAL FACE. UNDER PAY ITEM 511868, CBC WINGWALL BARREL HEIGHT 7FT, QUANTITY EQUALS [(20'-11")X(9'-10")+ (15'-3")X(9'-10")]/2, TOTALING 178 SQ. FT. FOR THE OUTLET WINGS. PAYMENT FOR THE HEADWALL/CUTOFF WALL CONSTRUCTION IS UNDER ITEM 511845, CBC HEADWALL/CUTOFF WALL 15 DEG SKEW 10X3 THRU 10X7, UNIT OF EACH PER BARREL, TOTALING 5 EACH FOR THE OUTLET SIDE. OUTLET APRON IS MEASURED BY THE PLAN SQ. FT. UNDER ITEM 511876, CBC OUTLET APRON.
3. NO REBAR DIMENSIONS ARE SHOWN ON SECTION B-B. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETAIL THE LENGTH OF BARS DUE TO THE CONSTANT CHANGE IN LENGTH DUE TO SLOPE AND FOOTING DIMENSION CHANGE.



**SECTION B-B**  
WINGWALL & FOOTING



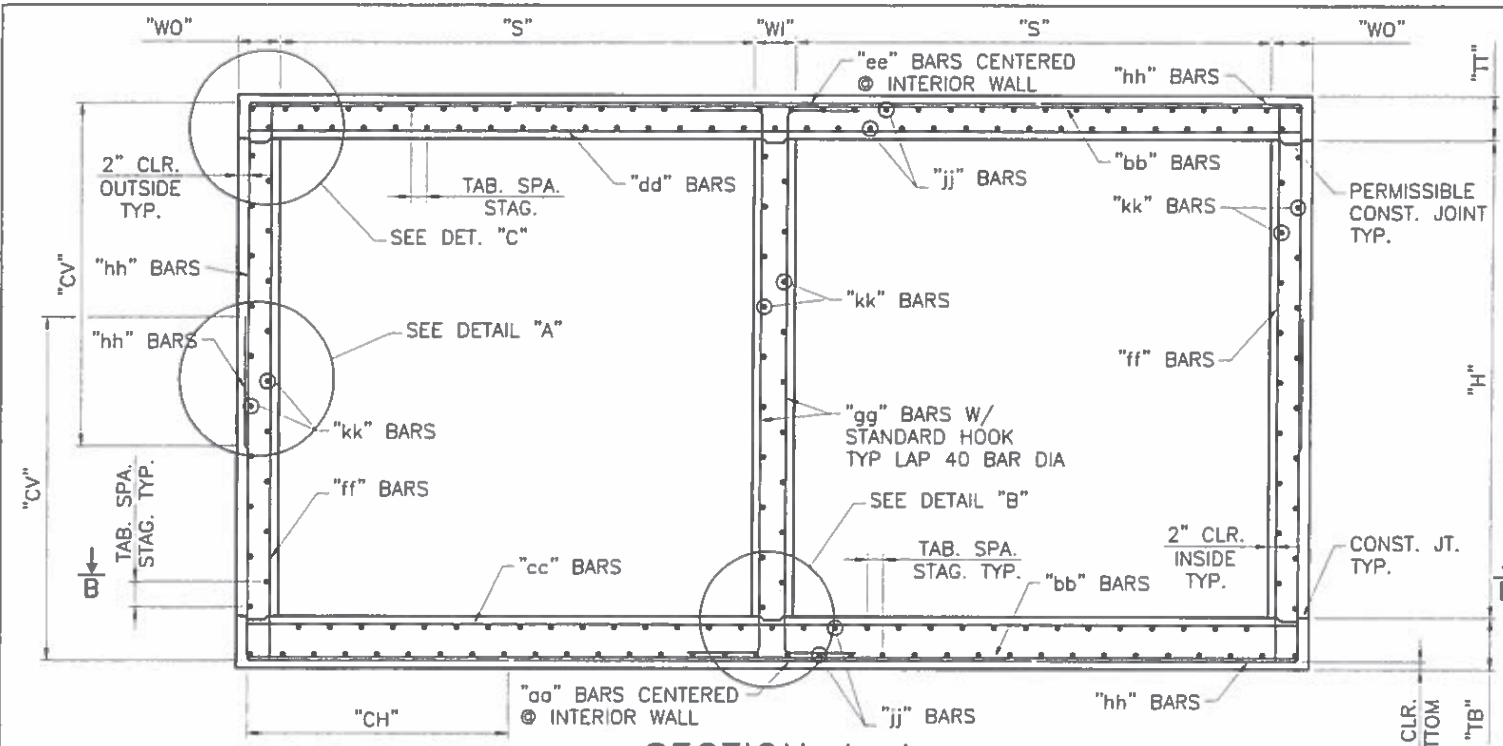
**SECTION C-C**  
HEADWALL/CUTOFF WALL @ TRIPLE BARREL

REBAR DETAILS						
BAR	2 BARREL			3 BARREL		
	LENGTH	SIZE	SPA.	LENGTH	SIZE	SPA.
"aa" BARS	10'-9"	#8	12"	10'-9"	#8	12"
"bb" BARS	21'-5"	#8	12"	31'-11"	#8	12"
"cc" BARS	21'-5"	#6	6"	31'-11"	#6	6"
"dd" BARS	21'-5"	#6	6"	31'-11"	#6	6"
"ee" BARS	10'-9"	#7	12"	10'-9"	#7	12"
"ff" BARS	8'-4"	#6	6"	8'-4"	#6	6"
"gg" BARS	**	#4	12"	**	#4	12"

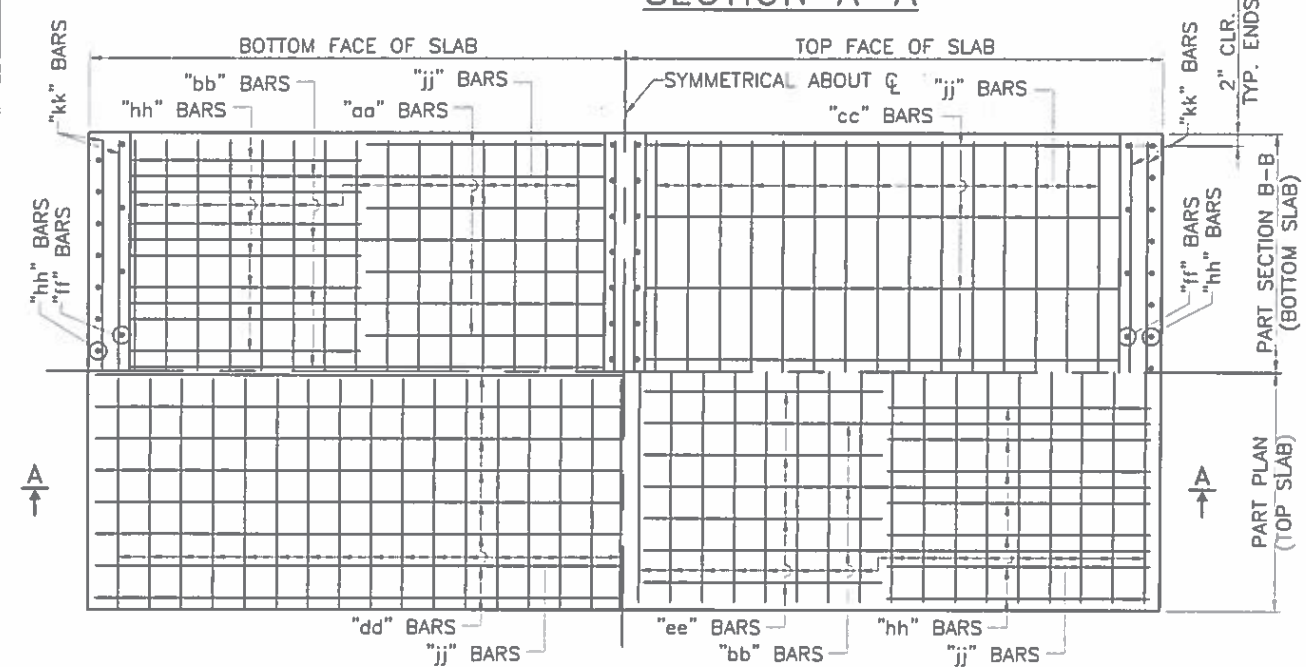
\*\* SEE NOTES ON SHEETS 511-62-2/2 & 511-64-2/3

NO.	DATE	REV. BY	DESCRIPTION
REVISIONS (OR CHANGE NOTICES)			
<b>NEW MEXICO</b>			
<b>DEPARTMENT OF TRANSPORTATION</b>			
<b>STANDARD DRAWING</b>			
<b>CONCRETE BOX CULVERT</b>			
<b>EXAMPLE OF USE OF DRAWINGS</b>			
APPROVED	[Signature]		DATE: <b>APR 9, 07</b>
DESIGNED BY	T.L.B.	DRAWN BY	S.G.L.
CHECKED BY	H.D.R.		
511-59-2/2			2 OF 2

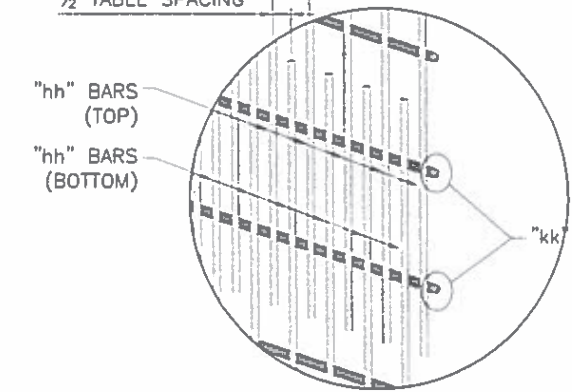




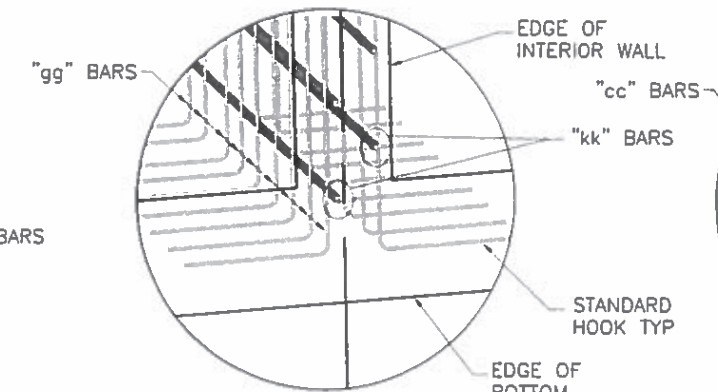
SECTION A-A



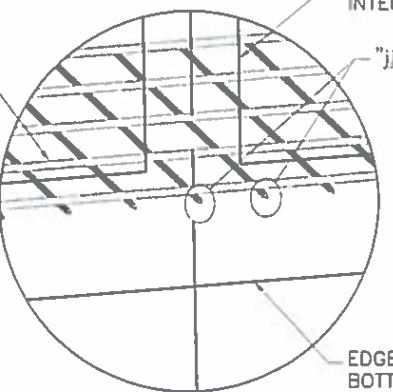
REBAR LAYOUT - PLAN VIEW



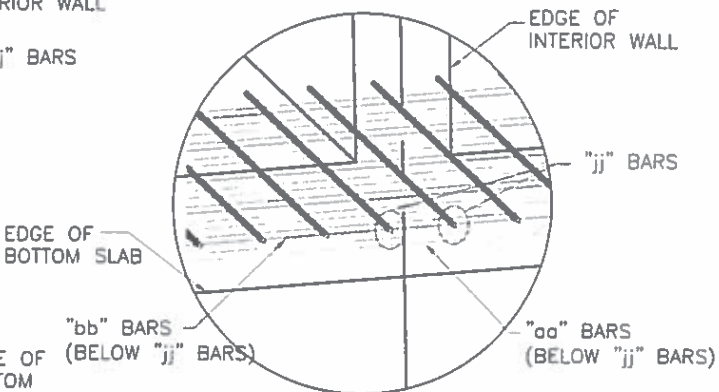
DETAIL "A"  
(INSIDE FACE OMITTED FOR CLARITY)



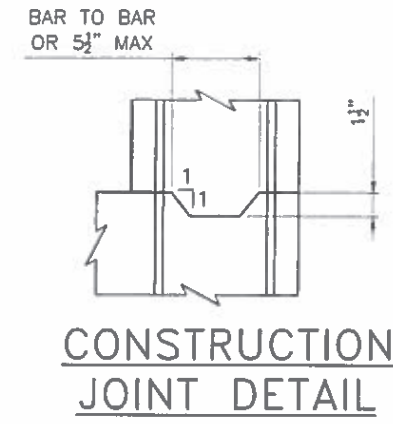
DETAIL "B"  
(WALL REINFORCING ONLY)



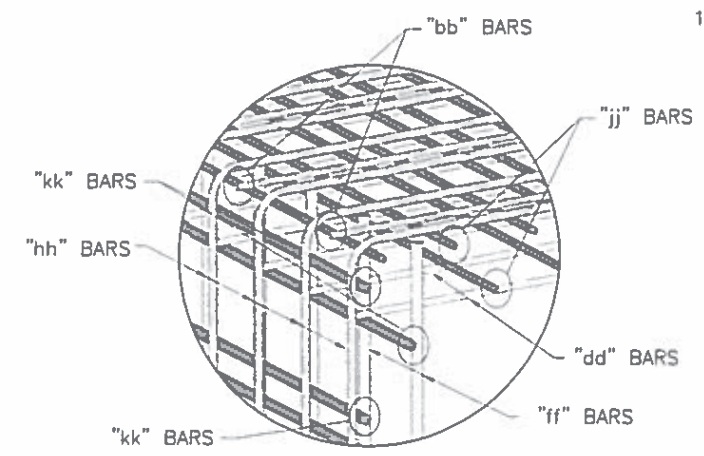
DETAIL "B"  
(BOTTOM SLAB - TOP MAT)



DETAIL "B"  
(BOTTOM SLAB - BOTTOM MAT)



CONSTRUCTION JOINT DETAIL



DETAIL "C"  
(SIMILAR BOTTOM CORNERS)

GENERAL NOTES

1. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE NEW MEXICO DEPARTMENT OF TRANSPORTATION SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION (CURRENT EDITION) WITH APPLICABLE SPECIAL PROVISIONS.
2. ALL CONCRETE SHALL BE CLASS "AA" (4000 psi). CHAMFER ALL EXPOSED EDGES 3/4".
3. ALL REINFORCING STEEL TO BE DEFORMED BARS, CONFORMING TO AASHTO M-31, GRADE 60. ALL DIMENSIONS REFER TO THE CENTERLINE OF BAR.
4. "COVER" IS HEIGHT OF FILL FROM TOP OF BOX TO THE TOP OF PAVEMENT. ORIGINAL HEIGHT OF COVER MAY NOT BE EXCEEDED IN THE FUTURE OR WILL REQUIRE REMOVAL AND REPLACEMENT WITH PROPER DESIGN FILL CBC. IN CASE OF COVER EQUAL TO 10', 15', 20', OR 25' USE HIGHER DESIGN FILL IN CASE OF FUTURE AC OVERLAY.
5. "jj" AND "kk" BARS MAY BE SPLICED WHEN NECESSARY BY LAPPING AT LEAST 40 BAR DIAMETERS. NO OTHER SPLICING OF BARS WILL BE PERMITTED. LENGTH OF THESE BARS SHALL EQUAL THE LENGTH OF BARREL "L" PLUS (2 X "HW") MINUS 4" FOR TOTAL NEW CONSTRUCTION, NOT INCLUDING LAP LENGTH. FOR CULVERT EXTENSION, LENGTH OF THESE BARS SHALL BE "L" PLUS "HW" MINUS 2".
6. REINFORCING SHOWN IS FOR PLACEMENT LOCATION ONLY. USE APPROPRIATE SHEETS AND CORRESPONDING TABLES TO DETERMINE THE REINFORCING REQUIREMENTS AND SPACINGS.
7. ALL CONSTRUCTION JOINTS SHALL BE AS PER DETAIL THIS SHEET. CONSTRUCTION JOINTS ARE PERMISSIBLE AND SHALL BE LOCATED AT WALL/SLAB HORIZONTAL INTERFACE.
8. DO NOT BACKFILL WALLS UNTIL TOP SLAB HAS REACHED 4000 psi DESIGN STRENGTH.
9. CBC'S SHALL BE CONSTRUCTED TO THE SPAN, HEIGHT, NUMBER OF BARRELS, SKEW, ALIGNMENT, AND FLOWLINE GRADE AS SPECIFIED ON THE PLAN AND PROFILE AND STRUCTURE PLACEMENT SECTIONS.
10. EXCAVATION AND BACKFILL OF CBC'S SHALL BE IN ACCORDANCE WITH STANDARD DRAWING 210-01-1/1.

DESIGN

DESIGNED IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, THIRD EDITION.

PAYMENT

PAYMENT FOR CBC'S IS BASED ON "LIN. FT." UNIT OF MEASUREMENT FOR THE TOTAL LENGTH OF ALL NEW BARRELS CONSTRUCTED AT THE CENTERLINE OF BARREL. I.E. SINGLE BARREL SHALL BE 1 X "L" AND TRIPLE BARREL SHALL BE 3 X "L" FOR PAYMENT. LENGTH OF BARREL SHALL NOT INCLUDE "HW" WHICH SHALL BE PAID FOR SEPARATELY. CONCRETE, REBAR, FORMING, AND OTHER WORK AND MATERIAL SHALL BE INCLUDED IN THE LIN. FT. COST FOR THE CBC AND NO FURTHER PAYMENT SHALL BE MADE FOR THESE INCIDENTAL ITEMS.

ALTERNATIVELY, A COMPLETE CONCRETE BOX CULVERT MAY BE PAID FOR UNDER CLASS "AA" CONCRETE BY "CU. YD." ITEM 511030 AND GRADE 60 REBAR BY "LBS." ITEM 540060.

NO.	DATE	REV. BY	DESCRIPTION
REVISIONS (OR CHANGE NOTICES)			
NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD DRAWING			
CONCRETE BOX CULVERT DOUBLE OPENING - DESIGN FILL "A" 0-10 FT STRUCTURAL SECTIONS AND REBAR			
APPROVED	DESIGN ENGINEER		DATE
DESIGNED BY	DRAWN BY	CHECKED BY	
511-62-1/2			1 OF 2

DOUBLE OPENING BOX CULVERT STRUCTURE DIMENSIONS						GRADE 60 REINFORCING BAR SCHEDULE (BAR SIZE, SPACING AND LENGTH DIMENSIONS)																									
DIM		0-10 FT BURIAL DESIGN FILL "A"				"aa"		"ee"		"aa" & "ee"		"bb"		"cc"		"dd"		"bb" & "cc", & "dd"		"ff"		"gg"		"ff" & "gg"		"hh"		"jj"		"kk"	
SPAN "S" INSIDE	HEIGHT "H" INSIDE	TOP SLAB "TT"	BOTTOM SLAB "TB"	WALLS OUTER "WO"	WALLS INTERIOR "WI"	SIZE	SPACING	SIZE	SPACING	LENGTH	NUMBER OF BARS	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	LENGTH	SIZE	SPACING	SIZE	SPACING	LENGTH	SIZE	SPACING	"CH" LENGTH	"CV" LENGTH	SIZE	STAGGERED SPACING	SIZE	STAGGERED SPACING
4'	3'	7.5"	8.5"	7.5"	6.0"	#4	12"	#5	12"	5'-0"	1	#5	12"	#4	6"	#4	6"	9'-5"	#4	6"	#4	12"	3'-11"	#4	6"	24"	31"	#4	6"	#4	6"
4'	4'	7.5"	8.5"	7.5"	6.0"	#4	12"	#5	12"	5'-0"	1	#5	12"	#4	6"	#4	6"	9'-5"	#4	6"	#4	12"	4'-11"	#4	6"	24"	37"	#4	6"	#4	6"
6'	2'	8.0"	8.5"	7.5"	6.0"	#5	12"	#7	12"	7'-5"	1	#7	12"	#6	6"	#5	6"	13'-5"	#5	6"	#4	12"	2'-11"	#5	6"	30"	27"	#4	6"	#4	6"
6'	3'	8.0"	8.5"	7.5"	6.0"	#5	12"	#7	12"	7'-5"	1	#7	12"	#6	6"	#5	6"	13'-5"	#5	6"	#4	12"	3'-11"	#5	6"	30"	33"	#4	6"	#4	6"
6'	4'	8.0"	8.5"	7.5"	6.0"	#5	12"	#7	12"	7'-5"	1	#7	12"	#6	6"	#5	6"	13'-5"	#5	6"	#4	12"	4'-11"	#5	6"	30"	39"	#4	6"	#4	6"
6'	5'	8.0"	8.5"	7.5"	6.0"	#5	12"	#7	12"	7'-5"	1	#7	12"	#6	6"	#5	6"	13'-5"	#5	6"	#4	12"	5'-11"	#5	6"	30"	45"	#4	6"	#4	6"
6'	6'	8.0"	8.5"	7.5"	6.0"	#5	12"	#7	12"	7'-5"	1	#7	12"	#6	6"	#5	6"	13'-5"	#5	6"	#4	12"	6'-11"	#5	6"	30"	51"	#4	6"	#4	6"
6'	7'	8.0"	8.5"	7.5"	6.0"	#5	12"	#7	12"	7'-5"	1	#7	12"	#6	6"	#5	6"	13'-5"	#5	6"	#4	12"	7'-11"	#5	6"	30"	57"	#4	6"	#4	6"
8'	4'	9.5"	9.0"	7.5"	6.0"	#7	12"	#7	12"	8'-5"	1	#7	12"	#5	6"	#5	6"	17'-5"	#5	6"	#4	12"	5'-1"	#6	6"	36"	41"	#4	6"	#4	6"
8'	5'	9.5"	9.0"	7.5"	6.0"	#7	12"	#7	12"	8'-5"	1	#7	12"	#5	6"	#5	6"	17'-5"	#5	6"	#4	12"	6'-1"	#6	6"	36"	47"	#4	6"	#4	6"
8'	6'	9.5"	9.0"	7.5"	6.0"	#7	12"	#7	12"	8'-5"	1	#7	12"	#5	6"	#5	6"	17'-5"	#5	6"	#4	12"	7'-1"	#6	6"	36"	53"	#4	6"	#4	6"
8'	7'	9.5"	9.0"	7.5"	6.0"	#7	12"	#7	12"	8'-5"	1	#7	12"	#5	6"	#5	6"	17'-5"	#5	6"	#4	12"	8'-1"	#6	6"	36"	59"	#4	6"	#4	6"
8'	8'	9.5"	9.0"	7.5"	6.0"	#7	12"	#7	12"	8'-5"	1	#7	12"	#5	6"	#5	6"	17'-5"	#5	6"	#4	12"	9'-1"	#6	6"	36"	65"	#4	6"	#4	6"
10'	3'	11.0"	10.5"	7.5"	6.0"	#8	12"	#7	12"	10'-9"	1	#8	12"	#6	6"	#6	6"	21'-5"	#6	6"	#4	12"	4'-4"	#6	6"	38"	37"	#4	6"	#4	6"
10'	4'	11.0"	10.5"	7.5"	6.0"	#8	12"	#7	12"	10'-9"	1	#8	12"	#6	6"	#6	6"	21'-5"	#6	6"	#4	12"	5'-4"	#6	6"	38"	43"	#4	6"	#4	6"
10'	5'	11.0"	10.5"	7.5"	6.0"	#8	12"	#7	12"	10'-9"	1	#8	12"	#6	6"	#6	6"	21'-5"	#6	6"	#4	12"	6'-4"	#6	6"	38"	49"	#4	6"	#4	6"
10'	6'	11.0"	10.5"	7.5"	6.0"	#8	12"	#7	12"	10'-9"	1	#8	12"	#6	6"	#6	6"	21'-5"	#6	6"	#4	12"	7'-4"	#6	6"	38"	55"	#4	6"	#4	6"
10'	7'	11.0"	10.5"	7.5"	6.0"	#8	12"	#7	12"	10'-9"	1	#8	12"	#6	6"	#6	6"	21'-5"	#6	6"	#4	12"	8'-4"	#6	6"	38"	61"	#4	6"	#4	6"
10'	8'	11.0"	10.5"	9.0"	6.0"	#8	12"	#7	12"	10'-10"	1	#8	12"	#6	6"	#6	6"	21'-8"	#6	6"	#4	12"	9'-4"	#7	6"	45"	69"	#4	6"	#4	6"
10'	9'	11.0"	10.5"	9.0"	6.0"	#8	12"	#7	12"	10'-10"	1	#8	12"	#6	6"	#6	6"	21'-8"	#6	6"	#4	12"	10'-4"	#7	6"	45"	75"	#4	6"	#4	6"
10'	10'	11.0"	10.5"	9.0"	6.0"	#8	12"	#7	12"	10'-10"	1	#8	12"	#6	6"	#6	6"	21'-8"	#6	6"	#4	12"	11'-4"	#7	6"	45"	81"	#4	6"	#4	6"
10'	11'	11.0"	10.5"	9.0"	6.0"	#8	12"	#7	12"	10'-10"	1	#8	12"	#6	6"	#6	6"	21'-8"	#6	6"	#4	12"	12'-4"	#7	6"	45"	87"	#4	6"	#4	6"
10'	12'	11.0"	10.5"	9.0"	6.0"	#8	12"	#7	12"	10'-10"	1	#8	12"	#6	6"	#6	6"	21'-8"	#6	6"	#4	12"	13'-4"	#7	6"	45"	93"	#4	6"	#4	6"
12'	6'	12.5"	12.0"	9.0"	6.0"	#8	12"	#8	12"	11'-10"	1	#8	12"	#6	6"	#7	6"	25'-8"	#7	6"	#4	12"	7'-7"	#8	6"	55"	63"	#4	6"	#4	6"
12'	7'	12.5"	12.0"	9.0"	6.0"	#8	12"	#8	12"	11'-10"	1	#8	12"	#6	6"	#7	6"	25'-8"	#7	6"	#4	12"	8'-7"	#8	6"	55"	69"	#4	6"	#4	6"
12'	8'	12.5"	12.0"	9.0"	6.0"	#8	12"	#8	12"	11'-10"	1	#8	12"	#6	6"	#7	6"	25'-8"	#7	6"	#4	12"	9'-7"	#8	6"	55"	75"	#4	6"	#4	6"
12'	9'	12.5"	12.0"	9.0"	6.0"	#8	12"	#8	12"	11'-10"	1	#8	12"	#6	6"	#7	6"	25'-8"	#7	6"	#4	12"	10'-7"	#8	6"	55"	81"	#4	6"	#4	6"
12'	10'	12.5"	12.0"	9.0"	6.0"	#8	12"	#8	12"	11'-10"	1	#8	12"	#6	6"	#7	6"	25'-8"	#7	6"	#4	12"	11'-7"	#8	6"	55"	87"	#4	6"	#4	6"
12'	12'	12.5"	12.0"	9.0"	6.0"	#8	12"	#8	12"	11'-10"	1	#8	12"	#6	6"	#7	6"	25'-8"	#7	6"	#4	12"	13'-7"	#8	6"	55"	99"	#4	6"	#4	6"
14'	8'	14.0"	13.0"	11.0"	7.0"	#9	12"	#8	12"	14'-4"	1	#9	12"	#7	6"	#7	6"	30'-1"	#7	6"	#5	12"	9'-10"	#8	6"	60"	76"	#4	6"	#4	6"
14'	9'	14.0"	13.0"	11.0"	7.0"	#9	12"	#8	12"	14'-4"	1	#9	12"	#7	6"	#7	6"	30'-1"	#7	6"	#5	12"	10'-10"	#8	6"	60"	82"	#4	6"	#4	6"
14'	10'	14.0"	13.0"	11.0"	7.0"	#9	12"	#8	12"	14'-4"	1	#9	12"	#7	6"	#7	6"	30'-1"	#7	6"	#5	12"	11'-10"	#8	6"	60"	88"	#4	6"	#4	6"
14'	11'	14.0"	13.0"	11.0"	7.0"	#9	12"	#8	12"	14'-4"	1	#9	12"	#7	6"	#7	6"	30'-1"	#7	6"	#5	12"	12'-10"	#8	6"	60"	94"	#4	6"	#4	6"
14'	12'	14.0"	13.0"	11.0"	7.0"	#9	12"	#8	12"	14'-4"	1	#9	12"	#7	6"	#7	6"	30'-1"	#7	6"	#5	12"	13'-10"	#8	6"	60"	100"	#4	6"	#4	6"
14'	13'	14.0"	13.0"	11.0"	7.0"	#9	12"	#8	12"	14'-4"	1	#9	12"	#7	6"	#7	6"	30'-1"	#7	6"	#5	12"	14'-10"	#8	6"	60"	106"	#4	6"	#4	6"
14'	14'	14.0"	13.0"	11.0"	7.0"	#9	12"	#8	12"	14'-4"	1	#9	12"	#7	6"	#7	6"	30'-1"	#7	6"	#5	12"	15'-10"	#8	6"	60"	112"	#4	6"	#4	6"

FOR EXTENSIONS OF EXISTING CBC'S OF S=5', S=7', AND S=9' SIZE SPANS NOT INCLUDED IN THIS TABLE, USE DIMENSIONS FOR NEXT GREATER SPAN TO BUILD. FOR EXAMPLE: FOR S=5' USE DESIGN DIMENSIONS FROM THE TABLE FOR S=6'. ALSO REDUCE THE S=6' TABLE LENGTH OF BARS "bb", "cc" AND "dd" BY ONE FOOT TO ACCOMMODATE THE SHORTER SPAN. SEE DETAILS ON SHEET 511-66-4/6. ANY OTHER SIZES OF BOX EXTENSIONS NOT COVERED BY THIS MODIFICATION SHALL BE DONE THROUGH SPECIAL DESIGNS INCLUDED IN THE PROJECT PLANS.

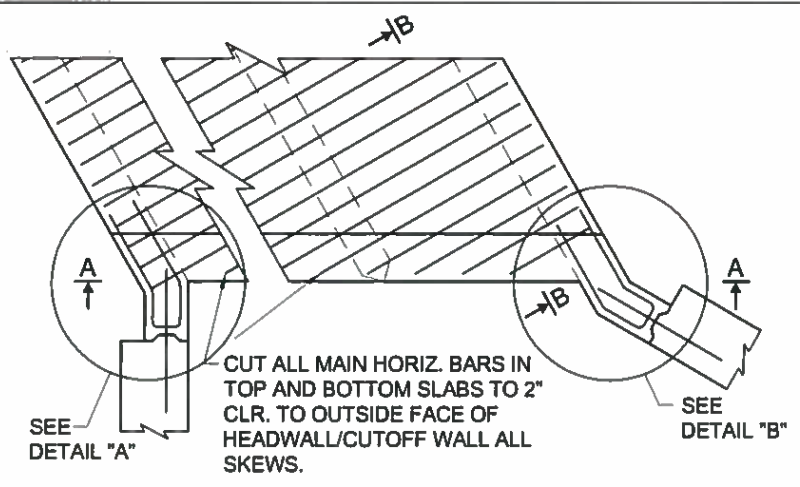
\*\* TOTAL LENGTH OF "gg" BARS IS TABLE LENGTH PLUS TWO STANDARD 90° HOOKS AND OPTIONAL 40 BAR Ø LAP IF NECESSARY.

\* EXAMPLE OF USE OF THIS TABLE:  
PROPOSED STRUCTURE - DOUBLE BARREL, 12 FT. SPAN/10 FT. HEIGHT, CBC WITH 6 FT. DEPTH OF COVER.  
USE THE FOLLOWING BUILD INFORMATION FROM THE TABLE ABOVE:

DIM		0-10 FT BURIAL DESIGN FILL "A"				"aa"		"ee"		"aa" & "ee"		"bb"		"cc"		"dd"		"bb" & "cc", & "dd"		"ff"		"gg"		"ff" & "gg"		"hh"		"jj"		"kk"	
SPAN "S" INSIDE	HEIGHT "H" INSIDE	TOP SLAB "TT"	BOTTOM SLAB "TB"	WALLS OUTER "WO"	WALLS INTERIOR "WI"	SIZE	SPACING	SIZE	SPACING	LENGTH	NUMBER OF BARS	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	LENGTH	SIZE	SPACING	SIZE	SPACING	LENGTH	SIZE	SPACING	"CH" LENGTH	"CV" LENGTH	SIZE	STAGGERED SPACING	SIZE	STAGGERED SPACING

NO.	DATE	REV. BY	DESCRIPTION
REVISIONS (OR CHANGE NOTICES)			
<b>NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD DRAWING</b>			
CONCRETE BOX CULVERT DOUBLE OPENING - DESIGN FILL "A" 0-10 FT DIMENSIONS AND REBAR SCHEDULE			
APPROVED			DATE APR 9, 07
DESIGNED BY	TLB	DRAWN BY	SGL
CHECKED BY	HDR		
511-62-2/2			2 OF 2

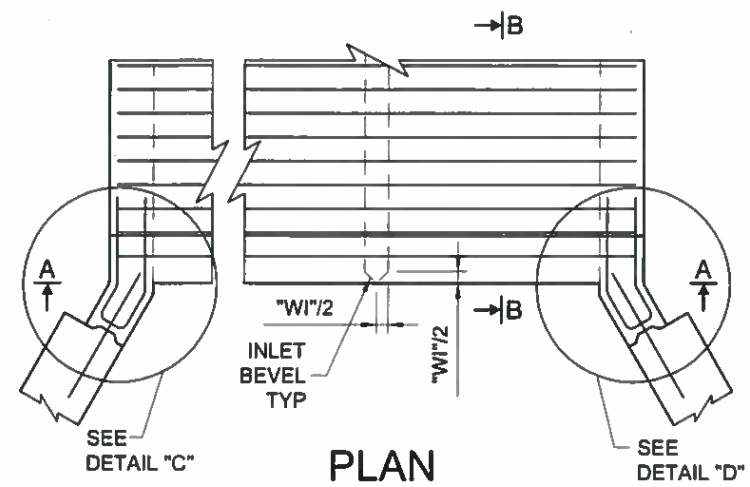




**PLAN**

(SKEWED)

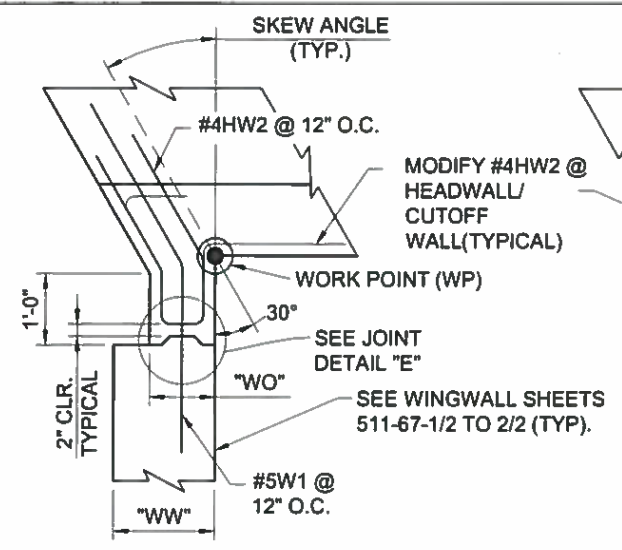
SIMILAR FOR SINGLE BARREL  
(NOT TO BE USED FOR SKEWS OVER 45°)



**PLAN**

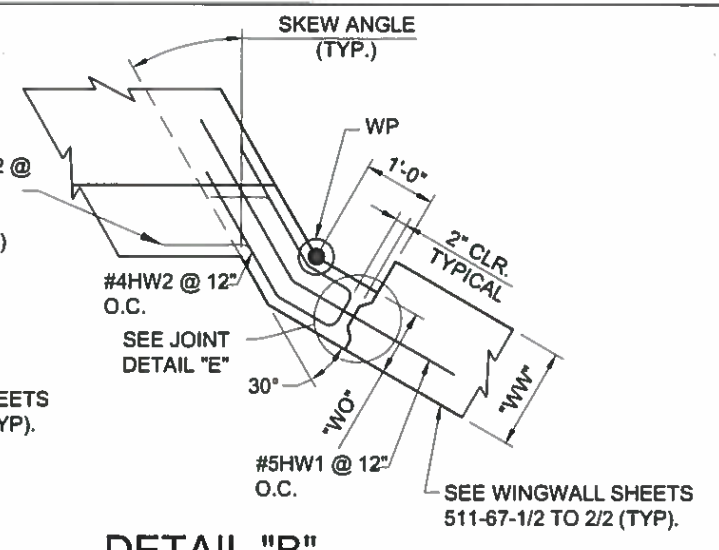
(NORMAL)

SIMILAR FOR SINGLE BARREL



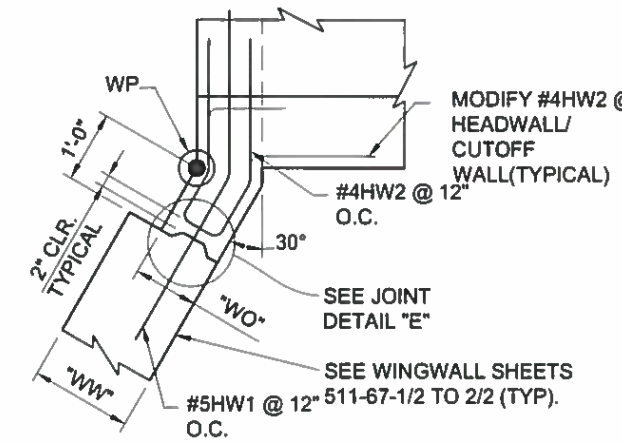
**DETAIL "A"**

(SKEWED)



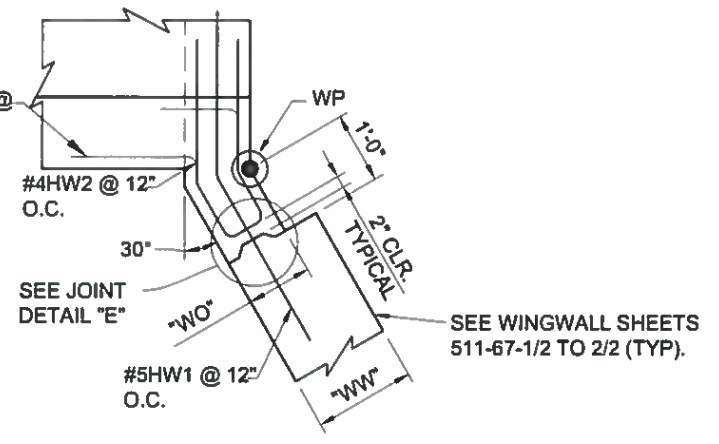
**DETAIL "B"**

(SKEWED)



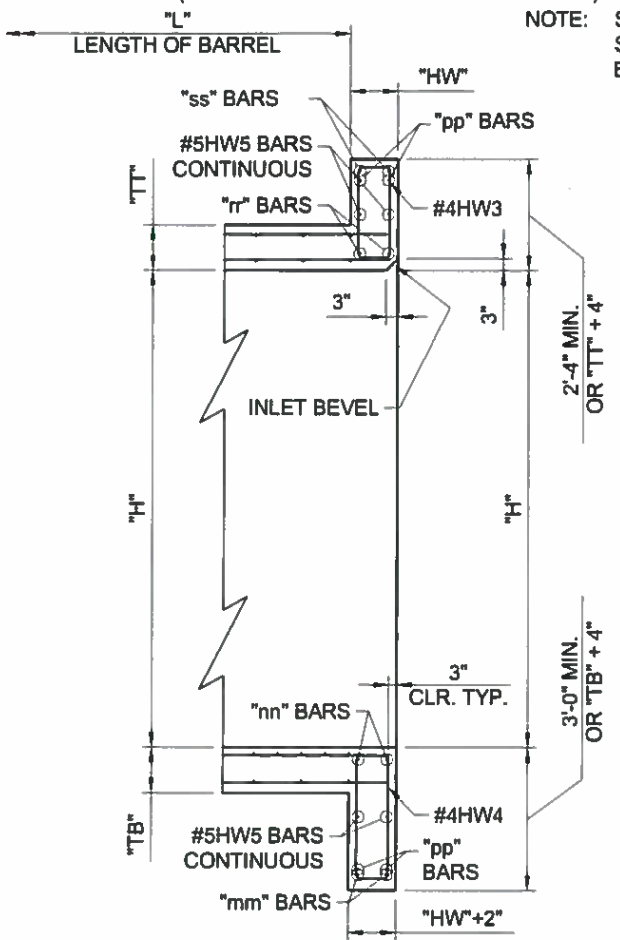
**DETAIL "C"**

(NORMAL)

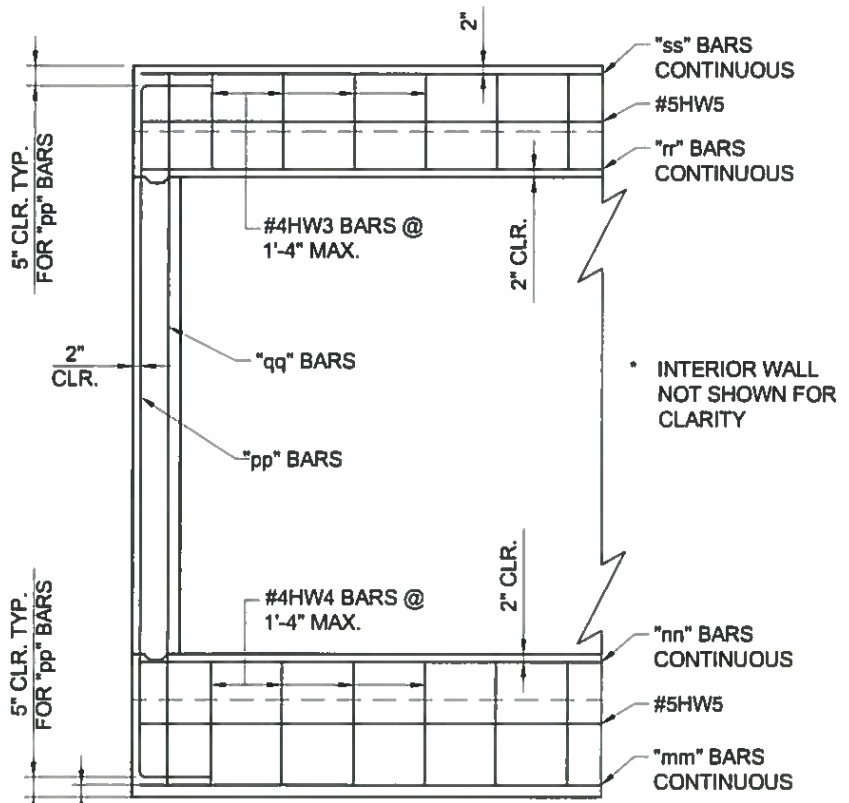


**DETAIL "D"**

(NORMAL)

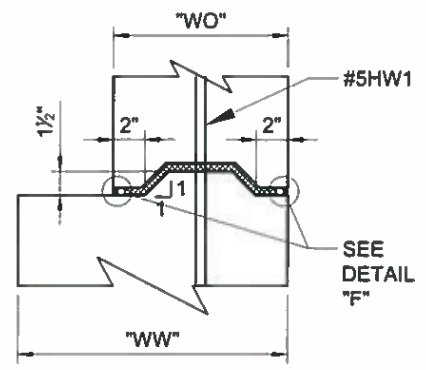


**PART SECTION B-B**

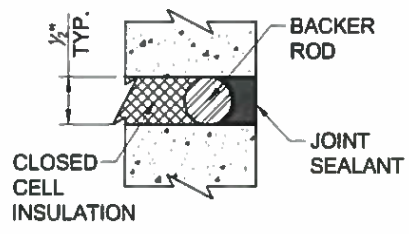


**PART SECTION A-A**

\* INTERIOR WALL NOT SHOWN FOR CLARITY

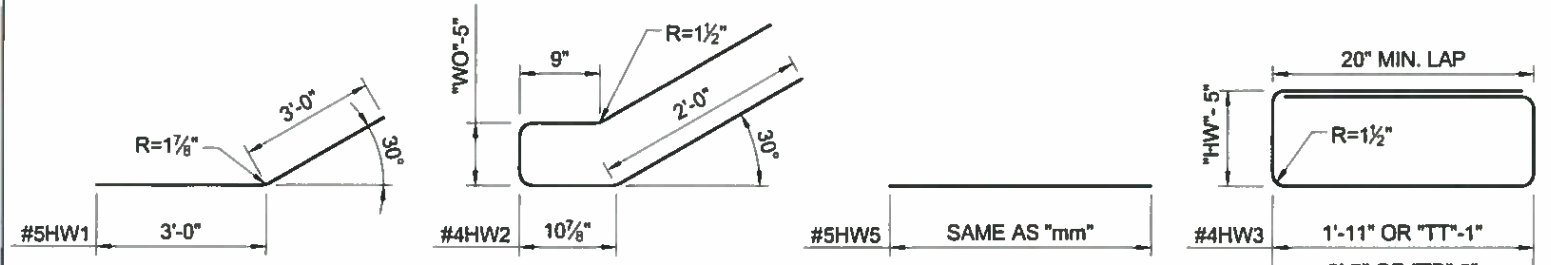


**JOINT DETAIL "E"**



**DETAIL "F"**

NOTE: DETAILS "A", "B", "C", & "D" EXTEND FULL HEIGHT FROM TOP OF PARAPET TO BOTTOM OF CUTOFF WALL. THESE EXTENSIONS SHALL BE CAST INTEGRALLY WITH HEADWALL/CUTOFF WALL (NO CONSTRUCTION JOINT). ELEVATION AT EXTENSION SHALL BE EQUAL TO PARAPET.



