Missouri Department of Transportation

Bridge MicroStation® CADD Standards

(Open Roads Designer)

December 22, 2022

Contents:

Text:

Small Text: Text Ht 1/8" (.0104): Engr Vert Mono (Includes dimension text)

Small Text Bold: Text Ht 1/8" (.0104):Engr Vert Mono: Bolded

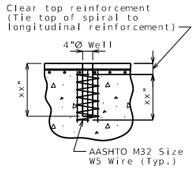
Medium Text: Text Ht 3/16" (.0156); Engr Vert Mono; Bolded

Large Text: Text Ht 1/4" (.0208); Engr Vert Mono; Bolded

See EPG 751.5.1.1 for more information.

(Shown at full scale unless otherwise noted.) (In alphabetical order by cell name)

ANWEL — Anchor bolt well detail



ANCHOR BOLT WELLS

BM BOS4 — Bottom of Slab Elevations, Quarter Points - Beam

Theoretical Bottom of Slab Elevations at Centerline of Beam
(Prior to forming for slab) (Estimated at 90 days)

Beam Number	Span (1-2) ('- " ℄ Brg. - ℄ Brg.)					Span (2-3) ('- " ℄ Brg. - ℄ Brg.)					Span (3-4) ('- " ℄ Brg. - ℄ Brg.)				
	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.
1															
2															
3															
4															
5															

Elevations are based on a constant slab thickness of 8 1/2" and include allowance for theoretical dead load deflections due to weight of slab (including precast panel) and barrier.

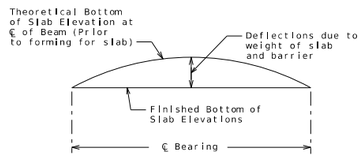
BM BOS10 — Bottom of Slab Elevations, Tenth Points - Beam

Theoretical Bottom of Slab Elevations at Centerline of Beam
(Prior to forming for slab) (Estimated at 90 days)

Beam Number	Span (1-2) (~ " ℄ Brg. - ℄ Brg.)										
	℄ Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	℄ Brg.
1											
2											
3											
4											
5											
Beam Number	Span (2-3) (~ " ℄ Brg. - ℄ Brg.)										
	℄ Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	℄ Brg.
1											
2											
3											
4											
5											
Beam Number	Span (3-4) (~ " ℄ Brg. - ℄ Brg.)										
	℄ Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	℄ Brg.
1											
2											
3											
4											
5											

Elevations are based on a constant slab thickness of 8 1/2" and include allowance for theoretical dead load deflections due to weight of slab (including precast panel) and barrier.

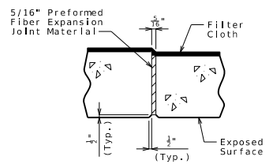
BM BOSD — Bottom of Slab Elevations Diagram - Beam



TYPICAL SLAB ELEVATIONS DIAGRAM

BORING — Boring Symbol (Geotech)

BXJT1 — Filled transverse joint detail for box culverts

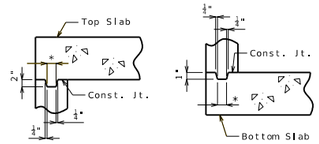


TRANSVERSE JOINT

Preformed fiber expansion joint material shall be securely stitched to one face of the concrete with 10 Gage copper wire or 12 Gage soft drawn galvanized steel wire.

Filter cloth 3 feet in width and double thickness shall be centered on transverse joints in top slab and sidewalls with edges sealed with mastic or two-sided tape. Filter cloth shall be a separation geotextile in accordance with Section 1011 of the Standard Specifications for Highway Construction. Cost of furnishing and installing filter cloth will be considered completely covered by the contract unit price for other items.

BXJT2 Keyed Construction Joint Detail for Box Culverts

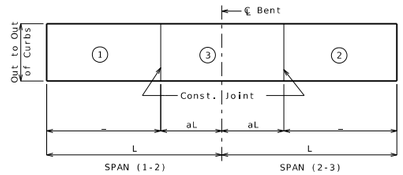


KEYED CONSTRUCTION JOINTS

Exterior wall shown, Interior wall similar

* Approximately one third of wall thickness

C1SP2 Slab Pouring Sequence - Case 1 - 2 Span



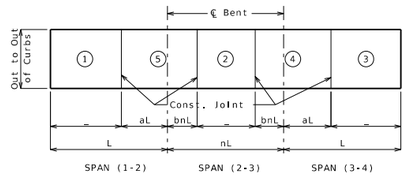
	Sequence of Pours			Min. Rate of Pour Cu. Yds./Hr.	
	Direction			With Retarder	No Retarder
Basic Sequence	1	2	3	25	25
	Either Direction				
Alternate pours to the basic skip sequence are subject to the approval of the engineer in accordance with Sec 703.					
Alternate A Pours	1	3 + 2			
	End to 3	1 to End			
Alternate B Pours	1 + 3 + 2				
	End to End				

The contractor shall pour and satisfactorily finish the slab pours at the rate given. Retarder, if used, shall be an approved type and retard the set of concrete to 2.5 hours.

SLAB POURING SEQUENCE

Guidance (do not show on plans):
When using Case 1 for prestressed structures, remove the "No Retarder" column. See EPG 751.50 (H6) for appropriate notes.

C1SP3 Slab Pouring Sequence - Case 1 - 3 Span



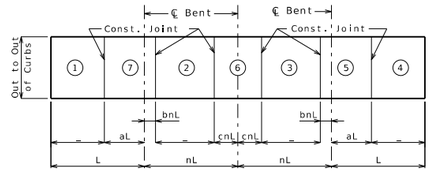
	Sequence of Pours					Min. Rate of Pour Cu. Yds./Hr.	
	Direction					With Retarder	No Retarder
Basic Sequence	1	2	3	4	5	25	25
	Either Direction						
Alternate pours to the basic skip sequence are subject to the approval of the engineer in accordance with Sec 703.							
Alternate A Pours	1	5 + 2		4 + 3			
	End to 5	1 to 4		2 to End			
Alternate B Pours	1 + 5 + 2			4 + 3			
	End to 4			2 to End			
Alternate C Pours	1 + 5 + 2 + 4 + 3						
	End to End						

The contractor shall pour and satisfactorily finish the slab pours at the rate given. Retarder, if used, shall be an approved type and retard the set of concrete to 2.5 hours.

SLAB POURING SEQUENCE

Guidance (do not show on plans):
When using Case 1 for prestressed structures, remove the "No Retarder" column. See EPG 751.50 (H6) for appropriate notes.

C1SP4 Slab Pouring Sequence - Case 1 - 4 Span



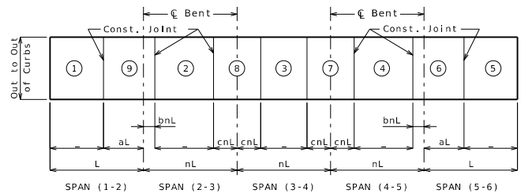
	Sequence of Pours							Min. Rate of Pour Cu. Yds./Hr.	
	Direction							With Retarder	No Retarder
Basic Sequence	1	2	3	4	5	6	7	25	25
	Either Direction								
Alternate pours to the basic skip sequence are subject to the approval of the engineer in accordance with Sec 703.									
Alternate A Pours	1	7 + 2	6 + 3	5 + 4					
	End to 7	1 to 6	2 to 5	3 to End					
Alternate B Pours	1 + 7 + 2	6 + 3	5 + 4						
	End to 6	2 to 5	3 to End						
Alternate C Pours	1 + 7 + 2	6 + 3 + 5 + 4							
	End to 6	2 to End							
Alternate D Pours	1 + 7 + 2 + 6 + 3 + 5 + 4								
	End to End								

The contractor shall pour and satisfactorily finish the slab pours at the rate given. Retarder, if used, shall be an approved type and retard the set of concrete to 2.5 hours.

SLAB POURING SEQUENCE

Guidance (do not show on plans):
When using Case 1 for prestressed structures, remove the "No Retarder" column. See EPG 751.50 (H6) for appropriate notes.

C1SP5 Slab Pouring Sequence - Case 1 - 5 Span



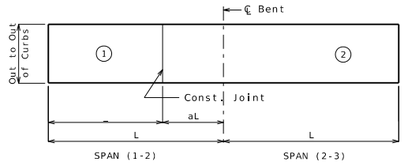
	Sequence of Pours									Min. Rate of Pour Cu. Yds./Hr.	
	Direction									With Retarder	No Retarder
Basic Sequence	1	2	3	4	5	6	7	8	9	25	25
	Either Direction										
Alternate pours to the basic skip sequence are subject to the approval of the engineer in accordance with Sec 703.											
Alternate A Pours	1	9 + 2	8 + 3	7 + 4	6 + 5						
	End to 9	1 to 8	2 to 7	3 to 6	4 to End						
Alternate B Pours	1 + 9 + 2	8 + 3	7 + 4 + 6 + 5								
	End to 8	2 to 7	3 to End								
Alternate C Pours	1 + 9 + 2 + 8 + 3	7 + 4 + 6 + 5									
	End to 7	3 to End									
Alternate D Pours	1 + 9 + 2 + 8 + 3 + 7 + 4 + 6 + 5										
	End to End										

The contractor shall pour and satisfactorily finish the slab pours at the rate given. Retarder, if used, shall be an approved type and retard the set of concrete to 2.5 hours.

SLAB POURING SEQUENCE

Guidance (do not show on plans):
When using Case 1 for prestressed structures, remove the "No Retarder" column. See EPG 751.50 (H6) for appropriate notes.

C2SP2 Slab Pouring Sequence - Case 2 - 2 Span



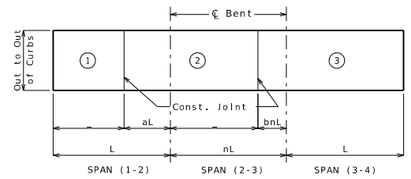
	Sequence of Pours		Min. Rate of Pour Cu. Yds./Hr.
	Direction		With Retarder
Basic Sequence	1 End to 2	2 1 to End	25
Alternate pours to the basic sequence are subject to the approval of the engineer in accordance with Sec 703.			
Alternate A Pours	1 + 2 End to End		

The contractor shall furnish an approved retarder to retard the set of the concrete to 2.5 hours, and shall pour and satisfactorily finish the slab pours at the rate given.

The concrete diaphragm at the intermediate bents and integral end bents shall be poured a minimum of 30 minutes and a maximum of 2 hours before the slab is poured.

SLAB POURING SEQUENCE

C2SP3 Slab Pouring Sequence - Case 2 - 3 Span



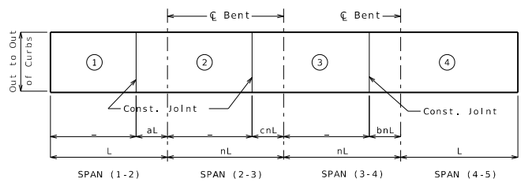
	Sequence of Pours			Min. Rate of Pour Cu. Yds./Hr.
	Direction			With Retarder
Basic Sequence	1 End to 2	2 1 to 3	3 2 to End	25
Alternate pours to the basic sequence are subject to the approval of the engineer in accordance with Sec 703.				
Alternate A Pours	1 + 2 End to 3	3 2 to End		
Alternate B Pours	1 + 2 + 3 End to End			

The contractor shall furnish an approved retarder to retard the set of the concrete to 2.5 hours, and shall pour and satisfactorily finish the slab pours at the rate given.

The concrete diaphragm at the intermediate bents and integral end bents shall be poured a minimum of 30 minutes and a maximum of 2 hours before the slab is poured.

