

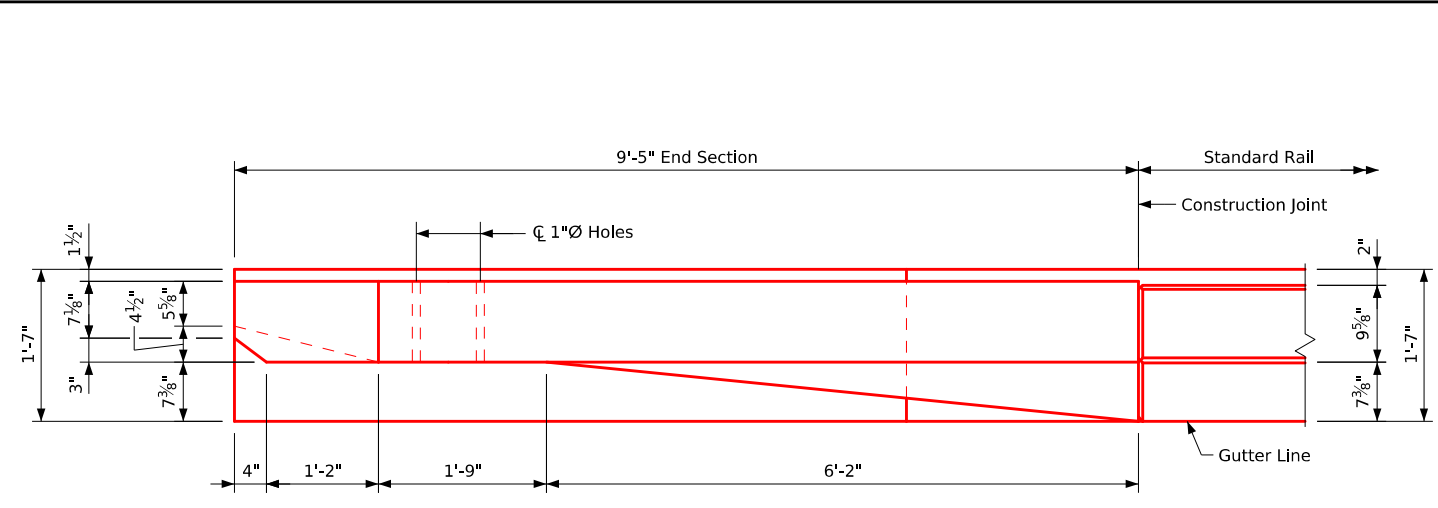
Revised 07-19 - Changed Standards 1065 & 1066 Titles Referring to "Slab" as "Deck".
 Issued 02-10.
 DeckRailBridges.dgn - 100-DR - This Sheet Re-Issued 05-2024. Sheet Format Update.

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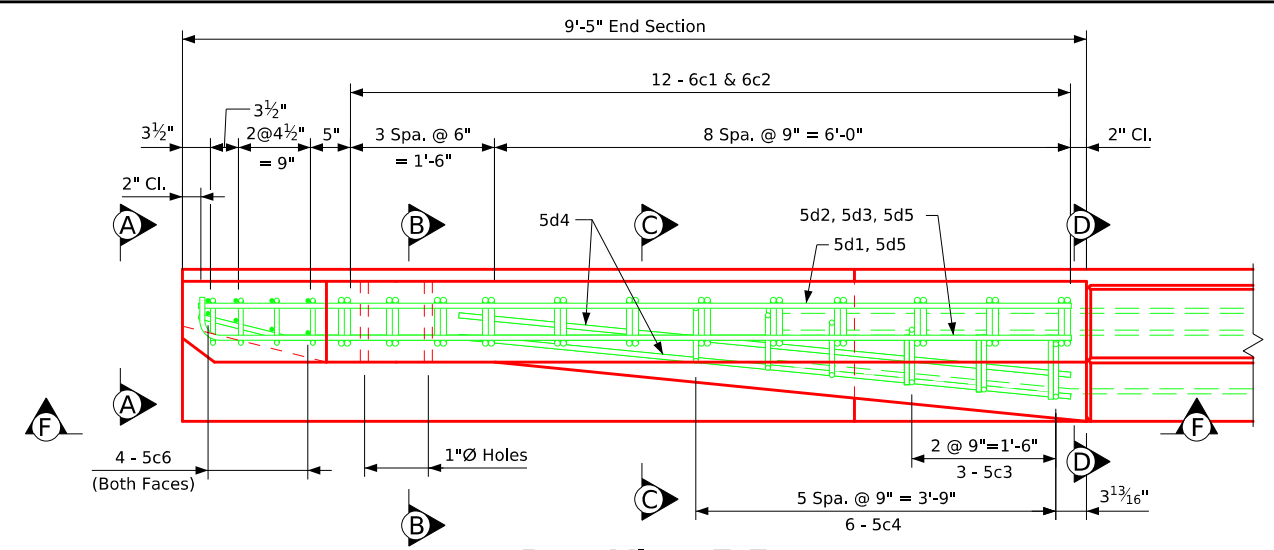
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1018SA-2	Barrier Rail (TSS TL-4) (Stainless) - RA Skew Stub Abut. w/Wing Ext. (2 of 2)
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1018SC-2	Barrier Rail (TSS TL-5) (Stainless) - RA Skew Stub Abut. w/Wing Ext. (2 of 2)
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1020SB-2	Barrier Rail (TSS TL-4) (Stainless) - Stub Abut. w/Wing Ext. (2 of 2)
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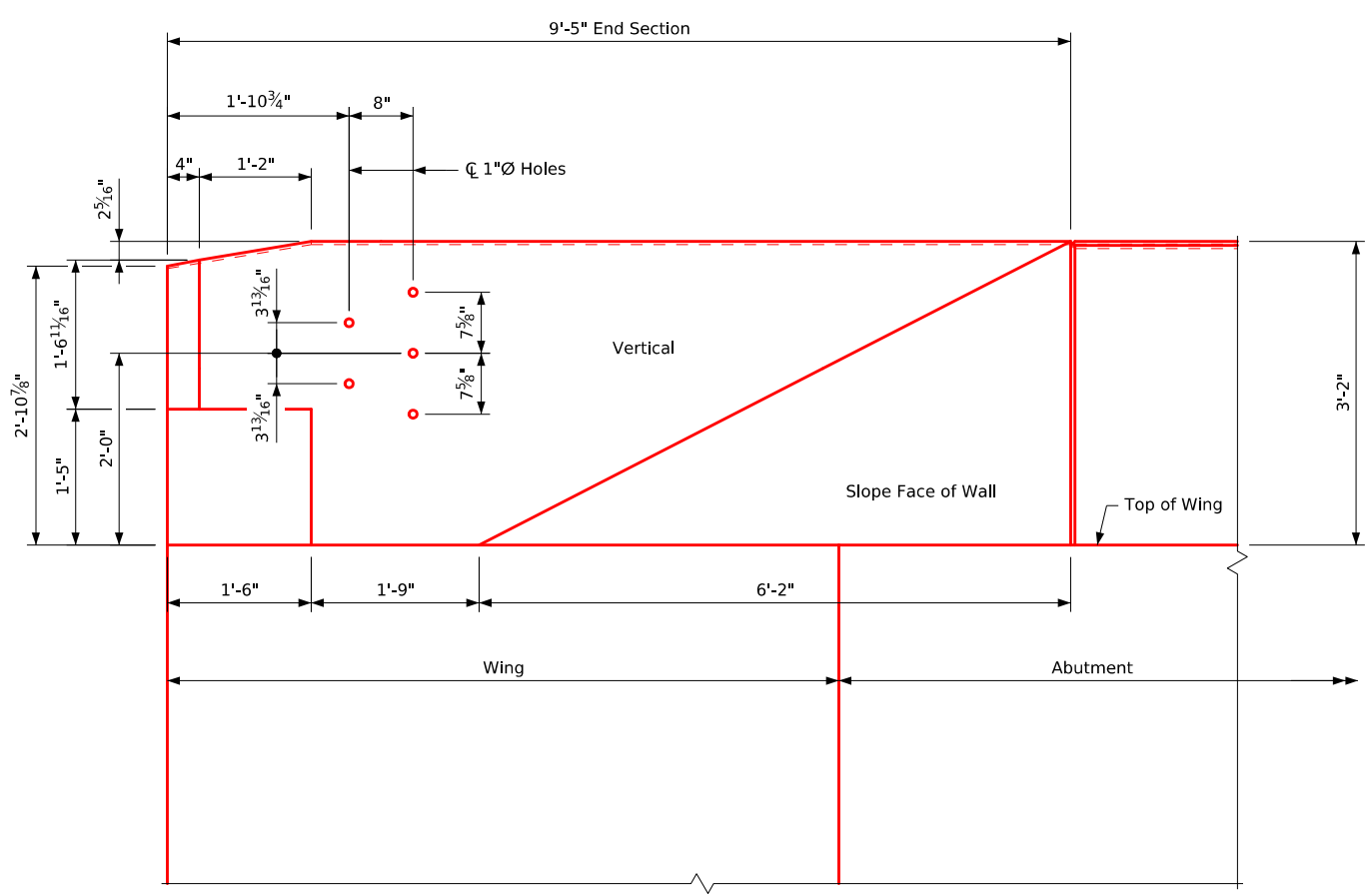
Revised 04-14: Added Note to Include Reinforcing Steel to the Summary Quantity Sheet. Issued 09-01. DeckRailBridges.dgn - 1017-1 - This Sheet Re-Issued 05-2024. Sheet Format Update. (Sheet number was originally 1017).



Part Plan View

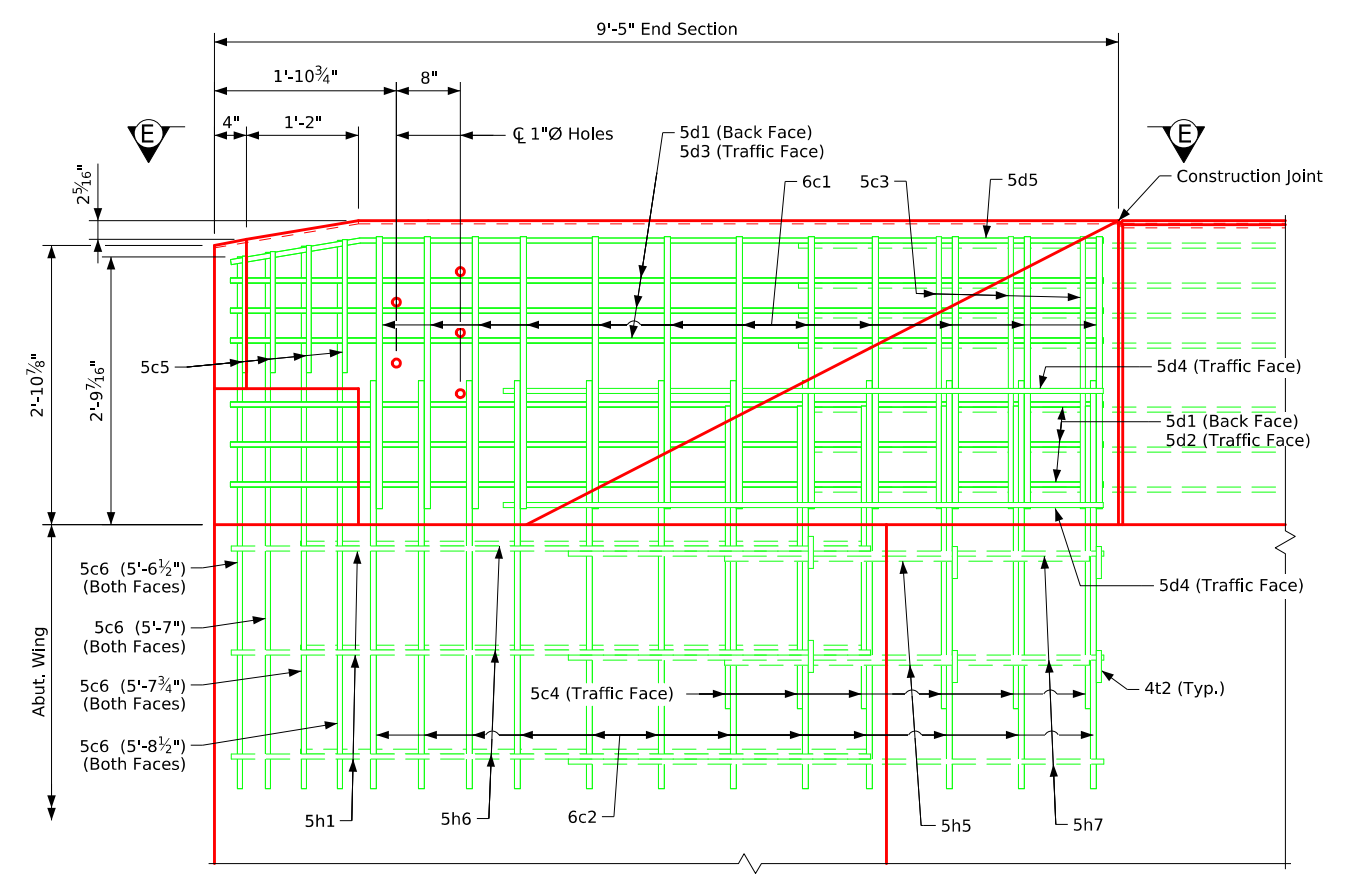


Part View E-E



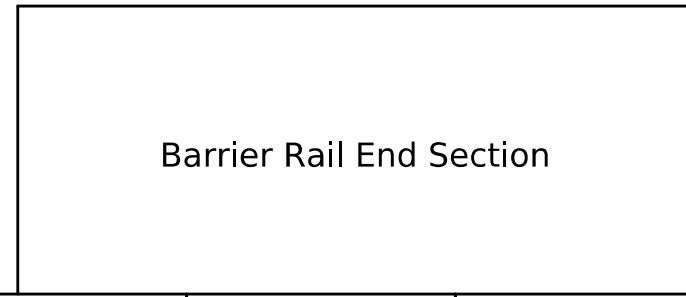
Part Elevation View

Provide 5 holes formed with 1"Ø plastic conduit.
Cost to be included in price of bid for Concrete Barrier Railing.



Part View F-F

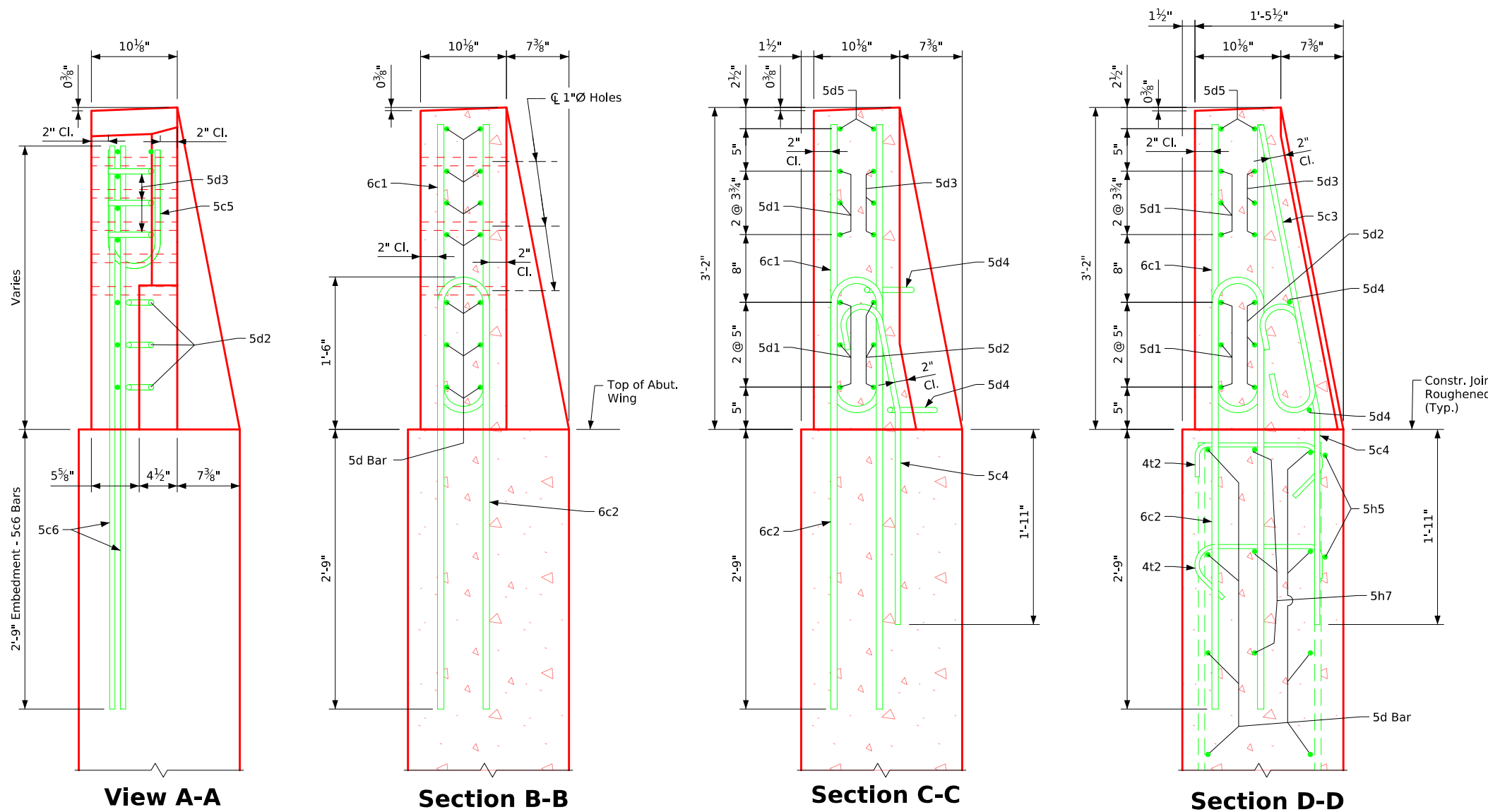
Notes: 4t2 placement - 3 bars each at top two rows of 5h1/d bars in abutment wing and abutment wing extension.
Construction joint between top of abutment wing and abutment wing extension with barrier rail is roughened concrete.
The 6c2, 5c4, 5c6, and 4t2 bars are to be placed with the abutment wing and abutment wing extension. The details for placement are shown on the Abutment Wing Sheet and Abutment Wing Extension Sheet.
Dashed lines below the top of wing are the abutment wing reinforcing steel.
See Abutment Wing Sheet and Abutment Wing Extension Sheet for placement.
For Bar List, Bent Bar Details, View A-A, Sections B-B, C-C, and D-D see Design Sheet No. ??.



Barrier Rail End Section

FILE NO.	ENGLISH	DESIGN TEAM	Barrier Rail End Section (1 of 2)	Standard Sheet 1017-1	COUNTY	PROJECT NUMBER	SHEET NUMBER
9:18:14 PM	5/8/2024	bkloss	pw:\NTP\wint1.dot.int.lan:PWMain\Documents\Highway\Bridge\Standards\Bridges\DeckRailBridges.dgn				

DeckRailBridges.dgn - 1017-2 - This Sheet Issued 05-2024. Additional Sheet for Clarity. (Sheet Number was Originally 1017).



Abutment wing bars in View A-A and Sections B-B & C-C are not shown for clarity.

Notes: 4t2 placement - 3 bars each at top two rows of 5h1/d bars in abutment wing and abutment wing extension.
 Construction joint between top of abutment wing and abutment wing extension with barrier rail is roughened concrete.
 The 6c2, 5c4, 5c6, and 4t2 bars are to be placed with the abutment wing and abutment wing extension. The details for placement are shown on the Abutment Wing Sheet and Abutment Wing Extension Sheet.
 Dashed lines below the top of wing are the abutment wing reinforcing steel.
 See Abutment Wing Sheet and Abutment Wing Extension Sheet for placement.
 For Plan and Elevation see Design Sheet No. ??.

Epoxy Coated Reinforcing Steel - One End Section

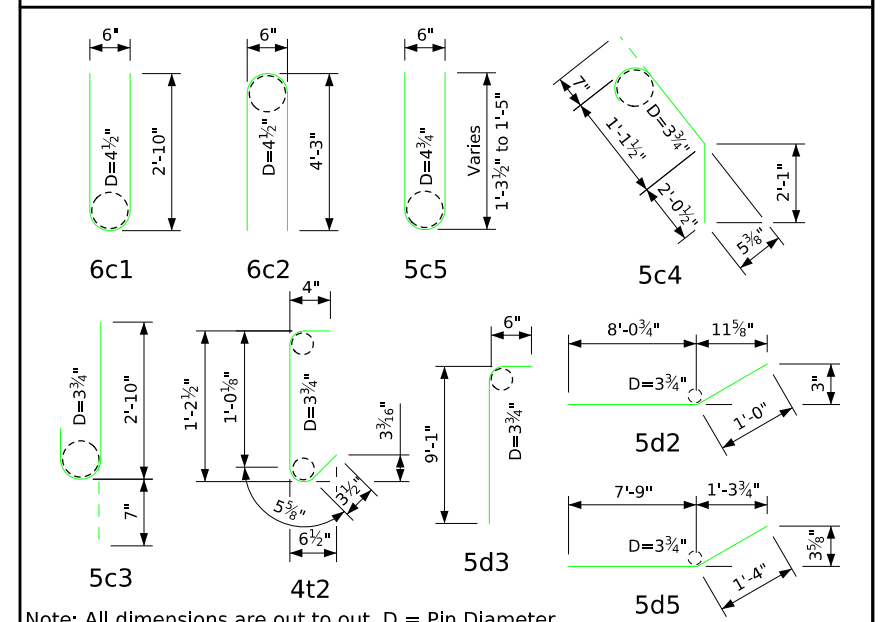
Bar	Location	Shape	No.	Length	Weight
6c1	Rail, Vertical		12	5'-11"	107
6c2	Rail, Vertical		12	8'-9"	158
5c3	Rail, Vertical (Traffic Face)		3	3'-5"	11
5c4	Rail, Vertical (Traffic Face)		6	3'-10"	24
5c5	Rail, Vertical (End)		4	Varies	14
5c6	Rail, Vertical (End)		8	Varies	47
5d1	Rail, Horizontal (Back Face)		6	9'-1"	57
5d2	Rail, Horizontal (Traffic Face)		3	9'-1"	28
5d3	Rail, Horizontal (Traffic Face)		3	9'-7"	30
5d4	Rail, Horizontal (Traffic Face)		2	6'-3"	13
5d5	Rail, Horizontal (Top)		2	9'-1"	19
4t2	Rail, Abutment Wing Tie Bars		6	2'-0"	8

Epoxy Reinforcing Total Weight (lbs.) 516

Concrete Placement Summary

Section	Total
Barrier Rail, One End Section	1.0 cu. yd.