**REINFORCING BARS**

**PAYMENT**

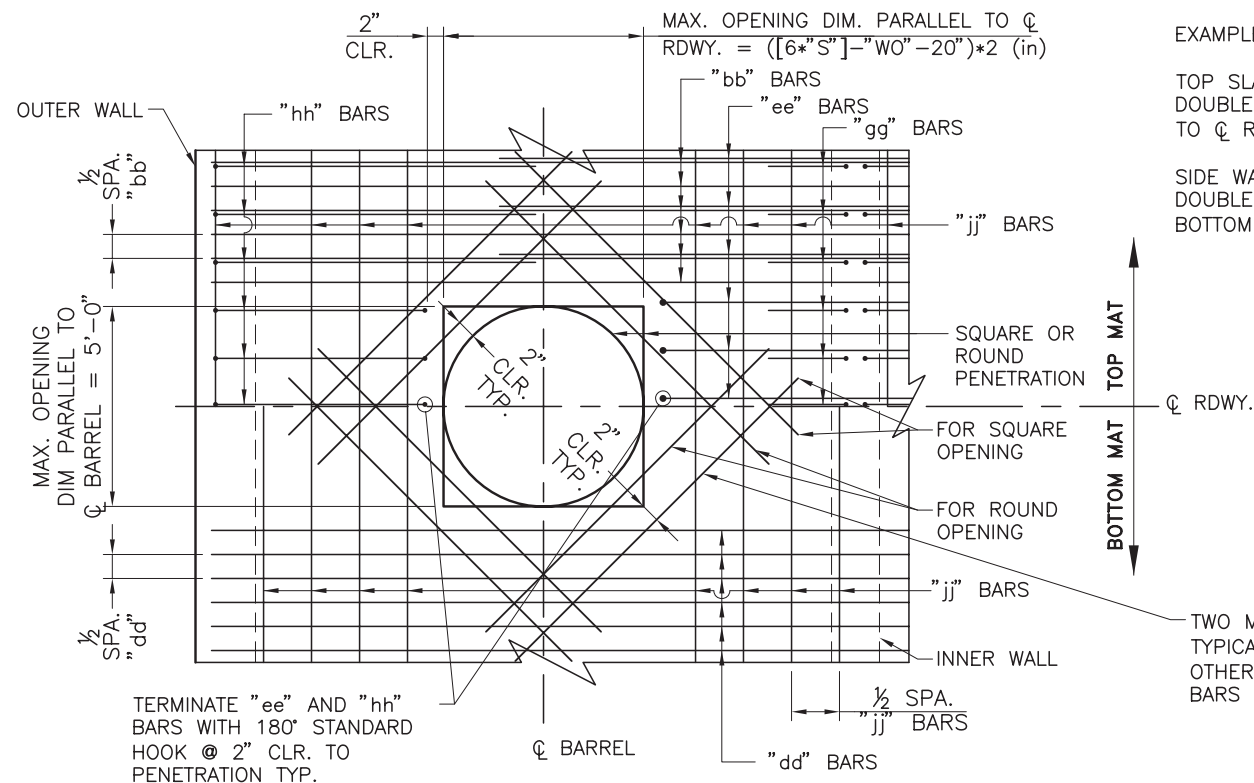
PAYMENT FOR HEADWALL/CUTOFF WALL IS BASED ON "EACH" UNIT OF MEASUREMENT FOR EACH NEW BARREL CONSTRUCTED. IN CASE OF TYPE II CONNECTION EACH HEADWALL/CUTOFF WALL UNIT SHALL BE PAID FOR, I.E. TWO PER CULVERT EXTENSION.

ALTERNATIVELY, A COMPLETE CONCRETE BOX CULVERT MAY BE PAID FOR UNDER CLASS "AA" CONCRETE BY "CU.YD." ITEM 511030 AND GRADE 60 REBAR BY "LBS." ITEM 540060.

NO.	DATE	REV. BY	DESCRIPTION
REVISIONS (OR CHANGE NOTICES)			
<b>NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD DRAWING</b>			
<b>CBC HEAD/CUTOFF WALLS - ALL DESIGN FILLS-0° 15° 30° 45° SKEWS STRUCTURAL SECTIONS AND REBAR</b>			
APPROVED	DESIGN ENGINEER		1/19/16 DATE
DESIGNED BY	TLB	DRAWN BY	SGL
CHECKED BY	HDR		
511-66-1/6			1 OF 6







**TOP SLAB PENETRATION DETAIL**

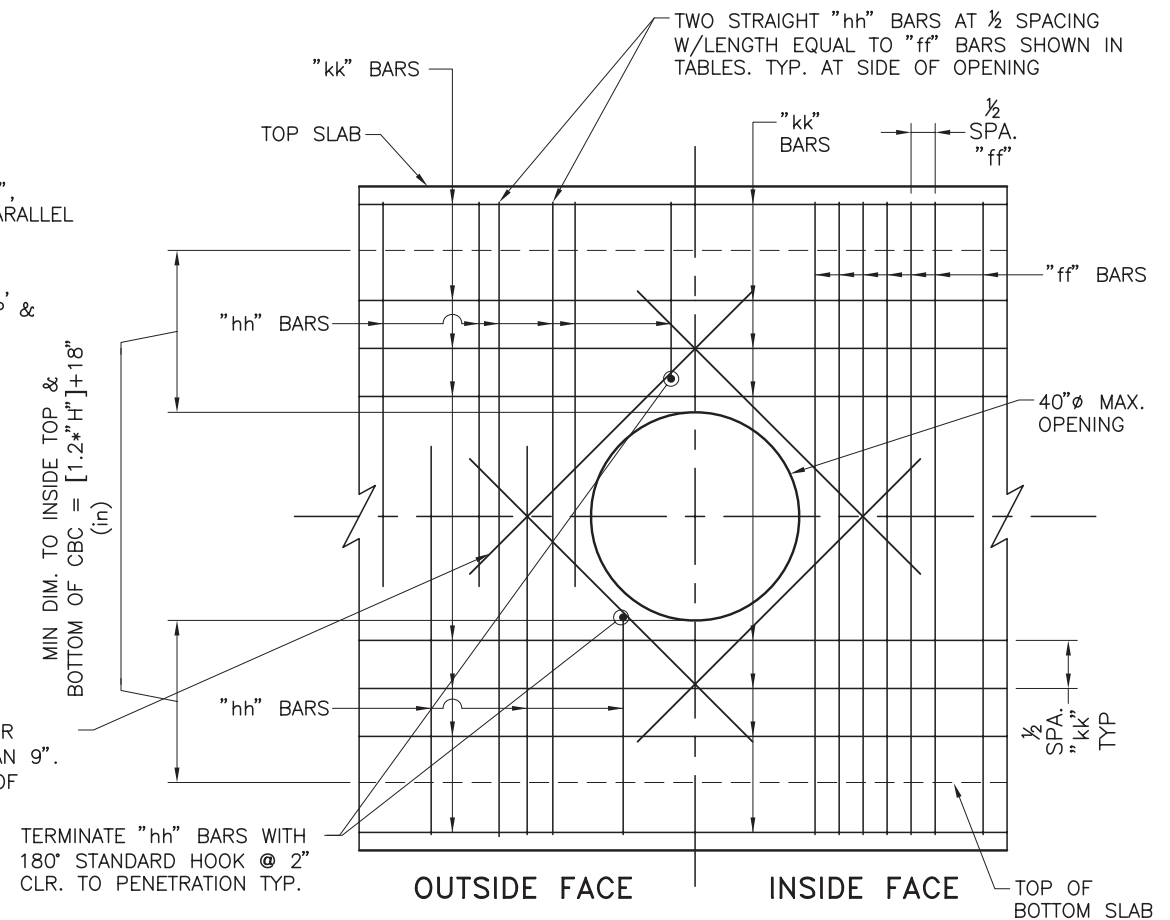
NOTE: MOVE "bb", "dd" AND "jj" BARS FROM LOCATION AT PENETRATION AND PLACE EQUALLY AT 1/2 SPACING ON EACH SIDE OF OPENING.

**EXAMPLES:**

TOP SLAB - "S"=10' "H"=7', DESIGN FILL "B", DOUBLE BARREL CBC: MAX. OPENING DIM. PARALLEL TO  $\phi$  RDWY. =  $([6 * S] - W_0 - 20) * 2$  (in)

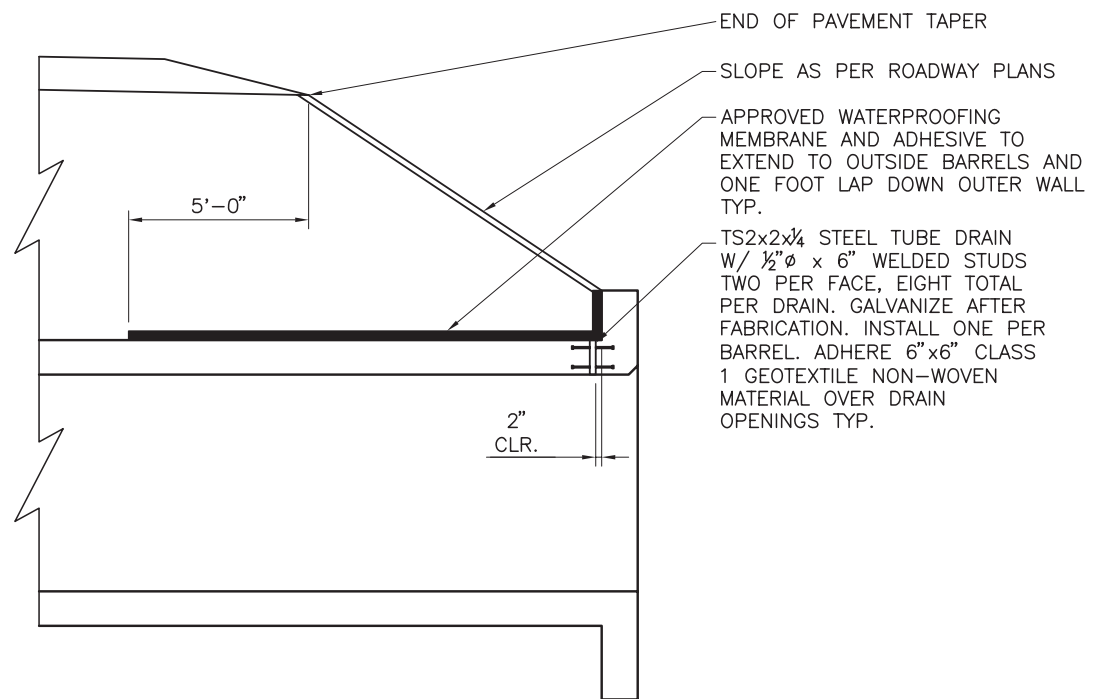
SIDE WALL - "S"=10' "H"=7', DESIGN FILL "B", DOUBLE BARREL CBC: MIN DIM. TO INSIDE TOP & BOTTOM OF CBC =  $[1.2 * H] + 18$  = 26.4 (in)

TWO MATS OF #5 BARS INSIDE OF ALL OTHER TYPICAL REINFORCING FOR "T" GREATER THAN 9". OTHERWISE ONE MAT OF #5 BARS. LENGTH OF BARS EQUAL TO TWICE DIM. OF OPENING.



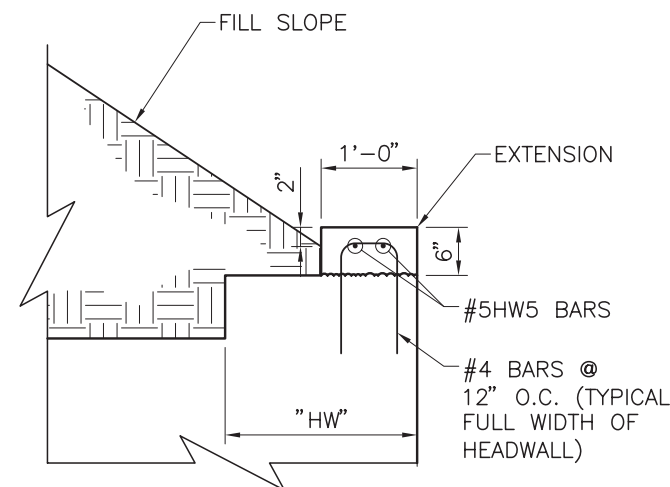
**OUTER WALL PENETRATION DETAIL**

NOTE: MOVE "ff" AND "kk" BARS FROM LOCATION AT PENETRATION AND PLACE EQUALLY AT 1/2 SPACING ON EACH SIDE OF OPENING.



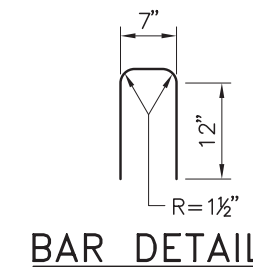
**TOP SLAB MEMBRANE AND HEADWALL DRAIN DETAIL**

NOTE: THIS DETAIL SHALL BE CONSTRUCTED FOR ANY NEW CBC OR CBC EXTENSION.



**HEADWALL EXTENSION DETAIL**

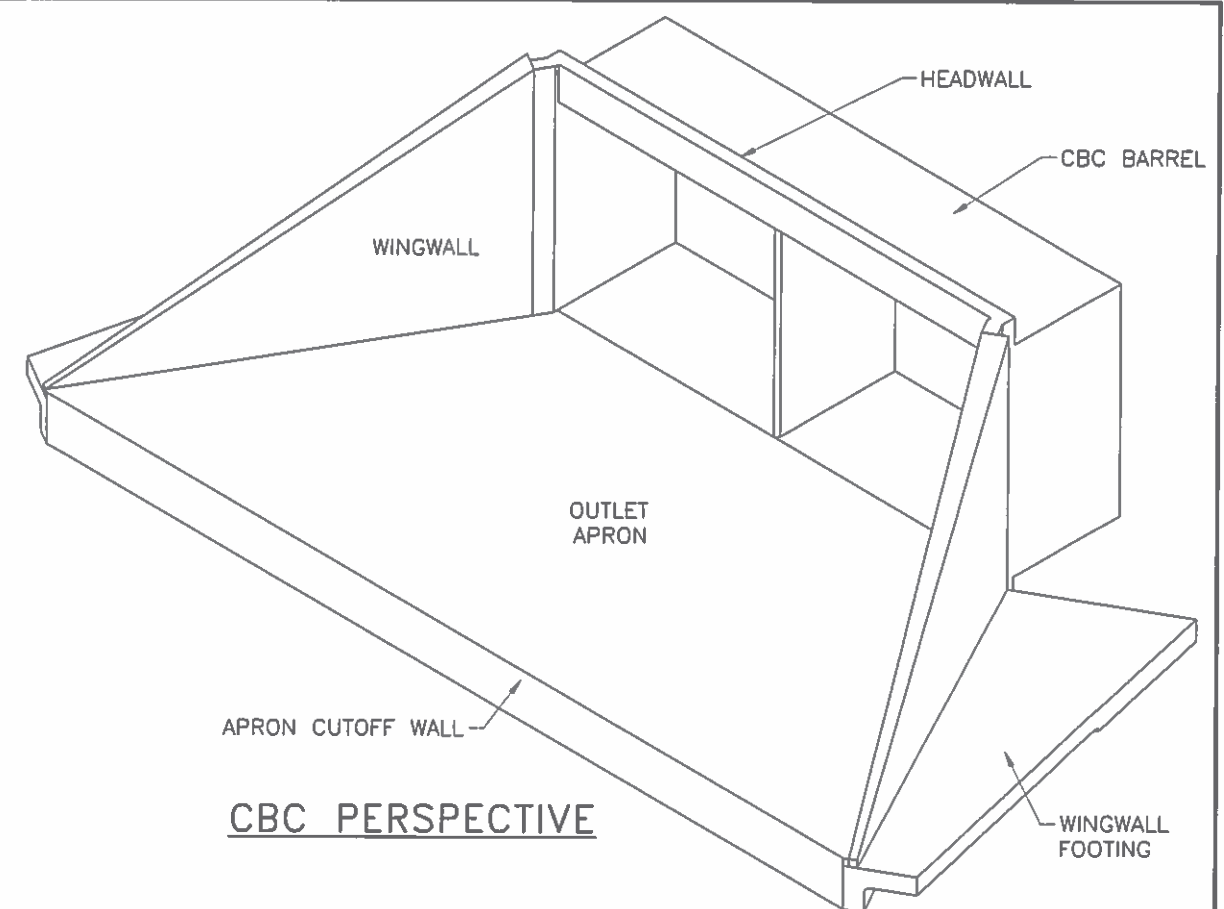
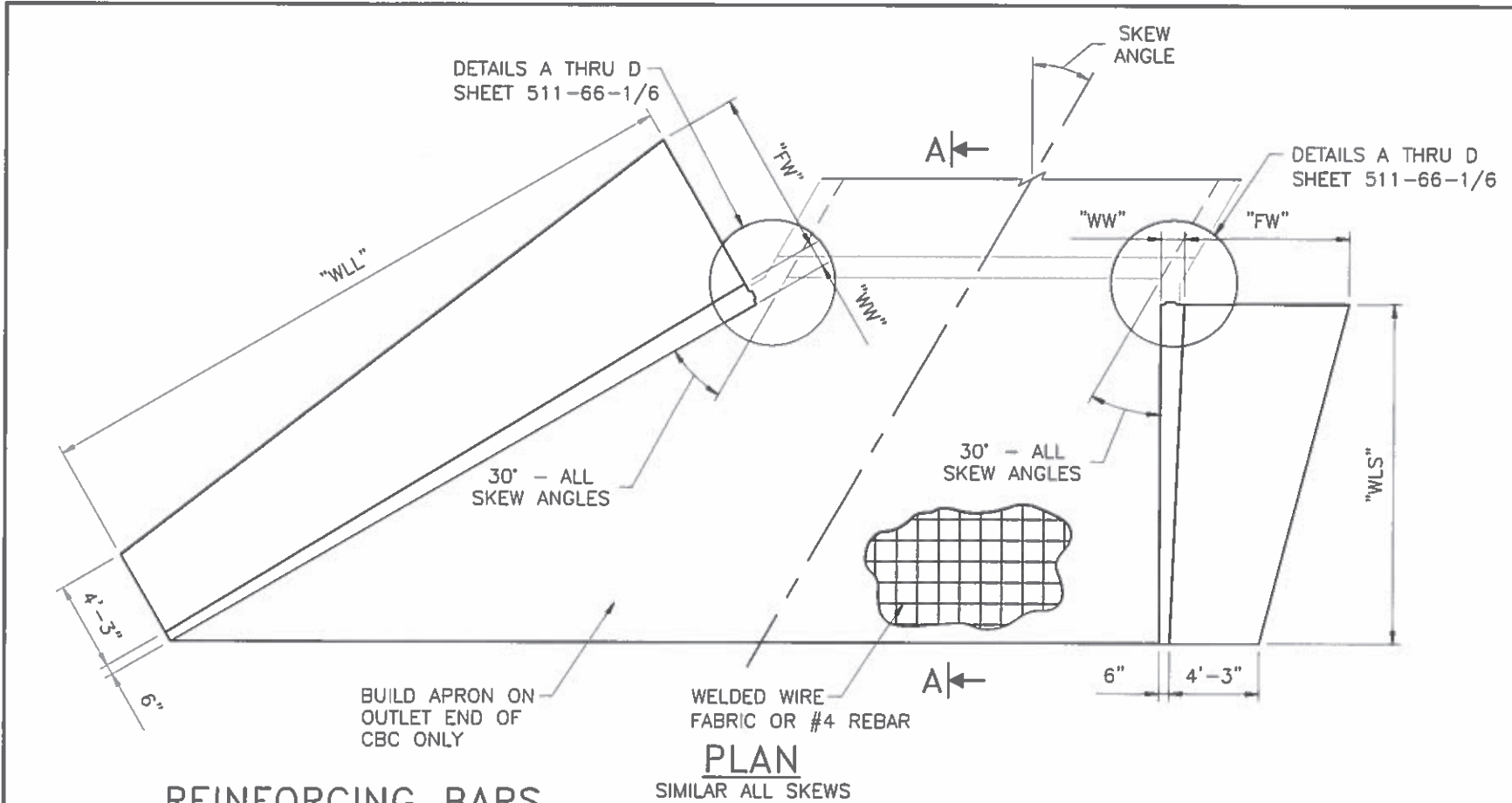
NOTE: IF "HW" IS GREATER THAN 12" ADD EXTENSION AND FILL AS SHOWN. 2" DIM. TYP. OF ALL HEADWALL.



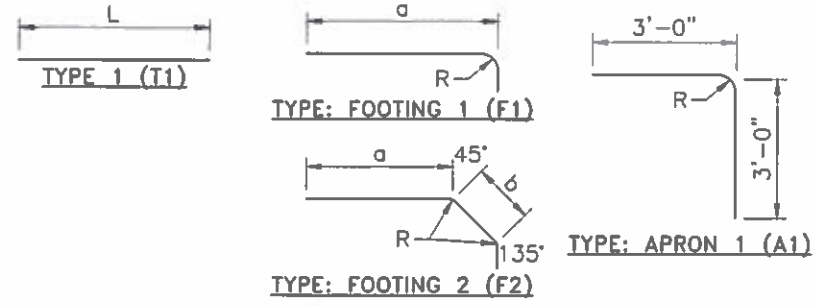
**BAR DETAIL**

PAYMENT NOTE: ALL WORK AND MATERIALS ASSOCIATED WITH HEADWALL EXTENSION, MEMBRANE, DRAINS, AND PENETRATIONS SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION OF A FINISHED CBC AND NO FURTHER PAYMENT WILL BE MADE FOR THESE INCLUDED ITEMS.

NO.	DATE	REV. BY	DESCRIPTION
REVISIONS (OR CHANGE NOTICES)			
<b>NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD DRAWING</b>			
CONCRETE BOX CULVERT EXTENSION ALL DESIGN FILLS - ALL SKEWS MISCELLANEOUS DETAILS & BACKFILL			
APPROVED	DESIGN ENGINEER		DATE
DESIGNED BY	TLB	DRAWN BY	SGL
CHECKED BY	HDR		
511-66-5/6			5 OF 6



**REINFORCING BARS**



**NOTE:**  
CONTRACTOR IS RESPONSIBLE FOR DETERMINING ALL BAR LENGTHS DIMENSIONS FOR THE WINGWALL REINFORCEMENT.  
R SHALL BE 1 1/4" FOR #4 BARS AND 2 1/4" FOR #5 BARS.

**WINGWALL DIMENSIONS**

WINGS A AND B			0° SKEW		15° SKEW		30° SKEW		45° SKEW	
"H"	"WW"	"FW"	"WLL"	"WLS"	"WLL"	"WLS"	"WLL"	"WLS"	"WLL"	"WLS"
2'-0"	0'-9 1/2"	6'-8 1/2"	8'-5"	8'-5"	10'-3"	7'-6"	14'-6"	7'-3"	28'-0"	7'-6"
3'-0"	0'-10 1/4"	7'-2 1/2"	10'-1"	10'-1"	12'-5"	9'-1"	17'-6"	8'-9"	33'-10"	9'-1"
4'-0"	0'-11 1/2"	7'-8 1/2"	11'-10"	11'-10"	14'-6"	10'-8"	20'-6"	10'-3"	39'-8"	10'-8"
5'-0"	1'-0"	8'-2 1/2"	13'-7"	13'-7"	16'-8"	12'-2"	23'-6"	11'-9"	45'-5"	12'-2"
6'-0"	1'-0 3/4"	8'-9"	15'-4"	15'-4"	18'-9"	13'-9"	26'-6"	13'-3"	51'-3"	13'-9"
7'-0"	1'-1 1/2"	9'-3"	17'-1"	17'-1"	20'-11"	15'-3"	29'-6"	14'-9"	57'-0"	15'-3"
8'-0"	1'-2 1/4"	9'-9"	18'-9"	18'-9"	23'-0"	16'-10"	32'-6"	16'-3"	62'-10"	16'-10"
9'-0"	1'-3 1/4"	10'-3"	20'-6"	20'-6"	25'-1"	18'-5"	35'-6"	17'-9"	68'-7"	18'-5"
10'-0"	1'-4"	10'-9"	22'-3"	22'-3"	27'-3"	19'-11"	38'-6"	19'-3"	74'-5"	19'-11"
11'-0"	1'-4 3/4"	11'-3"	24'-0"	24'-0"	29'-4"	21'-6"	41'-6"	20'-9"	80'-2"	21'-6"
12'-0"	1'-5 1/2"	11'-9"	25'-9"	25'-9"	31'-6"	23'-1"	44'-6"	22'-3"	86'-0"	23'-1"
13'-0"	1'-6 1/4"	12'-3"	27'-5"	27'-5"	33'-7"	24'-7"	47'-6"	23'-9"	91'-9"	24'-7"
14'-0"	1'-7"	12'-9"	29'-2"	29'-2"	35'-9"	26'-2"	50'-6"	25'-3"	97'-7"	26'-2"

NOTE: TABLE DIMENSIONS SHOWN ARE FOR SLOPES OF 1.5 TO 1. FOR OTHER SLOPES MULTIPLY TABLE VALUES OF "WLS" AND "WLS" BY (SLOPE/1.5).

DESIGNED BY: TLB DRAWN BY: SLG/BEE CHECKED BY: HDR

**CBC PERSPECTIVE**

**NOTES:**

1. WORKMANSHIP AND MATERIALS SHALL CONFORM TO NEW MEXICO DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, CURRENT EDITION, AND APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.
2. CONCRETE SHALL BE CLASS AA. CHAMFER ALL EDGES OF CONCRETE 3/4".
3. REINFORCING BARS SHALL CONFORM TO REQUIREMENTS OF AASHTO M 31. REINFORCING BARS SHALL BE GRADE 60. DIMENSIONS SHOWN REFER TO CENTER LINES OF BARS UNLESS NOTED OTHERWISE.
4. MINIMUM SPLICE LENGTH SHALL BE 2'-0" ON ALL #4 BARS, AND 2'-6" ON ALL #5 BARS. LONGITUDINAL SPLICES SHOULD BE STAGGERED BY A MINIMUM OF TWO TIMES THE SPLICES LENGTH IN ADJACENT BARS. NO SPLICES SHALL BE ALLOWED IN VERTICAL BARS EXCEPT AS SHOWN ON THE DRAWINGS. SPLICES SHALL NOT BE ALLOWED IN TRANSVERSE DIRECTION.

THIS STANDARD DRAWING IS FOR USE ON NMDOT PROJECTS. OTHERS WHO USE THE NMDOT STANDARD DRAWINGS DO SO AT THEIR OWN RISK. STANDARD DRAWINGS THAT ARE APPLICABLE TO A SPECIFIC PROJECT WILL BE IDENTIFIED ON THE PROJECT PLANS BUT WILL NOT BE PHYSICALLY INCLUDED IN THOSE PLANS. THE DESIGNER WHO SPECIFIES A STANDARD DRAWING ACCEPTS THE RESPONSIBILITY OF DETERMINING THEIR APPLICABILITY.

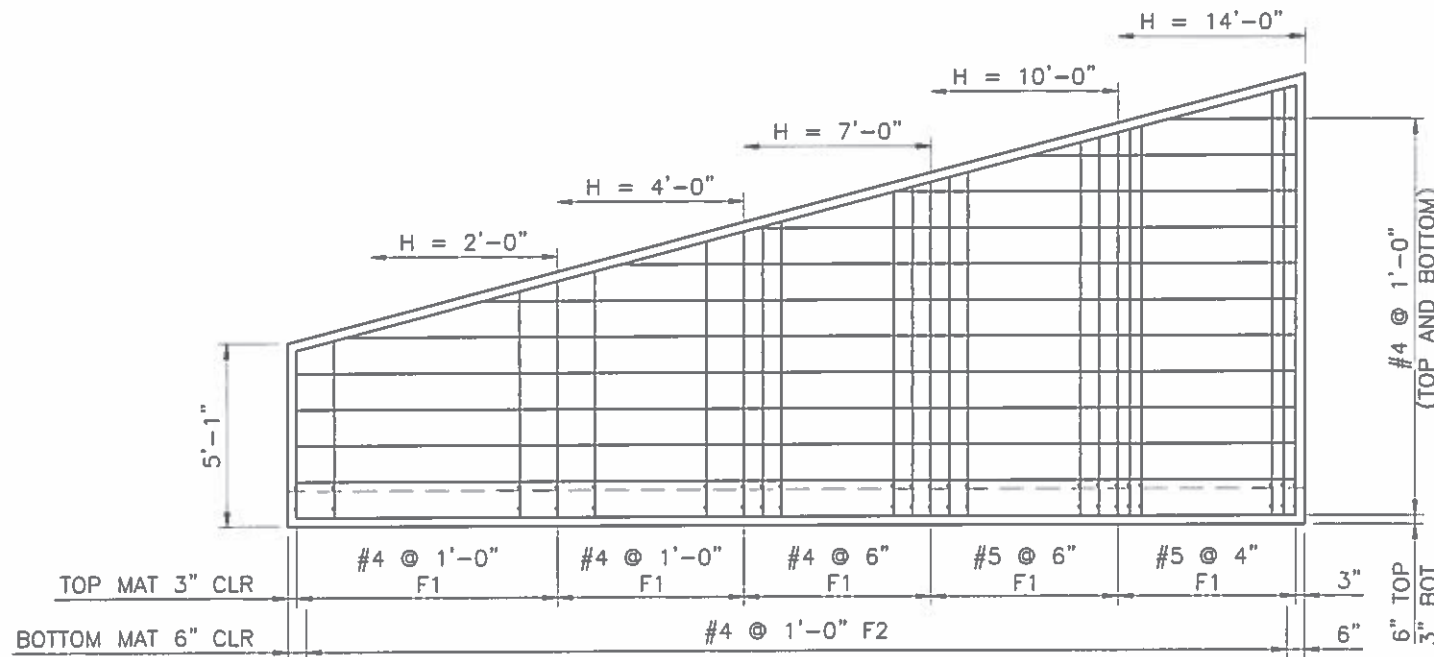


NO.	DATE	BY	DESCRIPTION

REVISIONS (OR CHANGE NOTICES)  
**NEW MEXICO**  
DEPARTMENT OF TRANSPORTATION  
STANDARD DRAWING

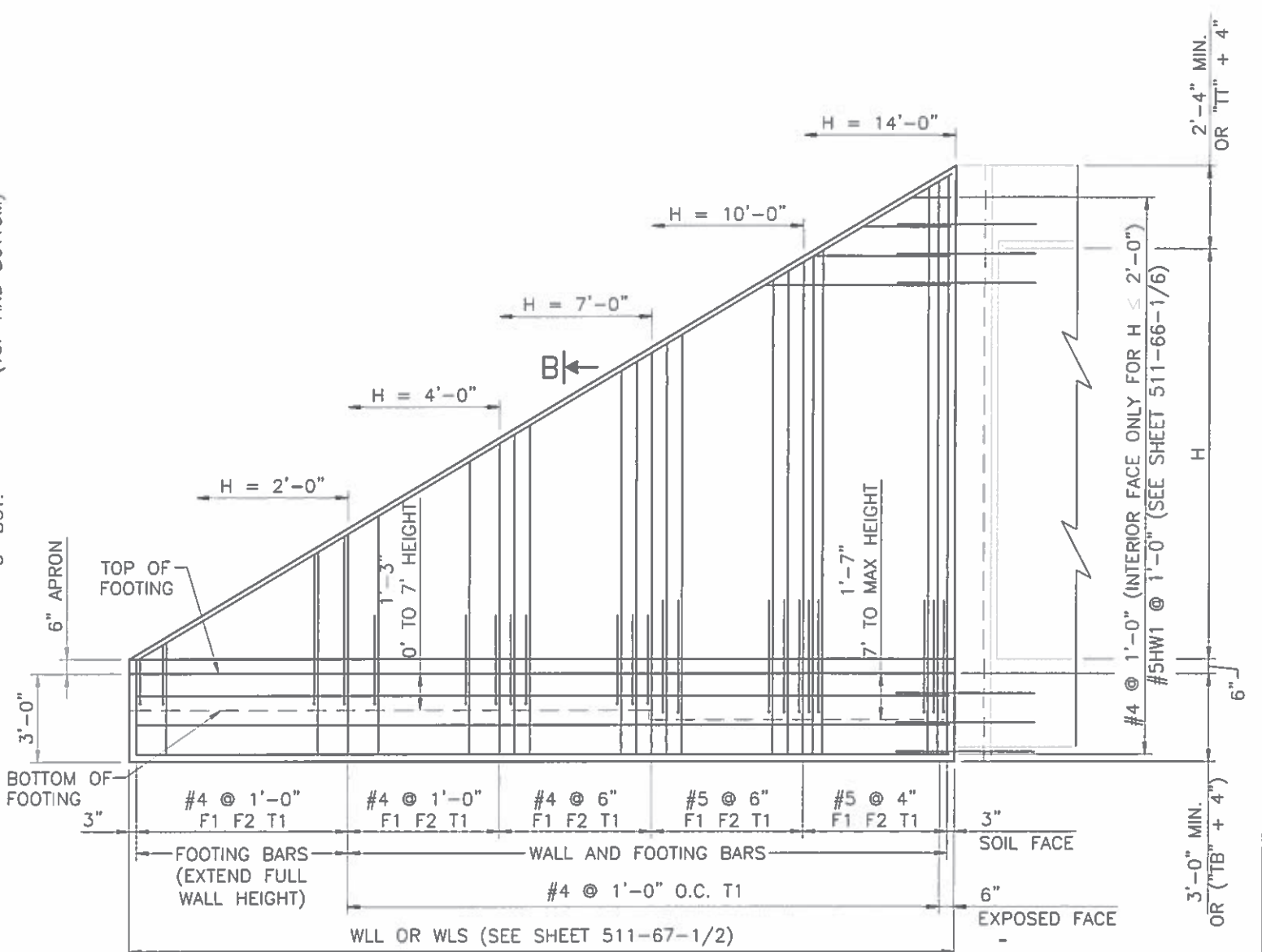
CONCRETE BOX CULVERT  
WINGWALL & OUTLET APRON  
ALL SKEWS  
PLAN, PERSPECTIVE, & DIMENSIONS



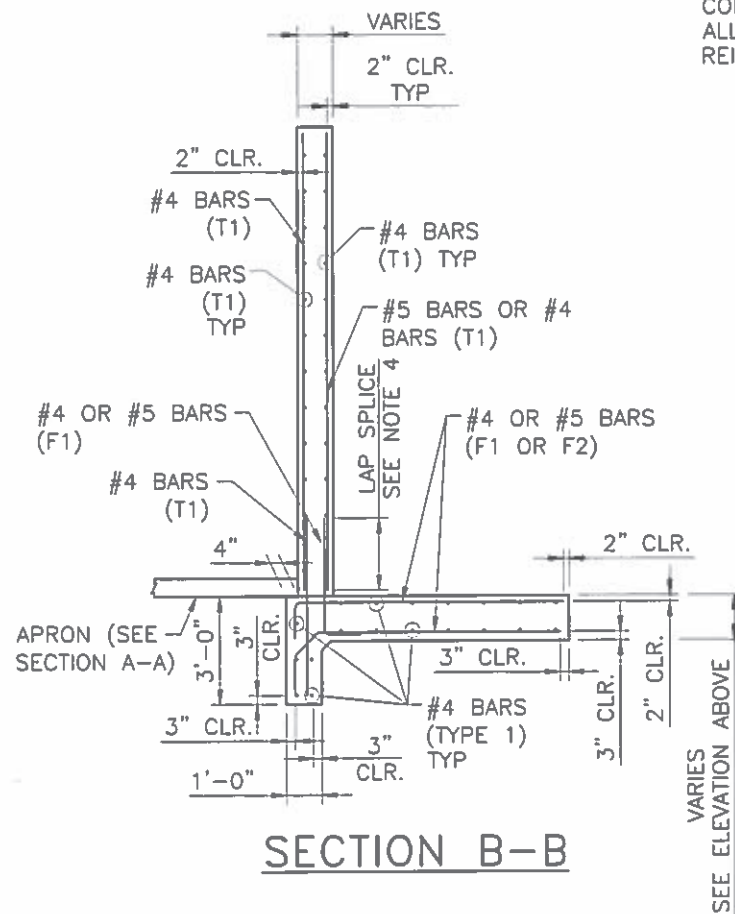


**FOOTING PLAN**

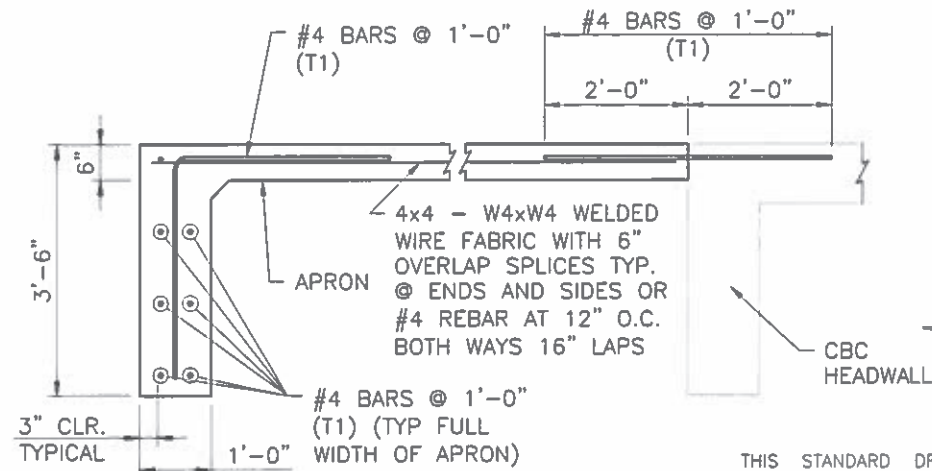
CONTRACTOR IS RESPONSIBLE FOR DETERMINING ALL BAR LENGTH DIMENSIONS FOR THE WINGWALL REINFORCEMENT.



**WINGWALL ELEVATION**



**SECTION B-B**

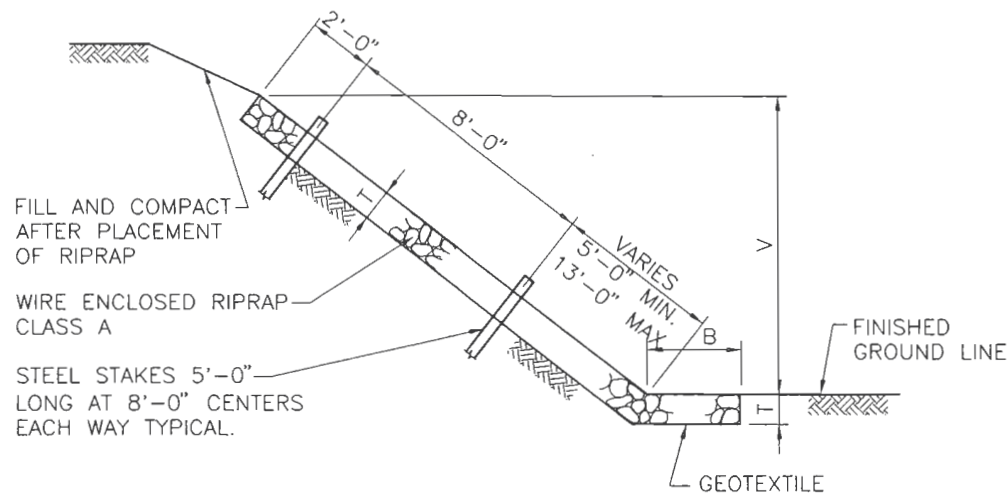


**SECTION A-A**



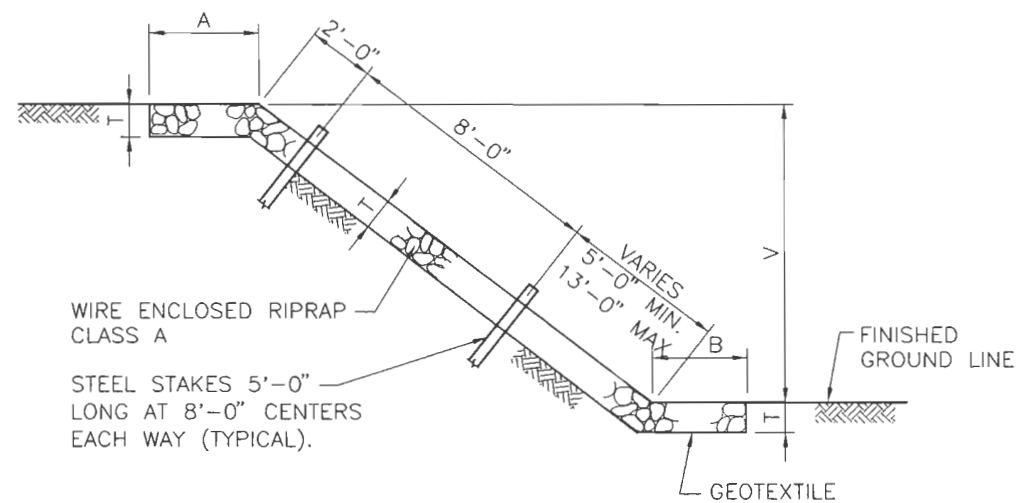
THIS STANDARD DRAWING IS FOR USE ON NMDOT PROJECTS. OTHERS WHO USE THE NMDOT STANDARD DRAWINGS DO SO AT THEIR OWN RISK. STANDARD DRAWINGS THAT ARE APPLICABLE TO A SPECIFIC PROJECT WILL BE IDENTIFIED ON THE PROJECT PLANS BUT WILL NOT BE PHYSICALLY INCLUDED IN THOSE PLANS. THE DESIGNER WHO SPECIFIES A STANDARD DRAWING ACCEPTS THE RESPONSIBILITY OF DETERMINING THEIR APPLICABILITY.