SLAB POURING SEQUENCE

C2SP4 Slab Pouring Sequence - Case 2 - 4 Span



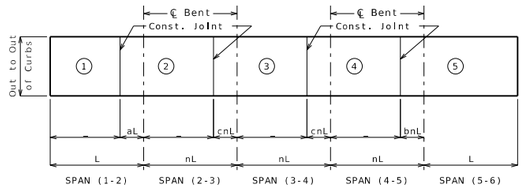
	Sequence of Pours				Min. Rate of Pour Cu. Yds./Hr.
	Direction				With Retarder
Basic Sequence	1 End to 2	2 1 to 3	3 2 to 4	4 3 to End	25
Alternate pours to the basic sequence are subject to the approval of the engineer in accordance with Sec 703.					
Alternate A Pours	1 + 2 End to 3		3 2 to 4	4 3 to End	
Alternate B Pours	1 + 2 End to 3		3 + 4 2 to End		
Alternate C Pours	1 + 2 + 3 + 4 End to End				

The contractor shall furnish an approved retarder to retard the set of the concrete to 2.5 hours, and shall pour and satisfactorily finish the slab pours at the rate given.

The concrete diaphragm at the intermediate bents and integral end bents shall be poured a minimum of 30 minutes and a maximum of 2 hours before the slab is poured.

SLAB POURING SEQUENCE

C2SP5 Slab Pouring Sequence - Case 2 - 5 Span



	Sequence of Pours					Min. Rate of Pour Cu. Yds./Hr.
	Direction					With Retarder
Basic Sequence	1 End to 2	2 1 to 3	3 2 to 4	4 3 to 5	5 4 to End	25
Alternate pours to the basic sequence are subject to the approval of the engineer in accordance with Sec 703.						
Alternate A Pours	1 + 2 End to 3		3 2 to 4	4 + 5 3 to End		
Alternate B Pours	1 + 2 + 3 End to 4			4 + 5 3 to End		
Alternate C Pours	1 + 2 + 3 + 4 + 5 End to End					

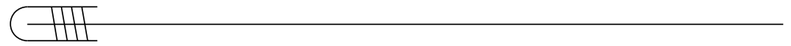
The contractor shall furnish an approved retarder to retard the set of the concrete to 2.5 hours, and shall pour and satisfactorily finish the slab pours at the rate given.

The concrete diaphragm at the intermediate bents and integral end bents shall be poured a minimum of 30 minutes and a maximum of 2 hours before the slab is poured.

SLAB POURING SEQUENCE

COIL Coil insert

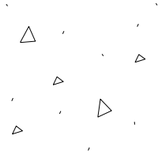
(Shown at 0.5 scale)



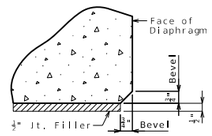
CONC Concrete pattern cluster

CONPAT Concrete pattern (for areafill)

(Shown at 0.25 scale)

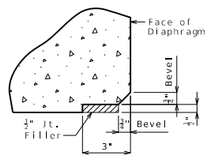


DiaEdge_E Diaphragm Edge Detail for expansion bents



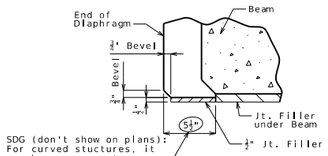
EDGE DETAIL

DiaEdge_F Diaphragm Edge Detail for fixed bents

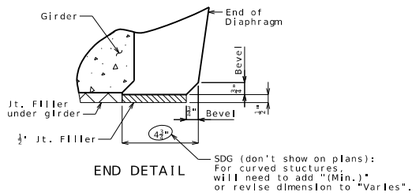


EDGE DETAIL

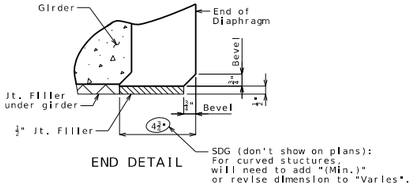
DiaEnd_BoxBeam Diaphragm End Detail for prestressed box beams



DiaEnd_Bulb-T_NU Diaphragm End Detail for prestressed bulb-tee & NU-Girders



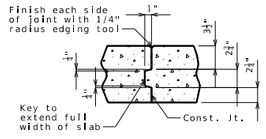
DiaEnd_I-Girders Diaphragm End Detail for prestressed I-Girders



DIMRD Dimensions at Centerline Roadway note with bracket

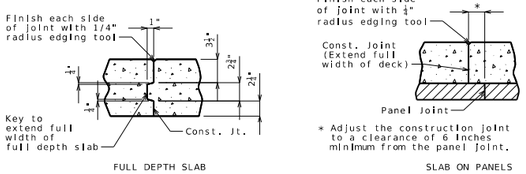
Dimensions at ℄ Rdwy

DKJT1 Const. joint detail full depth CIP deck



SLAB CONSTRUCTION JOINT

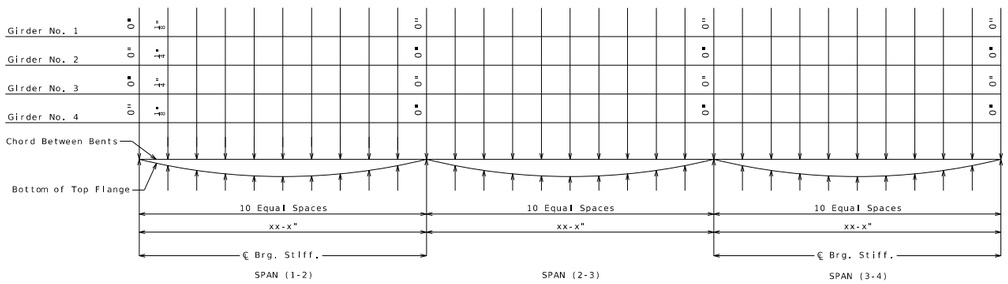
DKJT2 Const. joint detail precast prestressed panel deck



SLAB CONSTRUCTION JOINT

DLD10 Deadload Deflection - tenth points

(Shown at 0.95 scale)

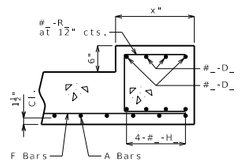


DEAD LOAD DEFLECTION

% of dead load deflection is due to the weight of structural steel.

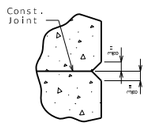
Dead load deflection includes weight of structural steel, concrete slab, and barrier.

DNHDW Section thru downstream headwall for box culverts



SECTION THRU
DOWNSTREAM HEADWALL

End Bent Chamfer Chamfer detail for integral end bents



CHAMFER DETAIL

FINISH Finished ground line symbol

For Information Only Stamp Not for construction

FOR INFORMATION ONLY
NOT FOR CONSTRUCTION

Front Sheet Text — Title block text - Front sheet

(Shown at 0.6 scale)

SEC/SUR = TWP = RGE =

(*) * SPANS

B.M.

BRIDGE: ROUTE * OVER *
ROUTE = FROM = TO =
ABOUT = MILES = OF =
== STATION ========

Designed
Detailed
Checked

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1 of

GDR BOS4 — Bottom of Slab Elevations - Quarter Points - Girder

Theoretical Bottom of Slab Elevations at Centerline of Girder
(Prior to forming for slab) (Estimated at 90 days)

Girder Number	Span (1-2) ('- " ℄ Brg. - ℄ Brg.)					Span (2-3) ('- " ℄ Brg. - ℄ Brg.)					Span (3-4) ('- " ℄ Brg. - ℄ Brg.)				
	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.
1															
2															
3															
4															
5															

Elevations are based on a constant slab thickness of 8 1/2" and include allowance for theoretical dead load deflections due to weight of slab (including precast panel) and barrier.

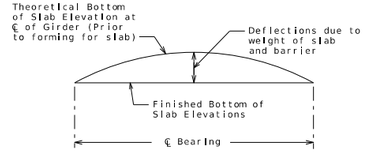
GDR BOS10 — Bottom of Slab Elevations - Tenth Points - Girder

Theoretical Bottom of Slab Elevations at Centerline of Girder
(Prior to forming for slab) (Estimated at 90 days)

Girder Number	Span (1-2) (- * ℄ Brg. - ℄ Brg.)										
	℄ Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	℄ Brg.
1											
2											
3											
4											
5											
Girder Number	Span (2-3) (- * ℄ Brg. - ℄ Brg.)										
	℄ Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	℄ Brg.
1											
2											
3											
4											
5											
Girder Number	Span (3-4) (- * ℄ Brg. - ℄ Brg.)										
	℄ Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	℄ Brg.
1											
2											
3											
4											
5											

Elevations are based on a constant slab thickness of 8 1/2" and include allowance for theoretical dead load deflections due to weight of slab (including precast panel) and barrier.

GDR BOSD — Bottom of Slab Elevations diagram - Girder



TYPICAL SLAB ELEVATIONS DIAGRAM

GRAVEL Rock Blanket areafill

(Shown at 2.0 scale)

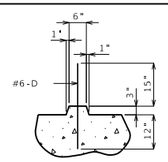
HYD01 Hydrologic Data for culverts

Hydrologic Data
Drainage Area = ___ mi²
Design Flood Frequency = ___ years
Design Flood Discharge = ___ cfs
Design Flood (D.F.) Elevation = _____
Base Flood (100-year)
Base Flood Elevation = _____
Base Flood Discharge = ___ cfs
Estimated Backwater = __ ft
Outlet Velocity = __ ft/s
Roadway Overtopping
Overtopping Flood Discharge = ___ cfs
Overtopping Flood Frequency = ___ years
_____ Flood Elevation = _____

HYD02 Hydrologic Data with Freeboard

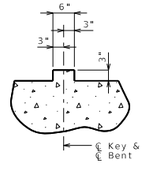
Hydrologic Data
Drainage Area = ___ mi²
Design Flood Frequency = ___ years
Design Flood Discharge = ___ cfs
Design Flood (D.F.) Elevation = _____
Base Flood (100-year)
Base Flood Elevation = _____
Base Flood Discharge = ___ cfs
Estimated Backwater = __ ft
Average Velocity thru Opening = __ ft/s
Freeboard (50-year)
Freeboard = __ ft
Roadway Overtopping
Overtopping Flood Discharge = ___ cfs
Overtopping Flood Frequency = ___ years
_____ Flood Elevation = _____

KEY1 Section thru Key for Intermediate Bent



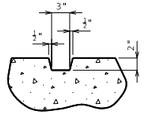
SECTION THRU KEY

KEY2 Section thru Key for Integral End Bent



SECTION THRU KEY

KEY3 Section thru Key for Non-Integral End Bent

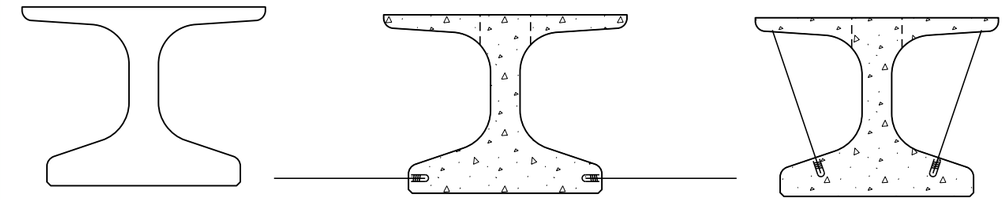


SECTION THRU KEY

NORTH North arrow

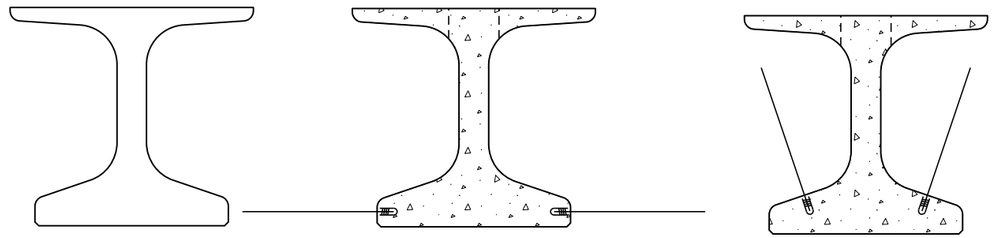
Prestressed NU Girders NU35 NU35-CoilClosed NU35-CoilOpen