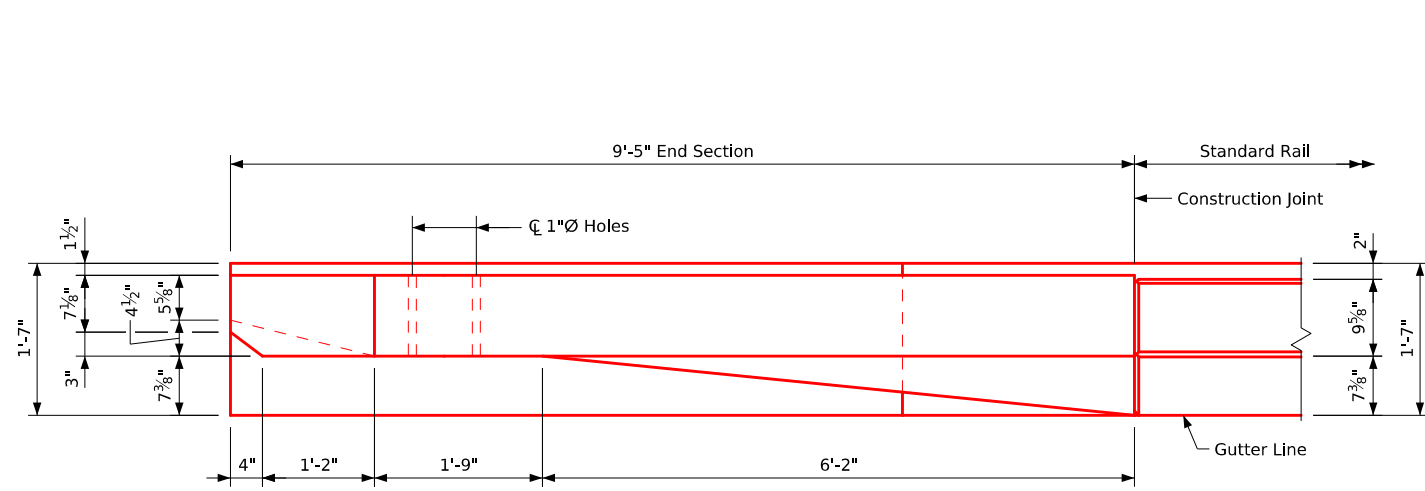
Bent Bar Details



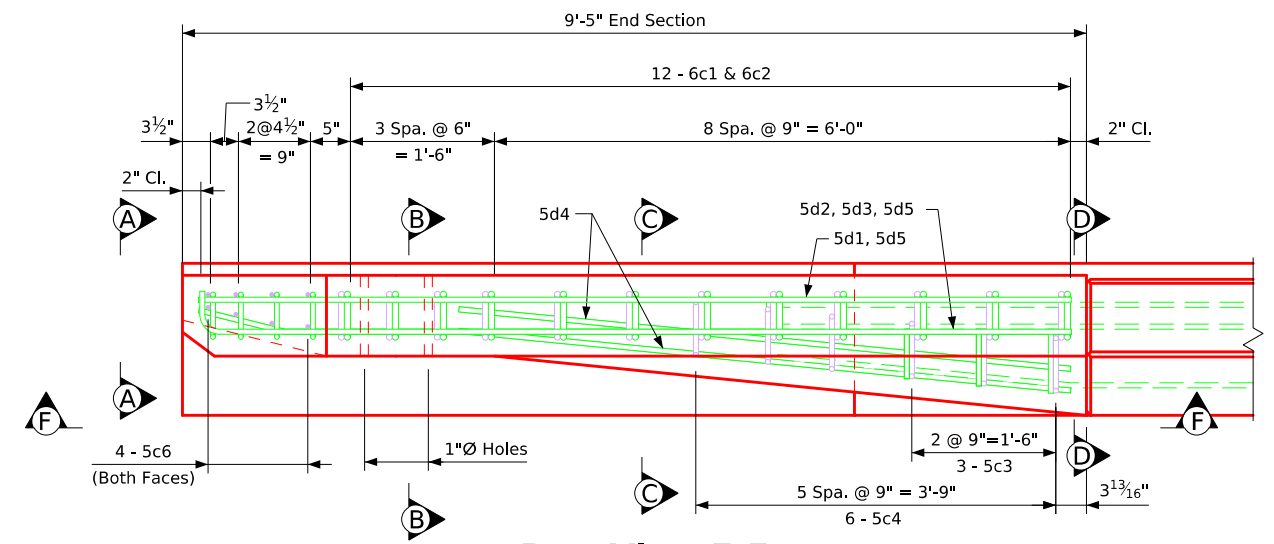
Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

Barrier Rail End Section

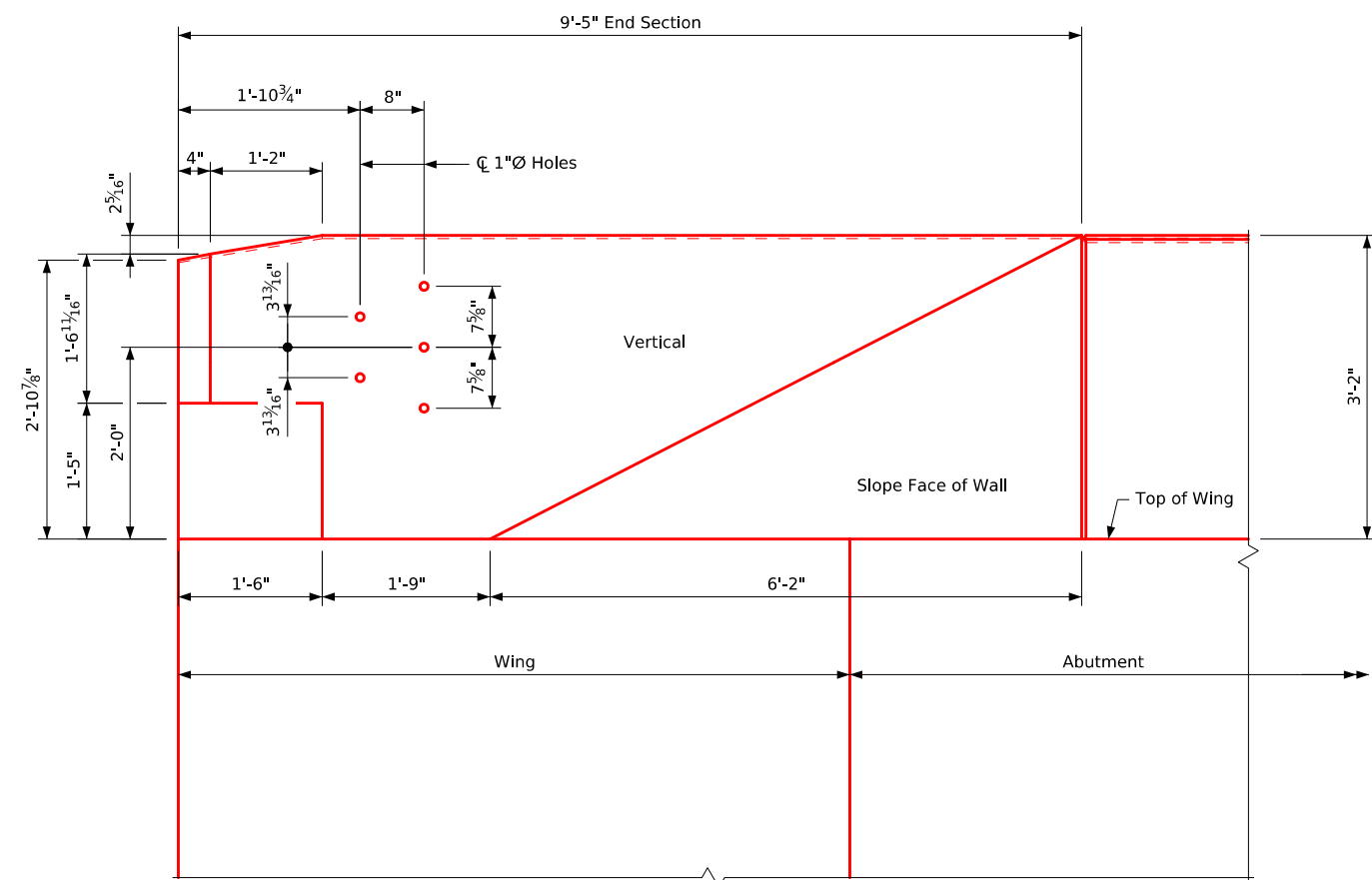
Issued 04-14; Added Stainless Steel Reinforcing Bar List and Changed 6c3, 6c4 & 5c5-10 Bars to Stainless Steel. DeckRailBridges.dgn - 1017 S-1 - This Sheet Re-Issued 05-2024. Sheet Format Update. (Sheet Number was Originally 1017S).



Part Plan View

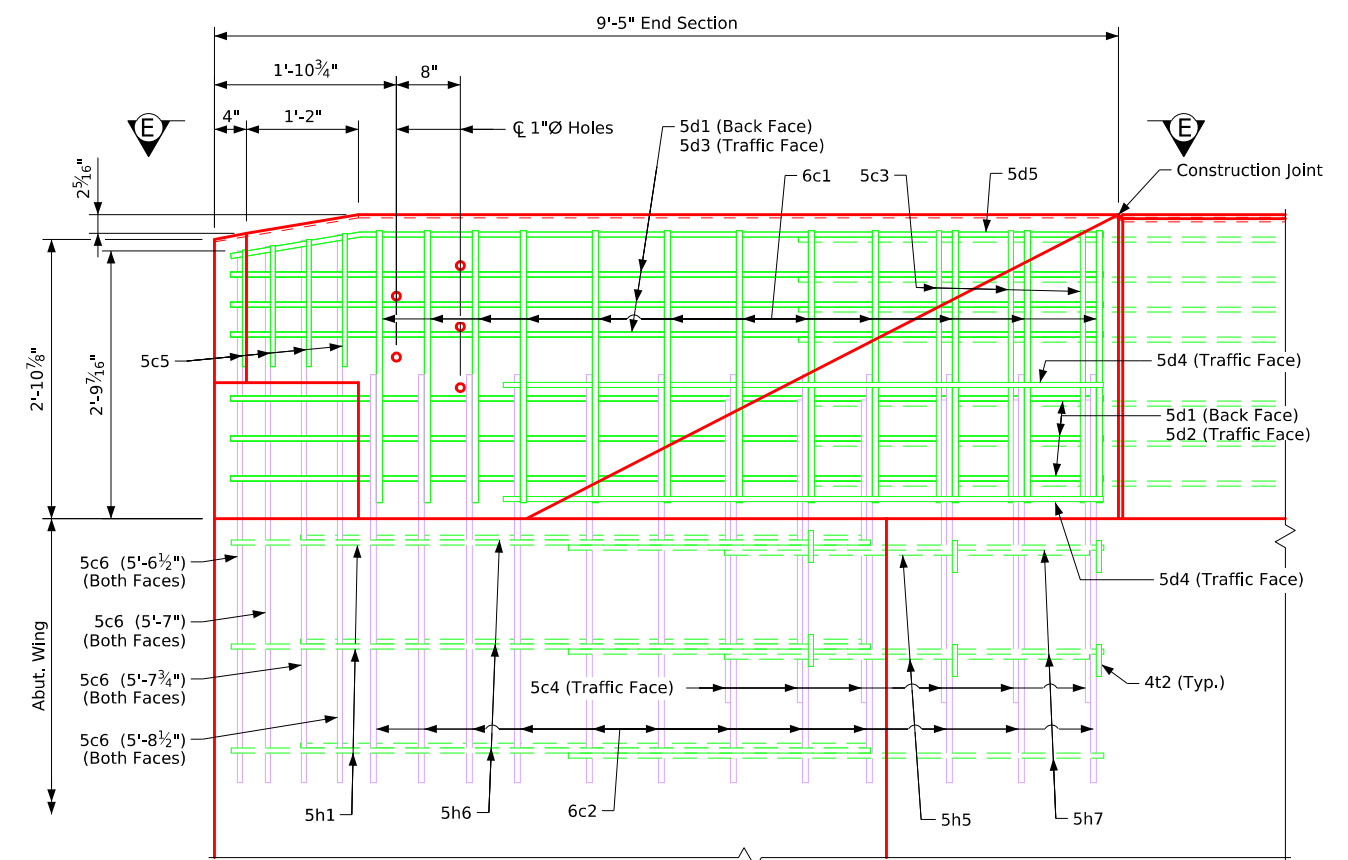


Part View E-E



Part Elevation View

Provide 5 holes formed with 1"Ø plastic conduit.
Cost to be included in price of bid for Concrete Barrier Railing.



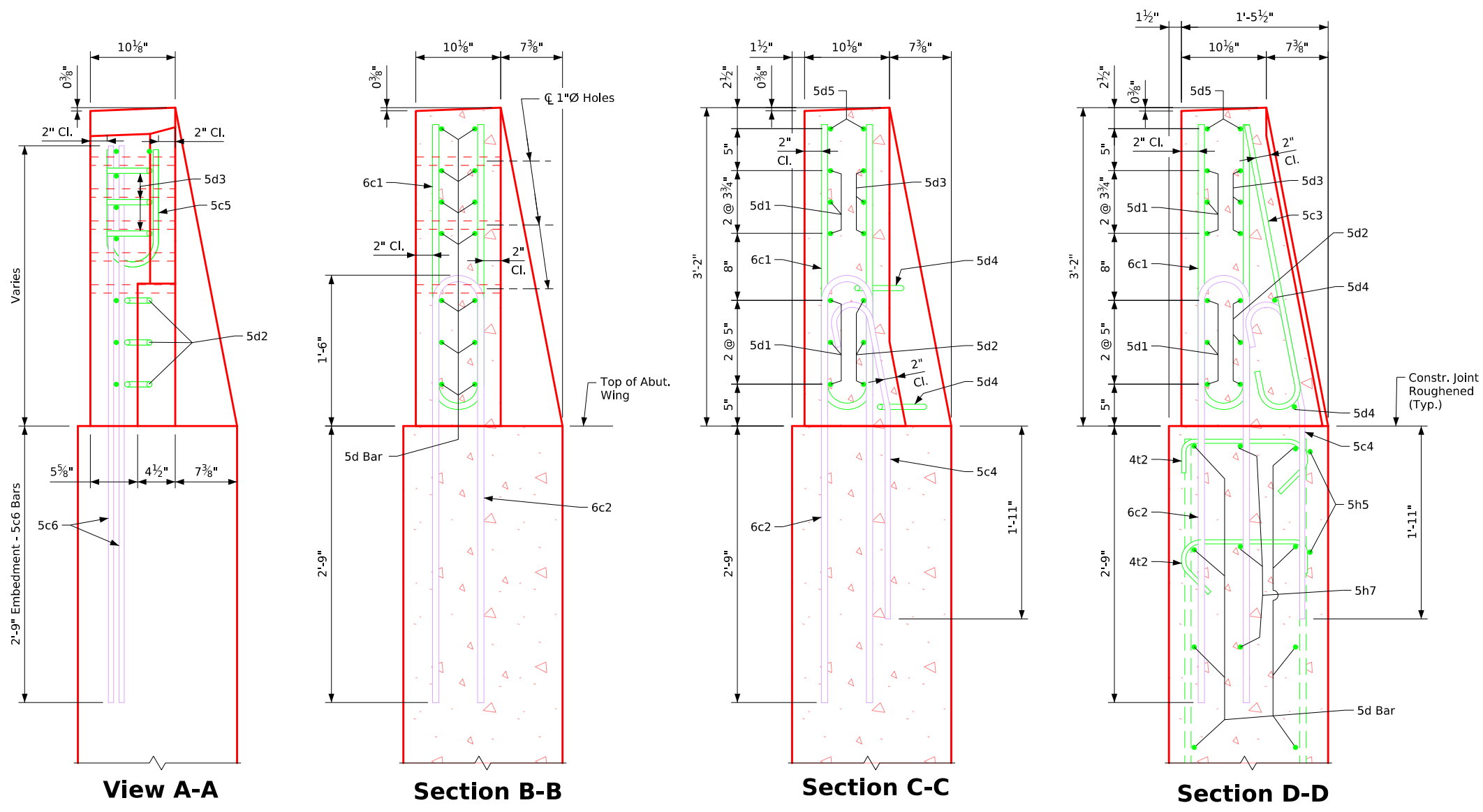
Part View F-F

Notes: 4t2 placement - 3 bars each at top two rows of 5h1/d bars in abutment wing and abutment wing extension.
Construction joint between top of abutment wing and abutment wing extension with barrier rail is roughened concrete.
The 6c2, 5c4, 5c6, and 4t2 bars are to be placed with the abutment wing and abutment wing extension. The details for placement are shown on the Abutment Wing Sheet and Abutment Wing Extension Sheet.
Dashed lines below the top of wing are the abutment wing reinforcing steel.
See Abutment Wing Sheet and Abutment Wing Extension Sheet for placement.
For Bar List, Bent Bar Details, View A-A, Sections B-B, C-C, and D-D see Design Sheet No. ??.

Barrier Rail End Section (Stainless)

FILE NO.	ENGLISH	DESIGN TEAM	Barrier Rail End Section (Stainless) - (1 of 2)	Standard Sheet 1017S-1	COUNTY	PROJECT NUMBER	SHEET NUMBER
9:18:16 PM	5/8/2024	bkloss	pw:\NTP\wint1.dot.int.lan:PWWMain\Documents\Highway\Bridge\Standards\Bridges\DeckRailBridges.dgn				

DeckRailBridges.dgn - 10175-2 - This Sheet Issued 05-2024. Revised to Single Slope Barrier Shape. Additional Sheet for Clarity. (Sheet Number was Originally 10175).



Abutment wing bars in View A-A and Sections B-B & C-C are not shown for clarity.

Notes: 4t2 placement - 3 bars each at top two rows of 5h1/d bars in abutment wing and abutment wing extension.
 Construction joint between top of abutment wing and abutment wing extension with barrier rail is roughened concrete.
 The 6c2, 5c4, 5c6, and 4t2 bars are to be placed with the abutment wing and abutment wing extension. The details for placement are shown on the Abutment Wing Sheet and Abutment Wing Extension Sheet.
 Dashed lines below the top of wing are the abutment wing reinforcing steel.
 See Abutment Wing Sheet and Abutment Wing Extension Sheet for placement.
 For Plan and Elevation see Design Sheet No. ??.

Epoxy Coated Reinforcing Steel - One End Section

Bar	Location	Shape	No.	Length	Weight
6c1	Rail, Vertical		12	5'-11"	107
5c3	Rail, Vertical (Traffic Face)		3	3'-5"	11
5c5	Rail, Vertical (End)		4	Varies	14
5d1	Rail, Horizontal (Back Face)		6	9'-1"	57
5d2	Rail, Horizontal (Traffic Face)		3	9'-1"	28
5d3	Rail, Horizontal (Traffic Face)		3	9'-7"	30
5d4	Rail, Horizontal (Traffic Face)		2	6'-3"	13
5d5	Rail, Horizontal (Top)		2	9'-1"	19
4t2	Rail, Abutment Wing Tie Bars		6	2'-0"	8
Epoxy Reinforcing Total Weight (lbs.)					287

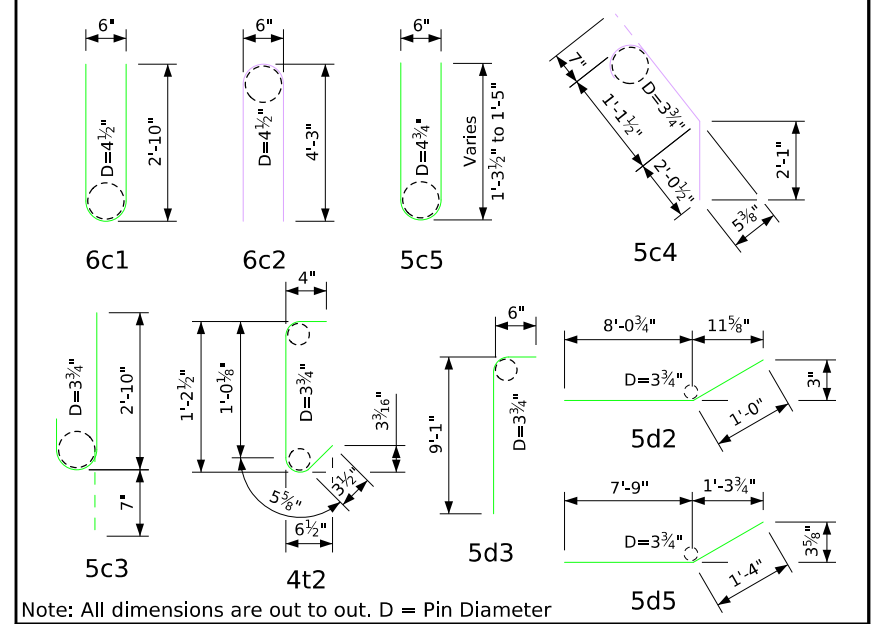
Stainless Steel Reinforcing Steel - One End Section

Bar	Location	Shape	No.	Length	Weight
6c2	Rail, Vertical		12	8'-9"	158
5c4	Rail, Vertical (Traffic Face)		6	3'-10"	24
5c6	Rail, Vertical (End)		8	Varies	47
Stainless Steel Reinforcing Total Weight (lbs.)					229

Concrete Placement Summary

Section	Total
Barrier Rail, One End Section	1.0 cu. yd.

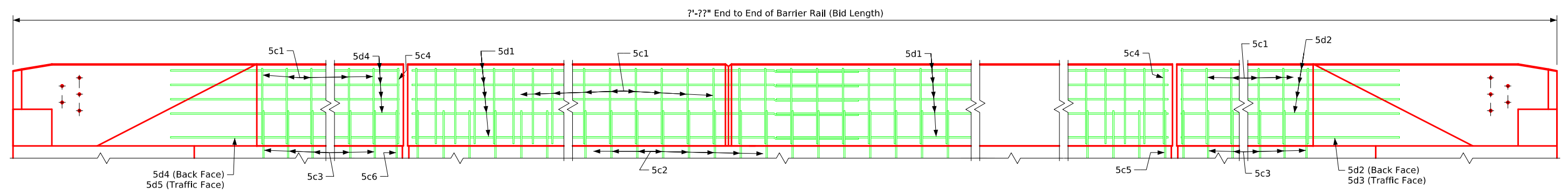
Bent Bar Details



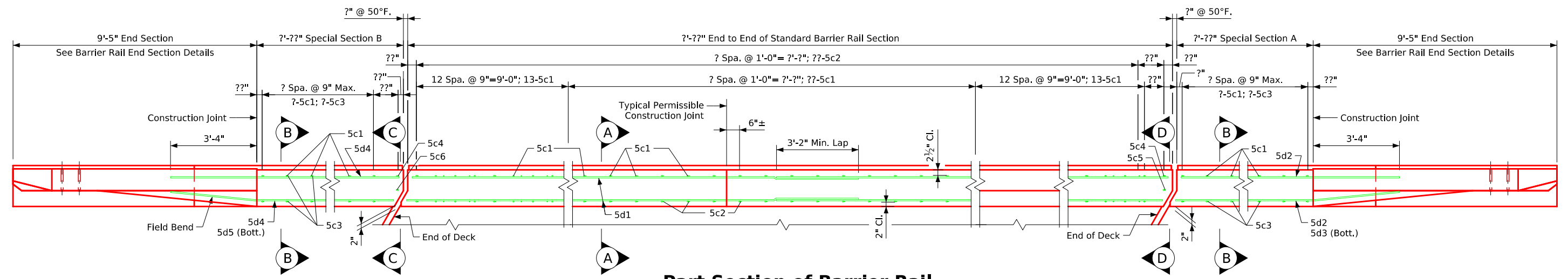
Note: All dimensions are out to out. D = Pin Diameter
 Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

Barrier Rail End Section (Stainless)

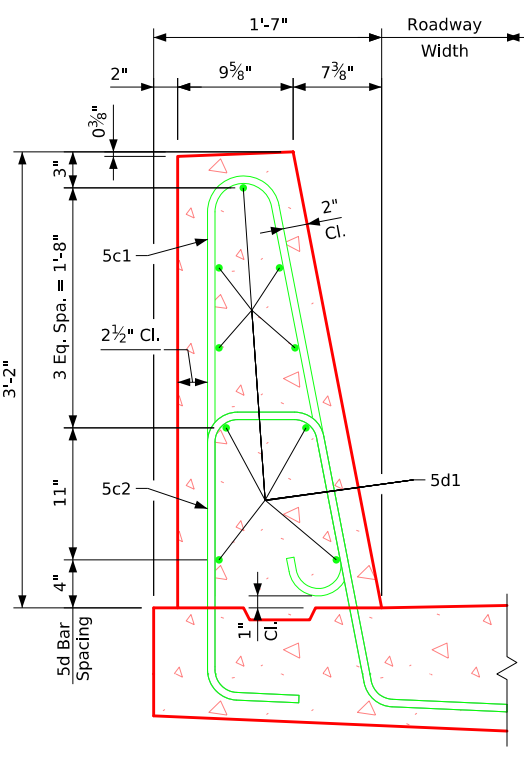
Correction 04-14: Added Note to Include Reinforcing Steel to the Summary Quantities Sheet. Removed End Section Quantities from Bar List & Concrete Placement Summary. Reissued 09-01 for F Shape. Barrier Rail End Section Details Moved to Standard Sheet 1017. DeckRailBridges.dgn - 1018-1 - This Sheet Re-Issued 05-2024. Revised to Single Slope Barrier Shape. Sheet Format Update. (Sheet Number was Originally 1018).



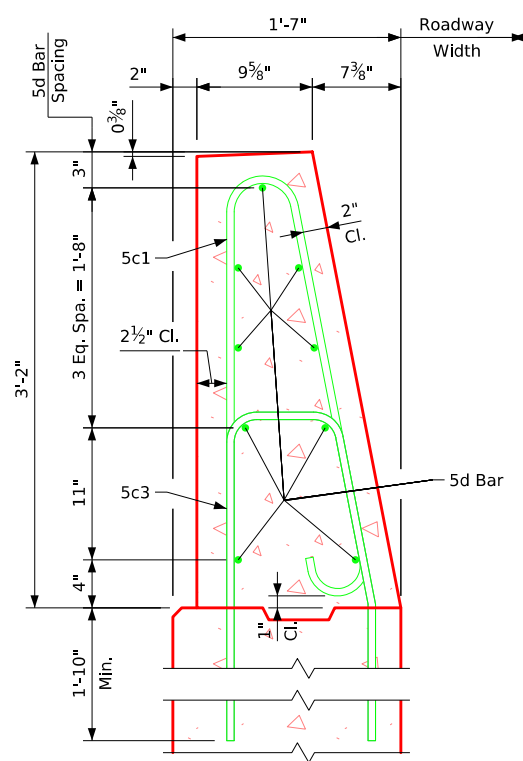
Elevation of Barrier Rail



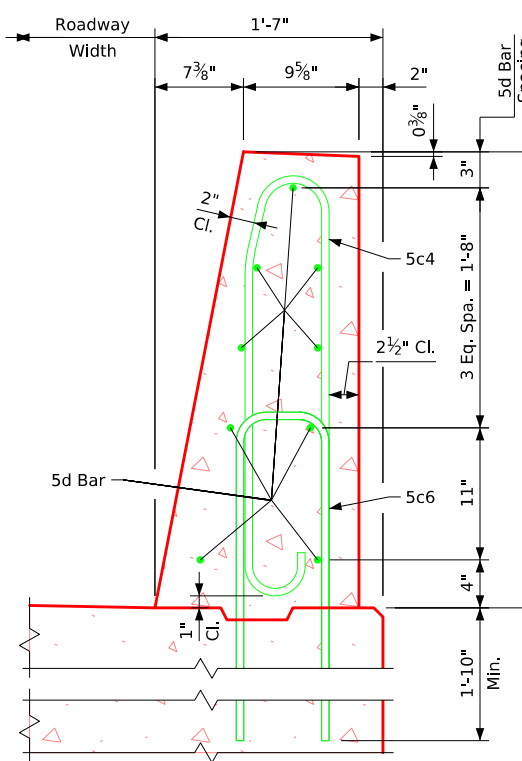
Part Section of Barrier Rail



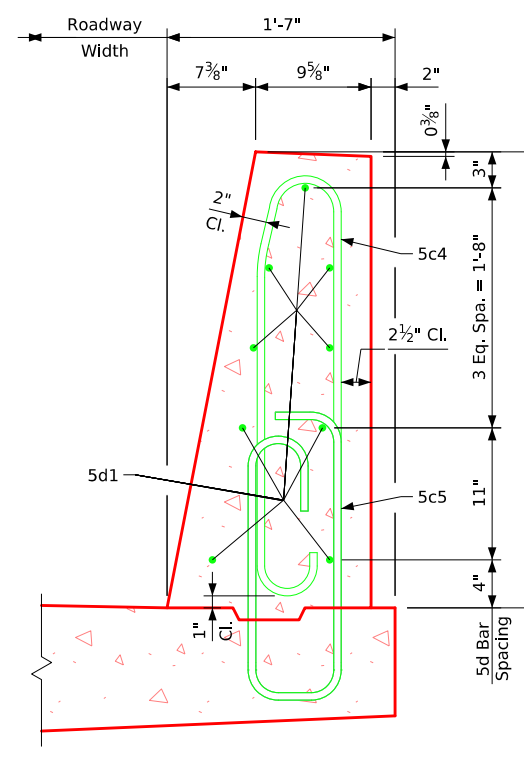
Part Section A-A



Part Section B-B



Part Section C-C



Part Section D-D

See Barrier Rail Details on Design Sheet No. ?? for notes, reinforcing steel details, and quantities.

Barrier Rail (TL-4)-LA Skew Stub Abut.

FILE NO.	ENGLISH	DESIGN TEAM	Barrier Rail (TSS TL-4) - LA Skew Stub Abut. w/Wing Ext. (1 of 2)	Standard Sheet 1018-1	COUNTY	PROJECT NUMBER	SHEET NUMBER
9:18:17 PM	5/8/2024	bkloss	pw:\NTP\int1.dot.int.lan:PWMain\Documents\Highway\Bridges\Standards\Bridges\DeckRailBridges.dgn				

Barrier Rail Notes:

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.
 The permissible construction joints are to be placed between vertical bars at a minimum spacing of 20 feet. Construction joint contact surfaces are to be coated with an approved bond breaker.