NO.	DATE	BY	DESCRIPTION
REVISIONS (OR CHANGE NOTICES)			
NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD DRAWING			
CONCRETE BOX CULVERT WINGWALL & OUTLET APRON ALL SKEWS STRUCTURAL SECTIONS AND REBAR			
511-67-2/2			2 of 2



**SECTION TYPE I**

QUANTITIES PER LINEAR FOOT	
SLOPE	RIPRAP (CU. YDS.)
1.5 : 1	$\frac{T}{27} (B + 1.803 V + 0.303 T)$
1.75 : 1	$\frac{T}{27} (B + 2.016 V + 0.266 T)$
2 : 1	$\frac{T}{27} (B + 2.236 V + 0.236 T)$
3 : 1	$\frac{T}{27} (B + 3.162 V + 0.162 T)$
4 : 1	$\frac{T}{27} (B + 4.123 V + 0.123 T)$

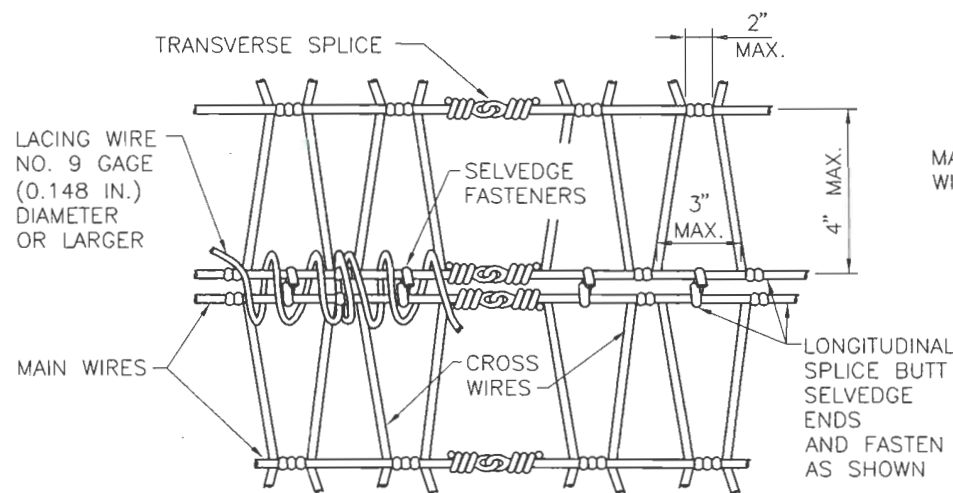


**SECTION TYPE II**

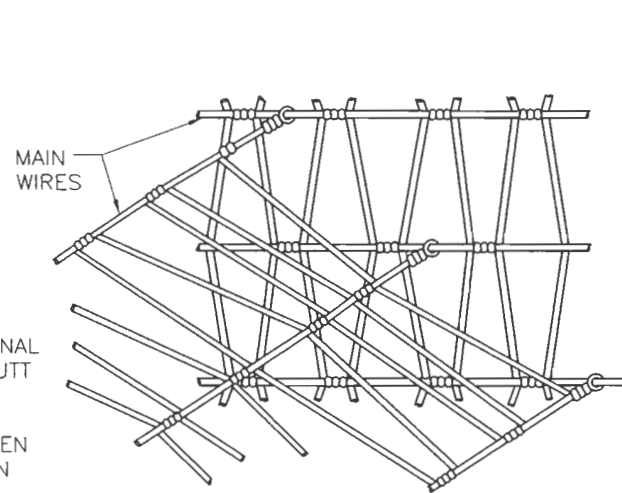
QUANTITIES PER LINEAR FOOT	
SLOPE	RIPRAP (CU. YDS.)
1 : 1	$\frac{T}{27} (A + B + 1.414V)$
1.5 : 1	$\frac{T}{27} (A + B + 1.803V)$
1.75 : 1	$\frac{T}{27} (A + B + 2.016V)$
2 : 1	$\frac{T}{27} (A + B + 2.236V)$
3 : 1	$\frac{T}{27} (A + B + 3.162V)$
4 : 1	$\frac{T}{27} (A + B + 4.123V)$

**GENERAL NOTES**

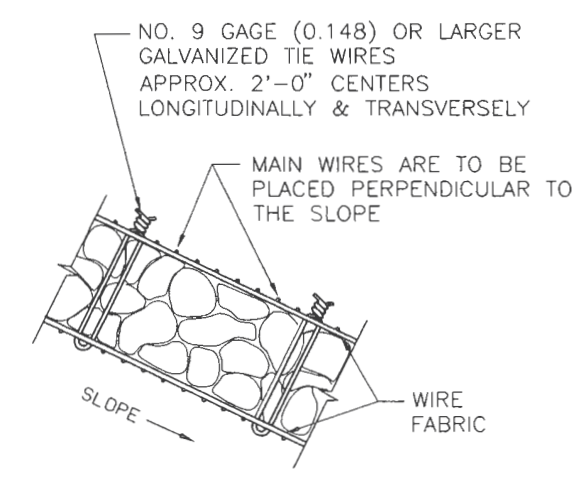
1. WIRE FABRIC FOR RIP RAP SHALL BE "W" OR HEXAGONAL MESH AND MEET THE REQUIREMENTS LISTED IN SECTION 602 OF THE NMDOT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, CURRENT EDITION.
2. STEEL STAKES MAY BE RAILROAD RAILS WEIGHING NOT LESS THAN 30 LBS. PER YARD, 4" NOMINAL DIAMETER STANDARD STRENGTH GALVANIZED STEEL PIPE, OR L 4" x 4" x 3/8" STEEL ANGLES. STEEL STAKES SHALL PROJECT 6" ABOVE TOP OF RIPRAP. STEEL STAKES ARE CONSIDERED INCIDENTAL TO THE COMPLETION OF THE WORK AND NO DIRECT MEASUREMENT OR PAYMENT WILL BE MADE THEREFORE.
3. IF LENGTH OF SLOPE IS 15 FEET OR LESS, ONLY ONE ROW OF STEEL STAKES 2 FEET FROM THE TOP EDGE OF RIPRAP WILL BE REQUIRED UNLESS OTHERWISE NOTED ON PLANS.
4. FOR DIMENSIONS A, B, V, & T. SEE BRIDGE OR ROADWAY PLANS.
5. T=12" UNLESS OTHERWISE SHOWN ON PLANS; T=18" AT BRIDGES.
6. FASTENERS FOR SPLICES AND/OR SELVEDGE END CONNECTORS MAY BE WIRE TIES, INTERLOCKING WIRE CLIPS, HOG RINGS, OR LACING WIRE. ONLY FASTENERS WHICH APPEAR ON THE DEPARTMENT'S "APPROVED PRODUCTS LIST" MAY BE USED.
7. LACING SHALL BE CONTINUOUS AS FAR AS IS PRACTICAL AND SHALL PASS THROUGH EACH MESH OPENING.
8. WHERE SPLICING IS NECESSARY, AN OVERLAP OF LACING OF AT LEAST 1 FOOT SHALL BE PROVIDED.



**NORMAL INTERSECTION SPLICES**

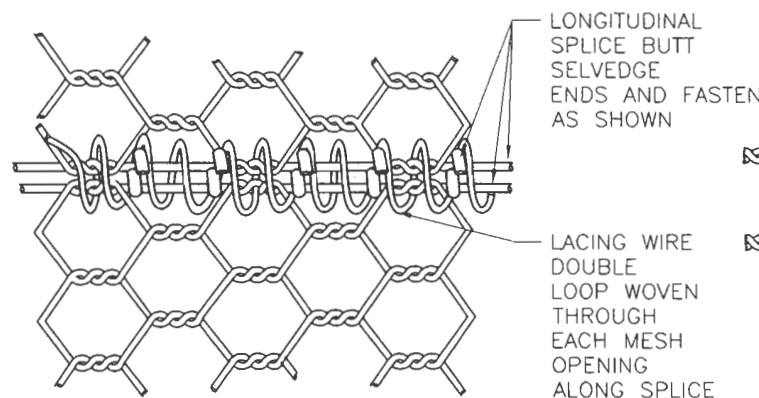


**SKEWED INTERSECTION SPLICE**

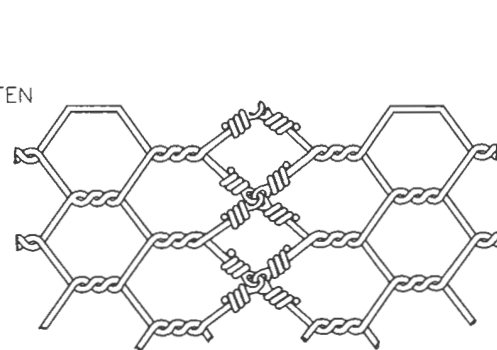


**TYPICAL SECTION**

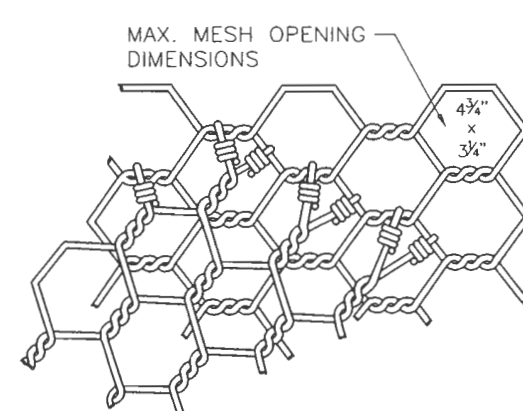
**"W" MESH**



**NORMAL INTERSECTION SPLICE**



**TRANSVERSE SPLICE  
HEXAGONAL MESH**



**SKEWED INTERSECTION SPLICE**



NO.	DATE	REV. BY	DESCRIPTION
REVISIONS (OR CHANGE NOTICES)			

**NEW MEXICO  
DEPARTMENT OF TRANSPORTATION  
STANDARD DRAWING**

**WIRE ENCLOSE RIPRAP  
CLASS "A"**

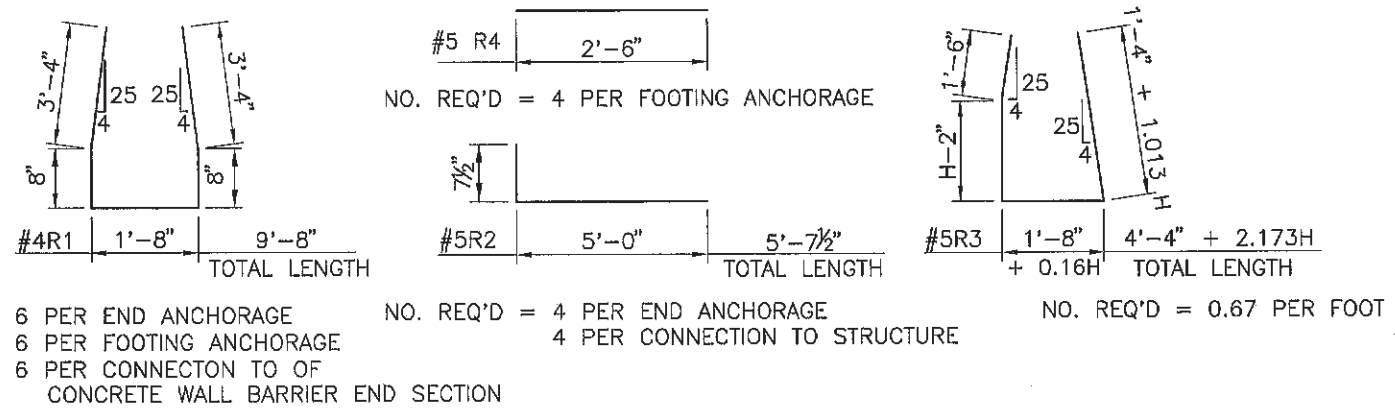
DESIGNED BY \_\_\_\_\_ DRAWN BY SKL CHECKED BY YML

602-01-1/1

1 of 1

**GENERAL NOTES:**

1. WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE NEW MEXICO DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, (CURRENT EDITION) AND ALL APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.
2. CONCRETE SHALL BE CLASS "A."
3. ONE FOOTING END ANCHORAGE IS REQUIRED FOR EACH CONCRETE WALL BARRIER END SECTION AND THREE FOOTING ANCHORS ARE REQUIRED FOR ANY MIDDLE CWB SECTIONS AS SHOWN ON SHEET 606-17-2/7.
4. EXPANSION AND CONTRACTION JOINTS IN CONCRETE WALL BARRIER SHALL BE LOCATED AT THE CONCRETE PAVEMENT JOINTS. JOINT FILLER MATERIAL SHALL BE THE SAME SIZE AS JOINT OR 1/2 INCH MINIMUM.
5. REINFORCING STIRRUP, R3 IS NOT REQUIRED FOR VERTICAL ROADWAY OFFSETS LESS THAN 1 FOOT, FOR OFFSETS LESS THAN 1 FOOT, WALL BARRIERS SHALL BE CAST MONOLITHIC.
6. FOR ADDITIONAL DETAILS, SEE STANDARD PLAN "CONCRETE WALL BARRIER TYPE 42 AT COLUMN AND SIGN PEDESTALS," 606-17-6/7.
7. CHAMFER ALL EXPOSED EDGES 3/4 INCH.
8. CONCRETE COVER FOR REINFORCING BARS SHALL BE A MINIMUM OF 2 INCHES CLEAR.
9. PROVIDE CRACK CONTROL JOINTS AT 15 FOOT INTERVALS. CRACK CONTROL JOINTS SHALL BE MADE USING A COLD JOINT, TOOLED JOINT, OR A SAW CUT JOINT. SAW CUT JOINTS SHALL BE SEALED WITH A SILICONE SEALANT, APPROVED BY THE PROJECT MANAGER.
10. EXPANSION AND CONTRACTION JOINTS SHALL BE LOCATED AT 300 FOOT MAXIMUM INTERVALS. EXPANSION AND CONTRACTION JOINTS SHALL BE CONSTRUCTED AT 0 FEET AND 15 FEET STARTING FROM THE END OF BRIDGE RAILING. (SEE CONNECTION TO BRIDGE BARRIER RAILING, 606-17-2/7) SEE DRAWING NO. 606-17-3/7 TITLED (42" DOWEL ASSEMBLY FOR EXPANSION JOINTS IN CONCRETE WALL BARRIER AND CONCRETE BARRIER RAILING) FOR DOWEL AND SLEEVE ASSEMBLY DETAILS.
11. ADDITIONAL STEEL REINFORCING REQUIRED BY THE CONTRACTOR FOR CONSTRUCTION OF THE CONCRETE BARRIER WALL SHALL BE INCIDENTAL TO THE UNIT PRICE FOR CONCRETE BARRIER WALL.
12. CONCRETE WALL BARRIER SHALL BE INSTALLED BY EITHER SLIP-FORMING OR CASTING-IN-PLACE. PRECAST SECTION INSTALLATION IS NOT PERMITTED.
13. THE LONGITUDINAL REBARS MAY BE SUBSTITUTED WITH WELDED DEFORMED WIRE FABRIC (ASTM A 497, fy = 70,000 psi) WITH AN EQUIVALENT AREA OF STEEL. THE CAGE SHALL REMAIN IN THE INTENDED POSITION DURING CONSTRUCTION. NO ADDITIONAL PAYMENT FOR SUBSTITUTES WILL BE MADE.
14. CONCRETE WALL BARRIER TYPE 42, SHALL BE PAID PER LINEAR FOOT PER INSTALLATION.
15. REINFORCING BARS SHALL BE INCLUDED IN THE COST OF THE CONCRETE WALL BARRIER.



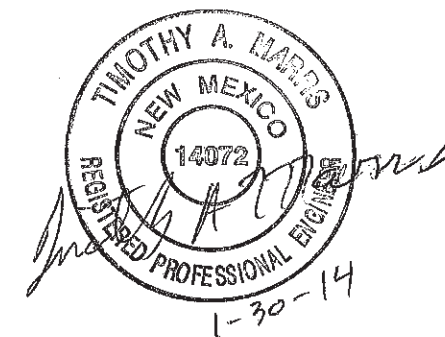
**REBAR SCHEDULE**

**ESTIMATED QUANTITIES**

(FOR CONTRACTORS INFORMATION ONLY)

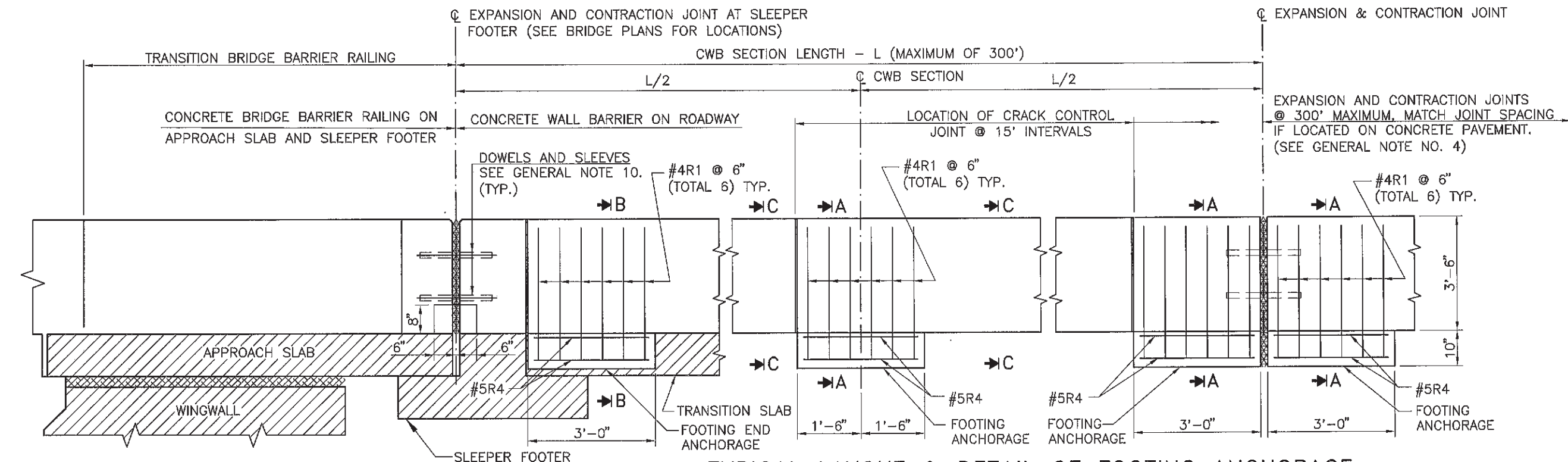
ITEM	UNIT	TOTAL
REINFORCING BARS, GRADE 60	LBS./FT.	6.30
STRUCTURAL CONCRETE, CLASS "A"	CU.YD./FT.	0.19

THE QUANTITIES SHOWN IN THE ABOVE TABLE ARE BASED ON THE "TYPICAL SECTION." ADDITIONAL QUANTITIES MUST BE CALCULATED FOR FOOTING END ANCHORAGE AND FOOTING ANCHORAGES OF CONCRETE WALL BARRIER SECTIONS.



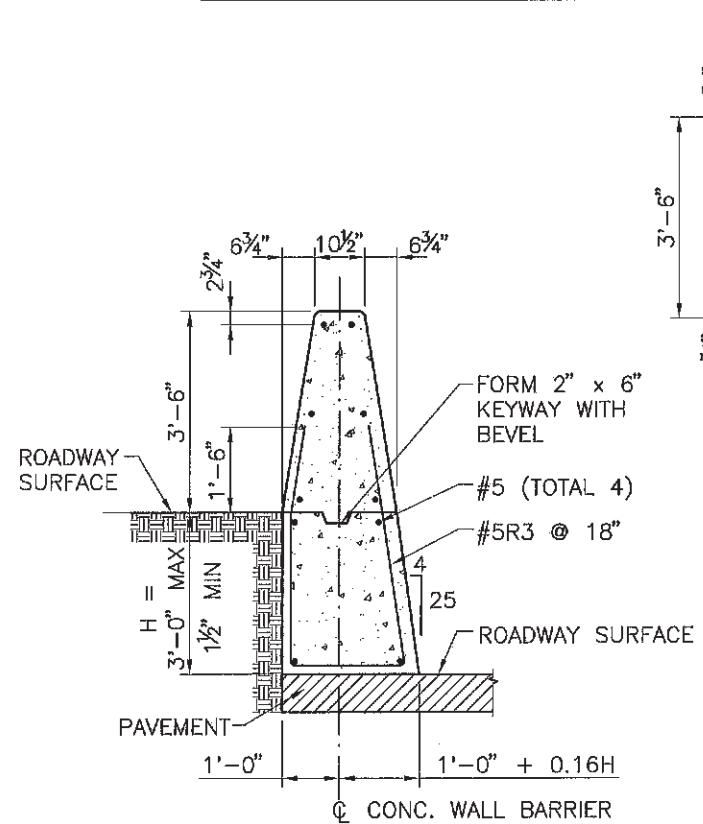
DATE	BY	DESCRIPTION
REVISIONS (OR CHANGE NOTICES)		
<b>NEW MEXICO</b> <b>DEPARTMENT OF TRANSPORTATION</b> <b>STANDARD DRAWING</b>		
<b>CONCRETE WALL BARRIER</b> <b>TYPE 42</b>		
<b>GENERAL NOTES, QUANTITIES</b> <b>AND REBAR SCHEDULE</b>		
DESIGNED BY: TM DRAWN BY: SKL CHECKED BY: YML/TM		
606-17-1/7		
		1 of 7



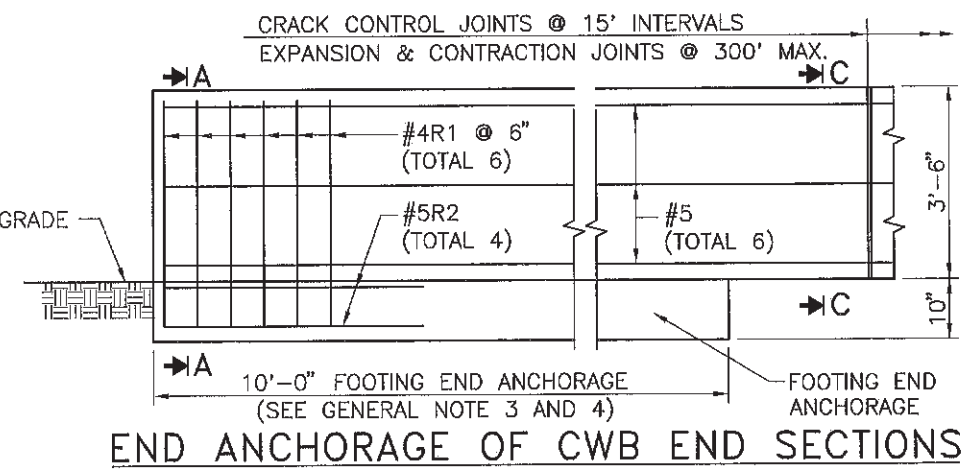
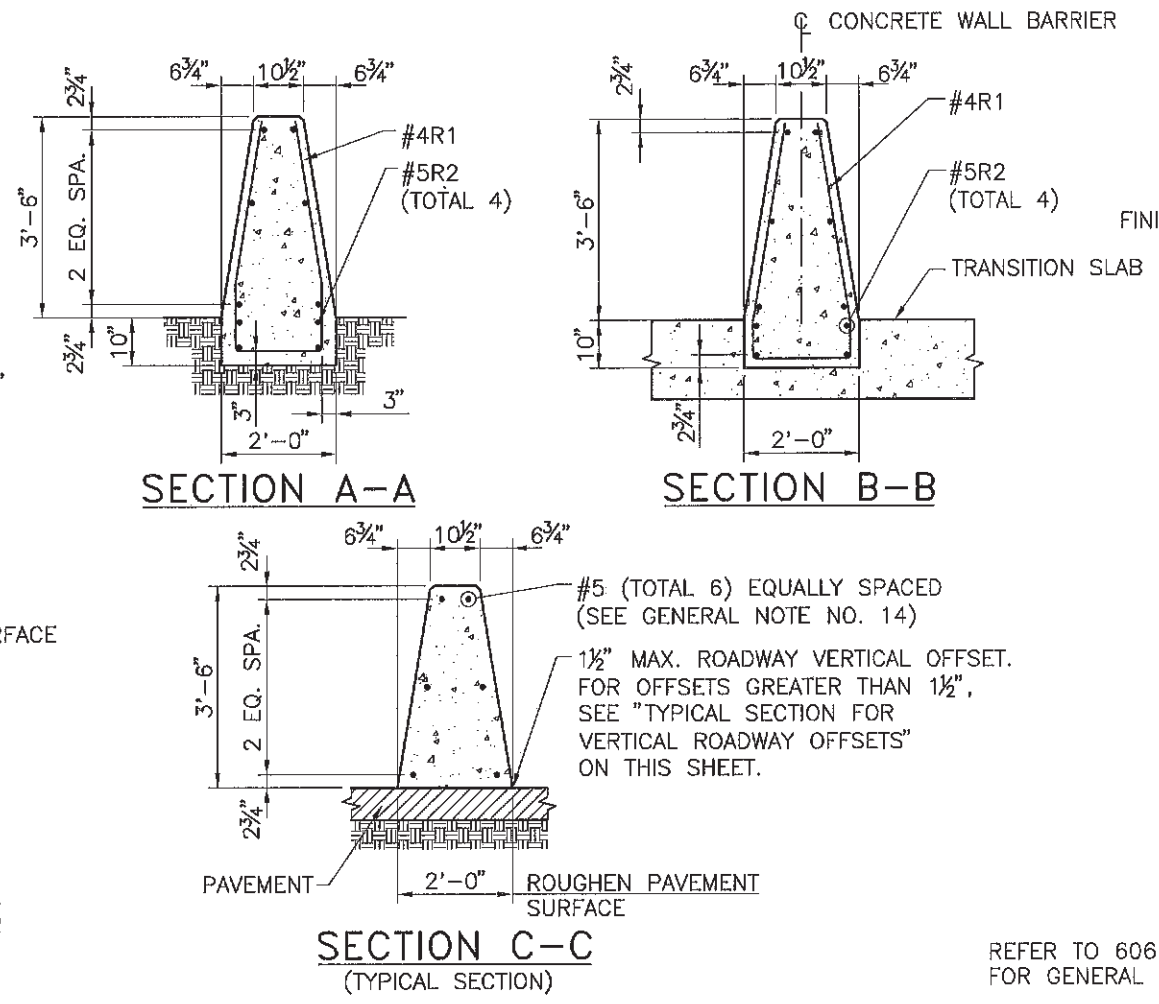


CONNECTION OF CWB END SECTION TO BRIDGE BARRIER RAILING

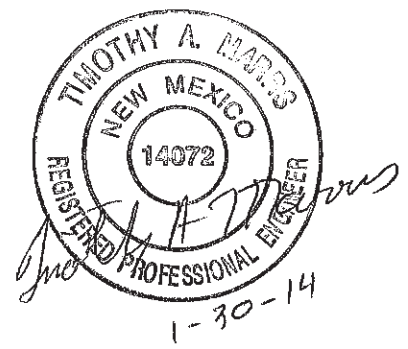
TYPICAL LAYOUT & DETAIL OF FOOTING ANCHORAGE FOR CWB SECTIONS BETWEEN TWO EXPANSION & CONTRACTION JOINTS



TYPICAL SECTION FOR VERTICAL ROADWAY OFFSETS

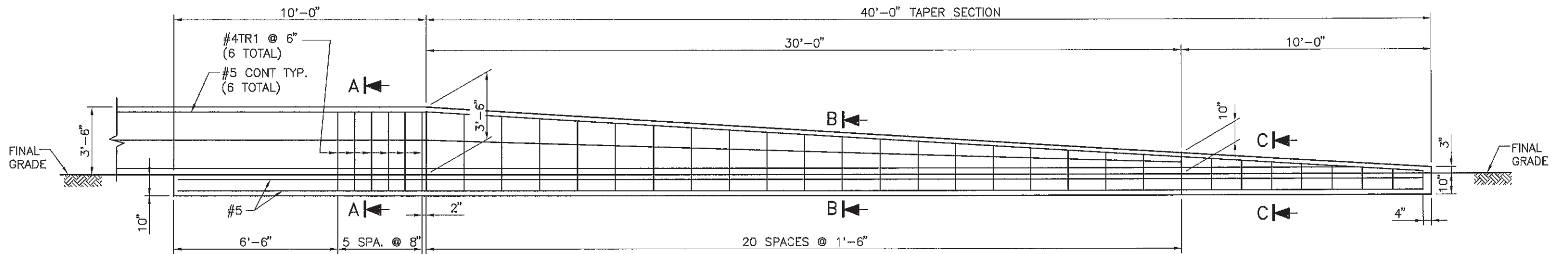


END ANCHORAGE OF CWB END SECTIONS

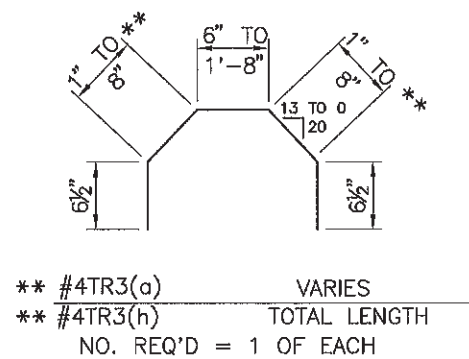
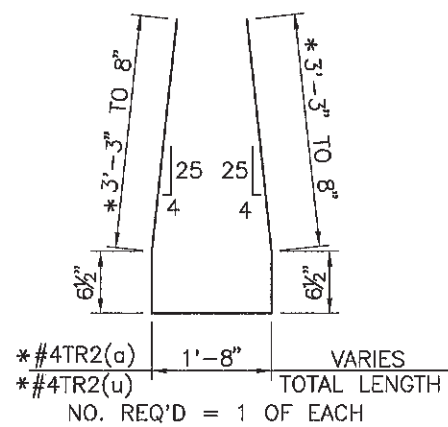
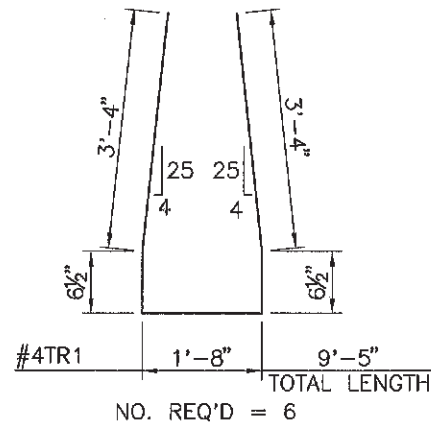


REFER TO 606-17-1/7 FOR GENERAL NOTES.

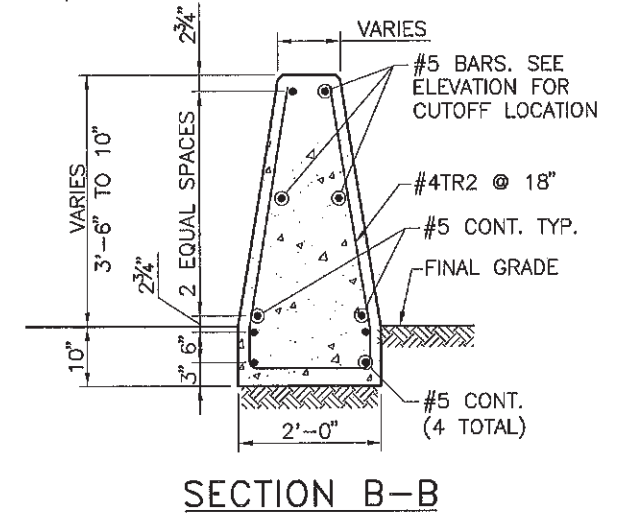
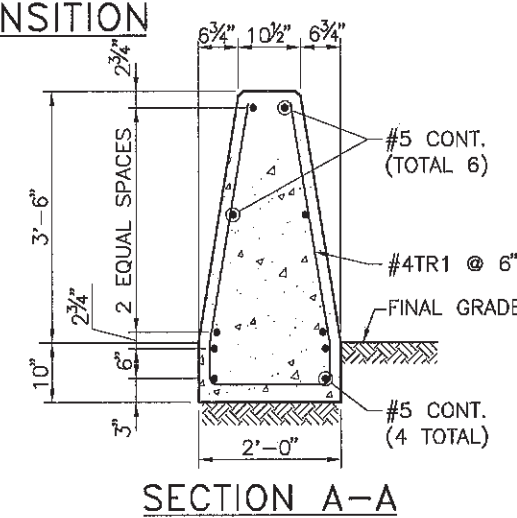
DATE	BY	DESCRIPTION
REVISIONS (OR CHANGE NOTICES)		
<b>NEW MEXICO</b>		
<b>DEPARTMENT OF TRANSPORTATION</b>		
<b>STANDARD DRAWING</b>		
<b>CONCRETE WALL BARRIER</b>		
<b>TYPE 42</b>		
DESIGNED BY: TM	DRAWN BY: SKL	CHECKED BY: YML/TM
<b>606-17-2/7</b>		
		2 of 7



ELEVATION OF BARRIER TRANSITION



\*DIMENSIONS VARY IN 20 EQUAL INCREMENTS  
REBAR SCHEDULE



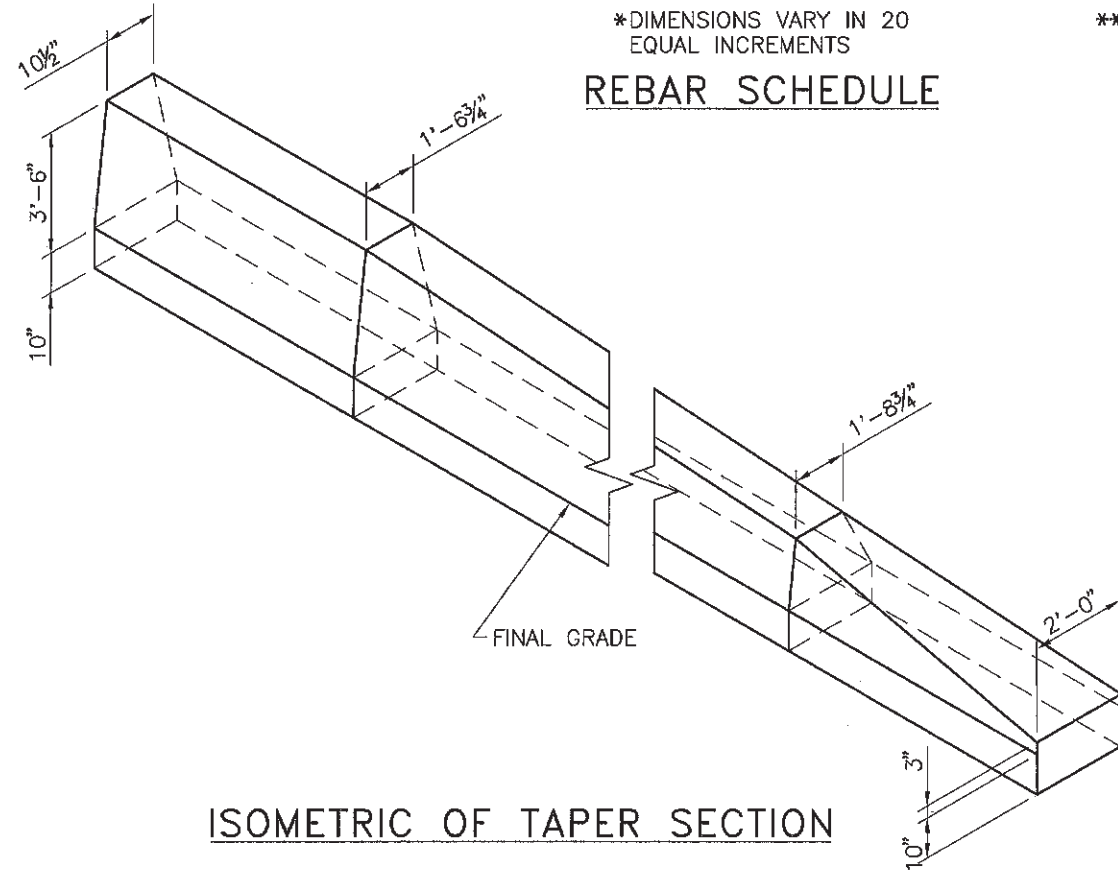
SECTION A-A

SECTION B-B

ESTIMATED QUANTITIES  
(FOR ONE TRANSITION)

ITEM	UNIT	TOTAL
REINFORCING BARS, GRADE 60	LBS.	592
STRUCTURAL CONCRETE, CLASS "A"	CU. YDS.	8.1

FOR CONTRACTOR'S INFORMATION ONLY



ISOMETRIC OF TAPER SECTION

GENERAL NOTES:

- ALL WORK SHALL BE IN ACCORDANCE WITH THE NEW MEXICO STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, CURRENT EDITION. SHOP DRAWING APPROVAL IS REQUIRED ON PRECAST SECTIONS.
- CONCRETE SHALL BE STRUCTURAL CONCRETE CLASS "A."
- CONCRETE WALL BARRIER TRANSITION TO BE USED ONLY WHEN A MINIMUM OF 30 FEET RECOVERY AREA IS PROVIDED ON THE TRAFFIC APPROACH SIDE.
- CHAMFER ALL EXPOSED EDGES 3/4 INCH.
- CONCRETE COVER FOR REINFORCING BARS SHALL BE A MINIMUM OF 2 INCHES CLEAR.
- CONCRETE WALL BARRIER TYPE 42 TRANSITION SHALL BE PAID PER LINEAR FOOT, PER INSTALLATION.