(Shown at 0.1 scale)



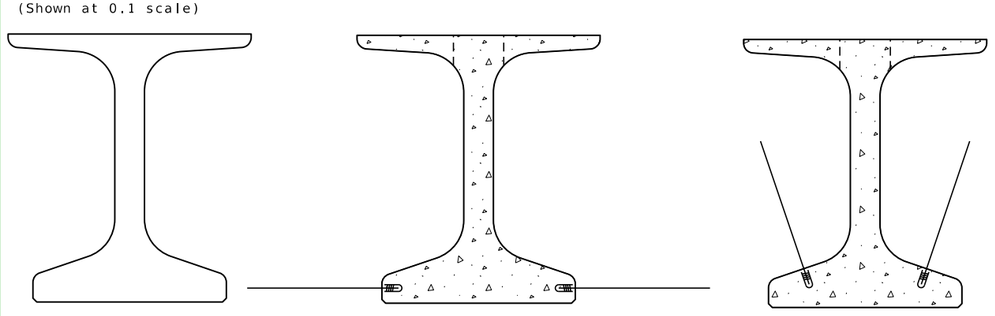
Prestressed NU Girders NU43 NU43-CoilClosed NU43-CoilOpen

(Shown at 0.1 scale)



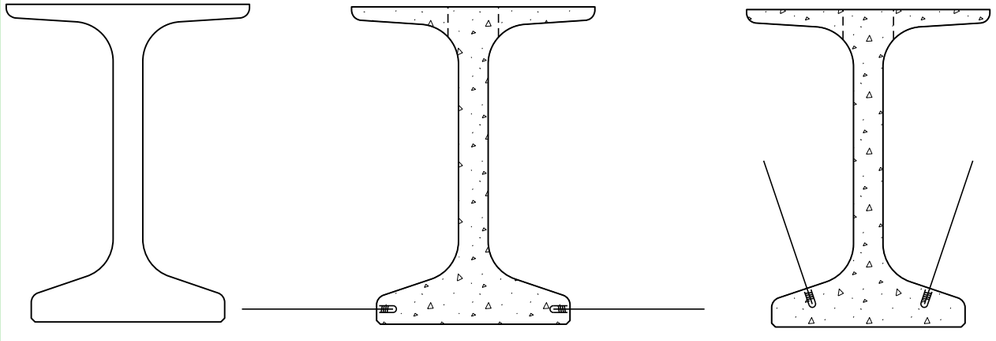
Prestressed NU Girders NU53 NU53-CoilClosed NU53-CoilOpen

(Shown at 0.1 scale)



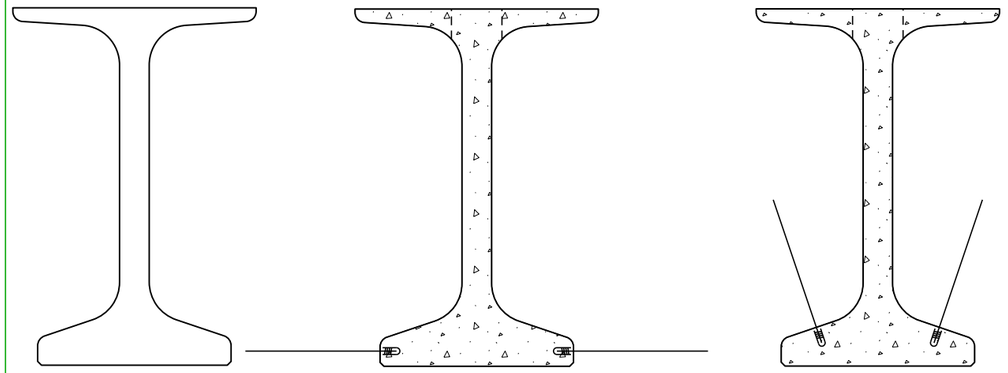
Prestressed NU Girders NU63 NU63-CoilClosed NU63-CoilOpen

(Shown at 0.1 scale)



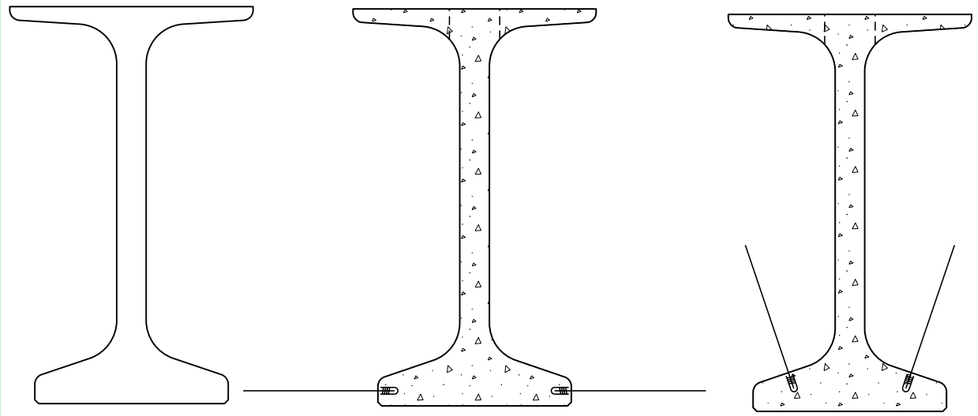
Prestressed NU Girders	NU70	NU70-CoilClosed	NU70-CoilOpen

(Shown at 0.1 scale)

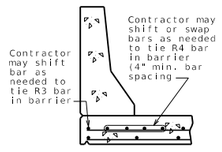


Prestressed Nu Girders	NU78	NU78-CoilClosed	NU78-CoilOpen

(Shown at 0.1 scale)

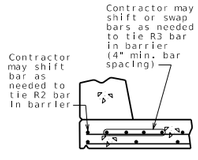


OptShift Type B	Optional shifting top bars at Type B barrier (safety barrier curb)



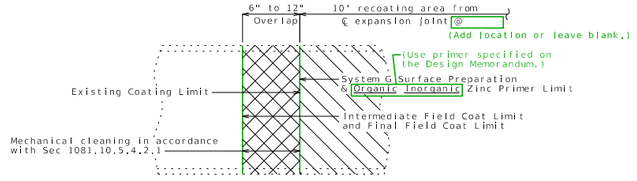
OPTIONAL SHIFTING
TOP BARS AT BARRIER

OptShift Type D-H	Optional shifting top bars at Type D or H barrier



OPTIONAL SHIFTING
TOP BARS AT BARRIER

PaintOverlapE — For steel structures - existing

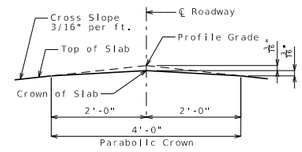


PART ELEVATION SHOWING LIMITS OF PAINT OVERLAP

(Vertical or horizontal paint limit. Horizontal limit shown)

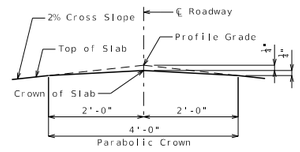
Limits of Paint Overlap: System G shall overlap the existing coating between 6 inches and 12 inches in order to achieve maximum coverage at the paint limit of each complete system near the expansion and contraction areas. The final field coating shall be masked to provide crisp, straight lines and to prevent overspray beyond the overlap required.

PARA — Parabolic rounding detail - 3/16" per foot



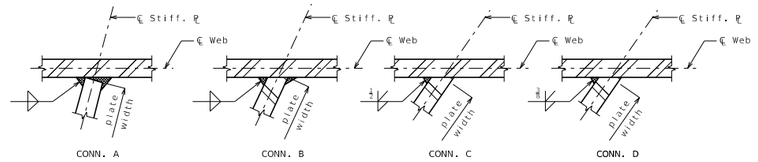
DETAIL

PARAN — Parabolic rounding detail - 2% slope



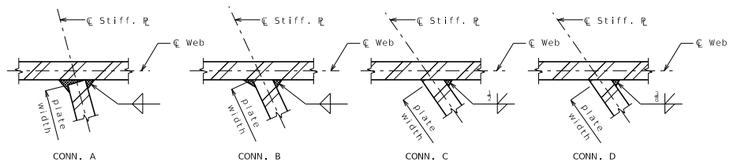
DETAIL

PCONL — Connection weld details for plate girders - Left advance



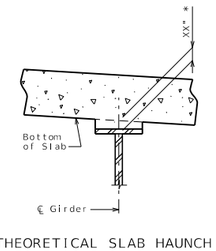
WELDING DETAILS

PCONR — Connection weld details for plate girders - Right advance



WELDING DETAILS

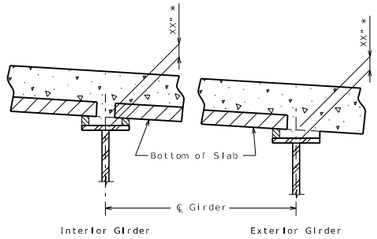
PG TSH CIP — Slab haunch for plate girders with CIP slab



THEORETICAL SLAB HAUNCH

* Dimension (bottom of slab to top of web) may vary if girder camber after erection differs from plan camber by more than the % of Dead Load Deflection due to weight of structural steel. No payment will be made for any adjustment in forming or additional concrete required for variation in haunching.

PG TSH PANEL — Slab haunch for plate girders with precast panel slab



THEORETICAL SLAB HAUNCH

* Dimension (bottom of slab to top of web) may vary if girder camber after erection differs from plan camber by more than the % of Dead Load Deflection due to weight of structural steel. No payment will be made for any adjustment in forming or additional concrete required for variation in haunching.

PGC10 Plate girder camber diagram - tenth points

(Shown at 0.95 scale)

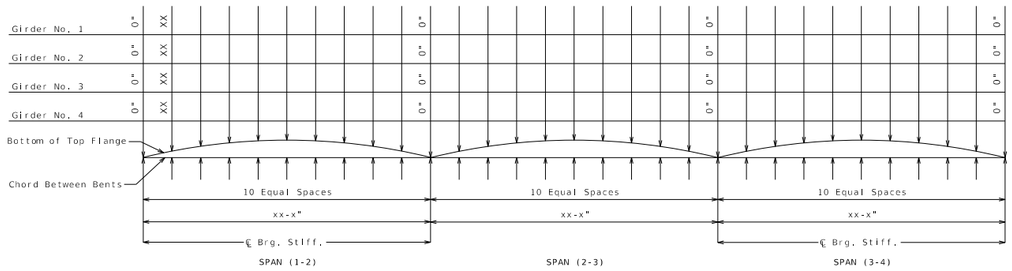
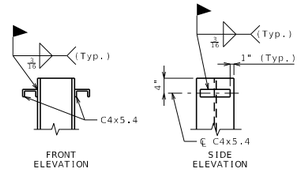


PLATE GIRDER CAMBER DIAGRAM

Camber includes allowance for vertical curve, and dead load deflection due to concrete slab, barrier, and structural steel.

