CONTRACT PLANS COMPONENTS

ROADWAY
SIGNING AND PAVEMENT MARKING
SIGNALIZATION
LIGHTING
STRUCTURES
UTILITY WORK BY HIGHWAY CONTRACTOR PLANS

INDEX OF STRUCTURES PLANS

FOR INDEX OF SHEETS, SEE SHEET B-3

STATE OF FLORIDA

DEPARTMENT OF TRANSPORTATION

STRUCTURES PLANS

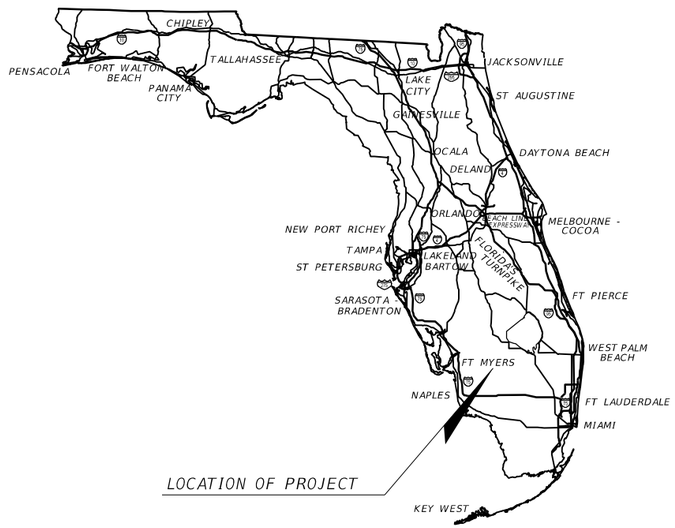
FINANCIAL PROJECT ID 417540-5-52-01
(FEDERAL FUNDS)

COLLIER COUNTY (03080)
STATE ROAD NO. 29

NEW ROAD CONSTRUCTION

FROM CR 846 E TO NORTH OF NEW MARKET ROAD W

PROJECT LOCATION URL:	https://tinyurl.com/32wcxxfc
PROJECT LIMITS:	BEGIN MP 36.600 - END MP 40.254
EXCEPTIONS:	NONE
BRIDGE LIMITS:	NONE
RAILROAD CROSSING:	NONE



PHASE IIIR
DECEMBER 31, 2025

GOVERNING STANDARD PLANS:

Florida Department of Transportation, FY 2026-27 Standard Plans for Road and Bridge Construction and applicable Interim Revisions (IRs).

Standard Plans for Road Construction and associated IRs are available at the following website: http://www.fdot.gov/design/standardplans

GOVERNING STANDARD SPECIFICATIONS:

Florida Department of Transportation, FY 2026-27 Standard Specifications for Road and Bridge Construction at the following website: http://www.fdot.gov/programmanagement/Implemented/SpecBooks

STRUCTURES PLANS
ENGINEER OF RECORD:

JOSEPH R. LOSARIA, P.E.
P.E NO.: 66479
PATEL, GREENE & ASSOCIATES, LLC
12570 TELECOM PARKWAY
TEMPLE TERRACE, FL 33637
(813) 978-3100
CONTRACT NO.: CA417
VENDOR NO.: 45-2209743

FDOT PROJECT MANAGER:

SEAN PUGH P.E.

CONSTRUCTION CONTRACT NO.	FISCAL YEAR	SHEET NO.
TBD	27	B-1

JOSEPH R. LOSARIA
LICENSE
No 66479
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY:

ON THE DATE ADJACENT TO THE SEAL

SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PATEL, GREENE & ASSOCIATES, LLC
12570 TELECOM DRIVE
TEMPLE TERRACE, FL 33637
JOSEPH R. LOSARIA, P.E. NO. 66479

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

GENERAL SHEETS:

SHEET NO.	SHEET DESCRIPTION
B-1	KEY SHEET
B-2	SIGNATURE SHEET
B-3	INDEX OF SHEETS

CULVERTS CD-2, CD-3 AND CD-4:

SHEET NO.	SHEET DESCRIPTION
BC-1	PLAN - CD-2
BC-2	BOX CULVERT DATA TABLE - CD-2
BC-3	REINFORCING BAR LIST - CD-2 (1 OF 2)
BC-4	REINFORCING BAR LIST - CD-2 (2 OF 2)
BC-6	PLAN - CD-3
BC-7	BOX CULVERT DATA TABLE - CD-3
BC-8	REINFORCING BAR LIST - CD-3 (1 OF 2)
BC-9	REINFORCING BAR LIST - CD-3 (2 OF 2)
BC-11	PLAN - CD-4
BC-12	BOX CULVERT DATA TABLE - CD-4
BC-13	REINFORCING BAR LIST - CD-4 (1 OF 2)
BC-14	REINFORCING BAR LIST - CD-4 (2 OF 2)
BC-16	PIPE PENETRATION DETAILS

IGOR KRATSER
LICENSE
No 73129
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY:

ON THE DATE ADJACENT TO THE SEAL

SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

TEST LAB, INC.
4112 WEST OSBORNE AVENUE
TAMPA, FL 33614
IGOR KRATSER, P.E. NO. 73129

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

GENERAL SHEETS:

SHEET NO.	SHEET DESCRIPTION
B-2	SIGNATURE SHEET

CULVERTS CD-2, CD-3 AND CD-4:

SHEET NO.	SHEET DESCRIPTION
BC-5	CD-2 - REPORT OF CORE BORINGS
BC-10	CD-3 - REPORT OF CORE BORINGS
BC-15	CD-4 - REPORT OF CORE BORINGS

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

JOSEPH R. LOSARIA, P.E.
License Number: 66479
PATEL, GREENE & ASSOCIATES, LLC
12570 TELECOM DRIVE
TEMPLE TERRACE, FL 33637

DRAWN BY: JML
CHECKED BY: SL
DESIGNED BY: JRL
CHECKED BY: SL

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 29	COLLIER	417540-5-52-01

SHEET TITLE: SIGNATURE SHEET

REF. DWG. NO.:

PROJECT NAME: NEW ROAD CONSTRUCTION FROM CR 846 E TO NORTH OF NEW MARKET ROAD W

SHEET NO.: B-2

INDEX OF SHEETS

GENERAL SHEETS:

SHEET NO.	SHEET DESCRIPTION
B-1	KEY SHEET
B-2	SIGNATURE SHEET
B-3	INDEX OF SHEETS

CULVERTS CD-2, CD-3 AND CD-4:

SHEET NO.	SHEET DESCRIPTION
BC-1	PLAN - CD-2
BC-2	BOX CULVERT DATA TABLE - CD-2
BC-3	REINFORCING BAR LIST - CD-2 (1 OF 2)
BC-4	REINFORCING BAR LIST - CD-2 (2 OF 2)
BC-5	CD-2 - REPORT OF CORE BORINGS
BC-6	PLAN - CD-3
BC-7	BOX CULVERT DATA TABLE - CD-3
BC-8	REINFORCING BAR LIST - CD-3 (1 OF 2)
BC-9	REINFORCING BAR LIST - CD-3 (2 OF 2)
BC-10	CD-3 - REPORT OF CORE BORINGS
BC-11	PLAN - CD-4
BC-12	BOX CULVERT DATA TABLE - CD-4
BC-13	REINFORCING BAR LIST - CD-4 (1 OF 2)
BC-14	REINFORCING BAR LIST - CD-4 (2 OF 2)
BC-15	CD-4 - REPORT OF CORE BORINGS
BC-16	PIPE PENETRATION DETAILS

STANDARD PLANS FOR BRIDGE CONSTRUCTION:

INDEX	INDEX TITLE
400-289	CONCRETE BOX CULVERT DETAILS
400-291	PRECAST CONCRETE BOX CULVERTS SUPPLEMENTAL DETAILS
400-292	STANDARD PRECAST CONCRETE BOX CULVERTS
415-001	BAR BENDING DETAILS (STEEL)

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

JOSEPH R. LOSARIA, P.E.
License Number: 66479
PATEL, GREENE & ASSOCIATES, LLC
12570 TELECOM DRIVE
TEMPLE TERRACE, FL 33637

DRAWN BY: JML
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

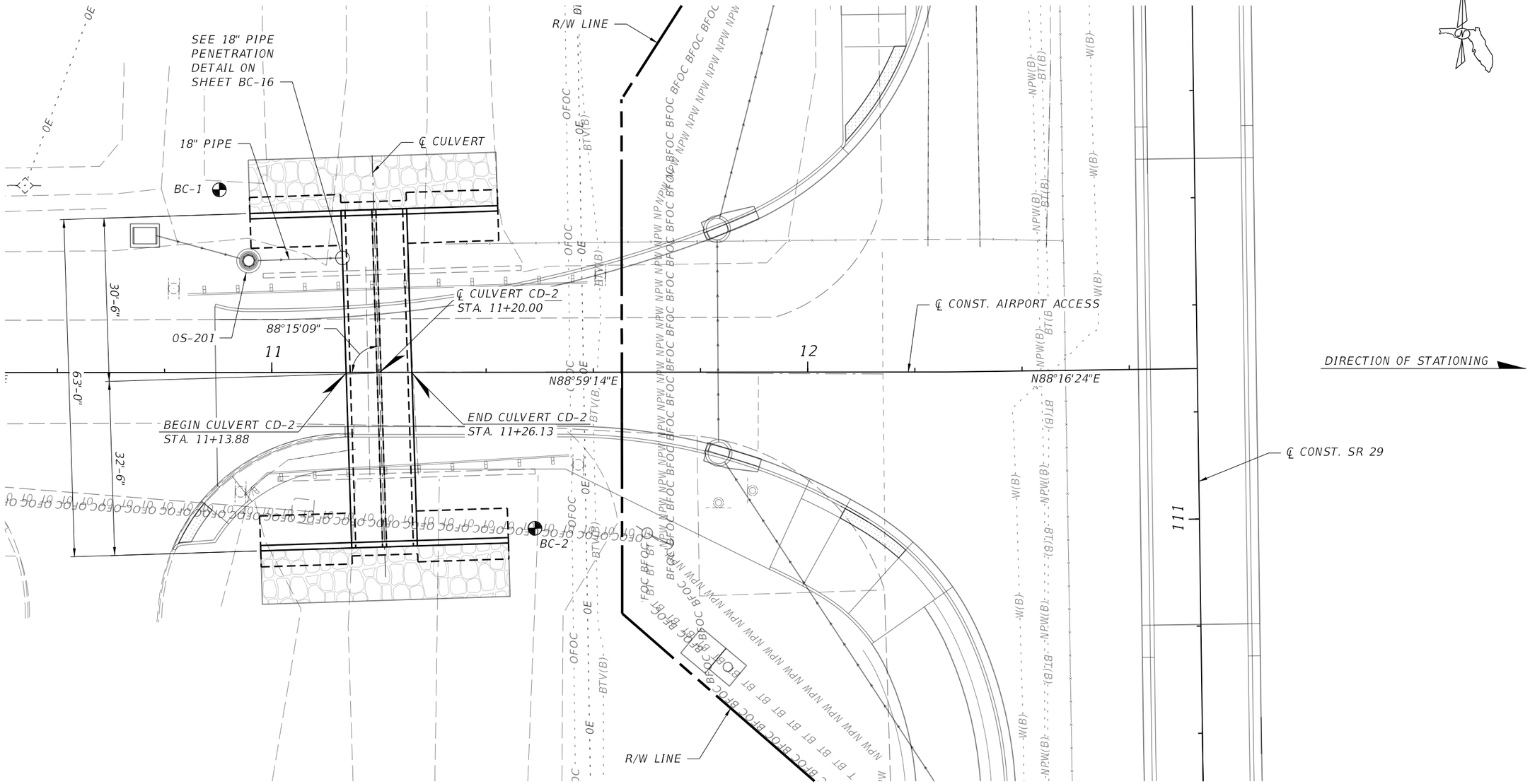
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 29	COLLIER	417540-5-52-01

SHEET TITLE: INDEX OF SHEETS

REF. DWG. NO.:

PROJECT NAME: NEW ROAD CONSTRUCTION FROM CR 846 E TO NORTH OF NEW MARKET ROAD W

SHEET NO.: B-3



PLAN

LEGEND:

INDICATES APPROXIMATE LOCATION OF SPT BORING. FOR BORING DATA, SEE SHEET BC-5.

NOTE:

1. REFER TO ROADWAY PLANS FOR LONGITUDINAL SECTION, UTILITY DISPOSITION AND ADDITIONAL ROADWAY INFORMATION.

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REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

JOSEPH R. LOSARIA, P.E.
License Number: 66479
PATEL, GREENE & ASSOCIATES, LLC
12570 TELECOM DRIVE
TEMPLE TERRACE, FL 33637

DRAWN BY:	CHECKED BY:	DESIGNED BY:	CHECKED BY:
JML	SL	JRL	SL

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 29	COLLIER	417540-5-52-01

SHEET TITLE: PLAN - CD-2

REF. DWG. NO.:

PROJECT NAME: NEW ROAD CONSTRUCTION FROM CR 846 E TO NORTH OF NEW MARKET ROAD W

SHEET NO.: BC-1

c:\pw_workdir\patelgreene-pw-01\pw_user\dms03677\MiscStrCivtPlan01.dgn : SHEET
USER: dennis.tanner 10/1/2025 2:13:55 PM

BOX CULVERT DATA TABLES

BOX, HEADWALL AND CUTOFF WALL DATA TABLE (inches unless shown otherwise)											Table Date 7-01-09									
LOCATION	STRUCTURE /BRIDGE NUMBER	BOX									HEADWALL AND CUTOFF WALL									
		Wc(ft)	Hc(ft)	Tt	Tw	Tb	Ti	#cells	Lc(ft)	Cover	Blhw	Hlhw	Brhw	Hrhw	Blcw	Hlcw	Brcw	Hrcw	SL(deg)	SR(deg)
STA. 11+20.00	CD-2	5	5	9	9	9	9	2	63	2	12	33	12	33	12	21	12	21	0	0

LEFT SIDE WINGWALLS DATA TABLE (inches unless shown otherwise)											Table Date 01-01-11								
LOCATION	LEFT END WINGWALL									LEFT BEGIN WINGWALL									
	Rt	Rw	Rh	Rd	SW(deg)	β (deg)	He(ft)	Hs(ft)	Lw(ft)	Rt	Rw	Rh	Rd	SW(deg)	β (deg)	He(ft)	Hs(ft)	Lw(ft)
STA. 11+20.00	36	12	66	12	90	8.13	7.75	7.75	17	36	12	66	12	90	8.13	7.75	7.75	17

RIGHT SIDE WINGWALLS DATA TABLE (inches unless shown otherwise)											Table Date 01-01-11								
LOCATION	RIGHT END WINGWALL									RIGHT BEGIN WINGWALL									
	Rt	Rw	Rh	Rd	SW(deg)	β (deg)	He(ft)	Hs(ft)	Lw(ft)	Rt	Rw	Rh	Rd	SW(deg)	β (deg)	He(ft)	Hs(ft)	Lw(ft)
STA. 11+20.00	36	12	66	12	90	18.4	7.75	7.75	17	36	12	66	12	90	18.4	7.75	7.75	17

ESTIMATED CONCRETE QUANTITIES (CY)																			Table Date 7-01-13
LOCATION	BOX								LEFT END WINGWALL			LEFT BEGIN WINGWALL			RIGHT END WINGWALL			RIGHT BEGIN WINGWALL		
	Left Cutoff Wall	Right Cutoff Wall	Bottom Slab	Walls	Top Slab	Left Head Wall	Right Head Wall	Sub Total	Footing	Wall	Sub Total	Footing	Wall	Sub Total	Footing	Wall	Sub Total	Footing	Wall	Sub Total
STA. 11+20.00	0.454	0.454	22.5	26.2	21.4	0.907	0.907	73.1	6.61	4.88	11.5	6.61	4.88	11.5	6.61	4.88	11.5	6.61	4.88	11.5

NOTES [Notes Date 7-01-14]:

1. ENVIRONMENTAL CLASS: MODERATELY AGGRESSIVE
2. REINFORCING STEEL, GRADE 60
3. CONCRETE CLASS: IV F'C = 5.5 KSI
4. SOIL PROPERTIES:
   FRICTION ANGLE: 32 DEGREES
   MODULUS OF SUBGRADE REACTION: 25,000 PCF
   NOMINAL BEARING RESISTANCE: 3,000 PSF
5. WORK THIS DRAWING WITH STANDARD PLANS INDEX 400-289 AND SHEETS BC-1, BC-3, BC-4 AND BC-5.
6. SETTLEMENT CRITERIA FOR PRECAST BOX CULVERT OPTION (INDEX 400-291):
   LONG TERM DIFFERENTIAL SETTLEMENT (ΔY) = 0.5 IN.
   EFFECTIVE LENGTH FOR SETTLEMENT (L) = 63 FT.

MAIN STEEL REINFORCEMENT SPACING (inches)																		Table Date 7-01-09
LOCATION	BOX														HEADWALLS		CUTOFF WALLS	
	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115, 116...	803	806	809	812
STA. 11+20.00	10	10	10	10	10	10	10	10	12	12	12	12	12	12	12	12	12	12	12

WINGWALL STEEL REINFORCEMENT SPACING (inches)																									Table Date 7-01-09
LOCATION	LEFT END WINGWALL							LEFT BEGIN WINGWALL							RIGHT END WINGWALL							RIGHT BEGIN WINGWALL						
	401 407(8)	402 (403)	404 (405)	406	409	410	411	501 507(8)	502 (503)	504 (505)	506	509	510	511	601 607(8)	602 (603)	604 (605)	606	609	610	611	701 707(8)	702 (703)	704 (705)	706	709	710	711
STA. 11+20.00	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9

WINGWALL NOTE: Bar designations in "( )" are only required for variable height wingwalls.

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REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

JOSEPH R. LOSARIA, P.E.
License Number: 66479
PATEL, GREENE & ASSOCIATES, LLC
12570 TELECOM DRIVE
TEMPLE TERRACE, FL 33637

DRAWN BY: JML
CHECKED BY: SL
DESIGNED BY: JRL
CHECKED BY: SL

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 29	COLLIER	417540-5-52-01

SHEET TITLE: BOX CULVERT DATA TABLE - CD-2

REF. DWG. NO.:

PROJECT NAME: NEW ROAD CONSTRUCTION FROM CR 846 E TO NORTH OF NEW MARKET ROAD W

SHEET NO.: BC-2

MARK		LENGTH		NO	TYP	STY		B			C			D			E			F			H			J			K			N	ϕ
SIZE	DES	FT	IN	BARS	BAR	A	G	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	NO	ANG
Box Culvert																																	
LOCATION: Main Box				NO. REQUIRED = 1																													
5	101	12- 0		77	1			11-11																									
5	102	12- 0		77	1			11-11																									
5	103	12- 0		80	1			11-11																									
5	104	12- 0		80	1			11-11																									
5	105	5- 9		152	10			1- 9			3-11 1/2																						
5	106	5- 9		152	10			1- 9			3-11 1/2																						
5	107	4-10		304	10			0-10			3-11 1/2																						
5	108	6- 2		152	1			6- 2																									
3	109	67- 0		13	2			1- 3 1/2			65- 8																					1	
3	110	64- 0		13	2			1- 3 1/2			62- 8																					1	
3	111	63- 4		13	2			1- 3 1/2			62- 0 1/4																					1	
3	112	67- 0		13	2			1- 3 1/2			65- 8																					1	
3	113	64- 0		12	2			1- 3 1/2			62- 8																					1	
3	114	64- 0		12	2			1- 3 1/2			62- 8																					1	
3	115	63- 4		12	2			1- 3 1/2			62- 0 1/4																					1	
4	B1	6- 0		12	1			6- 0																									
4	B2	8- 0		8	12			4- 0			4- 0																						45
4	B3	5- 0		2	1			5- 0																									
LOCATION: Left End Wingwall				NO. REQUIRED = 1																													
5	401	7- 6		24	1			7- 6																									
3	402	16- 9		12	1			16- 8																									
3	404	16- 9		12	1			16- 8																									
3	406	7- 6		24	1			7- 6																									
5	407	6- 3		24	10			3- 8			2- 6 3/4																						
5	409	9- 3		24	1			9- 2																									
3	410	9- 3		24	1			9- 2																									
3	411	16- 9		28	1			16- 8																									
5	412	2- 0		13	1			2- 0																									
LOCATION: Left Begin Wingwall				NO. REQUIRED = 1																													
5	501	7- 6		24	1			7- 6																									
3	502	16- 9		12	1			16- 8																									
3	504	16- 9		12	1			16- 8																									
3	506	7- 6		24	1			7- 6																									
5	507	6- 3		24	10			3- 8			2- 6 3/4																						
5	509	9- 3		24	1			9- 2																									
3	510	9- 3		24	1			9- 2																									
3	511	16- 9		28	1			16- 8																									
5	512	2- 0		13	1			2- 0																									
LOCATION: Right End Wingwall				NO. REQUIRED = 1																													
5	601	7- 6		24	1			7- 6																									
3	602	16- 9		12	1			16- 8																									
3	604	16- 9		12	1			16- 8																									
3	606	7- 6		24	1			7- 6																									
5	607	6- 3		24	10			3- 8			2- 6 3/4																						
5	609	9- 3		24	1			9- 2																									
3	610	9- 3		24	1			9- 2																									
3	611	16- 9		28	1			16- 8																									
5	612	2- 0		13	1			2- 0																									
LOCATION: Right Begin Wingwall				NO. REQUIRED = 1																													
5	701	7- 6		24	1			7- 6																									
3	702	16- 9		12	1			16- 8																									
3	704	16- 9		12	1			16- 8																									
3	706	7- 6		24	1			7- 6																									
5	707	6- 3		24	10			3- 8			2- 6 3/4																						
5	709	9- 3		24	1			9- 2																									
3	710	9- 3		24	1			9- 2																									
3	711	16- 9		28	1			16- 8																									
5	712	2- 0		13	1			2- 0																									

NOTE:

1. FOR BAR BENDING DETAILS (STEEL), SEE INDEX 415-001.

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

JOSEPH R. LOSARIA, P.E.
License Number: 66479
PATEL, GREENE & ASSOCIATES, LLC
12570 TELECOM DRIVE
TEMPLE TERRACE, FL 33637

DRAWN BY:	CHECKED BY:	DESIGNED BY:	CHECKED BY:
JML	SL	JRL	SL

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 29	COLLIER	417540-5-52-01

SHEET TITLE: REINFORCING BAR LIST CD-2 (1 OF 2)

REF. DWG. NO.:

PROJECT NAME: NEW ROAD CONSTRUCTION FROM CR 846 E TO NORTH OF NEW MARKET ROAD W

SHEET NO.: BC-3

MARK		LENGTH		NO	TYP	STY		B			C			D			E			F			H			J			K			N	ϕ
SIZE	DES	FT	IN	BARS	BAR	A	G	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	NO	ANG
LOCATION: Left Headwall NO. REQUIRED = 1																																	
5	801	12- 0		2	1			11-11																									
5	802	12- 0		2	1			11-11																									
3	803	6- 2		13	27			2- 4		1/2	0- 8			0- 0			0- 5			1-11		1/2	0- 6			0- 6							
LOCATION: Right Headwall NO. REQUIRED = 1																																	
5	804	12- 0		2	1			11-11																									
5	805	12- 0		2	1			11-11																									
3	806	6- 2		13	27			2- 4		1/2	0- 8			0- 0			0- 5			1-11		1/2	0- 6			0- 6							
LOCATION: Left Cutoff Wall NO. REQUIRED = 1																																	
5	807	12- 0		2	1			11-11																									
5	808	12- 0		2	1			11-11																									
3	809	4- 5		13	7			1- 4		1/2	0- 8			0- 6			0- 6																
LOCATION: Right Cutoff Wall NO. REQUIRED = 1																																	
5	810	12- 0		2	1			11-11																									
5	811	12- 0		2	1			11-11																									
3	812	4- 5		13	7			1- 4		1/2	0- 8			0- 6			0- 6																

NOTE:

1. FOR BAR BENDING DETAILS (STEEL), SEE INDEX 415-001.

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REVISIONS					
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TEMPLE TERRACE, FL 33637

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CHECKED BY: SL

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 29	COLLIER	417540-5-52-01

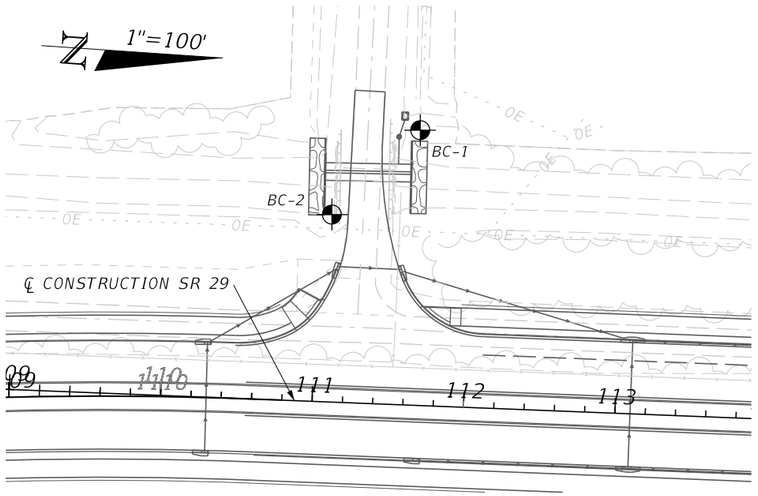
SHEET TITLE: REINFORCING BAR LIST CD-2 (2 OF 2)

REF. DWG. NO.:

PROJECT NAME: NEW ROAD CONSTRUCTION FROM CR 846 E TO NORTH OF NEW MARKET ROAD W

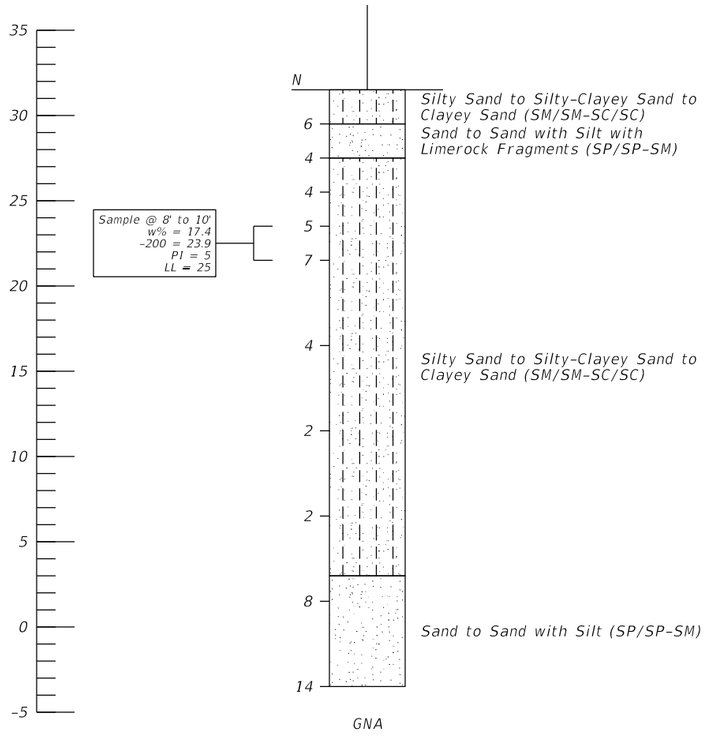
SHEET NO.: BC-4

BORING LOCATION PLAN

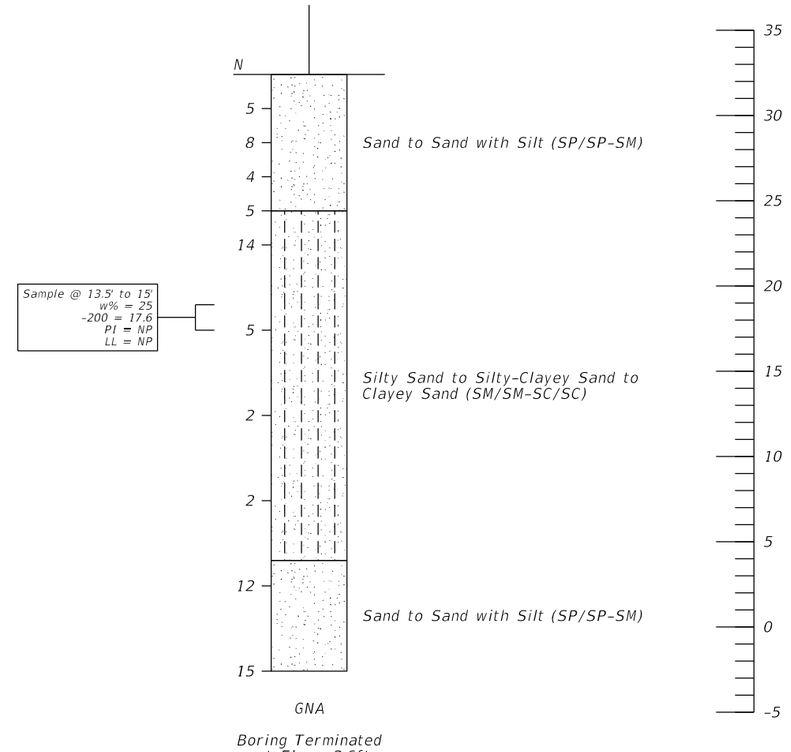


AUTOMATIC HAMMER			
GRANULAR MATERIALS-RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT)	SILT AND CLAYS CONSISTENCY	SPT N-VALUE (BLOWS/FT)
VERY LOOSE	LESS THAN 3	VERY SOFT	LESS THAN 1
LOOSE	3 TO 8	SOFT	1 TO 3
MEDIUM DENSE	8 TO 24	FIRM	3 TO 6
DENSE	24 TO 40	STIFF	6 TO 12
VERY DENSE	GREATER THAN 40	VERY STIFF	12 TO 24
		HARD	GREATER THAN 24

Bore # BC-1
Reference ℄ Const. SR 29
Station 111+64
Offset 182' LT
Elevation 31.5'
Date 7/22/2024
Driller M. Hernandez
Hammer Auto
Rig BR 2500



Bore # BC-2
Reference ℄ Const. SR 29
Station 111+08
Offset 124' LT
Elevation 32.4'
Date 7/22/2024
Driller M. Hernandez
Hammer Auto
Rig BR 2500



LEGEND

GRAY TO LIGHT GRAY TO PALE YELLOW TO WHITE TO VERY DARK GRAY TO DARK BROWN TO BROWN TO YELLOWISH-BROWN TO DARK GRAYISHBROWN TO DARK REDDISH-BROWN POORLY GRADED SAND TO SAND WITH SILT (SP/SP-SM)

PALE BROWN TO GRAY TO DARK BROWN TO REDDISH-BROWN TO VERY DARK GRAY SILTY SAND TO SILTY-CLAYEY SAND TO CLAYEY SAND (SM/SM-SC/SC)

SP	UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2488) SYMBOL AS DETERMINED BY VISYAL REVIEW AND/OR LABORATORY TESTING
℄ Const.	CENTER LINE OF CONSTRUCTION
Elev. 29.5	GROUND SURFACE ELEVATION (NAVD 88) AT TEST LOCATION
NAVD 88	NORTH AMERICAN VERTICAL DATUM OF 1988
N	NUMBERS TO THE LEFT OF BORING INDICATE THE STANDARD PENETRATION TEST "N" VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED)
GNA	GROUNDWATER TABLE NOT APPARENT DUE TO USE OF DRILLING FLUID
▽	GROUNDWATER TABLE AT TIME OF DRILLING
w%	MOISTURE CONTENT
-200	FINES PASSING #200 STANDARD SIEVE (%)
PI	PLASTICITY INDEX
LL	LIQUID LIMIT (%)

NOTE:

BORING ELEVATION, STATION AND OFFSET WERE DETERMINED USING PROJECT MICROSTATION DIGITAL FILES ALONG WITH GPS COORDINATES OBTAINED BY TEST LAB, INC. IN THE FIELD AND SHOULD BE CONSIDERED APPROXIMATE.

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

IGOR (IGON) KRATSER, P.E.
License Number: 73129
TEST LAB, INC.
4112 WEST OSBORNE AVENUE
TAMPA, FLORIDA 33614

DRAWN BY: GN 01-25
CHECKED BY: IK
DESIGNED BY: GN 01-25
CHECKED BY: IK 01-25

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 29	COLLIER	417540-5-52-01

SHEET TITLE: CD-2 - REPORT OF CORE BORINGS

PROJECT NAME: NEW ROAD CONSTRUCTION FROM CR 846 E TO NORTH OF NEW MARKET ROAD W

REF. DWG. NO.

SHEET NO. BC-5

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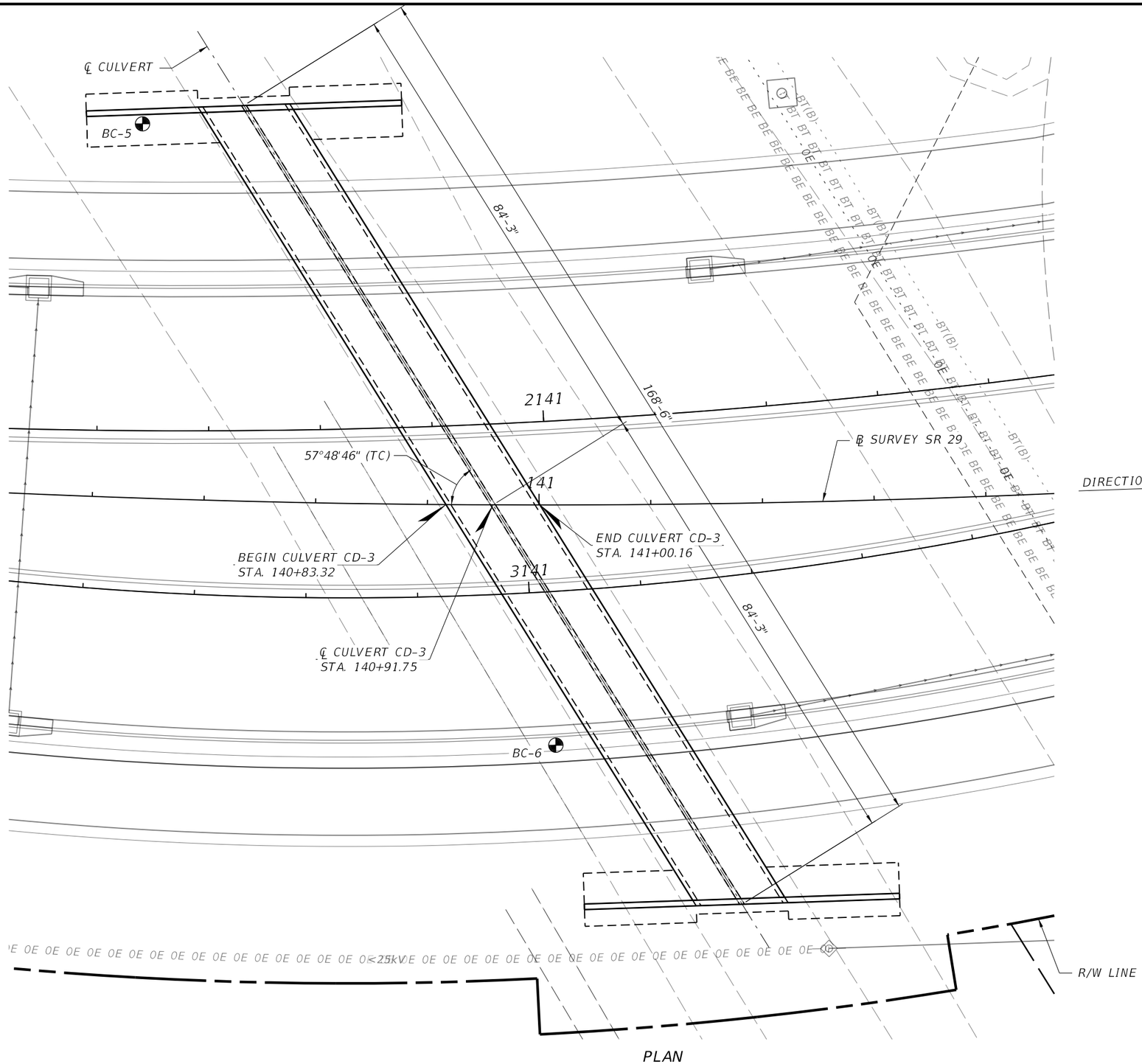

PLAN

DIRECTION OF STATIONING

LEGEND:

INDICATES APPROXIMATE LOCATION OF SPT BORING. FOR BORING DATA, SEE SHEET BC-10.

NOTE:

1. REFER TO ROADWAY PLANS FOR LONGITUDINAL SECTION, UTILITY DISPOSITION AND ADDITIONAL ROADWAY INFORMATION.

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REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

JOSEPH R. LOSARIA, P.E.
License Number: 66479
PATEL, GREENE & ASSOCIATES, LLC
12570 TELECOM DRIVE
TEMPLE TERRACE, FL 33637

DRAWN BY:	CHECKED BY:	DESIGNED BY:	CHECKED BY:
JML	SL	JRL	SL

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 29	COLLIER	417540-5-52-01

SHEET TITLE: PLAN - CD-3

REF. DWG. NO.:

PROJECT NAME: NEW ROAD CONSTRUCTION FROM CR 846 E TO NORTH OF NEW MARKET ROAD W

SHEET NO.: BC-6

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USER: dennis.tanner 10/1/2025 2:15:53 PM

BOX CULVERT DATA TABLES

BOX, HEADWALL AND CUTOFF WALL DATA TABLE (inches unless shown otherwise) — Table Date 7-01-09

LOCATION	STRUCTURE /BRIDGE NUMBER	BOX									HEADWALL AND CUTOFF WALL									
		Wc(ft)	Hc(ft)	Tt	Tw	Tb	Ti	#cells	Lc(ft)	Cover	Blhw	Hlhw	Brhw	Hrhw	Blcw	Hlcw	Brcw	Hrcw	SL(deg)	SR(deg)
STA. 140+91.75	CD-3	6	5	9	9	9	9	2	168.5	2	12	33	12	33	12	21	12	21	-30	-30

LEFT SIDE WINGWALLS DATA TABLE (inches unless shown otherwise) — Table Date 01-01-11

LOCATION	LEFT END WINGWALL									LEFT BEGIN WINGWALL								
	Rt	Rw	Rh	Rd	SW(deg)	β (deg)	He(ft)	Hs(ft)	Lw(ft)	Rt	Rw	Rh	Rd	SW(deg)	β (deg)	He(ft)	Hs(ft)	Lw(ft)
STA. 140+91.75	36	12	66	12	60	18.4	7.75	7.75	20	36	12	66	12	120	18.4	7.75	7.75	20

RIGHT SIDE WINGWALLS DATA TABLE (inches unless shown otherwise) — Table Date 01-01-11

LOCATION	RIGHT END WINGWALL									RIGHT BEGIN WINGWALL								
	Rt	Rw	Rh	Rd	SW(deg)	β (deg)	He(ft)	Hs(ft)	Lw(ft)	Rt	Rw	Rh	Rd	SW(deg)	β (deg)	He(ft)	Hs(ft)	Lw(ft)
STA. 140+91.75	36	12	66	12	120	18.4	7.75	7.75	20	36	12	66	12	60	18.4	7.75	7.75	20

ESTIMATED CONCRETE QUANTITIES (CY) — Table Date 7-01-13

LOCATION	BOX								LEFT END WINGWALL			LEFT BEGIN WINGWALL			RIGHT END WINGWALL			RIGHT BEGIN WINGWALL		
	Left Cutoff Wall	Right Cutoff Wall	Bottom Slab	Walls	Top Slab	Left Head Wall	Right Head Wall	Sub Total	Footing	Wall	Sub Total	Footing	Wall	Sub Total	Footing	Wall	Sub Total	Footing	Wall	Sub Total
STA. 140+91.75	0.609	0.609	67.9	70.2	66.7	1.22	1.22	209	7.45	5.74	13.2	7.78	5.74	13.5	7.78	5.74	13.5	7.45	5.74	13.2

MAIN STEEL REINFORCEMENT SPACING (inches) — Table Date 7-01-09

LOCATION	BOX														HEADWALLS		CUTOFF WALLS	
	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115, 116...	803	806	809	812
STA. 140+91.75	10	10	10	10	10	10	10	10	12	12	12	12	12	12	12	12	12	12	12

WINGWALL STEEL REINFORCEMENT SPACING (inches) — Table Date 7-01-09

LOCATION	LEFT END WINGWALL							LEFT BEGIN WINGWALL							RIGHT END WINGWALL							RIGHT BEGIN WINGWALL						
	401 407(8)	402 (403)	404 (405)	406	409	410	411	501 507(8)	502 (503)	504 (505)	506	509	510	511	601 607(8)	602 (603)	604 (605)	606	609	610	611	701 707(8)	702 (703)	704 (705)	706	709	710	711
STA. 140+91.75	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9

WINGWALL NOTE: Bar designations in "( )" are only required for variable height wingwalls.