DATE	BY	DESCRIPTION

REVISIONS (OR CHANGE NOTICES)

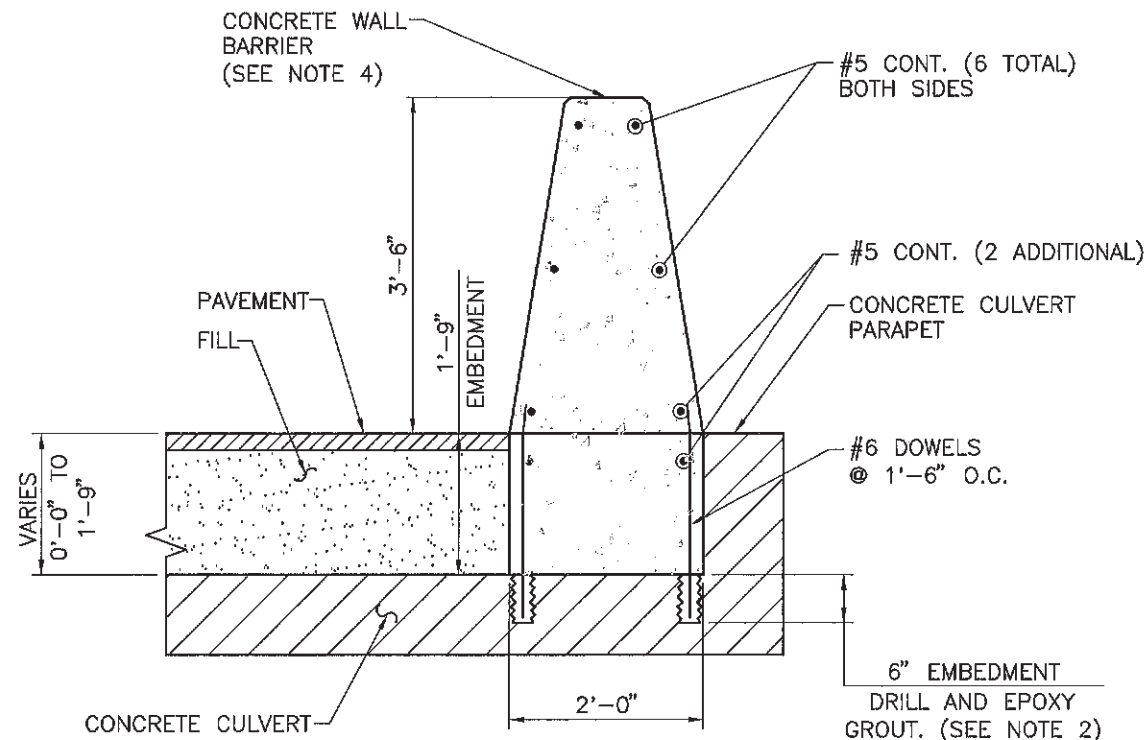
NEW MEXICO  
DEPARTMENT OF TRANSPORTATION  
STANDARD DRAWING

CONCRETE WALL BARRIER  
TYPE 42  
TRANSITION

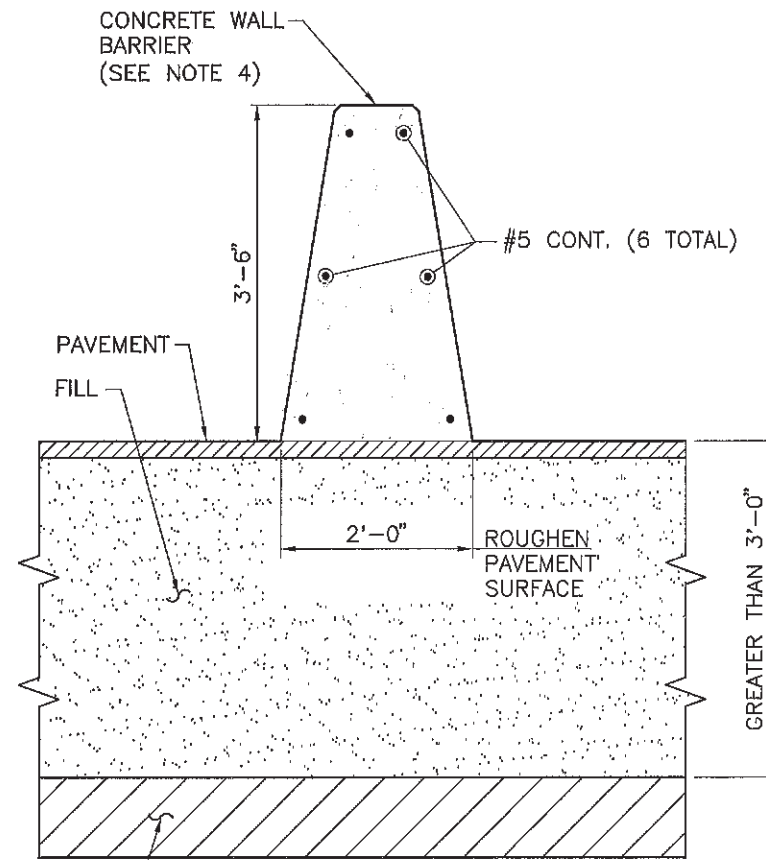
DESIGNED BY: TM DRAWN BY: SKL CHECKED BY: YML/TM

606-17-5/7

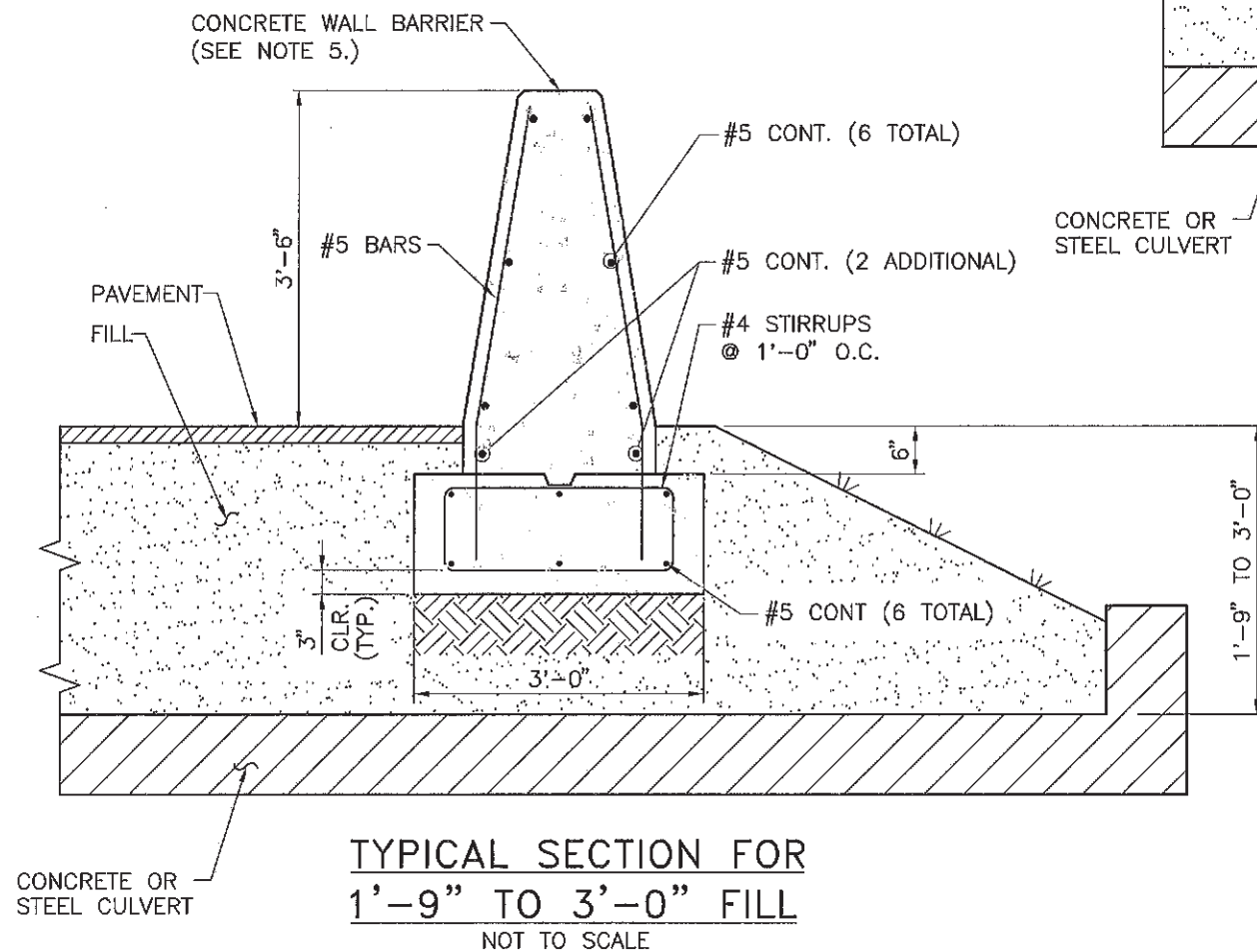
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**TYPICAL SECTION FOR  
0'-0" TO 1'-9" FILL**  
NOT TO SCALE



**TYPICAL SECTION FOR  
OVER 3'-0" FILL**  
NOT TO SCALE



**TYPICAL SECTION FOR  
1'-9" TO 3'-0" FILL**  
NOT TO SCALE

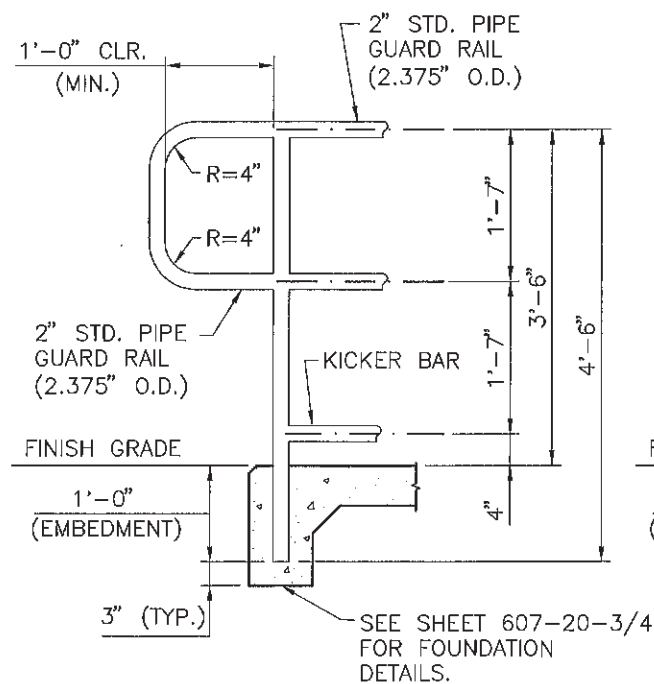
**GENERAL NOTES:**

1. REINFORCING BARS SHALL CONFORM TO THE REQUIREMENTS CONTAINED IN SECTION 540 OF THE NEW MEXICO STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, CURRENT EDITION. REINFORCING BARS SHALL BE GRADE 60 UNLESS A DIFFERENT GRADE IS SPECIFIED ELSEWHERE IN THE PLANS.
2. MATERIAL TO BE USED FOR CORING AND GROUTING SHALL COMPLY WITH SECTION 522 OF THE NEW MEXICO STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, FOR BRIDGE CONSTRUCTION, CURRENT EDITION, AND SHALL BE APPROVED BY THE PROJECT MANAGER.
3. ADDITIONAL LONGITUDINAL REINFORCEMENT, DOWELS, EPOXY GROUT AND EXPANSION JOINT FILLER SHALL BE INCIDENTAL TO THE CONCRETE WALL BARRIER.
4. FOR ALL REBAR AND DIMENSIONS NOT SHOWN FOR THE 0'-0" TO 1'-9" FILL BARRIER AND THE OVER 3'-0" FILL BARRIER, SEE TYPICAL SECTION ON SERIAL NO. 606-17-2/7 TITLED "CONCRETE WALL BARRIER, TYPE 42."
5. FOR ALL REBAR AND DIMENSIONS NOT SHOWN FOR THE 1'-9" TO 3'-0" FILL BARRIER, SEE SECTION B-B ON SERIAL NO. 606-17-4/7 TITLED "CONCRETE WALL BARRIER TYPE 42, TRANSITION SECTION DETAILS."

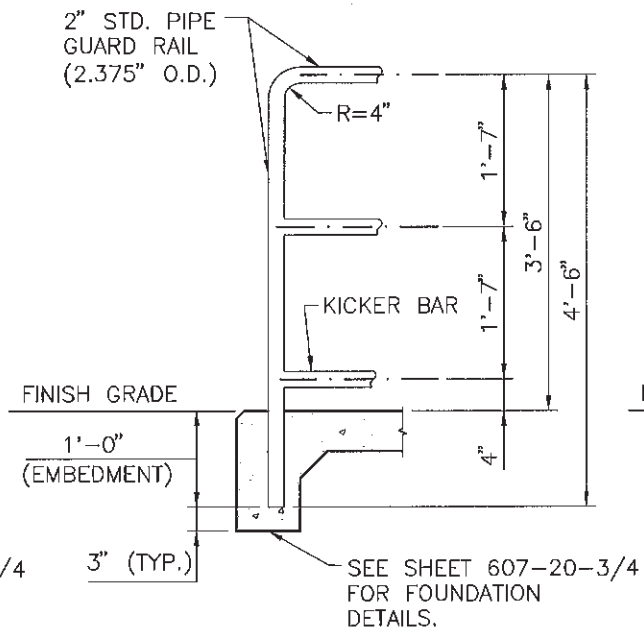


DATE	BY	DESCRIPTION
REVISIONS (OR CHANGE NOTICES)		
<b>NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD DRAWING</b>		
<b>CONCRETE WALL BARRIER TYPE 42 OVER CULVERT</b>		
DESIGNED BY: TM DRAWN BY: SKL CHECKED BY: YML/TM		
<b>606-17-7/7</b>		

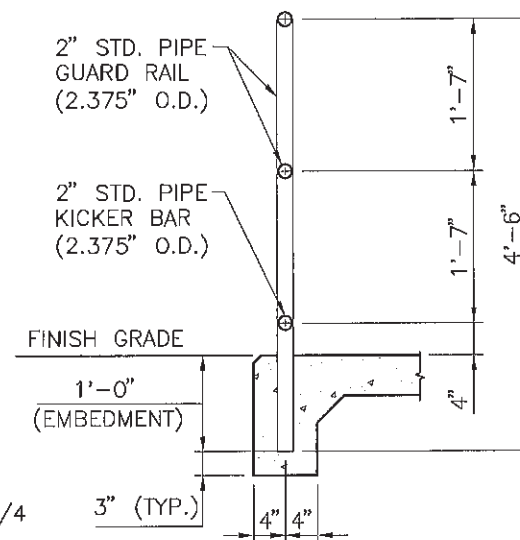




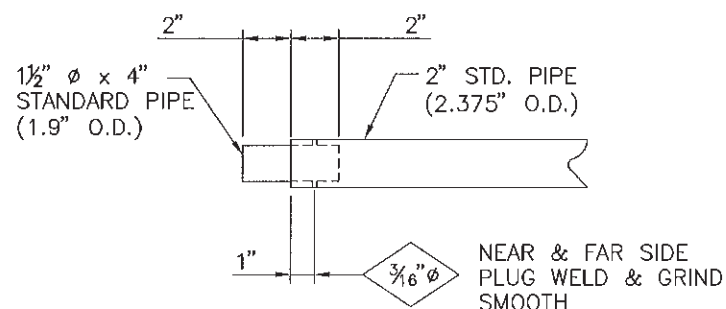
DETAIL @ RAIL END  
TYPE A



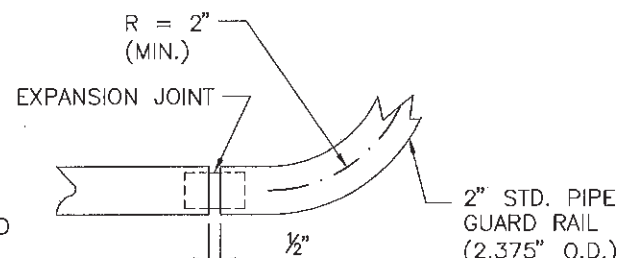
DETAIL @ RAIL END  
TYPE B



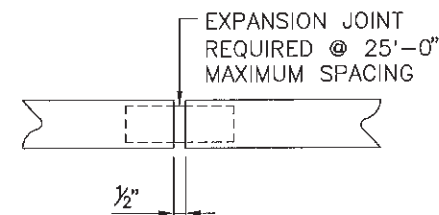
TYPICAL SECTION  
THRU RAIL



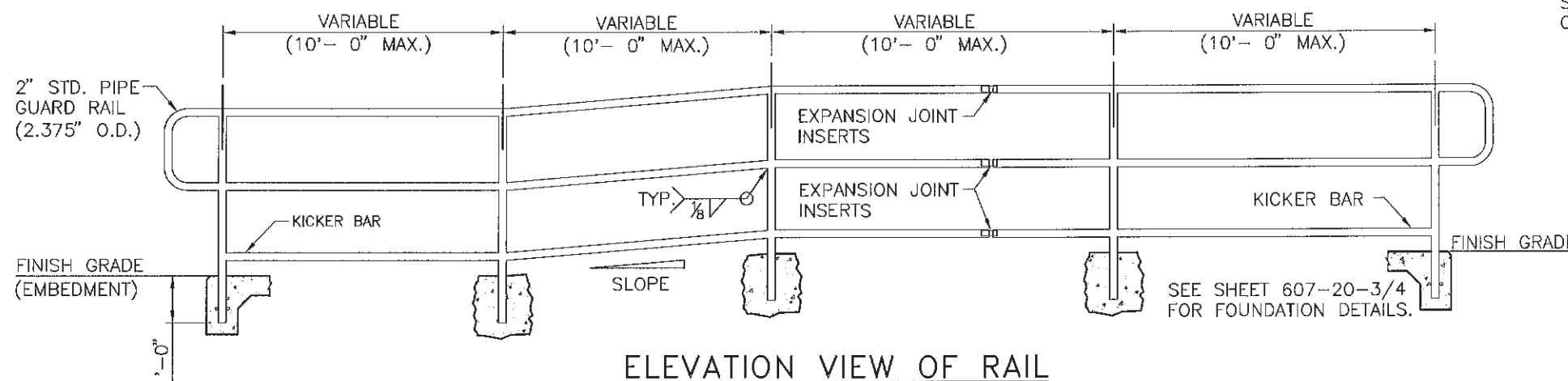
DETAIL @ EXPANSION  
JOINT INSERTS



DETAIL OF RAIL TRANSITION  
AT HORIZONTAL CURVE  
(PLAN VIEW SHOWN)



DETAIL @ EXP. JOINT



ELEVATION VIEW OF RAIL

NOTE: POSTS TO REMAIN VERTICAL, RAIL PARALLEL TO GRADE.

**GENERAL NOTES:**

- DESIGN AND CONSTRUCTION SHALL CONFORM TO THE NEW MEXICO STATE DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, CURRENT EDITION AND SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.
- STEEL STRUCTURES SHALL CONFORM TO SECTION 541 - STEEL STRUCTURES OF THE STANDARD SPECIFICATIONS AND AASHTO M 270, GRADE 50. TUBING SHALL CONFORM TO ASTM A 500, GRADE B.
- BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED TO MEET THE REQUIREMENTS OF AASHTO M 111 OR AASHTO M 298.
- WELDING SHALL MEET THE REQUIREMENTS OF ANSI/AWS D 1.1 STRUCTURAL WELDING CODE, AND SECTION 541 OF THE STANDARD SPECIFICATIONS. ALL WELDS SHALL BE GROUND SO AS TO REMOVE ALL BURS OR PROTUBERANCES WHICH COULD TRAP FOREIGN MATERIALS OR CAUSE HARM TO A PEDESTRIAN.
- THE FABRICATOR SHALL FURNISH TO THE BRIDGE ENGINEER SIX COPIES OF MILL TEST REPORTS OF ALL STRUCTURAL STEEL ITEMS, WELDING ELECTRODES, AND FLUX COMBINATIONS IN CONFORMANCE WITH SUBSECTION 541.3.2.1 OF THE STANDARD SPECIFICATIONS.
- UNLESS OTHERWISE NOTED IN THE CONTRACT, THE PROJECT MANAGER SHALL SELECT EITHER TYPE A OR TYPE B RAILING ENDS, AND SCHEME 1 OR SCHEME 2 FOR FOUNDATIONS.
- 1" STANDARD PIPE HANDRAIL SHALL BE USED FOR GRADES EQUAL TO OR EXCEEDING 5%. 1" STANDARD PIPE HANDRAIL SHALL BE USED FOR GRADES LESS THAN 5%, WHEN SPECIFIED IN THE PLANS.
- POSTS SHALL BE VERTICAL. ALL RAILS SHALL BE PARALLEL TO EACH OTHER AND TO GRADE.
- BREAKS IN VERTICAL ALIGNMENTS SHALL BE AT THE CENTER LINES OF THE VERTICAL POSTS.
- CONCRETE SHALL BE CLASS "AA" AND SHALL BE INCLUDED IN THE BID PRICE FOR SIDEWALKS. IN INSTANCES WHERE THERE ARE NO SIDEWALKS, THE BID PRICE OF THE PEDESTRIAN RAILING INCLUDES THE COST OF CONCRETE TO SUPPORT THE POSTS.
- RAIL POSTS SHALL BE CAST-IN-PLACE, OR SET IN OVERSIZED HOLES (3" IN DIAMETER) AND GROUTED AS OUTLINED IN SECTION 522 OR 523 OF THE STANDARDS SPECIFICATIONS.
- AFTER GROUTING, THE CONTRACTOR SHALL SEAL THE JOINTS BETWEEN THE RAIL POSTS AND THE CONCRETE WITH SILICONE SEALANT APPROVED BY THE PROJECT MANAGER.
- PAINTING AND/OR POWDER COATING OF STRUCTURAL STEEL SHALL CONFORM TO SECTION 545 OR SPECIAL PROVISIONS OF THE STANDARD SPECIFICATIONS. COLOR SHALL BE VERIFIED BY PROJECT MANAGER. REINFORCING BARS SHALL BE EPOXY COATED CONFORMING TO SECTION 540.



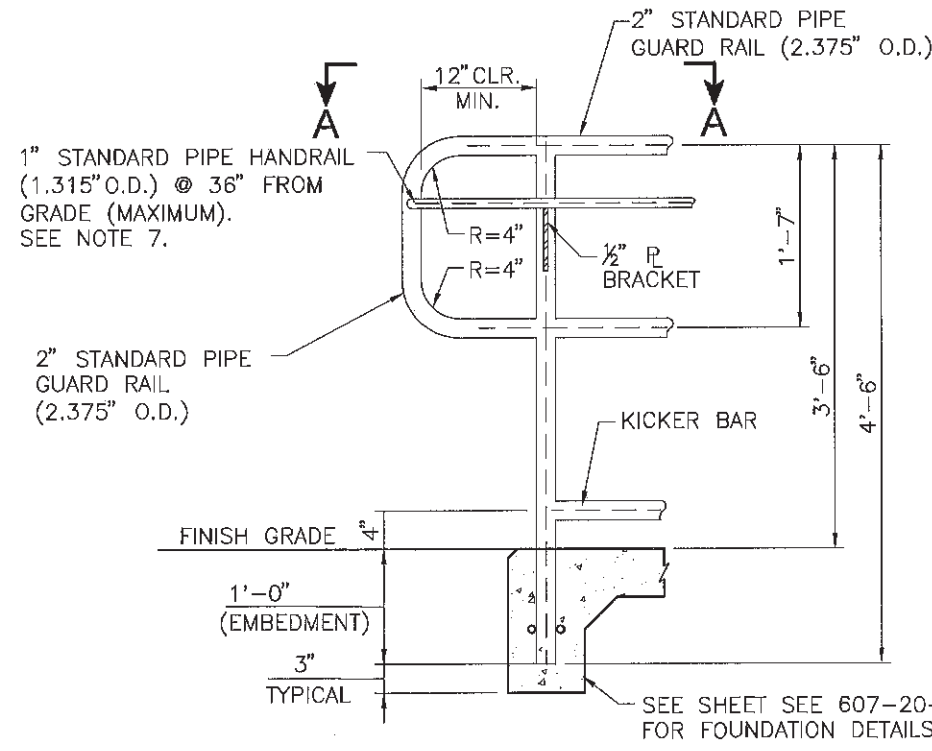
DATE	BY	DESCRIPTION

REVISIONS (OR CHANGE NOTICES)

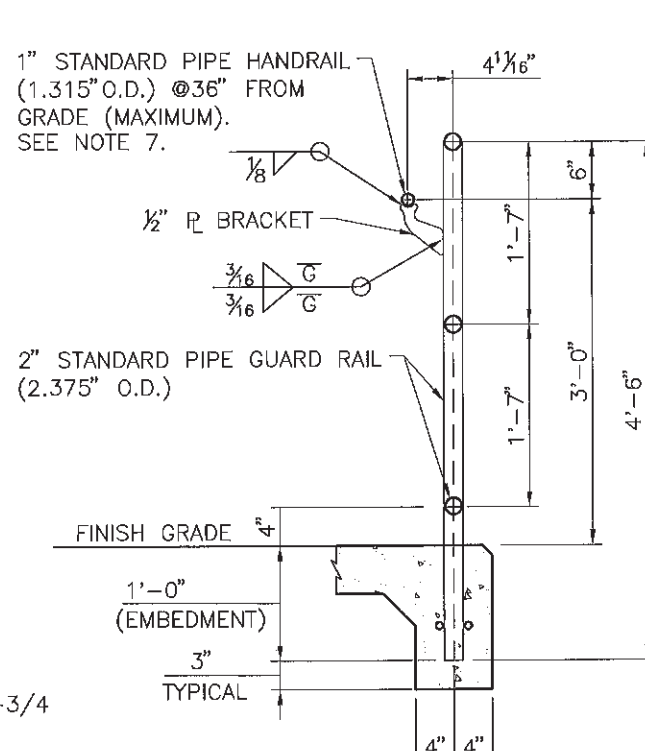
**NEW MEXICO  
DEPARTMENT OF TRANSPORTATION  
STANDARD DRAWING**

PEDESTRIAN RAILING  
WITHOUT HANDRAIL

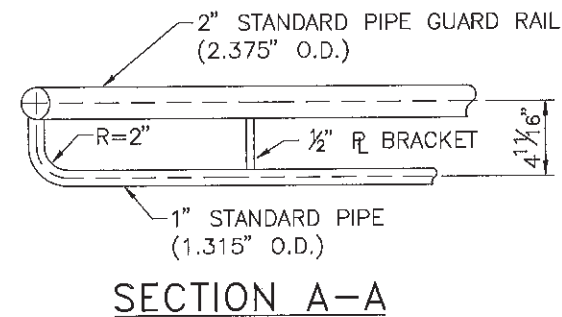
DESIGNED BY: TM DRAWN BY: SKL CHECKED BY: YML/TM  
607-20-1/4 1 of 4



DETAIL @ RAIL END-TYPE A

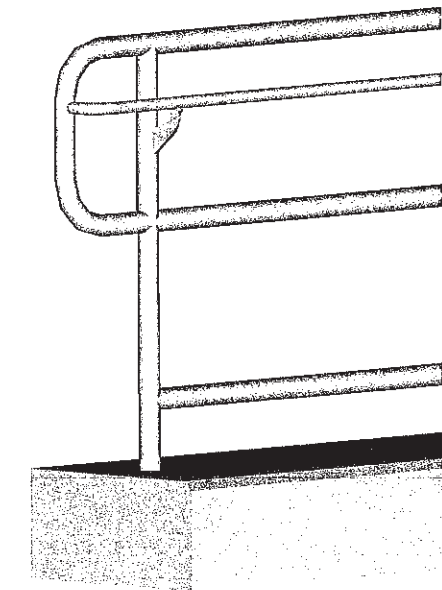


SECTION THRU RAIL

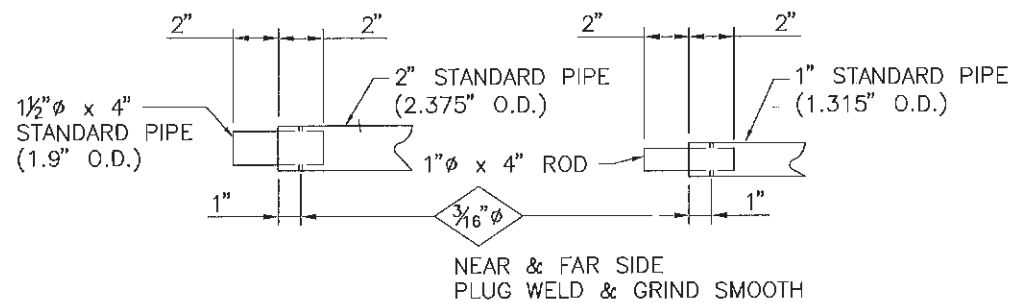


DETAIL @ RAIL BRACKET

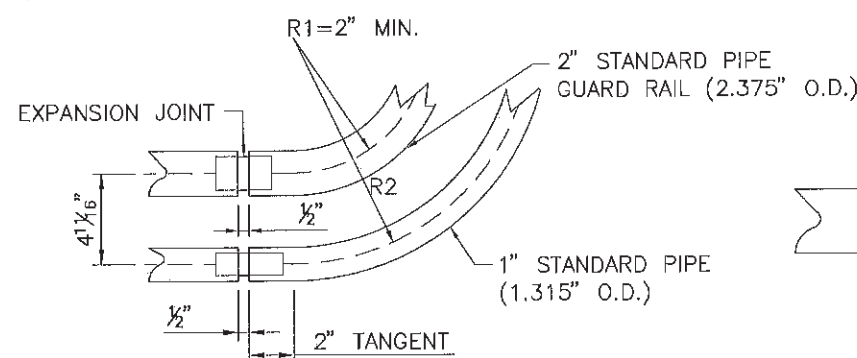
1/2" PLATE BRACKET. REFER TO SHEET SEE 607-20-4/4 FOR FULL SCALE TEMPLATE.



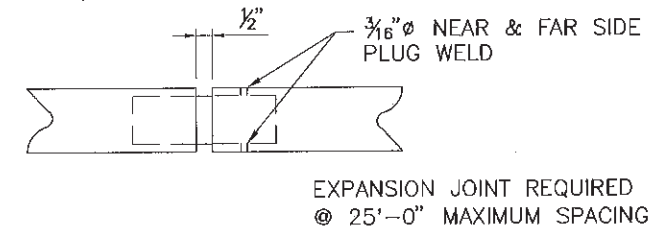
ISOMETRIC OF METAL RAILING END DETAIL



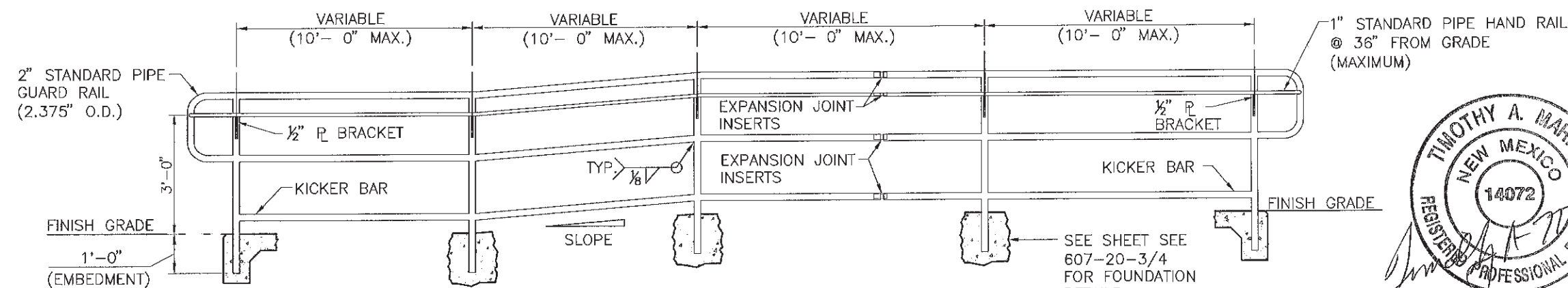
DETAIL @ EXPANSION JOINT INSERTS



DETAIL OF RAIL TRANSITION AT HORIZONTAL CURVE (PLAN VIEW SHOWN)



DETAIL @ EXPANSION JOINT



ELEVATION VIEW OF RAIL

NOTE: POSTS TO REMAIN VERTICAL, RAIL PARALLEL TO GRADE.



DATE	BY	DESCRIPTION

REVISIONS (OR CHANGE NOTICES)

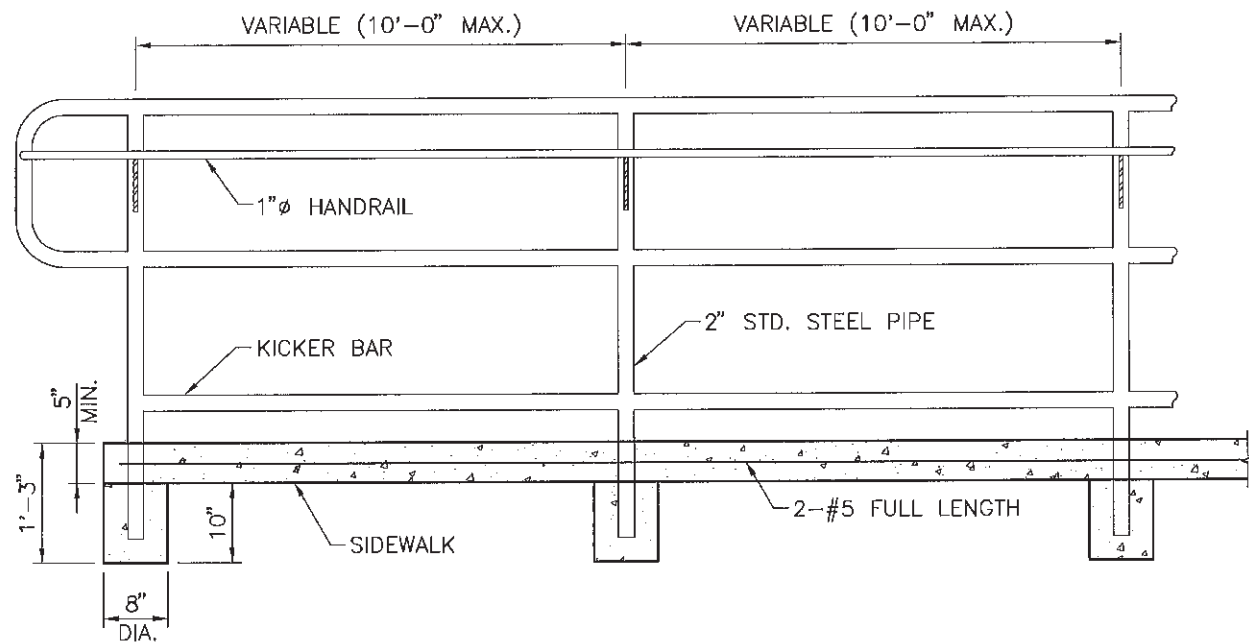
NEW MEXICO  
DEPARTMENT OF TRANSPORTATION  
STANDARD DRAWING

PEDESTRIAN RAILING  
WITH HANDRAIL

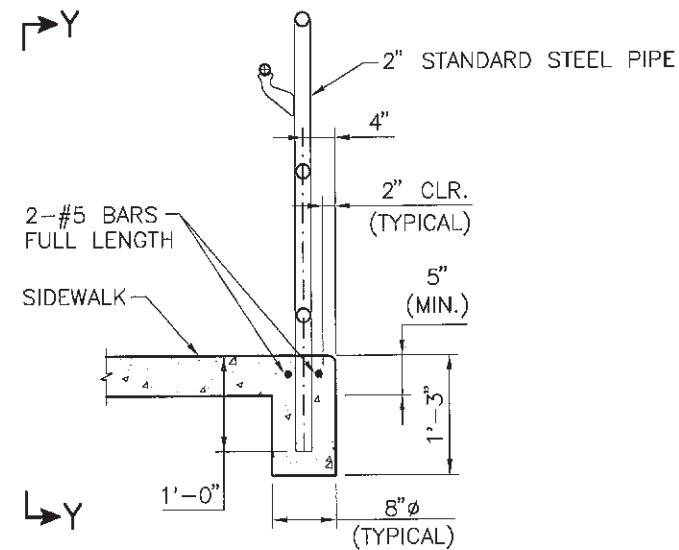
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607-20-2/4

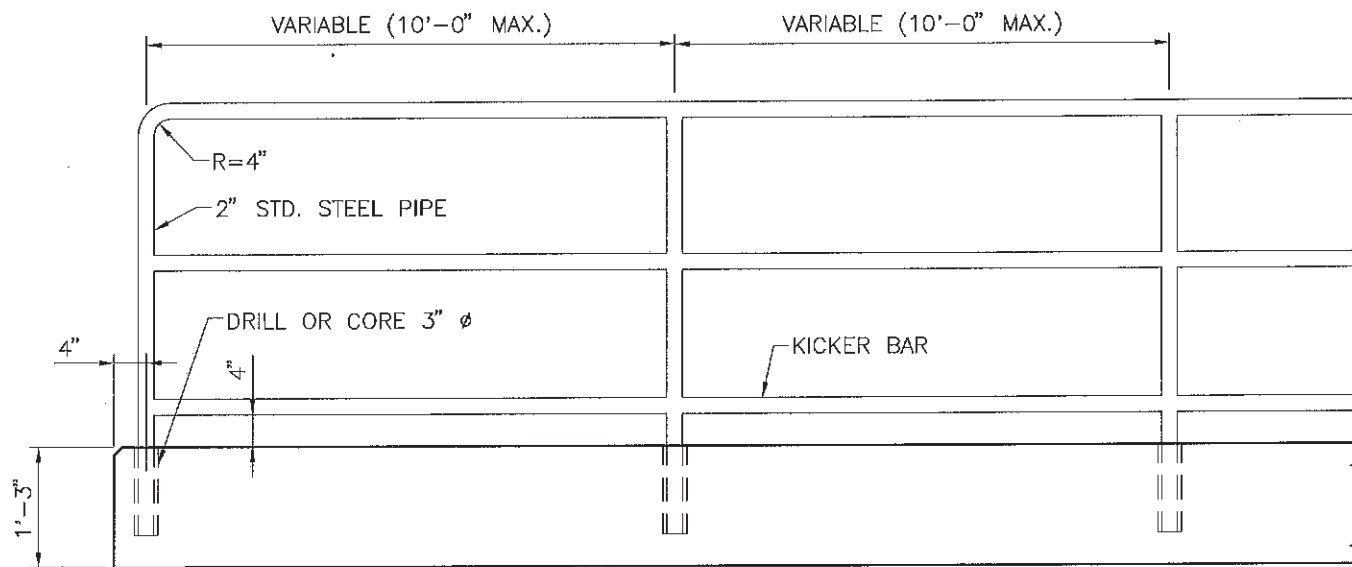
2 of 4



**SCHEME # 2**  
(VIEW Y-Y)

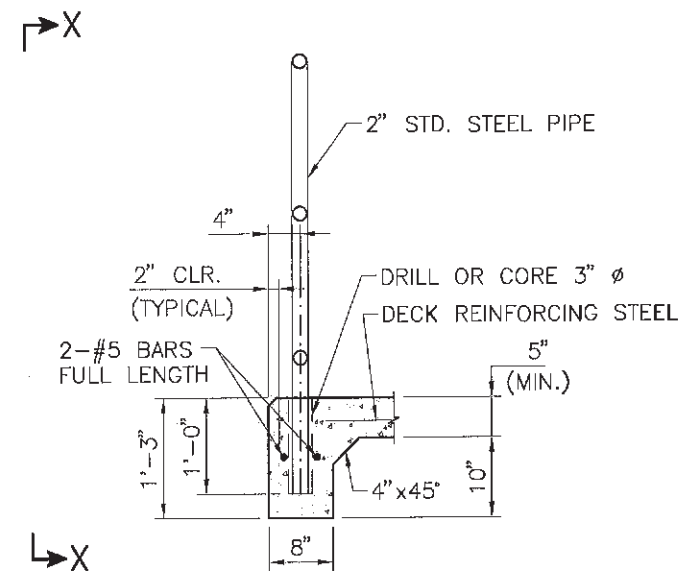


**FOUNDATION SCHEME # 2**  
(FOR EDGE OF SIDEWALK INSTALLATION)

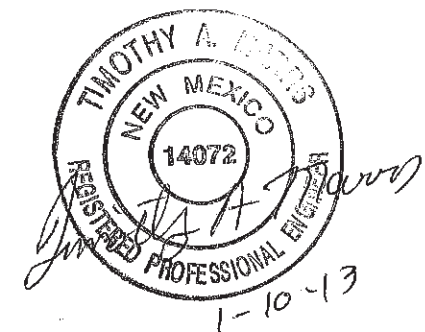


**SCHEME # 1**  
(VIEW X-X)

NOTE: HANDRAILING OMITTED FROM VIEW. REFER TO GENERAL NOTE 7 ON DRAWING 607-20-1/4 WHEN HANDRAILING IS REQUIRED.



**FOUNDATION SCHEME # 1**  
(FOR BRIDGE DECK OR EDGE OF SIDEWALK INSTALLATION)



DATE	BY	DESCRIPTION

REVISIONS (OR CHANGE NOTICES)

**NEW MEXICO**  
**DEPARTMENT OF TRANSPORTATION**  
**STANDARD DRAWING**

**PEDESTRIAN RAILING**  
**FOUNDATION DETAILS**

DESIGNED BY: TM DRAWN BY: SKL CHECKED BY: YML/TM  
**607-20-3/4** 3 of 4



**GENERAL NOTES:**

1. NMDOT IS RECOGNIZED AS A TITLE II PUBLIC ENTITY UNDER THE AMERICANS WITH DISABILITIES ACT (ADA), OF 1990 (PUBLIC LAW 101-336). A TITLE II ENTITY IS DEFINED AS ANY STATE OR LOCAL GOVERNMENT ENTITY AND PROHIBITS DISCRIMINATION ON THE BASIS OF DISABILITY. THE ADA EXTENDS THE PRINCIPLES OF SECTION 504 OF THE REHABILITATION ACT, OF 1973, AS AMENDED, TO PROTECT PERSONS WITH DISABILITIES IN ALL PUBLIC FACILITIES AND PROGRAMS IRRESPECTIVE OF THE FUNDING SOURCE.
2. THESE DRAWINGS PROVIDE GUIDANCE FOR COMPLIANCE WITH THE PROPOSED ACCESSIBILITY GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT-OF-WAY (PROWAG), JULY 26, 2011, OR LATEST EDITION. THESE GUIDELINES SHALL APPLY TO ALL NEW AND ALTERED PEDESTRIAN ACCESS ROUTES (PAR).
3. REFER TO CONSTRUCTION PLANS FOR THE DETAILED LAYOUTS AND DETAILS.
4. PEDESTRIAN ACCESS ROUTES (PAR) SHALL BE FIRM, STABLE, AND SLIP RESISTANT. PROVIDE SLIP RESISTANT TEXTURE ON SIDEWALKS AND CURB RAMPS BY BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP AND/OR PERPENDICULAR TO PEDESTRIAN TRAVEL. EXTEND TEXTURE THE FULL WIDTH AND LENGTH OF THE CURB RAMP INCLUDING SIDE FLARES. DO NOT SCORE OR MAKE GROOVES IN SLOPED SURFACE. LINES SHOWN ON STANDARD DETAILS ARE FOR ILLUSTRATIONS ONLY.
5. VERTICAL SURFACE DISCONTINUITIES SHALL BE 0.5 INCHES MAXIMUM. VERTICAL DISCONTINUITIES BETWEEN 0.25 INCHES AND 0.5 INCHES SHALL BE BEVELED WITH A SLOPE NOT STEEPER THAN 50 PERCENT. THE BEVEL SHALL BE APPLIED ACROSS THE ENTIRE VERTICAL SURFACE DISCONTINUITY.
6. HORIZONTAL OPENINGS IN GRATINGS AND JOINTS SHALL NOT PERMIT PASSAGE OF A SPHERE MORE THAN 0.5 INCHES IN DIAMETER. ELONGATED OPENINGS IN GRATES SHALL BE PLACED SO THAT THE LONG DIMENSION IS PERPENDICULAR TO THE DOMINANT DIRECTION OF TRAVEL.
7. PROVIDE EXPANSION JOINT MATERIAL 0.5 INCHES THICK WHERE CURB RAMP ADJOINS ANY RIGID PAVEMENT, SIDEWALK OR STRUCTURE WITH THE TOP OF JOINT FILLER FLUSH WITH ADJACENT CONCRETE SURFACE.
8. SEAL ALL JOINTS WITH AN APPROVED SEALING MATERIAL.
9. INSTALL JOINTS WHERE CURB RAMPS, TURNING SPACES, FLARES, AND SIDEWALKS ABUT. ALL JOINTS AND TRANSITIONS SHALL BE FLUSH.
10. VERTICAL WALLS OR HEADER CURBS ARE PERMITTED WHEN ADJACENT TO NON-WALK AREAS OR ELEVATION DIFFERENCES CANNOT BE ACCOMMODATED BY CURB RAMP FLARES OR GRADING. GRADE NON-WALK AREAS AT 3:1 OR FLATTER.
11. CONSTRUCTION TOP / BOTTOM OF CURB TO BE FLUSH WITH ADJACENT SURFACES (CURB RAMPS, SIDEWALKS, AND FLARES). VERTICAL LIPS NOT PERMITTED AT THE BOTTOM OF CURB RAMP WHERE THE RAMP MEETS STREET LEVEL.

**SIDEWALKS**

12. SIDEWALK, AND CURB AND GUTTER CONSTRUCTION SHALL BE IN ACCORDANCE WITH SERIAL 609-01-1/1.
13. SIDEWALK CROSS SLOPE IS RECOMMENDED TO BE CONSTRUCTED FOR CROSS SLOPE OF 1.5% TYPICAL, BUT SHALL NOT EXCEED 2.0% CROSS SLOPE ON THE PEDESTRIAN ACCESS ROUTE (PAR).
14. SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 5.0 FT, EXCLUSIVE OF THE WIDTH OF THE CURB RETURN.  
EXCEPTION: WHERE SIDEWALK WIDTH NEEDS TO BE REDUCED TO NO LESS 4.0 FT, PASSING SPACES SHALL BE PROVIDED AT INTERVALS OF 200 FT MAXIMUM. PASSING SPACES SHALL BE 5.0 FT MINIMUM BY 5.0 FT MINIMUM.
15. ANY SIGNS POSTS, UTILITY POLES, FIRE HYDRANTS, TRAFFIC SIGNALS, STREET FURNITURE, AND OTHER OBJECTS SHALL NOT REDUCE THE CLEAR WIDTH TO LESS THAN 4.0 FT.
16. THE CLEAR WIDTH OF PEDESTRIAN ACCESS ROUTES (PAR) WITHIN MEDIANS AND PEDESTRIAN REFUGE ISLANDS SHALL BE 5.0 FT MINIMUM.