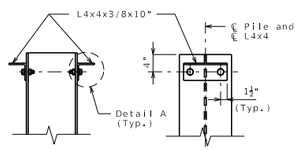
PICHSC Pile seismic anchor detail

Cell is still available in the cell library, but is not listed in CADD Detailing Standards (Tasks).

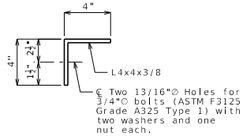


DETAILS OF PILE ANCHORS

PICHSCG Pile seismic anchor detail - galvanized



DETAILS OF HP PILE ANCHORS

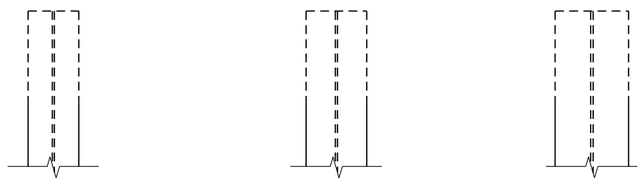


DETAIL A

Angles shall be coated with a minimum of two coats of non-aluminum epoxy mastic primer to provide a dry film thickness of 4 mils minimum, 8 mils maximum, or galvanized in accordance with Sec 1081. Bolts, washers and nuts shall be galvanized in accordance with AASHTO M 232 (ASTM A153), Class C.

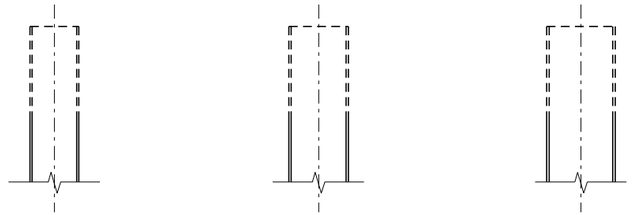
PILE1 (HP10x42) PILE1A (HP12x53) PILE1B (HP14x73) Pile elevation - flange

(Shown at 0.1 scale)



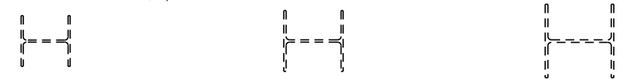
PILE2 (HP10x42) PILE2A (HP12x53) PILE2B (HP14x73) Pile elevation - web

(Shown at 0.1 scale)

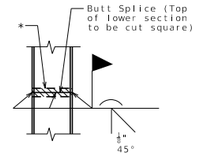


PILE10 (HP10x42) PILE12 (HP12x53) PILE14 (HP14x73) Pile section

(Shown at 0.1 scale)



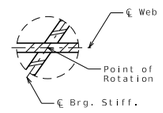
PILSPG Pile splice detail - galvanized



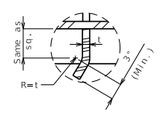
STEEL PILE SPLICE
(If required)

* Galvanizing material shall be omitted or removed one inch clear of weld locations in accordance with Sec 702.

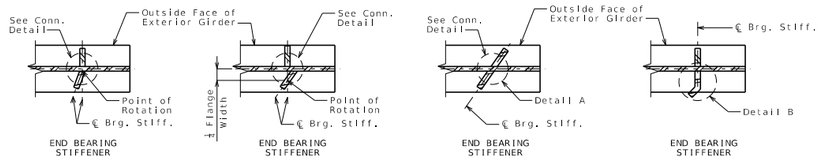
PLOCL Location details for plate girders - left advance



Detail A



Detail B

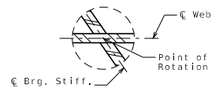


TYPICAL LOCATION DETAILS

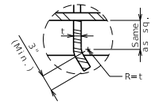
(Skews thru 25°) (Skews over 25° thru 45°) (Skews over 25° thru 45°) (Skews over 45°)

Choose the appropriate detail for your skew.

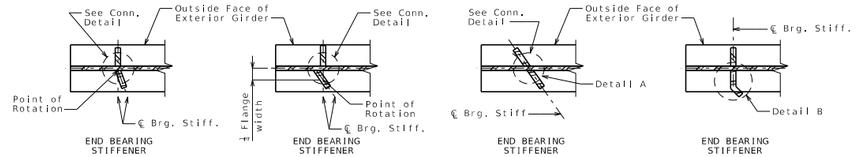
PLOCR Location details for plate girders - right advance



Detail A



Detail B



TYPICAL LOCATION DETAILS

(Skews thru 25°) (Skews over 25° thru 45°) (Skews over 25° thru 45°) (Skews over 45°)

Choose the appropriate detail for your skew.

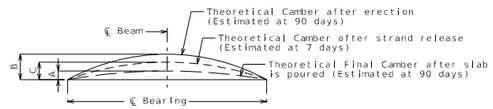
POINT Point cell - no annotation scale

(Shown at 0.1 scale)

POINT-A Point cell - use with annotation scale

X

PS BM CAMBER A less than C Prestressed beam camber diagram for A less than C



Beam	Span (-)			Span (-)			Span (-)		
	A	B	C	A	B	C	A	B	C
Exterior	"	"	"	"	"	"	"	"	"
Interior	"	"	"	"	"	"	"	"	"

BEAM CAMBER DIAGRAM

Conversion Factors for Beam Camber (Estimated at 90 days):

0.1 pt. = 0.314 x 0.5 pt.
0.2 pt. = 0.593 x 0.5 pt.
0.3 pt. = 0.813 x 0.5 pt.
0.4 pt. = 0.952 x 0.5 pt.

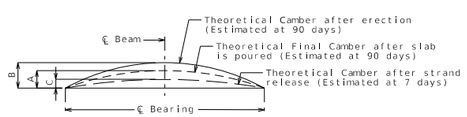
Detailing Guidance (Do not show on plans)

Use with spans 75' and greater in length.

0.25 pt. = 0.7125 x 0.5 pt.

Use with spans less than 75' in length.

PS BM CAMBER C less than A Prestressed beam camber diagram for C less than A



Beam	Span (-)			Span (-)			Span (-)		
	A	B	C	A	B	C	A	B	C
Exterior	"	"	"	"	"	"	"	"	"
Interior	"	"	"	"	"	"	"	"	"

BEAM CAMBER DIAGRAM

Conversion Factors for Beam Camber (Estimated at 90 days):

0.1 pt. = 0.314 x 0.5 pt.
0.2 pt. = 0.593 x 0.5 pt.
0.3 pt. = 0.813 x 0.5 pt.
0.4 pt. = 0.952 x 0.5 pt.

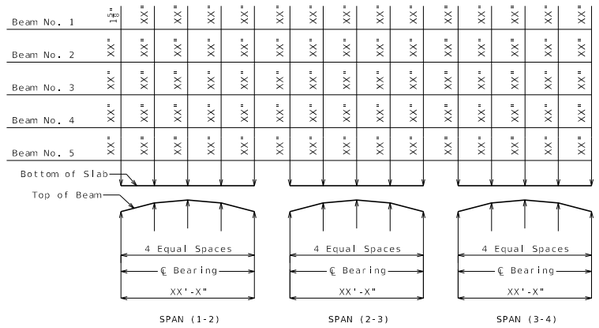
Detailing Guidance (Do not show on plans)

Use with spans 75' and greater in length.

0.25 pt. = 0.7125 x 0.5 pt.

Use with spans less than 75' in length.

PS BM HNCH4 Haunching diagram - quarter points - prestressed beam

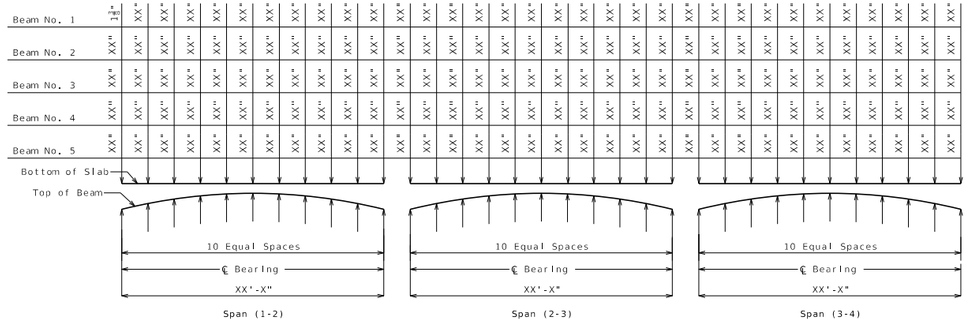


THEORETICAL SLAB HAUNCHING DIAGRAM (ESTIMATED AT 90 DAYS)

If beam camber is different from that shown in the camber diagram, in order to maintain minimum slab thickness, an adjustment of the slab haunches, an increase in slab thickness or a raise in grade uniformly throughout the structure shall be necessary. No payment will be made for additional labor or materials required for variation in haunching, slab thickness or grade adjustment.

Concrete in the slab haunches is included in the Estimated Quantities for Slab on Concrete Beam.

PS BM HNCH10 Haunching diagram - tenth points - prestressed beam

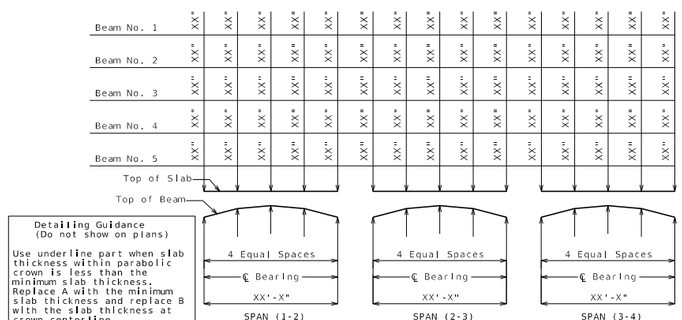


THEORETICAL SLAB HAUNCHING DIAGRAM (ESTIMATED AT 90 DAYS)

If beam camber is different from that shown in the camber diagram, in order to maintain minimum slab thickness, an adjustment of the slab haunches, an increase in slab thickness or a raise in grade uniformly throughout the structure shall be necessary. No payment will be made for additional labor or materials required for variation in haunching, slab thickness or grade adjustment.

Concrete in the slab haunches is included in the Estimated Quantities for Slab on Concrete Beam.

PS BM SLAB4 Slab Thickness - quarter points - beam



Detailing Guidance
(Do not show on plans)

Use underline part when slab thickness within parabolic crown is less than the minimum slab thickness. Replace A with the minimum slab thickness and replace B with the slab thickness at crown centerline.

THEORETICAL SLAB THICKNESS DIAGRAM (ESTIMATED AT 90 DAYS)

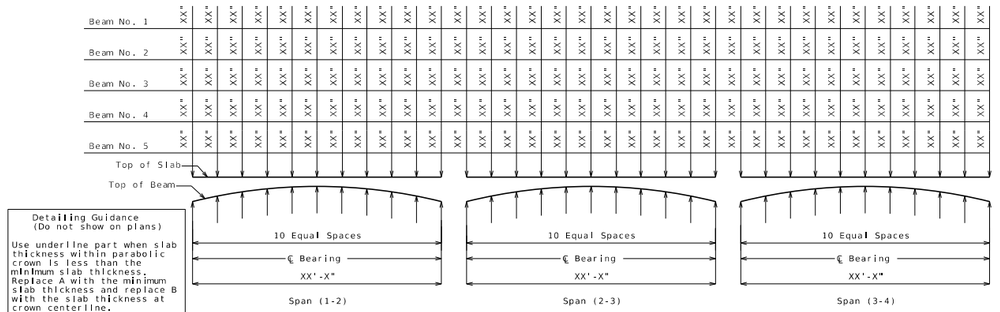
The slab is to be built parallel to grade and to a minimum thickness of A (except varies from A to B within parabolic crown).