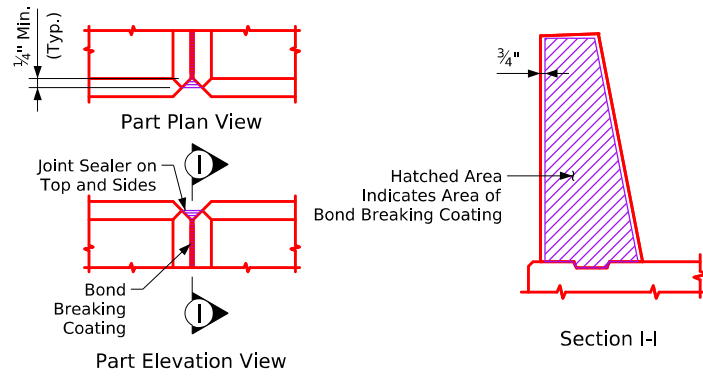
Cost of the joint sealer and bond breaker shall be considered incidental to other construction.

All barrier rail reinforcing steel is to be epoxy coated as shown.
 The concrete barrier rail is to be bid on a lineal foot basis. The number of linear feet of barrier rail installed will be paid for at the contract price per lineal foot based on plan quantities. Price bid for concrete barrier railing shall be full compensation for furnishing all material, excluding reinforcing steel, and all of the equipment and labor required to erect the rail in accordance with these plans and current specifications. If conduit is required in this plan the rigid steel conduit, junction boxes and fittings including labor and any additional work to do the installation is considered incidental to the cost of the railing.

The joint sealer shall be light gray nonsag latex caulking sealer marketed for outdoor use. No testing or certification is required.

Top of the barrier rail is to be parallel to the theoretical C grade.
 All exposed corners on the top of the barrier and all other corners 90° or sharper to be filleted with a 3/4" dressed and beveled strip.

Cross sectional area of the Standard and Special Sections of the barrier rail = 3.50 square feet.



Barrier Rail Joint Details

Epoxy Coated Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c1	Rail, Vertical		?	6'-8"	?
	5c2	Rail, Vertical		?	7'-3"	?
	5c4	Rail, Vertical		2	6'-8"	14
	5c5	Rail, Vertical		2	5'-2"	11
	5d1	Rail, Longitudinal		?	?'-??"	?
Special Section A	5c1	Rail, Vertical		?	6'-8"	?
	5c3	Rail, Vertical		?	7'-2"	?
	5d2	Rail, Longitudinal		16	?'-??"	?
	5d3	Rail, Longitudinal, Traffic Face, Bott.		2	?'-??"	?
Special Section B	5c1	Rail, Vertical		?	6'-8"	?
	5c3	Rail, Vertical		?	7'-2"	?
	5c4	Rail, Vertical		2	6'-8"	14
	5c6	Rail, Vertical		2	7'-0"	15
	5d4	Rail, Longitudinal		16	?'-??"	?
5d5	Rail, Longitudinal, Traffic Face, Bott.		2	?'-??"	?	
Epoxy Reinf. Total Weight (lbs.)						?

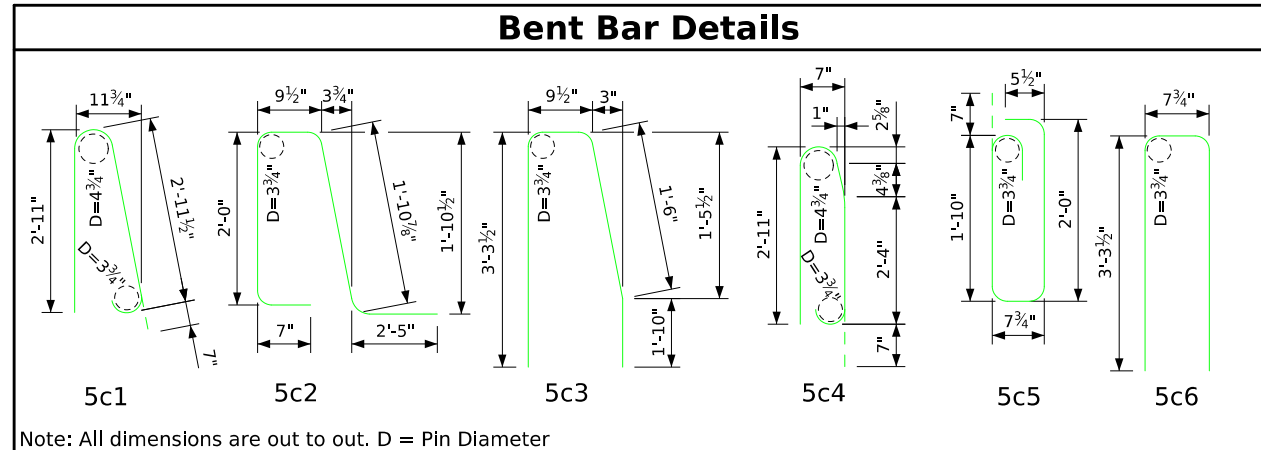
Concrete Placement Summary

Section	Total	
Standard Section ?'-??" at 0.130 cu. yd. per ft.	??	
Special Section A ?'-??" at 0.130 cu. yd. per ft.	??	
Special Section B ?'-??" at 0.130 cu. yd. per ft.	??	
Total (cu. yd.)		??

Concrete Barrier Rail Quantities

Item	Unit	Quantity
Concrete Barrier Railing	L.F.	??

Bent Bar Details



Note: All dimensions are out to out. D = Pin Diameter

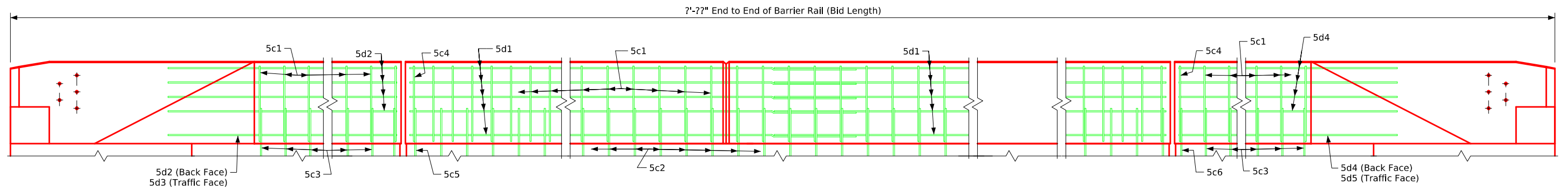
Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

See Barrier Rail Details on Design Sheet No. ?? for details and sections.

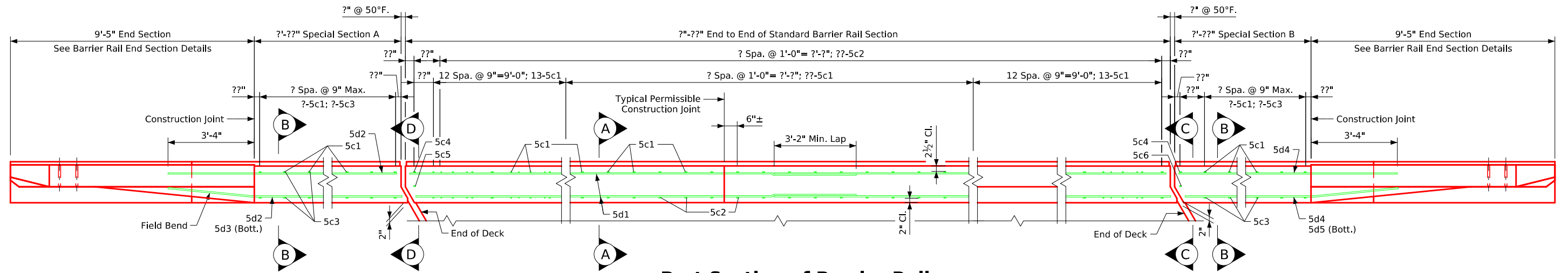
Barrier Rail (TL-4)-LA Skew Stub Abut.

DeckRailBridges.dgn - 1018-2 - This Sheet Issued 05-2024. Additional Sheet for Clarity. (Sheet Number was Originally 1018).

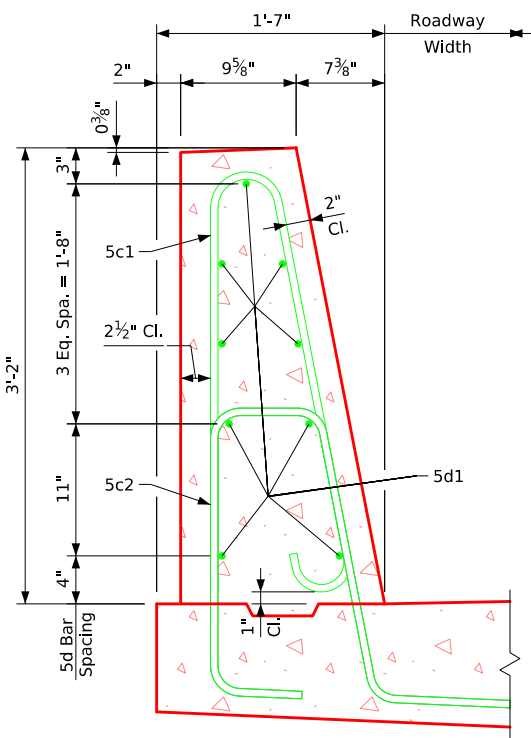
Correction 04-14: Added Note to Include Reinforcing Steel to Summary Quantities Sheet. Removed End Section Quantity from Bar List & Concrete Placement Summary. Issued 09-01 for F-shape. DeckRailBridges.dgn - 1018A-1 - This Sheet Re-Issued 05-2024. Revised to Single Slope Barrier Shape. Sheet Format Update. (Sheet Number was Originally 1018A).



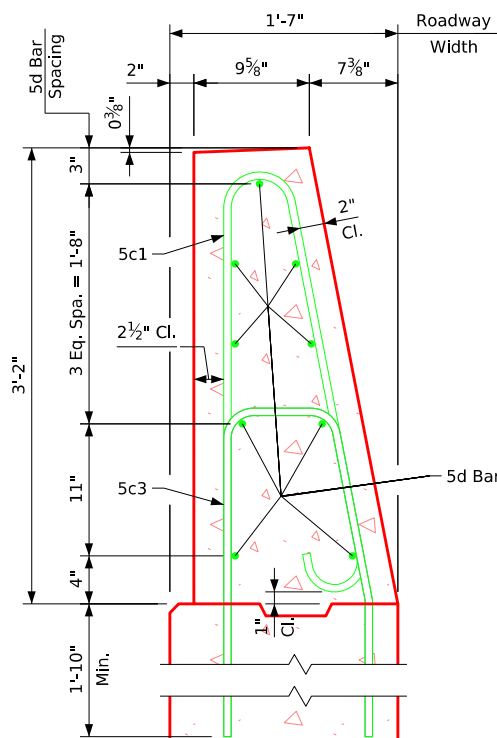
Elevation of Barrier Rail



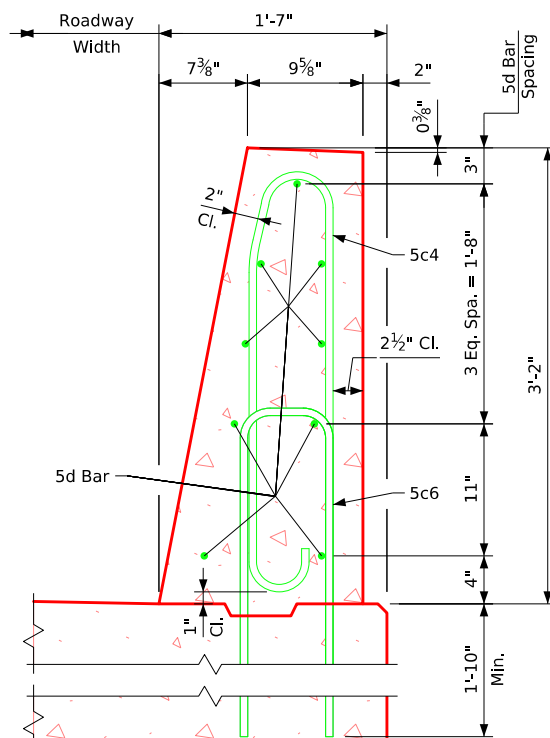
Part Section of Barrier Rail



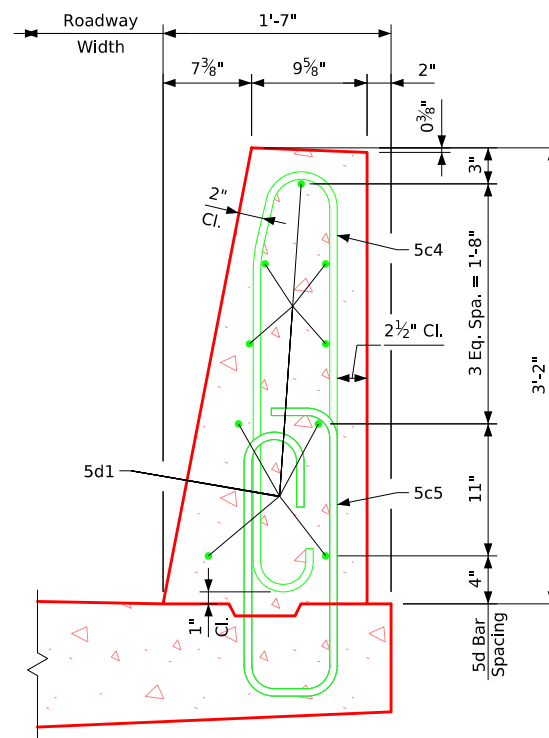
Part Section A-A



Part Section B-B



Part Section C-C



Part Section D-D

See Barrier Rail Details on Design Sheet No. ?? for notes, reinforcing steel details, and quantities.

Barrier Rail (TL-4)-RA Skew Stub Abut.

FILE NO.	ENGLISH	DESIGN TEAM	Barrier Rail (TSS TL-4) - RA Skew Stub Abut. w/Wing Ext. (1 of 2)	Standard Sheet 1018A-1	COUNTY	PROJECT NUMBER	SHEET NUMBER
9:18:19 PM	5/8/2024	bkloss	pw:\NTP\int1.dot.int.lan:PWMain\Documents\Highway\Bridges\Standards\Bridges\DeckRailBridges.dgn				

Barrier Rail Notes:

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.
 The permissible construction joints are to be placed between vertical bars at a minimum spacing of 20 feet. Construction joint contact surfaces are to be coated with an approved bond breaker.

Cost of the joint sealer and bond breaker shall be considered incidental to other construction.

All barrier rail reinforcing steel is to be epoxy coated as shown.

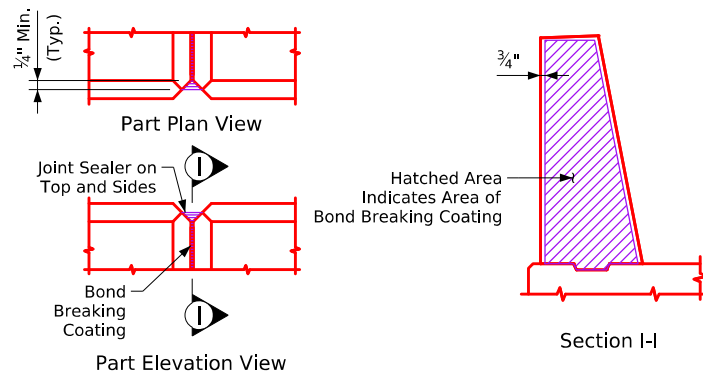
The concrete barrier rail is to be bid on a lineal foot basis. The number of linear feet of barrier rail installed will be paid for at the contract price per lineal foot based on plan quantities. Price bid for concrete barrier railing shall be full compensation for furnishing all material, excluding reinforcing steel, and all of the equipment and labor required to erect the rail in accordance with these plans and current specifications. If conduit is required in this plan the rigid steel conduit, junction boxes and fittings including labor and any additional work to do the installation is considered incidental to the cost of the railing.

The joint sealer shall be light gray nonsag latex caulking sealer marketed for outdoor use. No testing or certification is required.

Top of the barrier rail is to be parallel to the theoretical C grade.

All exposed corners on the top of the barrier and all other corners 90° or sharper to be filleted with a 3/4" dressed and beveled strip.

Cross sectional area of the Standard and Special Sections of the barrier rail = 3.50 square feet.



Barrier Rail Joint Details

Epoxy Coated Reinf. Steel - Two Rails

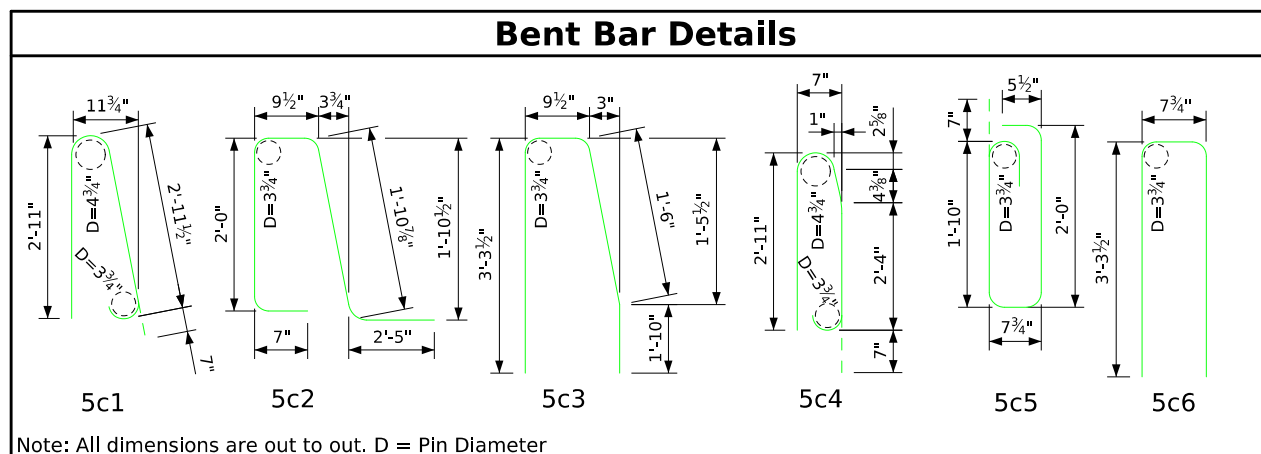
Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c1	Rail, Vertical		?	6'-8"	?
	5c2	Rail, Vertical		?	7'-3"	?
	5c4	Rail, Vertical		2	6'-8"	14
	5c5	Rail, Vertical		2	5'-2"	11
	5d1	Rail, Longitudinal		?	?'-??"	?
Special Section A	5c1	Rail, Vertical		?	6'-8"	?
	5c3	Rail, Vertical		?	7'-2"	?
	5d2	Rail, Longitudinal		16	?'-??"	?
	5d3	Rail, Longitudinal, Traffic Face, Bott.		2	?'-??"	?
Special Section B	5c1	Rail, Vertical		?	6'-8"	?
	5c3	Rail, Vertical		?	7'-2"	?
	5c4	Rail, Vertical		2	6'-8"	14
	5c6	Rail, Vertical		2	7'-0"	15
	5d4	Rail, Longitudinal		16	?'-??"	?
5d5	Rail, Longitudinal, Traffic Face, Bott.		2	?'-??"	?	
Epoxy Reinf. Total Weight (lbs.)						?

Concrete Placement Summary

Section	Total
Standard Section ?'-??" at 0.130 cu. yd. per ft.	?.?
Special Section A ?'-??" at 0.130 cu. yd. per ft.	?.?
Special Section B ?'-??" at 0.130 cu. yd. per ft.	?.?
Total (cu. yd.)	?.?

Concrete Barrier Rail Quantities

Item	Unit	Quantity
Concrete Barrier Railing	L.F.	?.?



Note: All dimensions are out to out. D = Pin Diameter

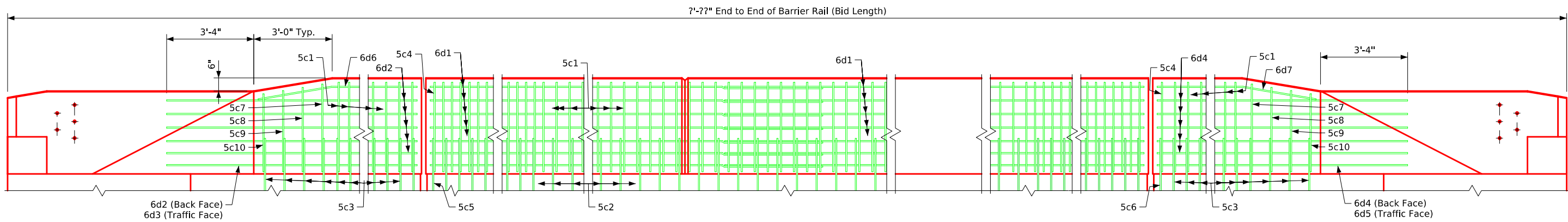
Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

See Barrier Rail Details on Design Sheet No. ?? for details and sections.

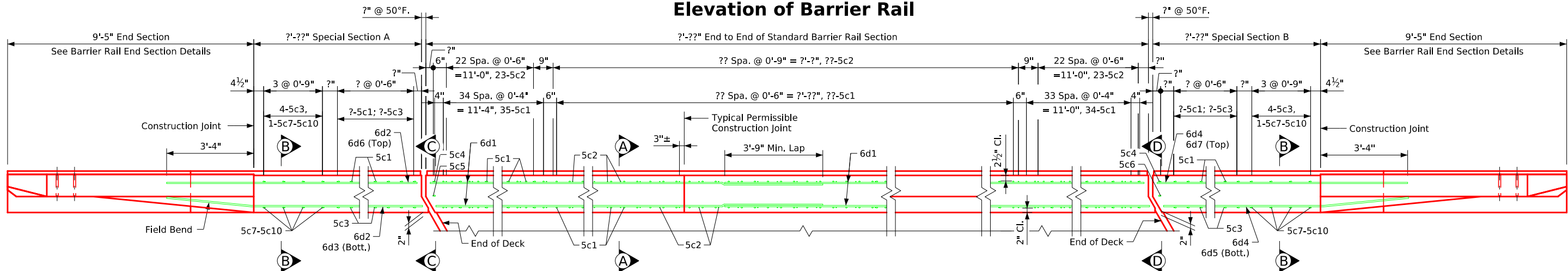
Barrier Rail (TL-4)-RA Skew Stub Abut.

DeckRailBridges.dgn - 1018A-2 - This Sheet Issued 05-2024. Additional Sheet for Clarity. (Sheet Number was Originally 1018A).

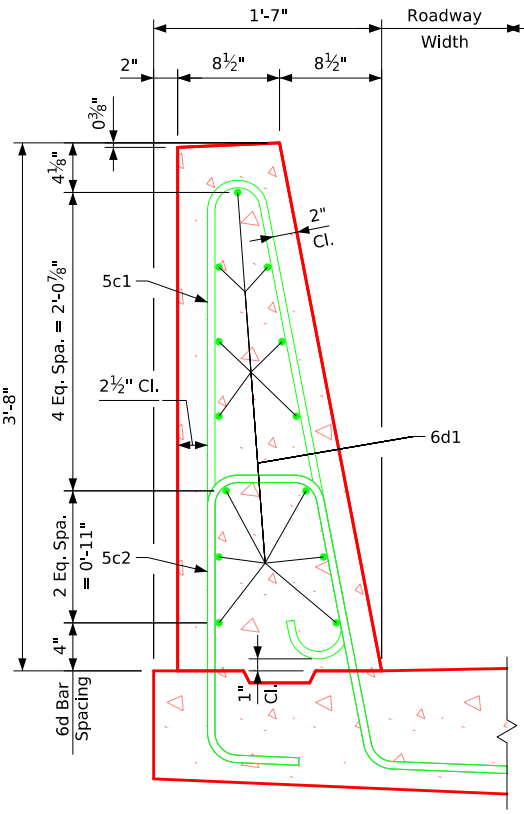
Correction 04-14: Added Note to Include Reinforcing Steel to the Summary Quantity Sheet. Removed End Section Quantity from Bar List and Concrete Placement Summary. Issued 11-07. DeckRailBridges.dgn - 1018C-1 - This Sheet Re-Issued 05-2024. Revised to Single Slope Barrier Shape. Sheet Format Update. (Sheet Number was Originally 1018C).