**CURB RAMPS**

17. FOR NEW CONSTRUCTION AND ALTERATIONS, CONSTRUCT CURB RAMP AND FLARE SLOPES WITH THE FLATTEST SLOPE FEASIBLE. THE MAXIMUM SLOPE ALLOWABLE IS INDICATED IN NOTE 18 OF THE CURB RAMP STANDARD DETAILS. SLOPES THAT EXCEED THOSE INDICATED IN THE CURB RAMP STANDARD DETAILS, OR CONSTRUCTION PLANS, WILL NOT BE ACCEPTED AND WILL BE REMOVED AND RECONSTRUCTED.
18. RUNNING SLOPE OF THE CURB RAMP SHALL BE 8.3% MAX (RECOMMENDED 7.0%) BUT SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15.0 FT TO AVOID CHASING THE SLOPE INDEFINITELY WHEN CONNECTING TO STEEP GRADES. WHEN APPLYING THE 15 FOOT MAX LENGTH, THE RUNNING SLOPE OF THE CURB RAMP SHALL BE EXTENDED AS FLAT AS MAXIMUM EXTENT PRACTICABLE.
19. CONSTRUCT THE CLEAR WIDTH OF CURB RAMP RUNS (EXCLUDING ANY FLARED SIDES), BLENDED TRANSITIONS, AND TURNING SPACES AS TYPICAL 5.0 FT X 5.0 FT AND MINIMUM 4.0 FT X 4.0 FT CLEAR SPACE BEYOND THE CURB FACE, WITHIN THE WIDTH OF THE CROSSWALK AND WHOLLY OUTSIDE THE PARALLEL VEHICLE TRAVEL LANE.
20. CURB RAMP AND SIDE FLARE LENGTHS ARE VARIABLE AND BASED ON CURB HEIGHT AND THE SIDEWALK SLOPE.
21. THE CHANGE IN GRADE AT THE BOTTOM OF THE CURB RAMP AND ADJOINING ROAD SURFACE SHALL NOT EXCEED AN ALGEBRAIC DIFFERENCE OF 13.3%. THE COUNTER SLOPE OF THE GUTTER OR ROAD AT THE FOOT OF A CURB RAMP RUNS, TURNING SPACE OR BLENDED TRANSITION IS NOT TO EXCEED 5.0%.
22. CONSTRUCT CURB RAMPS FLUSH TO ADJACENT ROADWAY. GRADE EDGE OF ROAD ELEVATIONS AT THE FLOW LINE TO ENSURE POSITIVE DRAINAGE AND PREVENT PONDING. FOR LEVEL TURNING SPACES BEHIND CURB, ADJUST SLOPES TO PROVIDE POSITIVE DRAINAGE.
23. GRADE BREAKS AT THE TOP AND BOTTOM OF CURB RAMPS SHALL BE PERPENDICULAR TO THE DIRECTION OF THE CURB RAMP RUN. GRADE BREAKS SHALL NOT BE PERMITTED ON THE SURFACE OF CURB RAMP RUNS AND TURNING SPACES. SURFACE SLOPES THAT MEET AT GRADE BREAKS SHALL BE FLUSH.
24. ALL SLOPES ARE MEASURED WITH RESPECT TO A LEVEL PLANE. THEREFORE, THE LENGTH OF CURB RAMP IS NOT SOLELY DEPENDENT ON THE HEIGHT OF CURB. (FOR EXAMPLE, A 6" CURB DOES NOT NECESSARILY MEAN A RAMP LENGTH OF 6.0 FT FOR AN 8.3% SLOPE).

**CROSSWALKS**

25. PROVIDE A SEPARATE CURB RAMP FOR EACH MARKED OR UNMARKED CROSSWALK. CURB RAMP LOCATIONS SHALL BE PLACED WITHIN THE WIDTH OF THE MARKED OR UNMARKED CROSSWALK AS SHOWN IN THE CONSTRUCTION PLANS.

**DETECTABLE WARNING**

26. DETECTABLE WARNING SURFACES (DWS) CONSISTING OF TRUNCATED DOMES SHALL BE UTILIZED WHERE CURB RAMPS, BLENDED TRANSITIONS, OR TURNING SPACE PROVIDE A FLUSH PEDESTRIAN CONNECTION TO THE STREET OR WHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CROSSES A STREET, ALLEY, TRAFFIC ISLAND, MEDIAN, OR RAILROAD. DETECTABLE WARNING SURFACES (DWS) WILL NOT BE INSTALLED AT RESIDENTIAL DRIVEWAYS. DETECTABLE WARNING SURFACE MUST BE PROVIDED AT THE JUNCTION BETWEEN THE PAR AND COMMERCIAL DRIVEWAYS THAT ARE STOP OR YIELD CONTROLLED OR ARE CONTROLLED BY A SIGNAL.
27. DETAILS OF DETECTABLE WARNING SURFACE ARE SHOWN IN CONTRACT PLANS AND SHEET 608-001-8/12 OF THE STANDARD DRAWINGS.

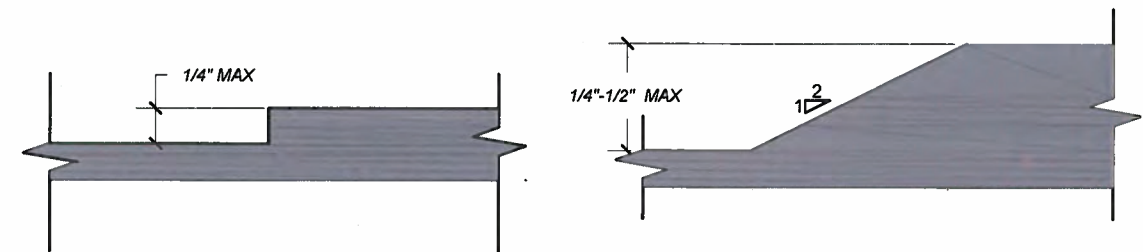
**ACCESSIBLE PEDESTRIAN SIGNALS (APS) AND PEDESTRIAN PUSHBUTTONS**

28. FOR ALTERATION PROJECTS, PROVIDE ACCESS TO EXISTING PEDESTRIAN PUSHBUTTONS TO THE MAXIMUM EXTENT PRACTICABLE. INSTALL PEDESTRIAN STUB POLES, WHERE APPLICABLE, SO AS NOT TO CREATE PEDESTRIAN OBSTRUCTIONS. REFER TO THE MUTCD FOR FURTHER GUIDANCE.
29. PEDESTRIAN SIGNAL PUSH BUTTONS SHALL COMPLY WITH THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND LOCATED WITHIN A HORIZONTAL REACH OF 0" TO 10" AND SHALL BE WITHIN 36" TO 46" ABOVE THE SIDEWALK SURFACE.
30. PEDESTRIAN SIGNAL SHALL HAVE 4FTx4FT MIN TURNING SPACE TO PROVIDE ACCESS TO PUSH BUTTONS.

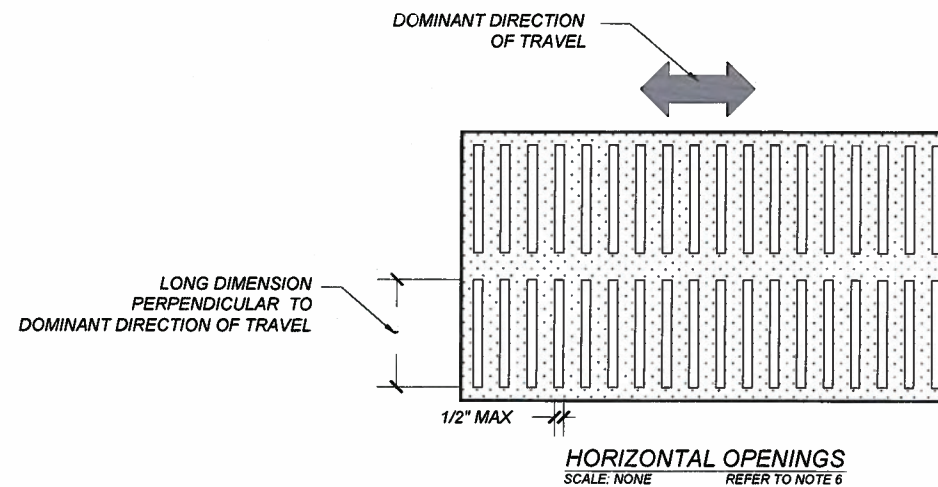
**ALTERATIONS TO EXISTING FACILITIES - GENERAL NOTES:**

ADDITIONS OR ALTERATIONS TO ANY FACILITY SHALL CONFORM TO THE REQUIREMENTS OF THE NEW CONSTRUCTION STANDARDS WITHIN THE NMDOT PEDESTRIAN ACCESS STANDARDS AND PROWAG 2011 OR LATEST EDITION. ANY DESIGN / CONSTRUCTION DEVIATION THAT IS DEEMED AN VARIANCE OR TECHNICALLY INFEASIBLE BY THE DEFINITION BELOW SHALL REQUIRE SUBMITTAL AND APPROVAL OF ADA DESIGN VARIANCE PROCEDURES.

31. **EXCEPTION:** IN ALTERATION WORK, IF COMPLIANCE IS TECHNICALLY INFEASIBLE, THE ALTERATION SHALL PROVIDE ACCESSIBILITY TO THE MAXIMUM EXTENT PRACTICABLE. ANY ELEMENTS OR FEATURES OF THE BUILDING OR FACILITY THAT IS BEING ALTERED AND CAN BE MADE ACCESSIBLE SHALL BE MADE ACCESSIBLE WITHIN THE SCOPE OF THE ALTERATION.
32. **TECHNICAL INFEASIBILITY:** MEANS, WITH RESPECT TO AN ALTERATION OF A BUILDING OR A FACILITY, THAT IT HAS LITTLE LIKELIHOOD OF BEING ACCOMPLISHED BECAUSE EXISTING STRUCTURAL CONDITIONS WOULD REQUIRE REMOVING OR ALTERING A LOAD-BEARING MEMBER WHICH IS AN ESSENTIAL PART OF THE STRUCTURAL FRAME; OR BECAUSE OTHER EXISTING PHYSICAL OR SITE CONSTRAINTS PROHIBIT.
33. IN ALTERATIONS WHERE EXISTING PHYSICAL CONSTRAINTS PREVENT COMPLIANCE TO PROVIDE A CURB RAMP FOR EACH PEDESTRIAN CROSSING A SINGLE DIAGONAL CURB RAMP SHALL BE PERMITTED TO SERVE BOTH PEDESTRIAN STREET CROSSINGS.



**VERTICAL SURFACE DISCONTINUITIES**  
SCALE: NONE REFER TO NOTE 5

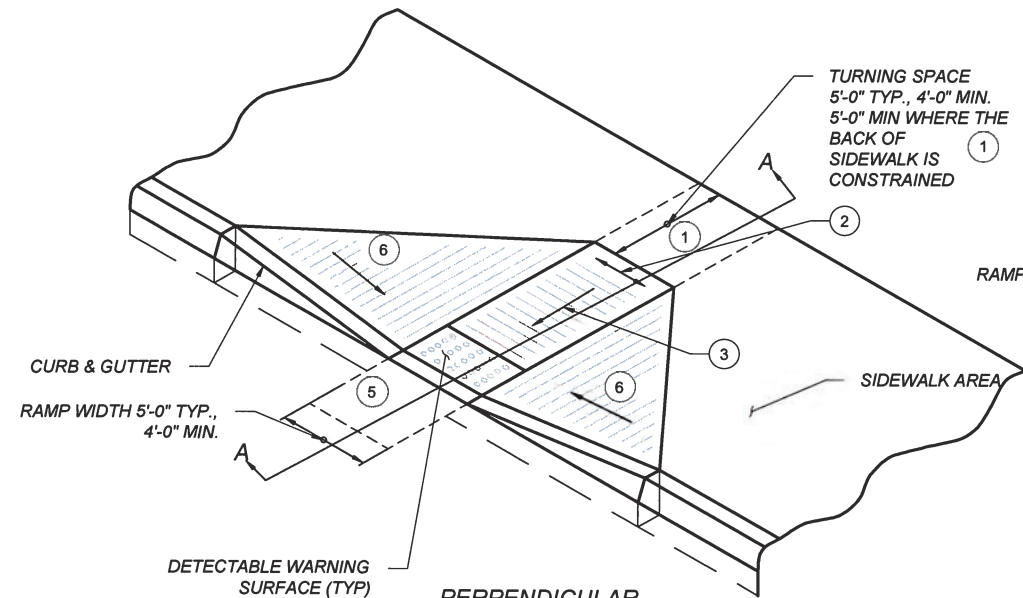


**HORIZONTAL OPENINGS**  
SCALE: NONE REFER TO NOTE 6

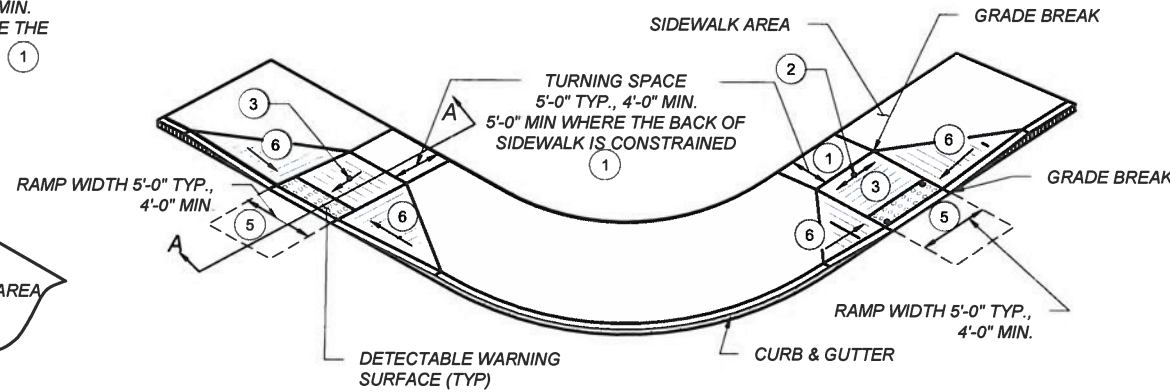


NO.	DATE	REV. BY	DESCRIPTION
REVISIONS ( OR CHANGE NOTICES )			
NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD DRAWING			
<b>PEDESTRIAN ACCESS ROUTE GENERAL NOTES</b>			
APPROVED	<i>Michael J. Smelker</i>		DATE
	DESIGN ENGINEER		1-13-15
608-001-1		608-1 of 12	

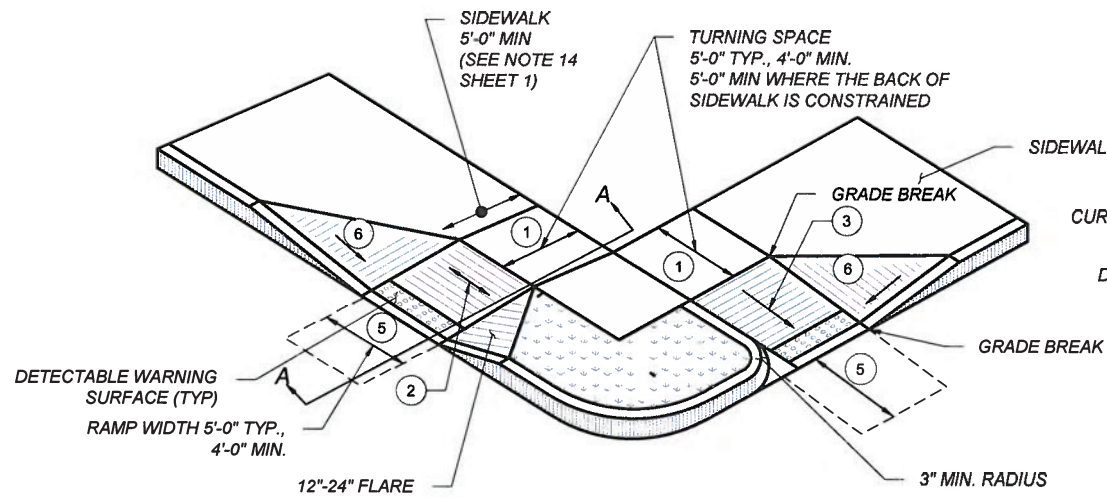




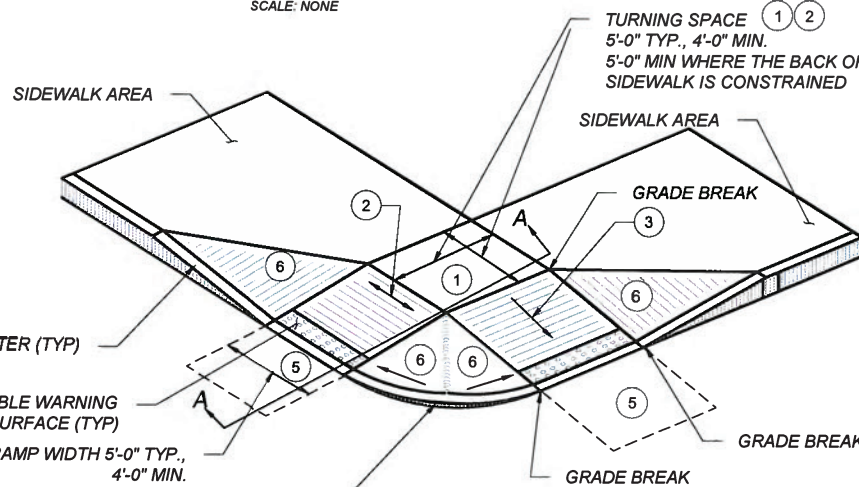
**PERPENDICULAR CURB RAMP**  
SCALE: NONE



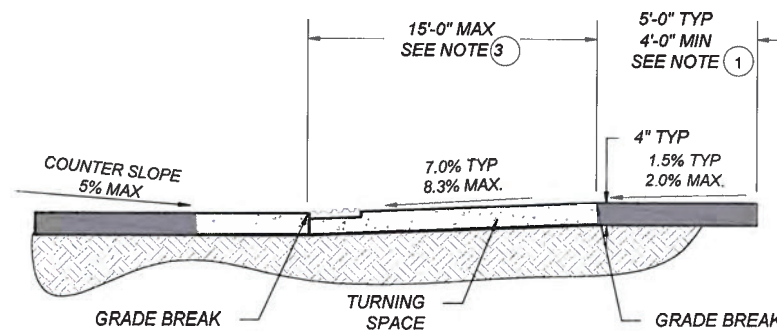
**DUAL PERPENDICULAR CURB RAMP**  
(PREFERRED INSTALLATION)  
SCALE: NONE



**DUAL PERPENDICULAR CURB RAMP**  
(ALTERNATE INSTALLATION)  
SCALE: NONE



**PERPENDICULAR CURB RAMPS WITH SHARED TURNING SPACE**  
SCALE: NONE



**SECTION A-A**  
SCALE: NONE

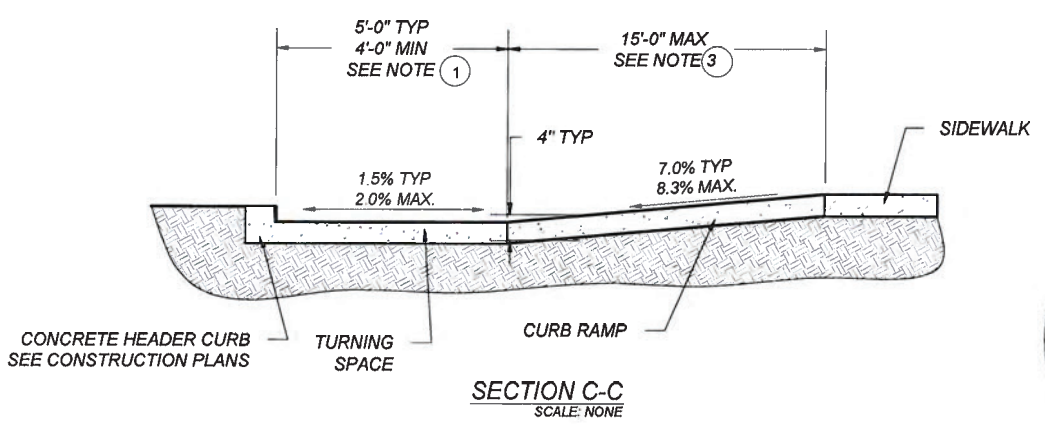
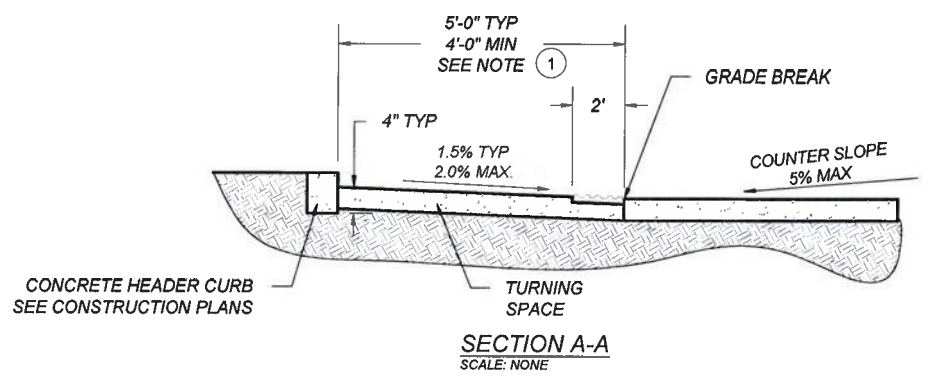
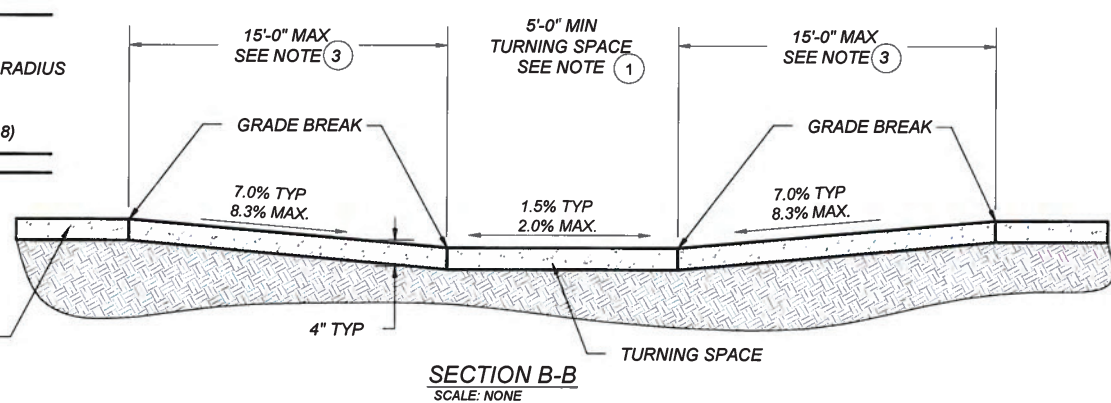
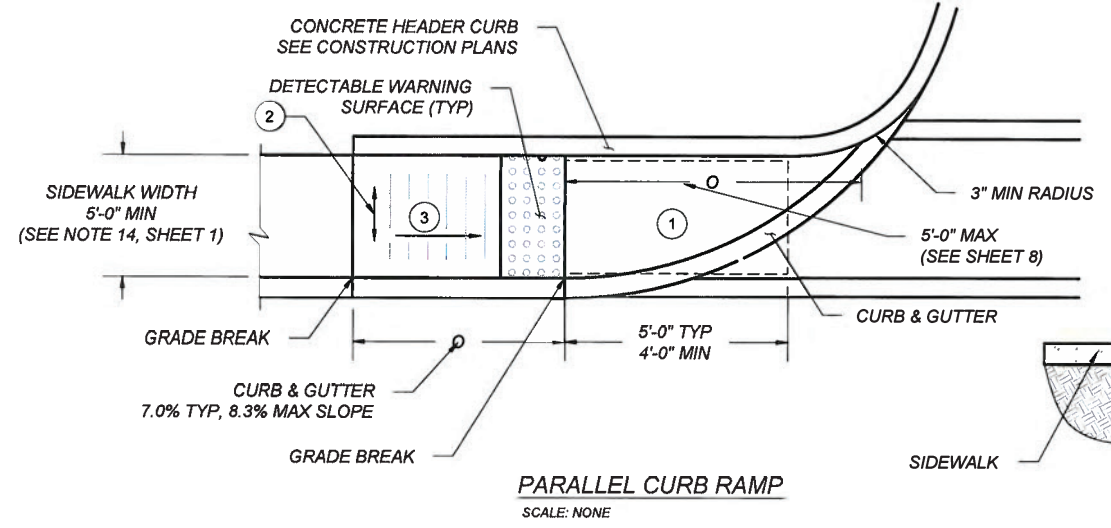
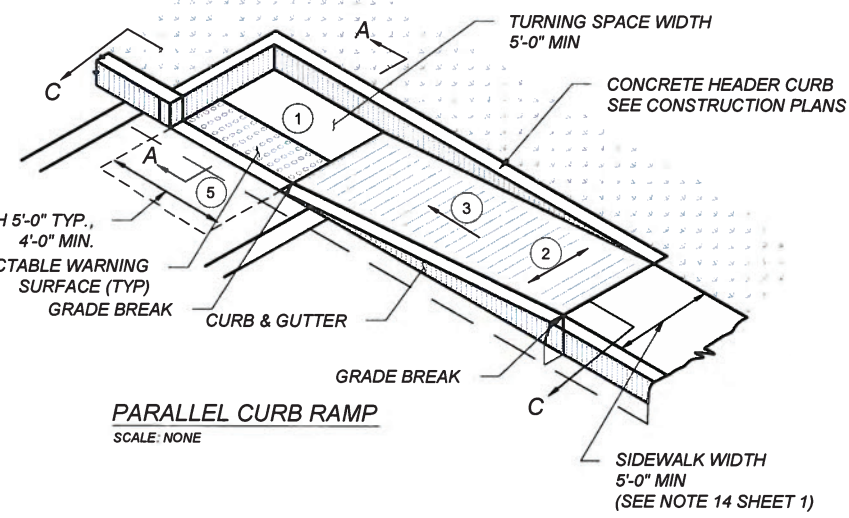
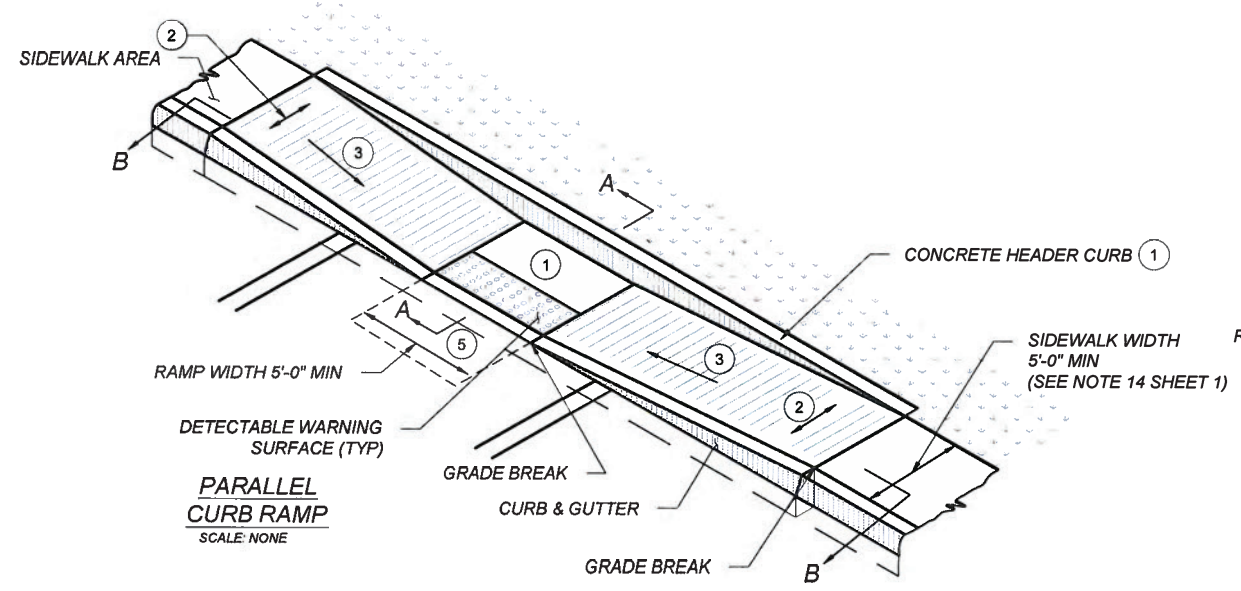
**KEYED NOTES**

- 1 TURNING SPACE SHALL HAVE MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.0% (RECOMMEND 1.5%). TURNING SPACE SHALL BE 4.0 FT BY 4.0 FT MIN (RECOMMEND 5.0 FT BY 5.0 FT) AT THE TOP OF THE CURB RAMP AND SHALL BE PERMITTED TO OVERLAP OTHER TURNING SPACES AND CLEAR SPACES. WHERE THE TURNING SPACE IS CONSTRAINED AT THE BACK OF SIDEWALK, THE TURNING SPACE SHALL BE 4.0 FT MIN BY 5.0 FT MIN. THE 5.0 FT SHALL BE PROVIDED IN THE DIRECTION OF THE RAMP RUN.
  - 2 CROSS SLOPE SHALL BE 2.0% MAX (RECOMMENDED 1.5%). EXCEPTION. THE CROSS SLOPE OF CURB RAMPS AT PEDESTRIAN STREET CROSSING WITHOUT YIELD OR STOP CONTROL, TRAFFIC SIGNALS DESIGNED FOR THE GREEN PHASE, AND AT MIDBLOCK PEDESTRIAN STREET CROSSING, THE CROSS SLOPE IS PERMITTED TO MATCH STREET OR HIGHWAY GRADE.
  - 3 RUNNING SLOPE OF THE CURB RAMP SHALL BE 8.3% MAX (RECOMMENDED 7.0%) BUT SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15.0 FT TO AVOID CHASING THE SLOPE INDEFINITELY WHEN CONNECTING TO STEEP GRADES. WHEN APPLYING THE 15 FOOT MAX LENGTH, THE RUNNING SLOPE OF THE CURB RAMP SHALL BE EXTENDED AS FLAT AS MAXIMUM EXTENT PRACTICABLE.
  - 4 GRADE BREAKS AT THE TOP AND BOTTOM OF CURB RAMPS RUNS SHALL BE PERPENDICULAR TO THE DIRECTION OF THE RAMP RUN. GRADE BREAKS SHALL NOT BE PERMITTED ON THE SURFACE OF RAMP RUNS AND TURNING SPACE. SURFACE SLOPES THAT MEET AT GRADE BREAKS SHALL BE FLUSH.
  - 5 COUNTER SLOPE OF THE GUTTER OR STREET AT THE FOOT OF A CURB RAMP, RUN OR TURNING SPACE SHALL BE 5% MAX.
  - 6 FLARED SIDES ARE TO HAVE A SLOPE OF 10% MAX (RECOMMEND 9%), MEASURED PARALLEL TO THE BACK OF THE CURB, UNLESS THE FLARED SIDES ARE PROTECTED FROM CROSS TRAVEL BY LANDSCAPING, STREET FURNITURE, CHAINS, FENCING, OR RAILINGS.
- NOTES:**
- A DO NOT SCORE OR MAKE GROOVES IN SLOPED SURFACE. LINES SHOWN ON STANDARD DETAILS ARE FOR ILLUSTRATION ONLY.
  - B DETAILS OF THE DETECTABLE WARNING SURFACE ARE SHOWN IN THE CONSTRUCTION PLANS AND SHEET 608-001-8/12 OF THE STANDARD DRAWINGS.
  - C IN ALTERATIONS WHERE EXISTING PHYSICAL CONSTRAINTS PREVENT COMPLIANCE TO PROVIDE A CURB RAMP FOR EACH PEDESTRIAN CROSSING A SINGLE DIAGONAL CURB RAMP SHALL BE PERMITTED TO SERVE BOTH PEDESTRIAN STREET CROSSINGS.
  - D CONCRETE HEADER CURBS CONSTRUCTED AS PART OF THE CURB RAMP WILL BE CONSIDERED INCIDENTAL TO ITEM NUMBER 608004 AND NO SEPARATE PAYMENT WILL BE MADE.



NO.	DATE	REV. BY	DESCRIPTION
REVISIONS (OR CHANGE NOTICES)			
NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD DRAWING			
<b>PERPENDICULAR CURB RAMPS</b>			
APPROVED	<i>[Signature]</i>		DATE
	DESIGN ENGINEER		6-13-15
608-001-2			608- 2 of 12





**KEYED NOTES**

- 1 TURNING SPACE SHALL HAVE MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.0% (RECOMMEND 1.5%). TURNING SPACE SHALL BE 4.0 FT BY 4.0 FT MIN (RECOMMEND 5.0 FT BY 5.0 FT) AT THE TOP OF THE CURB RAMP AND SHALL BE PERMITTED TO OVERLAP OTHER TURNING SPACES AND CLEAR SPACES. WHERE THE TURNING SPACE IS CONSTRAINED AT THE BACK OF SIDEWALK, THE TURNING SPACE SHALL BE 4.0 FT MIN BY 5.0 FT MIN. THE 5.0 FT SHALL BE PROVIDED IN THE DIRECTION OF THE RAMP RUN.
  - 2 GROSS SLOPE SHALL BE 2.0% MAX (RECOMMEND 1.5%). EXCEPTION: THE CROSS SLOPE OF CURB RAMPS AT PEDESTRIAN STREET CROSSING WITHOUT YIELD OR STOP CONTROL, TRAFFIC SIGNALS DESIGNED FOR THE GREEN PHASE, AND AT MIDBLOCK PEDESTRIAN STREET CROSSING, THE CROSS SLOPE IS PERMITTED TO MATCH STREET OR HIGHWAY GRADE.
  - 3 RUNNING SLOPE OF THE CURB RAMP SHALL BE 8.3% MAX (RECOMMENDED 7.0%) BUT SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15.0 FT TO AVOID CHASING THE SLOPE INDEFINITELY WHEN CONNECTING TO STEEP GRADES. WHEN APPLYING THE 15 FOOT MAX LENGTH, THE RUNNING SLOPE OF THE CURB RAMP SHALL BE EXTENDED AS FLAT AS MAXIMUM EXTENT PRACTICABLE.
  - 4 GRADE BREAKS AT THE TOP AND BOTTOM OF CURB RAMPS RUNS SHALL BE PERPENDICULAR TO THE DIRECTION OF THE RAMP RUN. GRADE BREAKS SHALL NOT BE PERMITTED ON THE SURFACE OF RAMP RUNS AND TURNING SPACE. SURFACE SLOPES THAT MEET AT GRADE BREAKS SHALL BE FLUSH.
  - 5 COUNTER SLOPE OF THE GUTTER OR STREET AT THE FOOT OF A CURB RAMP, RUN OR TURNING SPACE SHALL BE 5% MAX.
  - 6 FLARED SIDES ARE TO HAVE A SLOPE OF 10% MAX (RECOMMEND 9%), MEASURED PARALLEL TO THE BACK OF THE CURB, UNLESS THE FLARED SIDES ARE PROTECTED FROM CROSS TRAVEL BY LANDSCAPING, STREET FURNITURE, CHAINS, FENCING, OR RAILINGS.
- NOTES:**
- A DO NOT SCORE OR MAKE GROOVES IN SLOPED SURFACE. LINES SHOWN ON STANDARD DETAILS ARE FOR ILLUSTRATION ONLY.
  - B DETAILS OF THE DETECTABLE WARNING SURFACE ARE SHOWN IN THE CONSTRUCTION PLANS AND SHEET 608-001-8/12 OF THE STANDARD DRAWINGS.
  - C IN ALTERATIONS WHERE EXISTING PHYSICAL CONSTRAINTS PREVENT COMPLIANCE TO PROVIDE A CURB RAMP FOR EACH PEDESTRIAN CROSSING A SINGLE DIAGONAL CURB RAMP SHALL BE PERMITTED TO SERVE BOTH PEDESTRIAN STREET CROSSINGS.
  - D CONCRETE HEADER CURBS CONSTRUCTED AS PART OF THE CURB RAMP WILL BE CONSIDERED INCIDENTAL TO ITEM NUMBER 608004 AND NO SEPARATE PAYMENT WILL BE MADE.

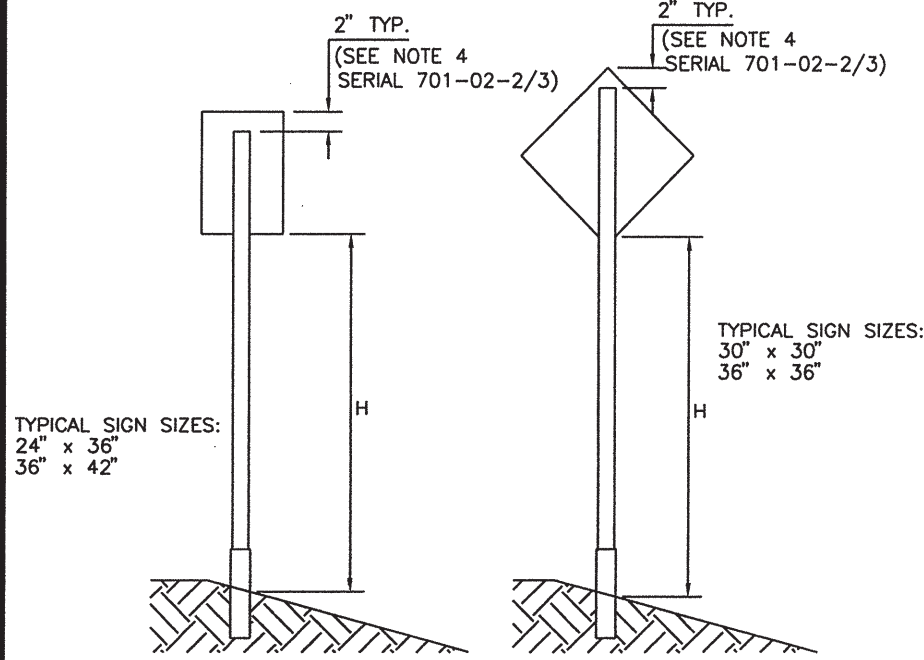


NO.	DATE	REV. BY	DESCRIPTION
REVISIONS ( OR CHANGE NOTICES )			
NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD DRAWING			
<b>PARALLEL CURB RAMPS</b>			
APPROVED			1-13-15 DATE
			DESIGN ENGINEER
608-001-3			608- 3 of 12



### SINGLE POST INSTALLATION

(TOTAL SIGN AREA NOT TO EXCEED 10.5 SQ. FT.)



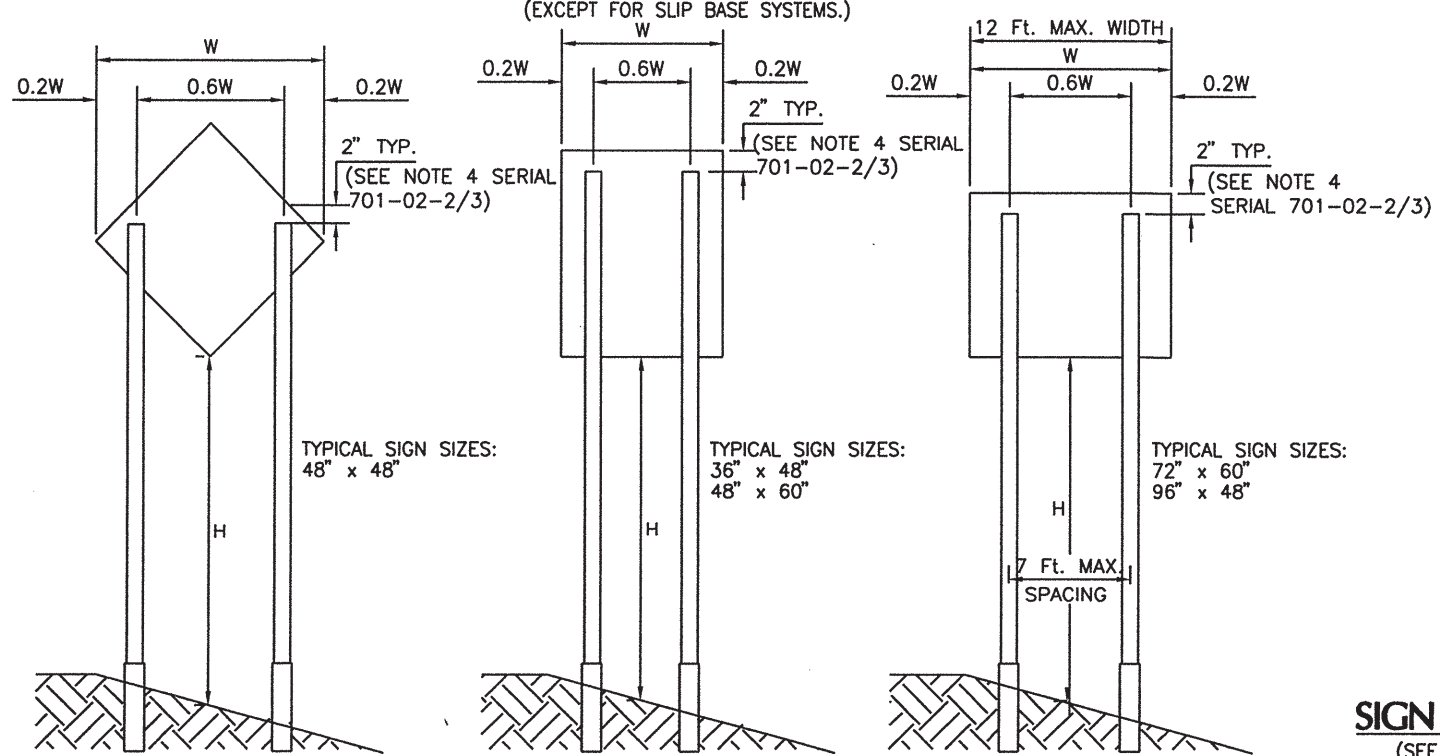
### SIGN POST REQUIREMENTS

(SEE NOTES 1 & 3, SHT. 701-02-2/3)

POST TYPE	POST SIZE	MAX. CLEAR HEIGHT, H (FT.)	MAX. SIGN AREA (SQ. FT.)
SQUARE TUBING	1.75" X 1.75" (12 GA.)	9	5
SQUARE TUBING	1.75" X 1.75" (12 GA.)	8	6
SQUARE TUBING	1.75" X 1.75" (12 GA.)	7	7
SQUARE TUBING	2.00" X 2.00" (12 GA.)	9	8
SQUARE TUBING	2.00" X 2.00" (12 GA.)	8	9
SQUARE TUBING	2.00" X 2.00" (12 GA.)	7	10
SQUARE TUBING	2.25" X 2.25" (12 GA.)	9	10.5
SQUARE TUBING	2.25" X 2.25" (12 GA.)	10	10.5

### DOUBLE POST INSTALLATION

(TOTAL SIGN AREA NOT TO EXCEED 30 SQ. FT.)  
(EXCEPT FOR SLIP BASE SYSTEMS.)