NOTES [Notes Date 7-01-14]:

1. ENVIRONMENTAL CLASS: MODERATELY AGGRESSIVE
2. REINFORCING STEEL, GRADE 60
3. CONCRETE CLASS: IV F'C = 5.5 KSI
4. SOIL PROPERTIES:
   FRICTION ANGLE: 32 DEGREES
   MODULUS OF SUBGRADE REACTION: 35,000 PCF
   NOMINAL BEARING RESISTANCE: 3,000 PSF
5. WORK THIS DRAWING WITH STANDARD PLANS INDEX 400-289 AND SHEETS BC-6, BC-8, BC-9 AND BC-10.
6. SETTLEMENT CRITERIA FOR PRECAST BOX CULVERT OPTION (INDEX 400-291):
   LONG TERM DIFFERENTIAL SETTLEMENT (ΔY) = 0.5 IN.
   EFFECTIVE LENGTH FOR SETTLEMENT (L) = 168.5 FT.

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REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

JOSEPH R. LOSARIA, P.E.
License Number: 66479
PATEL, GREENE & ASSOCIATES, LLC
12570 TELECOM DRIVE
TEMPLE TERRACE, FL 33637

DRAWN BY: JML
CHECKED BY: SL
DESIGNED BY: JRL
CHECKED BY: SL

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 29	COLLIER	417540-5-52-01

SHEET TITLE: BOX CULVERT DATA TABLE - CD-3

PROJECT NAME: NEW ROAD CONSTRUCTION FROM CR 846 E TO NORTH OF NEW MARKET ROAD W

REF. DWG. NO.:

SHEET NO.: BC-7

MARK		LENGTH	NO	TYP	STY		B	C	D	E	F	H	J	K	N	ϕ
SIZE	DES	FT IN	BARS	BAR	A	G	FT IN FR	FT IN FR	FT IN FR	FT IN FR	FT IN FR	FT IN FR	FT IN FR	FT IN FR	NO	ANG
Box Culvert																
LOCATION: Main Box				NO. REQUIRED = 1												
6	101	14- 0	193	1			13-11									
6	201	VARY 12- 6	1 Set of 8	1			12- 5 3/4 2- 3 3/4									
6	301	VARY 12- 6	1 Set of 8	1			12- 5 3/4 2- 3 3/4									
6	102	14- 0	193	1			13-11									
6	202	VARY 12- 6	1 Set of 8	1			12- 5 3/4 2- 3 3/4									
6	302	VARY 12- 6	1 Set of 8	1			12- 5 3/4 2- 3 3/4									
6	103	14- 0	197	1			13-11									
6	203	VARY 12- 6	1 Set of 8	1			12- 5 3/4 2- 3 3/4									
6	303	VARY 12- 6	1 Set of 8	1			12- 5 3/4 2- 3 3/4									
6	104	14- 0	197	1			13-11									
6	204	VARY 12- 6	1 Set of 8	1			12- 5 3/4 2- 3 3/4									
6	304	VARY 12- 6	1 Set of 8	1			12- 5 3/4 2- 3 3/4									
6	105	6- 3	404	10			2- 0 3/4	4- 1 1/2								
6	106	6- 3	404	10			2- 0 3/4	4- 1 1/2								
6	107	5- 2	808	10			1- 0	4- 1 1/2								
6	108	6- 2	404	1			6- 2									
3	109	173-10	15	2			1- 3 1/2	171- 2 1/2							2	
3	110	170-10	15	2			1- 3 1/2	168- 2 1/2							2	
3	111	170- 2	15	2			1- 3 1/2	167- 6							2	
3	112	173-10	15	2			1- 3 1/2	171- 2 1/2							2	
3	113	170-10	12	2			1- 3 1/2	168- 2 1/2							2	
3	114	170-10	12	2			1- 3 1/2	168- 2 1/2							2	
3	115	170- 2	12	2			1- 3 1/2	167- 6							2	
LOCATION: Left End Wingwall				NO. REQUIRED = 1												
5	401	7- 6	28	1			7- 6									
3	402	19- 9	12	1			19- 8									
3	404	19- 9	12	1			19- 8									
3	406	7- 6	28	1			7- 6									
5	407	6- 3	28	10			3- 8	2- 6 3/4								
5	409	9- 3	28	1			9- 2									
3	410	9- 3	28	1			9- 2									
3	411	19- 9	28	1			19- 8									
5	412	2- 0	13	1			2- 0									
LOCATION: Left Begin Wingwall				NO. REQUIRED = 1												
5	501	7- 6	28	1			7- 6									
3	502	19- 9	12	1			19- 8									
3	504	19- 9	12	1			19- 8									
3	506	7- 6	28	1			7- 6									
5	507	6- 3	28	10			3- 8	2- 6 3/4								
5	509	9- 3	28	1			9- 2									
3	510	9- 3	28	1			9- 2									
3	511	19- 9	28	1			19- 8									
5	512	2- 0	13	1			2- 0									

NOTE:

1. FOR BAR BENDING DETAILS (STEEL), SEE INDEX 415-001.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

JOSEPH R. LOSARIA, P.E.
License Number: 66479
PATEL, GREENE & ASSOCIATES, LLC
12570 TELECOM DRIVE
TEMPLE TERRACE, FL 33637

DRAWN BY: JML
CHECKED BY: SL
DESIGNED BY: JRL
CHECKED BY: SL

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 29	COLLIER	417540-5-52-01

SHEET TITLE: REINFORCING BAR LIST CD-3 (1 OF 2)

REF. DWG. NO.:

PROJECT NAME: NEW ROAD CONSTRUCTION FROM CR 846 E TO NORTH OF NEW MARKET ROAD W

SHEET NO.: BC-8

MARK		LENGTH	NO	TYP	STY	B	C	D	E	F	H	J	K	N	ϕ
SIZE	DES	FT IN	BARS	BAR	G	FT IN FR	FT IN FR	FT IN FR	FT IN FR	FT IN FR	FT IN FR	FT IN FR	FT IN FR	NO	ANG
LOCATION: Right End Wingwall						NO. REQUIRED = 1									
5	601	7- 6	28	1		7- 6									
3	602	19- 9	12	1		19- 8									
3	604	19- 9	12	1		19- 8									
3	606	7- 6	28	1		7- 6									
5	607	6- 3	28	10		3- 8	2- 6 3/4								
5	609	9- 3	28	1		9- 2									
3	610	9- 3	28	1		9- 2									
3	611	19- 9	28	1		19- 8									
5	612	2- 0	13	1		2- 0									
LOCATION: Right Begin Wingwall						NO. REQUIRED = 1									
5	701	7- 6	28	1		7- 6									
3	702	19- 9	12	1		19- 8									
3	704	19- 9	12	1		19- 8									
3	706	7- 6	28	1		7- 6									
5	707	6- 3	28	10		3- 8	2- 6 3/4								
5	709	9- 3	28	1		9- 2									
3	710	9- 3	28	1		9- 2									
3	711	19- 9	28	1		19- 8									
5	712	2- 0	13	1		2- 0									
LOCATION: Left Headwall						NO. REQUIRED = 1									
5	801	16- 2	2	1		16- 1 1/2									
5	802	16- 2	2	1		16- 1 1/2									
5	803	6- 1	17	27		2- 4 1/4	0- 8	0- 0	0- 5	1-11 1/4	0- 6	0- 6			
LOCATION: Right Headwall						NO. REQUIRED = 1									
5	804	16- 2	2	1		16- 1 1/2									
5	805	16- 2	2	1		16- 1 1/2									
3	806	6- 1	17	27		2- 4 1/4	0- 8	0- 0	0- 5	1-11 1/4	0- 6	0- 6			
LOCATION: Left Cutoff Wall						NO. REQUIRED = 1									
5	807	16- 2	2	1		16- 1 1/2									
5	808	16- 2	2	1		16- 1 1/2									
3	809	4- 5	17	7		1- 4 1/4	0- 8	0- 6	0- 6						
LOCATION: Right Cutoff Wall						NO. REQUIRED = 1									
5	810	16- 2	2	1		16- 1 1/2									
5	811	16- 2	2	1		16- 1 1/2									
3	812	4- 5	17	7		1- 4 1/4	0- 8	0- 6	0- 6						

NOTE:

1. FOR BAR BENDING DETAILS (STEEL), SEE INDEX 415-001.

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PATEL, GREENE & ASSOCIATES, LLC
12570 TELECOM DRIVE
TEMPLE TERRACE, FL 33637

DRAWN BY: JML
CHECKED BY: SL
DESIGNED BY: JRL
CHECKED BY: SL

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 29	COLLIER	417540-5-52-01

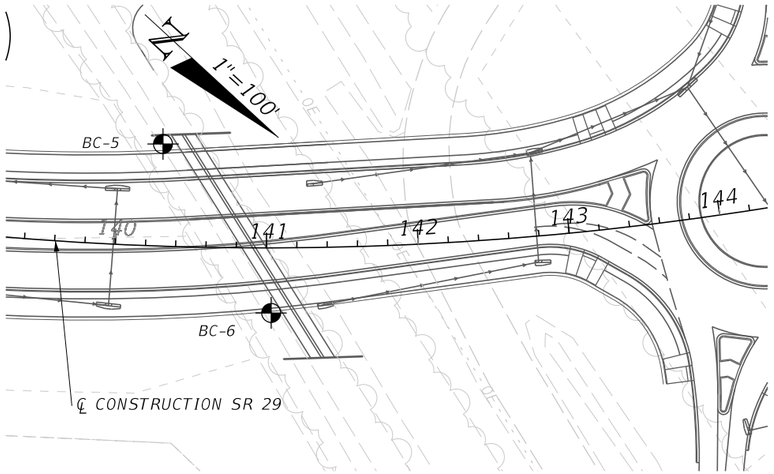
SHEET TITLE: REINFORCING BAR LIST CD-3 (2 OF 2)

REF. DWG. NO.:

PROJECT NAME: NEW ROAD CONSTRUCTION FROM CR 846 E TO NORTH OF NEW MARKET ROAD W

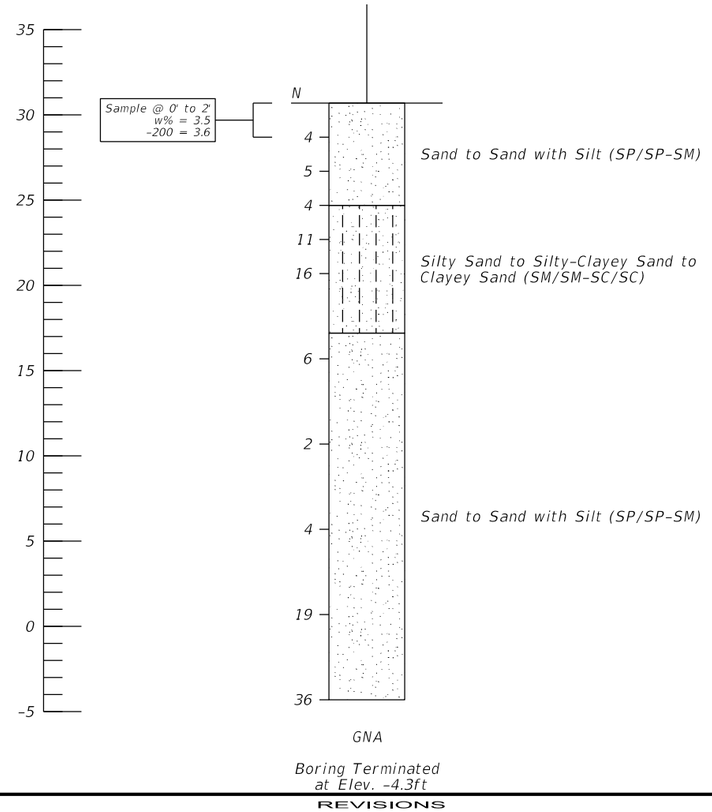
SHEET NO.: BC-9

BORING LOCATION PLAN

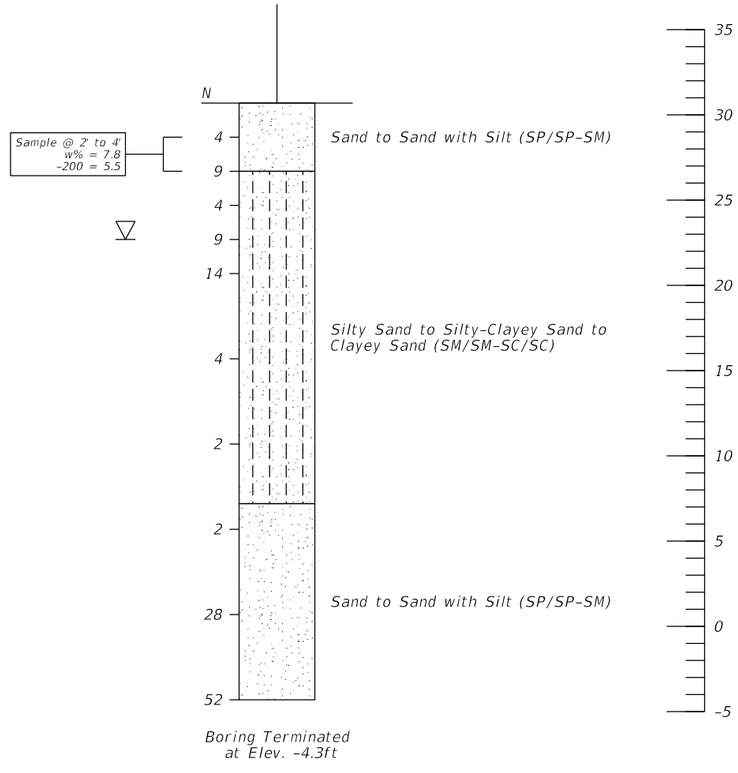


AUTOMATIC HAMMER			
GRANULAR MATERIALS-RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT)	SILT AND CLAYS CONSISTENCY	SPT N-VALUE (BLOWS/FT)
VERY LOOSE	LESS THAN 3	VERY SOFT	LESS THAN 1
LOOSE	3 TO 8	SOFT	1 TO 3
MEDIUM DENSE	8 TO 24	FIRM	3 TO 6
DENSE	24 TO 40	STIFF	6 TO 12
VERY DENSE	GREATER THAN 40	VERY STIFF	12 TO 24
		HARD	GREATER THAN 24

Bore # BC-5
Reference ℄ Const. SR 29
Station 140+29
Offset 67' LT
Elevation 30.7'
Date 7/22/2024
Driller M. Hernandez
Hammer Auto
Rig BR 2500



Bore # BC-6
Reference ℄ Const. SR 29
Station 141+03
Offset 43' RT
Elevation 30.7'
Date 7/22/2024
Driller M. Hernandez
Hammer Auto
Rig BR 2500



LEGEND

	GRAY TO LIGHT GRAY TO PALE YELLOW TO WHITE TO VERY DARK GRAY TO DARK BROWN TO BROWN TO YELLOWISH-BROWN TO DARK GRAYISHBROWN TO DARK REDDISH-BROWN POORLY GRADED SAND TO SAND WITH SILT (SP/SP-SM)
	PALE BROWN TO GRAY TO DARK BROWN TO REDDISH-BROWN TO VERY DARK GRAY SILTY SAND TO SILTY-CLAYEY SAND TO CLAYEY SAND (SM/SM-SC/SC)
SP	UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2488) SYMBOL AS DETERMINED BY VISYAL REVIEW AND/OR LABORATORY TESTING
℄ Const.	CENTER LINE OF CONSTRUCTION
Elev. 29.5	GROUND SURFACE ELEVATION (NAVD 88) AT TEST LOCATION
NAVD 88	NORTH AMERICAN VERTICAL DATUM OF 1988
N	NUMBERS TO THE LEFT OF BORING INDICATE THE STANDARD PENETRATION TEST "N" VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED)
GNA	GROUNDWATER TABLE NOT APPARENT DUE TO USE OF DRILLING FLUID
▽	GROUNDWATER TABLE AT TIME OF DRILLING
w%	MOISTURE CONTENT
-200	FINES PASSING #200 STANDARD SIEVE (%)
PI	PLASTICITY INDEX
LL	LIQUID LIMIT (%)

NOTE:

BORING ELEVATION, STATION AND OFFSET WERE DETERMINED USING PROJECT MICROSTATION DIGITAL FILES ALONG WITH GPS COORDINATES OBTAINED BY TEST LAB, INC. IN THE FIELD AND SHOULD BE CONSIDERED APPROXIMATE.

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REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

IGOR (IGON) KRATSER, P.E.
License Number: 73129
TEST LAB, INC.
4112 WEST OSBORNE AVENUE
TAMPA, FLORIDA 33614

DRAWN BY: GN 01-25
CHECKED BY: IK
DESIGNED BY: GN 01-25
CHECKED BY: IK 01-25

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 29	COLLIER	417540-5-52-01

SHEET TITLE: CD-3 - REPORT OF CORE BORINGS

PROJECT NAME: NEW ROAD CONSTRUCTION FROM CR 846 E TO NORTH OF NEW MARKET ROAD W

REF. DWG. NO.

SHEET NO. BC-10

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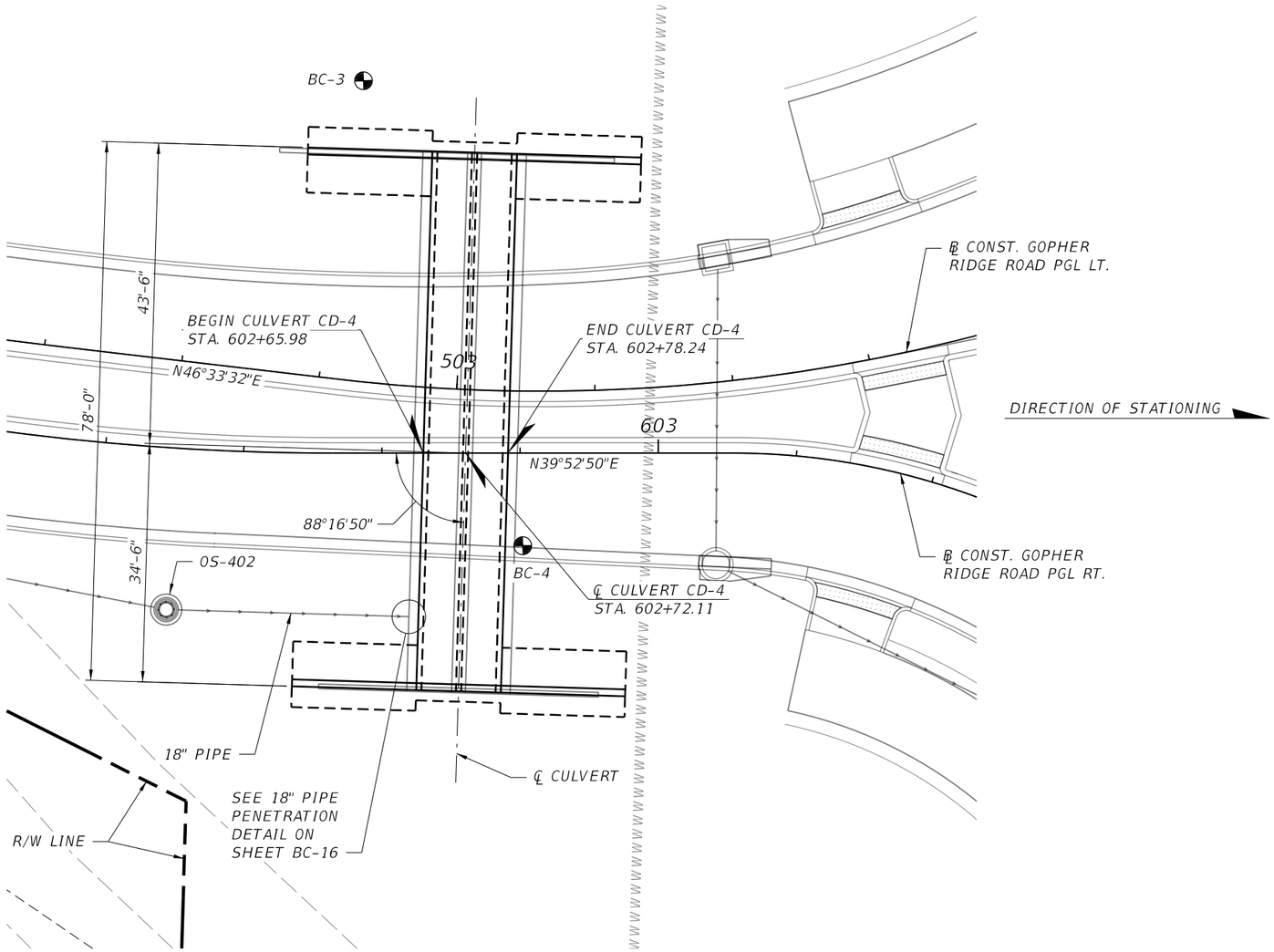

PLAN

LEGEND:

INDICATES APPROXIMATE LOCATION OF SPT BORING. FOR BORING DATA, SEE SHEET BC-15.

NOTE:

1. REFER TO ROADWAY PLANS FOR LONGITUDINAL SECTION, UTILITY DISPOSITION AND ADDITIONAL ROADWAY INFORMATION.

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REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

JOSEPH R. LOSARIA, P.E.
License Number: 66479
PATEL, GREENE & ASSOCIATES, LLC
12570 TELECOM DRIVE
TEMPLE TERRACE, FL 33637

DRAWN BY: JML
CHECKED BY: SL
DESIGNED BY: JRL
CHECKED BY: SL

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 29	COLLIER	417540-5-52-01

SHEET TITLE: PLAN - CD-4

REF. DWG. NO.:

PROJECT NAME: NEW ROAD CONSTRUCTION FROM CR 846 E TO NORTH OF NEW MARKET ROAD W

SHEET NO.: BC-11

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USER: dennis.tanner 10/1/2025 2:18:34 PM

BOX CULVERT DATA TABLES

BOX, HEADWALL AND CUTOFF WALL DATA TABLE (inches unless shown otherwise) — Table Date 7-01-09

LOCATION	STRUCTURE /BRIDGE NUMBER	BOX									HEADWALL AND CUTOFF WALL									
		Wc(ft)	Hc(ft)	Tt	Tw	Tb	Ti	#cells	Lc(ft)	Cover	Blhw	Hlhw	Brhw	Hrhw	Blcw	Hlcw	Brcw	Hrcw	SL(deg)	SR(deg)
STA. 602+72.11	CD-4	5	5	9	9	9	9	2	78	2	12	33	12	33	12	21	12	21	0	0

LEFT SIDE WINGWALLS DATA TABLE (inches unless shown otherwise) — Table Date 01-01-11

LOCATION	LEFT END WINGWALL									LEFT BEGIN WINGWALL								
	Rt	Rw	Rh	Rd	SW(deg)	β (deg)	He(ft)	Hs(ft)	Lw(ft)	Rt	Rw	Rh	Rd	SW(deg)	β (deg)	He(ft)	Hs(ft)	Lw(ft)
STA. 602+72.11	36	12	66	12	90	14	7.75	7.75	18	36	12	66	12	90	14	7.75	7.75	18

RIGHT SIDE WINGWALLS DATA TABLE (inches unless shown otherwise) — Table Date 01-01-11

LOCATION	RIGHT END WINGWALL									RIGHT BEGIN WINGWALL								
	Rt	Rw	Rh	Rd	SW(deg)	β (deg)	He(ft)	Hs(ft)	Lw(ft)	Rt	Rw	Rh	Rd	SW(deg)	β (deg)	He(ft)	Hs(ft)	Lw(ft)
STA. 602+72.11	36	12	66	12	90	14	7.75	7.75	18	36	12	66	12	90	14	7.75	7.75	18

ESTIMATED CONCRETE QUANTITIES (CY) — Table Date 7-01-13

LOCATION	BOX								LEFT END WINGWALL			LEFT BEGIN WINGWALL			RIGHT END WINGWALL			RIGHT BEGIN WINGWALL		
	Left Cutoff Wall	Right Cutoff Wall	Bottom Slab	Walls	Top Slab	Left Head Wall	Right Head Wall	Sub Total	Footing	Wall	Sub Total	Footing	Wall	Sub Total	Footing	Wall	Sub Total	Footing	Wall	Sub Total
STA. 602+72.11	0.454	0.454	27.6	32.5	26.5	0.907	0.907	89.6	7	5.17	12.2	7	5.17	12.2	7	5.17	12.2	7	5.17	12.2

MAIN STEEL REINFORCEMENT SPACING (inches) — Table Date 7-01-09

LOCATION	BOX														HEADWALLS		CUTOFF WALLS	
	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115, 116...	803	806	809	812
STA. 602+72.11	10	10	10	10	10	10	10	10	12	12	12	12	12	12	12	12	12	12	12

WINGWALL STEEL REINFORCEMENT SPACING (inches) — Table Date 7-01-09

LOCATION	LEFT END WINGWALL							LEFT BEGIN WINGWALL							RIGHT END WINGWALL							RIGHT BEGIN WINGWALL						
	401 407(8)	402 (403)	404 (405)	406	409	410	411	501 507(8)	502 (503)	504 (505)	506	509	510	511	601 607(8)	602 (603)	604 (605)	606	609	610	611	701 707(8)	702 (703)	704 (705)	706	709	710	711
STA. 602+72.11	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9

NOTES [Notes Date 7-01-14]:

1. ENVIRONMENTAL CLASS: MODERATELY AGGRESSIVE
2. REINFORCING STEEL, GRADE 60
3. CONCRETE CLASS: IV F'C = 5.5 KSI
4. SOIL PROPERTIES:
   FRICTION ANGLE: 32 DEGREES
   MODULUS OF SUBGRADE REACTION: 45,000 PCF
   NOMINAL BEARING RESISTANCE: 3,000 PSF
5. WORK THIS DRAWING WITH STANDARD PLANS INDEX 400-289 AND SHEETS BC-11, BC-13, BC-14 AND BC-15.
6. SETTLEMENT CRITERIA FOR PRECAST BOX CULVERT OPTION (INDEX 400-291):
   LONG TERM DIFFERENTIAL SETTLEMENT (ΔY) = 0.5 IN.
   EFFECTIVE LENGTH FOR SETTLEMENT (L) = 78 FT.

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

JOSEPH R. LOSARIA, P.E.
License Number: 66479
PATEL, GREENE & ASSOCIATES, LLC
12570 TELECOM DRIVE
TEMPLE TERRACE, FL 33637

DRAWN BY: JML
CHECKED BY: SL
DESIGNED BY: JRL
CHECKED BY: SL

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 29	COLLIER	417540-5-52-01

SHEET TITLE: BOX CULVERT DATA TABLES CD-4

REF. DWG. NO.:

PROJECT NAME: NEW ROAD CONSTRUCTION FROM CR 846 E TO NORTH OF NEW MARKET ROAD W

SHEET NO.: BC-12

MARK		LENGTH		NO	TYP	STY		B			C			D			E			F			H			J			K			N	ϕ
SIZE	DES	FT	IN	BARS	BAR	A	G	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	NO	ANG
Box Culvert																																	
LOCATION: Main Box								NO. REQUIRED = 1																									
5	101	12- 0		95	1			11-11																									
5	102	12- 0		95	1			11-11																									
5	103	12- 0		98	1			11-11																									
5	104	12- 0		98	1			11-11																									
5	105	5- 9		188	10			1- 9			3-11 1/2																						
5	106	5- 9		188	10			1- 9			3-11 1/2																						
5	107	4-10		376	10			0-10			3-11 1/2																						
5	108	6- 2		188	1			6- 2																									
3	109	82- 0		13	2			1- 3 1/2			80- 8																					1	
3	110	79- 0		13	2			1- 3 1/2			77- 8																					1	
3	111	78- 4		13	2			1- 3 1/2			77- 0 1/4																					1	
3	112	82- 0		13	2			1- 3 1/2			80- 8																					1	
3	113	79- 0		12	2			1- 3 1/2			77- 8																					1	
3	114	79- 0		12	2			1- 3 1/2			77- 8																					1	
3	115	78- 4		12	2			1- 3 1/2			77- 0 1/4																					1	
4	B1	6- 0		12	1			6- 0																									
4	B2	8- 0		8	12			4- 0			4- 0																						45
4	B3	5- 0		2	1			5- 0																									
LOCATION: Left End Wingwall								NO. REQUIRED = 1																									
5	401	7- 6		25	1			7- 6																									
3	402	17- 9		12	1			17- 8																									
3	404	17- 9		12	1			17- 8																									
3	406	7- 6		25	1			7- 6																									
5	407	6- 3		25	10			3- 8			2- 6 3/4																						
5	409	9- 3		25	1			9- 2																									
3	410	9- 3		25	1			9- 2																									
3	411	17- 9		28	1			17- 8																									
5	412	2- 0		13	1			2- 0																									
LOCATION: Left Begin Wingwall								NO. REQUIRED = 1																									
5	501	7- 6		25	1			7- 6																									
3	502	17- 9		12	1			17- 8																									
3	504	17- 9		12	1			17- 8																									
3	506	7- 6		25	1			7- 6																									
5	507	6- 3		25	10			3- 8			2- 6 3/4																						
5	509	9- 3		25	1			9- 2																									
3	510	9- 3		25	1			9- 2																									
3	511	17- 9		28	1			17- 8																									
5	512	2- 0		13	1			2- 0																									
LOCATION: Right End Wingwall								NO. REQUIRED = 1																									
5	601	7- 6		25	1			7- 6																									
3	602	17- 9		12	1			17- 8																									
3	604	17- 9		12	1			17- 8																									
3	606	7- 6		25	1			7- 6																									
5	607	6- 3		25	10			3- 8			2- 6 3/4																						
5	609	9- 3		25	1			9- 2																									
3	610	9- 3		25	1			9- 2																									
3	611	17- 9		28	1			17- 8																									
5	612	2- 0		13	1			2- 0																									
LOCATION: Right Begin Wingwall								NO. REQUIRED = 1																									
5	701	7- 6		25	1			7- 6																									
3	702	17- 9		12	1			17- 8																									
3	704	17- 9		12	1			17- 8																									
3	706	7- 6		25	1			7- 6																									
5	707	6- 3		25	10			3- 8			2- 6 3/4																						
5	709	9- 3		25	1			9- 2																									
3	710	9- 3		25	1			9- 2																									
3	711	17- 9		28	1			17- 8																									
5	712	2- 0		13	1			2- 0																									

NOTE:

1. FOR BAR BENDING DETAILS (STEEL), SEE INDEX 415-001.

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

JOSEPH R. LOSARIA, P.E.
License Number: 66479
PATEL, GREENE & ASSOCIATES, LLC
12570 TELECOM DRIVE
TEMPLE TERRACE, FL 33637

DRAWN BY:	JML
CHECKED BY:	SL
DESIGNED BY:	JRL
CHECKED BY:	SL

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 29	COLLIER	417540-5-52-01

SHEET TITLE: REINFORCING BAR LIST CD-4 (1 OF 2)

REF. DWG. NO.:

PROJECT NAME: NEW ROAD CONSTRUCTION FROM CR 846 E TO NORTH OF NEW MARKET ROAD W

SHEET NO.: BC-13

MARK		LENGTH	NO	TYP	STY		B	C	D	E	F	H	J	K	N	ϕ
SIZE	DES	FT IN	BARS	BAR	A	G	FT IN FR	FT IN FR	FT IN FR	FT IN FR	FT IN FR	FT IN FR	FT IN FR	FT IN FR	NO	ANG
LOCATION: Left Headwall NO. REQUIRED = 1																
5	801	12- 0	2	1			11-11									
5	802	12- 0	2	1			11-11									
5	803	6- 2	13	27			2- 4 ½	0- 8	0- 0	0- 5	1-11 ½	0- 6	0- 6			
LOCATION: Right Headwall NO. REQUIRED = 1																
5	804	12- 0	2	1			11-11									
5	805	12- 0	2	1			11-11									
3	806	6- 2	13	27			2- 4 ½	0- 8	0- 0	0- 5	1-11 ½	0- 6	0- 6			
LOCATION: Left Cutoff Wall NO. REQUIRED = 1																
5	807	12- 0	2	1			11-11									
5	808	12- 0	2	1			11-11									
3	809	4- 5	13	7			1- 4 ½	0- 8	0- 6	0- 6						
LOCATION: Right Cutoff Wall NO. REQUIRED = 1																
5	810	12- 0	2	1			11-11									
5	811	12- 0	2	1			11-11									
3	812	4- 5	13	7			1- 4 ½	0- 8	0- 6	0- 6						

NOTE:

1. FOR BAR BENDING DETAILS (STEEL), SEE INDEX 415-001.

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REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

JOSEPH R. LOSARIA, P.E.
License Number: 66479
PATEL, GREENE & ASSOCIATES, LLC
12570 TELECOM DRIVE
TEMPLE TERRACE, FL 33637

DRAWN BY: JML
CHECKED BY: SL
DESIGNED BY: JRL
CHECKED BY: SL

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 29	COLLIER	417540-5-52-01

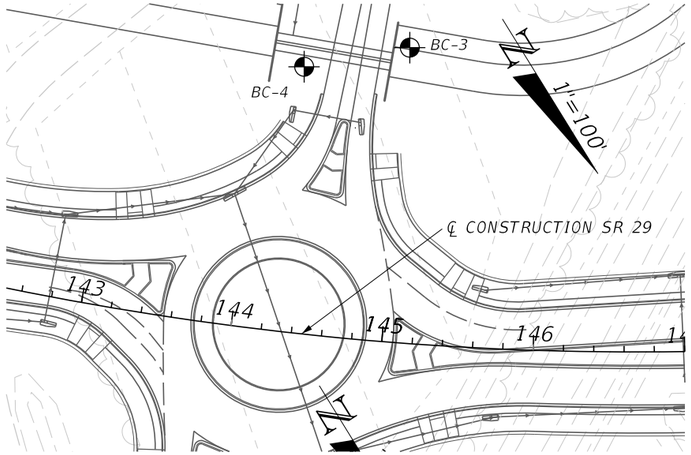
SHEET TITLE: REINFORCING BAR LIST CD-4 (2 OF 2)

REF. DWG. NO.:

PROJECT NAME: NEW ROAD CONSTRUCTION FROM CR 846 E TO NORTH OF NEW MARKET ROAD W

SHEET NO.: BC-14

BORING LOCATION PLAN



AUTOMATIC HAMMER			
GRANULAR MATERIALS-RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT)	SILT AND CLAYS CONSISTENCY	SPT N-VALUE (BLOWS/FT)
VERY LOOSE	LESS THAN 3	VERY SOFT	LESS THAN 1
LOOSE	3 TO 8	SOFT	1 TO 3
MEDIUM DENSE	8 TO 24	FIRM	3 TO 6
DENSE	24 TO 40	STIFF	6 TO 12
VERY DENSE	GREATER THAN 40	VERY STIFF	12 TO 24
		HARD	GREATER THAN 24

LEGEND

	GRAY TO LIGHT GRAY TO PALE YELLOW TO WHITE TO VERY DARK GRAY TO DARK BROWN TO BROWN TO YELLOWISH-BROWN TO DARK GRAYISHBROWN TO DARK REDDISH-BROWN POORLY GRADED SAND TO SAND WITH SILT (SP/SP-SM)
	PALE BROWN TO GRAY TO DARK BROWN TO REDDISH-BROWN TO VERY DARK GRAY SILTY SAND TO SILTY-CLAYEY SAND TO CLAYEY SAND (SM/SM-SC/SC)
SP	UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2488) SYMBOL AS DETERMINED BY VISYAL REVIEW AND/OR LABORATORY TESTING
℄ Const.	CENTER LINE OF CONSTRUCTION
Elev. 29.5	GROUND SURFACE ELEVATION (NAVD 88) AT TEST LOCATION
NAVD 88	NORTH AMERICAN VERTICAL DATUM OF 1988
N	NUMBERS TO THE LEFT OF BORING INDICATE THE STANDARD PENETRATION TEST "N" VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED)
GNA	GROUNDWATER TABLE NOT APPARENT DUE TO USE OF DRILLING FLUID
▽	GROUNDWATER TABLE AT TIME OF DRILLING
w%	MOISTURE CONTENT
-200	FINES PASSING #200 STANDARD SIEVE (%)
PI	PLASTICITY INDEX
LL	LIQUID LIMIT (%)

NOTE:

BORING ELEVATION, STATION AND OFFSET WERE DETERMINED USING PROJECT MICROSTATION DIGITAL FILES ALONG WITH GPS COORDINATES OBTAINED BY TEST LAB, INC. IN THE FIELD AND SHOULD BE CONSIDERED APPROXIMATE.