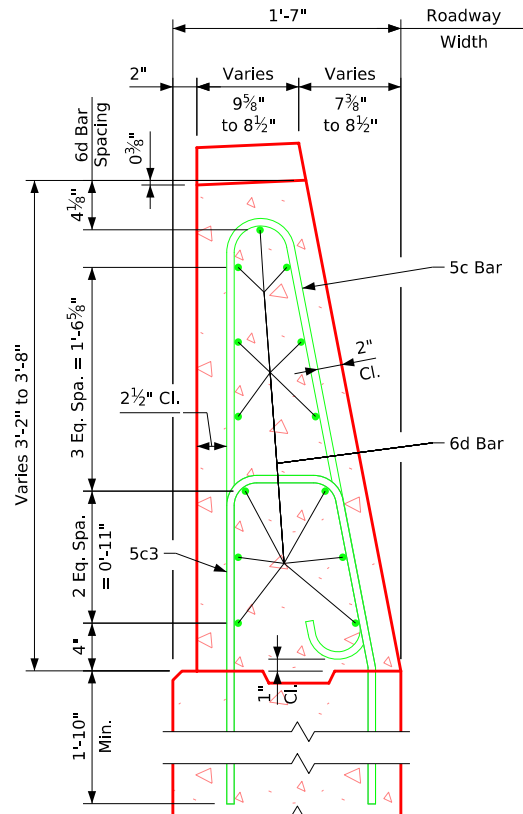
Elevation of Barrier Rail



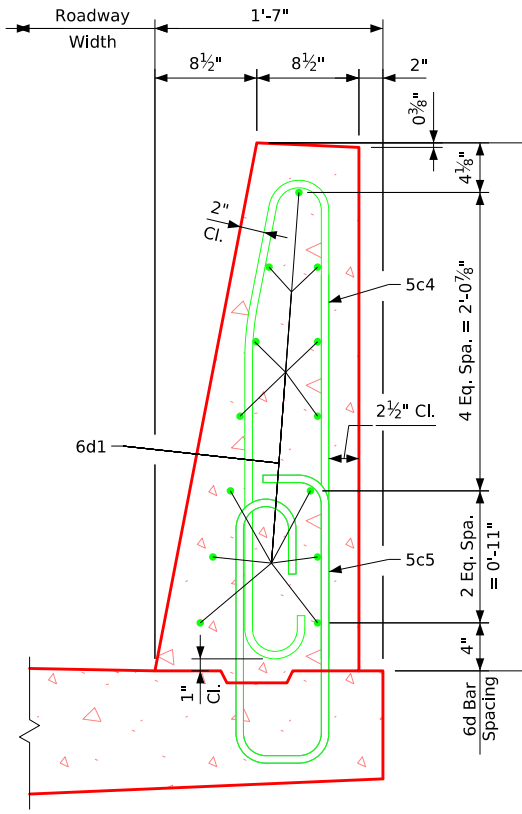
Part Section of Barrier Rail



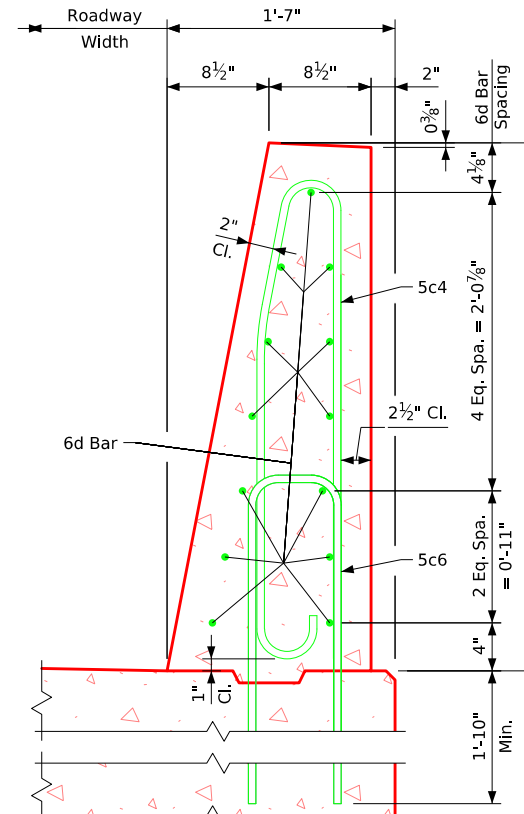
Part Section A-A



Part Section B-B



Part Section C-C



Part Section D-D

See Barrier Rail Details on Design Sheet No. ?? for notes, reinforcing steel details, and quantities.

Barrier Rail (TL-5)-RA Skew Stub Abut.

FILE NO.	ENGLISH	DESIGN TEAM	Barrier Rail (TSS TL-5) - RA Skew Stub Abut. w/Wing Ext. (1 of 2)	Standard Sheet 1018C-1	COUNTY	PROJECT NUMBER	SHEET NUMBER
9:18:20 PM	5/8/2024	bkloss	pw:\NTPwint1.dot.int.lan:PWMain\Documents\Highway\Bridge\Standards\Bridges\DeckRailBridges.dgn				

Barrier Rail Notes:

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.

The permissible construction joints are to be placed between vertical bars at a minimum spacing of 20 feet. Construction joint contact surfaces are to be coated with an approved bond breaker.

Cost of the joint sealer and bond breaker shall be considered incidental to other construction.

All barrier rail reinforcing steel is to be epoxy coated as shown.

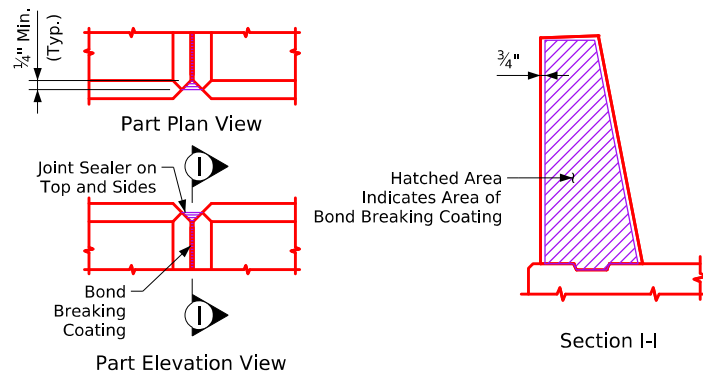
The concrete barrier rail is to be bid on a lineal foot basis. The number of linear feet of barrier rail installed will be paid for at the contract price per lineal foot based on plan quantities. Price bid for concrete barrier railing shall be full compensation for furnishing all material, excluding reinforcing steel, and all of the equipment and labor required to erect the rail in accordance with these plans and current specifications. If conduit is required in this plan the rigid steel conduit, junction boxes and fittings including labor and any additional work to do the installation is considered incidental to the cost of the railing.

The joint sealer shall be light gray nonsag latex caulking sealer marketed for outdoor use. No testing or certification is required.

Top of the barrier rail is to be parallel to the theoretical \bar{C} grade.

All exposed corners on the top of the barrier and all other corners 90° or sharper to be filleted with a $\frac{3}{4}$ " dressed and beveled strip.

Cross sectional area of the Standard and Special Sections of the barrier rail = 3.90 square feet, except the 3'-0" sloped ends at the end sections.

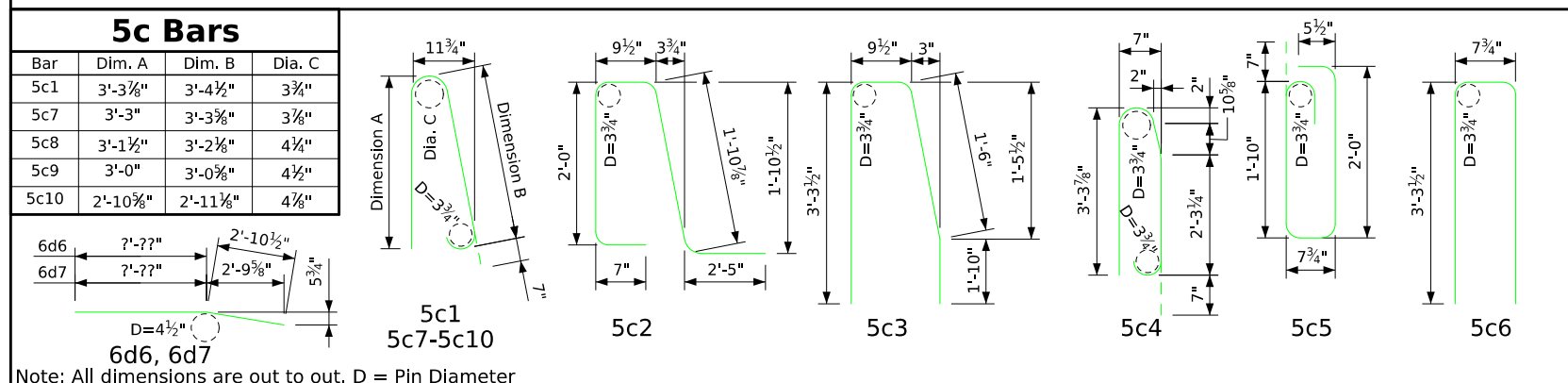


Barrier Rail Joint Details

Epoxy Coated Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight	
Standard Sections	5c1	Rail, Vertical		?	7'-6"	?	
	5c2	Rail, Vertical		?	7'-3"	?	
	5c4	Rail, Vertical		2	7'-6"	16	
	5c5	Rail, Vertical		2	5'-2"	11	
	6d1	Rail, Longitudinal		?	?'-??"	?	
Special Section A	5c1	Rail, Vertical		?	7'-6"	?	
	5c2	Rail, Vertical		?	7'-2"	?	
	5c7	Rail, Vertical, Sloped Ends		2	7'-4"	15	
	5c8	Rail, Vertical, Sloped Ends		2	7'-1"	15	
	5c9	Rail, Vertical, Sloped Ends		2	6'-10"	14	
	5c10	Rail, Vertical, Sloped Ends		2	6'-7"	14	
	6d2	Rail, Longitudinal		22	?'-??"	?	
	6d3	Rail, Longitudinal, Traffic Face, Bott.		2	?'-??"	?	
	6d6	Rail, Longitudinal, Top		2	?'-??"	?	
	6d7	Rail, Longitudinal, Top		2	?'-??"	?	
Special Section B	5c1	Rail, Vertical		?	7'-6"	?	
	5c3	Rail, Vertical		?	7'-2"	?	
	5c4	Rail, Vertical		2	7'-6"	16	
	5c6	Rail, Vertical		2	7'-0"	15	
	5c7	Rail, Vertical, Sloped Ends		2	7'-4"	15	
	5c8	Rail, Vertical, Sloped Ends		2	7'-1"	15	
	5c9	Rail, Vertical, Sloped Ends		2	6'-10"	14	
	5c10	Rail, Vertical, Sloped Ends		2	6'-7"	14	
	6d4	Rail, Longitudinal		22	?'-??"	?	
	6d5	Rail, Longitudinal, Traffic Face, Bott.		2	?'-??"	?	
	6d7	Rail, Longitudinal, Top		2	?'-??"	?	
	Epoxy Reinf. Total Weight (lbs.)						?

Bent Bar Details



Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

Concrete Placement Summary

Section	Total
Standard Section ?'-??" at 0.144 cu. yd. per ft.	??
Δ Special Section A ?'-??" at 0.144 cu. yd. per ft.	??
Δ Special Section B ?'-??" at 0.144 cu. yd. per ft.	??
Total (cu. yd.)	??

Note: Δ Deduct 0.021 cu. yd. for one sloped end.

Concrete Barrier Rail Quantities

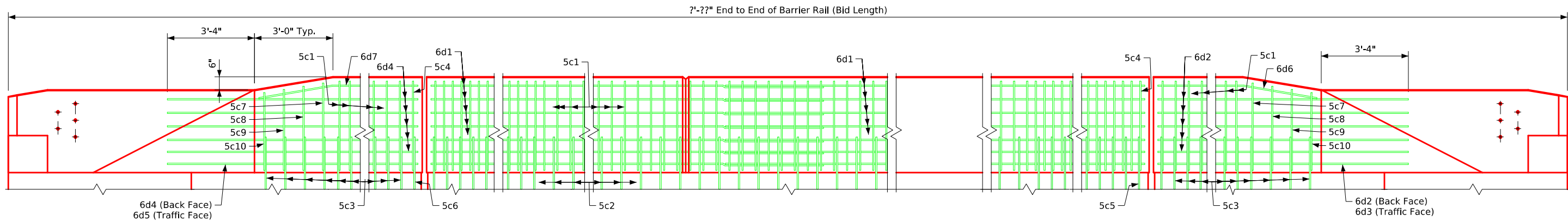
Item	Unit	Quantity
Concrete Barrier Railing, 3'-8"	L.F.	??

See Barrier Rail Details on Design Sheet No. ?? for details and sections.

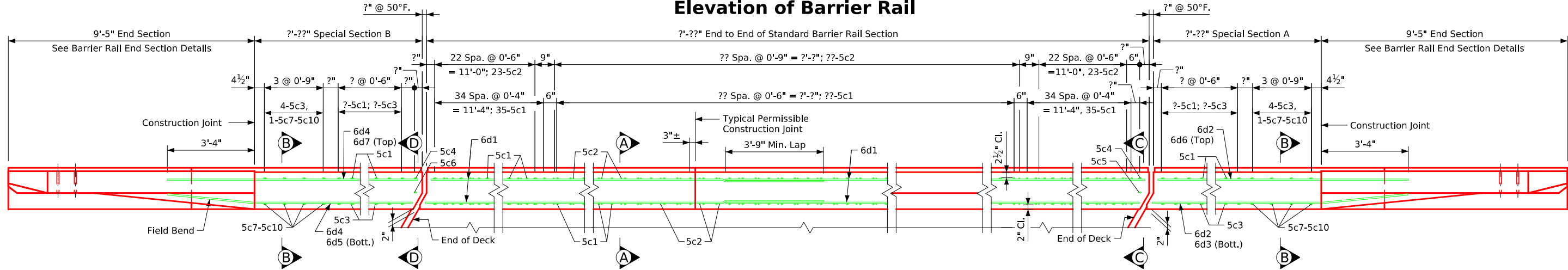
Barrier Rail (TL-5)-RA Skew Stub Abut.

DeckRailBridges.dgn - 1018C-2 - This Sheet Issued 05-2024. Additional Sheet for Clarity. (Sheet Number was Originally 1018C).

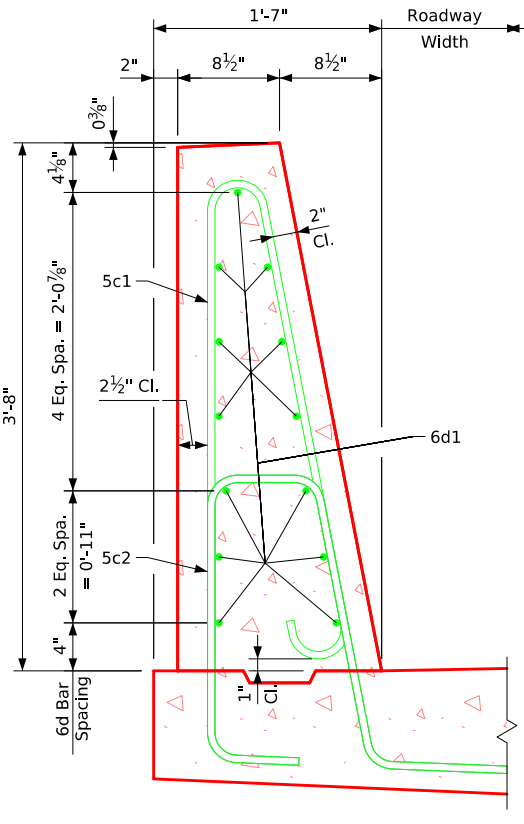
Correction 04-14 - Added Note to Include Reinforcing Steel to the Summary Quantity Sheet. Removed End Section Quantity from Bar List and Concrete Placement Summary.
 Issued 11-07
 DeckRailBridges.dgn - 1018D-1 - This Sheet Re-Issued 05-2024. Revised to Single Slope Barrier Shape. Sheet Format Update. (Sheet Number was Originally 1018D).



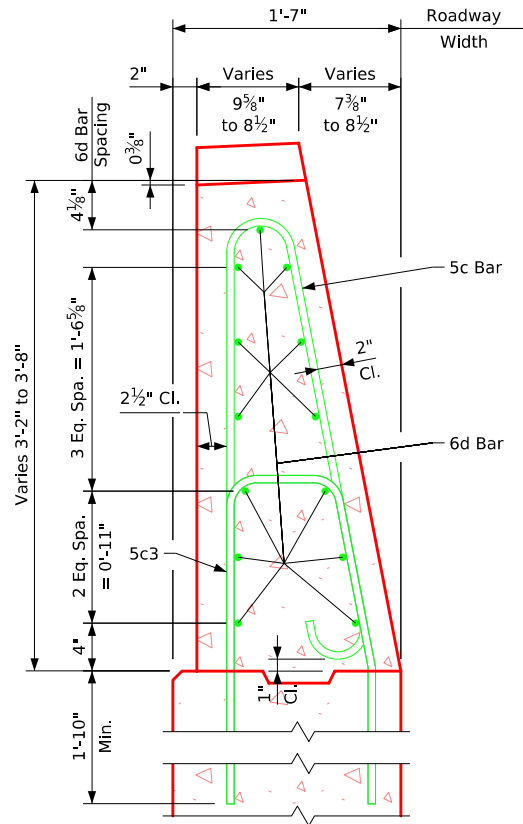
Elevation of Barrier Rail



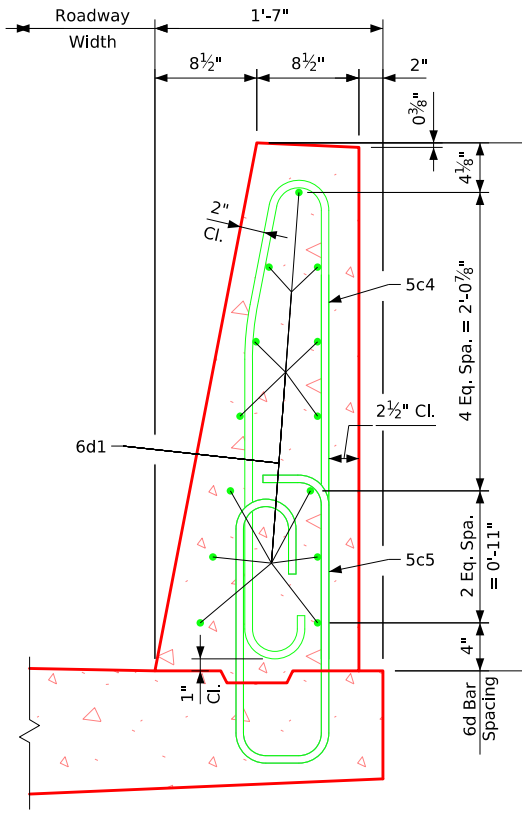
Part Section of Barrier Rail



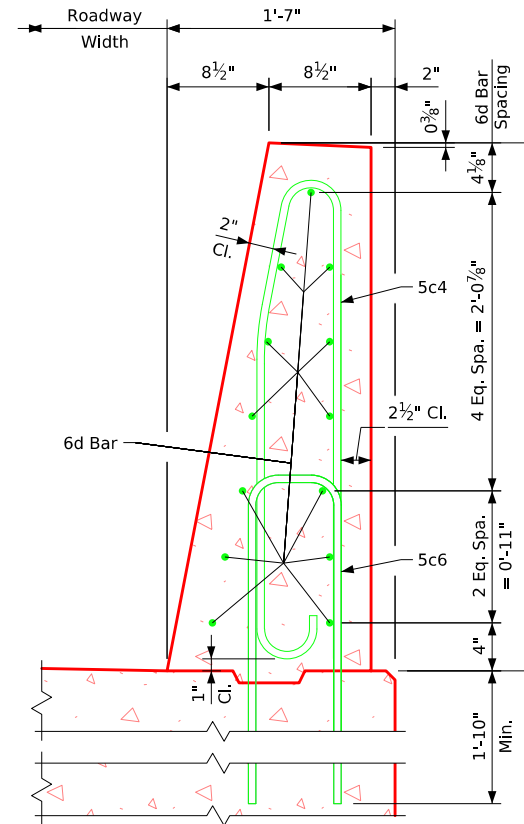
Part Section A-A



Part Section B-B



Part Section C-C



Part Section D-D

See Barrier Rail Details on Design Sheet No. ?? for notes, reinforcing steel details, and quantities.

Barrier Rail (TL-5)-LA Skew Stub Abut.

FILE NO.	ENGLISH	DESIGN TEAM	Barrier Rail (TSS TL-5) - LA Skew Stub Abut. w/Wing Ext. (1 of 2)	Standard Sheet 1018D-1	COUNTY	PROJECT NUMBER	SHEET NUMBER
9:18:21 PM	5/8/2024	bkloss	pw:\NTP\int1.dot.int.lan:PWMain\Documents\Highway\Bridge\Standards\Bridges\DeckRailBridges.dgn				

Barrier Rail Notes:

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.

The permissible construction joints are to be placed between vertical bars at a minimum spacing of 20 feet. Construction joint contact surfaces are to be coated with an approved bond breaker.

Cost of the joint sealer and bond breaker shall be considered incidental to other construction.

All barrier rail reinforcing steel is to be epoxy coated as shown.

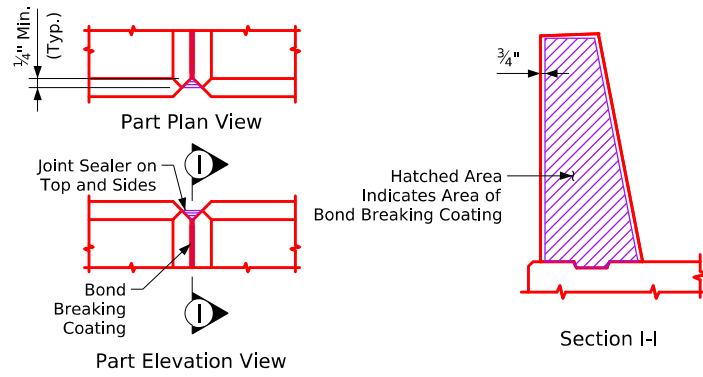
The concrete barrier rail is to be bid on a lineal foot basis. The number of linear feet of barrier rail installed will be paid for at the contract price per lineal foot based on plan quantities. Price bid for concrete barrier railing shall be full compensation for furnishing all material, excluding reinforcing steel, and all of the equipment and labor required to erect the rail in accordance with these plans and current specifications. If conduit is required in this plan the rigid steel conduit, junction boxes and fittings including labor and any additional work to do the installation is considered incidental to the cost of the railing.

The joint sealer shall be light gray nonsag latex caulking sealer marketed for outdoor use. No testing or certification is required.

Top of the barrier rail is to be parallel to the theoretical \bar{C} grade.

All exposed corners on the top of the barrier and all other corners 90° or sharper to be filleted with a $\frac{3}{4}$ " dressed and beveled strip.

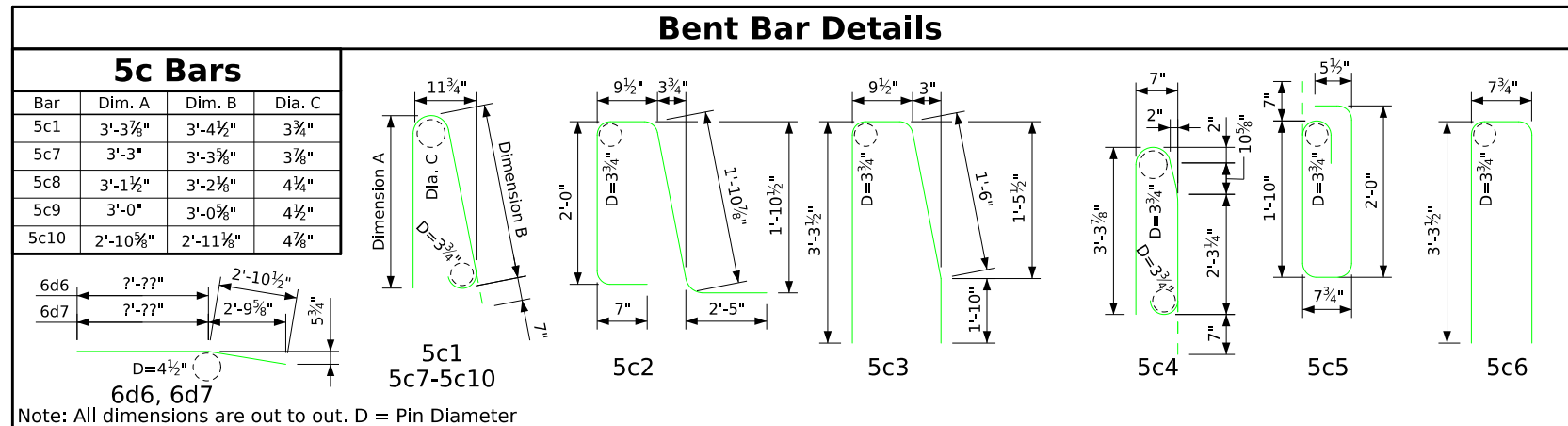
Cross sectional area of the Standard and Special Sections of the barrier rail = 3.90 square feet, except the 3'-0" sloped ends at the end sections.



Barrier Rail Joint Details

Epoxy Coated Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight	
Standard Sections	5c1	Rail, Vertical		?	7'-6"	?	
	5c2	Rail, Vertical		?	7'-3"	?	
	5c4	Rail, Vertical		2	7'-6"	16	
	5c5	Rail, Vertical		2	5'-2"	11	
	6d1	Rail, Longitudinal		?	?'-??"	?	
Special Section A	5c1	Rail, Vertical		?	7'-6"	?	
	5c3	Rail, Vertical		?	7'-2"	?	
	5c7	Rail, Vertical, Sloped Ends		2	7'-4"	15	
	5c8	Rail, Vertical, Sloped Ends		2	7'-1"	15	
	5c9	Rail, Vertical, Sloped Ends		2	6'-10"	14	
	5c10	Rail, Vertical, Sloped Ends		2	6'-7"	14	
	6d2	Rail, Longitudinal		22	?'-??"	?	
	6d3	Rail, Longitudinal, Traffic Face, Bott.		2	?'-??"	?	
	6d6	Rail, Longitudinal, Top		2	?'-??"	?	
	Special Section B	5c1	Rail, Vertical		?	7'-6"	?
5c3		Rail, Vertical		?	7'-2"	?	
5c4		Rail, Vertical		2	7'-6"	16	
5c6		Rail, Vertical		2	7'-0"	15	
5c7		Rail, Vertical, Sloped Ends		2	7'-4"	15	
5c8		Rail, Vertical, Sloped Ends		2	7'-1"	15	
5c9		Rail, Vertical, Sloped Ends		2	6'-10"	14	
5c10		Rail, Vertical, Sloped Ends		2	6'-7"	14	
6d4		Rail, Longitudinal		22	?'-??"	?	
6d5		Rail, Longitudinal, Traffic Face, Bott.		2	?'-??"	?	
6d7		Rail, Longitudinal, Top		2	?'-??"	?	
Epoxy Reinf. Total Weight (lbs.)						?	



Note: All dimensions are out to out. D = Pin Diameter

Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

Concrete Placement Summary

Section	Total
Standard Section ?'-??" at 0.144 cu. yd. per ft.	??
Δ Special Section A ?'-??" at 0.144 cu. yd. per ft.	??
Δ Special Section B ?'-??" at 0.144 cu. yd. per ft.	??
Total (cu. yd.)	??

Note: Δ Deduct 0.021 cu. yd. for one sloped end.

Concrete Barrier Rail Quantities

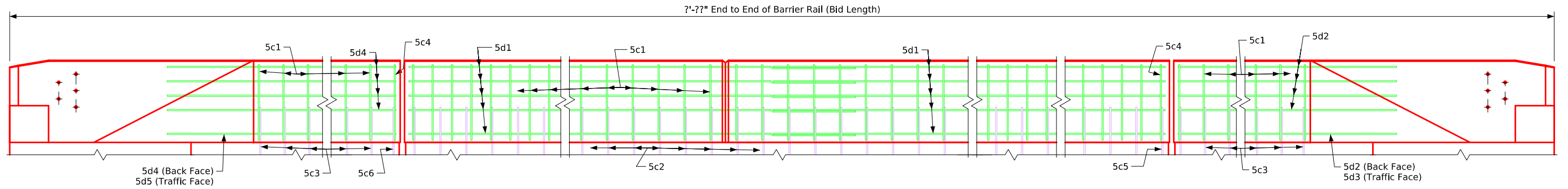
Item	Unit	Quantity
Concrete Barrier Railing, 3'-8"	L.F.	??