### SIGN POST REQUIREMENTS

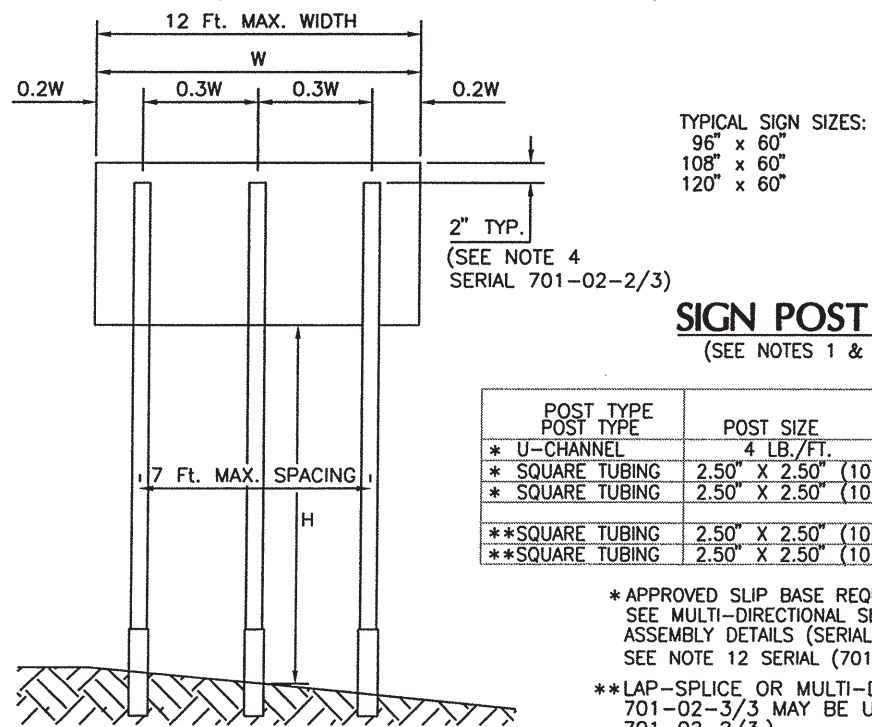
(SEE NOTES 1 & 2, SERIAL 701-02-2/3)

POST TYPE	POST SIZE	MAX. CLEAR HEIGHT, H (FT.)	MAX. SIGN AREA (SQ. FT.)
SQUARE TUBING	2.00" X 2.00" (12 GA.)	11	13
SQUARE TUBING	2.00" X 2.00" (12 GA.)	9	15
SQUARE TUBING	2.00" X 2.00" (12 GA.)	8	16
SQUARE TUBING	2.25" X 2.25" (12 GA.)	7	20
* U-CHANNEL	4 LB./FT.	11	25
* U-CHANNEL	4 LB./FT.	9	30
* SQUARE TUBING	2.50" X 2.50" (10 GA.)	7	36

\* APPROVED SLIP BASE REQUIRED WITH THIS INSTALLATION  
SEE MULTI-DIRECTIONAL SLIP BASE ASSEMBLY DETAILS (SERIAL 701-02-3/3)  
SEE NOTE 12 SERIAL (701-02-2/3)

### TRIPLE POST INSTALLATION

(TOTAL SIGN AREA NOT TO EXCEED 50 SQ. FT.)



### SIGN POST REQUIREMENTS

(SEE NOTES 1 & 2, SERIAL 701-02-2/3)

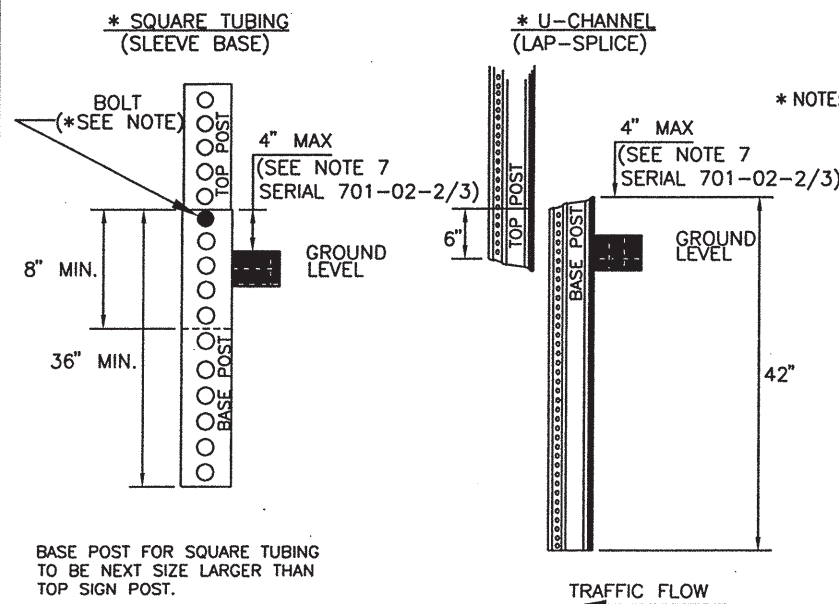
POST TYPE	POST SIZE	MAX. CLEAR HEIGHT, H (FT.)	MAX. SIGN AREA (SQ. FT.)
* U-CHANNEL	4 LB./FT.	11	36
* SQUARE TUBING	2.50" X 2.50" (10 GA.)	9	45
* SQUARE TUBING	2.50" X 2.50" (10 GA.)	7	50
**SQUARE TUBING	2.50" X 2.50" (10 GA.)	11	36
**SQUARE TUBING	2.50" X 2.50" (10 GA.)	9	45

\* APPROVED SLIP BASE REQUIRED WITH THIS INSTALLATION  
SEE MULTI-DIRECTIONAL SLIP BASE ASSEMBLY DETAILS (SERIAL 701-02-3/3)  
SEE NOTE 12 SERIAL (701-02-2/3)

\*\*LAP-SPLICE OR MULTI-DIRECTIONAL SLIP BASE (SERIAL 701-02-3/3) MAY BE USED. SEE NOTE 12 (SERIAL 701-02-2/3.)

### BASE POST INSTALLATION DETAILS FOR SQUARE TUBING AND U-CHANNEL SYSTEMS

(SEE SERIAL. 701-02-3/3 FOR MULTI-DIRECTIONAL SLIP BASE SYSTEMS)



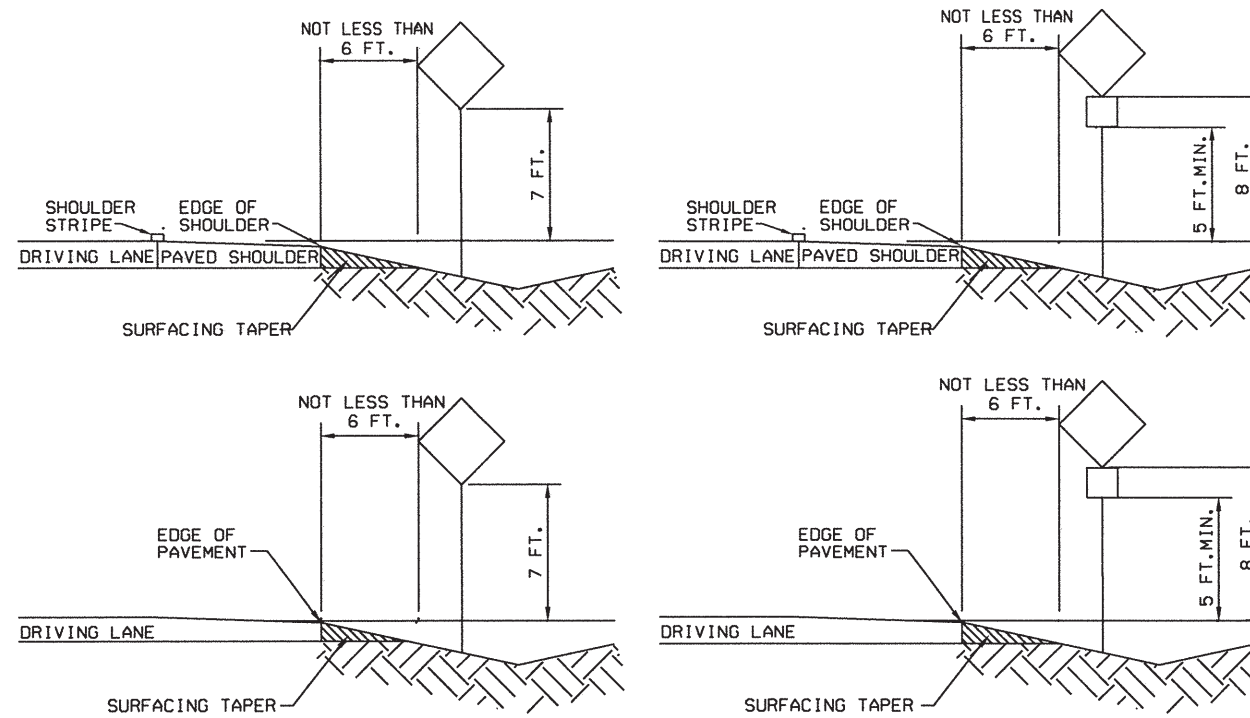
\* NOTE: SEE MANUFACTURER'S DRAWINGS FOR SPECIFIC ASSEMBLY INFORMATION (POST TO BASE POST OVERLAP), INCLUDING TYPES OF NUTS, BOLTS, WASHERS, AND OTHER PARTS REQUIRED FOR PRODUCT USE.

NO.	DATE	REV. BY	DESCRIPTION
REVISIONS ( OR CHANGE NOTICES )			
<b>NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD DRAWING</b>			
<b>SMALL SIGN SUPPORT INSTALLATION DETAILS</b>			
APPROVED	DESIGN ENGINEER		DATE
DESIGNED BY	DRAWN BY	CHECKED BY	
701-02-1/3			SHEET 1 OF 3

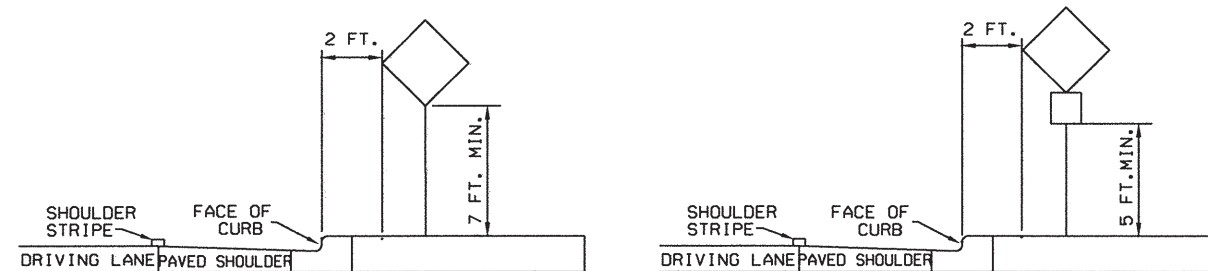
# HORIZONTAL AND VERTICAL CLEARANCES

(SEE NOTE 9)

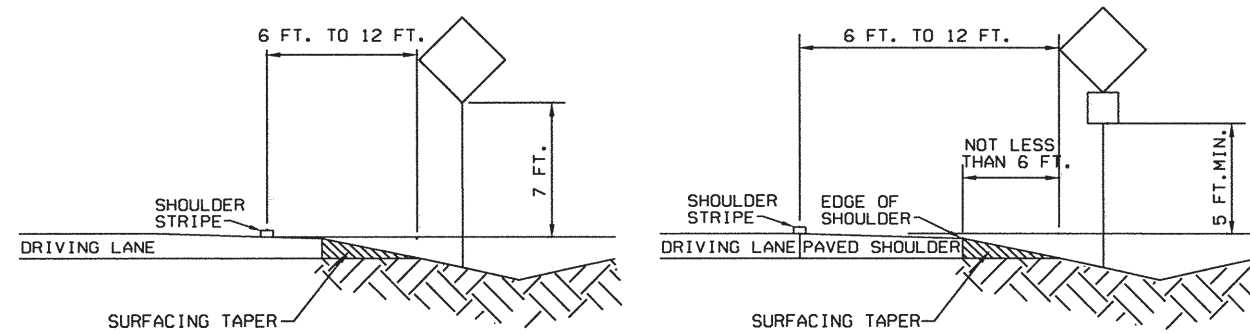
## FREEWAYS/EXPRESSWAYS & RURAL AREAS



## URBAN (BUSINESS, COMMERCIAL, & RESIDENTIAL AREAS) CONSTRUCTION ZONES IN URBAN AREAS



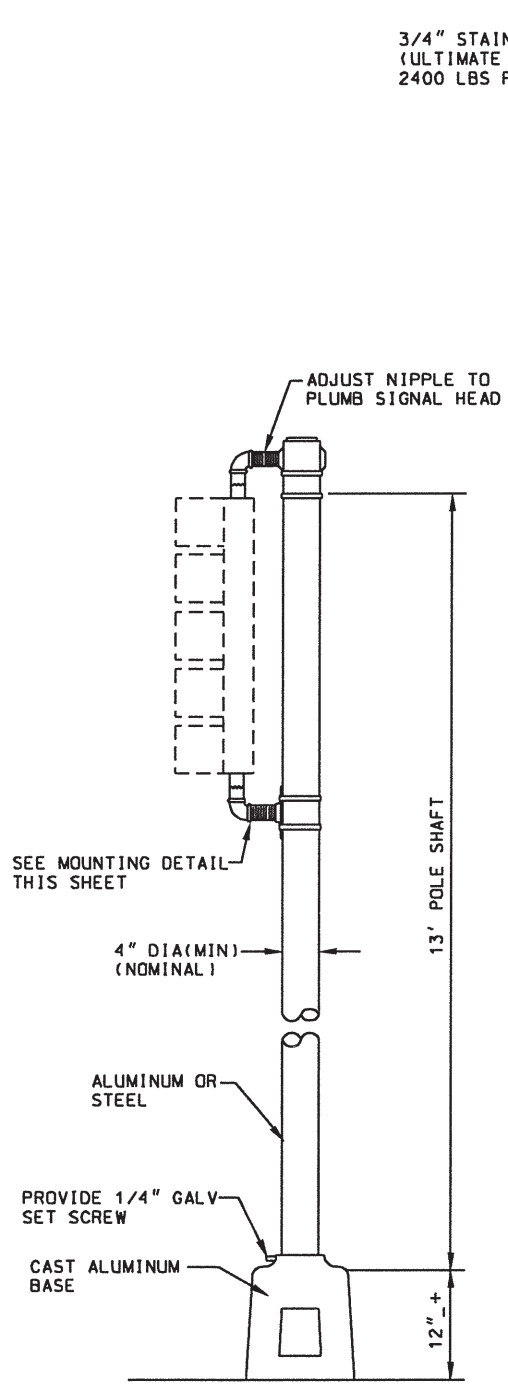
## CONSTRUCTION ZONES IN FREEWAYS/EXPRESSWAYS AND RURAL AREAS



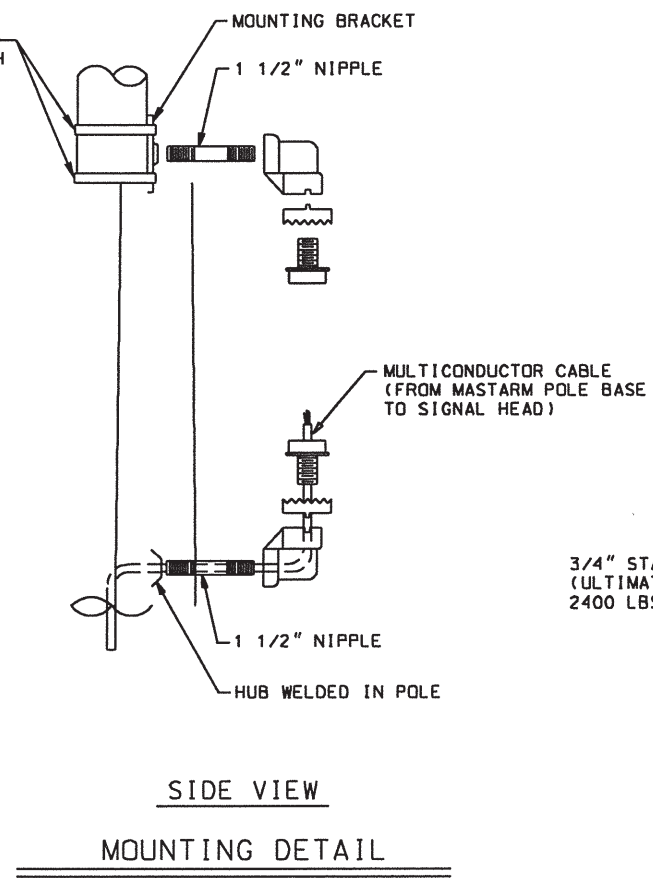
### GENERAL NOTES:

1. ALL SQUARE TUBING SIGN POST REQUIREMENTS ARE BASED ON A 10 OR 12 GAUGE THICKNESS, ASTM A570 GRADE 50 STEEL, A MINIMUM YIELD STRENGTH OF 60,000 PSI AND A 70 MPH WIND LOAD. ALL U-CHANNEL SIGN POSTS REQUIREMENTS ARE BASED ON A MINIMUM YIELD STRENGTH OF 80,000 PSI AND 85 MPH WIND LOAD. SEE THE MUTCD & STANDARD HIGHWAY SIGNS MANUAL (CURRENT EDITION) FOR FURTHER GUIDANCE.
2. FOR CONSTRUCTION SIGNING & PERMANENT SINGLE AND TRIPLE POST INSTALLATIONS, SMALLER POST CROSS SECTIONS MAY BE USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND THE RECOMMENDATIONS DETAILED IN NOTE 1.
3. TOP EDGE OF POSTS SHALL NOT EXTEND PAST TOP EDGE OF SIGN.
4. STEEL POSTS, BASE POSTS, AND SLIP BASES FOR ALUMINUM PANEL SIGNS SHALL BE SELECTED FROM THE DEPARTMENT'S APPROVED PRODUCT LIST. ALL SIGNS MOUNTED WITHIN THE CLEAR ZONE SHALL BE MOUNTED ON A NCHRP REPORT 350 APPROVED SIGN POST/BASE POST BREAKAWAY SYSTEM UNLESS INSTALLATION IS LOCATED BEHIND A NON-GATING LONGITUDINAL BARRIER. OTHER INSTALLATIONS, CONFIGURATIONS OR SYSTEMS NOT SHOWN MAY BE USED AS RECOMMENDED BY THE MANUFACTURER WITH APPROVAL OF THE DISTRICT TRAFFIC ENGINEER.
5. FOR INSTALLATIONS ON WEAK (SOFT) SOIL, SOIL PLATES SHALL BE USED AS RECOMMENDED BY THE MANUFACTURER. PAYMENT FOR SOIL PLATES SHALL BE INCIDENTAL TO THE SIGN INSTALLATION.
6. BASE POSTS SHALL NOT EXTEND MORE THAN 4' ABOVE GROUND LEVEL AND SHALL BE OF THE SAME WEIGHT/GAUGE AND TYPE AS THE SIGN POST.
7. INTERMIXING OF U-CHANNEL AND SQUARE TUBING POSTS, POSTS OF DIFFERENT WEIGHTS/GAUGES OR PRODUCT BRANDS IS NOT ALLOWED EXCEPT WHERE RECOMMENDED BY THE MANUFACTURER.
8. HORIZONTAL CLEARANCES APPLY TO INSTALLATIONS ON LEFT AND RIGHT SIDE OF ROADWAY.
9. SUPPLEMENTAL SIGNS SHALL NOT BE ATTACHED DIRECTLY TO PRIMARY PANELS ON EITHER PERMANENT OR CONSTRUCTION SIGNING INSTALLATIONS.
10. SPACING BETWEEN SUPPLEMENTAL PANELS AND PRIMARY PANELS SHALL NOT EXCEED 6'.
11. SIGN PANELS PLACED PARALLEL TO TRAFFIC SHALL BE MOUNTED ON A MULTI-DIRECTIONAL BREAKAWAY SYSTEM. (SEE SERIAL 701-02-3/3)

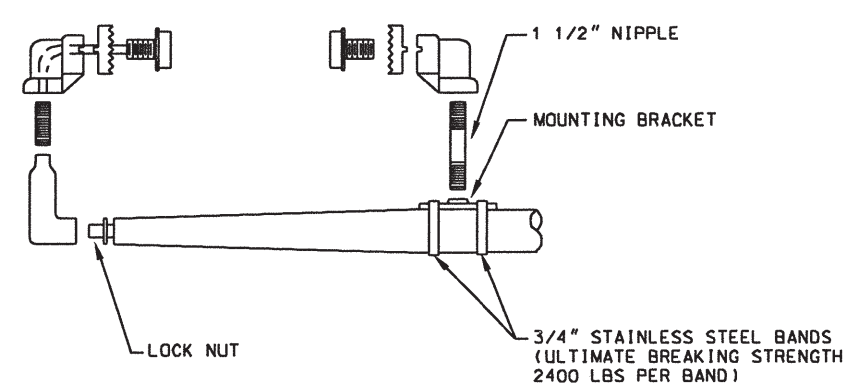
NO.	DATE	REV. BY	DESCRIPTION
REVISIONS ( OR CHANGE NOTICES )			
NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD DRAWING			
SMALL SIGN SUPPORT INSTALLATION DETAILS			
APPROVED		<i>[Signature]</i>	DATE
		DESIGN ENGINEER	2-3-02
DESIGNED BY		DRAWN BY	CHECKED BY
701-02-2/3		SHEET 2 OF 3	



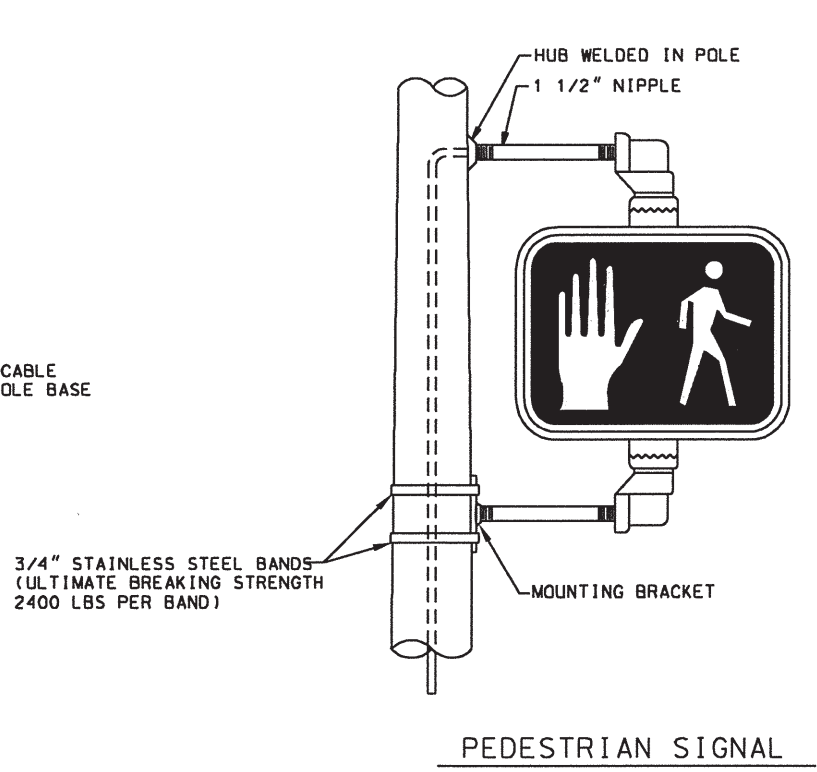
TYPE I STANDARD POLE DETAILS



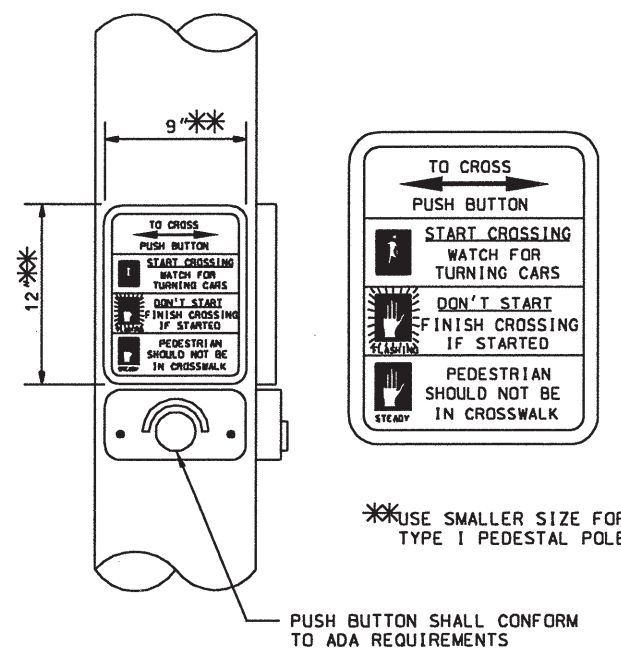
SIDE VIEW MOUNTING DETAIL



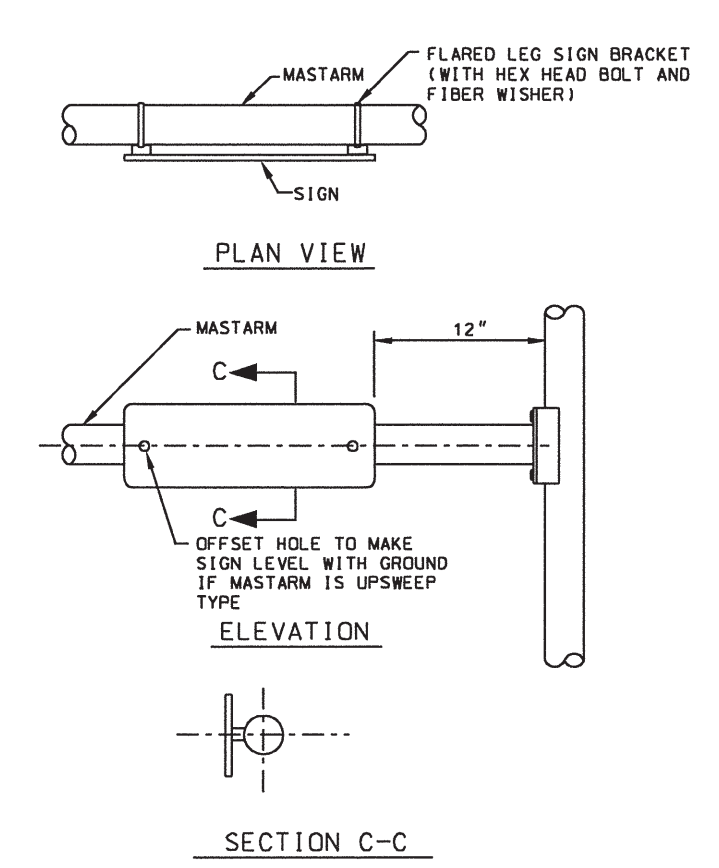
HORIZONTAL MOUNTING DETAIL



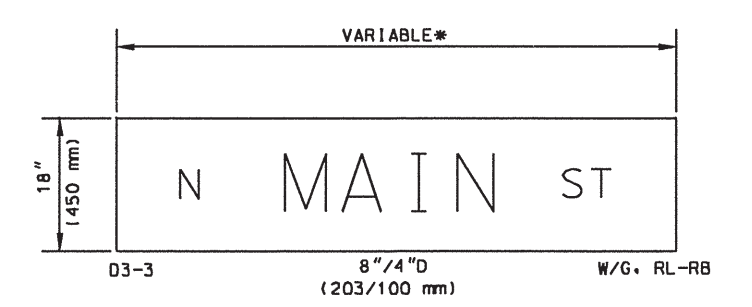
PEDESTRIAN SIGNAL



PUSH BUTTON DETAIL



STREET NAME SIGN DETAIL



701000 ALUMINUM PANEL SIGN

\* NOTE: MAXIMUM WIDTH OF SIGN SHALL BE 96 IN (2440 mm) EACH SIGN SHALL BE SHOWN ON THE SIGN FACE DETAIL SHEET AND SIGN QUANTITIES.

- NOTE:
1. PEDESTRIAN ACTUATED CROSSING CONTROLS SHALL BE A MAXIMUM OF 42" ABOVE THE FINISHED PUBLIC SIDEWALK. A STABLE, FIRM, AND SLIP-RESISTANT AREA - 36" x 48" - SHALL BE PROVIDED TO ALLOW FOR A FORWARD OR A PARALLEL APPROACH TO THE CONTROLS. WHERE A PARALLEL IS PROVIDED, CONTROLS SHALL BE WITHIN 10" HORIZONTALLY OF AND CENTERED ON THE CLEAR GROUND SPACE.
  2. ALL SIGNS TO BE MOUNTED ON STREET LIGHT POLES OR TRAFFIC SIGNAL POLES SHALL BE ATTACHED WITH 3/4" STAINLESS STEEL BANDS, BREAKING STRENGTH OF 2400 LBS PER BAND, AND ASSOCIATED HARDWARE (BAND-IT OR EQUAL). WORM GEAR CLAMPS ARE NOT ACCEPTABLE.

NO.	DATE	REV. BY	DESCRIPTION
REVISIONS ( OR CHANGE NOTICES )			
NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD DRAWING			
TYPE I POLE AND PEDESTRIAN SIGNAL DETAILS			
APPROVED	DESIGN ENGINEER		DATE
	DESIGNED BY	DRAWN BY	CHECKED BY
707S-01-1/1			



# GENERAL NOTES FOR TRAFFIC SIGNAL, MAST, AND ARMS

1. SPECIFICATIONS:
  - A. WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE CURRENT NEW MEXICO DEPARTMENT OF TRANSPORTATION'S (NMDOT) STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.
  - B. STRUCTURAL DESIGN SHALL BE AS PER AASHTO STANDARDS SPECIFICATIONS OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGN LUMINAIRES AND TRAFFIC SIGNALS (2001 EDITION). DETAILS SHOWN ARE FOR ROUND STEEL POLES. POLES AND ARMS MAY BE USED ONLY WHEN PRE-APPROVED BY THE NMDOT TRAFFIC TECHNICAL SUPPORT SECTION IN CONCERT WITH THE BRIDGE DESIGN SECTION.
2. GALVANIZING:
  - A. POLES, ARMS, PLATES AND BASES SHALL BE HOT DIPPED GALVANIZED PER AASHTO M-111-94 (ASTM A-123).
  - B. HARDWARE AND ANCHOR BOLTS SHALL BE HOT DIPPED GALVANIZED PER ASTM F-2329.
3. MATERIALS (POLES, ARMS, LUGS, ETC.):
  - A. POLES, ARMS, LUGS, ETC. SHALL BE STEEL OF 55,000 PSI MINIMUM YIELD. POLE AND ARM MINIMUM THICKNESSES ARE CALLED OUT IN THE TABLES PROVIDED FOR EACH STRUCTURE TYPE. LINEAR TAPER OF APPROXIMATELY 0.14"/FT WILL BE PROVIDED FOR SIGNAL ARM, LUMINAIRE ARM AND MAIN POLE. TEN FEET (10') LENGTHS MAY BE WELDED TOGETHER PROVIDED A BACKING RING IS USED AT THESE LOCATIONS AND THE FABRICATOR CAN GUARANTEE THE STRUCTURAL STRENGTH AT THESE JOINTS IS SUFFICIENT FOR THEIR INTENDED PURPOSE.
  - B. TRANSFORMER BASES SHALL BE ASTM A-36 STEEL AND A MINIMUM THICKNESS OF 0.3125".
  - C. BASE PLATES, ARM PLATES, AND POLE PLATES SHALL BE PER AASHTO M-183M (ASTM A-36).
4. SIGNAL AND LUMINAIRE ARMS:
  - A. CONNECTION BETWEEN ARMS AND POLES SHALL BE MADE BY MEANS OF A DESIGN PERMITTING SIMPLE REMOVAL OF THE ARMS. MAST ARM SHALL BE MARKED AS TO WHICH IS TOP AND BOTTOM ON SIMPLEX PLATE. POLE AND ARM SHAFTS SHALL BE MARKED WITH NMDOT 20, 25, 30, 35, 40, 45, 50, 55, 60, AND 65 FT. AND DATE OF FABRICATION (MONTH/YEAR) AS APPLICABLE.
  - B. ON HORIZONTAL SIGNAL - ROTATE HEAD UP AS HIGH AS POSSIBLE.
5. BOLTS:
  - A. FOUNDATION ANCHOR BOLTS: SEE INDIVIDUAL SHEETS AND DETAILS FOR MINIMUM NUMBER OF BOLTS REQUIRED. BOLTS SHALL BE PER AASHTO M-314 (ASTM F-1554 GR. 55). PROVIDE THREE HEAVY HEX NUTS AND 2 WASHERS FOR EACH BOLT. THREADS SHALL BE ROLLED. BOLTS SHALL BE GALVANIZED OR PLATED AFTER THREADS ARE FORMED. EACH BOLT SHALL BE PROVIDED WITH 12" OF THREADS.
  - B. ALL OTHER BOLTS SHALL BE ASTM A-449 HEX BOLTS WITH HEX NUTS AND WASHERS.
  - C. NUTS SHALL BE HEAVY HEX ASTM A-563 GR. DH. WASHERS SHALL BE ASTM A-436.
  - D. PRELOAD BOLTS BASED ON BOLT TYPE AND DIAMETER. PROVIDE LOCKING ADHESIVE AT BOLT CONNECTIONS (USE ND INDUSTRIES; NYLOCK; LOCKTITE, OR APPROVED EQUAL).
6. TRANSFORMER BASE:
 

THE BOTTOM OF ALL TRANSFORMER BASES FOR TYPE II AND III STANDARDS SHALL BE DESIGNED TO PERMIT THE STANDARD TO BE ROTATED 90°. THE BASE SHALL BE SECURED BY HOLDING DOWN LUGS. DESIGN AND SHOP DRAWINGS FOR TRANSFORMER BASES SHALL BE SUBMITTED FOR REVIEW AND APPROVAL BY NMDOT BRIDGE ENGINEER IN COMPLIANCE WITH THE DETAILS PROVIDED.
7. WELDS:
  - A. ALL FABRICATORS SHALL BE CERTIFIED UNDER SECTION 541.3 "CERTIFICATION OF STEEL FABRICATORS", SHALL CONFORM TO THE STRUCTURAL WELDING CODE (ANSI/AWS D1.1:2008) AND SHALL CONFORM TO SECTION 707 "SIGNAL AND LIGHTING STANDARDS" OF THE CURRENT NMDOT'S STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS OR MEET THE DATA SHOWN ON THESE DRAWINGS.
  - B. LONGITUDINAL SEAM WELDS BY SUBMERGED ARC AT 60% PENETRATION AND CIRCUMFERENTIAL BUTT WELDS AT FULL PENETRATION SHALL CONFORM TO SECTION 5.15 OF THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS AND HAVE OPTIONAL BACK-UP RINGS. ALL EXPOSED BUTT WELDS SHALL BE GROUND FLUSH.
  - C. FOR WELD SIZES NOT SHOWN, USE MINIMUM SIZE WELD AS SPECIFIED BY THE LATEST WELDING CODE.
  - D. BREAK ALL SHARP EDGES FOR WIRE PROTECTION.
8. POLE FOUNDATION:
 

SEE SERIAL 708S-02-1/1 FOR FOUNDATION INFORMATION.
9. FOR TYPE IIA AND IIIA SUPPORT STRUCTURE, SEE SERIAL 707S-03A-1/2.  
 FOR TYPE IIB AND IIIB SUPPORT STRUCTURE, SEE SERIAL 707S-03B-1/2.  
 FOR TYPE IIC AND IIIC SUPPORT STRUCTURE, SEE SERIAL 707S-03C-1/2.
10. CONTRACTOR/FABRICATOR SHALL SUBMIT GROUNDING DESIGN AND DETAILS TO NMDOT FOR REVIEW AND APPROVAL BY THE PROJECT MANAGER.
11. SEE NMDOT SPECIFICATIONS AND PROJECT DEVELOPMENT PLANS FOR POWER REQUIREMENTS AND OPTICAL DETECTOR REQUIREMENTS.
12. ALL DESIGNS AND DETAILS TO BE SUBMITTED TO NMDOT FOR REVIEW AND APPROVAL SHALL BE SIGNED AND SEALED BY A LICENSED ENGINEER IN THE STATE OF NEW MEXICO.
13. SIGN MANUFACTURER SHALL PROVIDE SIGN ATTACHMENT HARDWARE DETAILS.

# DESIGN NOTES

## DESIGN CRITERIA:

RECURRENCE INTERVAL = 50 YEARS

SERVICE LIFE = 50 YEARS

DESIGN WIND SPEED = 90 MPH

GUST EFFECT FACTOR G = 1.14

FATIGUE CATEGORY II

MAXIMUM ALLOWABLE VERTICAL DEFLECTION AT FREE END OF TRAFFIC SIGNAL ARM FROM GALLOPING AND TRUCK INDUCED GUSTS SHALL BE 8 INCHES PER AASHTO 11.8 COMMENTARY.

MAXIMUM SIGN AREA = 21.00 SF



*Alfred P. Murillo* 12-21-11

NO.	DATE	REV. BY	DESCRIPTION
REVISIONS (OR CHANGE NOTICES)			
NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD DRAWING			
SIGN, SIGNAL, AND LUMINAIRE SUPPORT STRUCTURES GENERAL NOTES			
DESIGNED BY <u>NB/MS</u> DRAWN BY <u>CCS</u> CHECKED BY <u>APM</u>			
707S-02-1/1			1 of 1



ORDERING INFORMATION	
POLE ONLY	POLE WITH ALTERNATE SECTION
IIA	IIIA

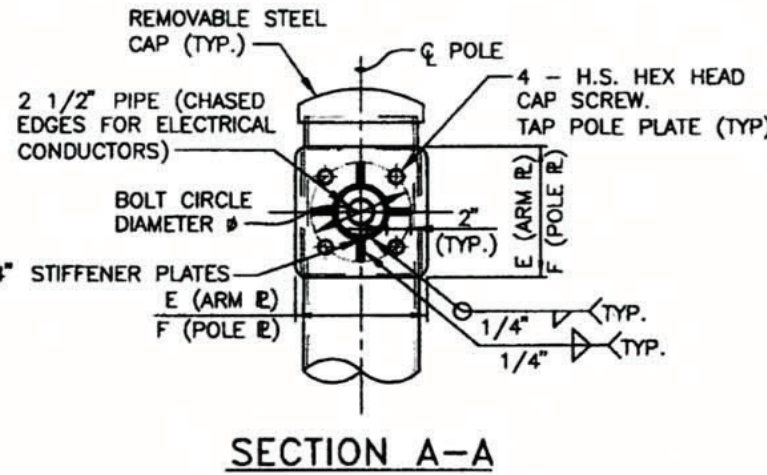
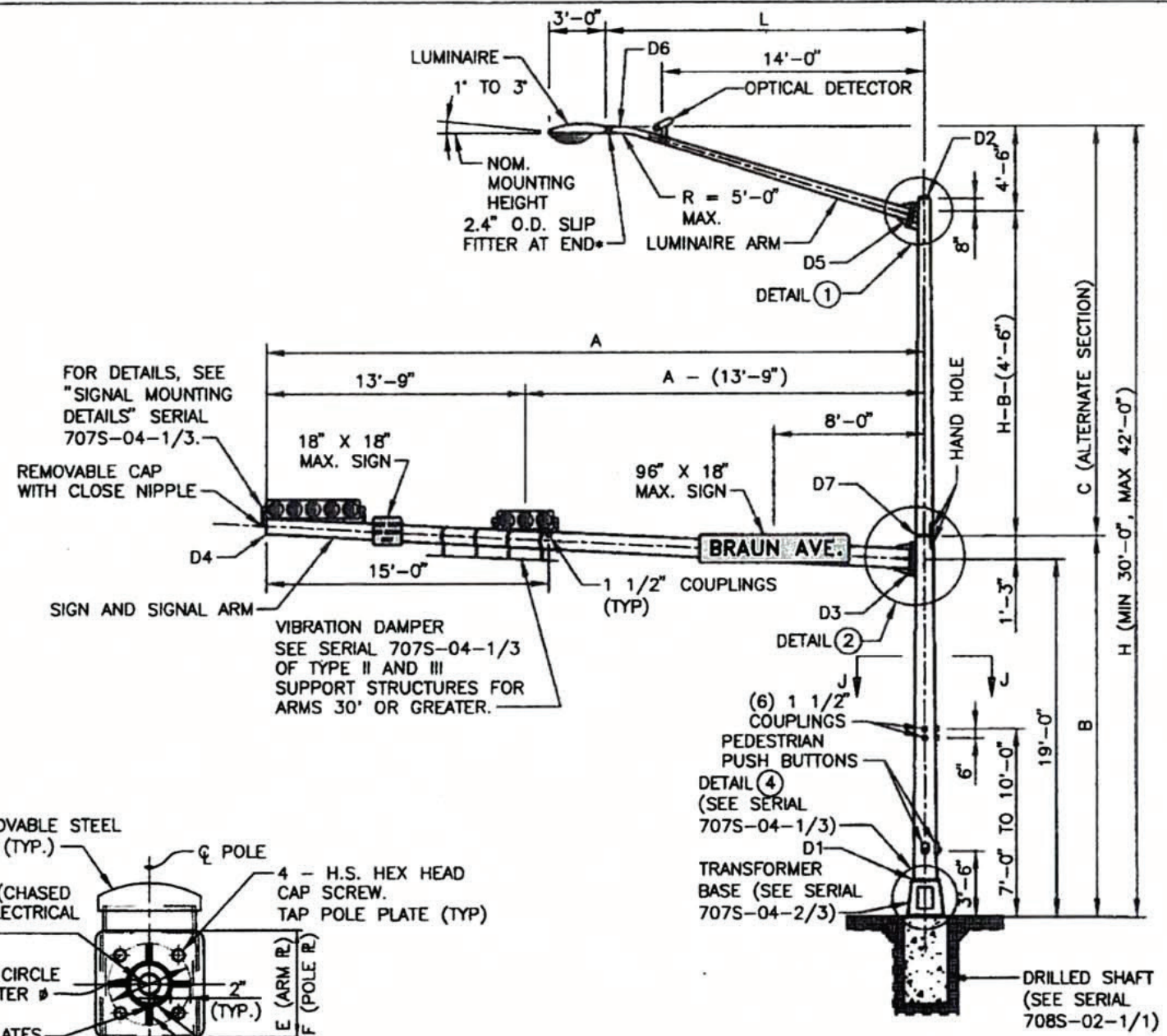
GENERAL SIGNAL AND LIGHTING STANDARDS DATA					
TYPE	# OF SIGNALS	H (FT)	A (FT)	B (FT)	C (FT)
IIA	1	VARIABLE	20	20'-3"	VARIABLE
	1	VARIABLE	25	20'-3"	VARIABLE
	2	VARIABLE	30	20'-3"	VARIABLE
	2	VARIABLE	35	20'-3"	VARIABLE

LUMINAIRE ARM DATA											
TYPE	L LENGTH (FT)	MINIMUM O.D.		ARM THICKNESS $t_{arm}$ (IN)	ARM PLATE			POLE PLATE		BOLTS	
		AT POLE D5 (IN)	AT FREE END D6 (IN)		E (IN)	$t_{arm-PL}$ (IN)	BOLT CIRCLE $\phi$ (IN)	F (IN)	$t_{pole-PL}$ (IN)	DIAMETER (IN)	NUMBER OF BOLTS
IIIA	17	5	2.4	0.1875	10	1	8 1/2	10	1	5/8	4

LUMINAIRE EXTENSION					
TYPE	C (=H-B) (FT)	MINIMUM O.D.		MIN. THICKNESS $t_{alt-sec}$ (IN)	TOTAL HEIGHT H (FT)
		AT BASE D7 (IN)	AT TOP D2 (IN)		
IIIA	VARIABLE	9.95	VARIABLE	0.3125	MIN. 30', MAX. 42'

POLE DATA									
TYPE	B (FT)	MINIMUM O.D.		MIN. POLE THICKNESS $t_{pole}$ (IN)	BASE PLATE			BOLTS	
		AT BASE D1 (IN)	AT TOP D7 (IN)		K (IN)	$t_{base-PL}$ (IN)	BOLT CIRCLE $\phi$ (IN)	DIAMETER (IN)	NUMBER OF BOLTS
IIA	20'-3"	12 1/2	9.95	0.3125	21	2.5	19	1 1/2	4

SIGN & SIGNAL ARM DATA										
TYPE	A (FT)	MINIMUM O.D.		MIN. ARM THICKNESS $t_{arm}$ (IN)	ARM PLATE		POLE PLATE		BOLTS	
		AT POLE D3 (IN)	AT FREE END D4 (IN)		$t_{arm-PL}$ (IN)	$t_{pole-PL}$ (IN)	DIAMETER (IN)	NUMBER OF BOLTS		
IIA	20	10 1/2	7.7	0.3125	2	2	1 1/2	6		
	25	10 1/2	7	0.3125	2	2	1 1/2	6		
	30	10 1/2	6.3	0.3125	2	2	1 1/2	6		
	35	10 1/2	5.6	0.3125	2	2	1 1/2	6		



**NOTES:**

- SEE GENERAL NOTES FOR TRAFFIC SIGNAL, MAST, AND ARMS SERIAL 707S-02-1/1 FOR DESIGN INFORMATION AND SPECIFICATIONS.
- LUMINAIRE ARM TO BASE PLATE CONNECTION FOR DETAIL ① SHALL BE A FILLET-WELDED SOCKET CONNECTION.