Bore # BC-3
Reference ℄ Const. SR 29
Station 145+03
Offset 195' LT
Elevation 30.9'
Date 7/19/2024
Driller M. Hernandez
Hammer Auto
Rig BR 2500

Bore # BC-4
Reference ℄ Const. SR 29
Station 144+28
Offset 175' LT
Elevation 31.2'
Date 7/19/2024
Driller M. Hernandez
Hammer Auto
Rig BR 2500

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

IGOR (IGON) KRATSER, P.E.
License Number: 73129
TEST LAB, INC.
4112 WEST OSBORNE AVENUE
TAMPA, FLORIDA 33614

DRAWN BY: GN 01-25
CHECKED BY: IK
DESIGNED BY: GN 01-25
CHECKED BY: IK 01-25

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 29	COLLIER	417540-5-52-01

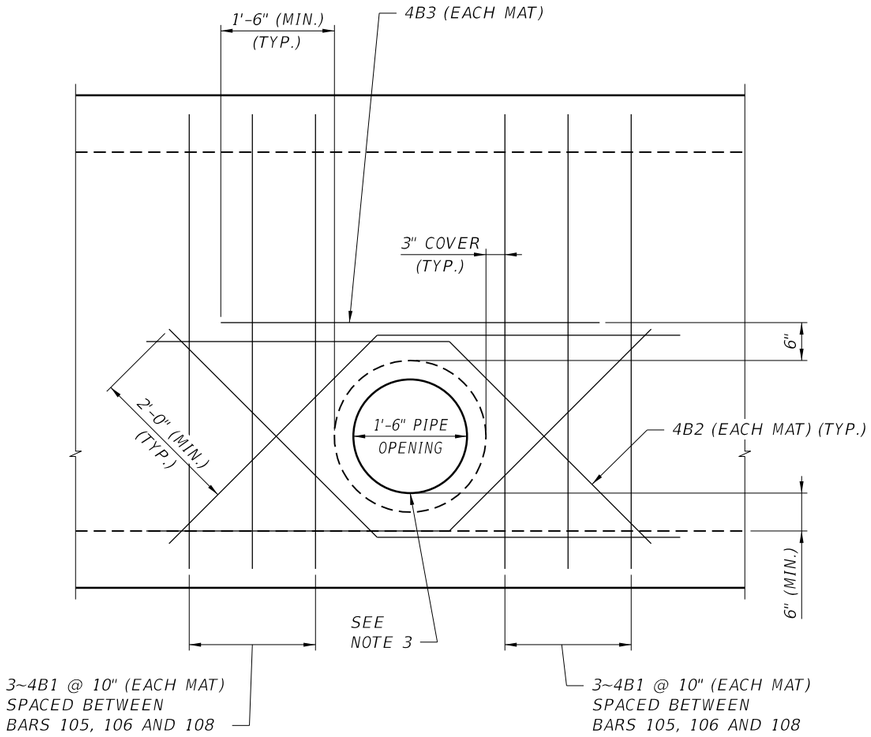
SHEET TITLE: CD-4 - REPORT OF CORE BORINGS

PROJECT NAME: NEW ROAD CONSTRUCTION FROM CR 846 E TO NORTH OF NEW MARKET ROAD W

REF. DWG. NO.

SHEET NO. BC-15

C:\Worksets\FDOT\417540-5-52-01\Geotechnical\B00Boring_XDrainsROCB_01.dgn : REPORTOFCOREBORINGS03
gnolasco 1/22/2025 4:42:47 PM



18" PIPE PENETRATION DETAIL

NOTES:

1. WORK THIS SHEET WITH INDEX 400-289.
2. CUT CULVERT REINFORCING IN CONFLICT WITH PIPE OPENING TO MAINTAIN 3" MINIMUM CLEAR FROM EXTERIOR PIPE WALL.
3. FOR PIPE INVERT ELEVATION, SEE ROADWAY PLANS.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

JOSEPH R. LOSARIA, P.E.
License Number: 66479
PATEL, GREENE & ASSOCIATES, LLC
12570 TELECOM DRIVE
TEMPLE TERRACE, FL 33637

DRAWN BY: JML
CHECKED BY: SL
DESIGNED BY: JRL
CHECKED BY: SL

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

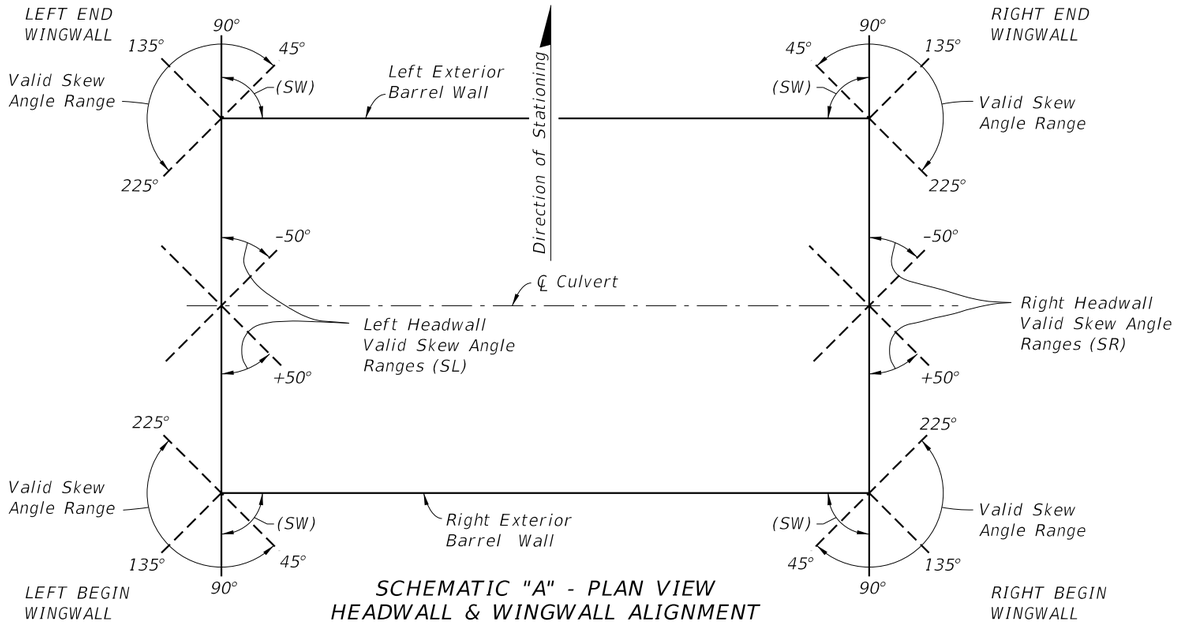
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 29	COLLIER	417540-5-52-01

SHEET TITLE: PIPE PENETRATION DETAILS

REF. DWG. NO.:

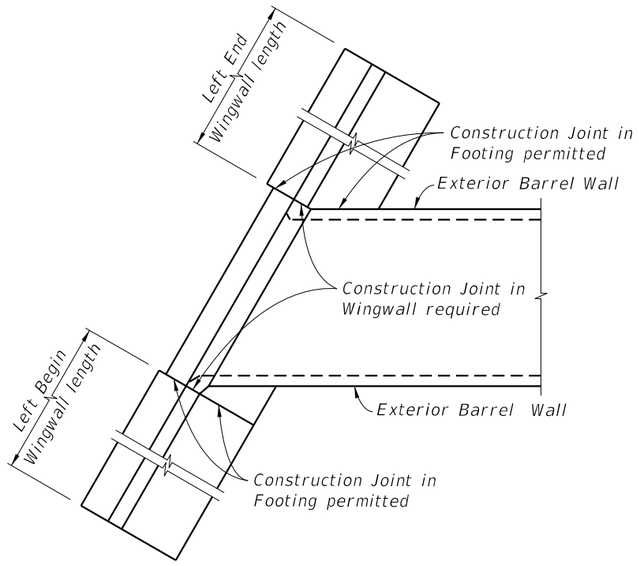
PROJECT NAME: NEW ROAD CONSTRUCTION FROM CR 846 E TO NORTH OF NEW MARKET ROAD W

SHEET NO.: BC-16



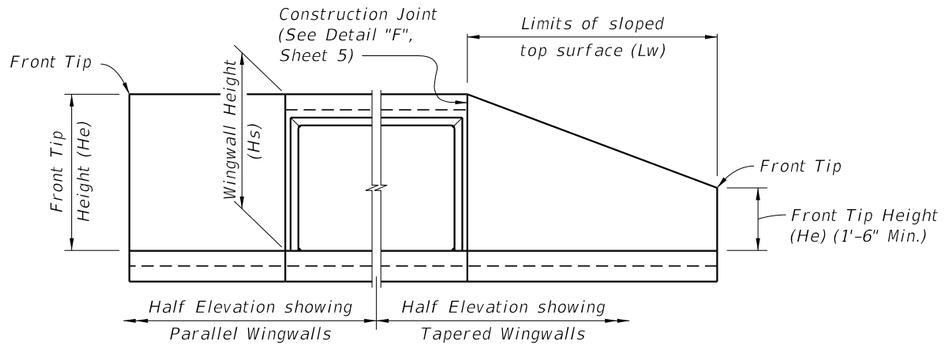
SCHEMATIC "A" - PLAN VIEW
HEADWALL & WINGWALL ALIGNMENT

NOTE: All headwall and culvert skew angles are measured in degrees from a line perpendicular to the centerline of culvert (counter-clockwise positive), see Schematic "B".



PART PLAN SHOWING PARALLEL WINGWALLS
AND LOCATION OF CONSTRUCTION JOINTS

NOTE:
Construction Joints in wingwalls and footings are located as follows: For non-skewed wingwalls they are located adjacent to the exterior face of the exterior barrel wall; when the ℄ of wingwall and ℄ of exterior barrel wall results in an acute angle see Left End Wingwall above, and when the angle is obtuse see Left Begin Wingwall above and Detail C (Sheet 5).



END ELEVATION
OF CULVERT

GENERAL NOTES:

LIVE LOAD: HL-93.

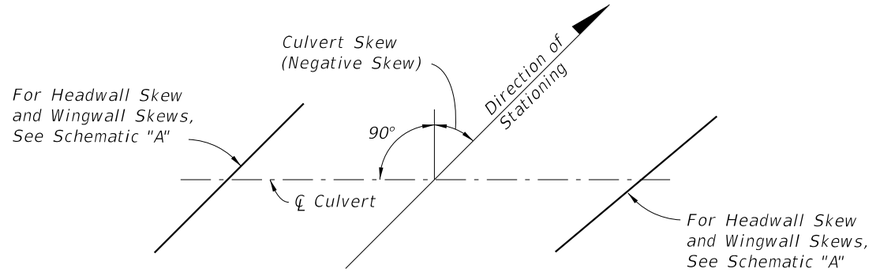
CONSTRUCTION LOADING: It is the construction Contractor's responsibility to provide for supporting construction loads that exceed AASHTO HL-93, and any construction load applied prior to 2 feet of compacted fill placed above the top slab.

SURFACE FINISH: All concrete surfaces shall receive a general surface finish.

SKEWED CONSTRUCTION JOINTS: Construction joints in barrels of culverts with skewed wingwalls may be placed parallel to the headwalls and the reinforcing steel, and the slabs may be cut provided that the cut reinforcing steel extends beyond the construction joint enough for splices to be made in accordance with Table 1 on this sheet. The cost of construction joints and additional reinforcing shall be at the expense of the Contractor.

CULVERT EXTENSIONS: For cut backs and ties into existing concrete box culverts see Sheet 6 of 8.

REINFORCING STEEL: See the "Box Culvert Data Tables" in the Contract Plans for grade and bar spacing. See the Reinforcing Bar List in the Contract Plans for bar sizes and bar bending details.



SCHEMATIC "B" - PLAN VIEW
CULVERT ALIGNMENT

NOTE: For Culvert Skew see Contract Plans.

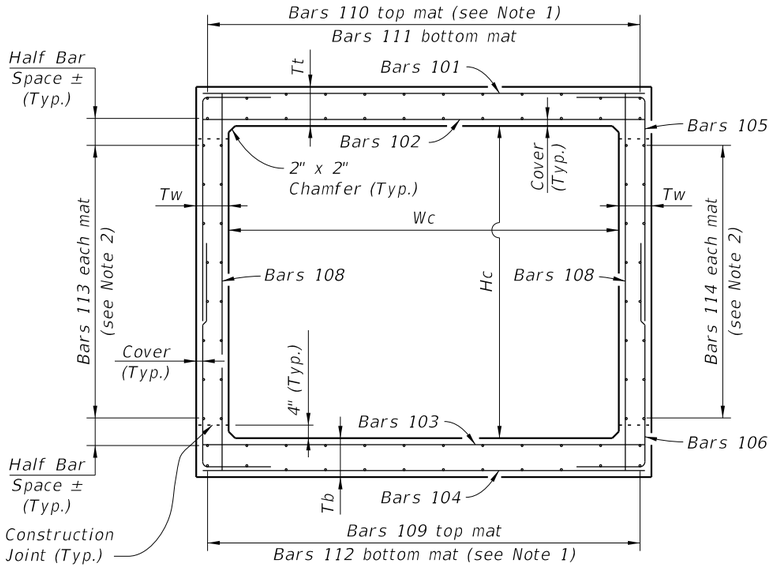
TABLE 1 - MINIMUM BAR SPLICE LENGTHS FOR LONGITUDINAL REINFORCING

BAR SIZE	SPLICE (CLASS B)		BAR SIZE	SPLICE (CLASS B)	
	CLASS II (3400 psi)	CLASS IV (5500 psi)		CLASS II (3400 psi)	CLASS IV (5500 psi)
#3	1'-4"	1'-0"	#8	3'-5"	2'-8"
#4	1'-9"	1'-4"	#9	4'-3"	3'-4"
#5	2'-2"	1'-8"			
#6	2'-7"	2'-0"			
#7	3'-0"	2'-4"			

TABLE 1 NOTE: Splice lengths are based on an AASHTO Class B tension lap splice for the Specification Section 346 concrete class shown.

10/17/2024 8:06:51 AM

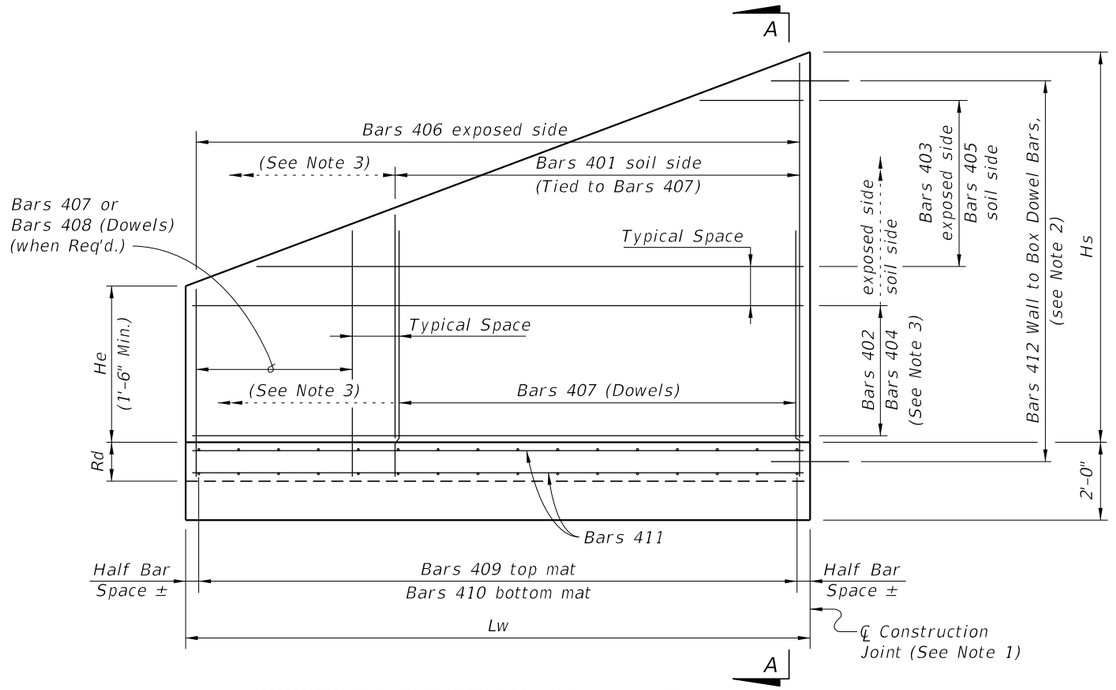
LAST REVISION	REVISION	DESCRIPTION:				
11/01/16			FDOT	FY 2025-26 STANDARD PLANS	CONCRETE BOX CULVERT DETAILS	INDEX 400-289 / SHEET 1 of 8



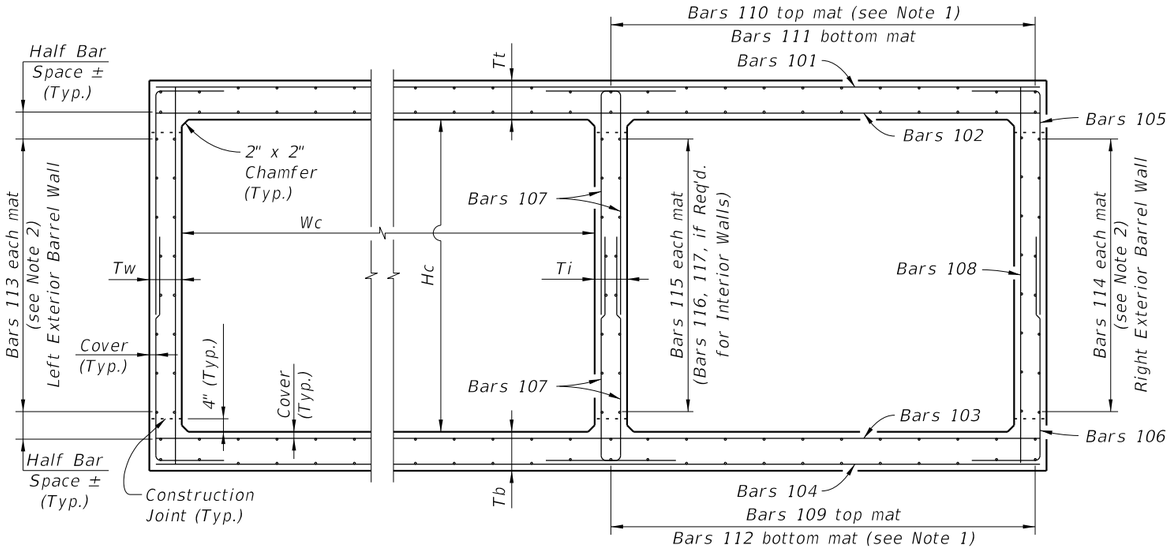
TYPICAL SECTION THRU SINGLE BARREL CULVERT

CULVERT BARREL NOTES:

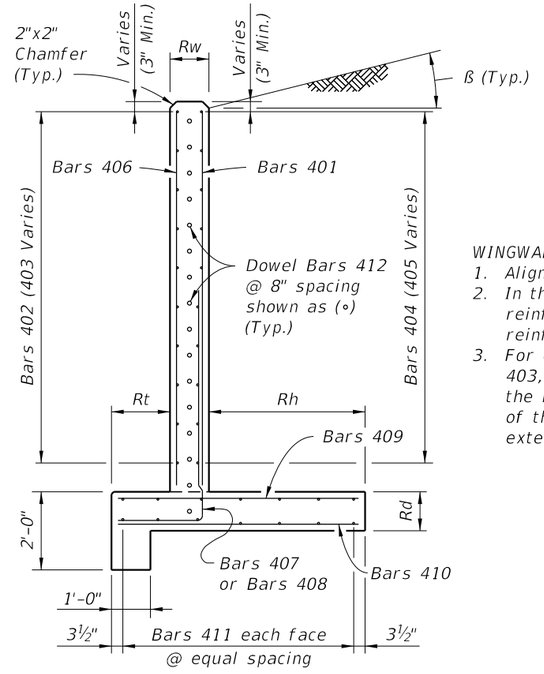
1. *Space Bars 110 and 112 with a bar in each corner, and at the ℄ of interior walls (for multiple barrel culverts only), and the remaining bars placed at equal spacing shown in the Contract Plans. Adjust last bar spacing when required.*
2. *Place Bars 113 and 114 at spacing shown in the Contract Plans evenly between Bars 109 and 111.*
3. *Locate the first transverse bar from the ends of the culvert at one half the bar spacing, but provide the minimum reinforcement cover and not greater than 4" clear.*



WINGWALL ELEVATION - Variable Height
(Left End shown - other corners similar)



TYPICAL SECTION THRU MULTIPLE BARREL CULVERT



WINGWALL SECTION A-A

WINGWALL NOTES:

1. *Align construction joint perpendicular to wingwall.*
2. *In the vicinity of the construction joint, field bend reinforcement as necessary to maintain minimum reinforcement cover.*
3. *For constant height wingwalls, variable length Bars 403, 405 & 408 are not required, and as such the limits of Bars 401 & 407 extend the full length of the wingwall, and the limits of Bars 402 & 404 extend to the full height of the wingwall.*

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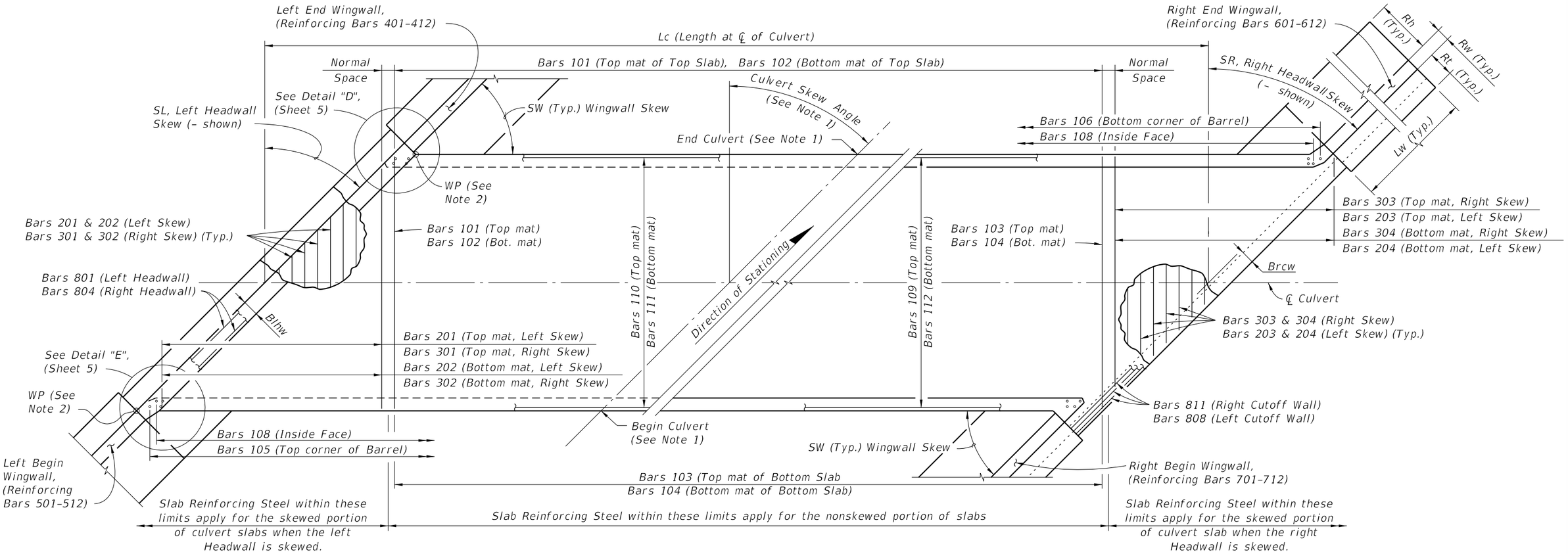
07/01/13			FY 2025-26 STANDARD PLANS	CONCRETE BOX CULVERT DETAILS	400-289	2 of 8

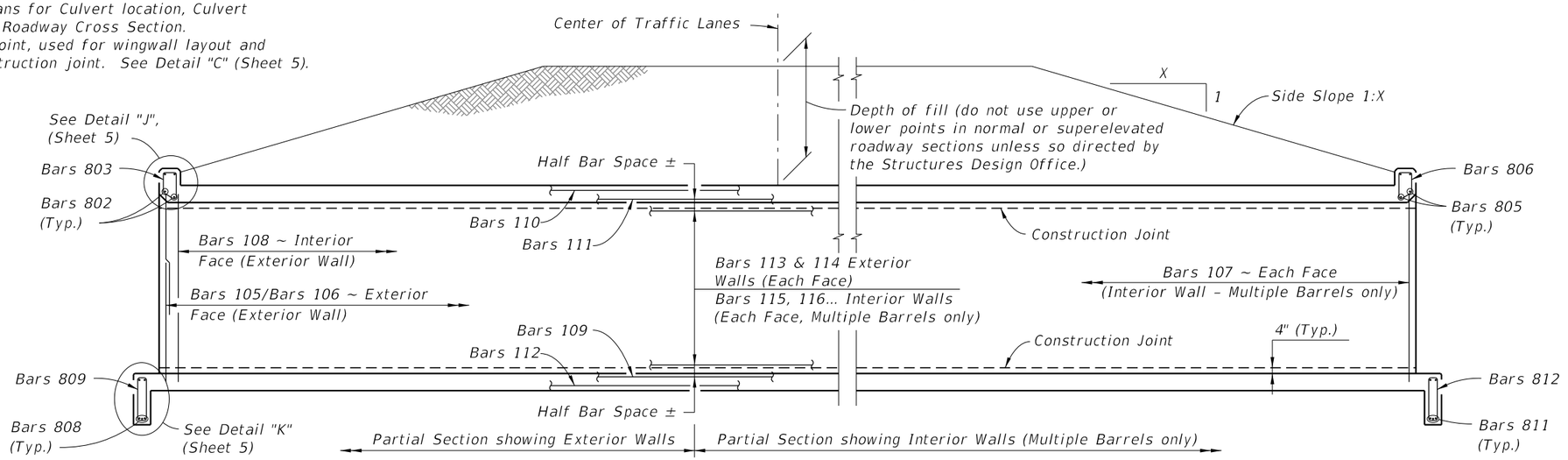


PARTIAL PLAN TOP SLAB
(Left Side, Left Skew)

PARTIAL PLAN BOTTOM SLAB
(Right Side, Right Skew)

NOTES:
1. See Contract Plans for Culvert location, Culvert Skew Angle and Roadway Cross Section.
2. WP = Working Point, used for wingwall layout and location of construction joint. See Detail "C" (Sheet 5).

SINGLE BARREL BOX CULVERT
(Skewed Culvert With Parallel Wingwalls Shown)



LONGITUDINAL SECTION THRU CULVERT
(Transverse Top & Bottom Slab Reinforcing Not Shown For Clarity)

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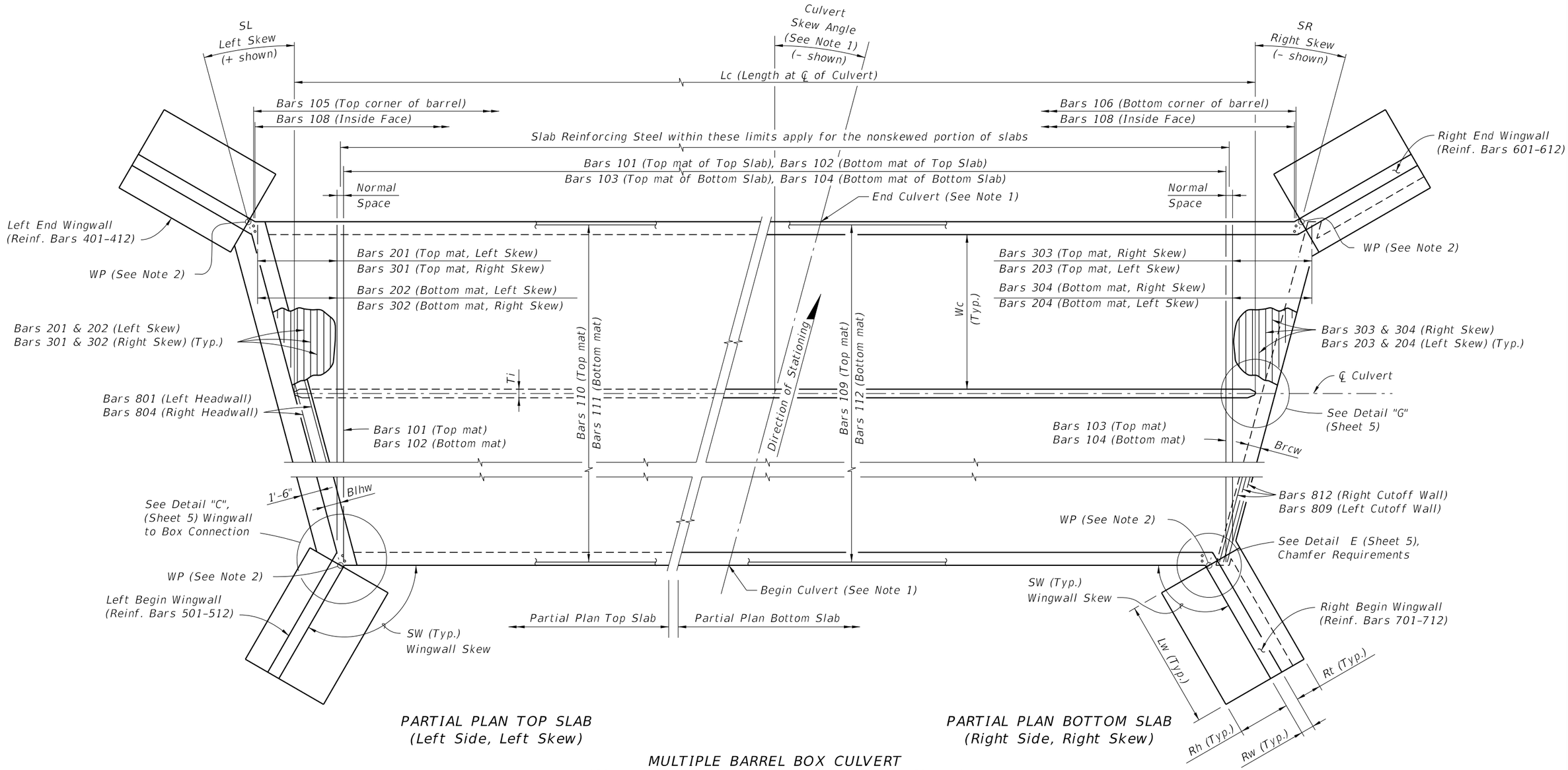
LAST REVISION	REVISION	DESCRIPTION:				
01/01/07			FDOT FY 2025-26 STANDARD PLANS	CONCRETE BOX CULVERT DETAILS	INDEX 400-289	SHEET 3 of 8



PARTIAL PLAN TOP SLAB
(Left Side, Left Skew)

PARTIAL PLAN BOTTOM SLAB
(Right Side, Right Skew)

MULTIPLE BARREL BOX CULVERT
(Skewed Culvert With Skewed Wingwalls Shown)

NOTES:
1. See Contract Plans for Culvert Location, Culvert Skew Angle and Roadway Cross Section.
2. WP = Working Point, used for wingwall layout and location of construction joint. See Detail C (Sheet 5).

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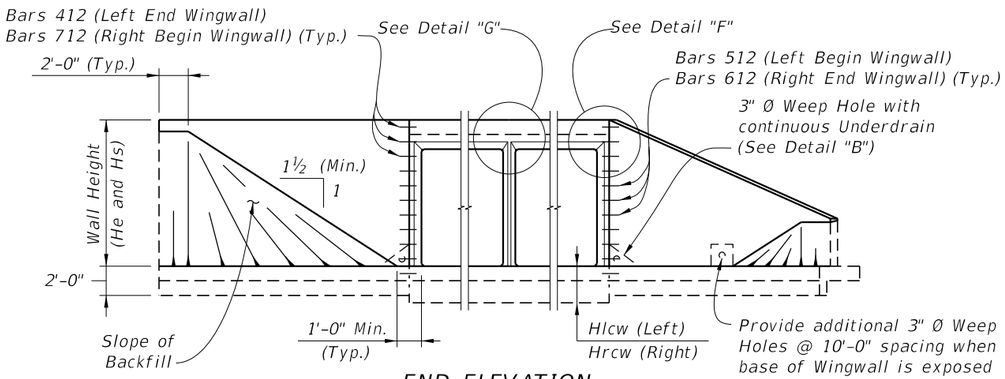
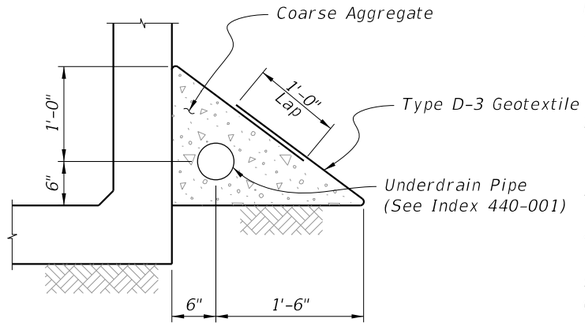
LAST REVISION	REVISION	DESCRIPTION:				
01/01/07			FDOT FY 2025-26 STANDARD PLANS	CONCRETE BOX CULVERT DETAILS	INDEX 400-289	SHEET 4 of 8



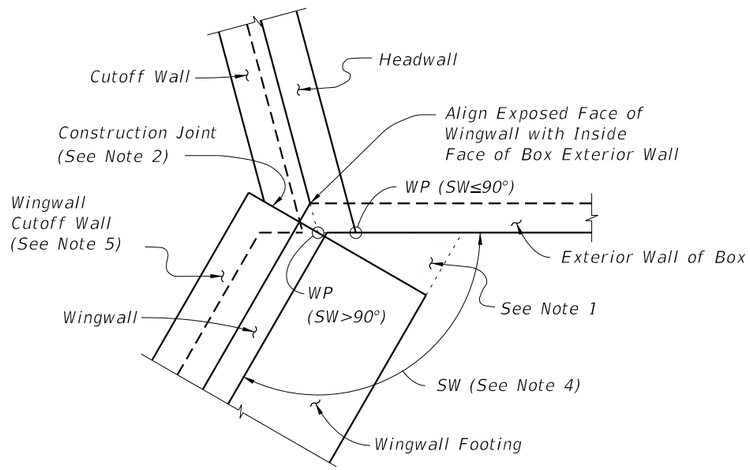
END ELEVATION
(Showing Constant Height And Variable Height Wingwalls)



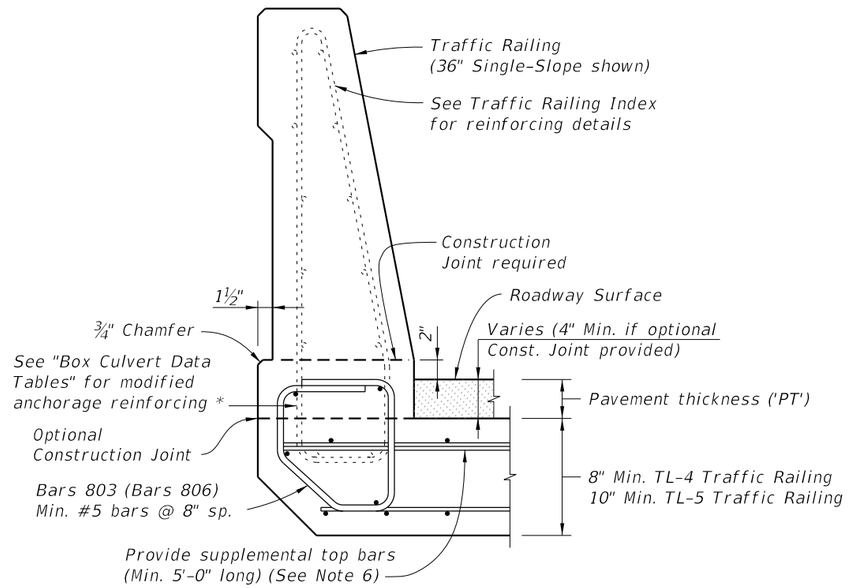
DETAIL "B"
UNDERDRAIN DETAIL
(Similar to Type II ~ Index 440-001)

NOTES:
1. For small angles, the Contractor may elect to fill the area between the box and the wingwall footing with unreinforced concrete. For wingwall skew angles less then 90 degrees, field bend wingwall reinforcement as necessary while maintaining cover. No additional payment will be made for this work.
2. Location of Construction Joint determined by WP at theoretical intersection of:
   - Soil side face of Headwall and outside face of Box Exterior Wall, for SW≤90°;
   - Outside face of Headwall and outside face of Box Exterior Wall, for SW>90°.
3. Provide 6" chamfer when angle 'A' is greater than 45°. Maintain minimum wall thickness. Field adjust reinforcing to maintain cover.
4. Wingwall Skew Angles (SW) are measured from the adjacent box exterior wall to the wingwall.
5. Turn or extend Wingwall Cutoff Wall as necessary to meet Box Cutoff Wall.
6. Provide additional reinforcement in the top of the top slab below traffic railings to ensure a minimum area of 0.80 sq. in./ft. transverse reinforcing.

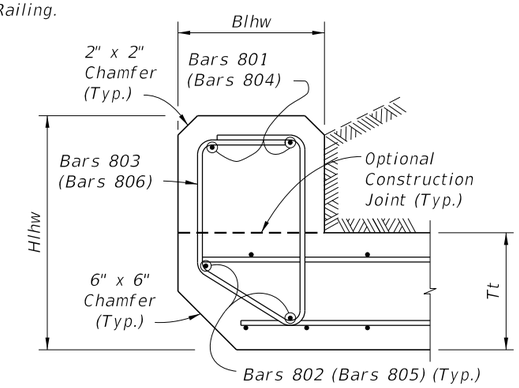
* Included in the cost of the Traffic Railing.