See Barrier Rail Details on Design Sheet No. ?? for details and sections.

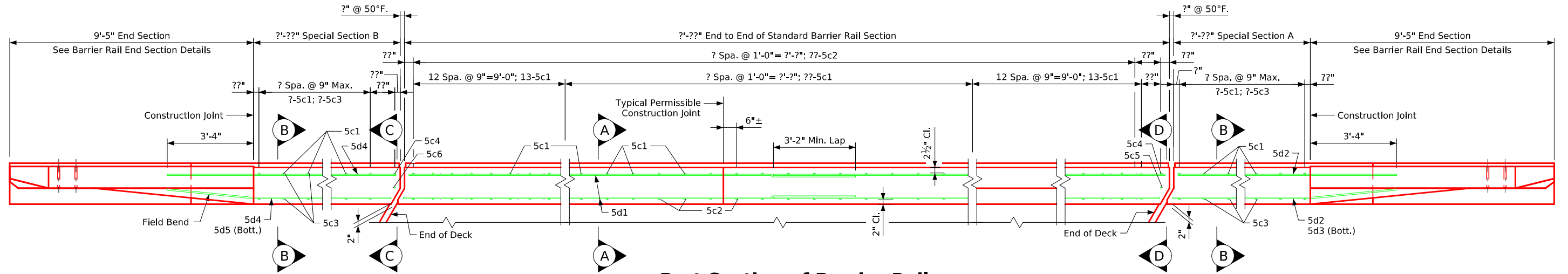
Barrier Rail (TL-5)-LA Skew Stub Abut.

DeckRailBridges.dgn - 1018D-2 - This Sheet Issued 05-2024. Additional Sheet for Clarity. (Sheet Number was Originally 1018D).

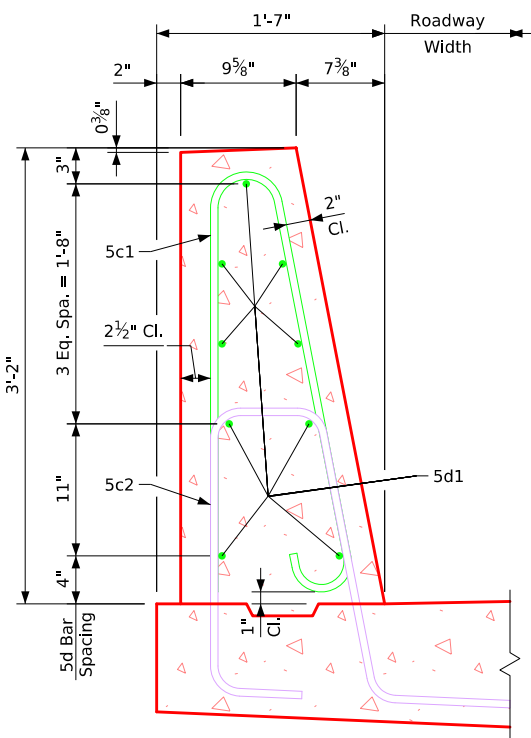
Issued 04-14; Added Stainless Steel Reinforcing Bar List and Changed 5c2, 5c3 & 5c14-16 Bars to Stainless Steel. DeckRailBridges.dgn - 1018S-1 - This Sheet Re-Issued 05-2024. Revised to Single Slope Barrier Shape. Sheet Format Update. (Sheet Number was Originally 1018S).



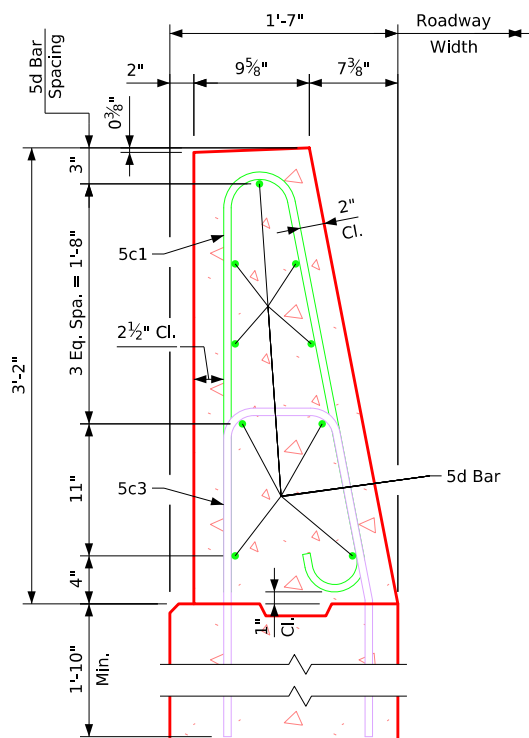
Elevation of Barrier Rail



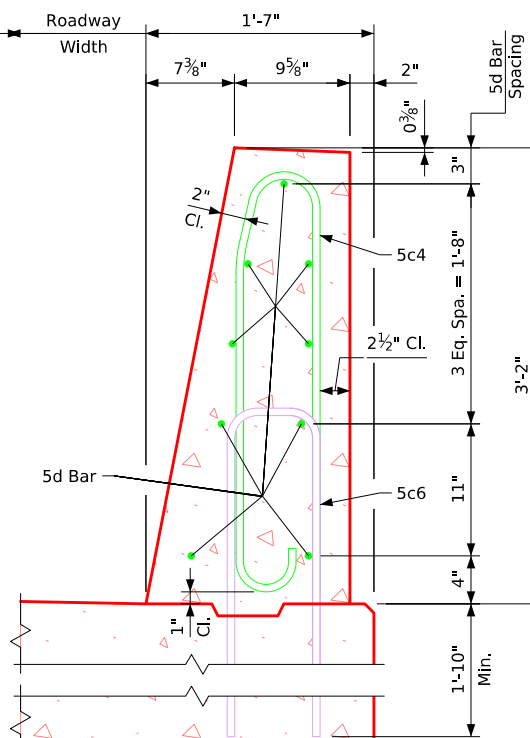
Part Section of Barrier Rail



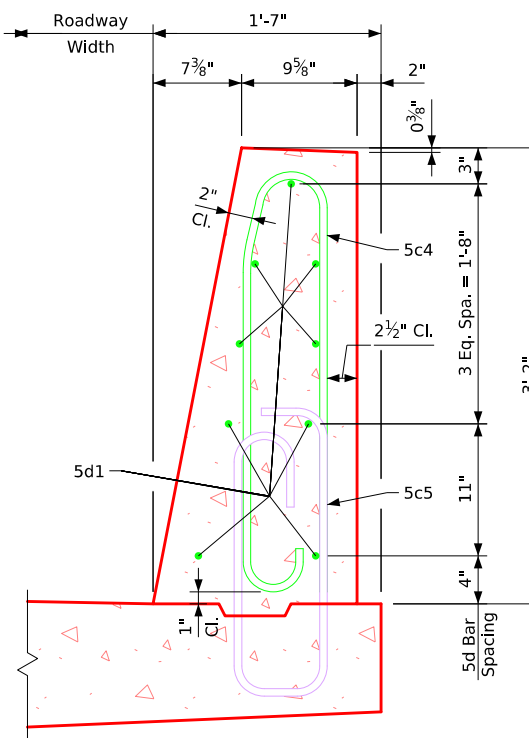
Part Section A-A



Part Section B-B



Part Section C-C



Part Section D-D

See Barrier Rail Details on Design Sheet No. ?? for notes, reinforcing steel details, and quantities.

Barrier Rail (TL-4) (Stainless)-LA Skew Stub Abut.

FILE NO.	ENGLISH	DESIGN TEAM	Barrier Rail (TSS TL-4) (Stainless) - LA Skew Stub Abut. w/Wing Ext. (1 of 2)	Standard Sheet 1018S-1	COUNTY	PROJECT NUMBER	SHEET NUMBER
9:18:23 PM	5/8/2024	bkloss	pw:\NTP\wint1.dot.int.lan:PWMain\Documents\Highway\Bridges\Standards\Bridges\DeckRailBridges.dgn				

Barrier Rail Notes:

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.

The permissible construction joints are to be placed between vertical bars at a minimum spacing of 20 feet. Construction joint contact surfaces are to be coated with an approved bond breaker.

Cost of the joint sealer and bond breaker shall be considered incidental to other construction.

All barrier rail reinforcing steel is to be either epoxy coated or stainless steel as shown. The stainless steel reinforcing steel shall be deformed bar grade 60 meeting the requirements of Construction and Materials I.M. 452.

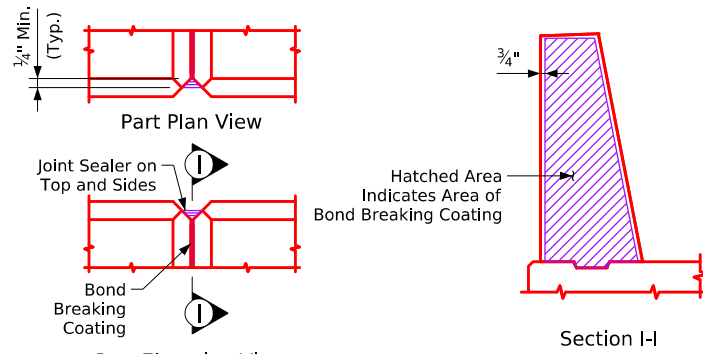
The concrete barrier rail is to be bid on a lineal foot basis. The number of linear feet of barrier rail installed will be paid for at the contract price per lineal foot based on plan quantities. Price bid for concrete barrier railing shall be full compensation for furnishing all material, excluding reinforcing steel, and all of the equipment and labor required to erect the rail in accordance with these plans and current specifications. If conduit is required in this plan the rigid steel conduit, junction boxes and fittings including labor and any additional work to do the installation is considered incidental to the cost of the railing.

The joint sealer shall be light gray nonsag latex caulking sealer marketed for outdoor use. No testing or certification is required.

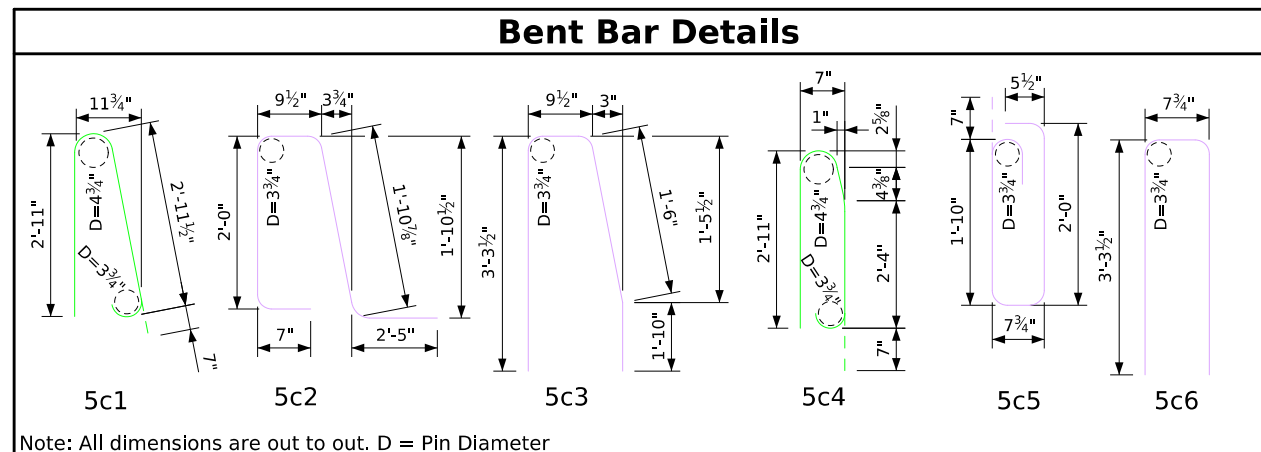
Top of the barrier rail is to be parallel to the theoretical C grade.

All exposed corners on the top of the barrier and all other corners 90° or sharper to be filleted with a 3/4" dressed and beveled strip.

Cross sectional area of the Standard Sections of the barrier rail = 3.50 square feet.



Barrier Rail Joint Details



Note: All dimensions are out to out. D = Pin Diameter

Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

Epoxy Coated Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c1	Rail, Vertical		?	6'-8"	?
	5c4	Rail, Vertical		2	6'-8"	14
Special Section A	5d1	Rail, Longitudinal		?	?'-??"	?
	5c1	Rail, Vertical		?	6'-8"	?
	5d2	Rail, Longitudinal		16	?'-??"	?
Special Section B	5d3	Rail, Longitudinal, Traffic Face, Bott.		2	?'-??"	?
	5c1	Rail, Vertical		?	6'-8"	?
	5c4	Rail, Vertical		2	6'-8"	14
	5d4	Rail, Longitudinal		16	?'-??"	?
	5d5	Rail, Longitudinal, Traffic Face, Bott.		2	?'-??"	?

Epoxy Reinf. Total Weight (lbs.) ?

Stainless Steel Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c2	Rail, Vertical		?	7'-3"	?
	5c5	Rail, Vertical		2	5'-2"	11
Special Section A	5c3	Rail, Vertical		?	7'-2"	?
Special Section B	5c3	Rail, Vertical		?	7'-2"	?
	5c6	Rail, Vertical		2	7'-0"	15

Stainless Steel Reinf. Total Weight (lbs.) ?

Concrete Placement Summary

Section	Total
Standard Section ?'-??" at 0.130 cu. yd. per ft.	??
Special Section A ?'-??" at 0.130 cu. yd. per ft.	??
Special Section B ?'-??" at 0.130 cu. yd. per ft.	??
Total (cu. yd.)	??

Concrete Barrier Rail Quantities

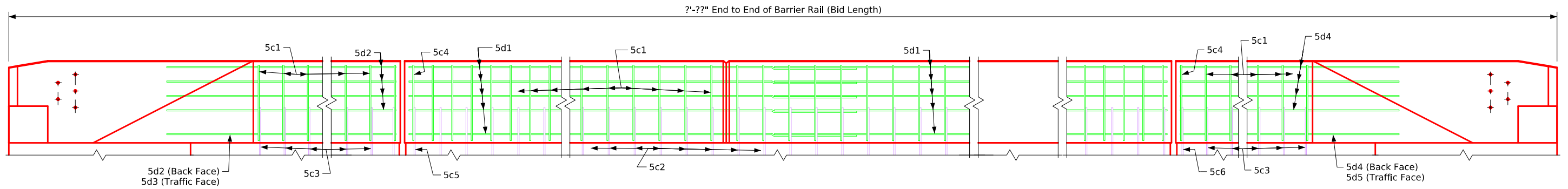
Item	Unit	Quantity
Concrete Barrier Railing	L.F.	??

See Barrier Rail Details on Design Sheet No. ?? for details and sections.

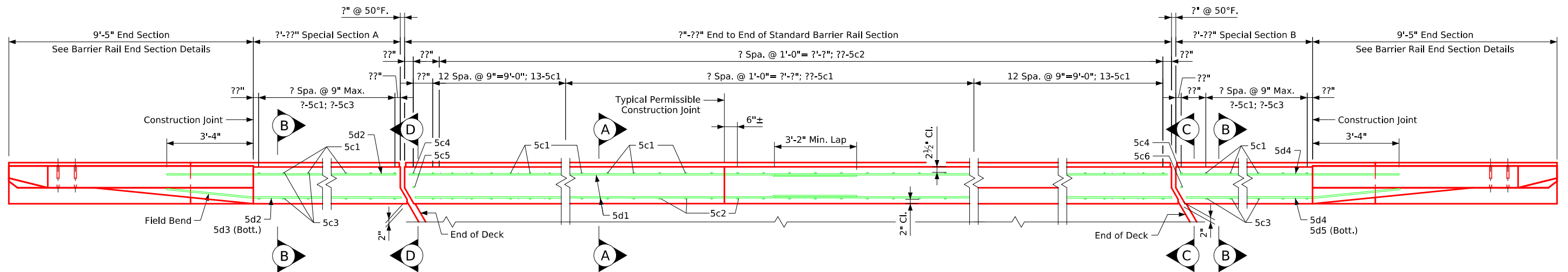
Barrier Rail (TL-4) (Stainless)-LA Skew Stub Abut.

DeckRailBridges.dgn - 1018S-2 - This Sheet Issued 05-2024. Additional Sheet for Clarity. (Sheet Number was Originally 1018S).

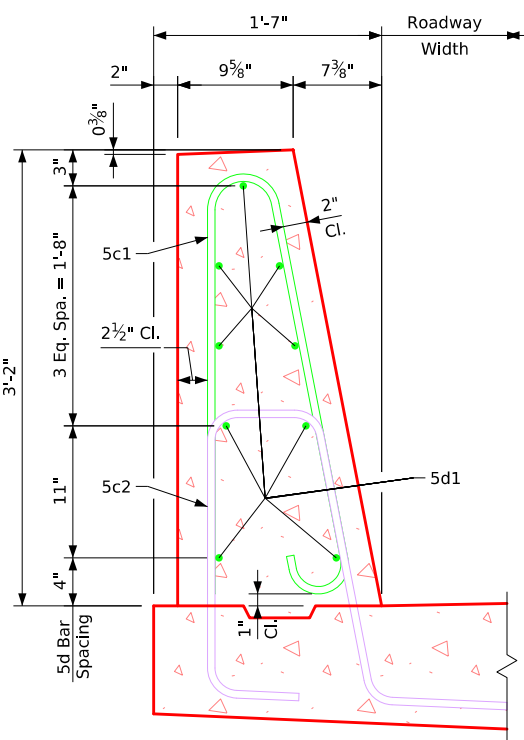
Issued 04-14; Added Stainless Steel Reinforcing Bar List and Changed 5c2, 5c3, 5c14-16 Bars to Stainless Steel. DeckRailBridges.dgn - 1018SA-2 - This Sheet Re-Issued 05-2024. Revised to Single Slope Barrier Shape. Sheet Number was Originally 1018SA.



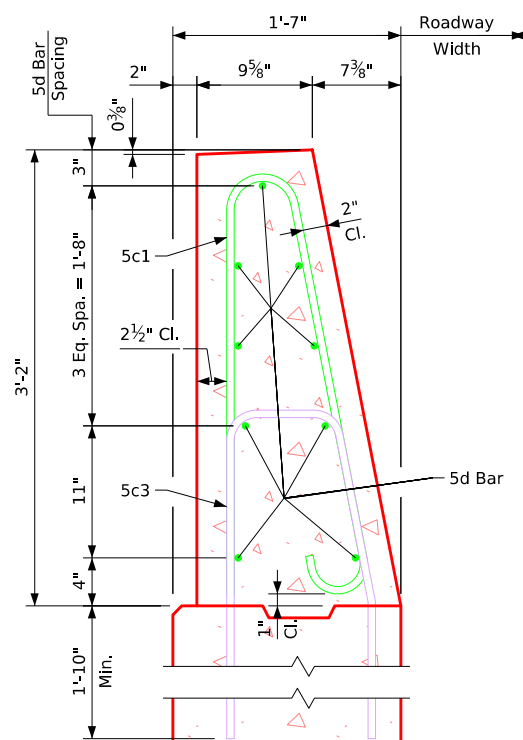
Elevation of Barrier Rail



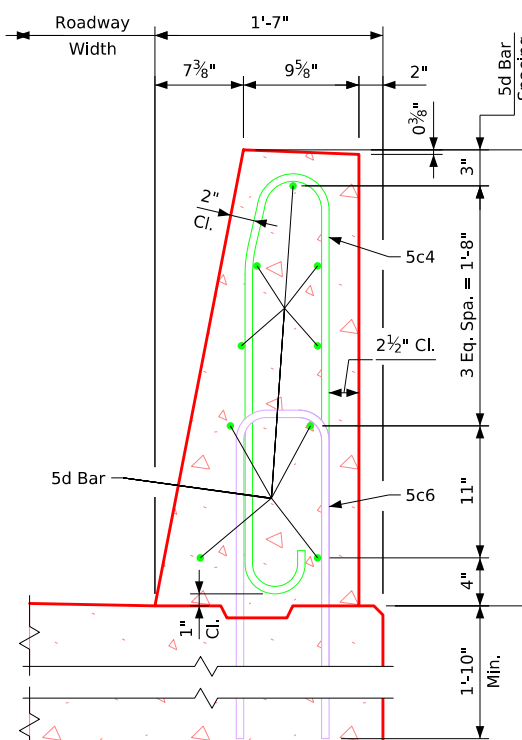
Part Section of Barrier Rail



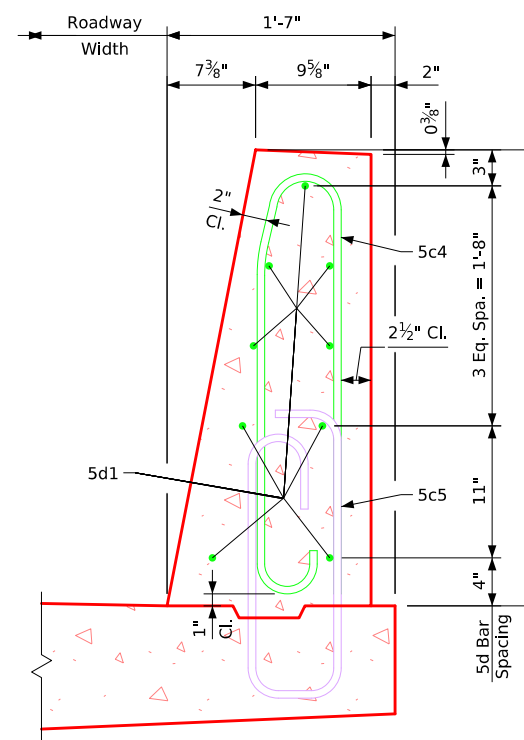
Part Section A-A



Part Section B-B



Part Section C-C



Part Section D-D

See Barrier Rail Details on Design Sheet No. ?? for notes, reinforcing steel details, and quantities.

Barr. Rail (TL-4) (Stainless)-RA Skew Stub Abut.

FILE NO.	ENGLISH	DESIGN TEAM	Barrier Rail (TSS TL-4) (Stainless) - RA Skew Stub Abut. w/Wing Ext. (1 of 2)	Standard Sheet 1018SA-1	COUNTY	PROJECT NUMBER	SHEET NUMBER
9:18:24 PM	5/8/2024	bkloss	pw:\NTP\int1.dot.int.lan:PWMain\Documents\Highway\Bridges\Standards\Bridges\DeckRailBridges.dgn				

Barrier Rail Notes:

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.

The permissible construction joints are to be placed between vertical bars at a minimum spacing of 20 feet. Construction joint contact surfaces are to be coated with an approved bond breaker.

Cost of the joint sealer and bond breaker shall be considered incidental to other construction.

All barrier rail reinforcing steel is to be either epoxy coated or stainless steel as shown. The stainless steel reinforcing steel shall be deformed bar grade 60 meeting the requirements of Construction and Materials I.M. 452.

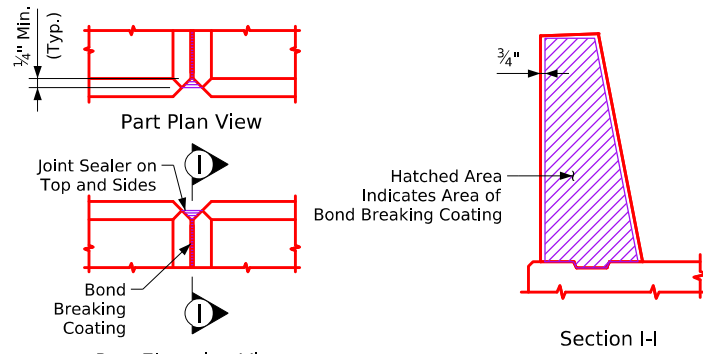
The concrete barrier rail is to be bid on a lineal foot basis. The number of linear feet of barrier rail installed will be paid for at the contract price per lineal foot based on plan quantities. Price bid for concrete barrier railing shall be full compensation for furnishing all material, excluding reinforcing steel, and all of the equipment and labor required to erect the rail in accordance with these plans and current specifications. If conduit is required in this plan the rigid steel conduit, junction boxes and fittings including labor and any additional work to do the installation is considered incidental to the cost of the railing.

The joint sealer shall be light gray nonsag latex caulking sealer marketed for outdoor use. No testing or certification is required.

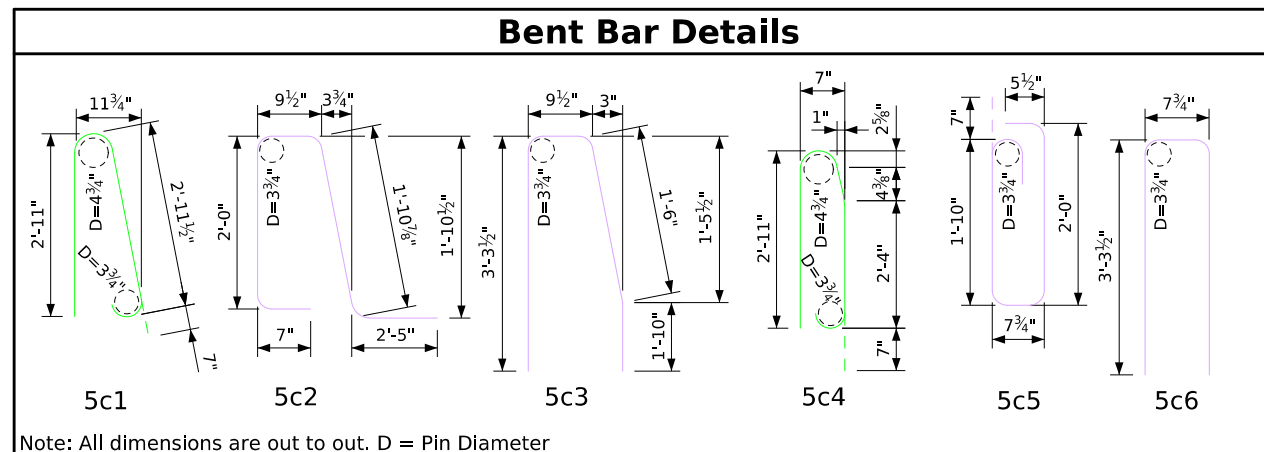
Top of the barrier rail is to be parallel to the theoretical C grade.

All exposed corners on the top of the barrier and all other corners 90° or sharper to be filleted with a 3/4" dressed and beveled strip.

Cross sectional area of the Standard Sections of the barrier rail = 3.50 square feet.