If beam camber is different from that shown in the camber diagram, in order to maintain minimum slab thickness, an increase in slab thickness or a raise in grade uniformly throughout the structure shall be necessary. No payment will be made for additional labor or materials required for variation in slab thickness or grade adjustment.

Concrete in the slab is included in the Estimated Quantities for Slab On Concrete Adjacent Beam.

PS BM SLAB10 Slab Thickness - tenth points - beam

(Shown at 0.95 scale)



Detailing Guidance
(Do not show on plans)

Use underline part when slab thickness within parabolic crown is less than the minimum slab thickness. Replace A with the minimum slab thickness and replace B with the slab thickness at crown centerline.

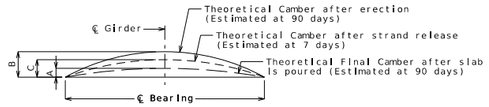
THEORETICAL SLAB THICKNESS DIAGRAM (ESTIMATED AT 90 DAYS)

The slab is to be built parallel to grade and to a minimum thickness of A (except varies from A to B within parabolic crown).

If beam camber is different from that shown in the camber diagram, in order to maintain minimum slab thickness, an increase in slab thickness or a raise in grade uniformly throughout the structure shall be necessary. No payment will be made for additional labor or materials required for variation in slab thickness or grade adjustment.

Concrete in the slab is included in the Estimated Quantities for Slab on Concrete Adjacent Beam.

PS GDR CAMBER A less than C Prestressed girder camber diagram for A less than C



Girder	Span (-)			Span (-)			Span (-)		
	A	B	C	A	B	C	A	B	C
Exterior	"	"	"	"	"	"	"	"	"
Interior	"	"	"	"	"	"	"		

GIRDER CAMBER DIAGRAM

Conversion Factors for Girder Camber (Estimated at 90 days):

0.1 pt. = 0.314 x 0.5 pt.
0.2 pt. = 0.593 x 0.5 pt.
0.3 pt. = 0.813 x 0.5 pt.
0.4 pt. = 0.952 x 0.5 pt.

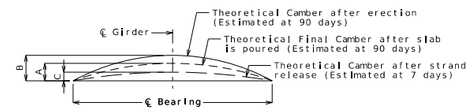
Detailing Guidance
(Do not show on plans)

Use with spans 75' and greater in length.

0.25 pt. = 0.7125 x 0.5 pt.

Use with spans less than 75' in length.

PS GDR CAMBER C less than A Prestressed girder camber diagram for C less than A



Girder	Span (-)			Span (-)			Span (-)		
	A	B	C	A	B	C	A	B	C
Exterior	"	"	"	"	"	"	"	"	"
Interior	"	"	"	"	"	"	"		

GIRDER CAMBER DIAGRAM

Conversion Factors for Girder Camber (Estimated at 90 days):

0.1 pt. = 0.314 x 0.5 pt.
0.2 pt. = 0.593 x 0.5 pt.
0.3 pt. = 0.813 x 0.5 pt.
0.4 pt. = 0.952 x 0.5 pt.

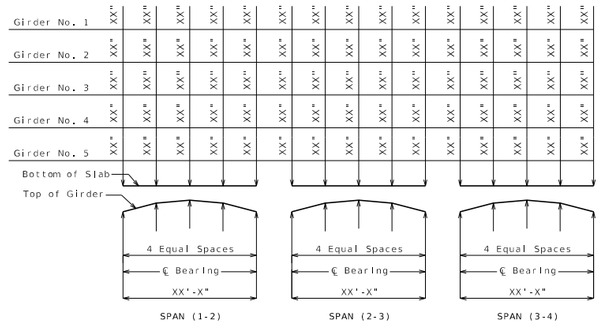
Detailing Guidance
(Do not show on plans)

Use with spans 75' and greater in length.

0.25 pt. = 0.7125 x 0.5 pt.

Use with spans less than 75' in length.

PS GDR HNCH4 — Haunching diagram - quarter points - prestressed girder

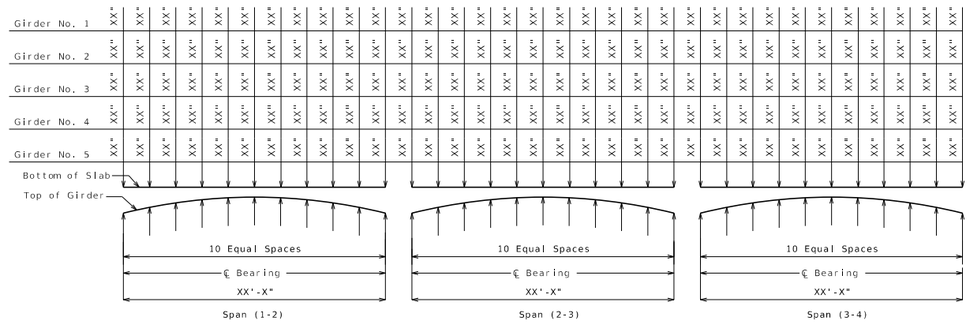


THEORETICAL SLAB HAUNCHING DIAGRAM (ESTIMATED AT 90 DAYS)

If girder camber is different from that shown in the camber diagram, in order to maintain minimum slab thickness, an adjustment of the slab haunches, an increase in slab thickness or a raise in grade uniformly throughout the structure shall be necessary. No payment will be made for additional labor or materials required for variation in haunching, slab thickness or grade adjustment.

Concrete in the slab haunches is included in the Estimated Quantities for Slab on Concrete I-Girder Bulb-Tee Girder NU-Girder.

PS GDR HNCH10 — Haunching diagram - tenth points - prestressed girder

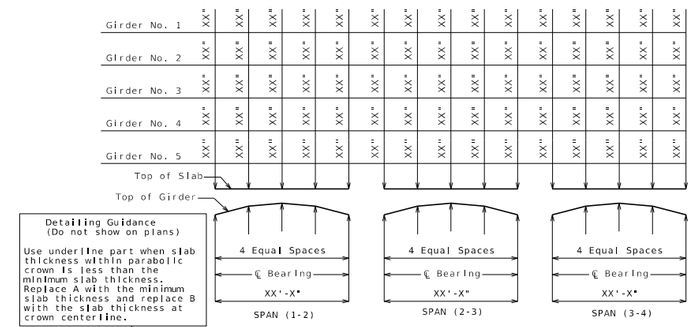


THEORETICAL SLAB HAUNCHING DIAGRAM (ESTIMATED AT 90 DAYS)

If girder camber is different from that shown in the camber diagram, in order to maintain minimum slab thickness, an adjustment of the slab haunches, an increase in slab thickness or a raise in grade uniformly throughout the structure shall be necessary. No payment will be made for additional labor or materials required for variation in haunching, slab thickness or grade adjustment.

Concrete in the slab haunches is included in the Estimated Quantities for Slab on Concrete I-Girder Bulb-Tee Girder NU-Girder.

PS GDR SLAB4 — Slab thickness - quarter points - prestressed girder



Detailing Guidance
(Do not show on plans)

Use underline part when slab thickness within parabolic crown is less than the minimum slab thickness. Replace A with the minimum slab thickness and replace B with the slab thickness at crown centerline.

THEORETICAL SLAB THICKNESS DIAGRAM (ESTIMATED AT 90 DAYS)

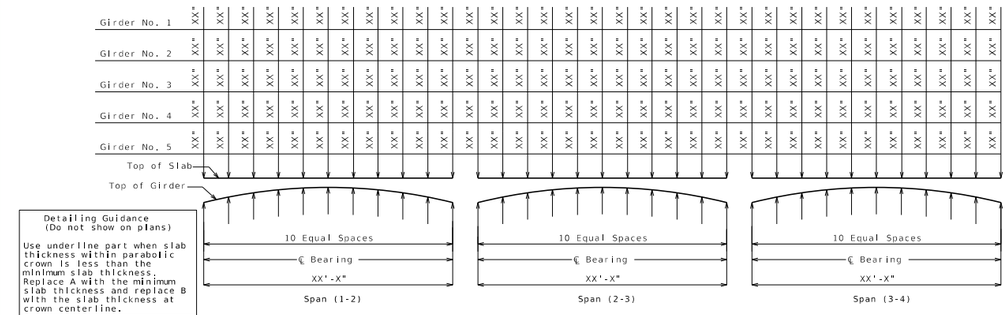
The slab is to be built parallel to grade and to a minimum thickness of A (except varies from A to B within parabolic crown).

If girder camber is different from that shown in the camber diagram, in order to maintain minimum slab thickness, an increase in slab thickness or a raise in grade uniformly throughout the structure shall be necessary. No payment will be made for additional labor or materials required for variation in slab thickness or grade adjustment.

Concrete in the slab is included in the Estimated Quantities for Slab On Concrete Adjacent Beam.

PS GDR SLAB10 Slab thickness - tenth points - prestressed girder

(Shown at 0.95 scale)



Detailing Guidance
(Do not show on plans)

Use underline part when slab thickness within parabolic crown is less than the minimum slab thickness. Replace A with the minimum slab thickness and replace B with the slab thickness at crown centerline.

THEORETICAL SLAB THICKNESS DIAGRAM (ESTIMATED AT 90 DAYS)

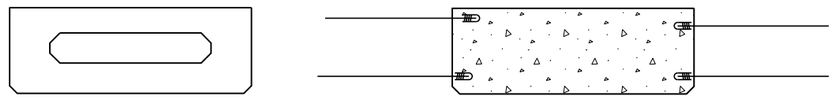
The slab is to be built parallel to grade and to a minimum thickness of A (except varies from A to B within parabolic crown).

If girder camber is different from that shown in the camber diagram, in order to maintain minimum slab thickness, an increase in slab thickness or a raise in grade uniformly throughout the structure shall be necessary. No payment will be made for additional labor or materials required for variation in slab thickness or grade adjustment.

Concrete in the slab is included in the Estimated Quantities for Slab On Concrete Adjacent Beam.