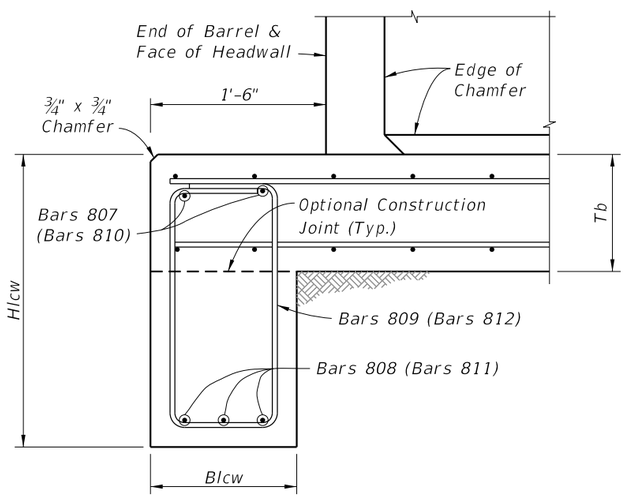
DETAIL "C" - PLAN VIEW
WINGWALL TO BOX CONNECTION
(Left Begin Corner Shown, Other Corners Similar)



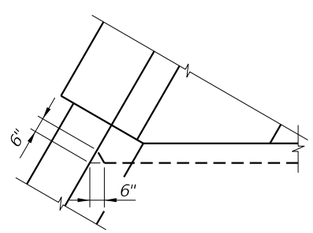
DETAIL "I"
TRAFFIC RAILING ATTACHMENT TO HEADWALL



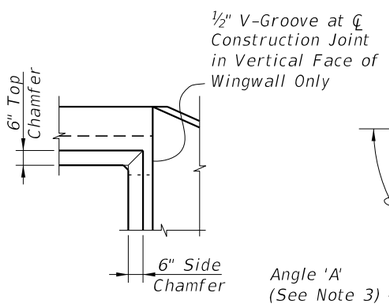
DETAIL "J"
LEFT HEADWALL SECTION
(Right Headwall similar)



DETAIL "K"
LEFT CUTOFF WALL SECTION
(Right Cutoff Wall similar)



DETAIL "D"



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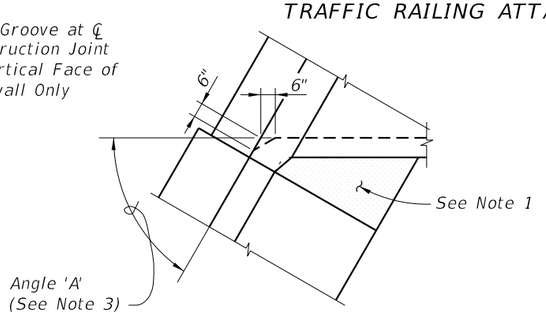
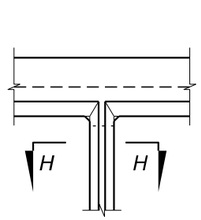
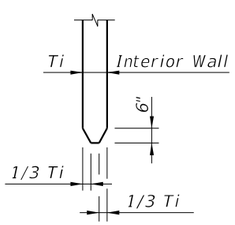


DETAIL "E"



DETAIL "G"



SECTION H-H

CROSS REFERENCE:
See Sheet 3 for locations of Details "D", "E", "J" & "K".
See Sheet 4 for locations of Detail "C".

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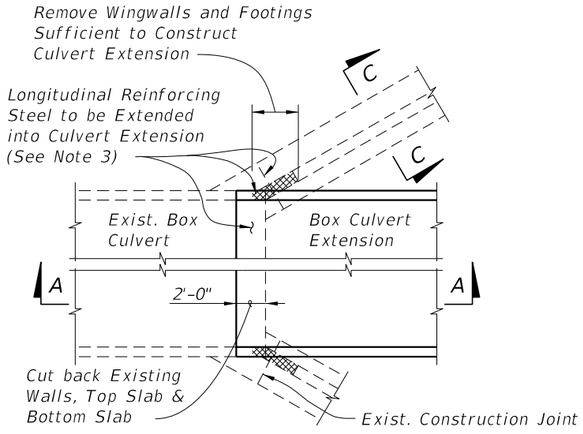
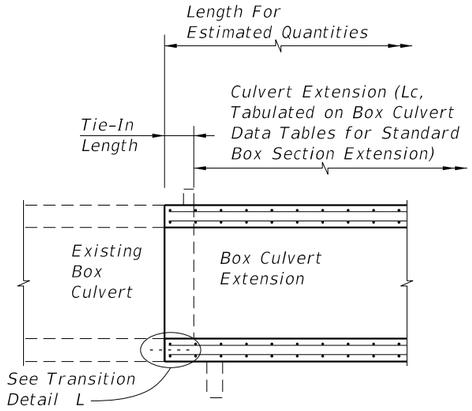
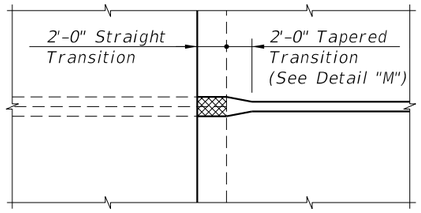


OUTSIDE WALLS OF BOXES

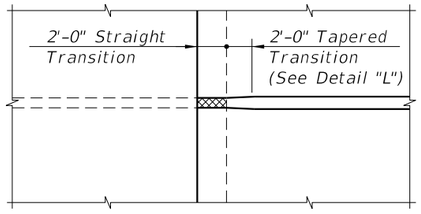


SECTION A-A

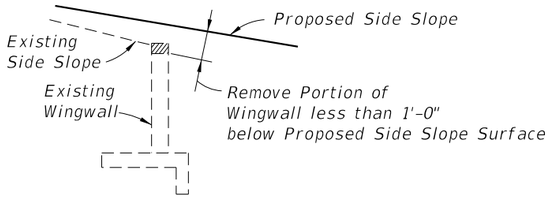
FLARED WINGWALL



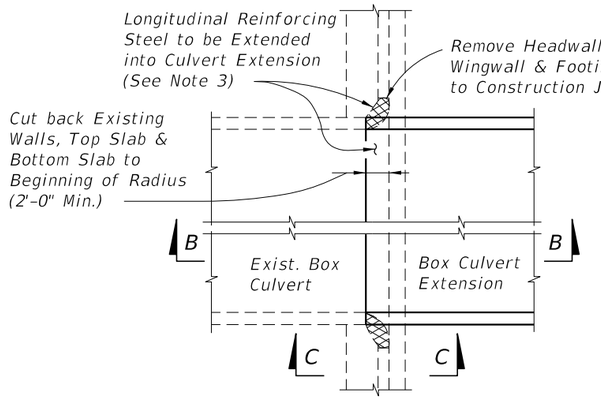
INTERIOR DOUBLE WALLS OF BOXES



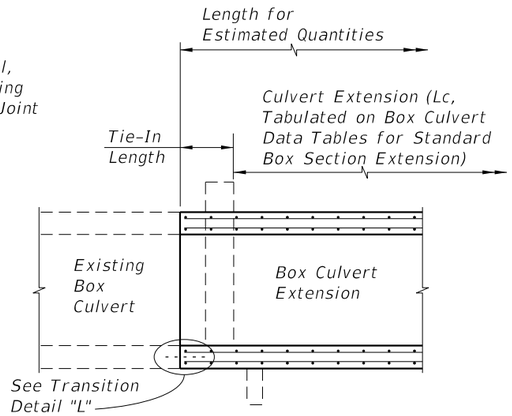
INTERIOR SINGLE WALLS OF BOXES



SECTION C-C



OUTSIDE WALLS OF BOXES



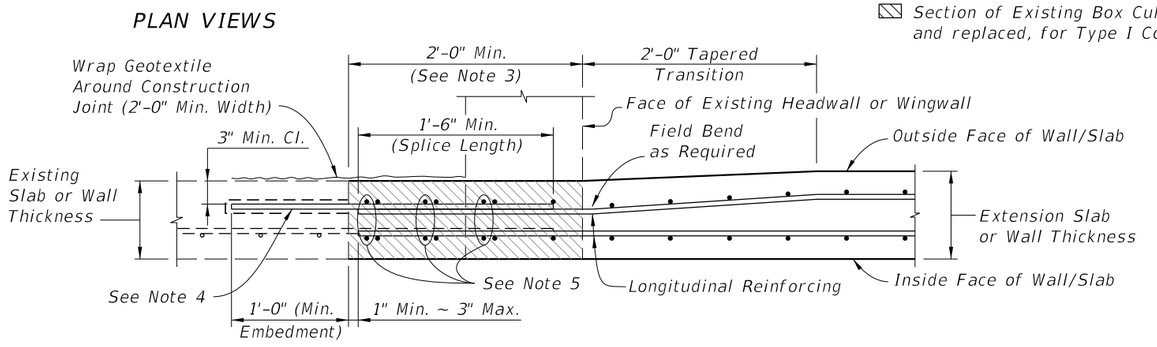
SECTION B-B

STRAIGHT WINGWALL

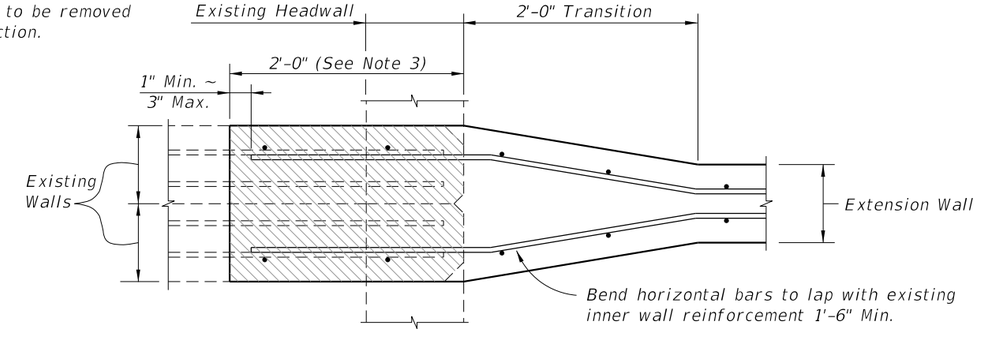
NOTES:

1. The Box Culvert Data Tables and Reinforcing Bar List do not include the additional quantities needed for dowel connections or transitions from double walls of existing concrete box culverts; the cost for additional reinforcement and the thickened concrete wall in the transitional area shall be included in the costs for concrete and steel in the culvert extension.
2. Cost for removal and disposal of material from existing headwalls, wingwalls and box, and cost of cleaning, straightening and extending or doweling longitudinal reinforcing steel shall be included in the cost for concrete and steel of the culvert extension.
3. Remove existing concrete while avoiding damage to existing reinforcement. Clean and straighten existing reinforcement, lap and tie onto extension reinforcement.
4. Dowel in #4 Bars @ 1'-0" max. spacing into wall/slab when there is a single mat of existing reinforcing steel, otherwise splice 1'-6" as shown for inside reinforcement. Use an Adhesive Bonding Material System in accordance with Specifications Section 416 & 937.
5. Provide additional transverse bars for top and bottom slab, parallel and full width of any skewed joint connection when shown in the Plans.
6. See Box Culvert Data Table notes in Plans for Connection Types allowed.

PLAN VIEWS



DETAIL "L" - TRANSITION FOR EXTERIOR WALL/SLAB EXTENSION
(Interior Single Walls Similar)



DETAIL "M" - TRANSITION FOR INTERIOR DOUBLE WALLS OF BOX CULVERTS

TYPE I CONNECTION DETAILS FOR CONCRETE BOX CULVERT EXTENSIONS (CUT BACK EXISTING CONCRETE)

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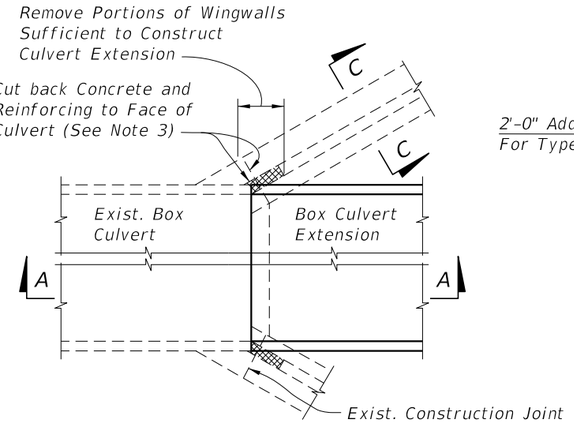
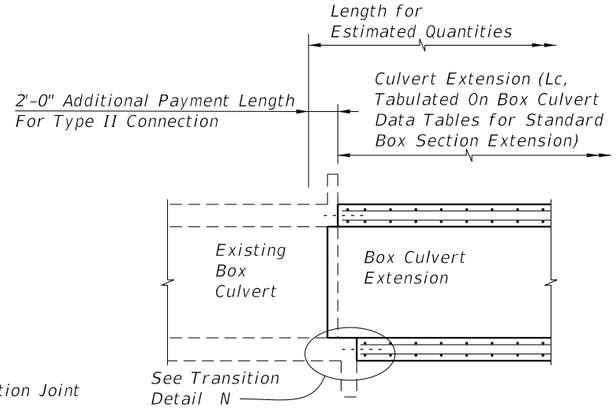
11/01/23			FY 2025-26 STANDARD PLANS	CONCRETE BOX CULVERT DETAILS	400-289	6 of 8

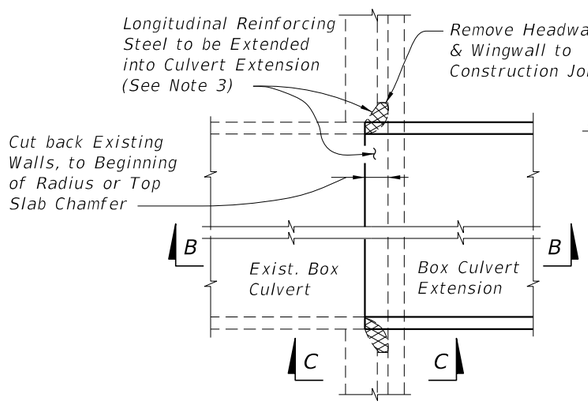


OUTSIDE WALLS OF BOXES

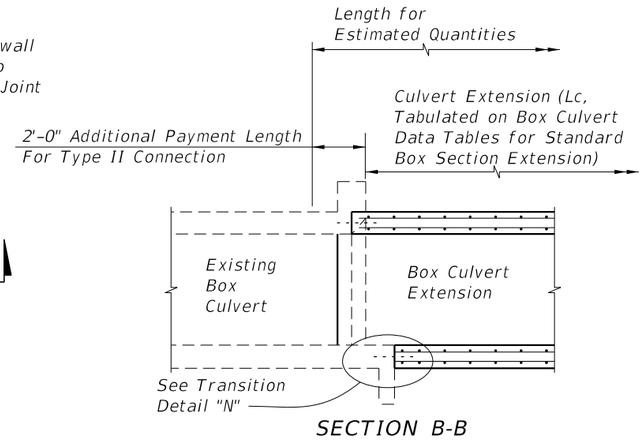


SECTION A-A

FLARED WINGWALL

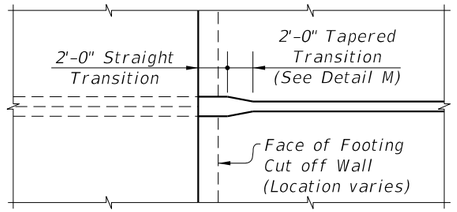


OUTSIDE WALLS OF BOXES

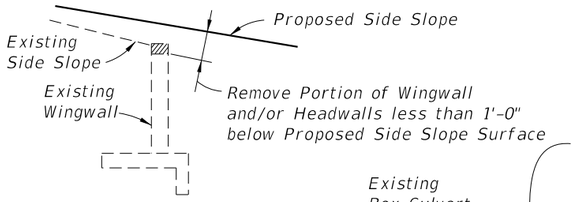


SECTION B-B

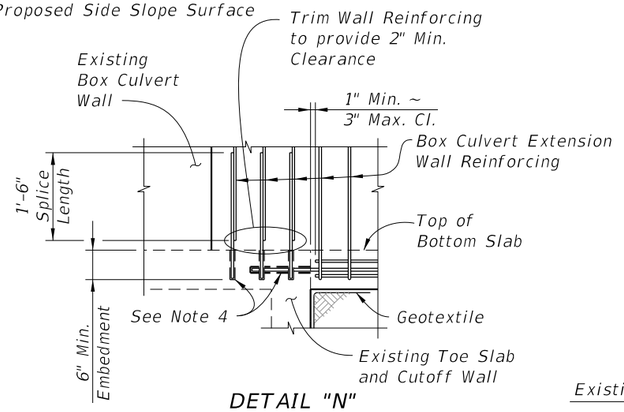
STRAIGHT WINGWALL



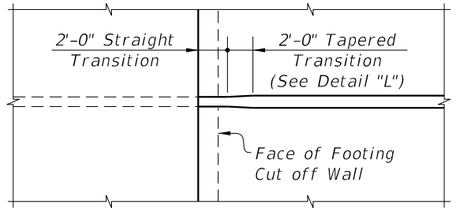
INTERIOR DOUBLE WALLS OF BOXES



SECTION C-C

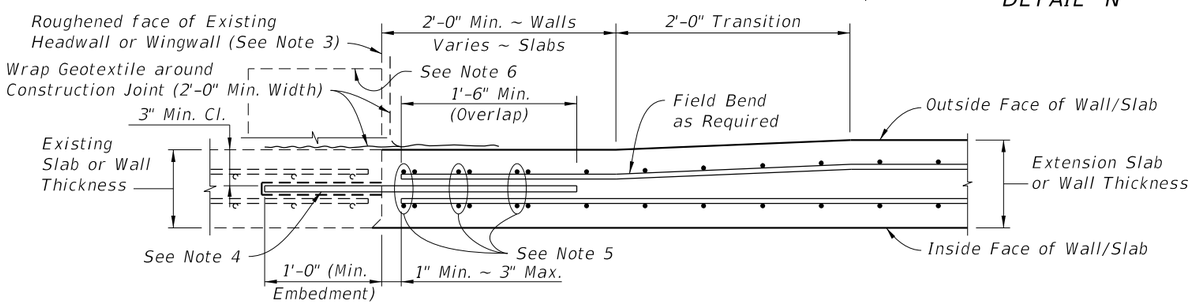


DETAIL "N"

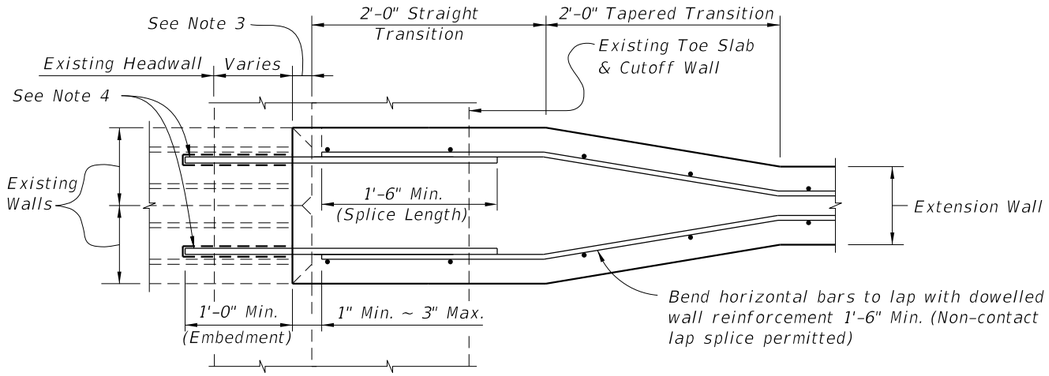


INTERIOR SINGLE WALLS OF BOXES

PLAN VIEWS



DETAIL "L" - TRANSITION FOR EXTERIOR WALL/SLAB EXTENSION
(Interior Single Walls Similar)

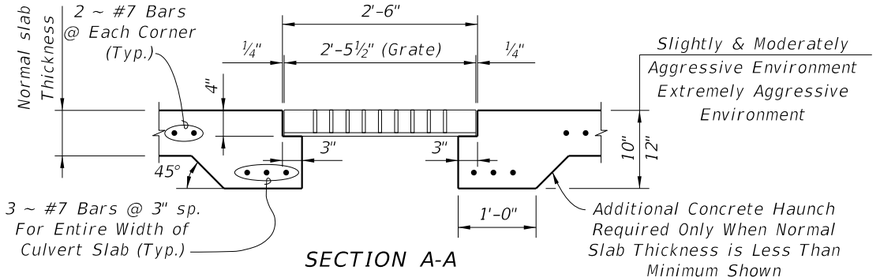


DETAIL "M" - TRANSITION FOR INTERIOR DOUBLE WALLS OF BOX CULVERTS

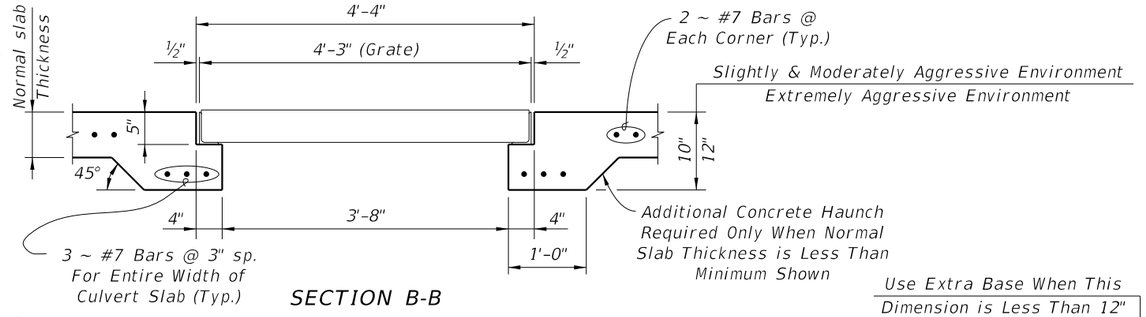
NOTES:

1. The Box Culvert Data Tables and Reinforcing Bar List do not include the additional quantities needed for dowel connections or transitions from double walls of existing concrete box culverts; the cost for additional reinforcement and the thickened concrete wall in the transitional area shall be included in the costs for concrete and steel in the culvert extension.
2. Cost for roughening and cleaning existing headwalls, wingwalls and box, and cost of doweling longitudinal reinforcing steel shall be included in the cost for concrete and steel of the culvert extension.
3. Remove existing concrete and reinforcing back to edge of any chamfers exceeding 1". Roughen and clean existing or exposed surface and coat with a Type A epoxy bonding compound in accordance with the manufacturer's recommendations.
4. Dowel in #5 Bars @ 1'-0" max. spacing horizontally into center of wall/slab. Provide vertical dowels in footing to match size, alignment and spacing of outside vertical wall reinforcing. Use an Adhesive Bonding Material System in accordance with Specifications Section 416 & 937.
5. Provide additional transverse bars for top and bottom slab, parallel and full width of any skewed joint connection when shown in the Plans.
6. Remove top of existing headwall when necessary to provide 1'-0" clearance below finished grade. Saw cut full width and seal with Type F-2 epoxy compound to protect exposed reinforcing.
7. See Box Culvert Data Table notes in Plans for Connection Types allowed.

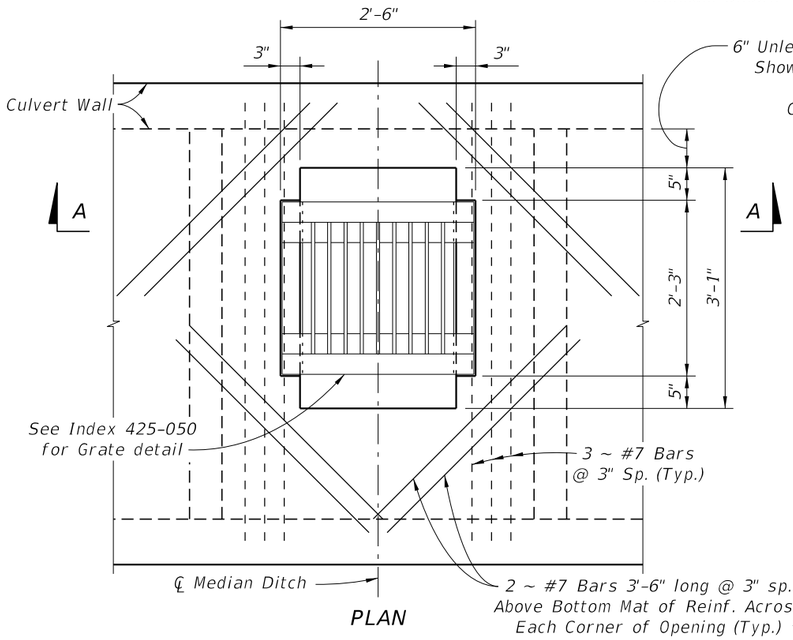
TYPE II CONNECTION DETAILS FOR CONCRETE BOX CULVERT EXTENSIONS
(ADHESIVE DOWEL TO EXISTING CONCRETE)



SECTION A-A

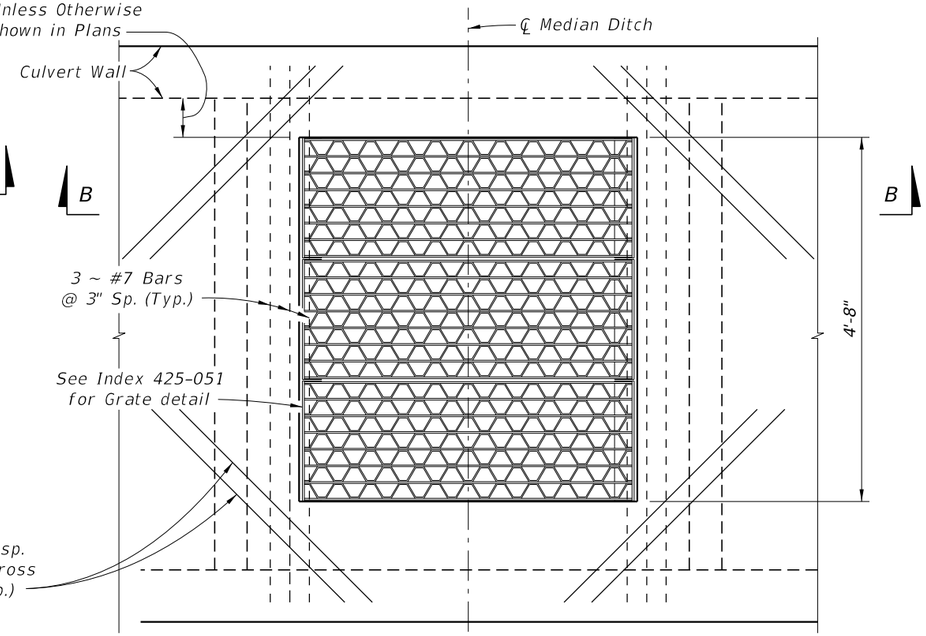


SECTION B-B



PLAN

INLET TYPE A GRATE



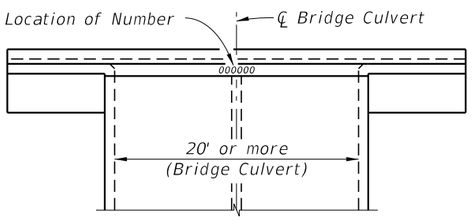
PLAN

INLET TYPE B GRATE

NOTES:

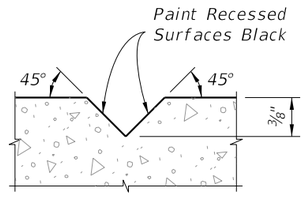
1. Cost of Steel Grating to be included in cost of Box Culvert.
2. All reinforcing shall be 2" clear for Slightly and Moderately Aggressive Environments, and 3" clear for Extremely Aggressive Environments.

INLET IN TOP OF BOX CULVERT



The number is to be placed in the center of the top surface of all bridge culvert headwalls. For Bridge Number see Plan-Profile sheet(s).

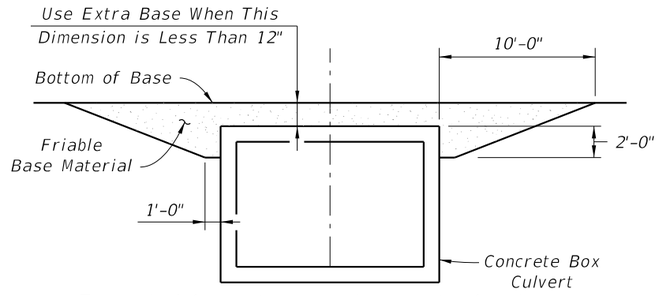
TOP VIEW OF HEADWALL



SECTION THRU RECESSED V-GROOVE TO FORM INSCRIBED FIGURES

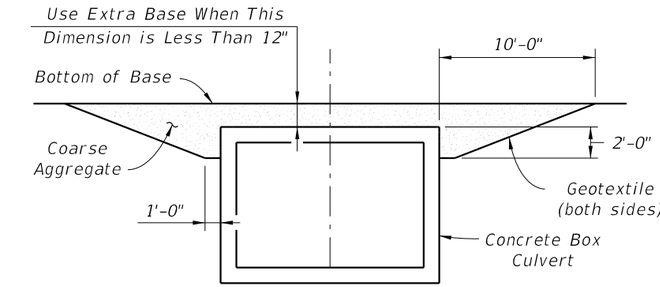
Black Plastic Figures 3" in height as approved by the Engineer may be used in lieu of numbers formed by ⅜" V-Grooves. V-Grooves shall be formed by preformed figures.

BRIDGE CULVERT NUMBER LOCATION



The cost of furnishing and installing extra friable base material shall be included in the cost of the Box Culvert.

FRIABLE BASE



Place coarse aggregate in 6 inch lifts and compact sufficiently as to be firm and unyielding. Provide coarse aggregate gravel or stone meeting the requirements of Specification Section 901-2 or 901-3 respectively. Meet the gradation requirements of Specification Section 901-6, Grades 4, 467, 5, 56 or 57 unless restricted in the plans. Provide Type D-3 Geotextile (see Specification Section 514). The cost of furnishing and installing the coarse aggregate and geotextile shall be included in the cost of the Box Culvert.

ASPHALTIC CONCRETE BASE

NOTE: Extra base is required when cross box culverts are located on facilities subject to high speed traffic (>45 mph) or high traffic volumes (>1600 ADT) and the cover is within the range specified in the notation above.

EXTRA BASE FOR BOX CULVERTS CROSSING UNDER FLEXIBLE PAVEMENT

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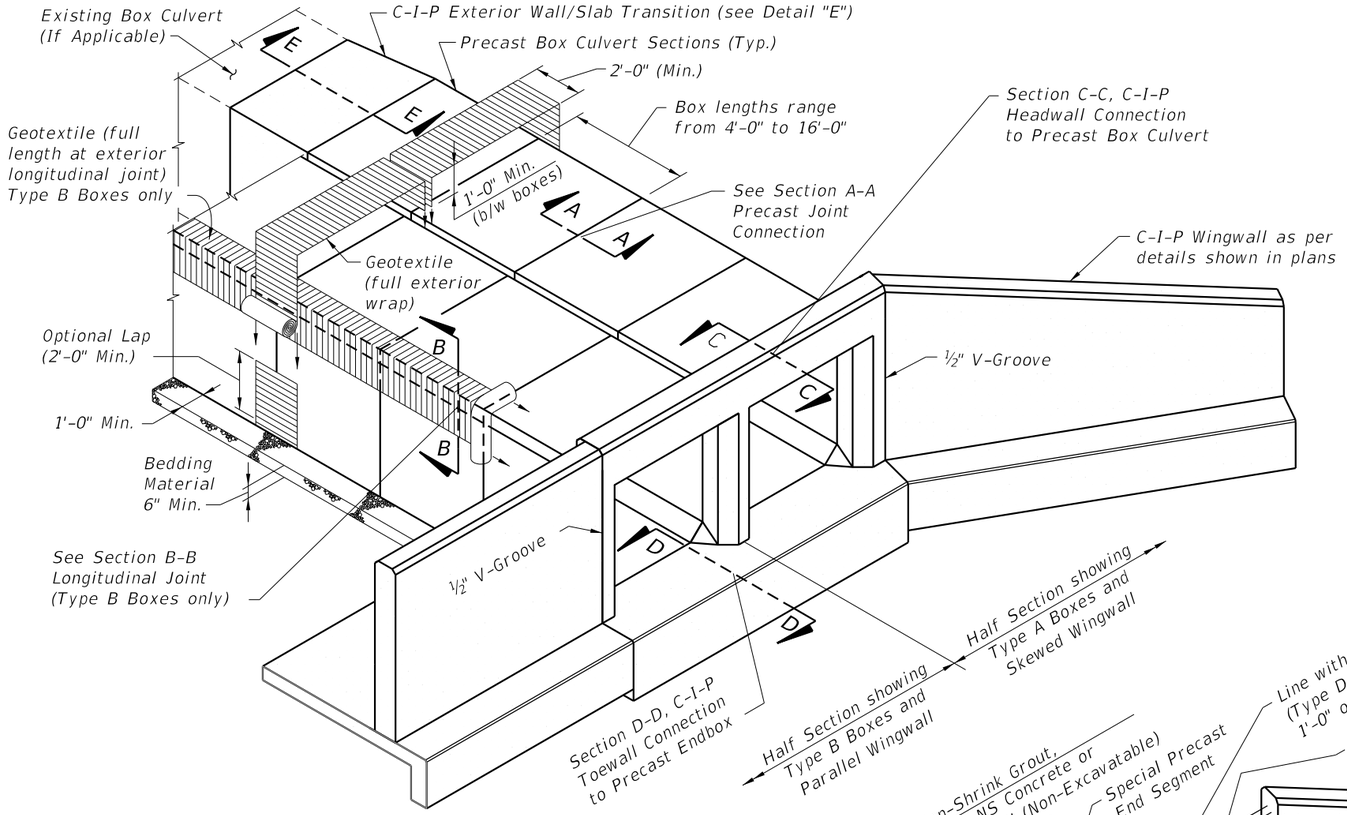
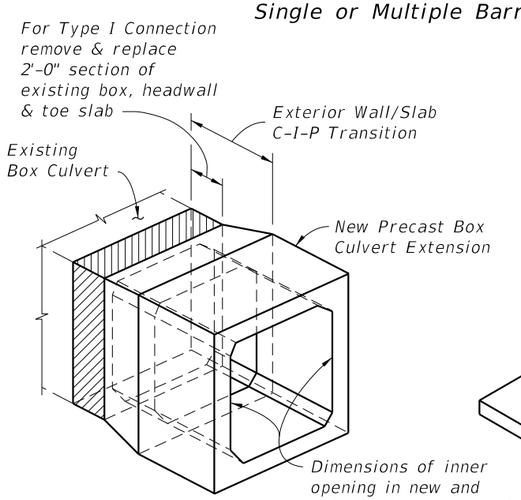
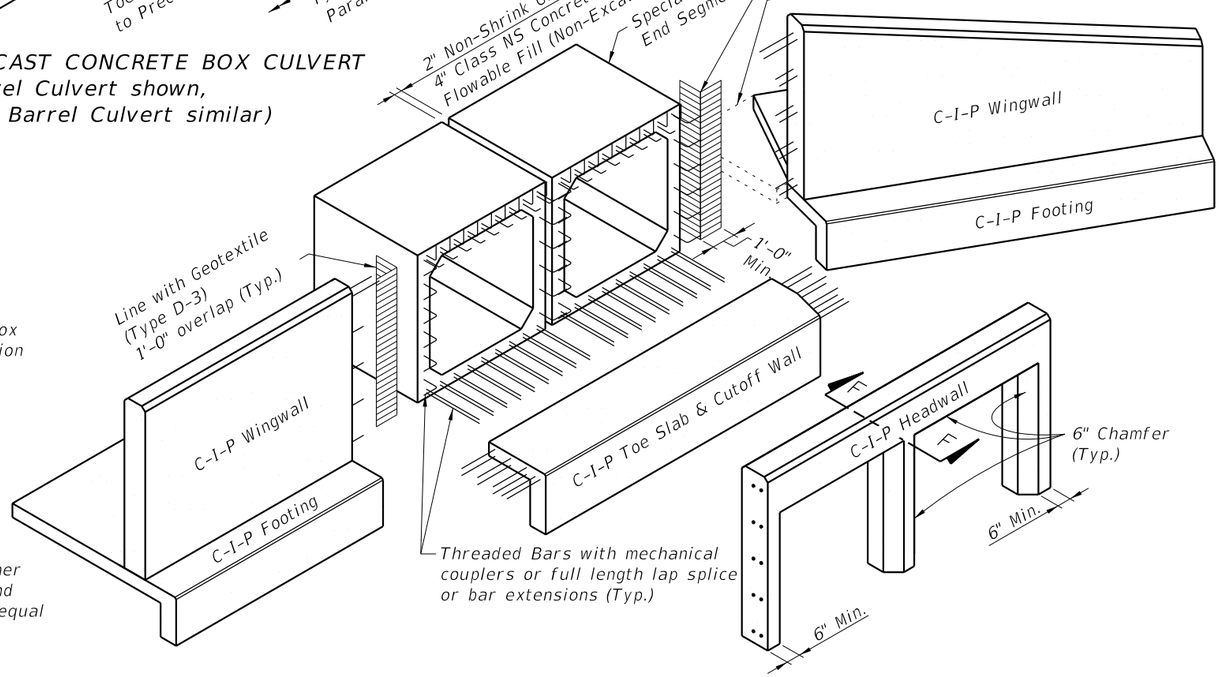


ISOMETRIC VIEW OF PRECAST CONCRETE BOX CULVERT
(Double Barrel Culvert shown, Single or Multiple Barrel Culvert similar)

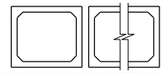
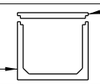
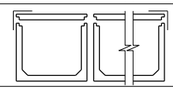
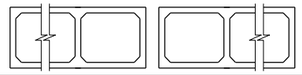


DETAIL E
PICTORIAL VIEW OF EXTERIOR WALL/SLAB TRANSITION



EXPLODED VIEW OF CONNECTIONS AT END OF CULVERT
(Double Barrel Culvert shown, Single or Multiple Barrel Culvert similar)

PERMITTED PRECAST ALTERNATE BOX SECTIONS

TYPE	DESCRIPTION	SINGLE BARREL	MULTIPLE BARRELS	DESIGN NOTES
A	Single Cell Monolithic (Four Sided)			Index 400-292 or Contractor Design
B	Single Cell Two-Piece (Four Sided)			Contractor Design
C	Multicell Monolithic	Not Applicable		Contractor Design

GENERAL NOTES:

1. Specifications:
   - General:
     - FDOT Standard Specifications for Road and Bridge Construction, Section 410 (current edition, and supplements thereto).
   - Concrete (Precast):
     - Class III or Class II Modified (5,000 psi) for slightly aggressive environments.
     - Class IV (5,500 psi) for moderately to extremely aggressive environments.
   - Concrete (Cast-In-Place):
     - Class II (3,400 psi) for slightly aggressive environments.
     - Class IV (5,500 psi) for moderately to extremely aggressive environments.
   - Reinforcing Steel:
     - Maintain minimum clearance of 2" for slightly and moderately aggressive environments or 3" for extremely aggressive environments, unless otherwise shown. Equal area substitution of welded wire (WWR) reinforcement is permitted.
2. Work this Index with the Cast-In-Place Concrete Box Culvert Details and Data Tables shown in the plans, Index 400-289 and the Precast Concrete Box Culverts shown in the shop drawings.
3. All joints between precast sections must be tongue & groove with joint sealant. Joints between cast-in-place & precast sections shall have longitudinal reinforcing extending from top, bottom & both side slabs of the precast box tied to the cast-in-place reinforcement. Single barrel culverts may have precast headwalls cast integrally with the end segment when approved by the Engineer.
4. Extension of existing multiple barrel box culverts with multiple single cell precast box culverts is not permitted unless approved by the District Structures Engineer. Full transition details must be shown in the shop drawings when approved.
5. Culverts larger than the specified size may be substituted with no additional payment to the Contractor. Substitution must be approved by the Engineer, minimum earth cover and invert elevations shown in the Contract Documents must be maintained.