Barrier Rail Joint Details



Note: All dimensions are out to out. D = Pin Diameter

Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

Epoxy Coated Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c1	Rail, Vertical		?	6'-8"	?
	5c4	Rail, Vertical		2	6'-8"	14
Special Section A	5d1	Rail, Longitudinal		?	?'-??"	?
	5c1	Rail, Vertical		?	6'-8"	?
	5d2	Rail, Longitudinal		16	?'-??"	?
Special Section B	5d3	Rail, Longitudinal, Traffic Face, Bott.		2	?'-??"	?
	5c1	Rail, Vertical		?	6'-8"	?
	5c4	Rail, Vertical		2	6'-8"	14
Special Section B	5d4	Rail, Longitudinal		16	?'-??"	?
	5d5	Rail, Longitudinal, Traffic Face, Bott.		2	?'-??"	?

Epoxy Reinf. Total Weight (lbs.) ?

Stainless Steel Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c2	Rail, Vertical		?	7'-3"	?
	5c5	Rail, Vertical		2	5'-2"	11
Special Section A	5c3	Rail, Vertical		?	7'-2"	?
Special Section B	5c3	Rail, Vertical		?	7'-2"	?
	5c6	Rail, Vertical		2	7'-0"	15

Stainless Steel Reinf. Total Weight (lbs.) ?

Concrete Placement Summary

Section	Total
Standard Section ?'-??" at 0.130 cu. yd. per ft.	??
Special Section A ?'-??" at 0.130 cu. yd. per ft.	??
Special Section B ?'-??" at 0.130 cu. yd. per ft.	??
Total (cu. yd.)	??

Concrete Barrier Rail Quantities

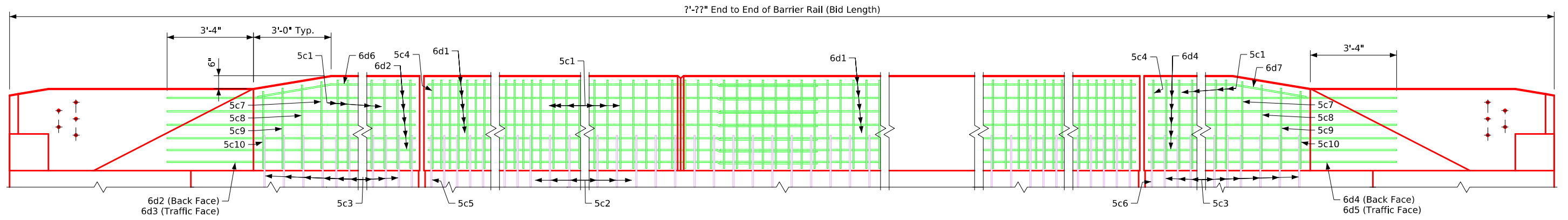
Item	Unit	Quantity
Concrete Barrier Railing	L.F.	??

See Barrier Rail Details on Design Sheet No. ?? for details and sections.

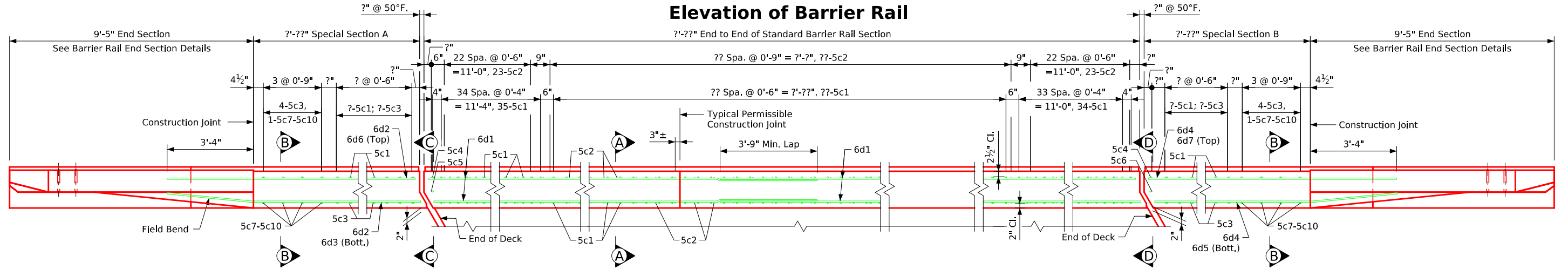
Barr. Rail (TL-4) (Stainless)-RA Skew Stub Abut.

DeckRailBridges.dgn - 1018SA-2 - This Sheet Issued 05-2024. Additional Sheet For Clarity. (Sheet Number was Originally 1018SA).

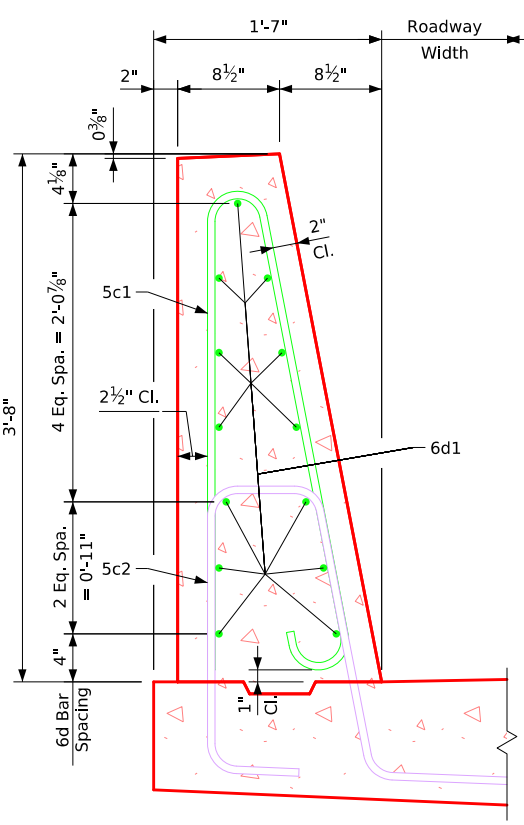
Issued 04-14, Added Stainless Steel Reinforcing Bar List and Changed 5c2, 5c3, 5c14-16 Bars to Stainless Steel. DeckRailBridges.dgn - 1018SC-1 - This Sheet Re-issued 05-2024. Revised to Single Slope Barrier Shape. Sheet Format Update. (Sheet Number was Originally 1018SC1).



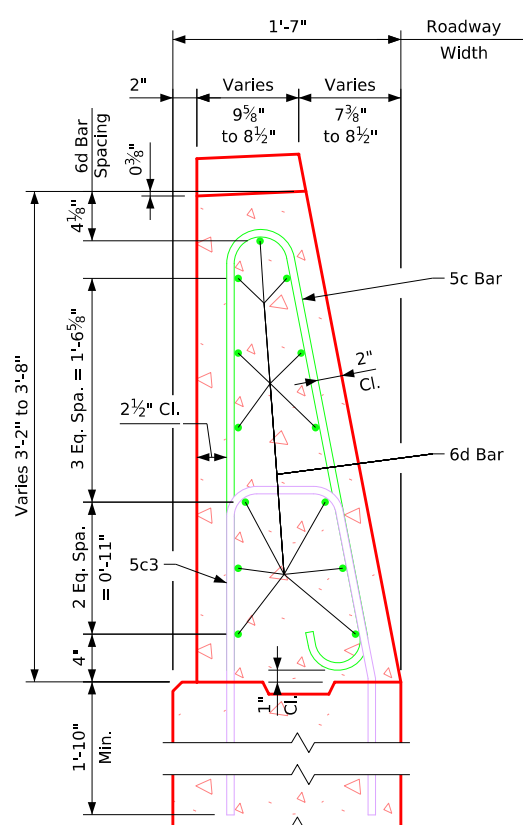
Elevation of Barrier Rail



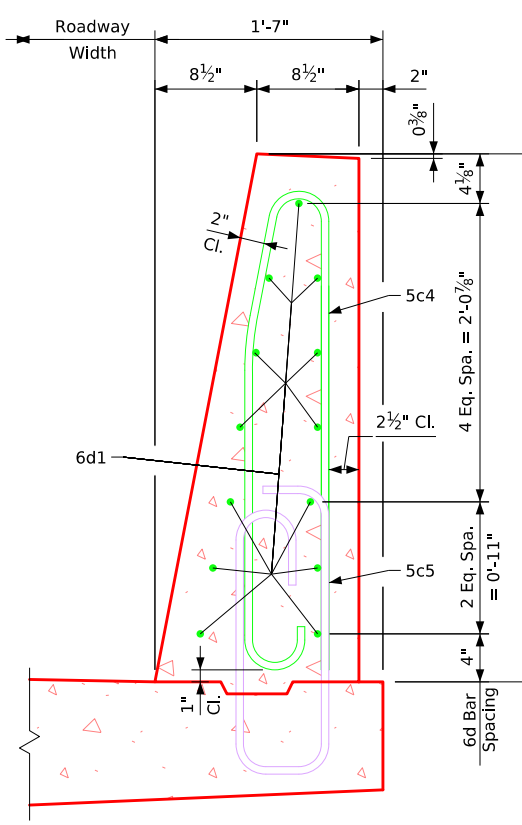
Part Section of Barrier Rail



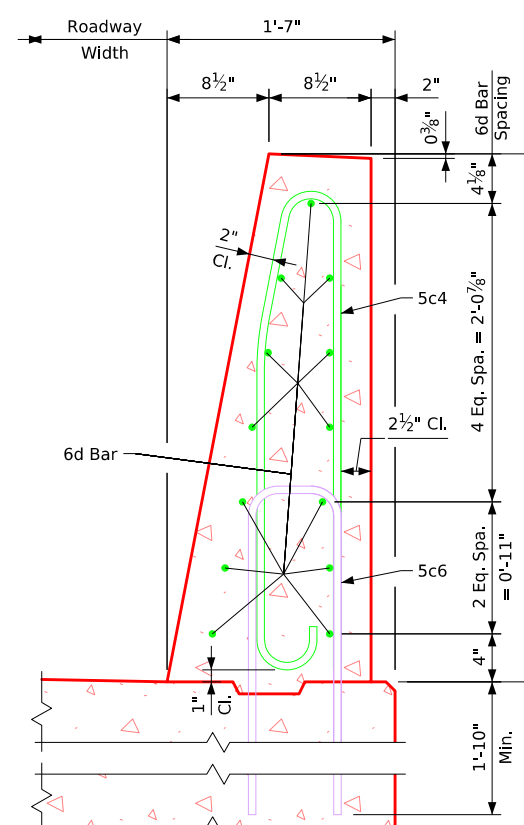
Part Section A-A



Part Section B-B



Part Section C-C



Part Section D-D

See Barrier Rail Details on Design Sheet No. ?? for notes, reinforcing steel details, and quantities.

Barr. Rail (TL-5) (Stainless)-RA Skew Stub Abut.

FILE NO.	ENGLISH	DESIGN TEAM	Barrier Rail (TSS TL-5) (Stainless) - RA Skew Stub Abut. w/Wing Ext. (1 of 2)	Standard Sheet 1018SC-1	COUNTY	PROJECT NUMBER	SHEET NUMBER
9:18:25 PM	5/8/2024	bkloss	pw:\NTP\wint1.dot.int.lan:PWMain\Documents\Highway\Bridge\Standards\Bridges\DeckRailBridges.dgn				

Issued 04-14. Added Stainless Steel Reinforcing Bar List and Changed 5c2, 5c3, 5c14-16 Bars to Stainless Steel. DeckRailBridges.dgn - 10185C-2 - This Sheet Re-issued 05-2024. Revised to Single Slope Barrier Shape. Sheet Format Update. (Sheet Number was Originally 10185C2).

Barrier Rail Notes:

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.

The permissible construction joints are to be placed between vertical bars at a minimum spacing of 20 feet. Construction joint contact surfaces are to be coated with an approved bond breaker.

Cost of the joint sealer and bond breaker shall be considered incidental to other construction.

All barrier rail reinforcing steel is to be either epoxy coated or stainless steel as shown. The stainless steel reinforcing steel shall be deformed bar grade 60 meeting the requirements of Construction and Materials I.M. 452.

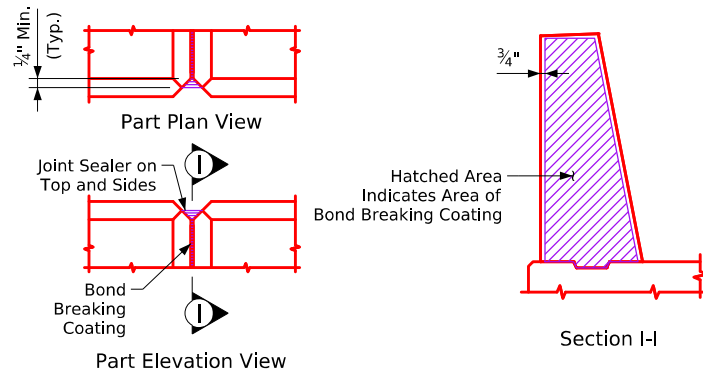
The concrete barrier rail is to be bid on a lineal foot basis. The number of linear feet of barrier rail installed will be paid for at the contract price per lineal foot based on plan quantities. Price bid for concrete barrier railing shall be full compensation for furnishing all material, excluding reinforcing steel, and all of the equipment and labor required to erect the rail in accordance with these plans and current specifications. If conduit is required in this plan the rigid steel conduit, junction boxes and fittings including labor and any additional work to do the installation is considered incidental to the cost of the railing.

The joint sealer shall be light gray nonsag latex caulking sealer marketed for outdoor use. No testing or certification is required.

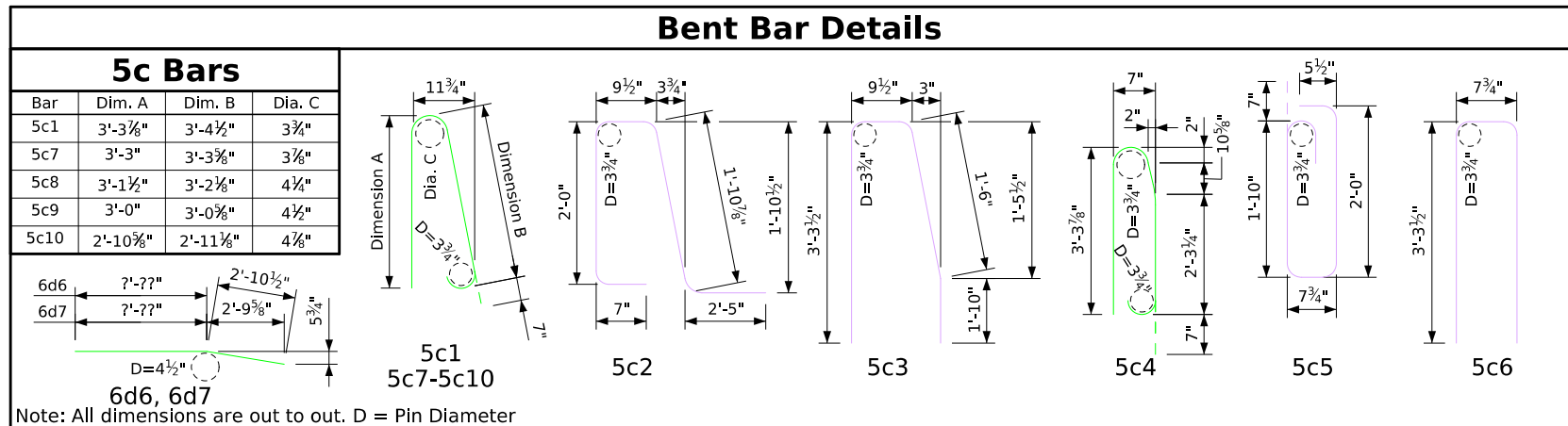
Top of the barrier rail is to be parallel to the theoretical \bar{C} grade.

All exposed corners on the top of the barrier and all other corners 90° or sharper to be filleted with a $\frac{3}{4}$ " dressed and beveled strip.

Cross sectional area of the Standard Sections of the barrier rail = 3.90 square feet, except the 3'-0" sloped ends at the end sections.



Barrier Rail Joint Details



Note: All dimensions are out to out. D = Pin Diameter
Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

Epoxy Coated Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c1	Rail, Vertical		?	7'-6"	?
	5c4	Rail, Vertical		2	7'-6"	16
Special Section A	6d1	Rail, Longitudinal		?	7'-??"	?
	5c1	Rail, Vertical		?	7'-6"	?
	5c7	Rail, Vertical, Sloped Ends		2	7'-4"	15
	5c8	Rail, Vertical, Sloped Ends		2	7'-1"	15
	5c9	Rail, Vertical, Sloped Ends		2	6'-10"	14
	5c10	Rail, Vertical, Sloped Ends		2	6'-7"	14
Special Section B	6d2	Rail, Longitudinal		22	7'-??"	?
	6d3	Rail, Longitudinal, Traffic Face, Bott.		2	7'-??"	?
	6d6	Rail, Longitudinal, Top		2	7'-??"	?
	5c1	Rail, Vertical		?	7'-6"	?
	5c4	Rail, Vertical		2	7'-6"	16
	5c7	Rail, Vertical, Sloped Ends		2	7'-4"	15
	5c8	Rail, Vertical, Sloped Ends		2	7'-1"	15
5c9	Rail, Vertical, Sloped Ends		2	6'-10"	14	
5c10	Rail, Vertical, Sloped Ends		2	6'-7"	14	
6d4	Rail, Longitudinal		22	7'-??"	?	
6d5	Rail, Longitudinal, Traffic Face, Bott.		2	7'-??"	?	
6d7	Rail, Longitudinal, Top		2	7'-??"	?	
Epoxy Reinf. Total Weight (lbs.)						?

Stainless Steel Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c2	Rail, Vertical		?	7'-3"	?
	5c5	Rail, Vertical		2	5'-2"	11
Special Section A	5c3	Rail, Vertical		?	7'-2"	?
Special Section B	5c3	Rail, Vertical		?	7'-2"	?
	5c6	Rail, Vertical		2	7'-0"	15
Stainless Steel Reinf. Total Weight (lbs.)						?

Concrete Placement Summary

Section	Total
Standard Section 7'-??" at 0.144 cu. yd. per ft.	??
Δ Special Section A 7'-??" at 0.144 cu. yd. per ft.	??
Δ Special Section B 7'-??" at 0.144 cu. yd. per ft.	??
Total (cu. yd.)	??

Note: Δ Deduct 0.021 cu. yd. for one sloped end.

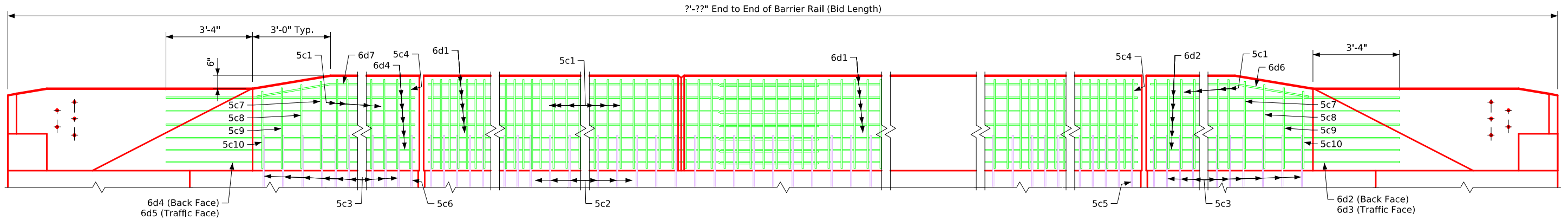
Concrete Barrier Rail Quantities

Item	Unit	Quantity
Concrete Barrier Railing, 3'-8"	L.F.	??

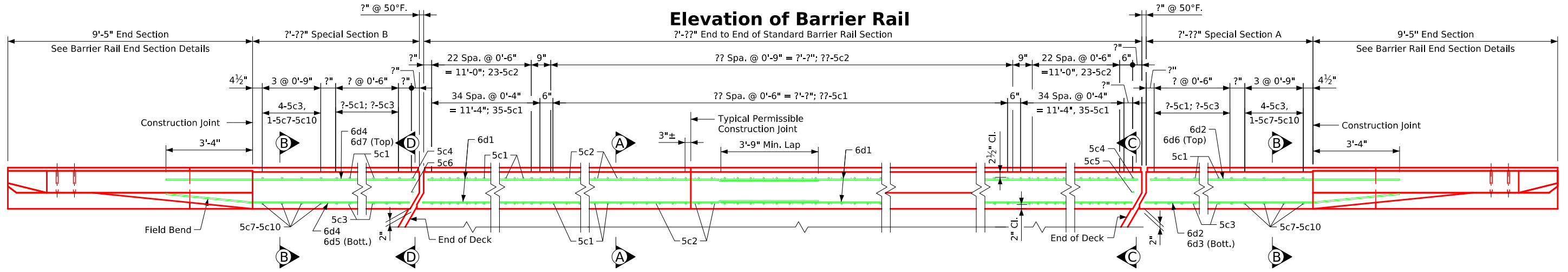
See Barrier Rail Details on Design Sheet No. ?? for details and sections.

Barr. Rail (TL-5) (Stainless)-RA Skew Stub Abut.

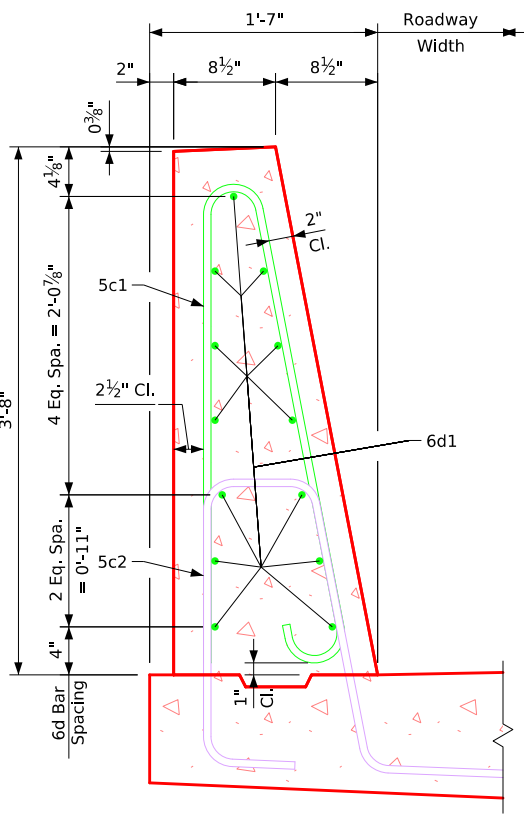
Issued 04-14; Added Stainless Steel Reinforcing Bar List and Changed 5c2, 5c3, 5c14-16 Bars to Stainless Steel. DeckRailBridges.dgn - 1018SD-1 - This Sheet Re-Issued 05-2024. Revised to Single Slope Barrier Shape. Sheet Format Update. (Sheet Number was Originally 1018SD1).



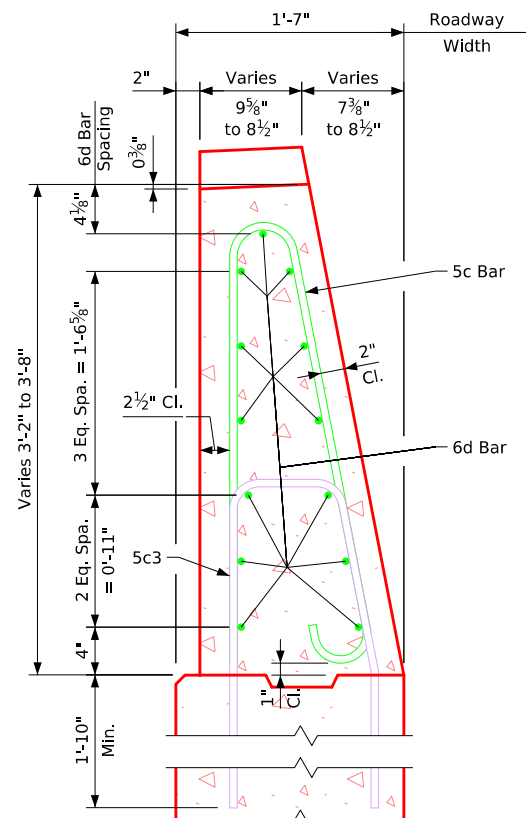
Elevation of Barrier Rail



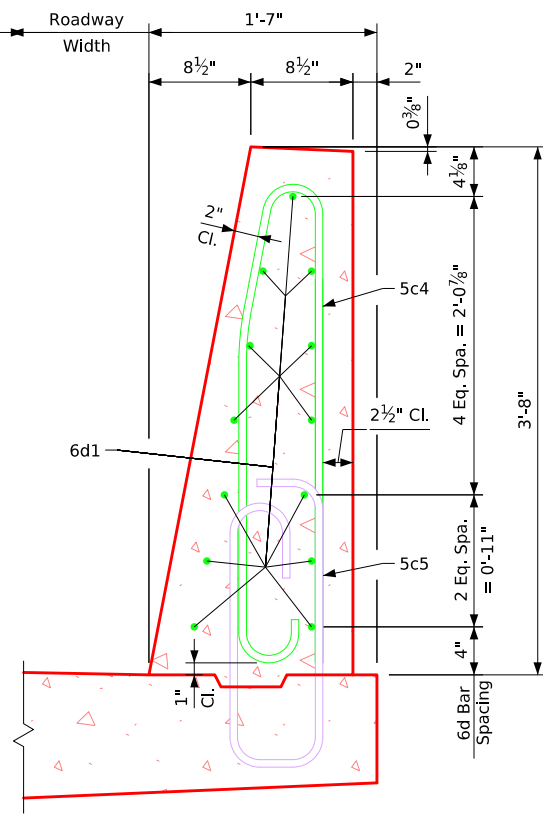
Part Section of Barrier Rail



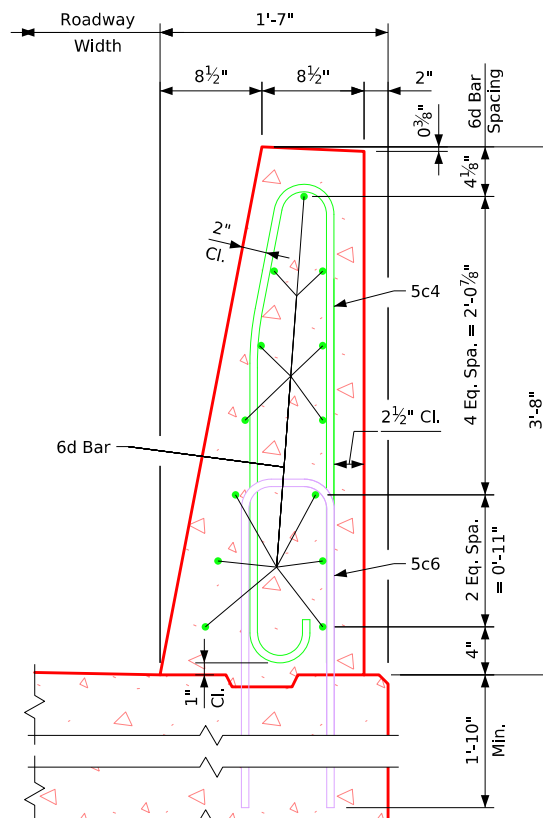
Part Section A-A



Part Section B-B



Part Section C-C



Part Section D-D

See Barrier Rail Details on Design Sheet No. ?? for notes, reinforcing steel details, and quantities.