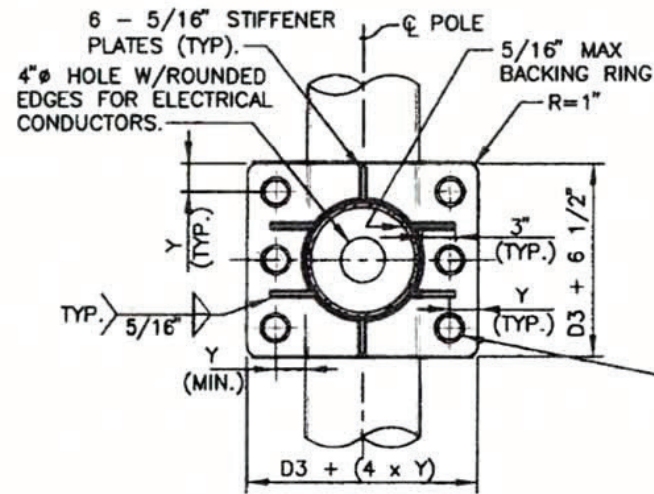
NOTE: CARE SHALL BE TAKEN TO PROPERLY PLACE COUPLING TO MAINTAIN LEVEL SIGNAL HEADS AND SIGNS ON ARMS.



**STANDARD POLE**

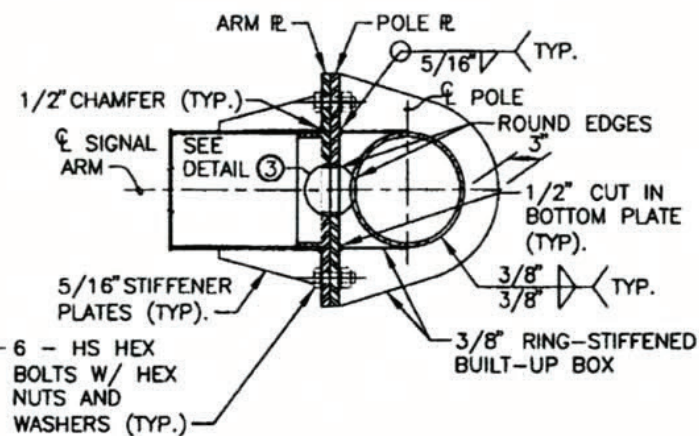
NO.	DATE	REV. BY	DESCRIPTION
REVISIONS (OR CHANGE NOTICES)			
NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD DRAWING			
SIGN, SIGNAL, AND LUMINAIRE SUPPORT STRUCTURES TYPE IIA AND IIIA			
DESIGNED BY MS			DRAWN BY CCS
CHECKED BY APM			
707S-03A-1/2			



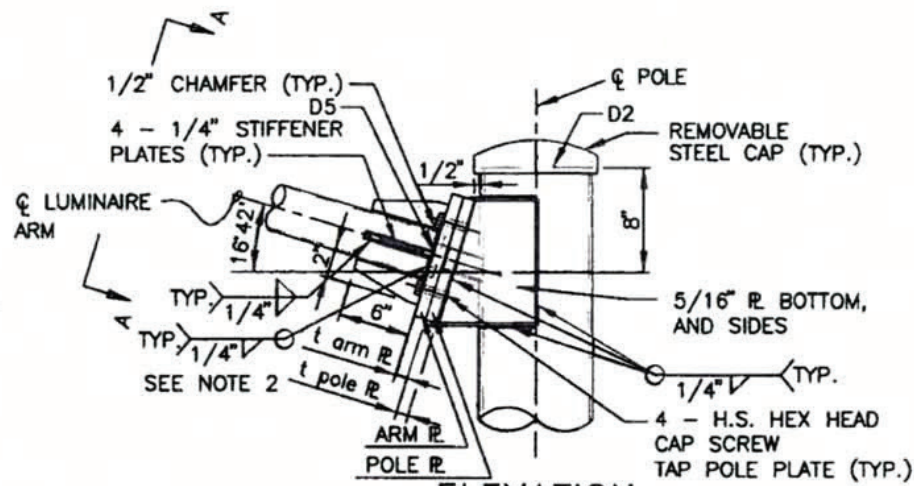


SECTION B-B

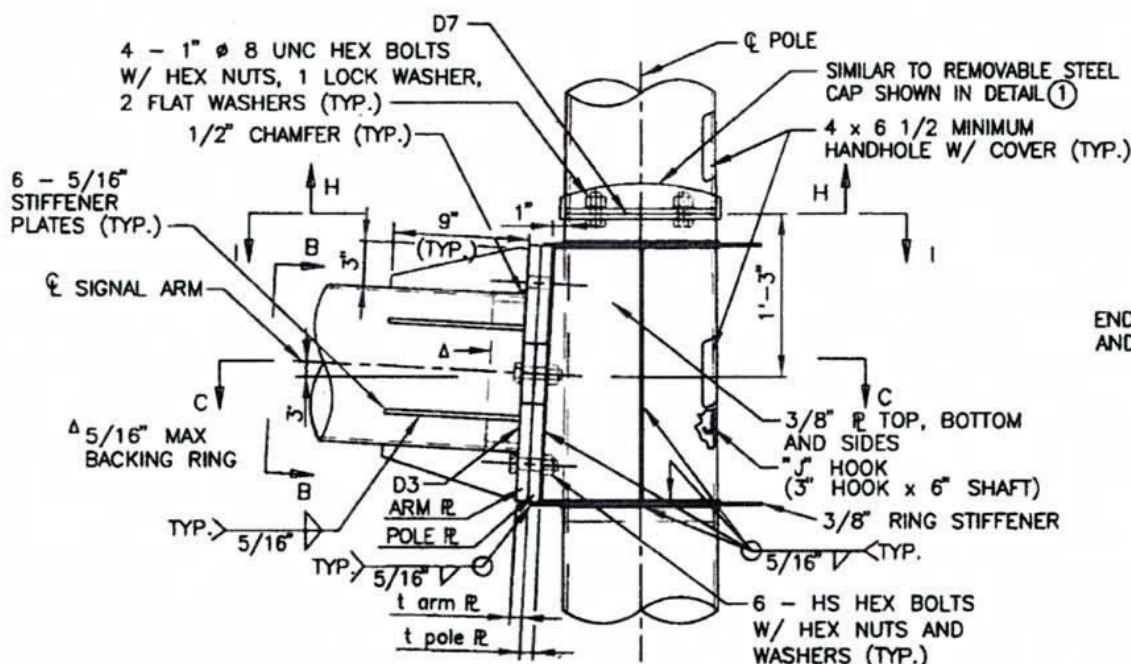
Y = 1.5 X BOLT DIAMETER (MIN.)



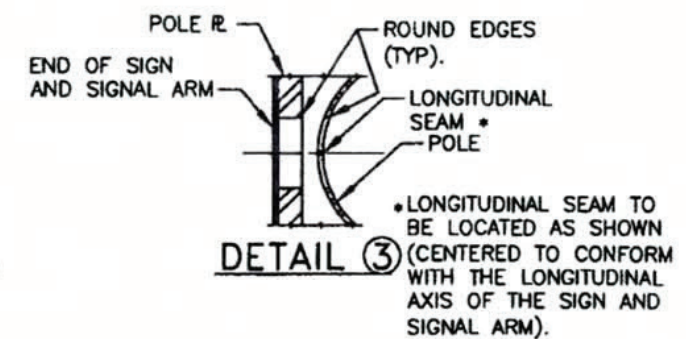
SECTION C-C



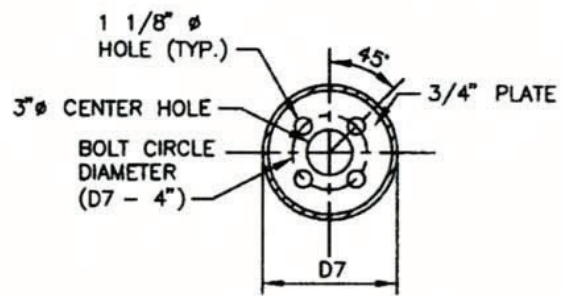
ELEVATION DETAIL 1



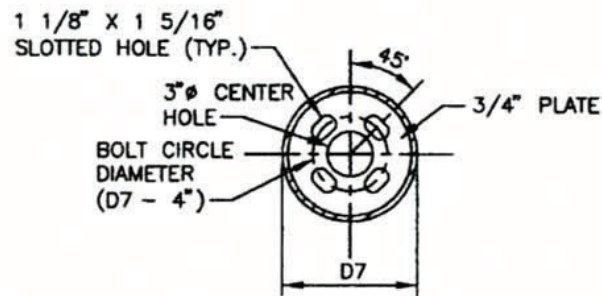
ELEVATION DETAIL 2



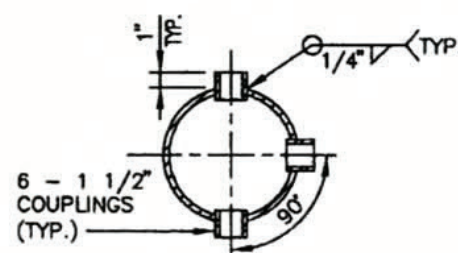
DETAIL 3



SECTION H-H



SECTION I-I



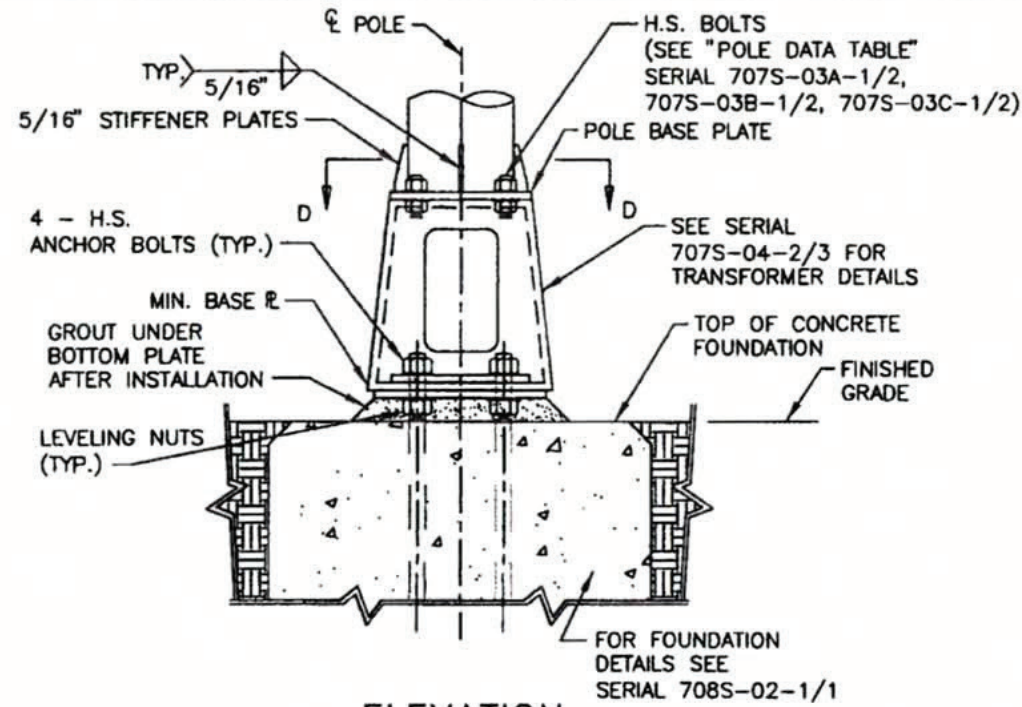
SECTION J-J



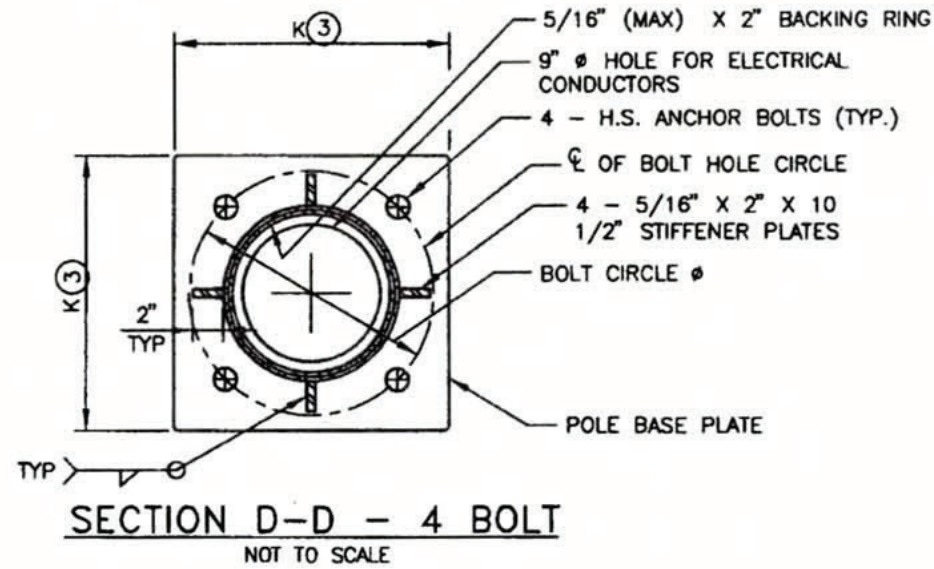
*Alfred Murillo* 12-21-11

NO.	DATE	REV. BY	DESCRIPTION
REVISIONS (OR CHANGE NOTICES)			
NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD DRAWING			
SIGN, SIGNAL, AND LUMINAIRE SUPPORT STRUCTURES TYPE IIA AND IIIA			
DESIGNED BY MS			DRAWN BY CCS
			CHECKED BY APM
707S-03A-2/2			2 of 2

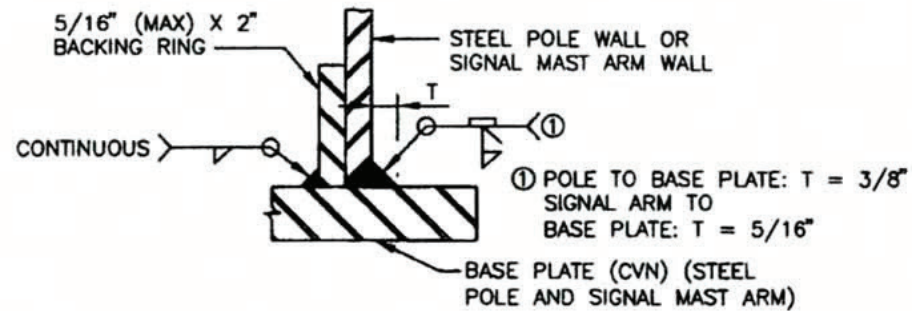




**ELEVATION  
DETAIL ④**  
NOT TO SCALE



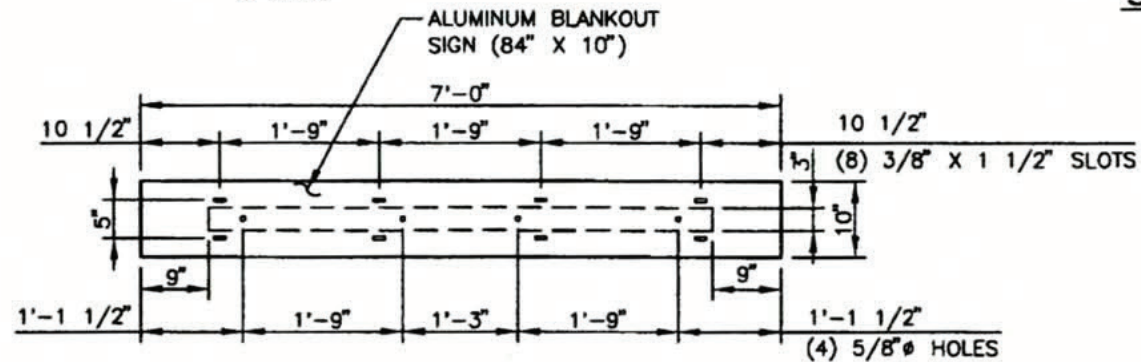
**SECTION D-D - 4 BOLT**  
NOT TO SCALE



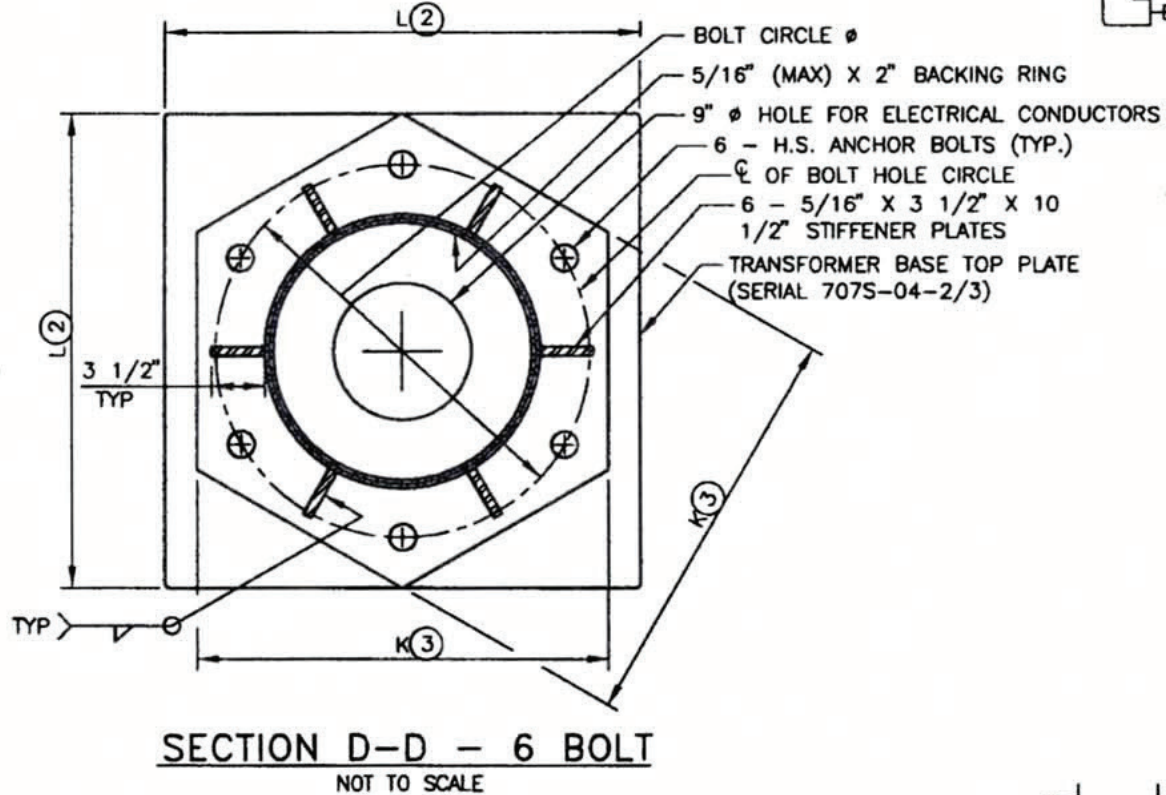
**WELD DETAIL**  
NOT TO SCALE

NOTE:

BACKING RING MUST BE FITTED/SIZED TO THE STEEL POLE AND CONTINUOUSLY FILLET WELDED TO THE BASE PLATE BEFORE FULL PENETRATION GROOVE WELD IS MADE.



**VIBRATION DAMPER DETAIL - PLAN VIEW**  
NOT TO SCALE



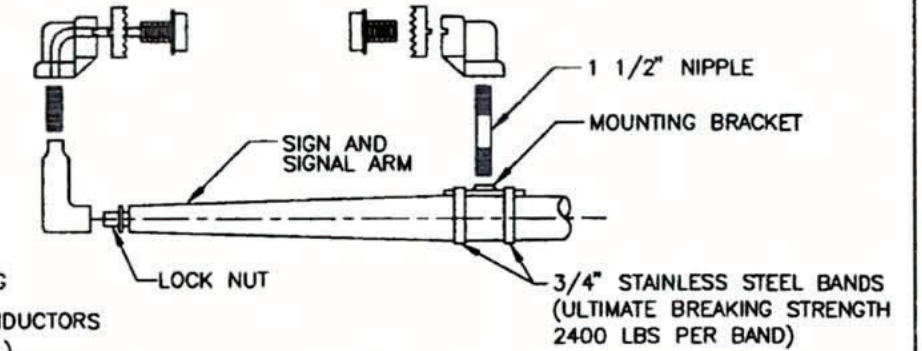
**SECTION D-D - 6 BOLT**  
NOT TO SCALE

② SEE SERIAL NO. 707S-04-2/2

③ SEE "POLE DATA" TABLE, SEE SERIAL NO. 707S-03A-1/2, 707S-03B-1/2, 707S-03C-1/2

**NOTES:**

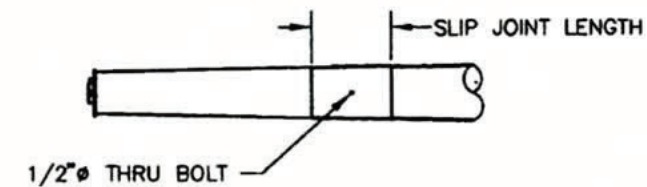
1. SEE GENERAL NOTES FOR TRAFFIC SIGNAL, MAST, AND ARM SPECIFICATIONS.
2. VIBRATION DAMPER SHALL BE AN ALUMINUM BLANKOUT SIGN WITH DIMENSIONS AS SHOWN. REFERENCE NMDOT SPECIFICATIONS FOR ADDITIONAL SIGN AND ATTACHMENT REQUIREMENTS.



**SIGNAL MOUNTING DETAIL**  
NOT TO SCALE



*Alfred Murillo 12.21.11*



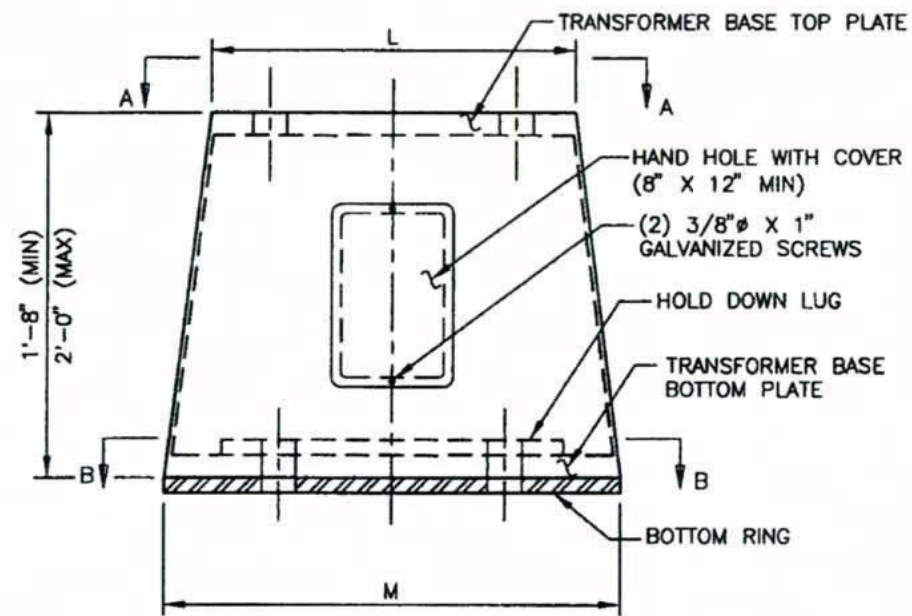
**MAST ARM SLIP JOINT**  
(FOR ARMS OVER 50' IN LENGTH)  
NOT TO SCALE

NOTE:

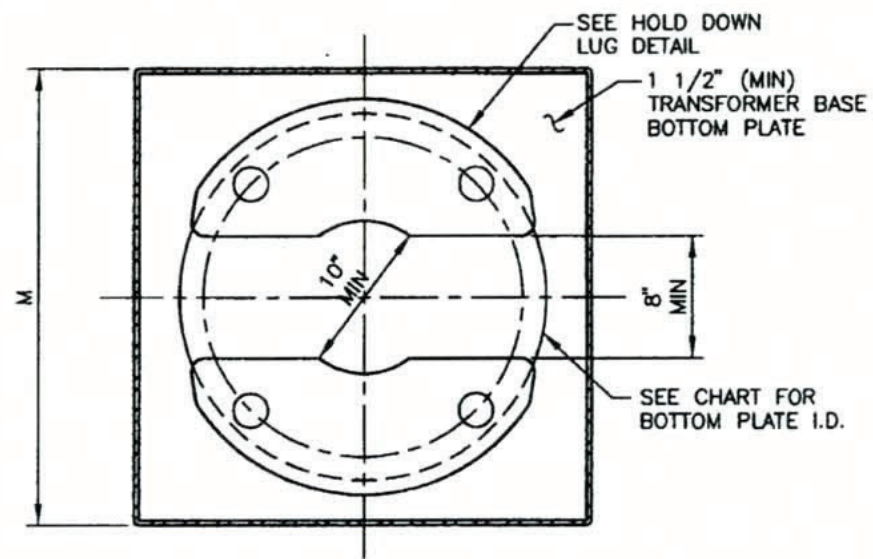
FIELD ASSEMBLE TO ACHIEVE A SNUG TIGHT JOINT (MIN. OVERLAP NOT LESS THAN 1.5 TIMES THE O.D. OF THE FEMALE END SECTION).

NO.	DATE	REV. BY	DESCRIPTION
REVISIONS (OR CHANGE NOTICES)			
NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD DRAWING			
SIGN, SIGNAL, AND LUMINARE SUPPORT STRUCTURES TYPE II AND III			
DESIGNED BY <u>MS</u> DRAWN BY <u>CCS</u> CHECKED BY <u>APM</u>			
<b>707S-04-1/3</b>			





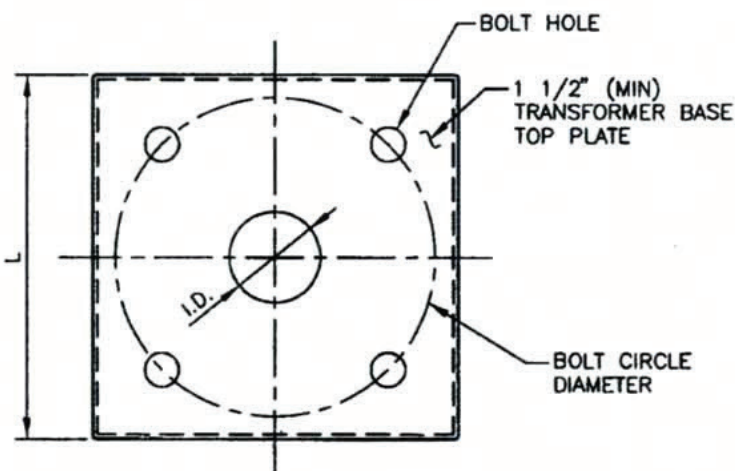
**TRANSFORMER BASE DETAIL**  
NOT TO SCALE



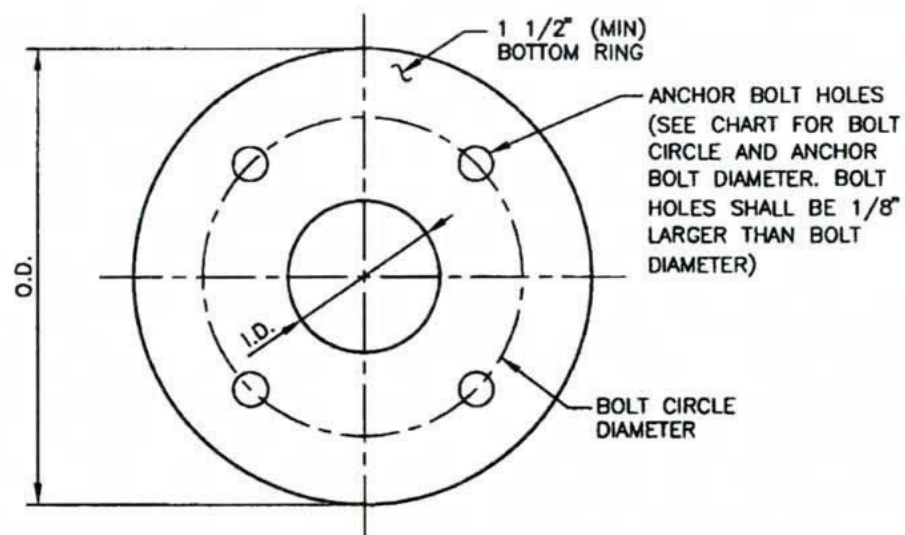
**SECTION B-B ①**  
NOT TO SCALE

**NOTES:**

1. SEE GENERAL NOTES FOR TRAFFIC SIGNAL, MAST, AND ARMS SERIAL 707S-02-1/1 FOR DESIGN INFORMATION AND SPECIFICATIONS.
2. REFERENCE NMDOT SPECIFICATION 707 FOR ADDITIONAL TRANSFORMER BASE REQUIREMENTS.
3. TRANSFORMER BASE DETAILS ARE PROVIDED AS MINIMUM GEOMETRIC REQUIREMENTS. DESIGN AND DETAILS SHALL BE SUBMITTED TO NMDOT FOR REVIEW AND APPROVAL. ALL TRANSFORMER BASES SHALL ALLOW 90° ROTATION AT BOTTOM OF TRANSFORMER.
4. MINIMUM BOLT CIRCLE DIAMETER IS PROVIDED. LARGER DIAMETERS ARE PERMITTED, BUT SHALL AVOID CONFLICTS WITH DRILLED SHAFT REINFORCING. SEE SERIAL 708S-02-1/1 FOR FOUNDATION INFORMATION. REVISED BOTTOM RING DESIGN AND DETAILS SHALL BE SUBMITTED FOR REVIEW AND APPROVAL.
5. GEOMETRY OF HOLD DOWN LUG MAY BE MODIFIED, BUT SHALL BE DESIGNED TO PERMIT 90° ROTATION.



**VIEW A-A ①**  
NOT TO SCALE



**BOTTOM RING AND ANCHOR BOLT TEMPLATE DETAIL ①**  
(ALL ANCHOR BOLTS TO BE SET USING BOTTOM RING AS TEMPLATE.)  
NOT TO SCALE

- ① 4- BOLT PATTERN SHOWN.  
6- BOLT PATTERN NOT SHOWN FOR CLARITY. BOLTS SHALL BE EQUALLY SPACED ON BOLT CIRCLE.



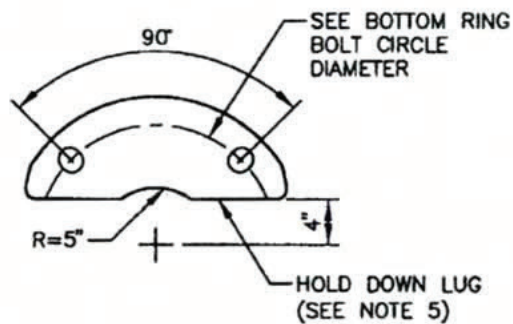
*Alfred Murillo* 12-21-11

NO.	DATE	REV. BY	DESCRIPTION
REVISIONS (OR CHANGE NOTICES)			
NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD DRAWING			
SIGN, SIGNAL, AND LUMINARE SUPPORT STRUCTURES TYPE II AND III			
DESIGNED BY <u>MS</u> DRAWN BY <u>CCS</u> CHECKED BY <u>APM</u>			
707S-04-2/3			2 of 3

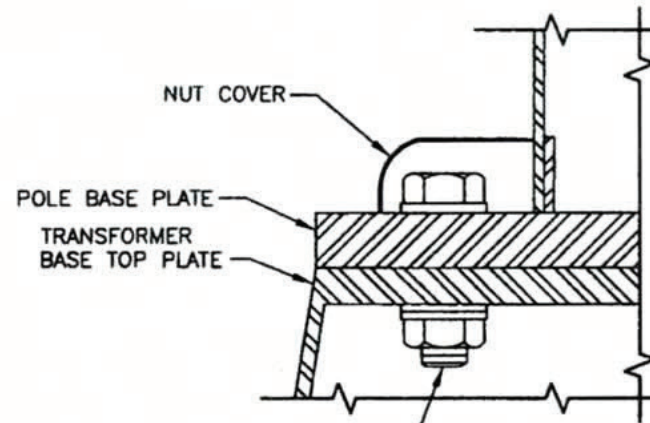


MAST ARM LENGTH (FT)	TRANSFORMER BASE TOP PLATE				TRANSFORMER BASE BOTTOM PLATE				BOTTOM RING				ANCHOR BOLT TEMPLATE				ANCHOR BOLTS		
	L (IN)	I.D. (IN)	BOLT CIRCLE DIAMETER (IN)	THICK (IN)	M (IN)	I.D. (IN)	BOLT CIRCLE DIAMETER (IN)	THICK (IN)	O.D. (IN)	I.D. (IN)	BOLT CIRCLE DIAMETER (IN)	THICK (IN)	O.D. (IN)	I.D. (IN)	BOLT CIRCLE DIAMETER (IN)	THICK (IN)	NO.	SIZE (IN)	LENGTH (IN)
20	21	6	19.0	NOTE 3	NOTE 3	NOTE 3	19.0	NOTE 3	NOTE 3	10	19.0	NOTE 3	20.5	17.5	19.0	0.3125	4	1.5	68
25	21	6	19.0	NOTE 3	NOTE 3	NOTE 3	19.0	NOTE 3	NOTE 3	10	19.0	NOTE 3	20.5	17.5	19.0	0.3125	4	1.5	68
30	21	6	19.0	NOTE 3	NOTE 3	NOTE 3	19.0	NOTE 3	NOTE 3	10	19.0	NOTE 3	20.5	17.5	19.0	0.3125	4	1.5	68
35	21	6	19.0	NOTE 3	NOTE 3	NOTE 3	19.0	NOTE 3	NOTE 3	10	19.0	NOTE 3	20.5	17.5	19.0	0.3125	4	1.5	68
40	27	6	21.0	NOTE 3	NOTE 3	NOTE 3	21.0	NOTE 3	NOTE 3	10	21.0	NOTE 3	22.5	19.5	21.0	0.3125	6	1.5	68
45	27	6	21.0	NOTE 3	NOTE 3	NOTE 3	21.0	NOTE 3	NOTE 3	10	21.0	NOTE 3	22.5	19.5	21.0	0.3125	6	1.5	68
50	27	6	21.0	NOTE 3	NOTE 3	NOTE 3	21.0	NOTE 3	NOTE 3	10	21.0	NOTE 3	23.5	20.5	21.0	0.3125	6	1.5	68
55	29	6	23.0	NOTE 3	NOTE 3	NOTE 3	23.0	NOTE 3	NOTE 3	10	23.0	NOTE 3	24.0	21.0	23.0	0.3125	6	1.75	68
60	31	6	25.0	NOTE 3	NOTE 3	NOTE 3	25.0	NOTE 3	NOTE 3	10	25.0	NOTE 3	26.0	23.0	25.0	0.3125	6	1.75	68
65	31	6	25.0	NOTE 3	NOTE 3	NOTE 3	25.0	NOTE 3	NOTE 3	10	25.0	NOTE 3	26.0	23.0	25.0	0.3125	6	1.75	68

\* REFERENCE SERIAL 707S-04-2/3 FOR NOTE 3.

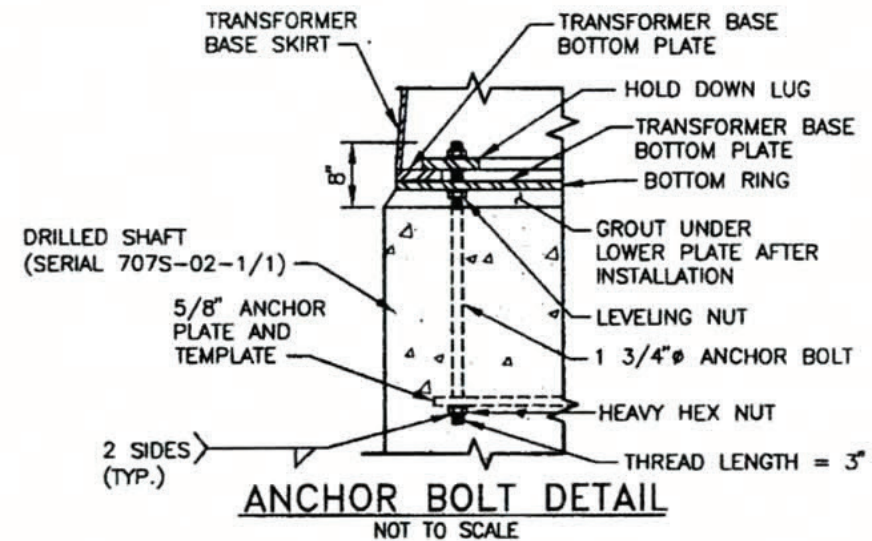


**BOTTOM HOLD DOWN LUG DETAIL**  
2 REQ'D (ALLOWS 360° ROTATION)  
NOT TO SCALE



A-449 BASE PLATE BOLTS W/ NUTS  
(2) FLAT WASHERS &  
(1) LOCK WASHER PER BOLT  
(BASE PLATE BOLTS TO BE THE  
SAME DIAMETER AND QUANTITY AS  
ANCHOR BOLTS)

**POLE TO TRANSFORMER BASE CONNECTION**  
NOT TO SCALE



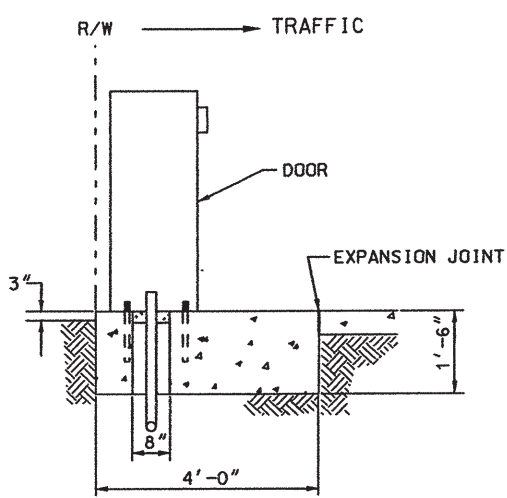
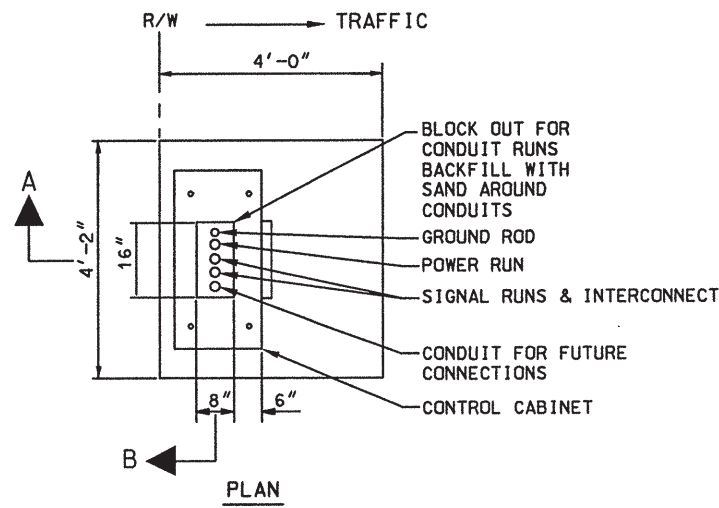
**ANCHOR BOLT DETAIL**  
NOT TO SCALE

NO.	DATE	REV. BY	DESCRIPTION
REVISIONS (OR CHANGE NOTICES)			
<b>NEW MEXICO</b> <b>DEPARTMENT OF TRANSPORTATION</b> <b>STANDARD DRAWING</b>			
<b>SIGN, SIGNAL, AND LUMINARE</b> <b>SUPPORT STRUCTURES</b> <b>TYPE II AND III</b>			
DESIGNED BY <u>MS</u> DRAWN BY <u>CSS</u> CHECKED BY <u>APM</u>			
707S-04-3/3			

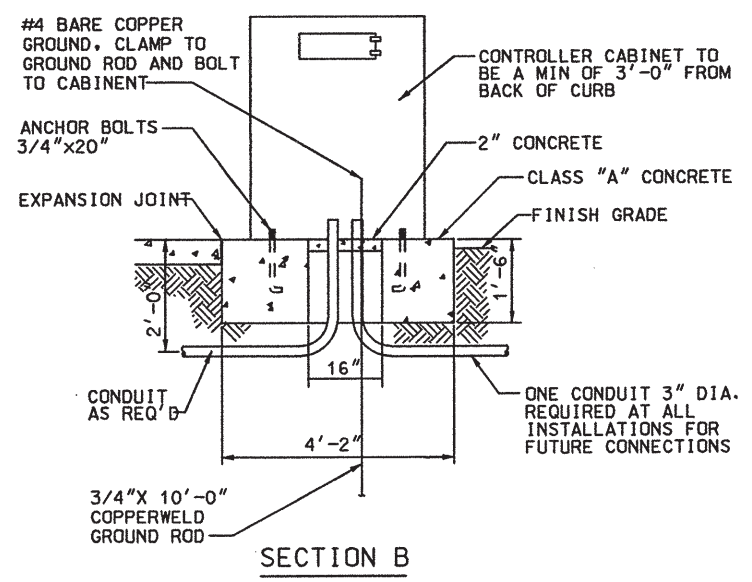


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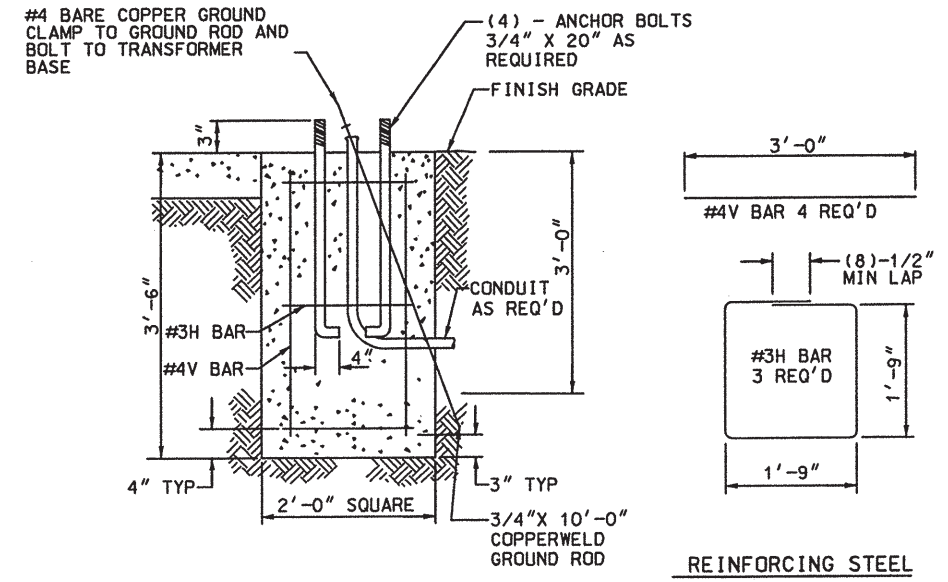
SECTION A



SECTION B

**CONTROLLER FOUNDATION DETAIL**

IN THE EVENT THE SUPPLIED CABINET WOULD OVERLAP THE SIDES OF ABOVE FOUNDATION, THE FOUNDATION SHALL BE INCREASED IN SIZE AS DIRECTED BY THE ENGINEER.