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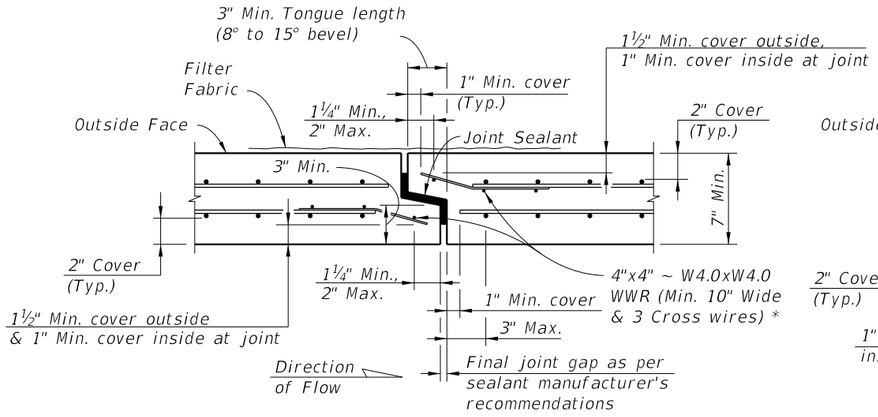
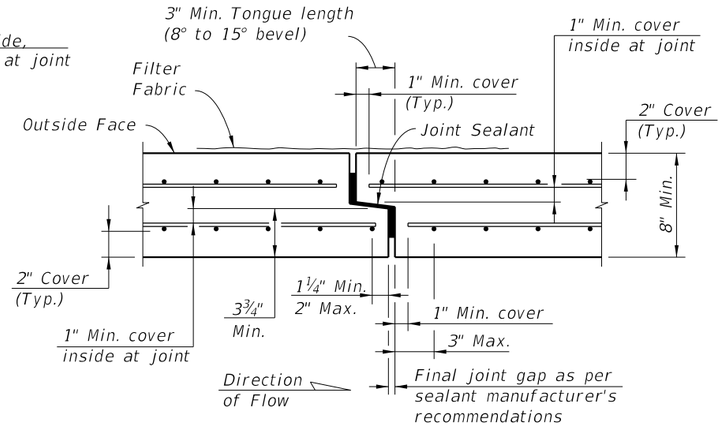
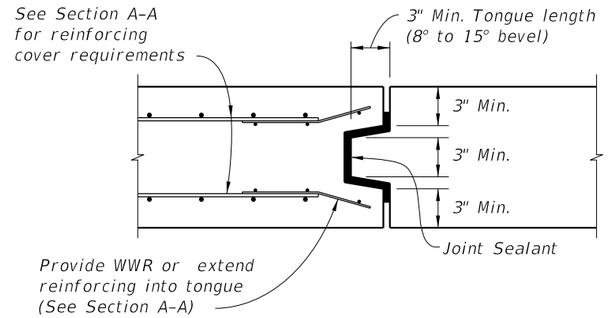


SECTION A-A
(2" Cover - Thin Wall Detail)

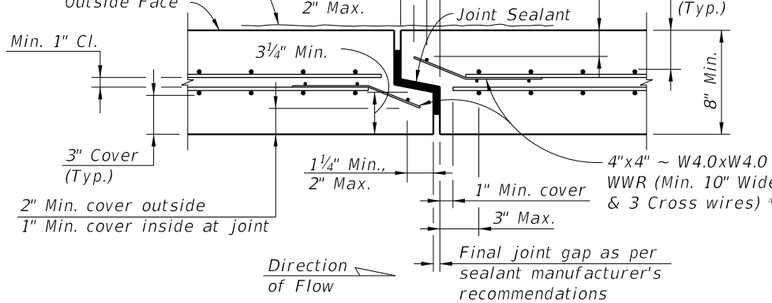


SECTION A-A
(2" Cover - Thick Wall Detail)

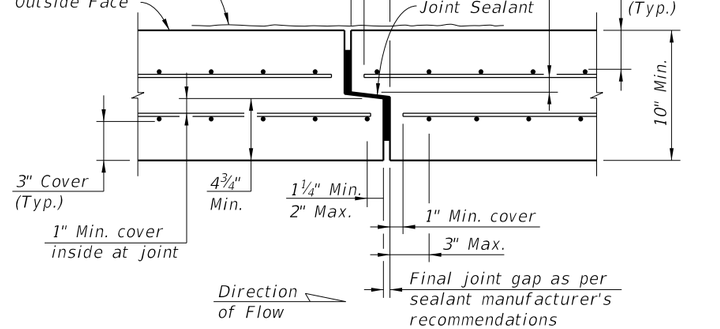


ALTERNATE BOTTOM SLAB TRANSVERSE JOINT
TYPICAL SECTION
(DOUBLE-SIDED TONGUE & GROOVE JOINT)
(All reinforcing not shown for clarity)

NOTE:
Bottom Slab Joints in Type B Boxes may be single tongue & groove joints as shown in Section A-A when the Top Slab Joints are oriented as shown in Schematic "A".

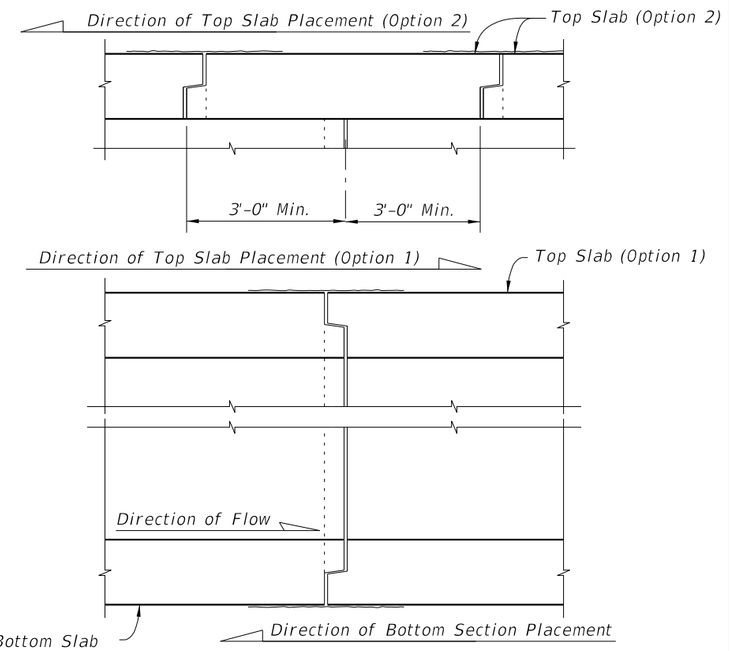


SECTION A-A
(3" Cover - Thin Wall Detail)



SECTION A-A
(3" Cover - Thick Wall Detail)

* *At the Contractor's option when the box culvert reinforcing utilizes WWR, extend wall and slab reinforcing into the joint and bend to maintain cover in lieu of 4"x4" ~ W4.0xW4.0 WWR at joint. Transverse wire in tongue may be cut at corners of box to allow bending of the WWR.*



SCHEMATIC "A"
TYPE B BOX SECTION PLACEMENT
FOR SINGLE TONGUE & GROOVE JOINTS

PRECAST SEGMENT TO SEGMENT TONGUE & GROOVE TRANSVERSE JOINTS

TWO-PIECE PRECAST SEGMENT ADDITIONAL JOINT DETAILS (TYPE B BOX)

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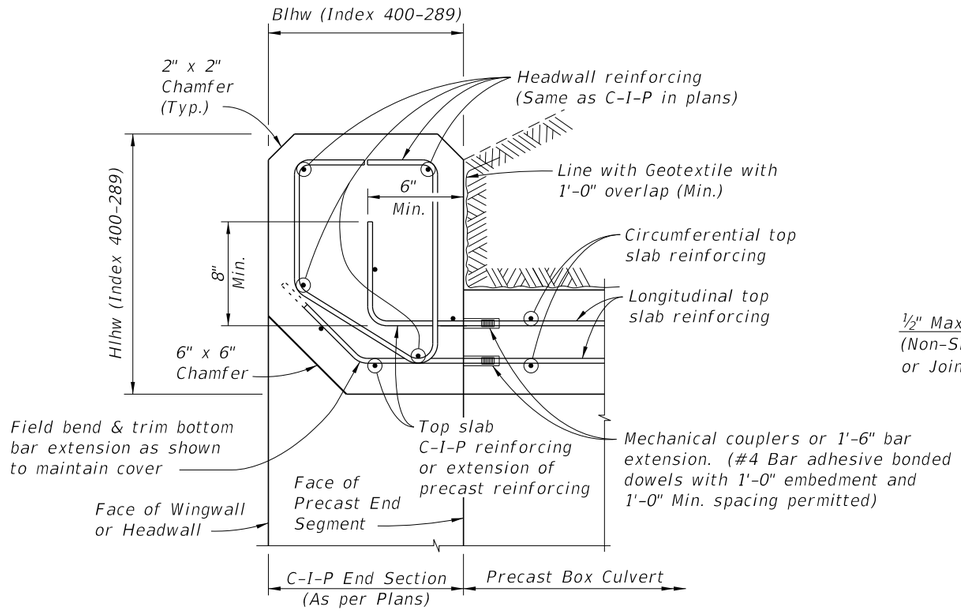
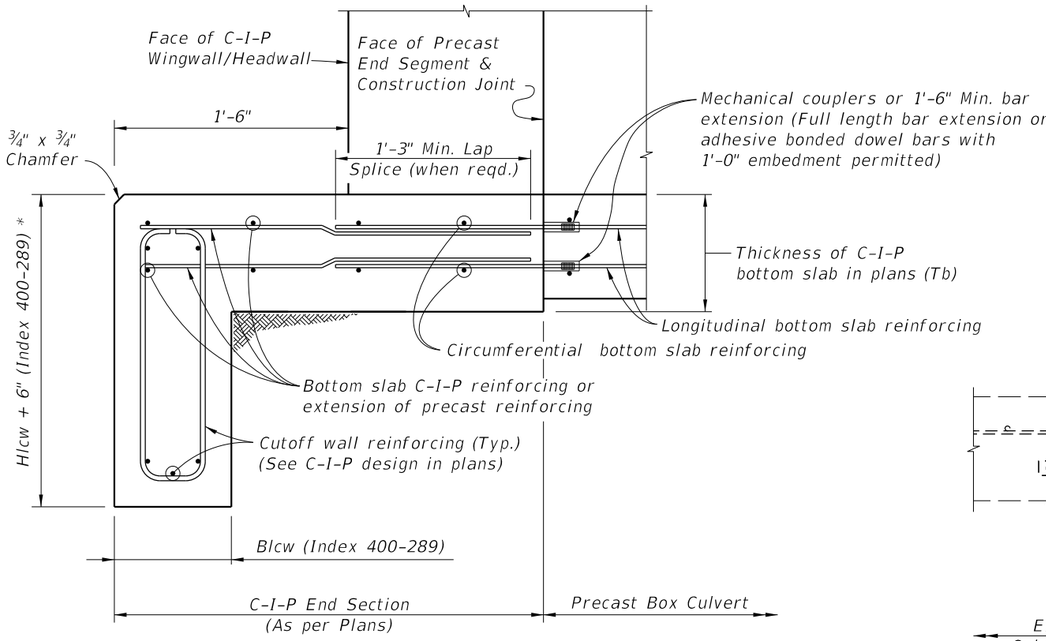
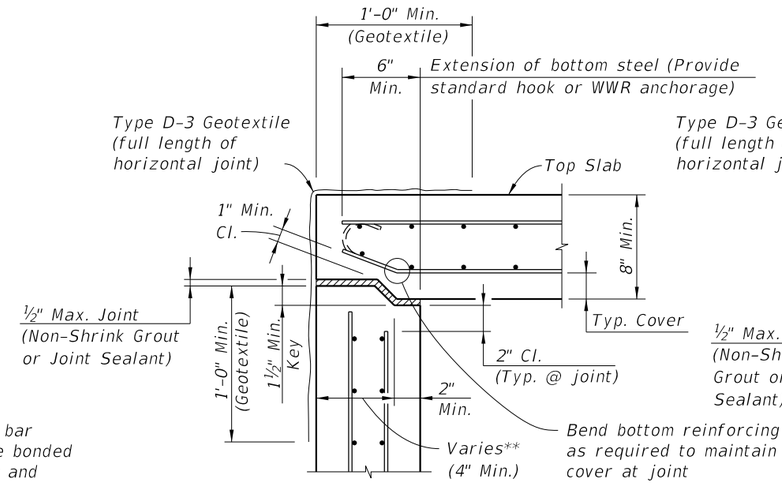


SECTION C-C
C-I-P HEADWALL DETAILS AND CONNECTION TO PRECAST BOX

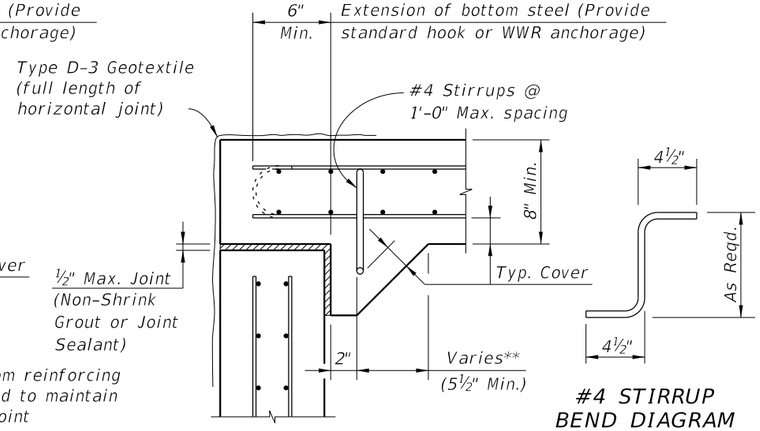


SECTION D-D
C-I-P TOE SLAB & CUTOFF WALL DETAILS
AND CONNECTION TO PRECAST BOX

* Provide additional 6" depth of cutoff wall at no additional cost.



SECTION B-B
TOP SLAB TO WALL JOINT
(KEYED JOINT)

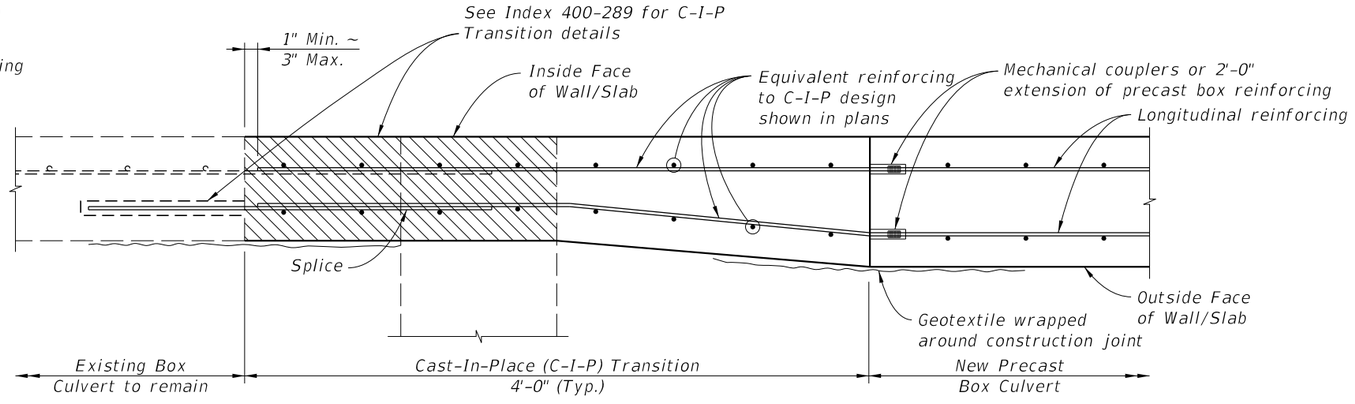


SECTION B-B
TOP SLAB TO WALL JOINT
(HAUNCHED JOINT)

#4 STIRRUP
BEND DIAGRAM

** Provide adequate width to satisfy shear strength requirements at joint

TYPE B BOX LONGITUDINAL JOINTS



Section of Existing Box Culvert to be removed and replaced, for Type I Connection.

SECTION E-E
EXTERIOR WALL/SLAB TRANSITION DETAIL FOR PRECAST EXTENSION
(Type I Connection shown, Type II Connection similar)

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LAST REVISION	REVISION	DESCRIPTION:	FDOT	FY 2025-26 STANDARD PLANS	PRECAST CONCRETE BOX CULVERTS - SUPPLEMENTAL DETAILS	INDEX	SHEET
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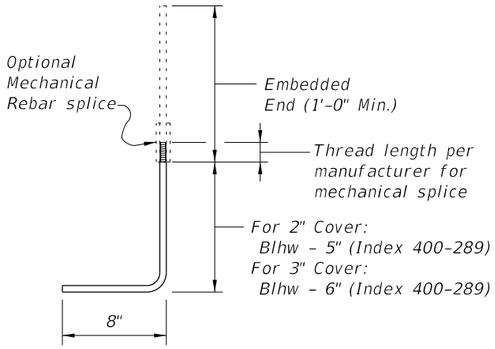
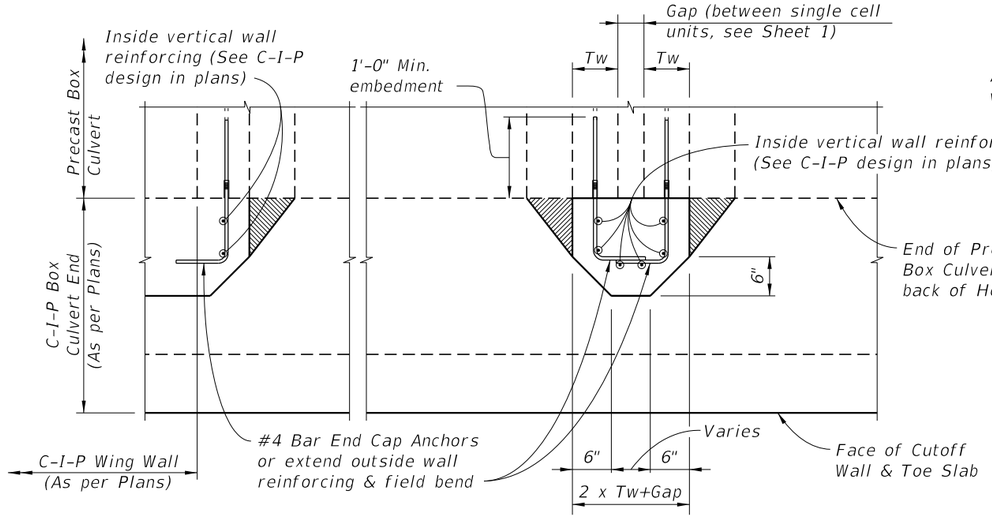
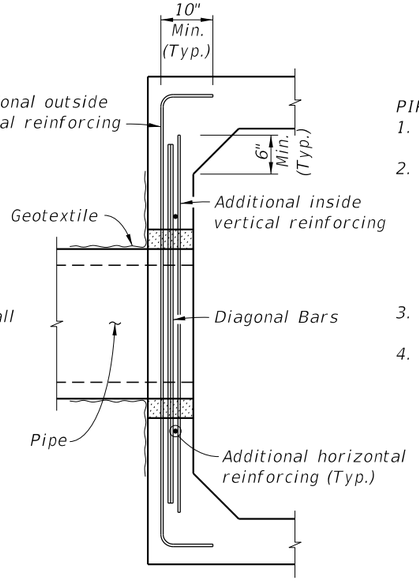


#4 BAR END CAP ANCHOR BAR BEND DIAGRAM



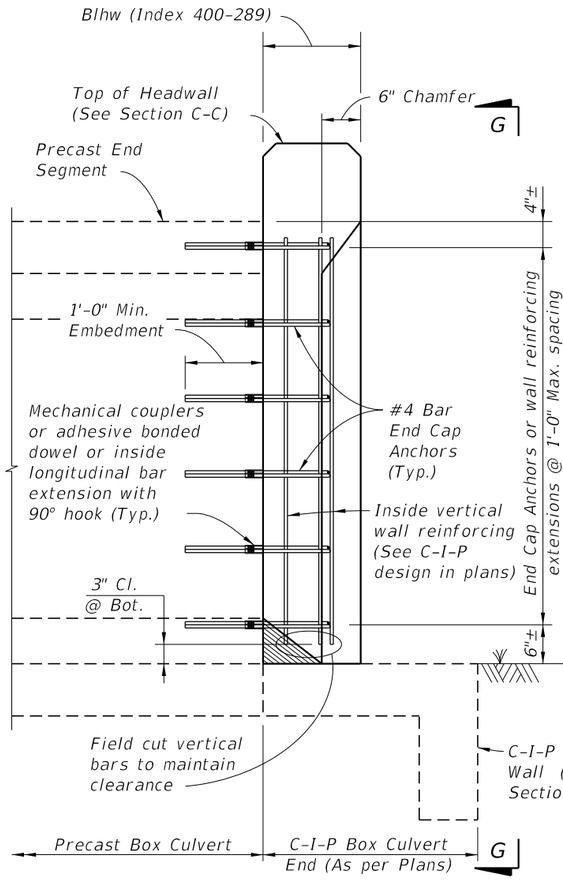
SECTION H-H



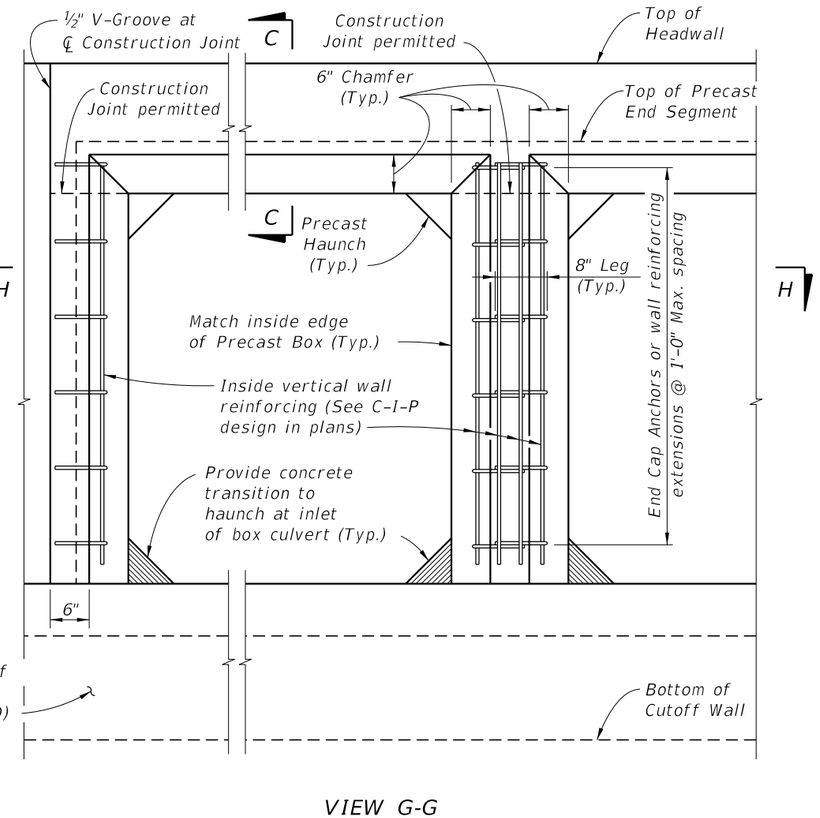
SECTION I-I
(Showing additional blockout reinforcing only)

PIPE BLOCKOUT NOTES:

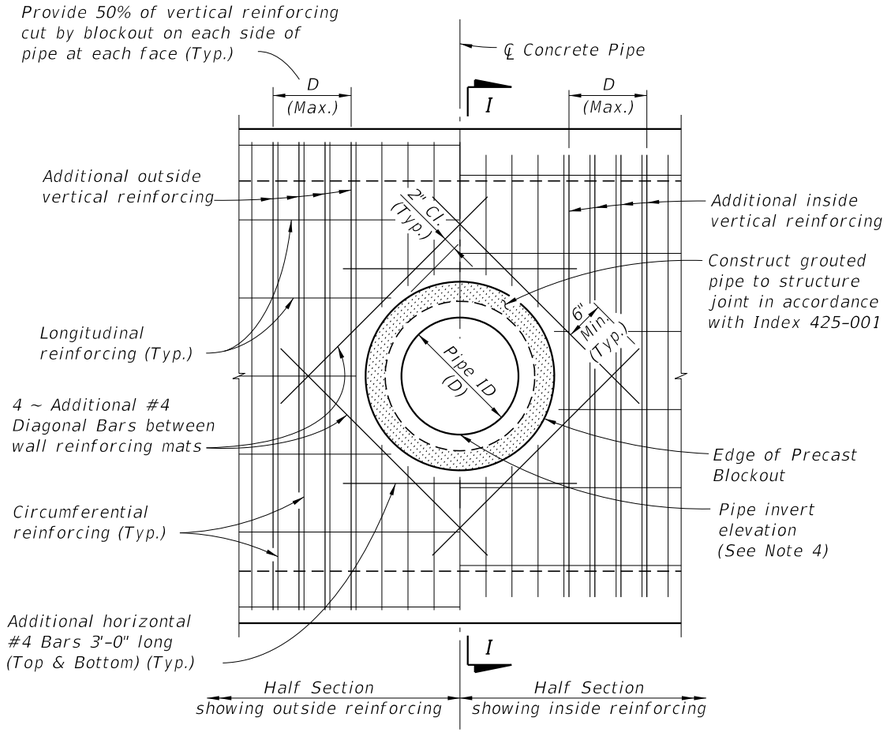
1. Cut box culvert reinforcement as required to maintain 2" cover.
2. For Precast Sections construct opening a minimum of 1'-6" away from any box to box joint, except opening may be a minimum of 1'-0" away from joint when at least 2'-0" of clearance to the box to box joint is provided on the opposite side of the pipe opening.
3. Pipe blockout diameter to be 6" greater than pipe outside diameter.
4. See Drainage Plans for size, placement, and invert elevation.



SECTION F-F



VIEW G-G
(Headwall, Toe Slab and Cutoff Wall Reinforcing not shown for clarity)



ELEVATION VIEW

PIPE BLOCKOUT DETAILS

C-I-P END CAP DETAILS AND CONNECTION TO PRECAST BOX

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LAST REVISION	REVISION	DESCRIPTION:	FDOT	FY 2025-26 STANDARD PLANS	PRECAST CONCRETE BOX CULVERTS - SUPPLEMENTAL DETAILS	INDEX	SHEET
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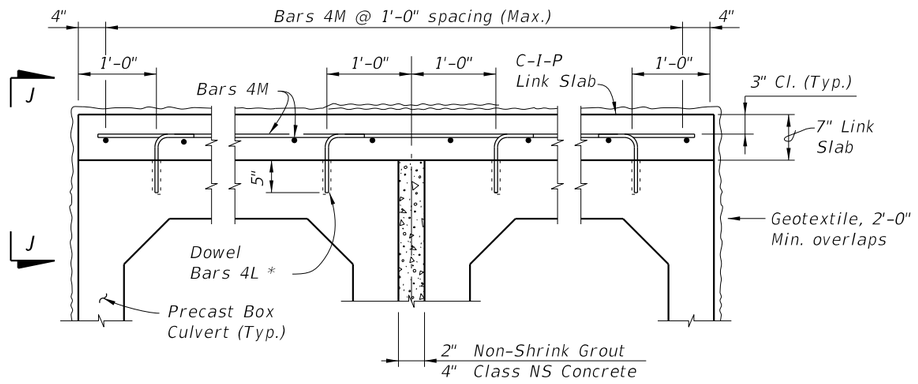


LINK SLAB TYPICAL SECTION
(Multiple Barrel Culvert shown, Single Barrel Culvert similar)

* *Install dowels with an Adhesive Bonding Material System in accordance with Specification Section 416. The Contractor may substitute mechanical couplers in lieu of adhesive bonded dowels. Shift dowels to clear box culvert reinforcing.*

LINK SLAB NOTES:

1. *Provide a Cast-In-Place Link Slab to ensure uniform joint opening of precast box culverts when the differential settlement shown in the plans exceeds the following limits, except that a Link Slab is not required for differential settlements less than ½".*

$$\Delta Y \leq \frac{(L)^2}{760 \times R \times W}$$

Where:
ΔY = Maximum Long-Term Differential Settlement (ft.)
R = Exterior height of Box Culvert (ft.)
W = Length of Box Culvert Segments (ft.)
L = Effective length for single curvature deflection (ft.)

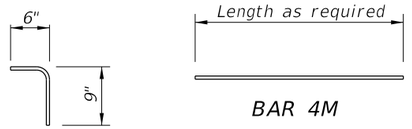
2. *Extend Link Slab to back face of headwalls and to limits of existing box culverts for extensions.*

ESTIMATED LINK SLAB QUANTITIES		
ITEM	UNIT	QUANTITY
Class II or IV Concrete (Culvert)	CY/SF	0.0216
Reinforcing Steel (Roadway)	Lb./SF	1.52

NOTE: Estimated quantities are based the plan area of precast box slabs, and are provided for information only. No additional payment will be made for Link Slabs where these are required for the precast box culverts.

BILL OF REINFORCING STEEL			
MARK	SIZE	NO. REQ'D	LENGTH
L	4	2 per Barrel/Ft.	1'-3"
M	4	As Reqd.	As Reqd.

REINFORCING STEEL BENDING DIAGRAMS



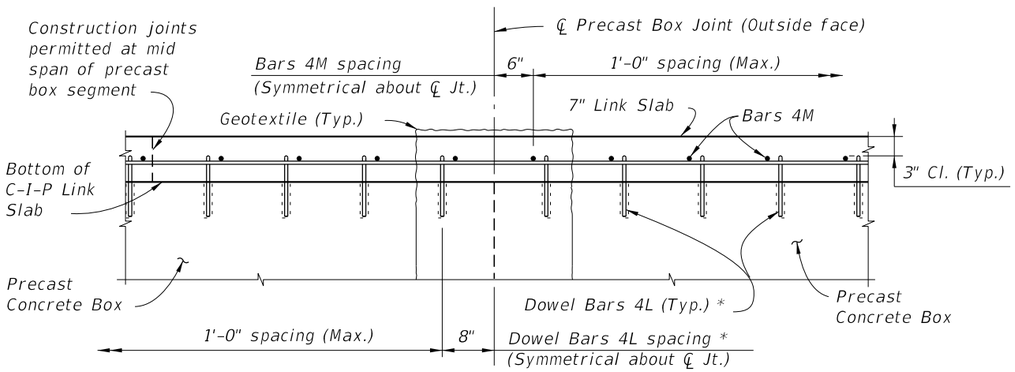
DOWEL BARS 4L

BAR 4M

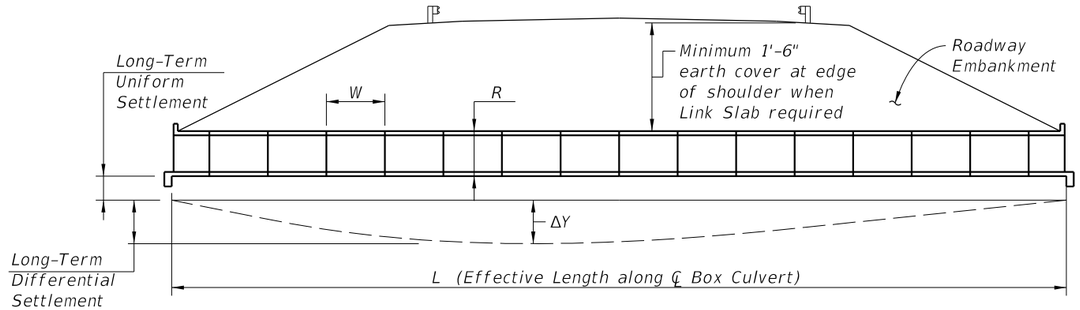
NOTES:
1. All bar dimensions are out to out.
2. Lap splice length for Bars 4M is 1'-4" minimum.

DESIGN NOTE:

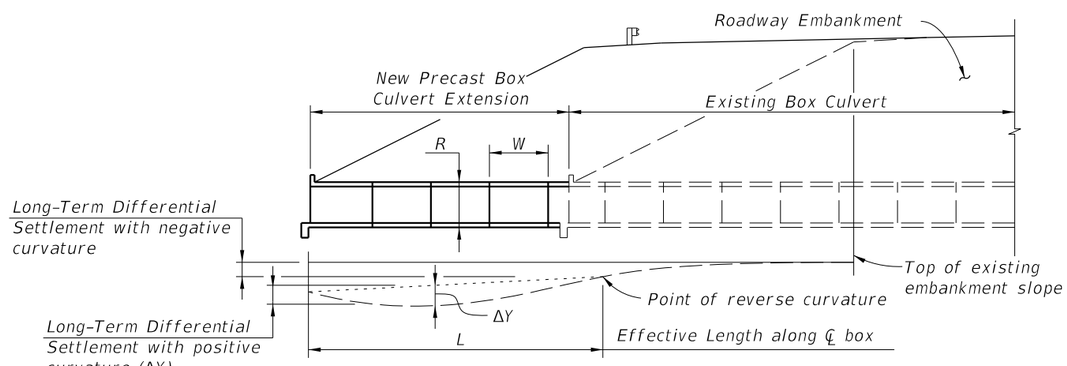
1. Link Slab required when joint openings from differential settlement exceed ⅛" as determined in Link Slab Note 1.