Barr. Rail (TL-5) (Stainless)-LA Skew Stub Abut.

FILE NO.	ENGLISH	DESIGN TEAM	Barrier Rail (TSS TL-5) (Stainless) - LA Skew Stub Abut. w/Wing Ext. (1 of 2)	Standard Sheet 1018SD-1	COUNTY	PROJECT NUMBER	SHEET NUMBER
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Issued 04-14. Added Stainless Steel Reinforcing Bar List And Changed 5c2, 5c3, 5c14-16 Bars To Stainless Steel. DeckRailBridges.dgn - 1018SD-2 - This Sheet Re-Issued 05-2024. Revised To Single Slope Barrier Shape. Sheet Format Update. (Sheet Number was Originally 1018SD2).

Barrier Rail Notes:

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.

The permissible construction joints are to be placed between vertical bars at a minimum spacing of 20 feet. Construction joint contact surfaces are to be coated with an approved bond breaker.

Cost of the joint sealer and bond breaker shall be considered incidental to other construction.

All barrier rail reinforcing steel is to be either epoxy coated or stainless steel as shown. The stainless steel reinforcing steel shall be deformed bar grade 60 meeting the requirements of Construction and Materials I.M. 452.

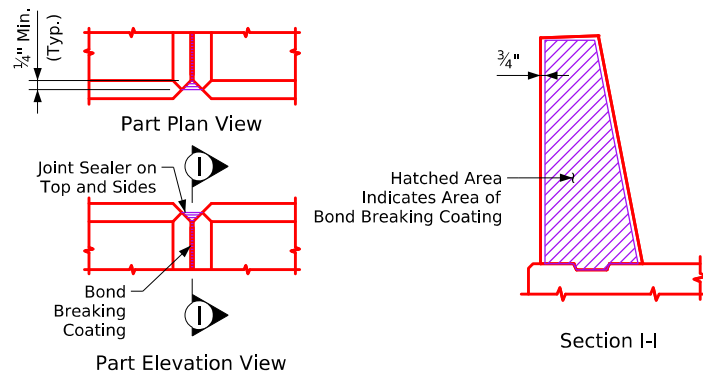
The concrete barrier rail is to be bid on a lineal foot basis. The number of linear feet of barrier rail installed will be paid for at the contract price per lineal foot based on plan quantities. Price bid for concrete barrier railing shall be full compensation for furnishing all material, excluding reinforcing steel, and all of the equipment and labor required to erect the rail in accordance with these plans and current specifications. If conduit is required in this plan the rigid steel conduit, junction boxes and fittings including labor and any additional work to do the installation is considered incidental to the cost of the railing.

The joint sealer shall be light gray nonsag latex caulking sealer marketed for outdoor use. No testing or certification is required.

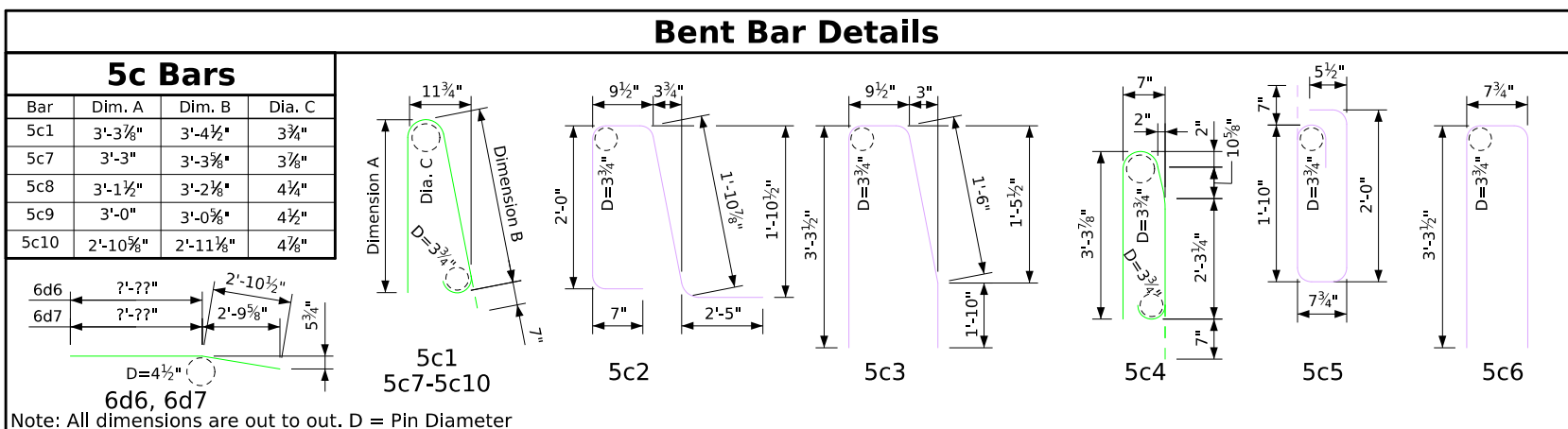
Top of the barrier rail is to be parallel to the theoretical \bar{C} grade.

All exposed corners on the top of the barrier and all other corners 90° or sharper to be filleted with a $\frac{3}{4}$ " dressed and beveled strip.

Cross sectional area of the Standard Sections of the barrier rail = 3.90 square feet, except the 3'-0" sloped ends at the end sections.



Barrier Rail Joint Details



Note: All dimensions are out to out. D = Pin Diameter

Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

Epoxy Coated Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c1	Rail, Vertical		?	7'-6"	?
	5c4	Rail, Vertical		2	7'-6"	16
Special Section A	6d1	Rail, Longitudinal		?	7'-??"	?
	5c1	Rail, Vertical		?	7'-6"	?
	5c7	Rail, Vertical, Sloped Ends		2	7'-4"	15
	5c8	Rail, Vertical, Sloped Ends		2	7'-1"	15
	5c9	Rail, Vertical, Sloped Ends		2	6'-10"	14
	5c10	Rail, Vertical, Sloped Ends		2	6'-7"	14
Special Section B	6d2	Rail, Longitudinal		22	7'-??"	?
	6d3	Rail, Longitudinal, Traffic Face, Bott.		2	7'-??"	?
	6d6	Rail, Longitudinal, Top		2	7'-??"	?
	5c1	Rail, Vertical		?	7'-6"	?
	5c4	Rail, Vertical		2	7'-6"	16
	5c7	Rail, Vertical, Sloped Ends		2	7'-4"	15
	5c8	Rail, Vertical, Sloped Ends		2	7'-1"	15
5c9	Rail, Vertical, Sloped Ends		2	6'-10"	14	
5c10	Rail, Vertical, Sloped Ends		2	6'-7"	14	
6d4	Rail, Longitudinal		22	7'-??"	?	
6d5	Rail, Longitudinal, Traffic Face, Bott.		2	7'-??"	?	
6d7	Rail, Longitudinal, Top		2	7'-??"	?	
Epoxy Reinf. Total Weight (lbs.)						?

Stainless Steel Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c2	Rail, Vertical		?	7'-3"	?
	5c5	Rail, Vertical		2	5'-2"	11
Special Section A	5c3	Rail, Vertical		?	7'-2"	?
Special Section B	5c3	Rail, Vertical		?	7'-2"	?
	5c6	Rail, Vertical		2	7'-0"	15
Stainless Steel Reinf. Total Weight (lbs.)						?

Concrete Placement Summary

Section	Total
Standard Section 7'-??" at 0.144 cu. yd. per ft.	??
Δ Special Section A 7'-??" at 0.144 cu. yd. per ft.	??
Δ Special Section B 7'-??" at 0.144 cu. yd. per ft.	??
Total (cu. yd.)	??

Note: Δ Deduct 0.021 cu. yd. for one sloped end.

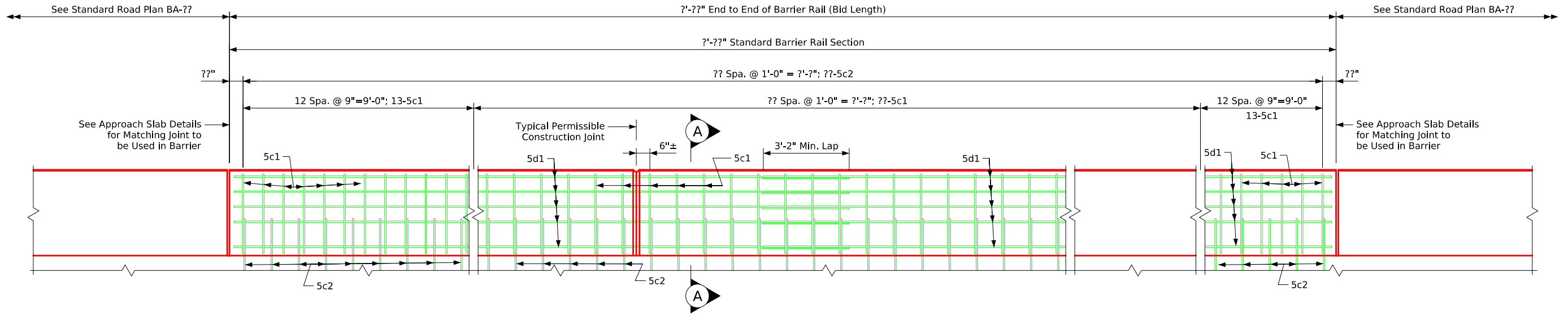
Concrete Barrier Rail Quantities

Item	Unit	Quantity
Concrete Barrier Railing, 3'-8"	L.F.	??

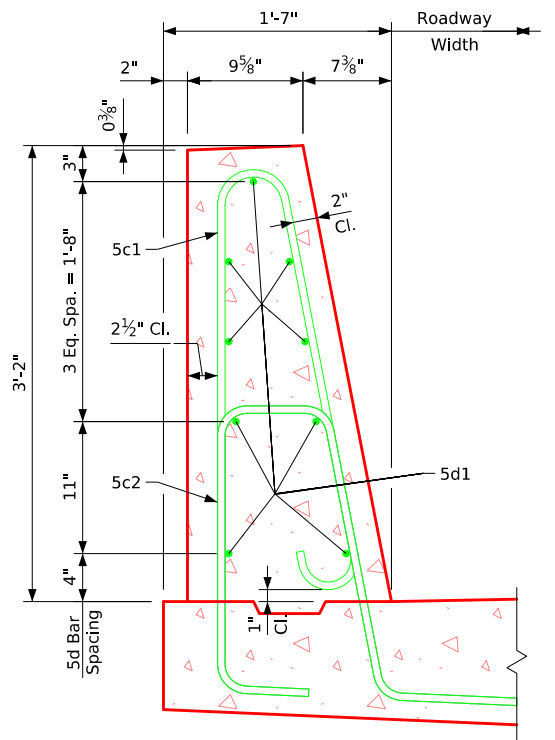
See Barrier Rail Details on Design Sheet No. ?? for details and sections.

Barr. Rail (TL-5) (Stainless)-LA Skew Stub Abut.

Correction 04-14 - Added Note to Include Reinforcing Steel to the Summary Quantity Sheet. Removed Cl.D Conc. from Notes. Issued 09-03. DeckRailBridges.dgn - 1019A-1 - This Sheet Re-Issued 05-2024. Revised to Single Slope Barrier Shape. Sheet Format Update. (Sheet Number was Originally 1019A).



Elevation of Barrier Rail



Part Section A-A

See Barrier Rail Details on Design Sheet No. ?? for notes, reinforcing steel details, and quantities.

Barrier Rail (TL-4)-Integral Abut. Urban

FILE NO.	ENGLISH	DESIGN TEAM	Barrier Rail (TSS TL-4) - Integral Abut. - Urban Appr. Slab w/Curb (1 of 2)	Standard Sheet 1019A-1	COUNTY	PROJECT NUMBER	SHEET NUMBER
9:18:28 PM	5/8/2024	bkloss	pw:\NTP\wint1.dot.int.lan:PWMain\Documents\Highway\Bridges\Standards\Bridges\DeckRailBridges.dgn				

Barrier Rail Notes:

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.

The permissible construction joints are to be placed between vertical bars at a minimum spacing of 20 feet. Construction joint contact surfaces are to be coated with an approved bond breaker.

Cost of the joint sealer and bond breaker shall be considered incidental to other construction.

All barrier rail reinforcing steel is to be epoxy coated as shown.

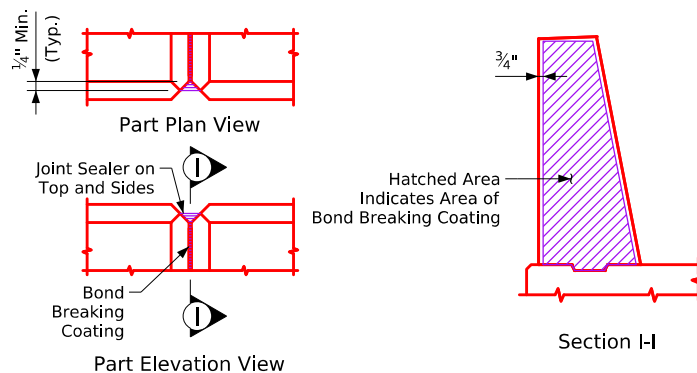
The concrete barrier rail is to be bid on a lineal foot basis. The number of linear feet of barrier rail installed will be paid for at the contract price per lineal foot based on plan quantities. Price bid for concrete barrier railing shall be full compensation for furnishing all material, excluding reinforcing steel, and all of the equipment and labor required to erect the rail in accordance with these plans and current specifications. If conduit is required in this plan the rigid steel conduit, junction boxes and fittings including labor and any additional work to do the installation is considered incidental to the cost of the railing.

The joint sealer shall be light gray nonsag latex caulking sealer marketed for outdoor use. No testing or certification is required.

Top of the barrier rail is to be parallel to the theoretical \bar{C} grade.

All exposed corners on the top of the barrier and all other corners 90° or sharper to be filleted with a $\frac{3}{4}$ " dressed and beveled strip.

Cross sectional area of the Standard and Special Sections of the barrier rail = 3.50 square feet.



Barrier Rail Joint Details

Epoxy Coated Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c1	Rail, Vertical		?	6'-8"	?
	5c2	Rail, Vertical		?	7'-3"	?
	5d1	Rail, Longitudinal		?	7'-??"	?
Epoxy Reinf. Total Weight (lbs.)						?

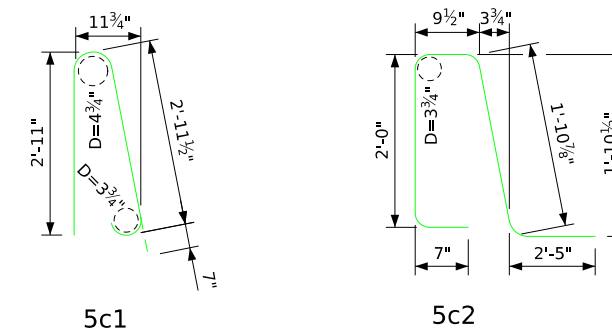
Concrete Placement Summary

Section	Total
Standard Section 7'-??" at 0.130 cu. yd. per ft.	??
Total (cu. yd.)	
	??

Concrete Barrier Rail Quantities

Item	Unit	Quantity
Concrete Barrier Railing	L.F.	??

Bent Bar Details



Note: All dimensions are out to out. D = Pin Diameter

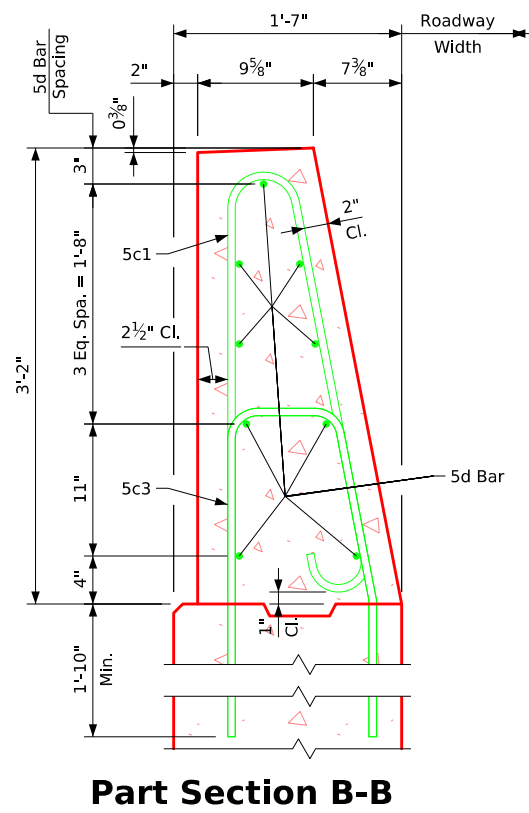
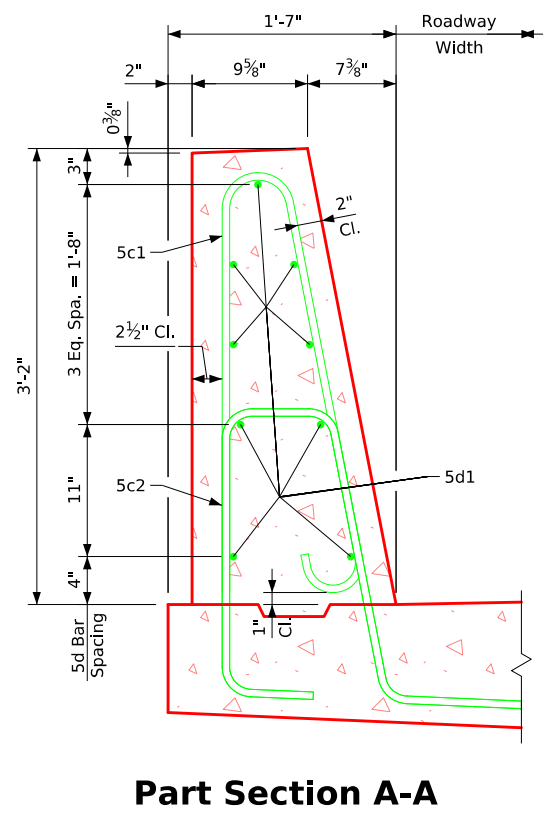
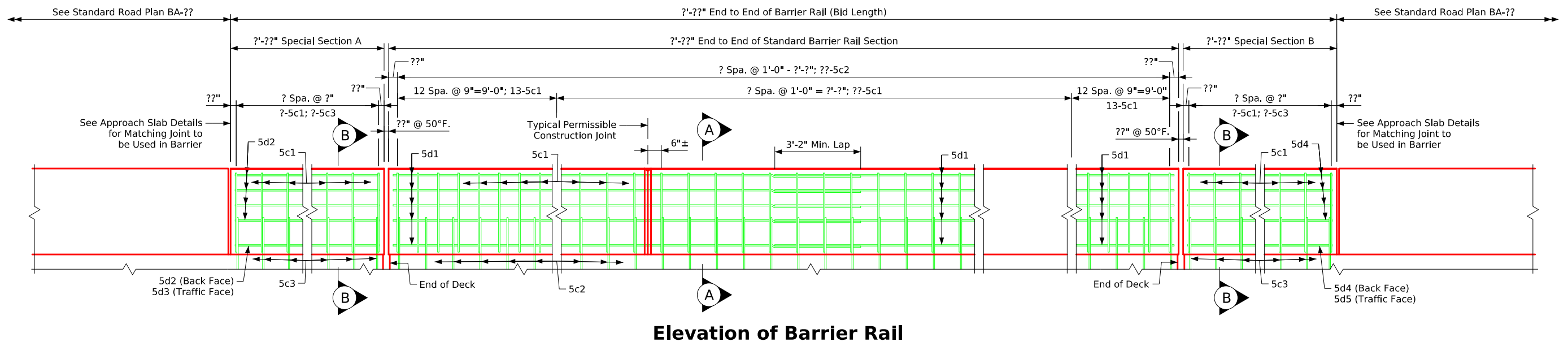
Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

See Barrier Rail Details on Design Sheet No. ?? for details and sections.

Barrier Rail (TL-4)-Integral Abut. Urban

DeckRailBridges.dgn - 1019A-2 - This Sheet Issued 05-2024. Additional Sheet for Clarity. (Sheet Number was Originally 1019A).

Correction 04-14 - Added Note to Include Reinforcing Steel to the Summary Quantity Sheet. Removed Cl.D Conc. from Notes. Issued 09-03. DeckRailBridges.dgn - 1019B-1 - This Sheet Re-Issued 05-2024. Revised to Single Slope Barrier Shape. Sheet Format Update. (Sheet Number was Originally 1019B).



See Barrier Rail Details on Design Sheet No. ?? for notes, reinforcing steel details, and quantities.

Barrier Rail (TL-4)-Stub Abut. Urban

FILE NO.	ENGLISH	DESIGN TEAM	Barrier Rail (TSS TL-4) - Stub Abut. w/Wing Ext. - Urban Appr. Slab w/Curb (1 of 2)	Standard Sheet 1019B-1	COUNTY	PROJECT NUMBER	SHEET NUMBER
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Barrier Rail Notes:

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.

The permissible construction joints are to be placed between vertical bars at a minimum spacing of 20 feet. Construction joint contact surfaces are to be coated with an approved bond breaker.

Cost of the joint sealer and bond breaker shall be considered incidental to other construction.

All barrier rail reinforcing steel is to be epoxy coated as shown.

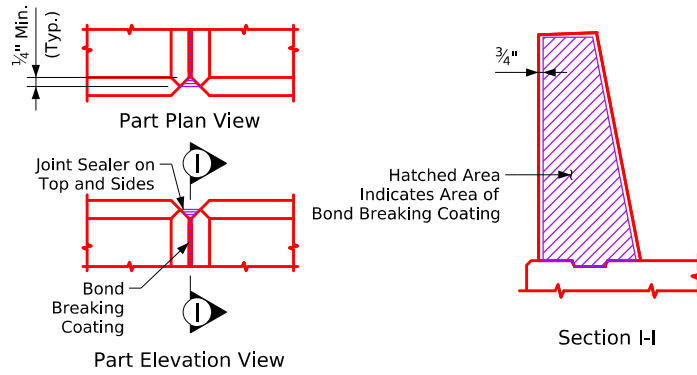
The concrete barrier rail is to be bid on a lineal foot basis. The number of linear feet of barrier rail installed will be paid for at the contract price per lineal foot based on plan quantities. Price bid for concrete barrier railing shall be full compensation for furnishing all material, excluding reinforcing steel, and all of the equipment and labor required to erect the rail in accordance with these plans and current specifications. If conduit is required in this plan the rigid steel conduit, junction boxes and fittings including labor and any additional work to do the installation is considered incidental to the cost of the railing.

The joint sealer shall be light gray nonsag latex caulking sealer marketed for outdoor use. No testing or certification is required.

Top of the barrier rail is to be parallel to the theoretical \bar{C} grade.

All exposed corners on the top of the barrier and all other corners 90° or sharper to be filleted with a $\frac{3}{4}$ " dressed and beveled strip.

Cross sectional area of the Standard and Special Sections of the barrier rail = 3.50 square feet.



Barrier Rail Joint Details

Epoxy Coated Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c1	Rail, Vertical		?	6'-8"	?
	5c2	Rail, Vertical		?	7'-3"	?
Special Section A	5d1	Rail, Longitudinal		?	?'-??"	?
	5c1	Rail, Vertical		?	6'-8"	?
	5c3	Rail, Vertical		?	7'-2"	?
Special Section B	5d2	Rail, Longitudinal		16	?'-??"	?
	5d3	Rail, Longitudinal, Traffic Face, Bott.		2	?'-??"	?
	5c1	Rail, Vertical		?	6'-8"	?
	5c3	Rail, Vertical		?	7'-2"	?
	5d4	Rail, Longitudinal		16	?'-??"	?
5d5	Rail, Longitudinal, Traffic Face, Bott.		2	?'-??"	?	
Epoxy Reinf. Total Weight (lbs.)						?

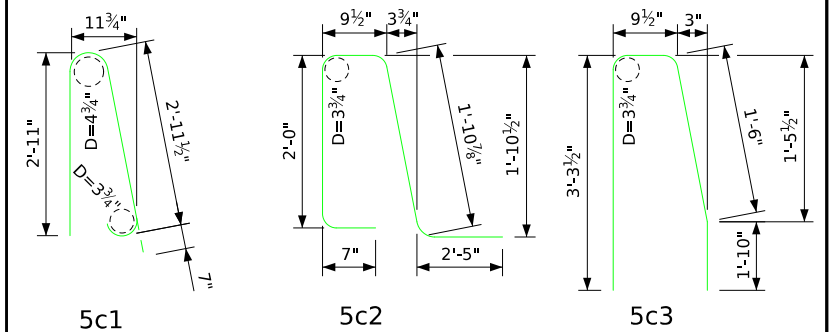
Concrete Placement Summary

Section	Total
Standard Section ?'-??" at 0.130 cu. yd. per ft.	??
Special Section A ?'-??" at 0.130 cu. yd. per ft.	??
Special Section B ?'-??" at 0.130 cu. yd. per ft.	??
Total (cu. yd.)	??

Concrete Barrier Rail Quantities

Item	Unit	Quantity
Concrete Barrier Railing	L.F.	??