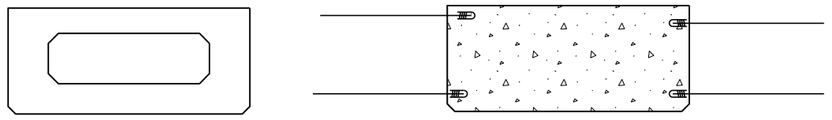
Prestressed Box Beams PSBB17 PSBB17-Coil

(Shown at 0.1 scale)



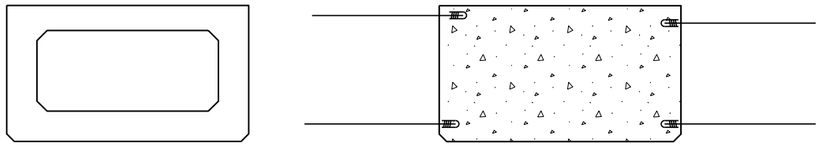
Prestressed Box Beams PSBB21 PSBB21-Coil

(Shown at 0.1 scale)



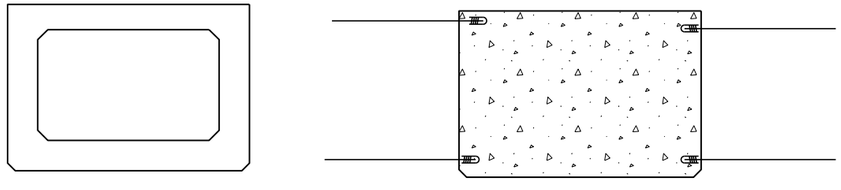
Prestressed Box Beams PSBB27 PSBB27-Coil

(Shown at 0.1 scale)



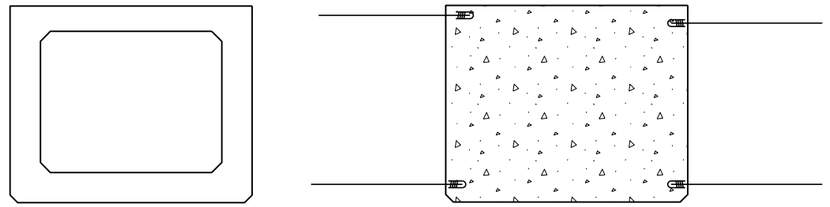
Prestressed Box Beams PSBB33

(Shown at 0.1 scale)



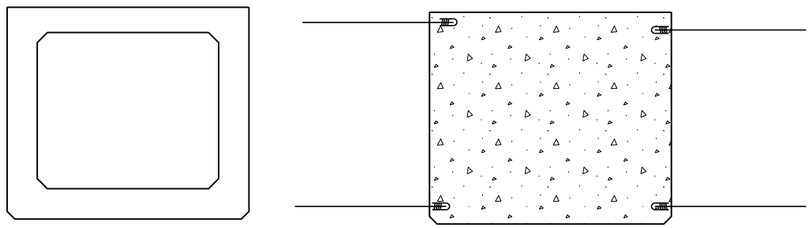
Prestressed Box Beams PSBB39 PSBB39-Coil

(Shown at 0.1 scale)



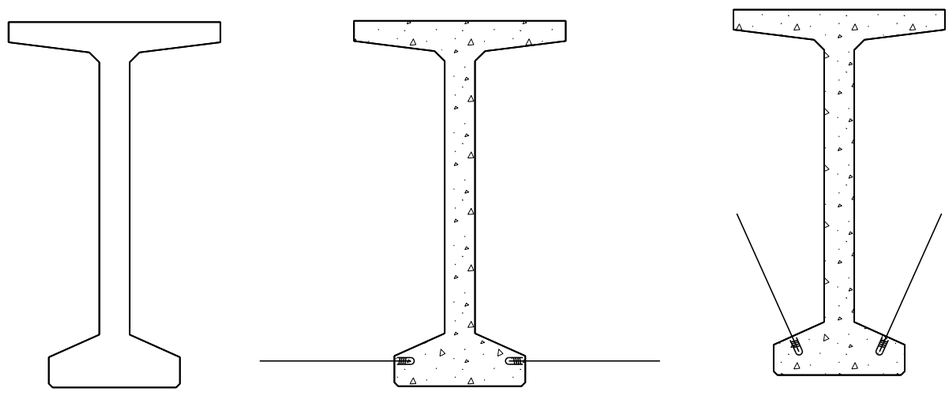
Prestressed Box Beams PSBB42 PSBB42-Coil

(Shown at 0.1 scale)



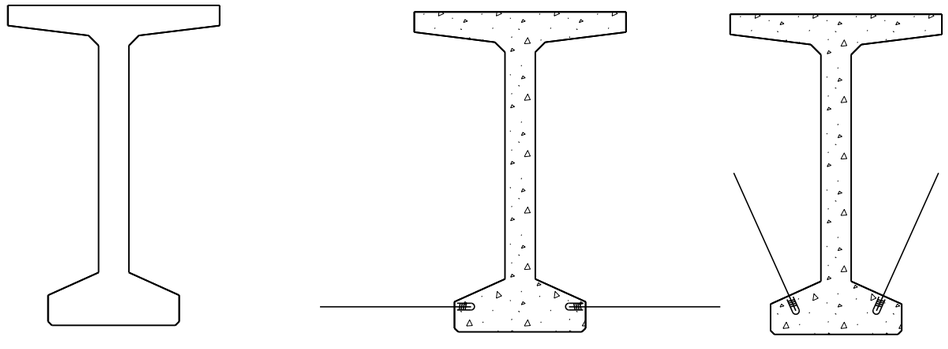
Prestressed Bulb-Tee Girders PSBTEE (Type 7) PSBTEE-CoilClosed PSBTEE-CoilOpen

(Shown at 0.1 scale)



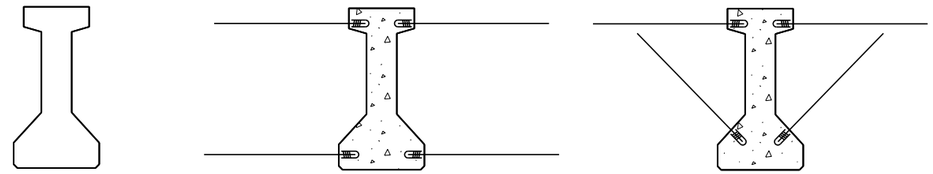
Prestressed Bulb-Tee Girders PSBTEE8 (Type 8) PSBTEE8-CoilClosed PSBTEE8-CoilOpen

(Shown at 0.1 scale)



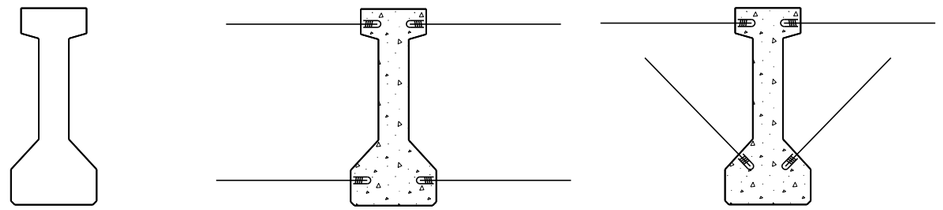
Prestressed I-Girders PSGDR2 (Type 2) PSGDR2-CoilClosed PSGDR2-CoilOpen

(Shown at 0.1 scale)



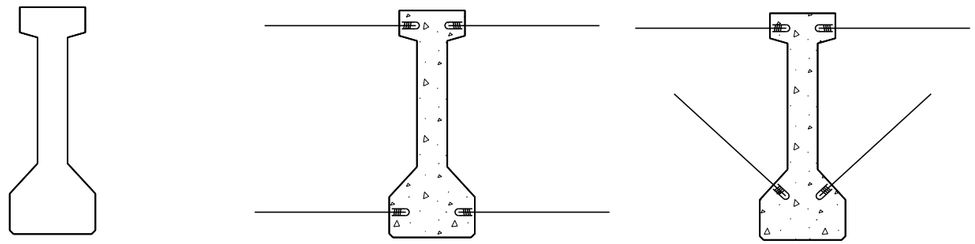
Prestressed I-Girders PSGDR3 (Type 3) PSGDR3-CoilClosed PSGDR3-CoilOpen

(Shown at 0.1 scale)



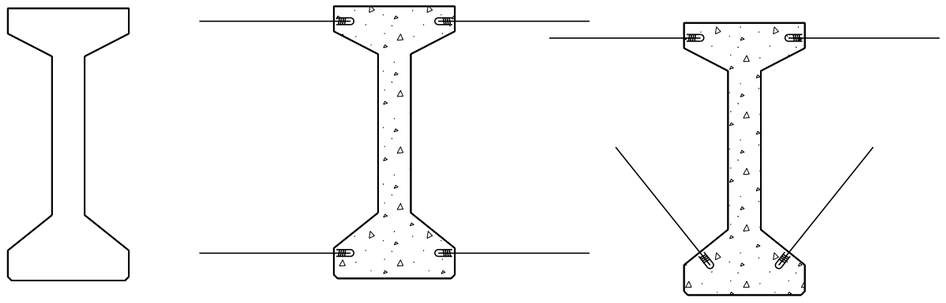
Prestressed I-Girders PSGDR4 (Type 4) PSGDR4-CoilClosed PSGDR4-CoilOpen

(Shown at 0.1 scale)



Prestressed I-Girders PSGDR6 (Type 6) PSGDR6-CoilClosed PSGDR6-CoilOpen

(Shown at 0.1 scale)

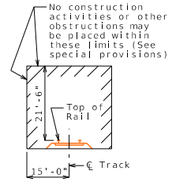


ROCKLN Rock or shale

RRCONSTCLR Railroad construction clearances

Note to Detailer:
(Do not shown on plans)

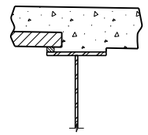
Use values reported on Bridge Memorandum if different from the preferred minimums shown.



MINIMUM CONSTRUCTION CLEARANCES

(Normal to railroad)
(Not to scale)

SDETA Detail A for steel girder overhang



DETAIL A

Second Sheet Text Second sheet text for title block

Detailed
Checked

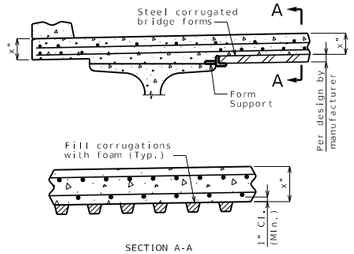
Note: This drawing is not to scale. Follow dimensions. Sheet No. of

SECT Section arrow

A

A

SIP Forming NU Stay in Place forming details for NU girder



OPTIONAL STAY-IN-PLACE FORM DETAILS

Stay-In-Place Forms:

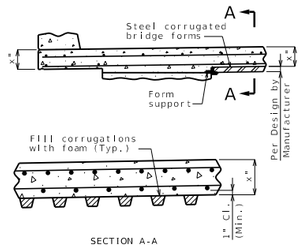
Corrugated steel forms, supports, closure elements and accessories shall be in accordance with grade requirement and coating designation G165 of ASTM A653. Complete shop drawings of the permanent steel deck forms shall be required in accordance with Sec 1080.

Corrugations of stay-in-place forms shall be filled with an expanded polystyrene material. The polystyrene material shall be placed in the forms with an adhesive in accordance with the manufacturer's recommendations.

Form sheets shall not rest directly on the top of girder flanges. Sheets shall be securely fastened to form supports with a minimum bearing length of one inch on each end. Form supports shall be placed in direct contact with the flange. Drilling holes in the girder flanges will not be permitted. All steel fabrication and construction shall be in accordance with Sec 1080 and 712. Certified field welders will not be required for welding of the form supports.

The design of stay in place corrugated steel forms is per manufacturer which shall be in accordance with Sec 703 for false work and forms. Maximum actual weight of corrugated steel forms allowed shall be 4 psf assumed for girder loading.

SIP Forming PSBB Stay in Place forming details for Box Beam



OPTIONAL STAY-IN-PLACE FORM DETAILS

Stay-In-Place Forms:

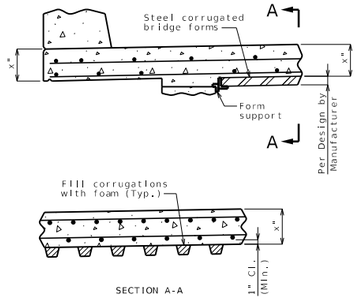
Corrugated steel forms, supports, closure elements and accessories shall be in accordance with grade requirement and coating designation G165 of ASTM A653. Complete shop drawings of the permanent steel deck forms shall be required in accordance with Sec 1080.

Corrugations of stay-in-place forms shall be filled with an expanded polystyrene material. The polystyrene material shall be placed in the forms with an adhesive in accordance with the manufacturer's recommendations.