VIEW J-J



SCHEMATIC LONGITUDINAL SECTION (NEW CONSTRUCTION)



SCHEMATIC LONGITUDINAL SECTION (WIDENING)

DIFFERENTIAL SETTLEMENT COUNTERMEASURES FOR PRECAST BOX CULVERTS

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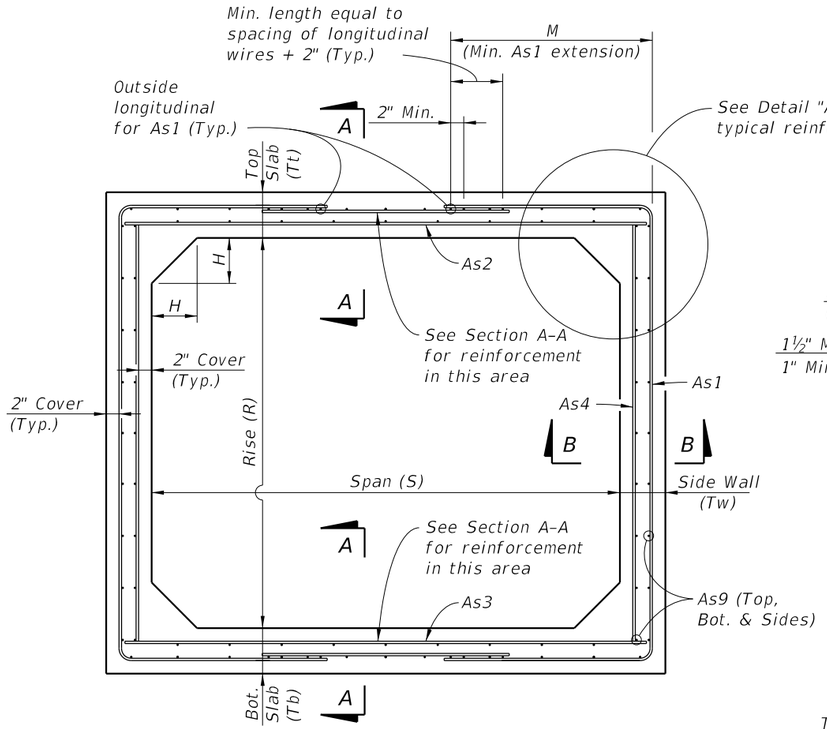
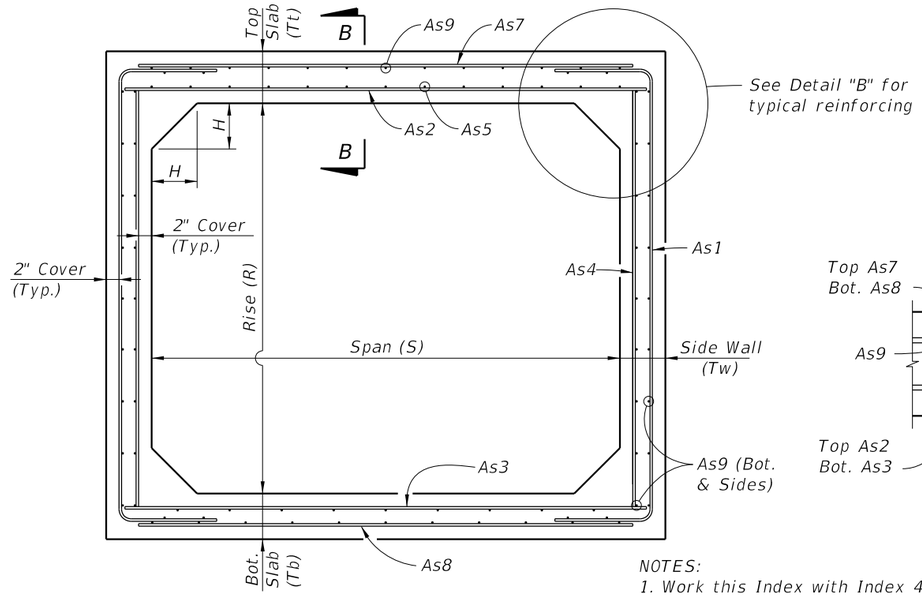
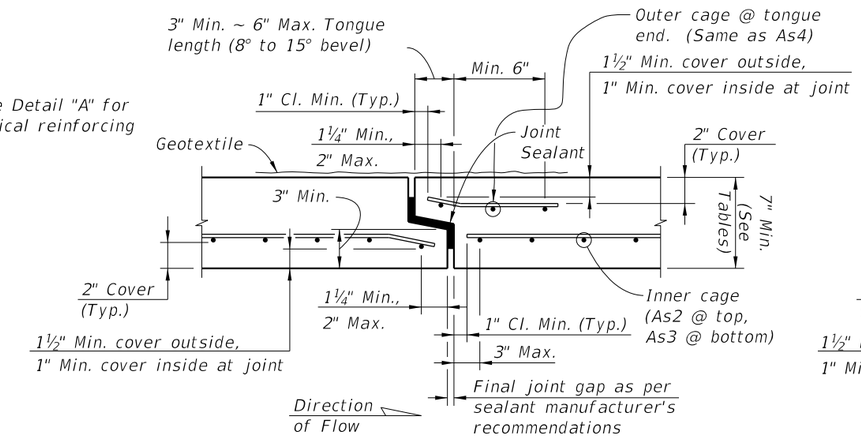


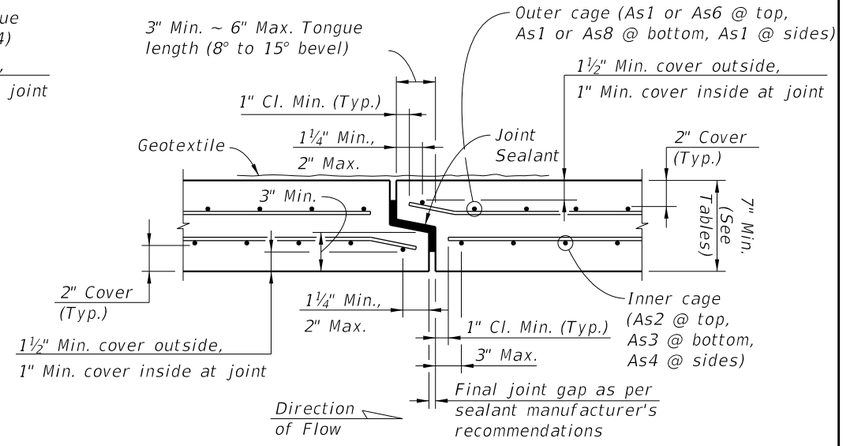
TYPICAL BOX SECTION (TYPE 2)
DESIGN EARTH COVER 2' OR GREATER
(Option 1 Reinforcing Configuration Shown)



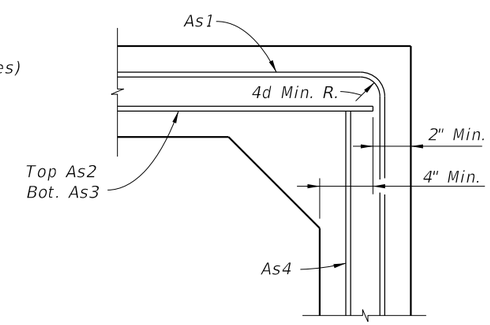
TYPICAL BOX SECTION (TYPE 1)
DESIGN EARTH COVER LESS THAN 2'
(Option 1 Reinforcing Configuration Shown)



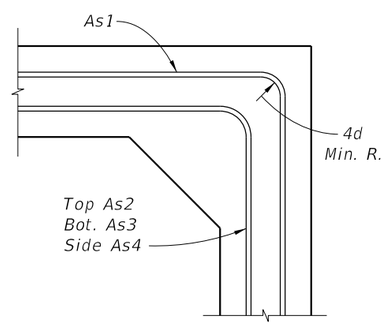
SECTION A-A



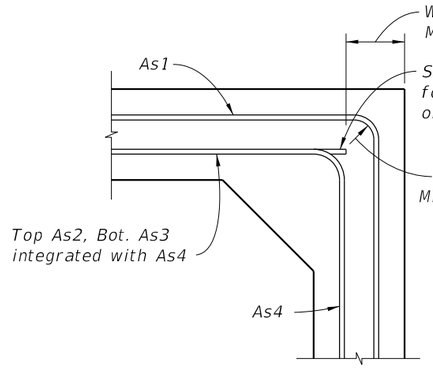
SECTION B-B
TYPICAL SECTION THRU JOINT



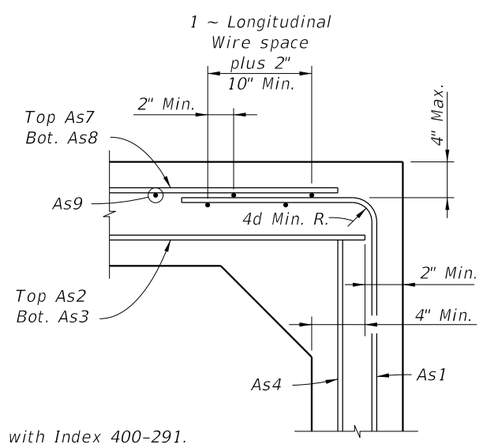
DETAIL "A"
(OPTION 1)



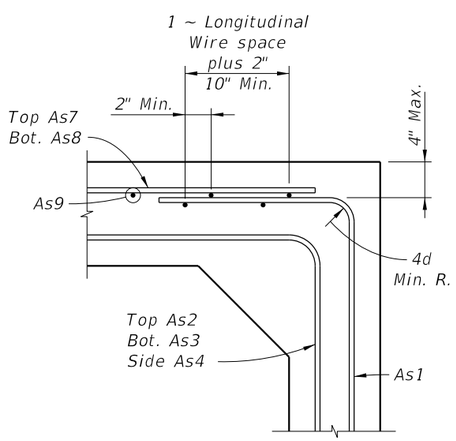
DETAIL "A"
(OPTION 2)



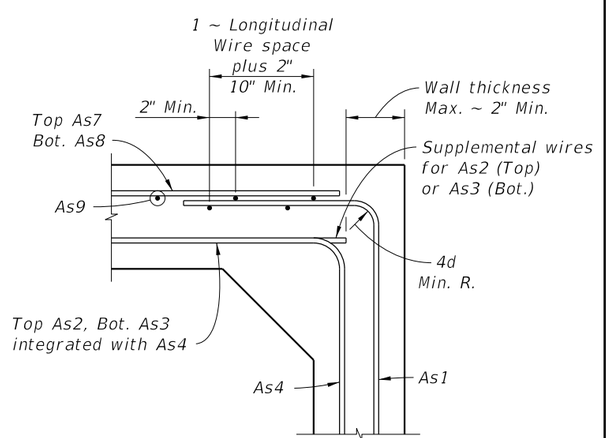
DETAIL "A"
(OPTION 3)



DETAIL "B"
(OPTION 1)



DETAIL "B"
(OPTION 2)



DETAIL "B"
(OPTION 3)

NOTES:
1. Work this Index with Index 400-291.
2. See sheets 2 thru 5 for dimensions and areas of reinforcement.

STANDARD PRECAST BOX CULVERT WITH 2" CONCRETE COVER

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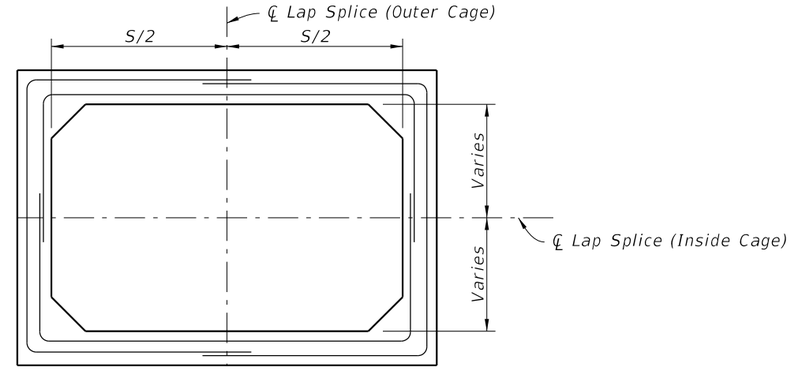
GENERAL NOTES:

1. These precast designs may be substituted for cast-in-place box culverts designed to AASHTO LRFD Bridge Design Specifications, 4th Edition. Designs are based on the design criteria shown in FDOT Structures Design Guidelines.
2. Loading: HL-93 & any fill heights between the minimum & maximum shown.
3. Only one design of precast box culvert is to be used for any installation.
4. Reinforcing steel must consist of smooth or deformed welded wire reinforcement (WWR) meeting the requirements of Specification Section 931. Longitudinal reinforcement may consist of reinforcing bars meeting the requirements of Specification Section 931. Minimum cover must be 2" for slightly or moderately aggressive environments or 3" for extremely aggressive environments, unless otherwise shown. The spacing of circumferential wires must not be less than 2" nor more than 4". The spacing of longitudinal wires or bars must not be more than 8".
5. As9 longitudinal wires must have a minimum cross-sectional area of 40% of the circumferential wires, but not less than a W2.5 or D4.0 for WWR, or #3 bars for deformed bars.
6. Welding of reinforcement must be limited to the locations shown in ASTM C1577 and in accordance with ANSI/AWS D1.4 "Structural Welding Code – Reinforcing Steel".
7. For alternate reinforcing configuration Options 2 and 3 shown in Detail "A" and "B" (Sheet 1), As1 may be extended to the middle of either slab and lap spliced with As7 and As8. As4 may be lap spliced at any location or connected to As2 or As3 at corners by welding.
8. Haunch dimensions may vary between the minimum and maximum dimensions shown in the Design Tables but only one haunch dimension must be used within the full length of the box culvert installation.
9. Submittal of redesign calculations are not required for any increase to the slab and/or wall thickness when the minimum reinforcement areas shown in the Design Tables are provided.
10. For Design Earth Cover greater than 10 feet, the Contractor may interpolate the required areas of reinforcement and slab or wall thickness. Interpolated areas of reinforcement, slab or wall thickness must be approved by the Engineer.
11. Minimum length of precast box segments is 4 feet and maximum length is 16 feet.
12. See Index 400-291 for connections to wingwalls, headwalls and other general details.



SCHEMATIC OF LAP SPLICE LOCATIONS
FOR OPTION 2 & 3 REINFORCING CONFIGURATIONS

TABLE 1A - STANDARD PRECAST BOX CULVERT DESIGNS (2" COVER) - 3' & 4' SPANS

SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)	DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.) As1	As2	As3	As4	As5	As7	As8	As9	As1 EXT. LENGTH (M) (in.)
3' x 3'	7	7	7	4 to 8	0.33' - <2'	0.17	0.29	0.21	0.17	0.17	0.17	0.17	See General Note 5	–
					2' - <3'	0.13	0.28	0.21	0.09	–	–	–		31
					3' - <5'	0.09	0.17	0.17	0.09	–	–	–		31
					5' - 10'	0.09	0.17	0.17	0.09	–	–	–		31
					15'	0.09	0.17	0.17	0.09	–	–	–		31
					20'	0.12	0.17	0.17	0.09	–	–	–		31
					25'	0.14	0.18	0.18	0.09	–	–	–		31
					30'	0.17	0.21	0.22	0.09	–	–	–		31
					35'	0.19	0.25	0.25	0.09	–	–	–		31
4' x 3'	7	7	7	4 to 8	0.33' - <2'	0.19	0.38	0.26	0.17	0.19	0.17	0.19		–
					2' - <3'	0.19	0.38	0.26	0.09	–	–	–		38
					3' - <5'	0.14	0.20	0.22	0.09	–	–	–		38
					5' - 10'	0.11	0.17	0.17	0.09	–	–	–		38
					15'	0.15	0.17	0.18	0.09	–	–	–		38
					20'	0.20	0.23	0.23	0.09	–	–	–		38
					25'	0.24	0.28	0.29	0.09	–	–	–		38
					30'	0.29	0.34	0.35	0.09	–	–	–		38
4' x 4'	7	7	7	4 to 8	0.33' - <2'	0.19	0.41	0.28	0.17	0.21	0.17	0.19		–
					2' - <3'	0.19	0.41	0.28	0.09	–	–	–		38
					3' - <5'	0.14	0.21	0.24	0.09	–	–	–		38
					5' - 10'	0.12	0.17	0.17	0.09	–	–	–		38
					15'	0.16	0.19	0.20	0.09	–	–	–		38
					20'	0.21	0.25	0.25	0.09	–	–	–		38
					25'	0.26	0.31	0.32	0.09	–	–	–		38
					30'	0.31	0.37	0.38	0.09	–	–	–		38

TABLE 1B - STANDARD PRECAST BOX CULVERT DESIGNS (2" COVER) - 3' & 4' SPANS

SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)	DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.) As1	As2	As3	As4	As5	As7	As8	As9	As1 EXT. LENGTH (M) (in.)
3' x 3'	8	8	8	4 to 8	0.33' - <2'	0.20	0.26	0.32	0.20	0.20	0.20	0.20	See General Note 5	–
					2' - <3'	0.16	0.25	0.31	0.10	–	–	–		31
					3' - <5'	0.10	0.20	0.20	0.10	–	–	–		31
					5' - 10'	0.10	0.20	0.20	0.10	–	–	–		31
					15'	0.10	0.20	0.20	0.10	–	–	–		31
					20'	0.10	0.20	0.20	0.10	–	–	–		31
					25'	0.11	0.20	0.20	0.10	–	–	–		31
					30'	0.13	0.20	0.20	0.10	–	–	–		31
					35'	0.15	0.21	0.21	0.10	–	–	–		31
4' x 3'	8	8	8	4 to 8	0.33' - <2'	0.20	0.31	0.22	0.20	0.20	0.20	0.20		–
					2' - <3'	0.12	0.31	0.22	0.10	–	–	–		38
					3' - <5'	0.12	0.20	0.20	0.10	–	–	–		38
					5' - 10'	0.10	0.20	0.20	0.10	–	–	–		38
					15'	0.12	0.20	0.20	0.10	–	–	–		38
					20'	0.16	0.20	0.20	0.10	–	–	–		38
					25'	0.19	0.24	0.24	0.10	–	–	–		38
					30'	0.22	0.28	0.29	0.10	–	–	–		38
4' x 4'	8	8	8	4 to 8	0.33' - <2'	0.20	0.33	0.24	0.20	0.20	0.20	0.20		–
					2' - <3'	0.17	0.33	0.24	0.10	–	–	–		38
					3' - <5'	0.12	0.20	0.20	0.10	–	–	–		38
					5' - 10'	0.10	0.20	0.20	0.10	–	–	–		38
					15'	0.13	0.20	0.20	0.10	–	–	–		38
					20'	0.16	0.21	0.22	0.10	–	–	–		38
					25'	0.20	0.26	0.27	0.10	–	–	–		38
					30'	0.23	0.31	0.32	0.10	–	–	–		38

NOTES: 1. See Sheet 1 for Reinforcing Details and dimension locations.
2. See Sheet 14 for WWR Reading Diagram.

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TABLE 2A - STANDARD PRECAST BOX CULVERT DESIGNS (2" COVER) - 5' & 6' SPANS

SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)	DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.) As1	As2	As3	As4	As5	As7	As8	As9	As1 EXT. LENGTH (M) (in.)
5' x 3'	7	7	7	4 to 8	0.33' - <2'	0.31	0.48	0.42	0.17	0.21	0.23	0.31	See General Note 5	–
					2' - <3'	0.31	0.48	0.42	0.09	–	–	–		45
					3' - <5'	0.20	0.27	0.27	0.09	–	–	–		36
					5' - 10'	0.17	0.19	0.21	0.09	–	–	–		36
					15'	0.24	0.25	0.25	0.09	–	–	–		35
					20'	0.32	0.33	0.33	0.09	–	–	–		35
					25'	0.39	0.41	0.42	0.09	–	–	–		35
					30'	0.47	0.50	0.50	0.09	–	–	–		35
5' x 4'	7	7	7	4 to 8	0.33' - <2'	0.30	0.51	0.45	0.17	0.23	0.21	0.30		–
					2' - <3'	0.30	0.51	0.45	0.09	–	–	–		45
					3' - <5'	0.18	0.30	0.29	0.09	–	–	–		45
					5' - 10'	0.17	0.21	0.23	0.09	–	–	–		36
					15'	0.24	0.27	0.28	0.09	–	–	–		35
					20'	0.31	0.36	0.37	0.09	–	–	–		35
					25'	0.39	0.45	0.46	0.09	–	–	–		35
					30'	0.46	0.55	0.56	0.09	–	–	–		35
5' x 5'	7	7	7	4 to 8	0.33' - <2'	0.30	0.53	0.48	0.17	0.24	0.21	0.30		–
					2' - <3'	0.29	0.53	0.48	0.09	–	–	–		45
					3' - <5'	0.19	0.31	0.31	0.09	–	–	–		45
					5' - 10'	0.19	0.22	0.25	0.09	–	–	–		45
					15'	0.26	0.29	0.31	0.09	–	–	–		36
					20'	0.34	0.39	0.40	0.09	–	–	–		35
					25'	0.41	0.49	0.50	0.09	–	–	–		35
					30'	0.49	0.59	0.61	0.09	–	–	–		35
6' x 3'	7.5	7	7	4 to 12	0.33' - <2'	0.39	0.54	0.48	0.17	0.22	0.25	0.39		–
	7	7	7		2' - <3'	0.39	0.58	0.49	0.09	–	–	–		43
					3' - <5'	0.28	0.36	0.36	0.09	–	–	–		39
					5' - 10'	0.25	0.26	0.28	0.09	–	–	–		39
					15'	0.36	0.34	0.34	0.09	–	–	–		38
					20'	0.47	0.46	0.46	0.09	–	–	–		38
	7	7.5	7		25'	0.59	0.57	0.55	0.09	–	–	–		38
	8	8	7		30'	0.60	0.64	0.64	0.09	–	–	–		38
6' x 4'	7.5	7	7	4 to 12	0.33' - <2'	0.37	0.58	0.52	0.17	0.24	0.23	0.37		–
	7	7	7		2' - <3'	0.37	0.61	0.53	0.09	–	–	–		43
					3' - <5'	0.26	0.39	0.39	0.09	–	–	–		39
					5' - 10'	0.24	0.28	0.31	0.09	–	–	–		39
					15'	0.35	0.37	0.38	0.09	–	–	–		38
					20'	0.46	0.50	0.50	0.09	–	–	–		38
	7	7.5	7		25'	0.56	0.63	0.60	0.09	–	–	–		38
	8	8	7		30'	0.58	0.69	0.69	0.09	–	–	–		38
6' x 5'	7.5	7	7	4 to 12	0.33' - <2'	0.36	0.60	0.56	0.17	0.25	0.22	0.36		–
	7	7	7		2' - <3'	0.36	0.64	0.56	0.09	–	–	–		43
					3' - <5'	0.26	0.410	0.42	0.09	–	–	–		43
					5' - 10'	0.25	0.30	0.33	0.09	–	–	–		39
					15'	0.34	0.40	0.41	0.09	–	–	–		38
					20'	0.46	0.54	0.54	0.09	–	–	–		38
	7	7.5	7		25'	0.56	0.67	0.65	0.09	–	–	–		38
	8	8	8		30'	0.60	0.74	0.74	0.09	–	–	–		38
6' x 6'	7.5	7	7	4 to 12	0.33' - <2'	0.36	0.63	0.59	0.17	0.26	0.22	.036		–
	7	7	7		2' - <3'	0.35	0.67	0.59	0.09	–	–	–		52
					3' - <5'	0.27	0.43	0.44	0.09	–	–	–		52
					5' - 10'	0.27	0.32	0.35	0.09	–	–	–		43
					15'	0.38	0.43	0.44	0.09	–	–	–		39
					20'	0.50	0.57	0.59	0.09	–	–	–		39
	7	7.5	7		25'	0.60	0.72	0.70	0.09	–	–	–		38
	8	8	7		30'	0.67	0.78	0.79	0.09	–	–	–		38

TABLE 2B - STANDARD PRECAST BOX CULVERT DESIGNS (2" COVER) - 5' & 6' SPANS

SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)	DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.) As1	As2	As3	As4	As5	As7	As8	As9	As1 EXT. LENGTH (M) (in.)
5' x 3'	8	8	8	4 to 8	0.33' - <2'	0.26	0.39	0.36	0.20	0.20	0.20	0.26	See General Note 5	–
					2' - <3'	0.26	0.39	0.36	0.10	–	–	–		45
					3' - <5'	0.16	0.23	0.24	0.10	–	–	–		36
					5' - 10'	0.13	0.20	0.20	0.10	–	–	–		36
					15'	0.19	0.21	0.22	0.10	–	–	–		35
					20'	0.24	0.28	0.28	0.10	–	–	–		35
					25'	0.30	0.34	0.35	0.10	–	–	–		35
					30'	0.36	0.41	0.41	0.10	–	–	–		35
5' x 4'	8	8	8	4 to 8	0.33' - <2'	0.25	0.42	0.38	0.20	0.20	0.20	0.25		–
					2' - <3'	0.25	0.42	0.38	0.10	–	–	–		45
					3' - <5'	0.16	0.25	0.25	0.10	–	–	–		45
					5' - 10'	0.13	0.20	0.20	0.10	–	–	–		36
					15'	0.19	0.23	0.24	0.10	–	–	–		35
					20'	0.24	0.30	0.31	0.10	–	–	–		35
					25'	0.30	0.37	0.38	0.10	–	–	–		35
					30'	0.35	0.45	0.46	0.10	–	–	–		35
5' x 5'	8	8	8	4 to 8	0.33' - <2'	0.25	0.44	0.41	0.20	0.20	0.20	0.25		–
					2' - <3'	0.25	0.44	0.41	0.10	–	–	–		45
					3' - <5'	0.16	0.26	0.27	0.10	–	–	–		45
					5' - 10'	0.15	0.20	0.22	0.10	–	–	–		45
					15'	0.20	0.25	0.26	0.10	–	–	–		36
					20'	0.26	0.32	0.33	0.10	–	–	–		35
					25'	0.32	0.40	0.41	0.10	–	–	–		35
					30'	0.37	0.48	0.49	0.10	–	–	–		35
6' x 3'	8	8	8	4 to 12	0.33' - <2'	0.32	0.47	0.41	0.20	0.20	0.25	0.32		–
					2' - <3'	0.32	0.47	0.41	0.10	–	–	–		43
					3' - <5'	0.23	0.30	0.31	0.10	–	–	–		39
					5' - 10'	0.19	0.22	0.24	0.10	–	–	–		39
					15'	0.28	0.29	0.29	0.10	–	–	–		38
					20'	0.36	0.38	0.38	0.10	–	–	–		38
					25'	0.45	0.47	0.47	0.10	–	–	–		38
					30'	0.54	0.57	0.57	0.10	–	–	–		38
6' x 4'	8	8	8	4 to 12	0.33' - <2'	0.31	0.50	0.44	0.20	0.21	0.23	0.31		–
					2' - <3'	0.31	0.50	0.44	0.10	–	–	–		43
					3' - <5'	0.23	0.32	0.34	0.10	–	–	–		39
					5' - 10'	0.19	0.24	0.26	0.10	–	–	–		39
					15'	0.27	0.31	0.32	0.10	–	–	–		38
					20'	0.35	0.41	0.41	0.10	–	–	–		38
					25'	0.43	0.51	0.51	0.10	–	–	–		38
					30'	0.52	0.62	0.62	0.10	–	–	–		38
6' x 5'	8	8	8	4 to 12	0.33' - <2'	0.30	0.52	0.47	0.20	0.22	0.22	0.30		–
					2' - <3'	0.30	0.52	0.47	0.10	–	–	–		43
					3' - <5'	0.22	0.34	0.36	0.10	–	–	–		43
					5' - 10'	0.20	0.26	0.28	0.10	–	–	–		39
					15'	0.27	0.33	0.34	0.10	–	–	–		38
					20'	0.36	0.44	0.45	0.10	–	–	–		38
					25'	0.44	0.55	0.55	0.10	–	–	–		38
					30'	0.52	0.66	0.67	0.10	–	–	–		38
6' x 6'	8	8	8	4 to 12	0.33' - <2'	0.30	0.54	0.50	0.20	0.22	0.22	0.30		–
					2' - <3'	0.30	0.54	0.50	0.10	–	–	–		52
					3' - <5'	0.23	0.36	0.38	0.10	–	–	–		52
					5' - 10'	0.21	0.27	0.30	0.10	–	–	–		43
					15'	0.29	0.35	0.37	0.10	–	–	–		39
					20'	0.38	0.47	0.48	0.10	–	–	–		39
					25'	0.47	0.59	0.60	0.10	–	–	–		38
					30'	0.55	0.70	0.71	0.10	–	–	–		38

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LAST REVISION	REVISION	DESCRIPTION:	FDOT	FY 2025-26 STANDARD PLANS	STANDARD PRECAST CONCRETE BOX CULVERTS	INDEX	SHEET
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TABLE 3 - STANDARD PRECAST BOX CULVERT DESIGNS (2" COVER) - 7' SPANS

SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)	DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.) As1	As2	As3	As4	As5	As7	As8	As9	As1 EXT. LENGTH (M) (in.)
7' x 4'	8	8	8	4 to 12	0.33' – <2'	0.37	0.58	0.49	0.20	0.22	0.29	0.37	See General Note 5	–
					2' – <3'	0.37	0.58	0.49	0.10	–	–	–		43
					3' – <5'	0.30	0.40	0.42	0.10	–	–	–		43
					5' – 10'	0.26	0.30	0.33	0.10	–	–	–		43
					15'	0.37	0.40	0.40	0.10	–	–	–		41
					20'	0.49	0.53	0.53	0.10	–	–	–		41
	8	8	8	7 to 12	25'	0.60	0.67	0.66	0.10	–	–	–		41
	8.5	8.5	8		30'	0.68	0.79	0.78	0.10	–	–	–		41
7' x 5'	8	8	8	4 to 12	0.33' – <2'	0.36	0.60	0.53	0.20	0.23	0.28	0.36		–
					2' – <3'	0.36	0.60	0.53	0.10	–	–	–		47
					3' – <5'	0.30	0.42	0.45	0.10	–	–	–		43
					5' – 10'	0.26	0.32	0.35	0.10	–	–	–		43
					15'	0.37	0.43	0.44	0.10	–	–	–		41
					20'	0.48	0.57	0.57	0.10	–	–	–		41
	8	8	8	7 to 12	25'	0.60	0.72	0.72	0.10	–	–	–		41
	8.5	8.5	8		30'	0.67	0.84	0.84	0.10	–	–	–		41
7' x 6'	8	8	8	4 to 12	0.33' – <2'	0.36	0.63	0.56	0.20	0.24	0.27	0.36		–
					2' – <3'	0.36	0.63	0.56	0.10	–	–	–		59
					3' – <5'	0.29	0.44	0.47	0.10	–	–	–		47
					5' – 10'	0.27	0.34	0.37	0.10	–	–	–		43
					15'	0.38	0.46	0.46	0.10	–	–	–		41
					20'	0.49	0.60	0.61	0.10	–	–	–		41
	8	8	8	7 to 12	25'	0.61	0.76	0.76	0.10	–	–	–		41
	8.5	8.5	8		30'	0.69	0.89	0.89	0.10	–	–	–		41
7' x 7'	8	8	8	4 to 12	0.33' – <2'	0.36	0.65	0.58	0.20	0.25	0.27	0.36		–
					2' – <3'	0.36	0.65	0.58	0.10	–	–	–		59
					3' – <5'	0.30	0.46	0.50	0.10	–	–	–		59
					5' – 10'	0.30	0.35	0.50	0.10	–	–	–		47
					15'	0.41	0.48	0.50	0.10	–	–	–		43
					20'	0.53	0.64	0.65	0.10	–	–	–		43
	8	8	8	7 to 12	25'	0.65	0.80	0.81	0.10	–	–	–		43
	8.5	9	8		30'	0.72	0.92	0.91	0.10	–	–	–		41

TABLE 4 - STANDARD PRECAST BOX CULVERT DESIGNS (2" COVER) - 8' SPANS

SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)	DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.) As1	As2	As3	As4	As5	As7	As8	As9	As1 EXT. LENGTH (M) (in.)
8' x 4'	9	8.5	8	4 to 12	0.33' – <2'	0.40	0.60	0.52	0.20	0.22	0.28	0.39	See General Note 5	–
	8	8	8		2' – <3'	0.45	0.66	0.54	0.10	–	–	–		50
					3' – <5'	0.39	0.48	0.50	0.10	–	–	–		50
					5' – 10'	0.34	0.38	0.40	0.10	–	–	–		45
					15'	0.49	0.51	0.50	0.10	–	–	–		41
					20'	0.65	0.68	0.66	0.10	–	–	–		41
	8.5	8.5	8	8 to 12	25'	0.76	0.83	0.80	0.10	–	–	–		41
	9.5	9.5	8		30'	0.79	0.94	0.92	0.10	–	–	–		41
8' x 5'	9	8.5	8	4 to 12	0.33' – <2'	0.38	0.65	0.59	0.20	0.22	0.30	0.37		–
	8	8	8		2' – <3'	0.43	0.69	0.58	0.10	–	–	–		50
					3' – <5'	0.37	0.51	0.53	0.10	–	–	–		45
					5' – 10'	0.33	0.41	0.42	0.10	–	–	–		45
					15'	0.48	0.54	0.53	0.10	–	–	–		41
					20'	0.63	0.73	0.70	0.10	–	–	–		41
	8.5	8.5	8	8 to 12	25'	0.74	0.88	0.86	0.10	–	–	–		41
	9.5	9.5	8		30'	0.77	1.00	0.98	0.10	–	–	–		41
8' x 6'	9	9	8	4 to 12	0.33' – <2'	0.32	0.65	0.58	0.20	0.23	0.25	0.31		–
	8	8	8		2' – <3'	0.42	0.71	0.61	0.10	–	–	–		50
					3' – <5'	0.37	0.54	0.56	0.10	–	–	–		50
					5' – 10'	0.34	0.43	0.45	0.10	–	–	–		45
					15'	0.49	0.57	0.57	0.10	–	–	–		41
					20'	0.64	0.77	0.76	0.10	–	–	–		41
	8.5	8.5	8	8 to 12	25'	0.74	0.94	0.92	0.10	–	–	–		41
	9.5	9.5	8		30'	0.78	1.05	1.04	0.10	–	–	–		41
8' x 7'	9	9	8	4 to 12	0.33' – <2'	0.31	0.67	0.60	0.20	0.24	0.24	0.31		–
	8	8	8		2' – <3'	0.42	0.74	0.64	0.10	–	–	–		55
					3' – <5'	0.37	0.56	0.59	0.10	–	–	–		55
					5' – 10'	0.36	0.45	0.47	0.10	–	–	–		50
					15'	0.51	0.61	0.61	0.10	–	–	–		45
					20'	0.66	0.81	0.80	0.10	–	–	–		41
	8.5	8.5	8	8 to 12	25'	0.78	0.98	0.97	0.10	–	–	–		41
	9.5	9.5	8		30'	0.84	1.10	1.09	0.10	–	–	–		41
8' x 8'	9	9	8	4 to 12	0.33' – <2'	0.32	0.68	0.62	0.20	0.24	0.25	0.32		–
	8	8	8		2' – <3'	0.43	0.76	0.67	0.14	–	–	–		65
					3' – <5'	0.38	0.58	0.61	0.14	–	–	–		65
					5' – 10'	0.39	0.46	0.50	0.13	–	–	–		55
					15'	0.55	0.64	0.65	0.10	–	–	–		45
					20'	0.71	0.86	0.85	0.10	–	–	–		45
	8.5	8.5	8	8 to 12	25'	0.84	1.03	1.02	0.10	–	–	–		41
	9.5	9.5	8		30'	0.93	1.15	1.15	0.10	–	–	–		41

NOTES:
1. See Sheet 1 for Reinforcing Details and dimension locations.
2. See Sheet 2 for General Notes.
3. See Sheet 14 for Welded Wire Reinforcement Bending Diagram.

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TABLE 5 - STANDARD PRECAST BOX CULVERT DESIGNS (2" COVER) - 9' SPANS

SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)	DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.) As1	As2	As3	As4	As5	As7	As8	As9	As1 EXT. LENGTH (M) (in.)
9' x 5'	9.5	9.5	9	4	0.33' - <2'	0.41	0.62	0.53	0.22	0.23	0.34	0.38	See General Note 5	–
	9	9	9	to 12	2' - <3'	0.44	0.65	0.54	0.11	–	–	–		54
					3' - <5'	0.39	0.53	0.51	0.11	–	–	–		49
					5' - 10'	0.35	0.42	0.44	0.11	–	–	–		49
					15'	0.50	0.56	0.55	0.11	–	–	–		44
					20'	0.65	0.75	0.73	0.11	–	–	–		44
	9.5	9.5	9	8 to 12	25'	0.77	0.92	0.90	0.11	–	–	–		44
	10.5	11	9		30'	0.81	1.05	1.02	0.11	–	–	–		44
9' x 6'	9.5	9.5	9	4	0.33' - <2'	0.38	0.64	0.56	0.23	0.23	0.33	0.37		–
	9	9	9	to 12	2' - <3'	0.43	0.67	0.57	0.11	–	–	–		54
					3' - <5'	0.37	0.55	0.54	0.11	–	–	–		49
					5' - 10'	0.35	0.45	0.47	0.11	–	–	–		49
					15'	0.49	0.60	0.59	0.11	–	–	–		44
					20'	0.65	0.80	0.78	0.11	–	–	–		44
	9.5	9.5	9	8 to 12	25'	0.76	0.98	0.95	0.11	–	–	–		44
	10.5	11	9		30'	0.80	1.10	1.08	0.11	–	–	–		44
9' x 7'	9.5	9.5	9	4	0.33' - <2'	0.37	0.67	0.59	0.22	0.23	0.32	0.37		–
	9	9	9	to 12	2' - <3'	0.42	0.69	0.60	0.11	–	–	–		59
					3' - <5'	0.37	0.58	0.56	0.11	–	–	–		54
					5' - 10'	0.36	0.47	0.49	0.11	–	–	–		49
					15'	0.50	0.63	0.63	0.11	–	–	–		44
					20'	0.66	0.84	0.80	0.11	–	–	–		44
	9.5	9.5	9	8 to 12	25'	0.77	1.02	1.00	0.11	–	–	–		44
	10.5	11	9		30'	0.81	1.15	1.13	0.11	–	–	–		44
9' x 8'	9.5	9.5	9	4	0.33' - <2'	0.37	0.68	0.61	0.22	0.23	0.31	0.37		–
	9	9	9	to 12	2' - <3'	0.42	0.71	0.62	0.11	–	–	–		59
					3' - <5'	0.37	0.60	0.59	0.11	–	–	–		59
					5' - 10'	0.38	0.49	0.51	0.11	–	–	–		54
					15'	0.53	0.66	0.66	0.11	–	–	–		44
					20'	0.68	0.88	0.87	0.11	–	–	–		44
	9.5	9.5	9	8 to 12	25'	0.81	1.07	1.05	0.11	–	–	–		44
	10.5	11	9		30'	0.86	1.20	1.18	0.11	–	–	–		44
9' x 9'	9.5	9.5	9	4	0.33' - <2'	0.38	0.70	0.63	0.22	0.23	0.32	0.38		–
	9	9	9	to 12	2' - <3'	0.43	0.73	0.65	0.15	–	–	–		72
					3' - <5'	0.38	0.62	0.61	0.15	–	–	–		72
					5' - 10'	0.41	0.50	0.53	0.14	–	–	–		59
					15'	0.57	0.69	0.70	0.12	–	–	–		49
					20'	0.73	0.92	0.91	0.11	–	–	–		49
	9.5	10	9	8 to 12	25'	0.83	1.11	1.09	0.11	–	–	–		44
	10.5	11	9		30'	0.93	1.25	1.23	0.11	–	–	–		44

TABLE 6 - STANDARD PRECAST BOX CULVERT DESIGNS (2" COVER) - 10' SPANS

SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)	DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.) As1	As2	As3	As4	As5	As7	As8	As9	As1 EXT. LENGTH (M) (in.)
10' x 5'	10	10	10	4	0.33' - <2'	0.46	0.62	0.52	0.24	0.24	0.41	0.45	See General Note 5	–
				to 12	2' - <3'	0.46	0.62	0.52	0.12	–	–	–		58
					3' - <5'	0.42	0.54	0.50	0.12	–	–	–		53
					5' - 10'	0.38	0.46	0.49	0.12	–	–	–		52
					15'	0.52	0.59	0.58	0.12	–	–	–		47
					20'	0.69	0.78	0.76	0.12	–	–	–		47
	10.5	10.5	10	8 to 12	25'	0.81	0.97	0.93	0.12	–	–	–		47
	11.5	12	10		30'	0.87	1.11	1.11	0.12	–	–	–		47
10' x 6'	10	10	10	4	0.33' - <2'	0.44	0.64	0.54	0.24	0.24	0.39	0.44		–
				to 12	2' - <3'	0.44	0.64	0.54	0.12	–	–	–		58
					3' - <5'	0.39	0.57	0.52	0.12	–	–	–		52
					5' - 10'	0.37	0.48	0.52	0.12	–	–	–		52
					15'	0.51	0.62	0.61	0.12	–	–	–		47
					20'	0.67	0.83	0.80	0.12	–	–	–		47
	10.5	10.5	10	8 to 12	25'	0.79	1.02	0.99	0.12	–	–	–		47
	11.5	12	10		30'	0.85	1.17	1.14	0.12	–	–	–		47
10' x 7'	10	10	10	4	0.33' - <2'	0.43	0.66	0.57	0.24	0.24	0.38	0.43		–
				to 12	2' - <3'	0.43	0.66	0.57	0.12	–	–	–		58
					3' - <5'	0.38	0.59	0.55	0.12	–	–	–		58
					5' - 10'	0.37	0.50	0.54	0.12	–	–	–		52
					15'	0.52	0.66	0.65	0.12	–	–	–		47
					20'	0.67	0.87	0.85	0.12	–	–	–		47
	10.5	10.5	10	8 to 12	25'	0.79	1.07	1.04	0.12	–	–	–		47
	11.5	12	10		30'	0.84	1.22	1.19	0.12	–	–	–		47
10' x 8'	10	10	10	4	0.33' - <2'	0.43	0.68	0.60	0.24	0.24	0.38	0.43		–
				to 12	2' - <3'	0.43	0.68	0.60	0.12	–	–	–		64
					3' - <5'	0.38	0.62	0.57	0.12	–	–	–		58
					5' - 10'	0.38	0.52	0.57	0.12	–	–	–		52
					15'	0.53	0.69	0.68	0.12	–	–	–		47
					20'	0.68	0.91	0.89	0.12	–	–	–		47
	10.5	10.5	10	8 to 12	25'	0.81	1.12	1.09	0.12	–	–	–		47
	11.5	12	10		30'	0.86	1.27	1.25	0.12	–	–	–		47
10' x 9'	10	10	10	4	0.33' - <2'	0.43	0.70	0.62	0.24	0.24	0.38	0.43		–
				to 12	2' - <3'	0.43	0.70	0.62	0.12	–	–	–		70
					3' - <5'	0.39	0.64	0.60	0.12	–	–	–		64
					5' - 10'	0.40	0.54	0.59	0.12	–	–	–		58
					15'	0.56	0.72	0.72	0.12	–	–	–		52
					20'	0.71	0.95	0.94	0.12	–	–	–		47
	10.5	11	10	8 to 12	25'	0.82	1.15	1.13	0.12	–	–	–		47
	11.5	12	10		30'	0.90	1.32	1.30	0.12	–	–	–		47
10' x 10'	10	10	10	4	0.33' - <2'	0.44	0.71	0.64	0.24	0.24	0.38	0.44		–
				to 12	2' - <3'	0.44	0.71	0.64	0.17	–	–	–		79
					3' - <5'	0.40	0.65	0.62	0.16	–	–	–		70
					5' - 10'	0.44	0.56	0.61	0.15	–	–	–		64
					15'	0.60	0.75	0.76	0.12	–	–	–		52
					20'	0.76	0.99	0.99	0.12	–	–	–		52
	10.5	11	10	8 to 12	25'	0.86	1.20	1.18	0.12	–	–	–		47
	11.5	12	10		30'	0.97	1.36	1.35	0.13	–	–	–		47

NOTES:
1. See Sheet 1 for Reinforcing Details and dimension locations.
2. See Sheet 2 for General Notes.
3. See Sheet 14 for WWR Bending Diagram.