REINFORCING STEEL

**PEDESTAL FOUNDATION DETAILS-TYPE I STANDARD**

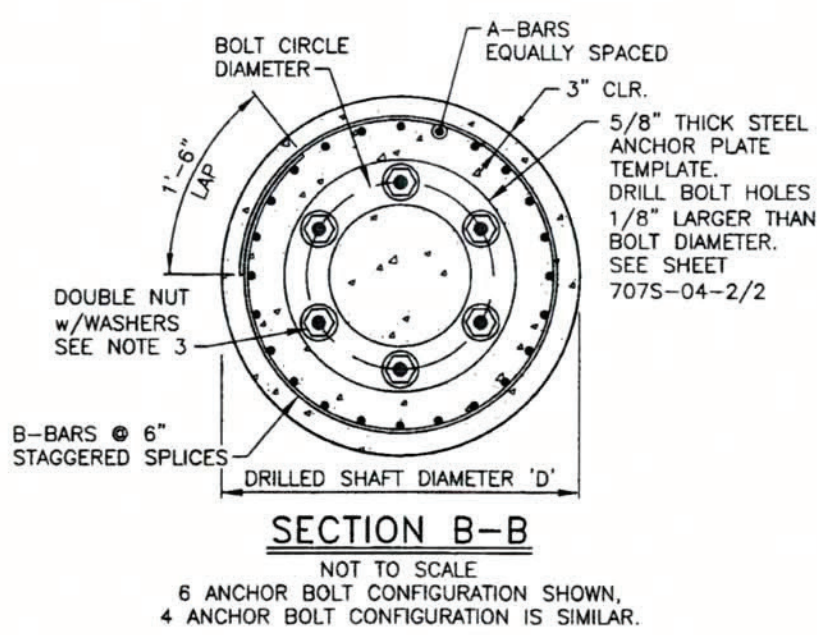
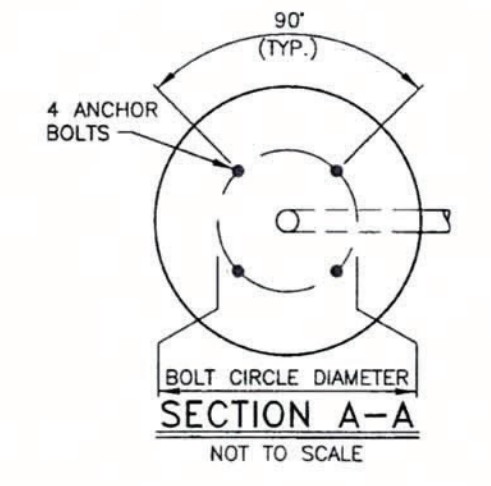
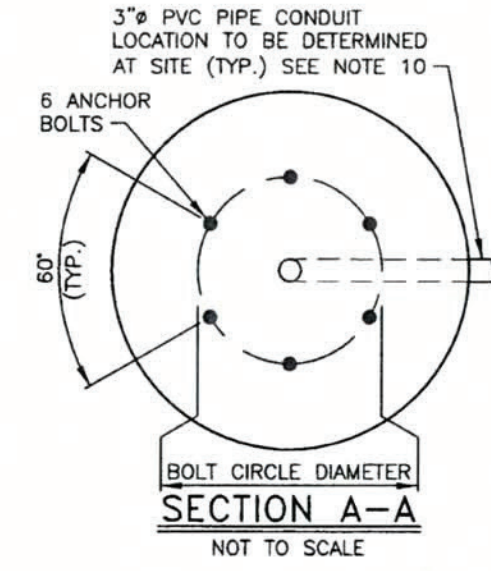
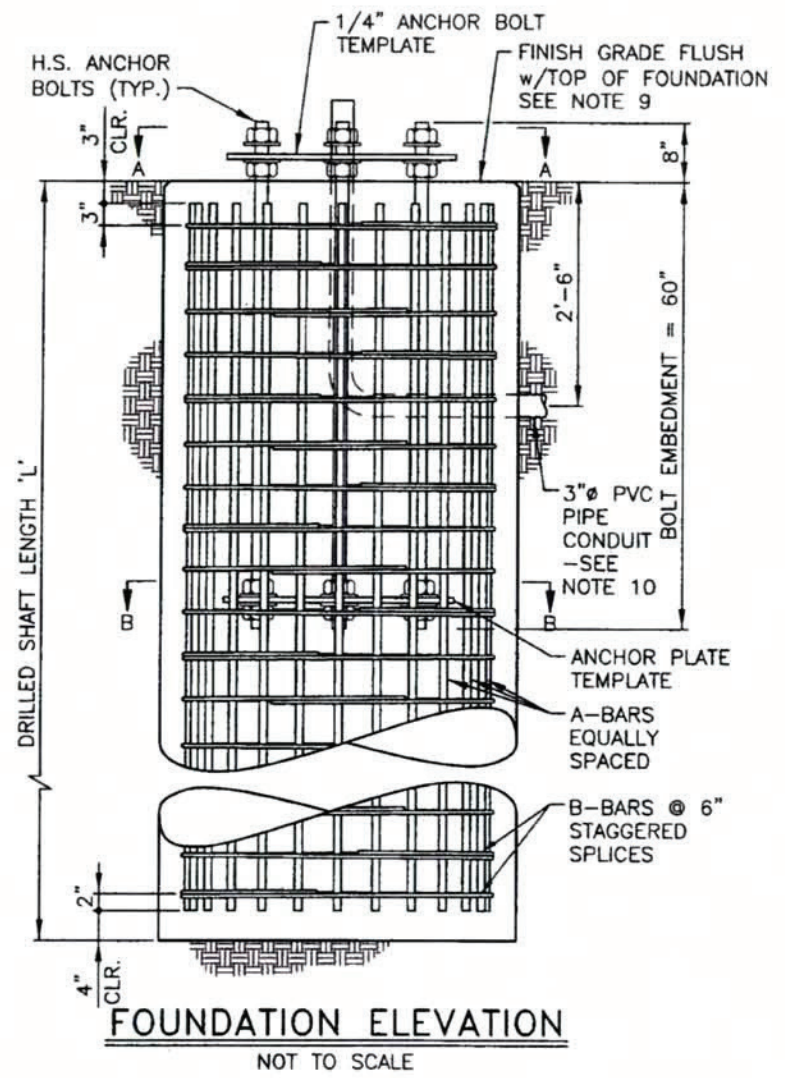
**ESTIMATED QUANTITIES**

FOUNDATION	CLASS "A" CONC CUBIC YARDS	REINFORCING BARS POUNDS
PEDESTAL POLE TYPE I	0.52	17
CONTROLLER CABINET TYPE P & R	0.88	—
SPLICE CABINET	0.52	17

**NOTES**

- ALTERNATE DESIGNS FOR STANDARD FOUNDATIONS TO BE SUBMITTED TO THE BRIDGE ENGINEER FOR APPROVAL.
- ALL GROUND RODS SHALL BE 3/4" X 10'-0". ALL SIGNAL FOUNDATIONS SHALL INCLUDE COPPERWELD GROUND RODS AS SHOWN WHICH SHALL BE CONSIDERED INCIDENTAL TO THE COMPLETION OF THE FOUNDATION. NO PRICE OR PAYMENT SHALL BE MADE THEREFOR.
- FINISHED GRADE FOR ALL FOUNDATIONS TO BE DETERMINED BY THE PROJECT ENGINEER. THE TOP OF STANDARD FOUNDATIONS SHALL BE FLUSH WITH ADJACENT SIDEWALK OR PAVED AREAS.

NO.	DATE	REV. BY	DESCRIPTION
REVISIONS ( OR CHANGE NOTICES )			
NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD DRAWING			
FOUNDATION DETAILS FOR TYPE I STANDARD AND CONTROLLER CABINET			
APPROVED	DESIGN ENGINEER		DATE
			12-22-04
DESIGNED BY _____ DRAWN BY _____ CHECKED BY _____			
7085-01-1/1			



SEE SIGN, SIGNAL AND LUMINAIRE SUPPORT STRUCTURE STANDARDS  
 707S-03A-1/1  
 707S-03B-1/1  
 707S-03C-1/1  
 707S-04-1/2  
 707S-04-2/2

SIGN, SIGNAL AND LUMINAIRE POLE ELEVATION  
 NOT TO SCALE



NO.	DATE	REV. BY	DESCRIPTION
REVISIONS (OR CHANGE NOTICES)			
NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD DRAWING			
SIGN, SIGNAL AND LUMINAIRE SUPPORT STRUCTURES FOUNDATION DETAILS			
DESIGNED BY <u>AYB</u> DRAWN BY <u>BDC</u> CHECKED BY <u>JSM</u>			
708S-02-1/2			
			1 OF 2



**NOTES:**

1. CONCRETE SHALL CONFORM TO SECTION 510 - PORTLAND CEMENT CONCRETE. CONCRETE IS TO BE CLASS "G",  $f'c = 3000$  PSI.
  2. REINFORCING STEEL (REBAR) SHALL CONFORM TO SECTION 540 - STEEL REINFORCEMENT AASHTO M-31 (ASTM A 615), GRADE 60. DIMENSIONS REFER TO THE CENTERLINE OF BARS.
  3. ANCHOR BOLTS SHALL CONFORM TO AASHTO M-314 (ASTM F 1554 GRADE 55). PROVIDE A HEX NUT, LEVELING NUT AND 2 WASHERS TOP AND BOTTOM OF EACH BOLT. ANCHOR BOLTS SHALL BE CONSIDERED INCIDENTAL TO THE FOUNDATIONS.
  4. CONCRETE IS TO BE PLACED IN DRILLED HOLES. DUE TO EXISTING SOIL CONDITIONS THE USE OF A HOLE CASING MAY BE REQUIRED. THE CASING SHALL BE PULLED AS THE CONCRETE IS PLACED WITH A 6" MINIMUM OVERLAP.
  5. FOUNDATION DESIGN IS FOR THE SIGN, SIGNAL AND LUMINAIRE STANDARD DIAMETERS SHOWN AND A ROUND OR DODECAGONAL SHAPE SHAFT. IF A LARGER DIAMETER IS FURNISHED, THE CONTRACTOR SHALL BUILD A LARGER FOUNDATION AS DETERMINED NECESSARY BY THE BRIDGE ENGINEER AND NO ADDITIONAL PAYMENT OR COMPENSATION SHALL BE MADE.
  6. ALTERNATE DESIGNS FOR STANDARD FOUNDATIONS TO BE SUBMITTED TO THE BRIDGE ENGINEER FOR APPROVAL.
  7. THE FOLLOWING SOIL DESIGN PARAMETERS WERE ASSUMED FOR THE POLE FOUNDATION DESIGN:
    - a) COHESIVE SOIL:  
 SOIL UNIT WEIGHT  $\gamma = 100$  lb/ft<sup>3</sup>  
 SOIL COHESION  $c = 800$  lb/ft<sup>2</sup>  
 SOIL STRAIN  $\epsilon_{50} = 0.01$   
 THIS DESCRIPTION WOULD APPLY WHERE SOFT TO STIFF CLAY SOILS EXIST.
    - b) NON-COHESIVE SOIL:  
 SOIL UNIT WEIGHT  $\gamma = 120$  lb/ft<sup>3</sup>  
 INTERNAL FRICTION ANGLE  $\phi = 28^\circ$   
 SOIL MODULUS  $K = 90$  lb/in<sup>3</sup>  
 THIS DESCRIPTION WOULD APPLY WHERE LOOSE TO MEDIUM DENSE SANDY SOILS EXIST.
    - c) ROCK  
 ROCK UNIT WEIGHT  $\gamma = 140$  lb/ft<sup>3</sup>  
 ROCK UNCONFINED STRENGTH  $S_u = 21,600$  lb/ft<sup>2</sup>  
 THIS DESCRIPTION WOULD APPLY WHERE FAIR ROCK TO VERY GOOD ROCK EXISTS.
- EVALUATE SOIL CONDITIONS TO DETERMINE WHICH SOIL DESIGN PARAMETERS BEST MATCHES SITE CONDITIONS. PROVIDED DESIGN IS LIMITED TO THE NOTED PARAMETERS.
- SHOULD THE SOIL CONDITIONS VARY IN SIGNIFICANT CONTRAST TO ANY OF THOSE DESCRIBED IN a, b OR c ABOVE, THE STATE GEOTECHNICAL ENGINEER SHALL BE CONSULTED FOR APPROVAL OF ANY REQUIRED REMEDIAL MEASURES BEFORE THE FOUNDATION PLACEMENT.
8. ALL HOLES FOR FOUNDATION SHAFTS SHALL BE POURED AGAINST UNDISTURBED EARTH. IF SHAFT IS NOT LOCATED IN UNDISTURBED SOILS THEN ALL SOILS THE SHAFT IS PLACED INTO SHALL BE COMPACTED TO 95% MINIMUM.
  9. FINISHED GRADE FOR ALL FOUNDATIONS TO BE DETERMINED BY THE PROJECT ENGINEER. THE TOP OF STANDARD FOUNDATIONS SHALL BE FLUSH WITH ADJACENT SIDEWALK OR PAVED AREAS WHEN PRESENT AND SHALL CONFORM TO THE AMERICANS WITH DISABILITIES ACT.
  10. PVC CONDUIT SHALL BE CALLED OUT IN SHOP DRAWINGS USING A MINIMUM 3" CONDUIT PIPE OR AS REQUIRED BY THE SIGN, SIGNAL AND LUMINAIRE MANUFACTURER.
  11. ALL FOUNDATIONS SHALL INCLUDE COPPERWELD GROUND RODS AS REQUIRED BY THE SIGN, SIGNAL AND LUMINAIRE MANUFACTURER. PLACEMENT AND INSTALLATION OF GROUND RODS SHALL BE SHOWN WITH SHOP DRAWINGS AND SHALL BE CONSIDERED INCIDENTAL TO THE COMPLETION OF THE FOUNDATION.

**ANCHOR BOLTS**

SIGNAL POLE MAST ARM LENGTH (ft)	VERTICAL POLE DIAMETER O.D. (in)	BOLT DIAMETER (in)	BOLT LENGTH (in)	NUMBER OF BOLTS	BOLT CIRCLE DIAMETER (in)
20-35	12.5	1.5	68	4	19
40-45	14.5	1.5	68	6	21
50	16	1.5	68	6	21
55	16	1.75	68	6	23
60	18	1.75	68	6	25
65	18	1.75	68	6	25

**TRAFFIC SIGNAL: COHESIVE SOIL**

SIGNAL POLE MAST ARM LENGTH (ft)	DRILLED SHAFT DIAMETER 'D' (in)	DRILLED SHAFT LENGTH 'L' (ft)	A-BARS			B-BARS			ESTIMATED QUANTITIES		
			SIZE	NO.	LENGTH	SIZE	NO.	LENGTH	CONCRETE (cu. yd.)	BARS (lbs.)	EXCAVATION (cu. yd.)**
20-35	36	10	#8	14	9'-6"	#4	20	9'-4"	2.7	480	3
40-50	42	14	#8	18	13'-6"	#4	28	11'-0"	5.0	689	6
55-65	48	16	#8	24	15'-6"	#4	32	12'-6"	7.5	1260	8

**TRAFFIC SIGNAL: NON-COHESIVE SOIL**

SIGNAL POLE MAST ARM LENGTH (ft)	DRILLED SHAFT DIAMETER 'D' (in)	DRILLED SHAFT LENGTH 'L' (ft)	A-BARS			B-BARS			ESTIMATED QUANTITIES		
			SIZE	NO.	LENGTH	SIZE	NO.	LENGTH	CONCRETE (cu. yd.)	BARS (lbs.)	EXCAVATION (cu. yd.)**
20-35	36	16	#8	14	15'-6"	#4	32	9'-4"	4.2	779	5
40-50	42	16	#8	18	15'-6"	#4	32	11'-0"	5.7	981	6
55-65	48	16	#8	24	15'-6"	#4	32	12'-6"	7.5	1260	8

**TRAFFIC SIGNAL: ROCK**

SIGNAL POLE MAST ARM LENGTH (ft)	DRILLED SHAFT DIAMETER 'D' (in)	DRILLED SHAFT LENGTH 'L' (ft)*	A-BARS			B-BARS			ESTIMATED QUANTITIES		
			SIZE	NO.	LENGTH	SIZE	NO.	LENGTH	CONCRETE (cu. yd.)	BARS (lbs.)	EXCAVATION (cu. yd.)**
20-35	36	10	#8	14	9'-6"	#4	20	9'-4"	2.7	480	3
40-50	42	12	#8	18	11'-6"	#4	24	11'-0"	4.3	730	4
55-65	48	12	#8	24	11'-6"	#4	24	12'-6"	5.6	938	6

DRILLED SHAFT LENGTH 'L' IS MEASURED AS THE LENGTH OF SHAFT IN SOIL.

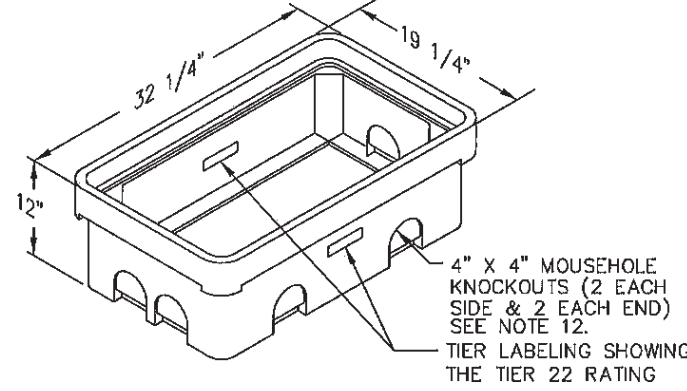
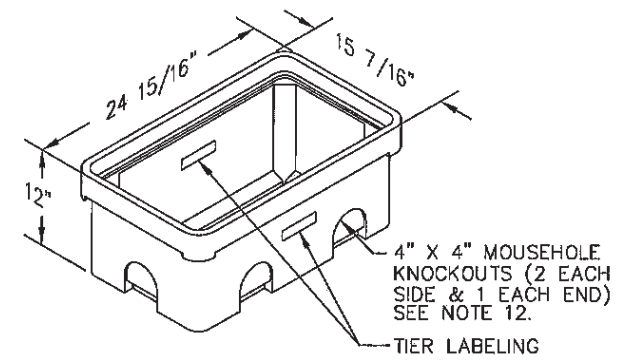
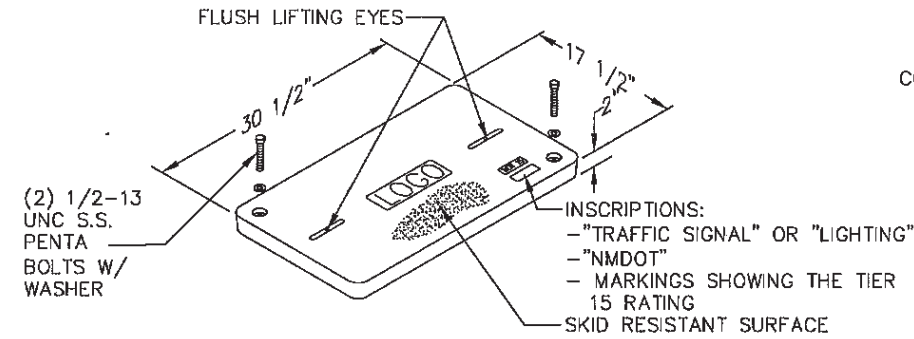
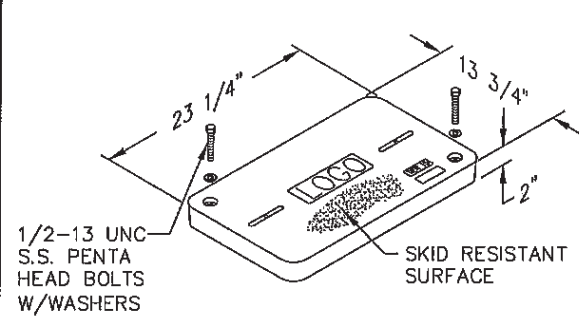
\* DRILLED SHAFT LENGTH 'L' IN ROCK IS BASED ON UNWEATHERED ROCK CONDITION. IF WEATHERED ROCK IS ENCOUNTERED, THE CAPACITY OF WEATHERED ROCK SHOULD BE NEGLECTED.

\*\* FOR CONTRACTOR'S INFORMATION ONLY.



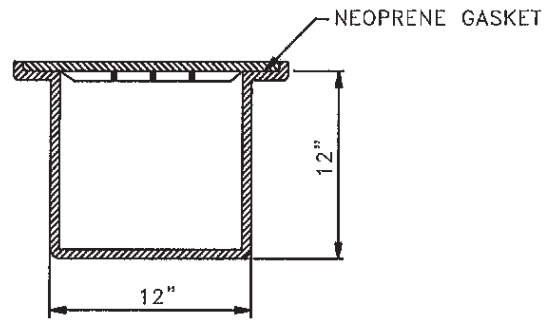
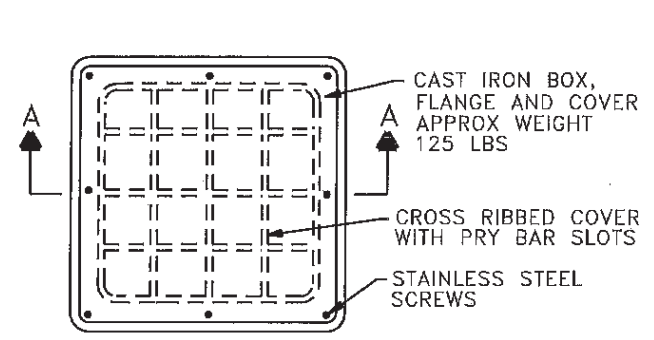
NO.	DATE	REV. BY	DESCRIPTION
REVISIONS (OR CHANGE NOTICES)			
NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD DRAWING			
SIGN, SIGNAL AND LUMINAIRE SUPPORT STRUCTURES FOUNDATION DETAILS			
DESIGNED BY <u>AYB</u> DRAWN BY <u>BDC</u> CHECKED BY <u>JSM</u>			
70BS-02-2/2			2 OF 2





STANDARD PULL BOX

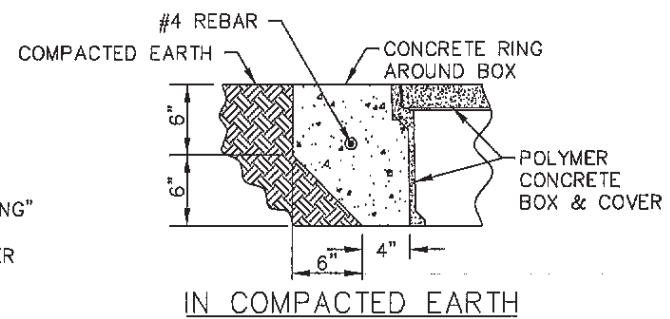
LARGE PULL BOX



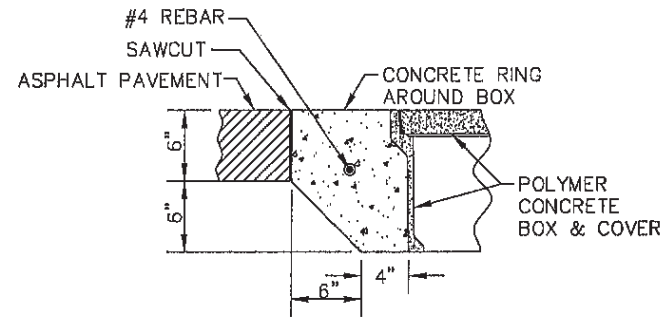
PLAN

SECTION A-A

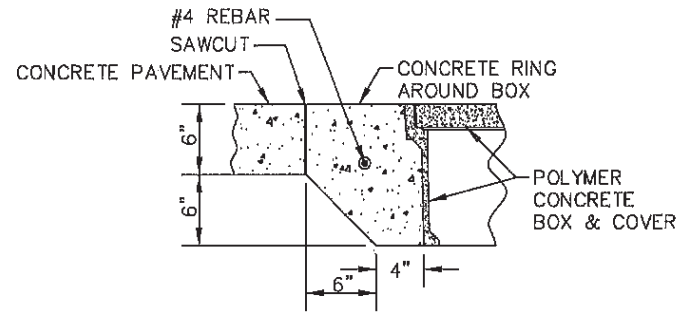
METAL PULL BOX



IN COMPACTED EARTH



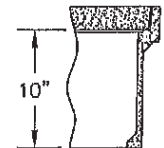
IN ASPHALT PAVEMENTS



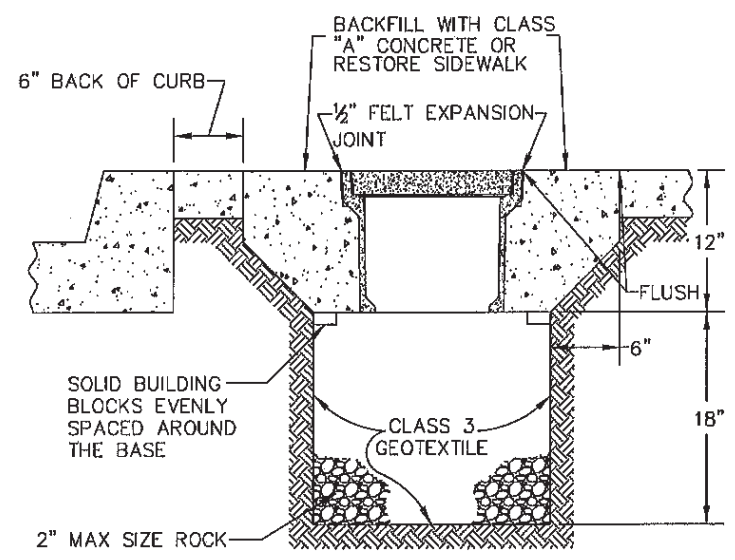
IN CONCRETE PAVEMENTS

CONCRETE COLLAR DETAIL

NOTE: THE CONCRETE COLLAR FOR THE PULL BOXES WILL BE PAID FOR UNDER THE CONTRACT ITEM FOR ELECTRICAL PULL BOX AND NO OTHER MEASUREMENT OR PAYMENT WILL BE MADE THEREFOR.



PULL BOX DETAILS



TYPICAL PULL BOX INSTALLATION

NOTE: SEE "CONCRETE COLLAR DETAILS"

PULL BOX NOTES:

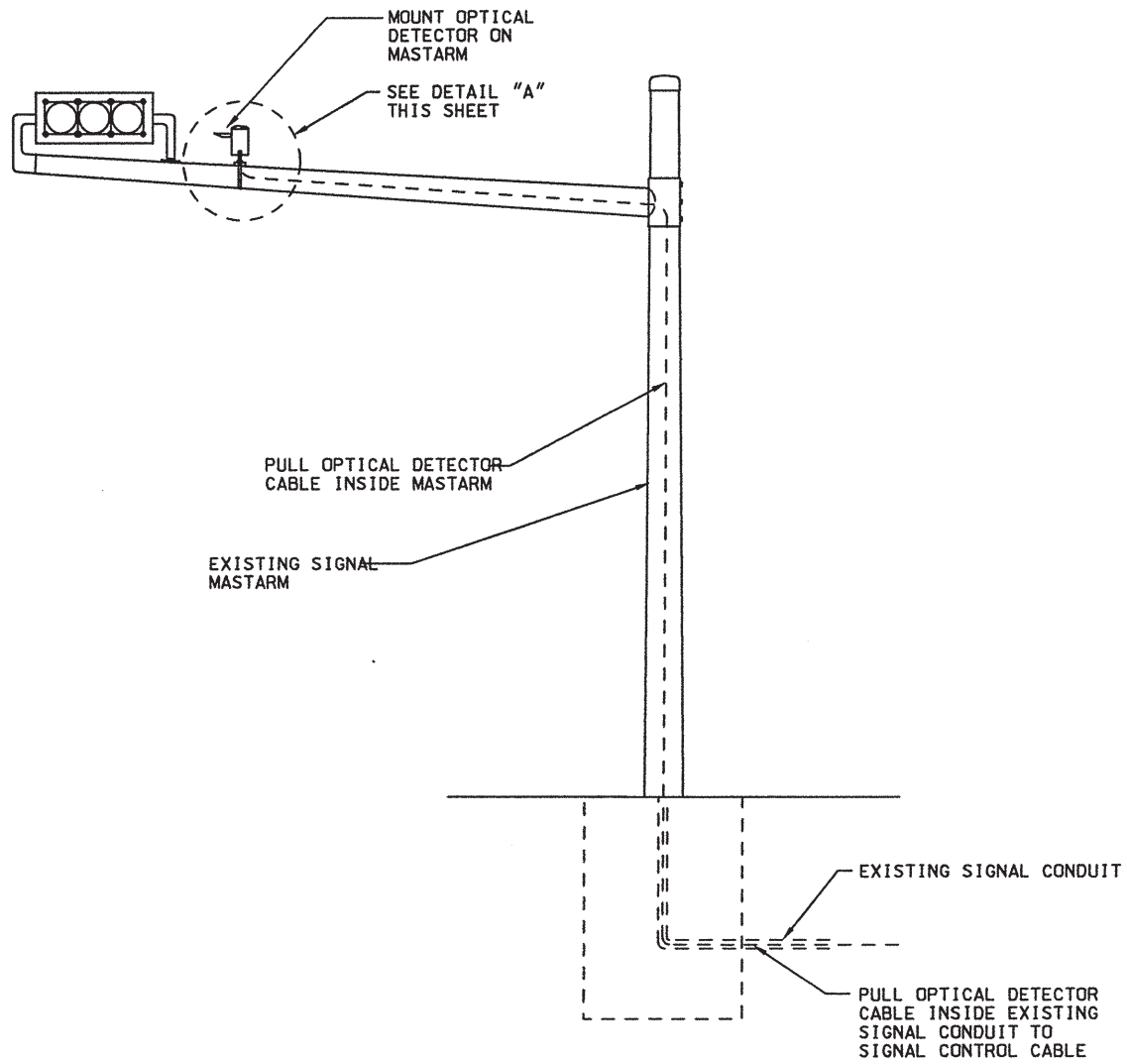
- ALL NON-DELIBERATE TRAFFIC PULL BOX COVERS MUST COMPLY WITH ALL TEST PROVISIONS OF ANSI/SCTE 77 2007 "SPECIFICATION FOR UNDERGROUND ENCLOSURE INTEGRITY", AND MUST MEET THE TIER 15 APPLICATION. MARKINGS SHOWING THE TIER 15 RATING MUST BE EMBOSSED ON THE TOP SURFACE OF THE COVER.
- ALL NON-DELIBERATE TRAFFIC PULL BOXES MUST COMPLY WITH ALL TEST PROVISIONS OF ANSI/SCTE 77 2007 "SPECIFICATION FOR UNDERGROUND ENCLOSURE INTEGRITY", AND MUST MEET THE TIER 22 APPLICATION. MARKINGS SHOWING THE TIER 22 RATING MUST BE LABELED OR STENCILED ON THE INSIDE AND OUTSIDE OF THE BOX.
- ALL NON-DELIBERATE TRAFFIC PULL BOXES AND COVER MUST BE MADE OF POLYMER CONCRETE WITH FIBERGLASS REINFORCEMENT. THE BOX MUST HAVE CONTINUOUS FIBERGLASS CLOTH REINFORCEMENT ON THE INSIDE AND OUTSIDE PERIMETERS. THE COVERS MUST HAVE A MINIMUM OF TWO LAYERS OF FIBERGLASS CLOTH REINFORCEMENT.
- ALL TRAFFIC PULL BOXES AND COVERS MUST BE MADE FROM MATCHED METAL TOOLING TO ENSURE PRODUCT UNIFORMITY.
- ALL NON-DELIBERATE TRAFFIC PULL BOXES AND COVERS MUST BE TESTED AND CERTIFIED BY UL (UNDERWRITERS LABORATORIES) OR A NATIONALLY RECOGNIZED THIRD PARTY INDEPENDENT TEST LAB AND REVIVIFIED EVERY YEAR TO MEET THE ANSI/SCTE 77 SPECIFICATIONS.
- COVERS MUST BE SECURED TO PULL BOX USING 1/2-13 UNC S.S. PENTA HEAD BOLTS W/WASHERS.
- FASTENERS MUST BE CAPABLE OF WITHSTANDING A TORQUE OF 56 FT LBS AND A PULL-OUT STRENGTH OF 750 LBS. THE PULL-OUT TEST MUST BE PERFORMED WITH THE COVER IN PLACE AND THE FASTENERS TORQUED TO 56 FT LBS. FASTENERS, INSERTS AND COVER MUST NOT BE DAMAGED BY THE PERFORMANCE OF THIS TEST
- COVERS MUST BE MARKED "NMDOT" AND HAVE A NONSKID SURFACE WITH RECESSED LOCK-DOWN LOCATIONS FOR PENTA HEAD BOLTS.
- THE NOMINAL DIMENSIONS OF THE OPENING IN WHICH THE COVER SETS MUST BE THE SAME AS THE COVER DIMENSIONS EXCEPT THE LENGTH AND WIDTH DIMENSIONS MUST BE 1/8 OR GREATER.
- PULL BOX TYPE AND LOGO SHALL BE APPROVED BY THE PROJECT MANAGER.
- COLOR OF CONCRETE COLLAR SHALL MATCH COLOR OF SURROUNDING COLORED CONCRETE.
- 4"x4" MOUSEHOLES MAY BE USED IF REQUESTED.



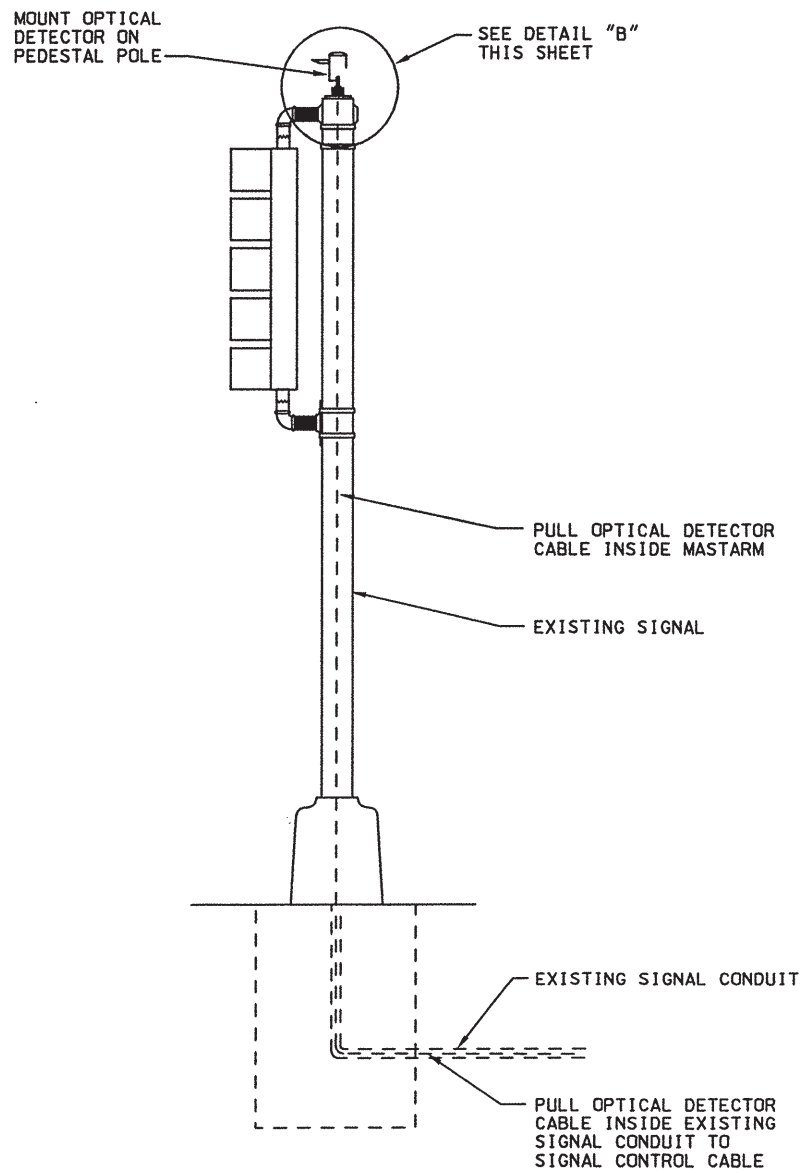
DRAWING NOT TO SCALE

NO.	DATE	REV. BY	DESCRIPTION
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NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD DRAWING			
PULL BOX DETAILS			
710S-01-1/1			



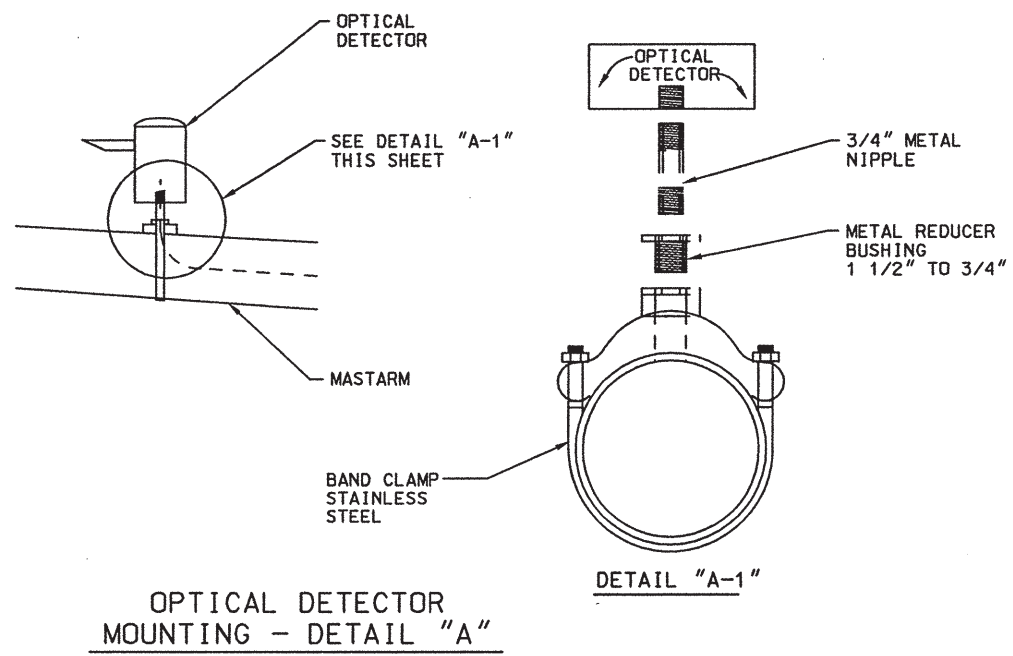


TYPICAL OPTICAL DETECTOR INSTALLATION-MASTARM

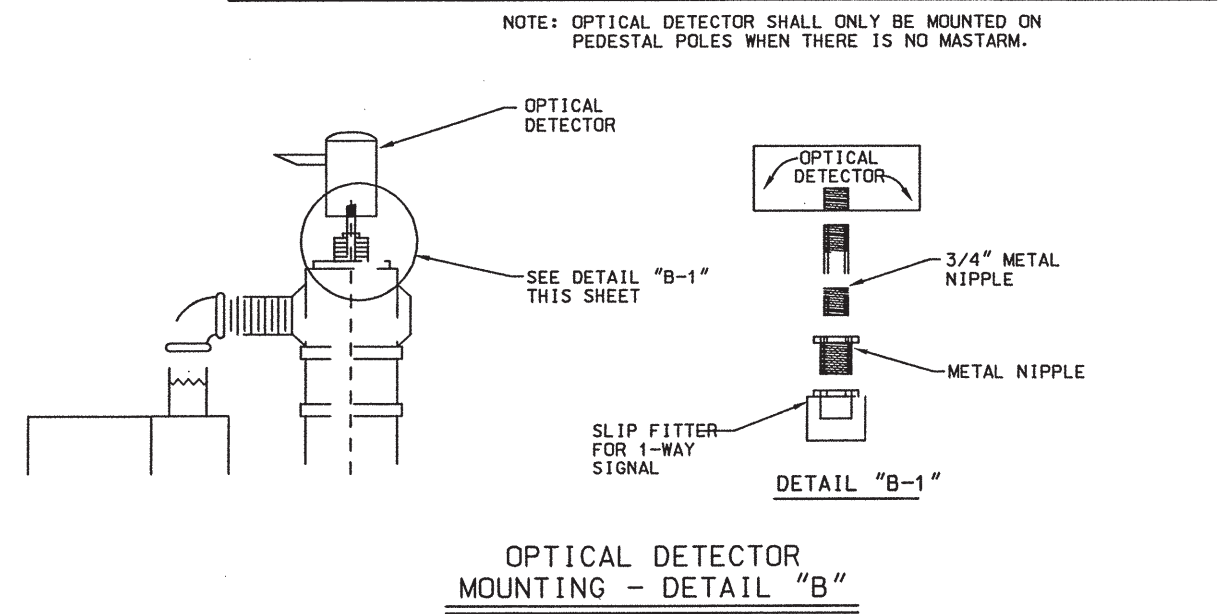


TYPICAL OPTICAL DETECTOR INSTALLATION - PEDESTAL POLE

**NOTES:**  
 1. ALL OPTICAL DETECTOR MOUNTING HARDWARE SHALL CONFORM TO OPTICAL DETECTOR MANUFACTURER'S REQUIREMENTS.



OPTICAL DETECTOR MOUNTING - DETAIL "A"



OPTICAL DETECTOR MOUNTING - DETAIL "B"

NOTE: OPTICAL DETECTOR SHALL ONLY BE MOUNTED ON PEDESTAL POLES WHEN THERE IS NO MASTARM.

NO.	DATE	REV. BY	DESCRIPTION
REVISIONS ( OR CHANGE NOTICES )			
<b>NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD DRAWING</b>			
<b>OPTICAL DETECTOR INSTALLATION DETAILS</b>			
APPROVED	<i>Steve D...</i>		12-22-04
	DESIGN ENGINEER		DATE
DESIGNED BY	DRAWN BY	CHECKED BY	
713S-01-1/1			