Form sheets shall not rest directly on the top of beam. Sheets shall be securely fastened to form supports with a minimum bearing length of one inch on each end. Form supports shall be placed in direct contact with the top of beam. Drilling holes in the beam will not be permitted. All steel fabrication and construction shall be in accordance with Sec 1080 and 712. Certified field welders will not be required for welding of the form supports.

The design of stay in place corrugated steel forms is per manufacturer which shall be in accordance with Sec 703 for false work and forms. Maximum actual weight of corrugated steel forms allowed shall be 4 psf assumed for beam loading.

SIP Forming PSI Stay in Place forming details for PSI girder



OPTIONAL STAY-IN-PLACE FORM DETAILS

Stay-In-Place Forms:

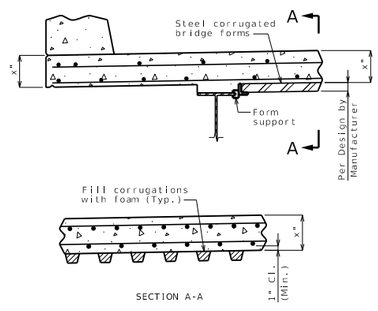
Corrugated steel forms, supports, closure elements and accessories shall be in accordance with grade requirement and coating designation G165 of ASTM A653. Complete shop drawings of the permanent steel deck forms shall be required in accordance with Sec 1080.

Corrugations of stay-in-place forms shall be filled with an expanded polystyrene material. The polystyrene material shall be placed in the forms with an adhesive in accordance with the manufacturer's recommendations.

Form sheets shall not rest directly on the top of girder flanges. Sheets shall be securely fastened to form supports with a minimum bearing length of one inch on each end. Form supports shall be placed in direct contact with the flange. Drilling holes in the girder flanges will not be permitted. All steel fabrication and construction shall be in accordance with Sec 1080 and 712. Certified field welders will not be required for welding of the form supports.

The design of stay in place corrugated steel forms is per manufacturer which shall be in accordance with Sec 703 for false work and forms. Maximum actual weight of corrugated steel forms allowed shall be 4 psf assumed for girder loading.

SIP Forming Steel Stay in Place forming details for steel girder



OPTIONAL STAY-IN-PLACE FORM DETAILS

Stay-In-Place Forms:

Corrugated steel forms, supports, closure elements and accessories shall be in accordance with grade requirement and coating designation G165 of ASTM A653. Complete shop drawings of the permanent steel deck forms shall be required in accordance with Sec 1080.

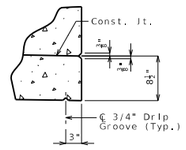
Corrugations of stay-in-place forms shall be filled with an expanded polystyrene material. The polystyrene material shall be placed in the forms with an adhesive in accordance with the manufacturer's recommendations.

Form sheets shall not rest directly on the top of girder beam flanges. Sheets shall be securely fastened to form supports with a minimum bearing length of one inch on each end. Form supports shall be placed in direct contact with the flange. Drilling holes in the girder beam flanges will not be permitted. All steel fabrication and construction shall be in accordance with Sec 1080 and 712. Certified field welders will not be required for welding of the form supports.

The design of stay in place corrugated steel forms is per manufacturer which shall be in accordance with Sec 703 for false work and forms. Maximum actual weight of corrugated steel forms allowed shall be 4 psf assumed for girder beam loading.

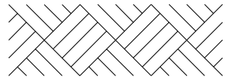
The contractor shall provide a method of preventing the direct contact of the stay-in-place forms and connection components with uncoated weathering steel members that is approved by the engineer.

SLABEDGE Drip groove and chamfer at edge of slab

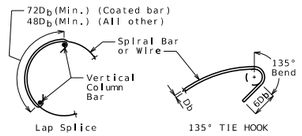


DETAIL B

SOIL1 Soil areapattern (natural ground)



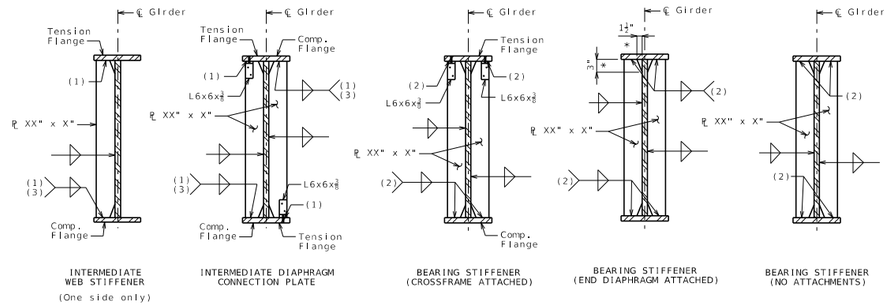
SPIRA Splice of spiral reinforcement



INTERMEDIATE SPLICE OF SPIRALS

Standard 135-degree tie hooks that engage vertical column reinforcing bars shall be provided at each end of splice.

StiffCurveAngle Web stiffener details with angles - curved girders



INTERMEDIATE WEB STIFFENER (One side only)

INTERMEDIATE DIAPHRAGM CONNECTION PLATE

BEARING STIFFENER (CROSSFRAME ATTACHED)

BEARING STIFFENER (END DIAPHRAGM ATTACHED)

BEARING STIFFENER (NO ATTACHMENTS)

WELDING DETAILS

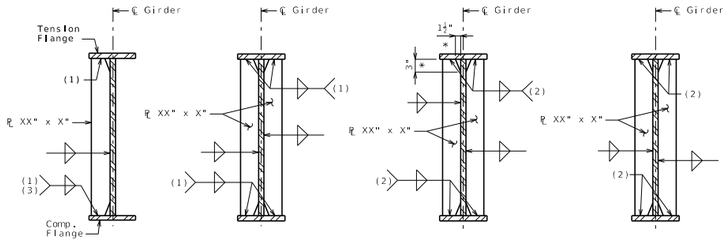
(1) Tight fit

(2) Grind or mill to bear.

(3) Weld to compression flange as located on Elevation of Girder.

* Typical for all intermediate web stiffeners, intermediate diaphragm connection plates and bearing stiffeners.

StiffCurveWelded — Web stiffener details - welded - curved girders



INTERMEDIATE WEB STIFFENER (One side only)

INTERMEDIATE DIAPHRAGM CONNECTION PLATE

BEARING STIFFENER (END DIAPHRAGM OR CROSSFRAME ATTACHED)

BEARING STIFFENER (NO ATTACHMENTS)

WELDING DETAILS

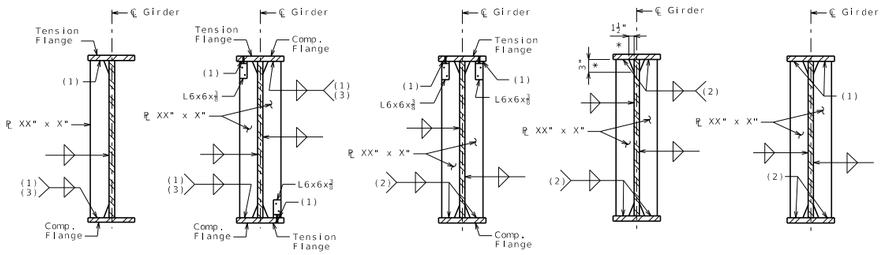
(1) Tight fit

(2) Grind or mill to bear.

(3) Weld to compression flange as located on Elevation of Girder.

* Typical for all intermediate web stiffeners, intermediate diaphragm connection plates and bearing stiffeners.

StiffStraightAngle — Web stiffener details with angles - straight girders



INTERMEDIATE WEB STIFFENER (One side only)

INTERMEDIATE DIAPHRAGM CONNECTION PLATE

BEARING STIFFENER (CROSSFRAME ATTACHED)

BEARING STIFFENER (END DIAPHRAGM ATTACHED)

BEARING STIFFENER (NO ATTACHMENTS)

WELDING DETAILS

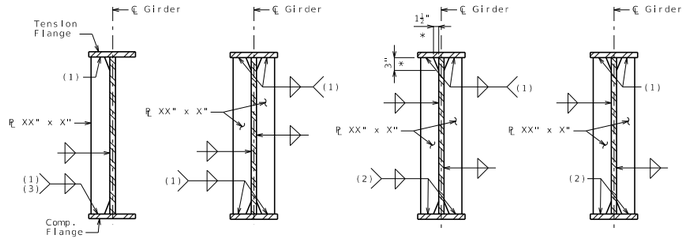
(1) Tight fit

(2) Grind or mill to bear.

(3) Weld to compression flange as located on Elevation of Girder.

* Typical for all intermediate web stiffeners, intermediate diaphragm connection plates and bearing stiffeners.

StiffStraightWelded — Web stiffener details - welded - straight girders



INTERMEDIATE WEB STIFFENER (One side only)

INTERMEDIATE DIAPHRAGM CONNECTION PLATE

BEARING STIFFENER (END DIAPHRAGM OR CROSSFRAME ATTACHED)

BEARING STIFFENER (NO ATTACHMENTS)

WELDING DETAILS

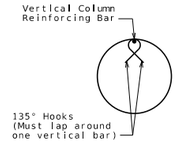
(1) Tight fit

(2) Grind or mill to bear.

(3) Weld to compression flange as located on Elevation of Girder.

* Typical for all intermediate web stiffeners, intermediate diaphragm connection plates and bearing stiffeners.

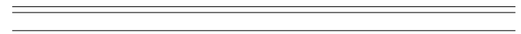
STIRP Seismic stirrup detail



SEISMIC STIRRUP BAR

STL Steel hatching

(Shown at 0.01 scale)



STRAND Plus sign for prestressing strands

THRIE Thrie beam rail section

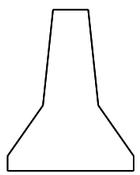
(Shown at 0.1 scale)

TILDE Tilde symbol for leadered notes (for labeling a surface)

(Shown at 10.0 scale)

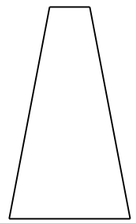
Type A barrier (Median New Jersey shape) Type B barrier (New Jersey shape)

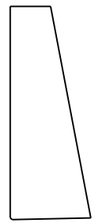
(Shown at 0.1 scale)



Type C barrier (42" Median) Type D barrier (42")

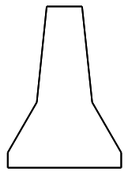
(Shown at 0.1 scale)

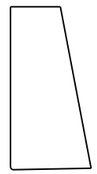




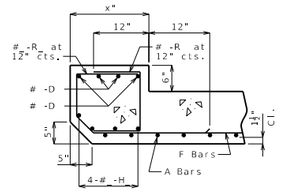
Type F barrier (2-sided temporary) Type H barrier (32")

(Shown at 0.1 scale)





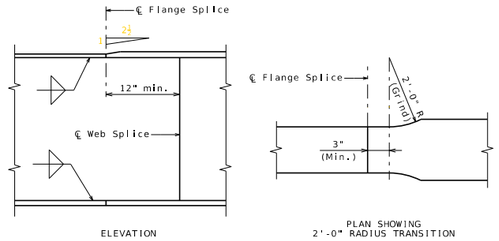
UPHDW Section thru upstream headwall for box culverts



SECTION THRU
UPSTREAM HEADWALL

WATER Water line (streams)

WELSP Welded shop web splice



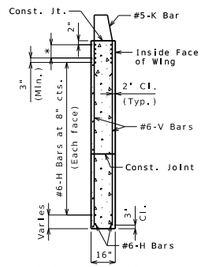
ELEVATION

PLAN SHOWING
2'-0" RADIUS TRANSITION

WELDED SHOP WEB AND FLANGE SPLICE

Welded shop web and flange splices may be permitted when detailed on the shop drawings and approved by the engineer. No additional payment will be made for optional welded shop web and flange splices.