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TABLE 7 - STANDARD PRECAST BOX CULVERT DESIGNS (2" COVER) - 11' SPANS

SPAN x RISE (S) x (R) (Ft.)	SLAB / WALL THICKNESS TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)	DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.) As1	As2	As3	As4	As5	As7	As8	As9	As1 EXT. LENGTH (M) (in.)
11' x 4'	11	11	11	4	0.33' - <2'	0.51	0.57	0.47	0.27	0.27	0.45	0.48	See General Note 5	–
				to 12	2' - <3'	0.51	0.57	0.47	0.14	–	–	–		62
					3' - <5'	0.48	0.57	0.46	0.14	–	–	–		62
					5' - 10'	0.47	0.50	0.50	0.14	–	–	–		55
					15'	0.59	0.58	0.56	0.14	–	–	–		55
					20'	0.77	0.77	0.74	0.14	–	–	–		55
	11.5	11.5	11	8 to 12	25'	0.92	0.95	0.91	0.14	–	–	–		55
	13	13	11		30'	0.94	1.09	1.06	0.14	–	–	–		55
11' x 6'	11	11	11	4	0.33' - <2'	0.45	0.62	0.52	0.27	0.27	0.41	0.45		–
				to 12	2' - <3'	0.45	0.62	0.52	0.14	–	–	–		62
					3' - <5'	0.42	0.58	0.51	0.14	–	–	–		55
					5' - 10'	0.43	0.56	0.56	0.14	–	–	–		55
					15'	0.54	0.65	0.64	0.14	–	–	–		50
					20'	0.70	0.86	0.83	0.14	–	–	–		50
	11.5	11.5	11	8 to 12	25'	0.83	1.07	1.03	0.14	–	–	–		50
	13	13	11		30'	0.85	1.22	1.19	0.14	–	–	–		50
11' x 8'	11	11	11	4	0.33' - <2'	0.42	0.67	0.57	0.27	0.27	0.39	0.43		–
				to 12	2' - <3'	0.43	0.67	0.57	0.14	–	–	–		62
					3' - <5'	0.39	0.63	0.56	0.14	–	–	–		62
					5' - 10'	0.43	0.60	0.61	0.14	–	–	–		55
					15'	0.54	0.72	0.71	0.14	–	–	–		50
					20'	0.70	0.94	0.92	0.14	–	–	–		50
	11.5	11.5	11	8 to 12	25'	0.82	1.16	1.13	0.14	–	–	–		50
	13	13	11		30'	0.86	1.32	1.30	0.14	–	–	–		50
11' x 10'	11	11	11	4	0.33' - <2'	0.44	0.71	0.62	0.27	0.27	0.38	0.44		–
				to 12	2' - <3'	0.44	0.71	0.62	0.14	–	–	–		75
					3' - <5'	0.41	0.67	0.61	0.14	–	–	–		69
					5' - 10'	0.47	0.64	0.66	0.14	–	–	–		62
					15'	0.59	0.78	0.78	0.14	–	–	–		55
					20'	0.75	1.03	1.01	0.14	–	–	–		50
	11.5	12	11	8 to 12	25'	0.85	1.24	1.22	0.14	–	–	–		50
	13	13.5	11		30'	0.91	1.40	1.39	0.14	–	–	–		50
11' x 11'	11	11	11	4	0.33' - <2'	0.45	0.72	0.64	0.27	0.27	0.39	0.45		–
				to 12	2' - <3'	0.45	0.72	0.64	0.18	–	–	–		86
					3' - <5'	0.42	0.69	0.63	0.18	–	–	–		75
					5' - 10'	0.51	0.66	0.69	0.16	–	–	–		69
					15'	0.63	0.81	0.82	0.14	–	–	–		55
					20'	0.80	1.07	1.06	0.14	–	–	–		55
	11.5	12	11	8 to 12	25'	0.91	1.29	1.27	0.14	–	–	–		50
	13	13.5	11		30'	0.99	1.44	1.44	0.14	–	–	–		50

TABLE 8 - STANDARD PRECAST BOX CULVERT DESIGNS (2" COVER) - 12' SPANS

SPAN x RISE (S) x (R) (Ft.)	SLAB / WALL THICKNESS TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)	DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.) As1	As2	As3	As4	As5	As7	As8	As9	As1 EXT. LENGTH (M) (in.)
12' x 4'	12	12	12	4	0.33' - <2'	0.52	0.57	0.45	0.29	0.29	0.47	0.49	See General Note 5	–
				to 12	2' - <3'	0.52	0.57	0.45	0.15	–	–	–		73
					3' - <5'	0.50	0.54	0.45	0.15	–	–	–		66
					5' - 10'	0.50	0.52	0.52	0.15	–	–	–		66
					15'	0.63	0.61	0.59	0.15	–	–	–		59
					20'	0.82	0.81	0.77	0.15	–	–	–		59
	12.5	12.5	12	8 to 12	25'	0.99	0.99	0.95	0.15	–	–	–		59
	14	14	12		30'	1.03	1.15	1.11	0.15	–	–	–		59
12' x 6'	12	12	12	4	0.33' - <2'	0.47	0.62	0.51	0.29	0.29	0.42	0.46		–
				to 12	2' - <3'	0.47	0.62	0.51	0.15	–	–	–		66
					3' - <5'	0.45	0.60	0.51	0.15	–	–	–		59
					5' - 10'	0.47	0.59	0.59	0.15	–	–	–		59
					15'	0.57	0.68	0.66	0.15	–	–	–		53
					20'	0.74	0.90	0.86	0.15	–	–	–		53
	12.5	12.5	12	8 to 12	25'	0.88	1.11	1.06	0.15	–	–	–		53
	14	14.5	12		30'	0.92	1.27	1.24	0.15	–	–	–		53
12' x 8'	12	12	12	4	0.33' - <2'	0.44	0.67	0.56	0.29	0.29	0.40	0.44		–
				to 12	2' - <3'	0.44	0.67	0.56	0.15	–	–	–		66
					3' - <5'	0.41	0.64	0.56	0.15	–	–	–		59
					5' - 10'	0.45	0.63	0.64	0.15	–	–	–		59
					15'	0.56	0.75	0.73	0.15	–	–	–		53
					20'	0.72	0.98	0.95	0.15	–	–	–		53
	12.5	13	12	8 to 12	25'	0.85	1.20	1.16	0.15	–	–	–		53
	14	14.5	12		30'	0.89	1.38	1.35	0.15	–	–	–		53
12' x 10'	12	12	12	4	0.33' - <2'	0.44	0.71	0.60	0.29	0.29	0.39	0.44		–
				to 12	2' - <3'	0.44	0.71	0.60	0.15	–	–	–		73
					3' - <5'	0.42	0.68	0.60	0.15	–	–	–		66
					5' - 10'	0.47	0.67	0.69	0.15	–	–	–		59
					15'	0.59	0.81	0.81	0.15	–	–	–		53
					20'	0.75	1.06	1.04	0.15	–	–	–		53
	12.5	13	12	8 to 12	25'	0.87	1.30	1.26	0.15	–	–	–		53
	14	14.5	12		30'	0.92	1.47	1.45	0.15	–	–	–		53
12' x 12'	12	12	12	4	0.33' - <2'	0.46	0.74	0.64	0.29	0.29	0.40	0.46		–
				to 12	2' - <3'	0.46	0.74	0.64	0.20	–	–	–		93
					3' - <5'	0.42	0.72	0.64	0.20	–	–	–		80
					5' - 10'	0.54	0.71	0.74	0.18	–	–	–		73
					15'	0.66	0.87	0.89	0.15	–	–	–		59
					20'	0.83	1.14	1.13	0.15	–	–	–		59
	12.5	13	12	8 to 12	25'	0.96	1.39	1.37	0.15	–	–	–		53
	14	14.5	12.5		30'	1.05	1.56	1.56	0.15	–	–	–		53

NOTES:
1. See Sheet 1 for Reinforcing Details and dimension locations.
2. See Sheet 2 for General Notes.
3. See Sheet 14 for Welded Wire Reinforcement Bending Diagram.

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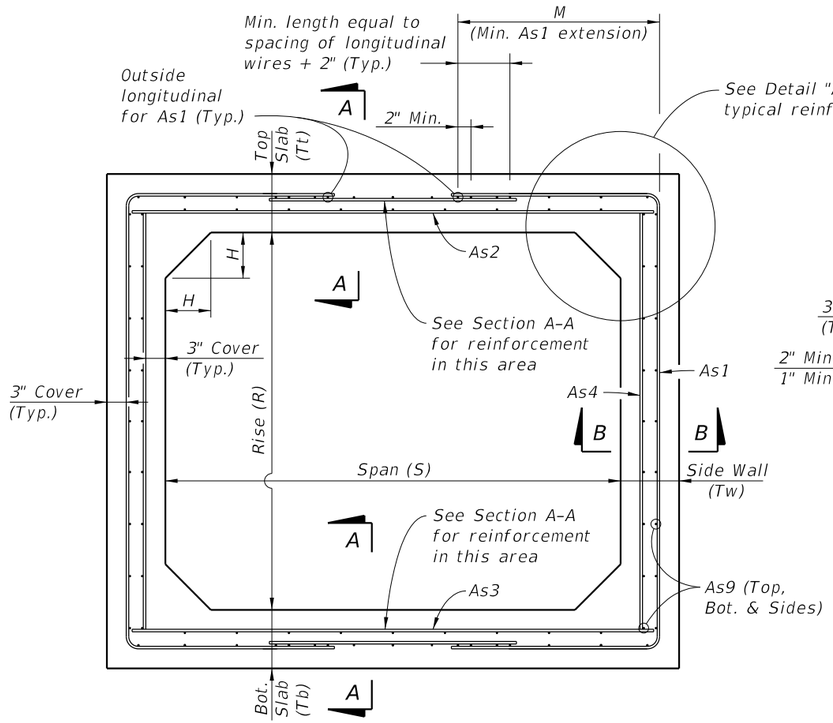
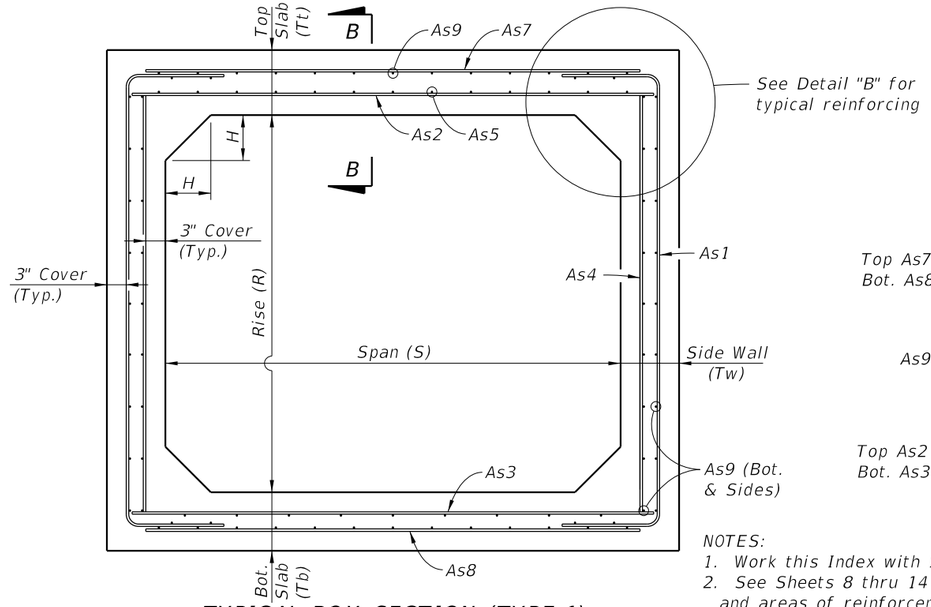
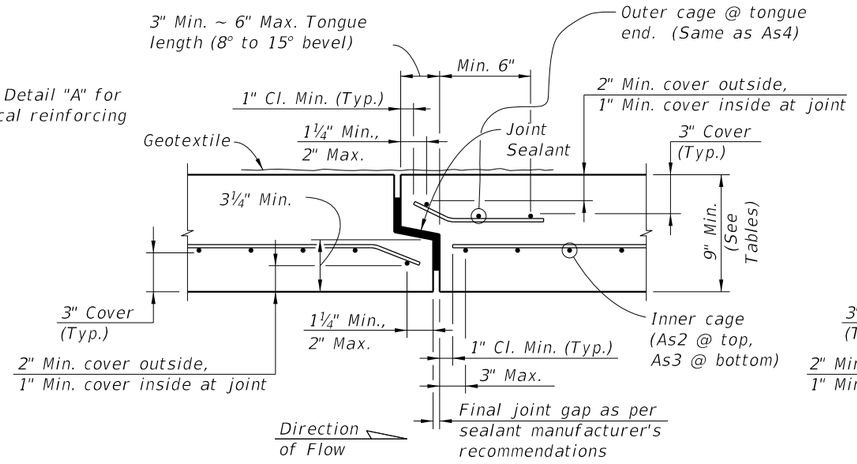


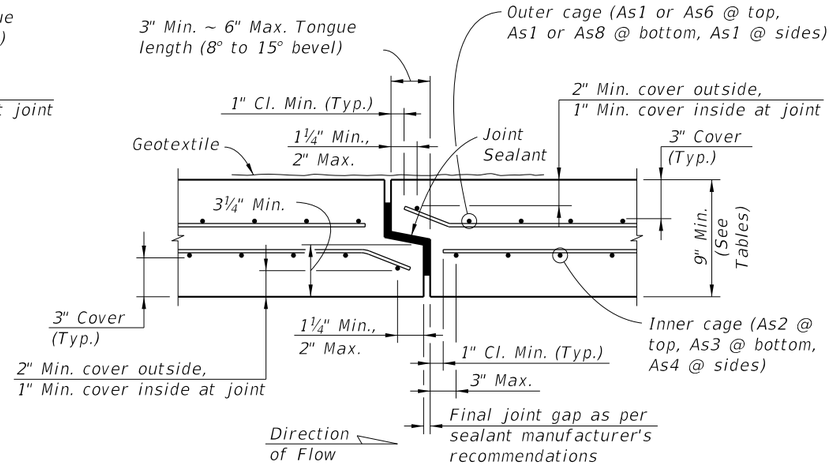
TYPICAL BOX SECTION (TYPE 2)
DESIGN EARTH COVER 2' OR GREATER
(Option 1 Reinforcing Configuration Shown)



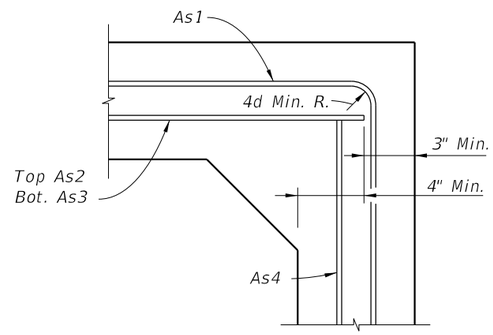
TYPICAL BOX SECTION (TYPE 1)
DESIGN EARTH COVER LESS THAN 2'
(Option 1 Reinforcing Configuration Shown)



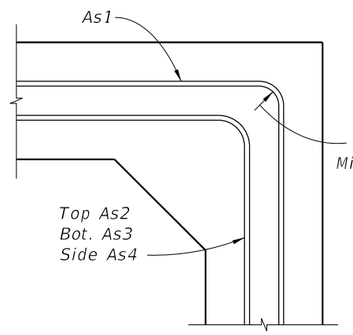
SECTION A-A



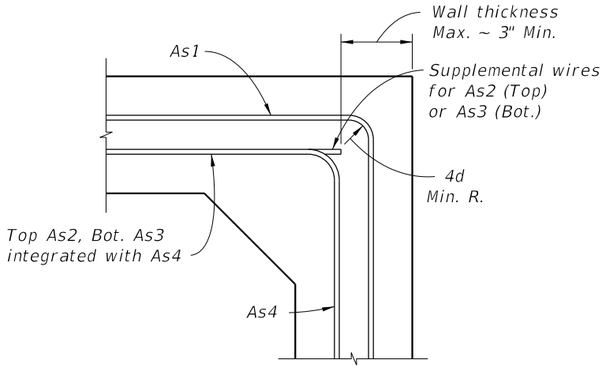
SECTION B-B
TYPICAL SECTION THRU JOINT



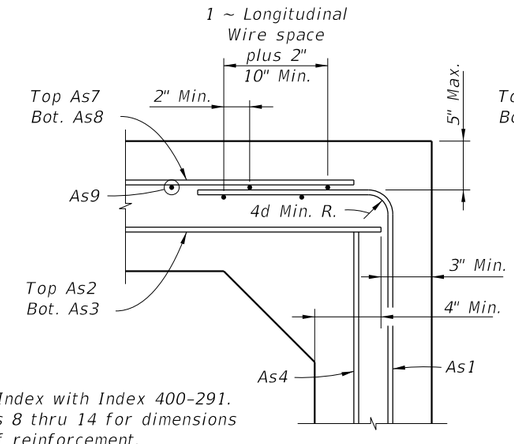
DETAIL "A"
(OPTION 1)



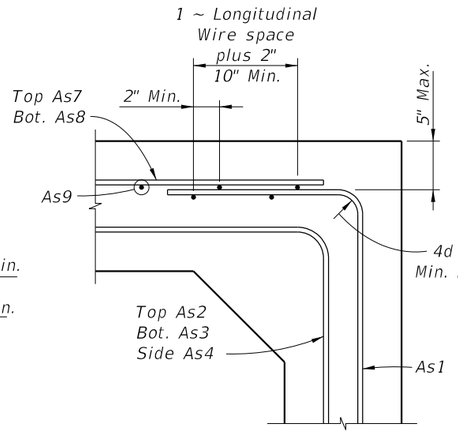
DETAIL "A"
(OPTION 2)



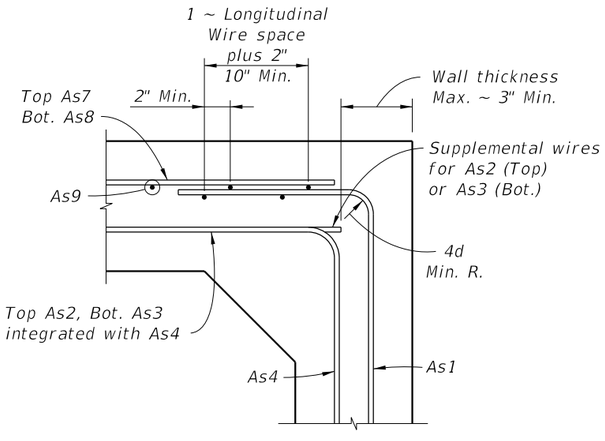
DETAIL "A"
(OPTION 3)



DETAIL "B"
(OPTION 1)



DETAIL "B"
(OPTION 2)



DETAIL "B"
(OPTION 3)

NOTES:
1. Work this Index with Index 400-291.
2. See Sheets 8 thru 14 for dimensions and areas of reinforcement.

STANDARD PRECAST BOX CULVERT WITH 3" CONCRETE COVER

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LAST REVISION 11/01/23	REVISION	DESCRIPTION:	FDOT FY 2025-26 STANDARD PLANS	STANDARD PRECAST CONCRETE BOX CULVERTS	INDEX 400-292	SHEET 7 of 14

TABLE 9A - STANDARD PRECAST BOX CULVERT DESIGNS (3" COVER) - 3' & 4' SPANS

SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)	DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.) As1	As2	As3	As4	As5	As7	As8	As9	As1 EXT. LENGTH (M) (in.)
3' x 3'	9	9	9	4 to 8	0.33' - <2'	0.22	0.24	0.22	0.22	0.22	0.22	0.22	See General Note 5	-
					2' - <3'	0.11	0.23	0.22	0.11	-	-	-		31
					3' - <5'	0.11	0.22	0.22	0.11	-	-	-		31
					5' - 10'	0.11	0.22	0.22	0.11	-	-	-		31
					15'	0.11	0.22	0.22	0.11	-	-	-		31
					20'	0.13	0.22	0.22	0.11	-	-	-		31
					25'	0.16	0.22	0.22	0.11	-	-	-		31
					30'	0.19	0.24	0.25	0.11	-	-	-		31
					35'	0.22	0.28	0.29	0.11	-	-	-		31
4' x 3'	9	9	9	4 to 8	0.33' - <2'	0.22	0.32	0.24	0.22	0.22	0.22	0.22		-
					2' - <3'	0.17	0.31	0.24	0.11	-	-	-		38
					3' - <5'	0.13	0.22	0.22	0.11	-	-	-		38
					5' - 10'	0.13	0.22	0.22	0.11	-	-	-		38
					15'	0.17	0.22	0.22	0.11	-	-	-		38
					20'	0.23	0.26	0.27	0.11	-	-	-		38
					25'	0.28	0.32	0.34	0.11	-	-	-		38
					30'	0.33	0.39	0.40	0.11	-	-	-		38
4' x 4'	9	9	9	4 to 8	0.33' - <2'	0.22	0.34	0.26	022	0.22	0.22	0.22		-
					2' - <3'	0.17	0.33	0.26	0.11	-	-	-		38
					3' - <5'	0.13	0.22	0.22	0.11	-	-	-		38
					5' - 10'	0.14	0.22	0.22	0.11	-	-	-		38
					15'	0.19	0.22	0.23	0.11	-	-	-		38
					20'	0.24	0.28	0.30	0.11	-	-	-		38
					25'	0.29	0.36	0.37	0.11	-	-	-		38
					30'	0.34	0.43	0.45	0.11	-	-	-		38

TABLE 9B - STANDARD PRECAST BOX CULVERT DESIGNS (3" COVER) - 3' & 4' SPANS

SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)	DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.) As1	As2	As3	As4	As5	As7	As8	As9	As1 EXT. LENGTH (M) (in.)
3' x 3'	10	10	10	4 to 8	0.33' - <2'	0.24	0.24	0.24	0.24	0.24	0.24	0.24	See General Note 5	-
					2' - <3'	0.12	0.24	0.24	0.24	-	-	-		31
					3' - <5'	0.12	0.24	0.24	0.24	-	-	-		31
					5' - 10'	0.12	0.24	0.24	0.24	-	-	-		31
					15'	0.12	0.24	0.24	0.24	-	-	-		31
					20'	0.12	0.24	0.24	0.24	-	-	-		31
					25'	0.13	0.24	0.24	0.24	-	-	-		31
					30'	0.15	0.24	0.24	0.12	-	-	-		31
					35'	0.18	0.24	0.24	0.12	-	-	-		31
4' x 3'	10	10	10	4 to 8	0.33' - <2'	0.24	0.26	0.24	0.24	0.24	0.24	0.24		-
					2' - <3'	0.14	0.26	0.24	0.12	-	-	-		38
					3' - <5'	0.12	0.24	0.24	0.12	-	-	-		38
					5' - 10'	0.12	0.24	0.24	0.12	-	-	-		38
					15'	0.14	0.24	0.24	0.12	-	-	-		38
					20'	0.18	0.24	0.24	0.12	-	-	-		38
					25'	0.22	0.26	0.27	0.12	-	-	-		38
					30'	0.26	0.31	0.32	0.12	-	-	-		38
4' x 4'	10	10	10	4 to 8	0.33' - <2'	0.24	0.28	0.24	0.24	0.24	0.24	0.24		-
					2' - <3'	0.14	0.28	0.24	0.12	-	-	-		38
					3' - <5'	0.12	0.24	0.24	0.12	-	-	-		38
					5' - 10'	0.12	0.24	0.24	0.12	-	-	-		38
					15'	0.15	0.24	0.24	0.12	-	-	-		38
					20'	0.19	0.24	0.24	0.12	-	-	-		38
					25'	0.23	0.28	0.30	0.12	-	-	-		38
					30'	0.27	0.34	0.35	0.12	-	-	-		38

NOTES:
1. See Sheet 2 for General Notes.
2. See Sheet 7 for Reinforcing Details and dimension locations.
3. See Sheet 14 for WWR Bending Diagrams.

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TABLE 10A - STANDARD PRECAST BOX CULVERT DESIGNS (3" COVER) - 5' & 6' SPANS

SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)	DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.) As1	As2	As3	As4	As5	As7	As8	As9	As1 EXT. LENGTH (M) (in.)
5' x 3'	9	9	9	4 to 8	0.33' - <2'	0.27	0.39	0.37	0.22	0.22	0.22	0.27	See General Note 5	–
					2' - <3'	0.26	0.39	0.37	0.11	–	–	–		45
					3' - <5'	0.19	0.24	0.25	0.11	–	–	–		36
					5' - 10'	0.20	0.22	0.22	0.11	–	–	–		36
					15'	0.28	0.28	0.30	0.11	–	–	–		35
					20'	0.37	0.38	0.39	0.11	–	–	–		35
					25'	0.45	0.48	0.49	0.11	–	–	–		35
					30'	0.54	0.58	0.59	0.11	–	–	–		35
5' x 4'	9	9	9	4 to 8	0.33' - <2'	0.26	0.42	0.39	0.22	0.22	0.22	0.26		–
					2' - <3'	0.26	0.42	0.39	0.11	–	–	–		45
					3' - <5'	0.19	0.26	0.27	0.11	–	–	–		45
					5' - 10'	0.20	0.22	0.23	0.11	–	–	–		36
					15'	0.27	0.31	0.33	0.11	–	–	–		35
					20'	0.36	0.42	0.43	0.11	–	–	–		35
					25'	0.44	0.52	0.54	0.11	–	–	–		35
					30'	0.53	0.63	0.65	0.11	–	–	–		35
5' x 5'	9	9	9	4 to 8	0.33' - <2'	0.27	0.44	0.42	0.22	0.22	0.22	0.27		–
					2' - <3'	0.27	0.44	0.42	0.11	–	–	–		45
					3' - <5'	0.20	0.27	0.28	0.11	–	–	–		45
					5' - 10'	0.22	0.23	0.26	0.11	–	–	–		45
					15'	0.30	0.34	0.36	0.11	–	–	–		36
					20'	0.38	0.45	0.47	0.11	–	–	–		35
					25'	0.47	0.56	0.59	0.11	–	–	–		35
					30'	0.55	0.68	0.71	0.11	–	–	–		35
6' x 3'	9	9	9	4 to 12	0.33' - <2'	0.34	0.47	0.42	0.22	0.22	0.25	0.34		–
					2' - <3'	0.34	0.47	0.42	0.11	–	–	–		43
					3' - <5'	0.27	0.31	0.32	0.11	–	–	–		39
					5' - 10'	0.29	0.26	0.28	0.11	–	–	–		39
					15'	0.42	0.39	0.40	0.11	–	–	–		38
					20'	0.55	0.52	0.53	0.11	–	–	–		38
					25'	0.68	0.66	0.67	0.11	–	–	–		38
					30'	0.82	0.81	0.82	0.11	–	–	–		38
6' x 4'	9	9	9	4 to 12	0.33' - <2'	0.33	0.50	0.46	0.22	0.22	0.23	0.33		–
					2' - <3'	0.33	0.50	0.46	0.11	–	–	–		43
					3' - <5'	0.27	0.33	0.35	0.11	–	–	–		39
					5' - 10'	0.28	0.29	0.31	0.11	–	–	–		39
					15'	0.40	0.43	0.45	0.11	–	–	–		38
					20'	0.52	0.57	0.59	0.11	–	–	–		38
					25'	0.65	0.73	0.74	0.11	–	–	–		38
					30'	0.78	0.88	0.90	0.11	–	–	–		38
6' x 5'	9	9	9	4 to 12	0.33' - <2'	0.33	0.52	0.49	0.22	0.22	0.23	0.33		–
					2' - <3'	0.33	0.52	0.49	0.11	–	–	–		43
					3' - <5'	0.27	0.35	0.37	0.11	–	–	–		43
					5' - 10'	0.29	0.31	0.34	0.11	–	–	–		39
					15'	0.41	0.46	0.49	0.11	–	–	–		38
					20'	0.53	0.62	0.64	0.11	–	–	–		38
					25'	0.66	0.78	0.80	0.11	–	–	–		38
					30'	0.78	0.95	0.97	0.11	–	–	–		38
6' x 6'	9	9	9	4 to 12	0.33' - <2'	0.34	0.55	0.51	0.22	0.22	0.24	0.34		–
					2' - <3'	0.34	0.54	0.51	0.11	–	–	–		52
					3' - <5'	0.29	0.37	0.39	0.11	–	–	–		52
					5' - 10'	0.32	0.34	0.37	0.11	–	–	–		43
					15'	0.44	0.50	0.53	0.11	–	–	–		39
					20'	0.57	0.66	0.70	0.11	–	–	–		39
					25'	0.70	0.84	0.87	0.11	–	–	–		38
					30'	0.83	1.02	1.05	0.11	–	–	–		38

TABLE 10B - STANDARD PRECAST BOX CULVERT DESIGNS (3" COVER) - 5' & 6' SPANS

SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)	DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.) As1	As2	As3	As4	As5	As7	As8	As9	As1 EXT. LENGTH (M) (in.)
5' x 3'	10	10	10	4 to 12	0.33' - <2'	0.24	0.33	0.32	0.24	0.24	0.24	0.24	See General Note 5	–
					2' - <3'	0.22	0.33	0.32	0.12	–	–	–		45
					3' - <5'	0.16	0.24	0.24	0.12	–	–	–		36
					5' - 10'	0.16	0.24	0.24	0.12	–	–	–		36
					15'	0.23	0.24	0.24	0.12	–	–	–		35
					20'	0.29	0.30	0.31	0.12	–	–	–		35
					25'	0.36	0.38	0.39	0.12	–	–	–		35
					30'	0.43	0.46	0.47	0.12	–	–	–		35
5' x 4'	10	10	10	4 to 12	0.33' - <2'	0.24	0.35	0.34	0.24	0.24	0.24	0.24		–
					2' - <3'	0.22	0.35	0.34	0.12	–	–	–		45
					3' - <5'	0.15	0.24	0.24	0.12	–	–	–		45
					5' - 10'	0.16	0.24	0.24	0.12	–	–	–		36
					15'	0.22	0.25	0.27	0.12	–	–	–		35
					20'	0.29	0.33	0.34	0.12	–	–	–		35
					25'	0.36	0.41	0.43	0.12	–	–	–		35
					30'	0.42	0.50	0.51	0.12	–	–	–		35
5' x 5'	10	10	10	4 to 12	0.33' - <2'	0.24	0.37	0.36	0.24	0.24	0.24	0.24		–
					2' - <3'	0.21	0.37	0.36	0.12	–	–	–		45
					3' - <5'	0.16	0.24	0.25	0.12	–	–	–		45
					5' - 10'	0.17	0.24	0.24	0.12	–	–	–		45
					15'	0.24	0.27	0.29	0.12	–	–	–		36
					20'	0.30	0.36	0.38	0.12	–	–	–		35
					25'	0.37	0.44	0.47	0.12	–	–	–		35
					30'	0.44	0.53	0.56	0.12	–	–	–		35
6' x 3'	10	10	10	4 to 12	0.33' - <2'	0.28	0.40	0.36	0.24	0.24	0.24	0.28		–
					2' - <3'	0.28	0.40	0.36	0.12	–	–	–		43
					3' - <5'	0.22	0.26	0.28	0.12	–	–	–		39
					5' - 10'	0.24	0.24	0.24	0.12	–	–	–		39
					15'	0.34	0.31	0.32	0.12	–	–	–		38
					20'	0.44	0.41	0.42	0.12	–	–	–		38
					25'	0.54	0.52	0.53	0.12	–	–	–		38
					30'	0.64	0.63	0.64	0.12	–	–	–		38
6' x 4'	10	10	10	4 to 12	0.33' - <2'	0.27	0.42	0.39	0.24	0.24	0.24	0.27		–
					2' - <3'	0.27	0.42	0.39	0.12	–	–	–		43
					3' - <5'	0.21	0.28	0.30	0.12	–	–	–		39
					5' - 10'	0.23	0.24	0.25	0.12	–	–	–		39
					15'	0.32	0.34	0.35	0.12	–	–	–		38
					20'	0.42	0.45	0.47	0.12	–	–	–		38
					25'	0.51	0.56	0.58	0.12	–	–	–		38
					30'	0.61	0.68	0.70	0.12	–	–	–		38
6' x 5'	10	10	10	4 to 12	0.33' - <2'	0.26	0.44	0.42	0.24	0.24	0.24	0.26		–
					2' - <3'	0.26	0.44	0.42	0.12	–	–	–		43
					3' - <5'	0.22	0.30	0.33	0.12	–	–	–		43
					5' - 10'	0.24	0.25	0.27	0.12	–	–	–		39
					15'	0.33	0.36	0.39	0.12	–	–	–		38
					20'	0.42	0.48	0.51	0.12	–	–	–		38
					25'	0.52	0.61	0.63	0.12	–	–	–		38
					30'	0.61	0.74	0.76	0.12	–	–	–		38
6' x 6'	10	10	10	4 to 12	0.33' - <2'	0.27	0.46	0.44	0.24	0.24	0.24	0.27		–
					2' - <3'	0.27	0.46	0.44	0.12	–	–	–		52
					3' - <5'	0.23	0.31	0.34	0.12	–	–	–		52
					5' - 10'	0.25	0.27	0.30	0.12	–	–	–		43
					15'	0.35	0.39	0.42	0.12	–	–	–		39
					20'	0.45	0.52	0.55	0.12	–	–	–		39
					25'	0.54	0.65	0.68	0.12	–	–	–		38
					30'	0.64	0.78	0.81	0.12	–	–	–		38

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LAST REVISION	REVISION	DESCRIPTION:				
07/01/13			FDOT FY 2025-26 STANDARD PLANS	STANDARD PRECAST CONCRETE BOX CULVERTS	INDEX 400-292	SHEET 9 of 14

TABLE 11A - STANDARD PRECAST BOX CULVERT DESIGNS (3" COVER) - 7' SPANS

SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)	DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.) As1	As2	As3	As4	As5	As7	As8	As9	As1 EXT. LENGTH (M) (in.)
7' x 4'	9	9	9	4 to 12	0.33' - <2'	0.42	0.58	0.52	0.22	0.22	0.31	0.42	See General Note 5	–
					2' - <3'	0.42	0.58	0.51	0.11	–	–	–		43
					3' - <5'	0.36	0.41	0.44	0.11	–	–	–		43
					5' - 10'	0.39	0.40	0.39	0.11	–	–	–		43
					15'	0.56	0.56	0.58	0.11	–	–	–		41
					20'	0.74	0.76	0.77	0.11	–	–	–		41
					25'	0.92	0.97	0.97	0.11	–	–	–		41
	9	9.5	9	7 to 12	30'	1.09	1.18	1.10	0.11	–	–	–		41
7' x 5'	9	9	9	4 to 12	0.33' - <2'	0.41	0.61	0.55	0.22	0.23	0.30	0.41		–
					2' - <3'	0.41	0.61	0.55	0.11	–	–	–		47
					3' - <5'	0.37	0.43	0.47	0.11	–	–	–		43
					5' - 10'	0.39	0.41	0.43	0.11	–	–	–		43
					15'	0.56	0.61	0.63	0.11	–	–	–		41
					20'	0.73	0.82	0.83	0.11	–	–	–		41
					25'	0.90	1.04	1.06	0.11	–	–	–		41
	9	9.5	9	7 to 12	30'	1.06	1.26	1.19	0.11	–	–	–		41
7' x 6'	9	9	9	4 to 12	0.33' - <2'	0.42	0.63	0.58	0.22	0.24	0.30	0.42		–
					2' - <3'	0.42	0.63	0.58	0.11	–	–	–		59
					3' - <5'	0.38	0.45	0.50	0.11	–	–	–		47
					5' - 10'	0.41	0.44	0.47	0.11	–	–	–		43
					15'	0.57	0.65	0.68	0.11	–	–	–		41
					20'	0.75	0.87	0.90	0.11	–	–	–		41
					25'	0.93	1.11	1.13	0.11	–	–	–		41
	9	9.5	9	7 to 12	30'	1.07	1.35	1.27	0.11	–	–	–		41
7' x 7'	9	9	9	4 to 12	0.33' - <2'	0.44	0.66	0.61	0.22	0.25	0.31	0.44		–
					2' - <3'	0.44	0.65	0.61	0.11	–	–	–		59
					3' - <5'	0.41	0.47	0.52	0.11	–	–	–		59
					5' - 10'	0.44	0.47	0.52	0.11	–	–	–		47
					15'	0.62	0.69	0.74	0.11	–	–	–		43
					20'	0.80	0.93	0.97	0.11	–	–	–		43
					25'	0.99	1.18	1.22	0.11	–	–	–		43
	9	9.5	9	7 to 12	30'	1.12	1.43	1.36	0.11	–	–	–		41

TABLE 11B - STANDARD PRECAST BOX CULVERT DESIGNS (3" COVER) - 7' SPANS

SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)	DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.) As1	As2	As3	As4	As5	As7	As8	As9	As1 EXT. LENGTH (M) (in.)
7' x 4'	10	10	10	4 to 12	0.33' - <2'	0.33	0.49	0.44	0.24	0.24	0.24	0.33	See General Note 5	–
					2' - <3'	0.33	0.49	0.44	0.12	–	–	–		43
					3' - <5'	0.29	0.35	0.38	0.12	–	–	–		43
					5' - 10'	0.31	0.30	0.31	0.12	–	–	–		43
					15'	0.44	0.44	0.45	0.12	–	–	–		41
					20'	0.58	0.59	0.60	0.12	–	–	–		41
					25'	0.71	0.74	0.75	0.12	–	–	–		41
					30'	0.85	0.91	0.91	0.12	–	–	–		41
7' x 5'	10	10	10	4 to 12	0.33' - <2'	0.32	0.51	0.47	0.24	0.24	0.24	0.32		–
					2' - <3'	0.32	0.51	0.47	0.12	–	–	–		47
					3' - <5'	0.29	0.37	0.41	0.12	–	–	–		43
					5' - 10'	0.31	0.32	0.35	0.12	–	–	–		43
					15'	0.44	0.47	0.50	0.12	–	–	–		41
					20'	0.57	0.63	0.65	0.12	–	–	–		41
					25'	0.70	0.80	0.82	0.12	–	–	–		41
					30'	0.84	0.97	0.99	0.12	–	–	–		41
7' x 6'	10	10	10	4 to 12	0.33' - <2'	0.33	0.53	0.50	0.24	0.24	0.24	0.33		–
					2' - <3'	0.33	0.53	0.50	0.12	–	–	–		59
					3' - <5'	0.30	0.38	0.43	0.12	–	–	–		47
					5' - 10'	0.33	0.35	0.38	0.12	–	–	–		43
					15'	0.45	0.51	0.54	0.12	–	–	–		41
					20'	0.58	0.68	0.70	0.12	–	–	–		41
					25'	0.72	0.85	0.88	0.12	–	–	–		41
					30'	0.85	1.04	1.06	0.12	–	–	–		41
7' x 7'	10	10	10	4 to 12	0.33' - <2'	0.35	0.55	0.52	0.24	0.24	0.24	0.35		–
					2' - <3'	0.35	0.55	0.52	0.12	–	–	–		59
					3' - <5'	0.32	0.40	0.46	0.12	–	–	–		59
					5' - 10'	0.35	0.37	0.41	0.12	–	–	–		47
					15'	0.48	0.54	0.58	0.12	–	–	–		43
					20'	0.62	0.72	0.76	0.12	–	–	–		43
					25'	0.76	0.90	0.94	0.12	–	–	–		43
					30'	0.90	1.10	1.13	0.12	–	–	–		41

NOTES:
1. See Sheet 2 for General Notes.
2. See Sheet 7 for Reinforcing Details and dimension locations.
3. See Sheet 14 for WWR Bending Diagrams.

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TABLE 12A - STANDARD PRECAST BOX CULVERT DESIGNS (3" COVER) - 8' SPANS

SPAN x RISE (S) x (R) (Ft.)	SLAB / WALL THICKNESS TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)	DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.) As1	As2	As3	As4	As5	As7	As8	As9	As1 EXT. LENGTH (M) (in.)
8' x 4'	9	9	9	4 to 12	0.33' - <2'	0.52	0.66	0.57	0.22	0.24	0.42	0.52	See General Note 5	–
					2' - <3'	0.52	0.66	0.57	0.11	–	–	–		50
					3' - <5'	0.48	0.49	0.52	0.11	–	–	–		50
					5' - 10'	0.52	0.48	0.49	0.11	–	–	–		45
					15'	0.75	0.72	0.72	0.11	–	–	–		41
					20'	1.00	0.98	0.97	0.11	–	–	–		41
	9	9.5	9	8 to 12	25'	1.25	1.24	1.14	0.11	–	–	–		41
	10	10.5	9		30'	1.31	1.29	1.21	0.11	–	–	–		41
8' x 5'	9	9	9	4 to 12	0.33' - <2'	0.51	0.69	0.60	0.22	0.25	0.40	0.51		–
					2' - <3'	0.51	0.69	0.60	0.11	–	–	–		50
					3' - <5'	0.46	0.52	0.56	0.11	–	–	–		45
					5' - 10'	0.51	0.51	0.53	0.11	–	–	–		45
					15'	0.74	0.77	0.78	0.11	–	–	–		41
					20'	0.97	1.05	1.05	0.11	–	–	–		41
	9	9.5	9	8 to 12	25'	1.20	1.33	1.23	0.11	–	–	–		41
	10	10.5	9		30'	1.26	1.38	1.30	0.11	–	–	–		41
8' x 6'	9	9	9	4 to 12	0.33' - <2'	0.51	0.72	0.64	0.22	0.26	0.39	0.51		–
					2' - <3'	0.51	0.72	0.64	0.11	–	–	–		50
					3' - <5'	0.47	0.55	0.59	0.11	–	–	–		50
					5' - 10'	0.52	0.55	0.58	0.11	–	–	–		45
					15'	0.74	0.83	0.85	0.11	–	–	–		41
					20'	0.97	1.12	1.13	0.11	–	–	–		41
	9	9.5	9	8 to 12	25'	1.18	1.42	1.32	0.11	–	–	–		41
	10	10.5	9		30'	1.26	1.46	1.39	0.11	–	–	–		41
8' x 7'	9	9	9	4 to 12	0.33' - <2'	0.52	0.74	0.67	0.22	0.26	0.40	0.52		–
					2' - <3'	0.52	0.74	0.67	0.11	–	–	–		55
					3' - <5'	0.49	0.57	0.62	0.11	–	–	–		55
					5' - 10'	0.55	0.59	0.63	0.11	–	–	–		50
					15'	0.77	0.88	0.91	0.11	–	–	–		41
					20'	1.01	1.19	1.21	0.11	–	–	–		41
	9	9.5	9	8 to 12	25'	1.21	1.51	1.41	0.11	–	–	–		41
	10	10.5	9		30'	1.31	1.53	1.47	0.11	–	–	–		41
8' x 8'	9	9	9	4 to 12	0.33' - <2'	0.55	0.77	0.70	0.22	0.27	0.41	0.55		–
					2' - <3'	0.55	0.77	0.70	0.13	–	–	–		65
					3' - <5'	0.53	0.59	0.64	0.12	–	–	–		65
					5' - 10'	0.60	0.63	0.68	0.11	–	–	–		55
					15'	0.83	0.93	0.98	0.11	–	–	–		45
					20'	1.08	1.26	1.29	0.11	–	–	–		45
	9	9.5	9	8 to 12	25'	1.28	1.59	1.50	0.11	–	–	–		41
	10	10.5	9		30'	1.41	1.61	1.55	0.11	–	–	–		41

TABLE 12B - STANDARD PRECAST BOX CULVERT DESIGNS (3" COVER) - 8' SPANS

SPAN x RISE (S) x (R) (Ft.)	SLAB / WALL THICKNESS TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)	DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.) As1	As2	As3	As4	As5	As7	As8	As9	As1 EXT. LENGTH (M) (in.)
8' x 4'	10	10	10	4 to 12	0.33' - <2'	0.42	0.56	0.49	0.24	0.24	0.32	0.41	See General Note 5	–
					2' - <3'	0.42	0.56	0.49	0.12	–	–	–		50
					3' - <5'	0.38	0.42	0.46	0.12	–	–	–		50
					5' - 10'	0.41	0.38	0.39	0.12	–	–	–		45
					15'	0.59	0.56	0.57	0.12	–	–	–		41
					20'	0.78	0.75	0.76	0.12	–	–	–		41
					25'	0.97	0.96	0.96	0.12	–	–	–		41
	10	10.5	10	8 to 12	30'	1.15	1.16	1.10	0.12	–	–	–		41
8' x 5'	10	10	10	4 to 12	0.33' - <2'	0.40	0.58	0.52	0.24	.034	0.31	0.40		–
					2' - <3'	0.40	0.58	0.52	0.12	–	–	–		50
					3' - <5'	0.37	0.45	0.48	0.12	–	–	–		45
					5' - 10'	0.41	0.41	0.43	0.12	–	–	–		45
					15'	0.58	0.60	0.62	0.12	–	–	–		41
					20'	0.76	0.81	0.81	0.12	–	–	–		41
					25'	0.94	1.03	1.03	0.12	–	–	–		41
	10	10.5	10	8 to 12	30'	1.10	1.24	1.24	0.12	–	–	–		41
8' x 6'	10	10	10	4 to 12	0.33' - <2'	0.40	0.60	0.55	0.24	0.24	0.30	0.40		–
					2' - <3'	0.40	0.60	0.55	0.12	–	–	–		50
					3' - <5'	0.37	0.47	0.51	0.12	–	–	–		50
					5' - 10'	0.42	0.43	0.46	0.12	–	–	–		45
					15'	0.58	0.64	0.67	0.12	–	–	–		41
					20'	0.76	0.86	0.88	0.12	–	–	–		41
					25'	0.94	1.09	1.11	0.12	–	–	–		41
	10	10.5	10	8 to 12	30'	1.09	1.32	1.26	0.12	–	–	–		41
8' x 7'	10	10	10	4 to 12	0.33' - <2'	0.41	0.63	0.58	0.24	0.24	0.30	0.41		–
					2' - <3'	0.41	0.63	0.58	0.12	–	–	–		55
					3' - <5'	0.39	0.49	0.53	0.12	–	–	–		55
					5' - 10'	0.44	0.46	0.50	0.12	–	–	–		50
					15'	0.61	0.68	0.72	0.12	–	–	–		45
					20'	0.78	0.91	0.94	0.12	–	–	–		41
					25'	0.97	1.16	1.18	0.12	–	–	–		41
	10	10.5	10	8 to 12	30'	1.11	1.40	1.34	0.12	–	–	–		41
8' x 8'	10	10	10	4 to 12	0.33' - <2'	0.44	0.64	0.60	0.24	0.24	0.31	0.44		–
					2' - <3'	0.44	0.64	0.60	0.12	–	–	–		65
					3' - <5'	0.42	0.51	0.56	0.12	–	–	–		65
					5' - 10'	0.47	0.50	0.55	0.12	–	–	–		55
					15'	0.65	0.72	0.77	0.12	–	–	–		45
					20'	0.84	0.96	1.01	0.12	–	–	–		45
					25'	1.03	1.22	1.26	0.12	–	–	–		41
	10	10.5	10	8 to 12	30'	1.16	1.47	1.42	0.12	–	–	–		41

NOTES:
1. See Sheet 2 for General Notes.
2. See Sheet 7 for Reinforcing Details and dimension locations.
3. See Sheet 14 for WWR Bending Diagrams.

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TABLE 13A - STANDARD PRECAST BOX CULVERT DESIGNS (3" COVER) - 9' SPANS

SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)	DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.) As1	As2	As3	As4	As5	As7	As8	As9	As1 EXT. LENGTH (M) (in.)
9' x 5'	9	9	9	4 to 12	0.33' - <2'	0.62	0.78	0.65	0.22	0.26	0.52	0.61	See General Note 5	-
					2' - <3'	0.62	0.78	0.65	0.11	-	-	-		54
					3' - <5'	0.58	0.63	0.61	0.11	-	-	-		49
					5' - 10'	0.65	0.63	0.64	0.11	-	-	-		49
					15'	0.95	0.96	0.95	0.11	-	-	-		44
	9	9	9	8 to 12	20'	1.26	1.32	1.28	0.11	-	-	-		44
	10	10.5	9		25'	1.39	1.41	1.32	0.11	-	-	-		44
	11	11.5	9		30'	1.46	1.50	1.42	0.11	-	-	-		44
9' x 6'	9	9	9	4 to 12	0.33' - <2'	0.60	0.81	0.69	0.22	0.27	0.51	0.60		-
					2' - <3'	0.60	0.81	0.69	0.11	-	-	-		54
					3' - <5'	0.56	0.66	0.65	0.11	-	-	-		49
					5' - 10'	0.65	0.68	0.69	0.11	-	-	-		49
					15'	0.94	1.03	1.02	0.11	-	-	-		44
	9	9	9	8 to 12	20'	1.25	1.40	1.38	0.11	-	-	-		44
	10	10.5	9		25'	1.37	1.49	1.40	0.11	-	-	-		44
	11	11.5	9		30'	1.44	1.58	1.50	0.11	-	-	-		44
9' x 7'	9	9	9	4 to 12	0.33' - <2'	0.61	0.84	0.72	0.22	0.28	0.51	0.61		-
					2' - <3'	0.61	0.83	0.72	0.11	-	-	-		59
					3' - <5'	0.58	0.69	0.68	0.11	-	-	-		54
					5' - 10'	0.67	0.73	0.75	0.11	-	-	-		49
					15'	0.96	1.09	1.10	0.11	-	-	-		44
	9	9	9	8 to 12	20'	1.27	1.49	1.47	0.11	-	-	-		44
	10	10.5	9		25'	1.38	1.57	1.48	0.11	-	-	-		44
	11	11.5	9		30'	1.49	1.70	1.58	0.11	-	-	-		44
9' x 8'	9	9.5	9	4 to 12	0.33' - <2'	0.60	0.85	0.73	0.22	0.29	0.52	0.53		-
					2' - <3'	0.64	0.86	0.76	0.12	-	-	-		59
					3' - <5'	0.62	0.72	0.72	0.11	-	-	-		59
					5' - 10'	0.71	0.77	0.81	0.11	-	-	-		54
					15'	1.01	1.16	1.17	0.11	-	-	-		44
	9	9.5	9	8 to 12	20'	1.27	1.56	1.45	0.11	-	-	-		44
	10	10.5	9		25'	1.45	1.65	1.57	0.11	-	-	-		44
	11	11.5	9		30'	1.59	1.72	1.66	0.11	-	-	-		44
9' x 9'	9	9.5	9	4 to 12	0.33' - <2'	0.68	0.88	0.76	0.22	0.29	0.55	0.57		-
					2' - <3'	0.68	0.88	0.78	0.18	-	-	-		72
					3' - <5'	0.68	0.75	0.78	0.18	-	-	-		72
					5' - 10'	0.79	0.82	0.88	0.17	-	-	-		59
					15'	1.11	1.22	1.26	0.13	-	-	-		49
	9	9.5	9	8 to 12	20'	1.37	1.64	1.54	0.13	-	-	-		49
	10	10.5	9		25'	1.56	1.73	1.65	0.13	-	-	-		44
	11	11.5	9.5		30'	1.56	1.73	1.68	0.12	-	-	-		44

TABLE 13B - STANDARD PRECAST BOX CULVERT DESIGNS (3" COVER) - 9' SPANS

SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)	DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.) As1	As2	As3	As4	As5	As7	As8	As9	As1 EXT. LENGTH (M) (in.)
9' x 5'	10	10	10	4 to 12	0.33' - <2'	0.49	0.65	0.57	0.24	0.24	0.40	0.48	See General Note 5	-
					2' - <3'	0.49	0.65	0.57	0.12	-	-	-		54
					3' - <5'	0.46	0.54	0.53	0.12	-	-	-		49
					5' - 10'	0.52	0.50	0.51	0.12	-	-	-		49
					15'	0.75	0.74	0.75	0.12	-	-	-		44
					20'	0.98	1.01	1.00	0.12	-	-	-		44
	10	10.5	10	8 to 12	25'	1.21	1.27	1.19	0.12	-	-	-		44
	11	11.5	10		30'	1.30	1.36	1.30	0.12	-	-	-		44
9' x 6'	10	10	10	4 to 12	0.33' - <2'	0.48	0.68	0.60	0.24	0.24	0.39	0.48		-
					2' - <3'	0.48	0.68	0.60	0.12	-	-	-		54
					3' - <5'	0.45	0.57	0.56	0.12	-	-	-		49
					5' - 10'	0.52	0.53	0.56	0.12	-	-	-		49
					15'	0.74	0.79	0.81	0.12	-	-	-		44
					20'	0.97	1.07	1.07	0.12	-	-	-		44
	10	10.5	10	8 to 12	25'	1.18	1.35	1.28	0.12	-	-	-		44
	11	11.5	10		30'	1.27	1.44	1.38	0.12	-	-	-		44
9' x 7'	10	10	10	4 to 12	0.33' - <2'	0.49	0.70	0.63	0.24	0.24	0.39	0.49		-
					2' - <3'	0.49	0.70	0.63	0.12	-	-	-		59
					3' - <5'	0.46	0.59	0.59	0.12	-	-	-		54
					5' - 10'	0.54	0.57	0.60	0.12	-	-	-		49
					15'	0.75	0.84	0.86	0.12	-	-	-		44
					20'	0.98	1.13	1.14	0.12	-	-	-		44
	10	10.5	10	8 to 12	25'	1.18	1.43	1.36	0.12	-	-	-		44
	11	11.5	10		30'	1.28	1.52	1.46	0.12	-	-	-		44
9' x 8'	10	10	10	4 to 12	0.33' - <2'	0.51	0.72	0.65	0.24	0.24	0.39	0.51		-
					2' - <3'	0.51	0.72	0.65	0.12	-	-	-		59
					3' - <5'	0.49	0.61	0.62	0.12	-	-	-		59
					5' - 10'	0.57	0.60	0.65	0.12	-	-	-		54
					15'	0.79	0.89	0.92	0.12	-	-	-		44
					20'	1.02	1.20	1.22	0.12	-	-	-		44
	10	10.5	10	8 to 12	25'	1.21	1.50	1.44	0.12	-	-	-		44
	11	11.5	10		30'	1.33	1.59	1.54	0.12	-	-	-		44
9' x 9'	10	10	10	4 to 12	0.33' - <2'	0.54	0.74	0.68	0.24	0.24	0.41	0.54		-
					2' - <3'	0.54	0.74	0.68	0.15	-	-	-		72
					3' - <5'	0.53	0.63	0.64	0.13	-	-	-		72
					5' - 10'	0.62	0.64	0.70	0.12	-	-	-		59
					15'	0.85	0.94	0.99	0.12	-	-	-		49
					20'	1.09	1.26	1.29	0.12	-	-	-		49
	10	10.5	10	8 to 12	25'	1.28	1.56	1.52	0.12	-	-	-		44
	11	11.5	10		30'	1.42	1.66	1.66	0.12	-	-	-		44

NOTES:
1. See Sheet 2 for General Notes.
2. See Sheet 7 for Reinforcing Details and dimension locations.
3. See Sheet 14 for WWR Bending Diagrams.

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TABLE 14 - STANDARD PRECAST BOX CULVERT DESIGNS (3" COVER) - 10' SPANS

SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)	DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.) As1	As2	As3	As4	As5	As7	As8	As9	As1 EXT. LENGTH (M) (in.)
10' x 5'	10	10	10	4 to 12	0.33' - <2'	0.60	0.73	0.61	0.24	0.24	0.50	0.57	See General Note 5	–
					2' - <3'	0.60	0.73	0.61	0.12	–	–	–		58
					3' - <5'	0.57	0.64	0.58	0.12	–	–	–		53
					5' - 10'	0.65	0.60	0.60	0.12	–	–	–		52
					15'	0.94	0.90	0.89	0.12	–	–	–		47
	10	10	10	8 to 12	20'	1.24	1.23	1.19	0.12	–	–	–		47
	11	11.5	10		25'	1.39	1.37	1.28	0.12	–	–	–		47
	12.5	12.5	10		30'	1.38	1.43	1.41	0.12	–	–	–		47
10' x 6'	10	10	10	4 to 12	0.33' - <2'	0.58	0.75	0.64	0.24	0.24	0.48	0.56		–
					2' - <3'	0.58	0.75	0.64	0.12	–	–	–		58
					3' - <5'	0.56	0.67	0.62	0.12	–	–	–		52
					5' - 10'	0.64	0.64	0.65	0.12	–	–	–		52
					15'	0.92	0.96	0.95	0.12	–	–	–		47
	10	10	10	8 to 12	20'	1.21	1.31	1.27	0.12	–	–	–		47
	11	11.5	10		25'	1.35	1.44	1.36	0.12	–	–	–		47
	12.5	12.5	10		30'	1.35	1.51	1.49	0.12	–	–	–		47
10' x 7'	10	10	10	4 to 12	0.33' - <2'	0.57	0.78	0.67	0.24	0.24	0.48	0.57		–
					2' - <3'	0.57	0.78	0.67	0.12	–	–	–		58
					3' - <5'	0.58	0.70	0.65	0.12	–	–	–		58
					5' - 10'	0.65	0.68	0.70	0.12	–	–	–		52
					15'	0.92	1.02	1.02	0.12	–	–	–		47
	10	10	10	8 to 12	20'	1.21	1.38	1.35	0.12	–	–	–		47
	11	11.5	10		25'	1.33	1.52	1.44	0.12	–	–	–		47
	12.5	12.5	10		30'	1.38	1.58	1.57	0.12	–	–	–		47
10' x 8'	10	10	10	4 to 12	0.33' - <2'	0.58	0.80	0.70	0.24	0.26	0.48	0.58		–
					2' - <3'	0.58	0.80	0.70	0.12	–	–	–		64
					3' - <5'	0.60	0.72	0.68	0.12	–	–	–		58
					5' - 10'	0.67	0.72	0.75	0.12	–	–	–		52
					15'	0.95	1.08	1.08	0.12	–	–	–		47
	10	10	10	8 to 12	20'	1.24	1.45	1.44	0.12	–	–	–		47
	11	11.5	10		25'	1.36	1.59	1.52	0.12	–	–	–		47
	12.5	12.5	10		30'	1.45	1.64	1.64	0.12	–	–	–		47
10' x 9'	10	10	10	4 to 12	0.33' - <2'	0.61	0.82	0.73	0.24	0.26	0.50	0.61		–
					2' - <3'	0.61	0.82	0.73	0.14	–	–	–		70
					3' - <5'	0.64	0.75	0.73	0.13	–	–	–		64
					5' - 10'	0.72	0.77	0.80	0.12	–	–	–		58
					15'	1.00	1.13	1.15	0.12	–	–	–		52
	10	10	10	8 to 12	20'	1.30	1.53	1.52	0.12	–	–	–		47
	11	11.5	10		25'	1.42	1.66	1.60	0.12	–	–	–		47
	12.5	12.5	10		30'	1.57	1.70	1.72	0.12	–	–	–		47
10' x 10'	10	10	10	4 to 12	0.33' - <2'	0.66	0.84	0.75	0.24	0.27	0.52	0.65		–
					2' - <3'	0.66	0.84	0.75	0.20	–	–	–		79
					3' - <5'	0.70	0.77	0.79	0.19	–	–	–		70
					5' - 10'	0.79	0.81	0.87	0.18	–	–	–		64
					15'	1.09	1.19	1.23	0.15	–	–	–		52
	10	10	10	8 to 12	20'	1.40	1.61	1.61	0.14	–	–	–		52
	11	11.5	10		25'	1.53	1.74	1.68	0.14	–	–	–		47
	12.5	12.5	10.5		30'	1.60	1.71	1.74	0.14	–	–	–		47

TABLE 15 - STANDARD PRECAST BOX CULVERT DESIGNS (3" COVER) - 11' SPANS

SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)	DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.) As1	As2	As3	As4	As5	As7	As8	As9	As1 EXT. LENGTH (M) (in.)
11' x 4'	11	11	11	4 to 12	0.33' - <2'	0.60	0.66	0.54	0.27	0.27	0.52	0.56	See General Note 5	–
					2' - <3'	0.60	0.66	0.54	0.14	–	–	–		62
					3' - <5'	0.60	0.61	0.53	0.14	–	–	–		62
					5' - 10'	0.79	0.63	0.62	0.14	–	–	–		55
					15'	1.01	0.82	0.79	0.14	–	–	–		55
	12	12	11	8 to 12	20'	1.34	1.11	1.06	0.14	–	–	–		55
	13.5	13.5	11		25'	1.52	1.27	1.23	0.14	–	–	–		55
11' x 6'	11	11	11	4 to 12	30'	1.54	1.37	1.34	0.14	–	–	–		50
					0.33' - <2'	0.57	0.71	0.60	0.27	0.27	0.47	0.53		–
					2' - <3'	0.56	0.71	0.60	0.14	–	–	–		62
					3' - <5'	0.56	0.67	0.59	0.14	–	–	–		55
					5' - 10'	0.73	0.71	0.72	0.14	–	–	–		55
					15'	0.92	0.92	0.91	0.14	–	–	–		50
	11	11	11	8 to 12	20'	1.21	1.25	1.21	0.14	–	–	–		50
	12	12	11		25'	1.37	1.43	1.39	0.14	–	–	–		50
	13.5	13.5	11		30'	1.39	1.53	1.50	0.14	–	–	–		50
11' x 8'	11	11	11	4 to 12	0.33' - <2'	0.55	0.76	0.66	0.27	0.27	0.46	0.55		–
					2' - <3'	0.55	0.76	0.66	0.14	–	–	–		62
					3' - <5'	0.54	0.72	0.65	0.14	–	–	–		62
					5' - 10'	0.73	0.79	0.82	0.14	–	–	–		55
					15'	0.93	1.03	1.03	0.14	–	–	–		50
	11	11	11	8 to 12	20'	1.21	1.39	1.36	0.14	–	–	–		50
	12	12.5	11		25'	1.34	1.56	1.50	0.14	–	–	–		50
	13.5	13.5	11		30'	1.41	1.66	1.65	0.14	–	–	–		50
11' x 10'	11	11	11	4 to 12	0.33' - <2'	0.60	0.81	0.71	0.27	0.27	0.48	0.60		–
					2' - <3'	0.60	0.81	0.71	0.15	–	–	–		75
					3' - <5'	0.61	0.77	0.70	0.14	–	–	–		69
					5' - 10'	0.80	0.88	0.93	0.14	–	–	–		62
					15'	1.01	1.13	1.15	0.14	–	–	–		55
	11	11	11	8 to 12	20'	1.30	1.52	1.52	0.14	–	–	–		50
	12	12.5	11		25'	1.42	1.70	1.65	0.14	–	–	–		50
	13.5	14	11		30'	1.53	1.77	1.74	0.14	–	–	–		50
11' x 11'	11	11	11	4 to 12	0.33' - <2'	0.64	0.83	0.74	0.27	0.27	0.51	0.64		–
					2' - <3'	0.64	0.83	0.74	0.21	–	–	–		86
					3' - <5'	0.67	0.79	0.75	0.21	–	–	–		75
					5' - 10'	0.88	0.93	0.99	0.19	–	–	–		69
					15'	1.09	1.19	1.23	0.16	–	–	–		55
	11	11	11	8 to 12	20'	1.40	1.59	1.60	0.15	–	–	–		55
	12	12.5	11		25'	1.54	1.77	1.73	0.15	–	–	–		50
	13.5	14	11.5		30'	1.57	1.77	1.76	0.14	–	–	–		50

NOTES:
1. See Sheet 2 for General Notes.
2. See Sheet 7 for Reinforcing Details and dimension locations.
3. See Sheet 14 for WWR Bending Diagrams.

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LAST REVISION	REVISION	DESCRIPTION:	FDOT FY 2025-26 STANDARD PLANS	STANDARD PRECAST CONCRETE BOX CULVERTS	INDEX	SHEET
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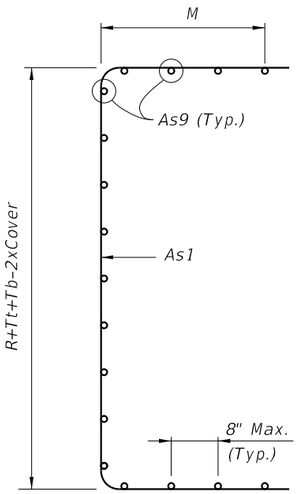
TABLE 16 - STANDARD PRECAST BOX CULVERT DESIGNS (3" COVER) - 12' SPANS

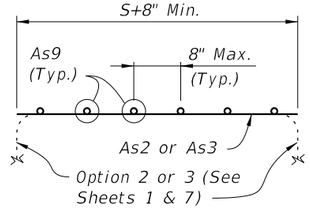
SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)	DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.) As1	As2	As3	As4	As5	As7	As8	As9	As1 EXT. LENGTH (M) (in.)
12' x 4'	12	12	12	4 to 12	0.33' - <2'	0.59	0.64	0.51	0.29	0.29	0.52	0.55	See General Note 5	–
					2' - <3'	0.60	0.64	0.51	0.15	–	–	–		73
					3' - <5'	0.60	0.61	0.51	0.15	–	–	–		66
					5' - 10'	0.81	0.61	0.61	0.15	–	–	–		66
					15'	1.04	0.80	0.77	0.15	–	–	–		59
					20'	1.37	1.08	1.03	0.15	–	–	–		59
	13	13	12	8 to 12	25'	1.58	1.26	1.21	0.15	–	–	–		59
	14.5	14.5	12		30'	1.63	1.38	1.34	0.15	–	–	–		53
12' x 6'	12	12	12	4 to 12	0.33' - <2'	0.56	0.70	0.57	0..29	0.29	0.47	0.52		–
					2' - <3'	0.56	0.70	0.57	0.15	–	–	–		66
					3' - <5'	0.56	0.67	0.57	0.15	–	–	–		59
					5' - 10'	0.74	0.69	0.70	0.15	–	–	–		59
					15'	0.94	0.90	0.88	0.15	–	–	–		53
					20'	1.23	1.22	1.17	0.15	–	–	–		53
	13	13	12	8 to 12	25'	1.40	1.42	1.37	0.15	–	–	–		53
	14.5	15	12		30'	1.44	1.54	1.48	0.15	–	–	–		53
12' x 8'	12	12	12	4 to 12	0.33' - <2'	0.55	0.75	0.63	0.29	0.29	0.45	0.53		–
					2' - <3'	0.55	0.75	0.63	0.15	–	–	–		66
					3' - <5'	0.55	0.73	0.63	0.15	–	–	–		59
					5' - 10'	0.73	0.77	0.79	0.15	–	–	–		59
					15'	0.93	1.00	0.99	0.15	–	–	–		53
	12	12	12	8 to 12	20'	1.21	1.35	1.31	0.15	–	–	–		53
	13	13.5	12		25'	1.35	1.55	1.48	0.15	–	–	–		53
	14.5	15	12		30'	1.40	1.67	1.62	0.15	–	–	–		53
12' x 10'	12	12	12	4 to 12	0.33' - <2'	0.57	0.80	0.68	0.29	0.29	0.46	0.57		–
					2' - <3'	0.57	0.80	0.68	0.15	–	–	–		73
					3' - <5'	0.59	0.77	0.68	0.15	–	–	–		66
					5' - 10'	0.78	0.85	0.89	0.15	–	–	–		59
					15'	0.98	1.10	1.11	0.15	–	–	–		53
	12	12	12	8 to 12	20'	1.26	1.47	1.45	0.15	–	–	–		53
	13	13.5	12		25'	1.39	1.68	1.63	0.15	–	–	–		53
	14.5	15	12		30'	1.48	1.79	1.76	0.15	–	–	–		53
12' x 12'	12	12	12	4 to 12	0.33' - <2'	0.65	0.84	0.73	0.29	0.29	0.50	0.65		–
					2' - <3'	0.65	0.84	0.73	0.23	–	–	–		93
					3' - <5'	0.68	0.81	0.75	0.22	–	–	–		80
					5' - 10'	0.90	0.94	1.01	0.21	–	–	–		73
					15'	1.12	1.20	1.24	0.18	–	–	–		59
	12	12	12	8 to 12	20'	1.42	1.60	1.61	0.16	–	–	–		59
	13	13.5	12		25'	1.57	1.81	1.78	0.16	–	–	–		53
	14.5	15	12.5		30'	1.63	1.86	1.85	0.15	–	–	–		53

NOTES:
1. See Sheet 2 of 14 for General Notes.
2. See Sheet 7 of 14 for Reinforcing Details and dimension locations.

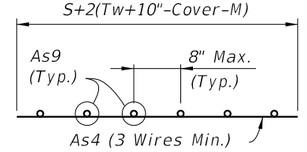
WELDED WIRE REINFORCEMENT BENDING DIAGRAM



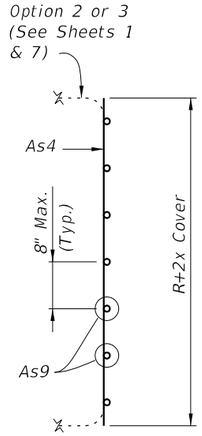
WWR PIECE NO. 1
(2 Reqd. per segment)



WWR PIECE NO. 2
(2 Reqd. per segment)

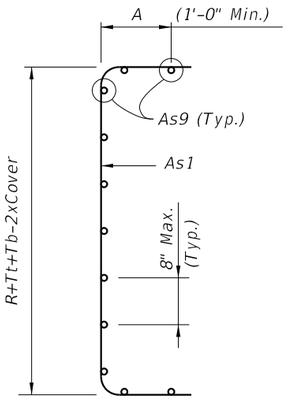


WWR PIECE NO. 4
(Tongue Reinforcement)
(4 Reqd. per segment)

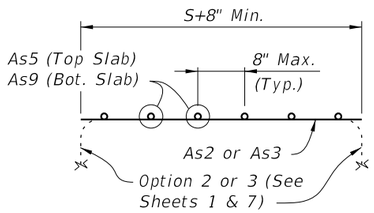


WWR PIECE NO. 3
(2 Reqd. per segment)

TYPE 2 BOX SECTION (DESIGN EARTH COVER 2' OR GREATER)



WWR PIECE NO. 1
(2 Reqd. per segment)



WWR PIECE NO. 2
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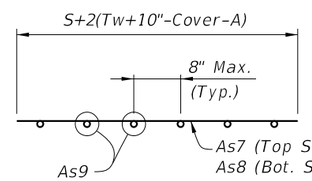

WWR PIECE NO. 4
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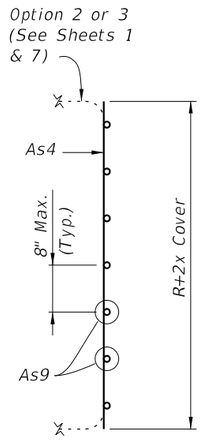

WWR PIECE NO. 3
(2 Reqd. per segment)

TYPE 1 BOX SECTION (DESIGN EARTH COVER LESS THAN 2')

REINFORCEMENT NOTES:
1. Reinforcement bending dimensions are out-to-out.
2. See General Notes 4, 5 and 6 on Sheet 2.
3. See Tables 1 thru 16 for dimensions M, R, S, Tb, Tt and Tw.
4. Dimension "A" is determined by the Manufacturer in accordance with the requirements of Detail "B" on Sheets 1 and 7.

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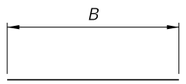

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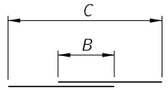

No. of Laps = N

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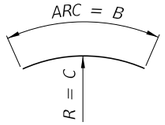

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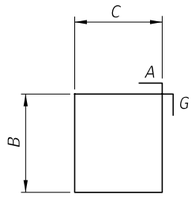

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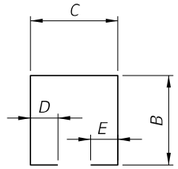

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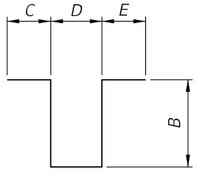

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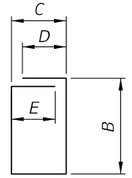

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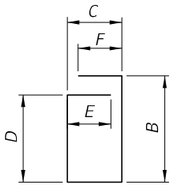

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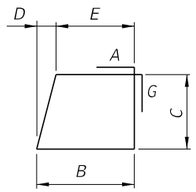

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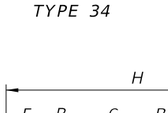

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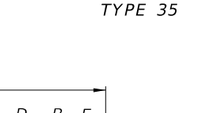

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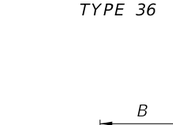

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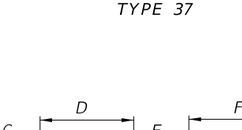

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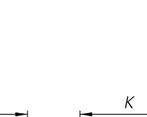
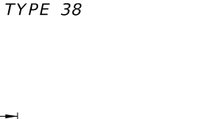


TYPE 14



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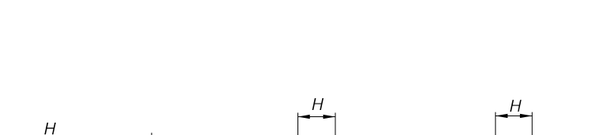
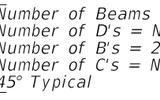


TYPE 16

Number of Beams or Walls = N
Number of D's = N-1
Number of B's = 2N-2
Number of C's = N-2
45° Typical

TYPE 17



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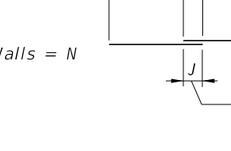
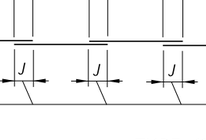


TYPE 19



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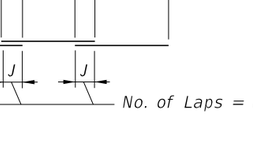

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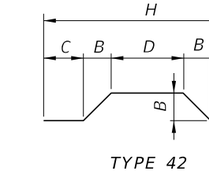
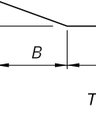


TYPE 22

TYPE 23



TYPE 24

TYPE 25

TYPE 26

TYPE 27

TYPE 28

TYPE 29

TYPE 30

TYPE 31

TYPE 32

Style 6 = No Hook

TYPE 33

TYPE 34

TYPE 35

TYPE 36

TYPE 37

TYPE 38

TYPE 39

C = Pitch
B = Overall Height
N = Total number of closed turns at Top and Bottom of columns

Splices may be accomplished by lapping 1.5 turns. Cost of Channel Spacers and Splices shall be included in the Contract Unit Price for Reinf. Steel (Substructure)

Number of Beams or Walls = N
Number of D's = N-1
Number of B's = 2N-1
Number of C's = N-1
45° Typical

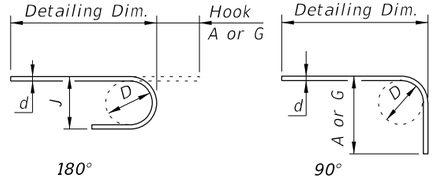
TYPE 40

TYPE 41

TYPE 42

TYPE 43

HOOK DETAILS



180° 90°

BAR SIZE	D	180° HOOKS A OR G	180° HOOKS J	90° HOOKS A OR G
#3	2¼"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3¾"	7"	5"	10"
#6	4½"	8"	6"	1'-0"
#7	5¼"	10"	7"	1'-2"
#8	6"	11"	8"	1'-4"
#9	9½"	1'-3"	11¾"	1'-7"
#10	10¾"	1'-5"	1'-1¼"	1'-10"
#11	12"	1'-7"	1'-2¾"	2'-0"
#14	18¼"	2'-3"	1'-9¾"	2'-7"
#18	24"	3'-0"	2'-4½"	3'-5"
STYLE		1		3

90° 135°

STIRRUPS (TIES SIMILAR)

STIRRUP & TIE HOOK DIMENSIONS

BAR SIZE	D	90° HOOKS A or G	135° HOOKS A or G	135° HOOKS H *
#3	1½"	4"	4"	2½"
#4	2"	4½"	4½"	3"
#5	2½"	6"	5½"	3¾"
#6	4½"	1'-0"	8"	4½"
#7	5¼"	1'-2"	9"	5¼"
#8	6"	1'-4"	10½"	6"
STYLE		4	5	

STYLE 6 = NO HOOK

* Dimension is approximate.

Hook Styles Detailed on this sheet are for Illustration Only.

Actual Hook Style for any particular bar will be shown under A or G Heading on REINFORCING BAR LIST sheet(s) in Structures Plans.

All Dimensions are out-to-out.

NOTE: For Bar Dimensions See REINFORCING BAR LIST Sheet(s) in Structures Plans.

10/17/2024 8:17:12 AM

LAST REVISION	REVISION	DESCRIPTION:				
11/01/24			FDOT	FY 2025-26 STANDARD PLANS	BAR BENDING DETAILS (STEEL)	INDEX 415-001 / SHEET 1 of 1