WINGS1 Typical section thru end bent wing



TYPICAL SECTION
THRU WING

* #8-H Bars at 3" cts. (Each face)(Place with grade)

CELLS: Bridge_Notes.cel 12/22/2022

(Shown at full scale unless otherwise noted.) (In alphabetical order by cell name)

A2.0 Diaphragm End Detail for prestressed box beams

MoDOT Construction personnel will indicate the type of box culvert constructed:

☐ Precast Concrete Box used

☐ Cast-in-Place Concrete Box used

A5.6 Indicate type of joint filler

MoDOT Construction personnel will indicate the type of joint filler option used under the precast panels for this structure:

☐ Constant Joint Filler

☐ Variable Joint Filler

B3.1 Estimated Quantities table

Estimated Quantities

Item		Substr.	Superstr.	Total
Class 1 Excavation	cu. yard	X	X	X
Structural Steel Pile (in.)	linear foot			
Class B Concrete	cu. yard			
Type D Barrier	linear foot			
Reinforcing Steel (Bridges)	pound			

B3.11 Estimated Quantities table with Final Quantities (for culverts)

Estimated Quantities			Final Quantities
Class 4 Excavation	cu. yard		
Class B-1 Concrete (Culverts-Bridge) *	cu. yard		
Reinforcing Steel (Culverts-Bridge)	pound		

* Note to detailer: If distance from stream face to stream face of exterior walls is ≥ 20', then use (Culverts-Bridge); If < 20', use (Culverts).

B3.21 Estimated Quantities for Slab on _____ (Superstructure)

Estimated Quantities for X

Item		Total
Class B-2 Concrete	cu. yard	X
Reinforcing Steel (Epoxy Coated)	pound	X

The table of Estimated Quantities for represents the quantities used by the State in preparing the cost estimate for concrete slabs. The area of the concrete slab will be measured to the nearest square yard longitudinally from end of slab to end of slab and transversely from out to out of bridge slab (or with the horizontal dimensions as shown on the plan of slab). Payment for prestressed panels, stay-in-place corrugated steel forms, conventional forms, all concrete and epoxy coated reinforcing steel will be considered completely covered by the contract unit price for the slab. Variations may be encountered in the estimated quantities but the variations cannot be used for an adjustment in the contract unit price.

Method of forming the slab shall be as shown on the plans and in accordance with Sec 703. All hardware for forming the slab to be left in place as a permanent part of the structure shall be coated in accordance with ASTM A123 or ASTM B633 with a thickness class SC 4 and a finish type I, II or III.

B3.50 Optional Asphaltic Concrete Wearing Surface

Optional Asphaltic Concrete Wearing Surface

Type of Wearing Surface with Asphalt Binder Type	Mix Used (✓)
SP125BSM Mix with PG 76-22	
SP125BLP Mix with PG 76-22	
SP125BSM Mix with PG 70-22	
SP125CLP Mix with PG 70-22	

MoDOT construction personnel shall complete column labeled "Mix Used (✓)".

The contractor shall select one of the optional asphaltic concrete wearing surfaces listed in the table. The mixture shall be in accordance with Sec 403 and produced in accordance with Sec 404.

The area of the asphaltic concrete wearing surface will be measured and computed to the nearest square yard. This area will be measured transversely from out to out of wearing surface and longitudinally from end of slab to end of slab.

Payment for Optional Asphaltic Concrete Wearing Surface will be considered completely covered by the contract unit price per square yard.

B3.60 Optional Ultrathin Bonded Asphalt Wearing Surface

Optional Ultrathin Bonded Asphalt Wearing Surface	
Type of Wearing Surface	Mix Used (✓)
Type A	
Type B	
Type C	

MoDOT construction personnel will complete column labeled "Mix Used (✓)".

The contractor shall select one of the optional ultrathin bonded asphalt wearing surfaces listed in the table.

E1.2a Pile spacer/jacket checkbox

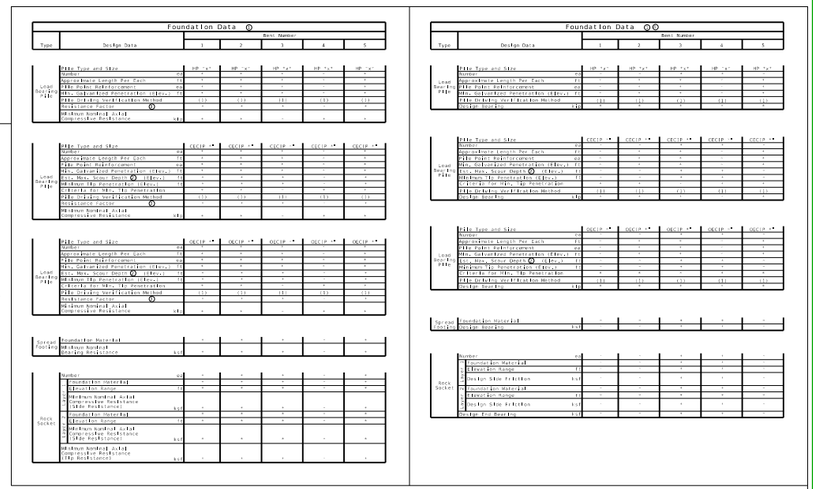
Pile Encasement	Option Used (✓)
Pipe Pile Spacer	
Pile Jacket	

E2.1 Foundation Date - LRFD and LFD

(Shown at 0.5 scale)

LRFD LFD

E2.1 LRFD and LFD



Cell Guidance (do not show on plans):

To create Foundation Data table for plan detail use the LRFD or LFD side of the cell drawing.

① Show only required CECIP/OECIP/HP pile data for specific project.

② Show maximum of total scour depths estimated for multiple return periods in years from Preliminary design which should be given on the Design Layout. Show the controlling return period (e.g. 100, 200, 500). If return periods are different for different bents, add a new line.

③ Resistance factor for pile driving verification method.

Replace all "*" in the table with specific data or if not applicable then show a dash.

If pile point reinforcement is required at specific bent then show "ALL" in the Foundation Data table otherwise show a dash.

On the plans, report the following definition(s) just below the Foundation Data table for required CIP Pile.

CECIP = Closed Ended Cast-in-Place concrete piles
OECIP = Open Ended Cast-in-Place concrete piles

If estimated maximum scour depth (elevation) is shown for CECIP piles or OECIP piles, then place EPG 751.50 E2.22 note under the Foundation Data table.

(1) Use either "DT", "DF", "WEAP" or "SLT" and show definitions below table that are required.

DT = Dynamic Testing
DF = Driving and Bearing Graphs Dynamic Pile Formula
WEAP = Wave Equation Analysis of Piles
SLT = Static Load Test

For LRFD, report equations for specific foundation type used. Remove unnecessary equations.

Load Bearing Piles → Minimum Nominal Axial Compression Resistance = Maximum Factored Loads / Resistance Factor
Spread Footings → Minimum Nominal Bearing Resistance = Maximum Factored Loads / Resistance Factor
Rock Socket → Minimum Nominal Axial Compression Resistance = Maximum Factored Loads / Resistance Factor (Side Resistance + Tip Resistance)

If piles are not used at intermediate bents, then replace corresponding pile data with a dash.

If spread footings or rock sockets are not used, remove from table corresponding rows.

If detached wing walls are used, modify table in accordance with EPG 751.50 E2.1.

If bearing piles (HP piles) and friction piles (CECIP and/or OECIP) are required for specific project then modify Foundation Data table in accordance with EPG 751.50 E2.1.

③ For LFD, place note E2.26 (EPG 751.50) below the Foundation Data table.

PILE DRIVING VERIFICATION METHOD	FACTOR OF SAFETY (LFD TABLE 4.5.6.2A)
DF	3.50
WEAP	2.75
DT	2.25
SLT	2.00

E3.2 Notice and Disclaimer Regarding Boring Log Data

Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown on the plan sheet(s) for this structure. The boring data for all locations indicated, as well as any other boring logs or other factual records of subsurface data and investigations performed by the department for the design of the project, are shown on Sheet(s) No. __ and may be included in the Electronic Bridge Deliverables. They will also be available from the Project Contact upon written request. No greater significance or weight should be given to the boring data depicted on the plan sheets than is given to the subsurface data available from the district or elsewhere.

The Commission does not represent or warrant that any such boring data accurately depicts the conditions to be encountered in constructing this project. A contractor assumes all risks it may encounter in basing its bid prices, time or schedule of performance on the boring data depicted here or those available from the district, or on any other documentation not expressly warranted, which the contractor may obtain from the Commission.

G4.1 Substructure Quantity Table for Bent No. _

Substructure Quantity Table for Bent No.		
Item		Quantity
Class 1 Excavation	cu. yard	x
Structural Steel Pile (in.)	linear foot	x
Class B Concrete (Substructure)	cu. yard	x
Reinforcing Steel (Bridges)	pound	x

These quantities are included in the Estimated Quantities table on Sheet No. .

H3.4; H3.9; H3.18 Indicates machine finish surface

Indicates machine finish surface.

I1.13 Optional Concrete Wearing Surface/Very Early Strength Concrete Wearing Surface

Optional Concrete Wearing Surface

Type of Concrete Wearing Surface	Type Used (✓)
Low Slump Concrete Wearing Surface	
Latex Modified Concrete Wearing Surface	
Silica Fume Concrete Wearing Surface	

MoDOT construction personnel will complete column labeled "Type Used (✓)".

The contractor shall select one of the alternate concrete wearing surfaces listed in the table. The alternate concrete wearing surface method of measurement and basis of payment shall be in accordance with Sec 505.

Optional Very Early Strength Concrete Wearing Surface

Type of Concrete Wearing Surface	Type Used (✓)
Latex Modified Very Early Strength Concrete Wearing Surface	
CSA Cement Very Early Strength Concrete Wearing Surface	

MoDOT construction personnel will complete column labeled "Type Used (✓)".

The contractor shall select one of the optional very early strength concrete wearing surfaces listed in the table. The optional very early strength concrete wearing surface method of measurement and basis of payment shall be in accordance with Sec 505.

Detailing Guidance
(Do not show on plans)

Use appropriate table and modify options as specified on the Bridge Memorandum.

I1.14 Optional Polymer Wearing Surface

Optional Polymer Wearing Surface

Type of Polymer Wearing Surface	Type Used (✓)
Epoxy Polymer Wearing Surface	
MMA Polymer Slurry Wearing Surface	

MoDOT construction personnel will complete column labeled "Type Used (✓)".

The contractor shall select one of the optional polymer concrete wearing surfaces listed in the table. The optional polymer concrete wearing surface method of measurement and basis of payment shall be in accordance with Sec 623.

J1.16 MSE Wall System Data Table

MSE Wall Systems Data Table

Proprietary Wall Systems		Combination Wall Systems			
Manufacturer	System	Facing Unit Manufacturer	Facing Unit	Geogrid Manufacturer	Geogrid

MSE Wall Systems Data Table is to be completed by MoDOT construction personnel to record the manufacturer of the proprietary wall system or the manufacturers of the combination wall system that was used for constructing the MSE wall.

K1.19 Indicate type of bridge appoach slab used

MoDOT Construction personnel will indicate the bridge approach slab used for this structure:

- ☐ Concrete Bridge Approach Slab
- ☐ Asphalt Bridge Approach Slab