Bent Bar Details



Note: All dimensions are out to out. D = Pin Diameter

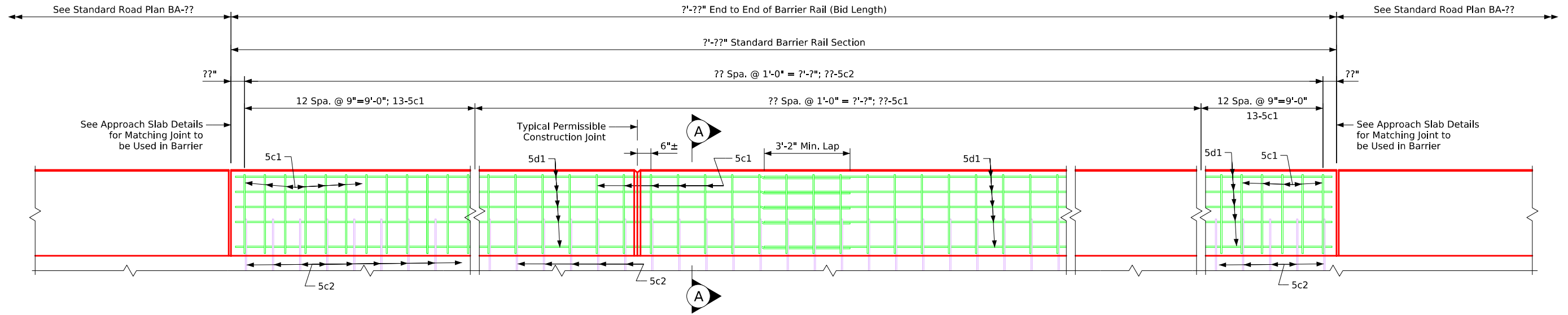
Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

See Barrier Rail Details on Design Sheet No. ?? for details and sections.

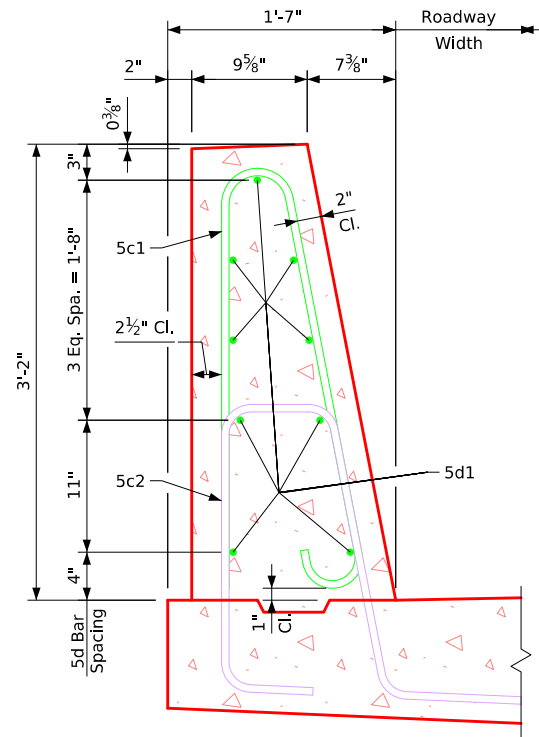
Barrier Rail (TL-4)-Stub Abut. Urban

DeckRailBridges.dgn - 1019B-2 - This Sheet Issued 05-2024. Additional Sheet for Clarity. (Sheet Number was Originally 1019B).

Issued 04-14. Added Stainless Steel Reinforcing Bar List and Changed 5c2 & 5c3 Bars to Stainless Steel. DeckRailBridges.dgn - 10195A-1 - This Sheet Re-issued 05-2024. Revised to Single Slope Barrier Shape. Sheet Format Update. (Sheet Number was Originally 10195A).



Elevation of Barrier Rail



Part Section A-A

See Barrier Rail Details on Design Sheet No. ?? for notes, reinforcing steel details, and quantities.

Barr. Rail (TL-4) (Stainless)-Integral Abut. Urban

FILE NO.	ENGLISH	DESIGN TEAM	Barrier Rail (TSS TL-4) (Stainless)-Integral Abut.-Urban Appr. Slab w/Curb (1 of 2)	Standard Sheet 10195A-1	COUNTY	PROJECT NUMBER	SHEET NUMBER
9:18:30 PM	5/8/2024	bkloss	pw:\NTP\wint1.dot.int.lan:PWMain\Documents\Highway\Bridges\Standards\Bridges\DeckRailBridges.dgn				

Barrier Rail Notes:

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.

The permissible construction joints are to be placed between vertical bars at a minimum spacing of 20 feet. Construction joint contact surfaces are to be coated with an approved bond breaker.

Cost of the joint sealer and bond breaker shall be considered incidental to other construction.

All barrier rail reinforcing steel is to be either epoxy coated or stainless steel as shown. The stainless steel reinforcing steel shall be deformed bar grade 60 meeting the requirements of Construction and Materials I.M. 452.

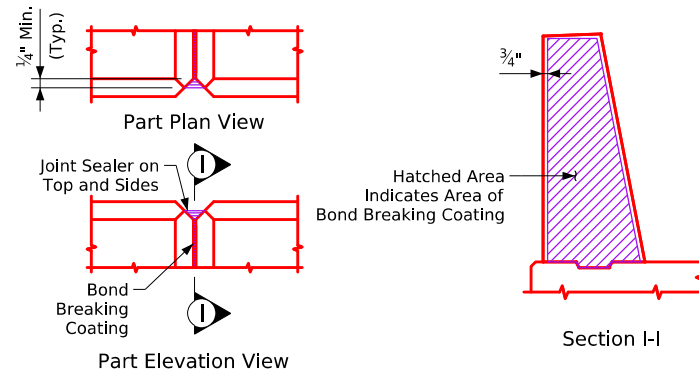
The concrete barrier rail is to be bid on a lineal foot basis. The number of linear feet of barrier rail installed will be paid for at the contract price per lineal foot based on plan quantities. Price bid for concrete barrier railing shall be full compensation for furnishing all material, excluding reinforcing steel, and all of the equipment and labor required to erect the rail in accordance with these plans and current specifications. If conduit is required in this plan the rigid steel conduit, junction boxes and fittings including labor and any additional work to do the installation is considered incidental to the cost of the railing.

The joint sealer shall be light gray nonsag latex caulking sealer marketed for outdoor use. No testing or certification is required.

Top of the barrier rail is to be parallel to the theoretical \bar{C} grade.

All exposed corners on the top of the barrier and all other corners 90° or sharper to be filleted with a $\frac{3}{4}$ " dressed and beveled strip.

Cross sectional area of the Standard Sections of the barrier rail = 3.50 square feet.



Barrier Rail Joint Details

Epoxy Coated Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c1	Rail, Vertical		?	6'-8"	?
	5d2	Rail, Longitudinal		?	?'-??"	?
Epoxy Reinf. Total Weight (lbs.)						?

Stainless Steel Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c2	Rail, Vertical		?	7'-3"	?
Stainless Steel Reinf. Total Weight (lbs.)						?

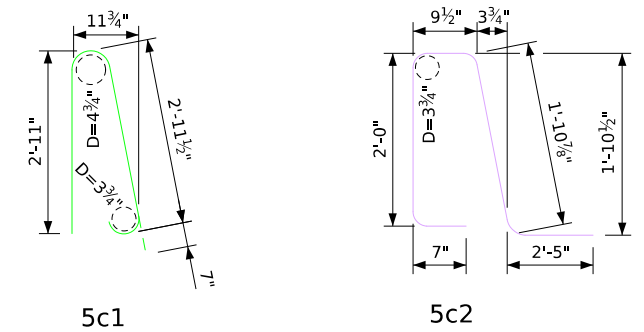
Concrete Placement Summary

Section	Total
Standard Section ?'-??" at 0.130 cu. yd. per ft.	??
Total (cu. yd.)	??

Concrete Barrier Rail Quantities

Item	Unit	Quantity
Concrete Barrier Railing	L.F.	??

Bent Bar Details



Note: All dimensions are out to out. D = Pin Diameter

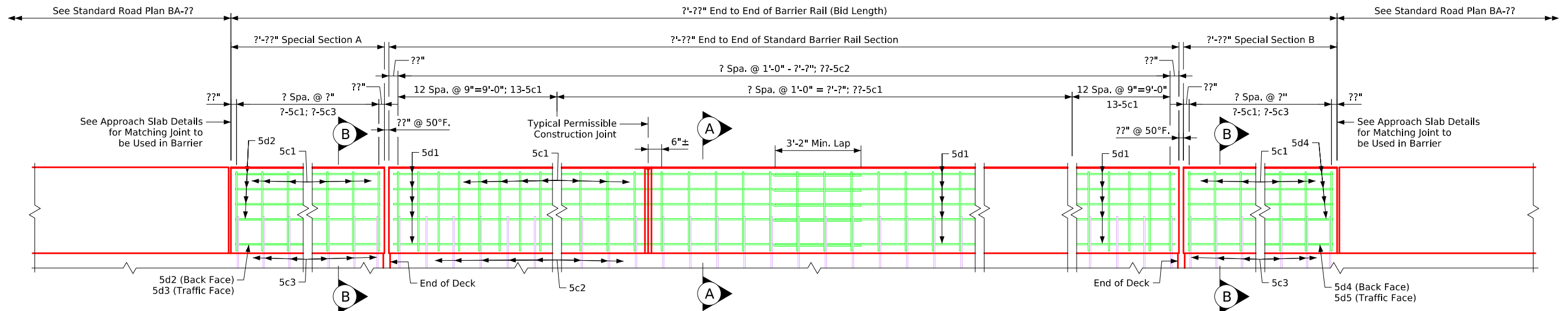
Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

See Barrier Rail Details on Design Sheet No. ?? for details and sections.

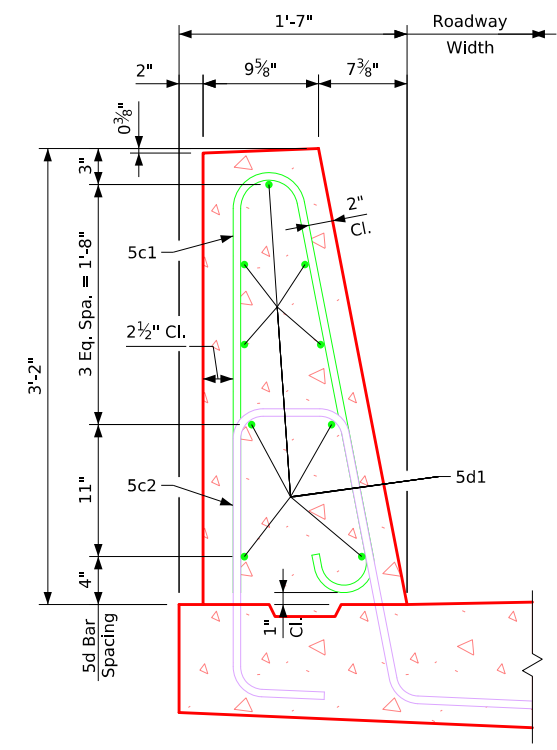
Barr. Rail (TL-4) (Stainless)-Integral Abut. Urban

DeckRailBridges.dgn - 10195A-2 -This Sheet issued 05-2024. Additional Sheet for Clarity. (Sheet Number was Originally 10195A).

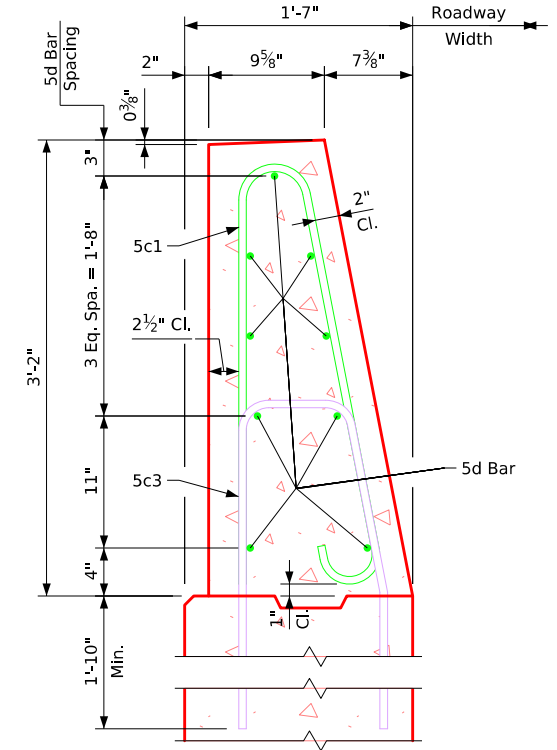
Issued 04-14. Added Stainless Steel Reinforcing Bar List and Changed 5c2 & 5c3 Bars to Stainless Steel. DeckRailBridges.dgn - 10195B-1 - This Sheet Re-issued 05-2024. Revised to Single Slope Barrier Shape. Sheet Format Update. (Sheet Number was Originally 10195B1).



Elevation of Barrier Rail



Part Section A-A



Part Section B-B

See Barrier Rail Details on Design Sheet No. ?? for notes, reinforcing steel details, and quantities.

Barr. Rail (TL-4) (Stainless)-Stub Abut. Urban

FILE NO.	ENGLISH	DESIGN TEAM	Barr. Rail (TSS TL-4)(Stainless)-Stub Abut. w/Wing Ext.-Urban Appr. Slab w/Curb (1 of 2)	Standard Sheet 10195B-1	COUNTY	PROJECT NUMBER	SHEET NUMBER
9:18:31 PM	5/8/2024	bkloss	pw:\NTP\wint1.dot.int.lan:PWWMain\Documents\Highway\Bridge\Standards\Bridges\DeckRailBridges.dgn				

Issued 04-14, Added Stainless Steel Reinforcing Bar List and Changed 5c2 & 5c3 Bars to Stainless Steel. DeckRailBridges.dgn - 1019SB-2 - This Sheet Re-issued 05-2024. Sheet Format Update. (Sheet Number was Originally 1019SB2).

Barrier Rail Notes:

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.
 The permissible construction joints are to be placed between vertical bars at a minimum spacing of 20 feet. Construction joint contact surfaces are to be coated with an approved bond breaker.

Cost of the joint sealer and bond breaker shall be considered incidental to other construction.

All barrier rail reinforcing steel is to be either epoxy coated or stainless steel as shown. The stainless steel reinforcing steel shall be deformed bar grade 60 meeting the requirements of Construction and Materials I.M. 452.

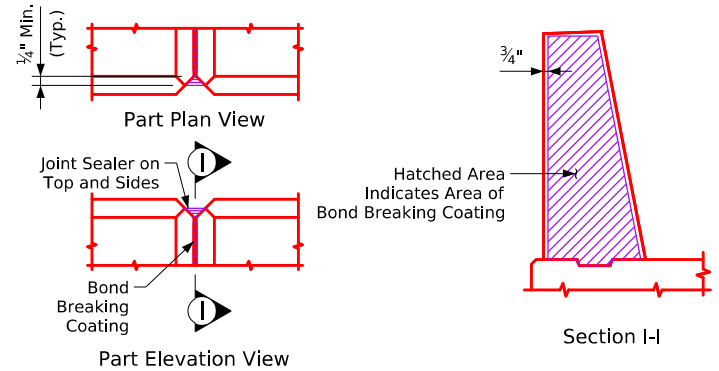
The concrete barrier rail is to be bid on a lineal foot basis. The number of linear feet of barrier rail installed will be paid for at the contract price per lineal foot based on plan quantities. Price bid for concrete barrier railing shall be full compensation for furnishing all material, excluding reinforcing steel, and all of the equipment and labor required to erect the rail in accordance with these plans and current specifications. If conduit is required in this plan the rigid steel conduit, junction boxes and fittings including labor and any additional work to do the installation is considered incidental to the cost of the railing.

The joint sealer shall be light gray nonsag latex caulking sealer marketed for outdoor use. No testing or certification is required.

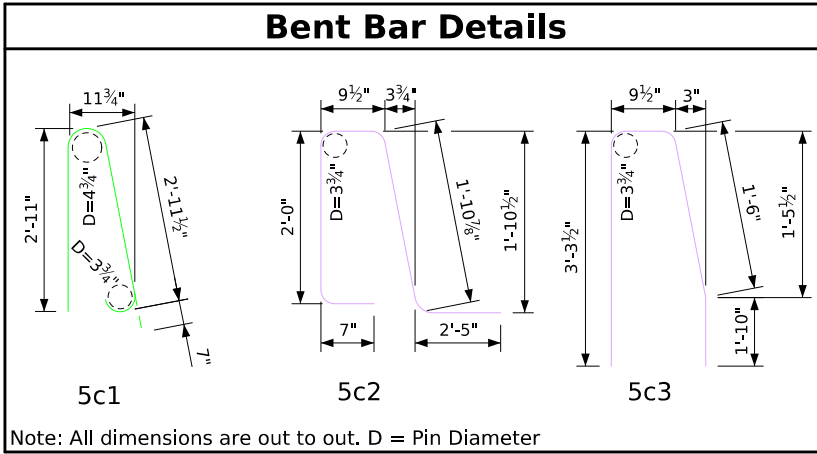
Top of the barrier rail is to be parallel to the theoretical C grade.

All exposed corners on the top of the barrier and all other corners 90° or sharper to be filleted with a 3/4" dressed and beveled strip.

Cross sectional area of the Standard Sections of the barrier rail = 3.50 square feet.



Barrier Rail Joint Details



Bent Bar Details
 Note: All dimensions are out to out. D = Pin Diameter
 Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

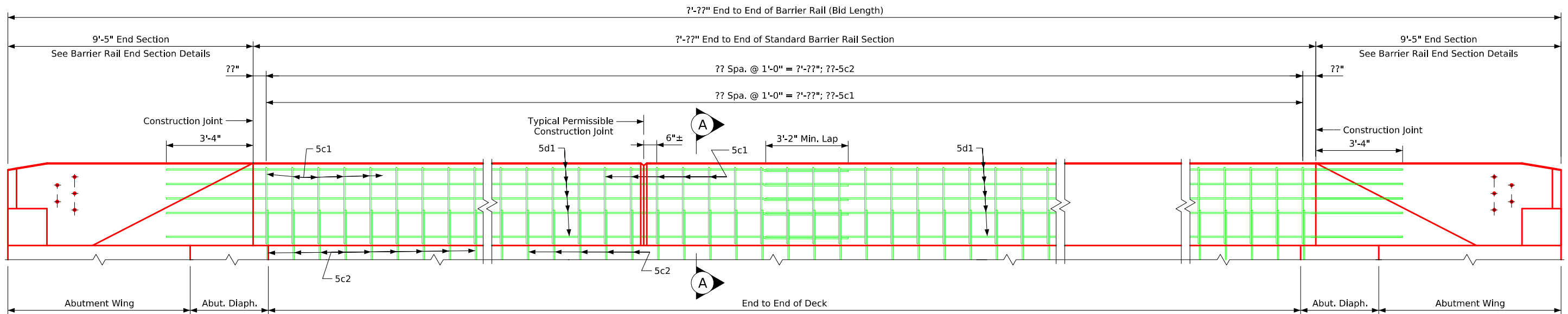
Epoxy Coated Reinf. Steel - Two Rails						
Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c1	Rail, Vertical		?	6'-8"	?
	5d1	Rail, Longitudinal		?	?'-??"	?
Special Section A	5c1	Rail, Vertical		?	6'-8"	?
	5d2	Rail, Longitudinal		16	?'-??"	?
	5d3	Rail, Longitudinal, Traffic Face, Bott.		2	?'-??"	?
Special Section B	5c1	Rail, Vertical		?	6'-8"	?
	5d4	Rail, Longitudinal		16	?'-??"	?
	5d5	Rail, Longitudinal, Traffic Face, Bott.		2	?'-??"	?
Epoxy Reinf. Total Weight (lbs.)						?
Stainless Steel Reinf. Steel - Two Rails						
Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c2	Rail, Vertical		?	7'-3"	?
Special Section A	5c3	Rail, Vertical		?	7'-2"	?
Special Section B	5c3	Rail, Vertical		?	7'-2"	?
Stainless Steel Reinf. Total Weight (lbs.)						?

Concrete Placement Summary		
Section	Quantity	Total
Standard Section ?'-??" at 0.130 cu. yd. per ft.	??	??
Special Section A ?'-??" at 0.130 cu. yd. per ft.	??	??
Special Section B ?'-??" at 0.130 cu. yd. per ft.	??	??
Total (cu. yd.)		??
Concrete Barrier Rail Quantities		
Item	Unit	Quantity
Concrete Barrier Railing	L.F.	??

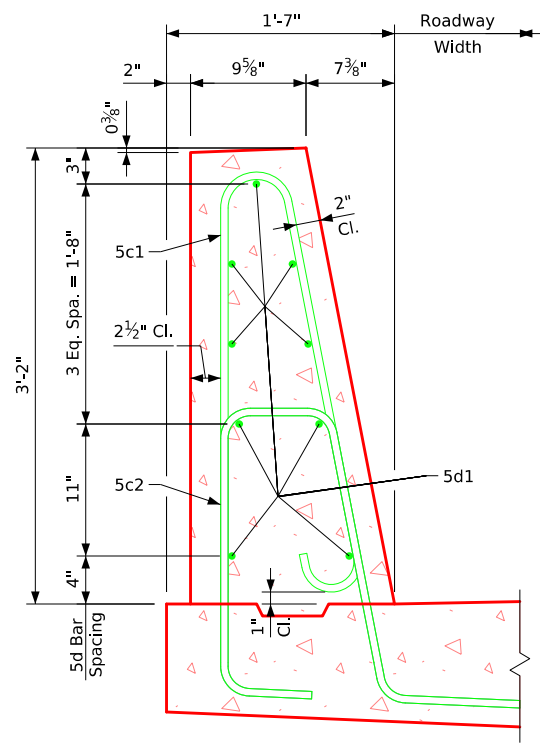
See Barrier Rail Details on Design Sheet No. ?? for details and sections.

Barr. Rail (TL-4) (Stainless)-Stub Abut. Urban

Correction 04-14: Added Note to Include Reinforcing Steel to the Summary Quantity Sheet. Removed End Section Quantity from Bar List and Concrete Placement Summary. Issued 02-00. DeckRailBridges.dgn - 1020A-1 - This Sheet Re-Issued 05-2024. Sheet Format Update. (Sheet Number was Originally 1020A).



Elevation of Barrier Rail



Part Section A-A

See Barrier Rail Details on Design Sheet No. ?? for notes, reinforcing steel details, and quantities.

Barrier Rail (TL-4)-Integral Abut.

FILE NO.	ENGLISH	DESIGN TEAM	Barrier Rail (TSS TL-4) - Integral Abut. (1 of 2)	Standard Sheet 1020A-1	COUNTY	PROJECT NUMBER	SHEET NUMBER
9:18:33 PM	5/8/2024	bkloss	pw:\NTPwint1.dot.int.lan:PWWMain\Documents\Highway\Bridge\Standards\Bridges\DeckRailBridges.dgn				

Barrier Rail Notes:

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.

The permissible construction joints are to be placed between vertical bars at a minimum spacing of 20 feet. Construction joint contact surfaces are to be coated with an approved bond breaker.

Cost of the joint sealer and bond breaker shall be considered incidental to other construction.

All barrier rail reinforcing steel is to be epoxy coated as shown.

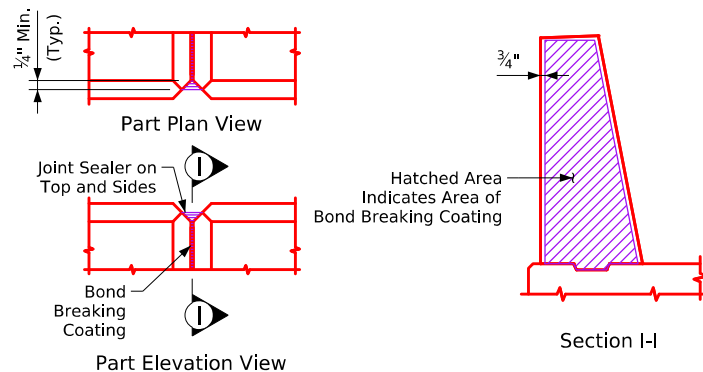
The concrete barrier rail is to be bid on a lineal foot basis. The number of linear feet of barrier rail installed will be paid for at the contract price per lineal foot based on plan quantities. Price bid for concrete barrier railing shall be full compensation for furnishing all material, excluding reinforcing steel, and all of the equipment and labor required to erect the rail in accordance with these plans and current specifications. If conduit is required in this plan the rigid steel conduit, junction boxes and fittings including labor and any additional work to do the installation is considered incidental to the cost of the railing.

The joint sealer shall be light gray nonsag latex caulking sealer marketed for outdoor use. No testing or certification is required.

Top of the barrier rail is to be parallel to the theoretical \bar{C} grade.

All exposed corners on the top of the barrier and all other corners 90° or sharper to be filleted with a $\frac{3}{4}$ " dressed and beveled strip.

Cross sectional area of the Standard and Special Sections of the barrier rail = 3.50 square feet.



Barrier Rail Joint Details

Epoxy Coated Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c1	Rail, Vertical		?	6'-8"	?
	5c2	Rail, Vertical		?	7'-3"	?
	5d1	Rail, Longitudinal		?	?'-??"	?
Epoxy Reinf. Total Weight (lbs.)						?

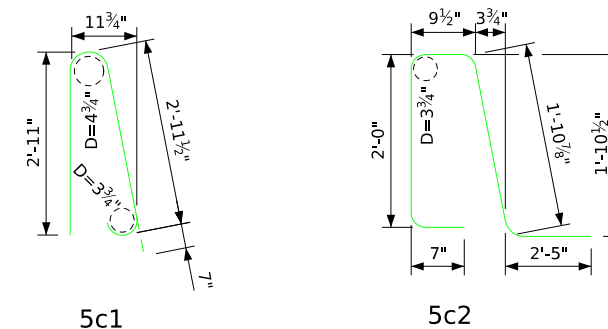
Concrete Placement Summary

Section	Total
Standard Section ?'-??" at 0.130 cu. yd. per ft.	??
Total (cu. yd.)	??

Concrete Barrier Rail Quantities

Item	Unit	Quantity
Concrete Barrier Railing	L.F.	??

Bent Bar Details



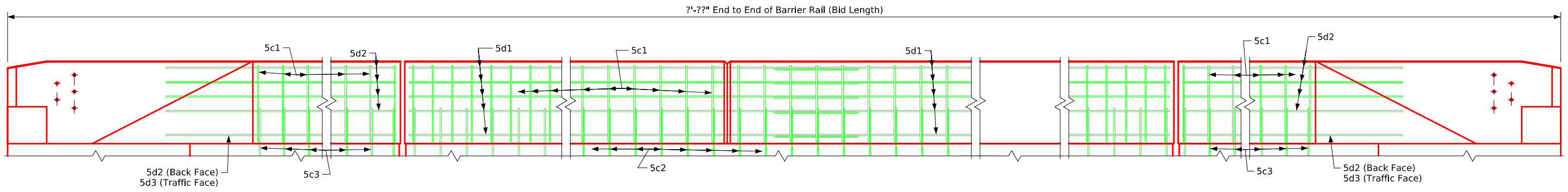
Note: All dimensions are out to out. D = Pin Diameter
 Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

See Barrier Rail Details on Design Sheet No. ?? for details and sections.

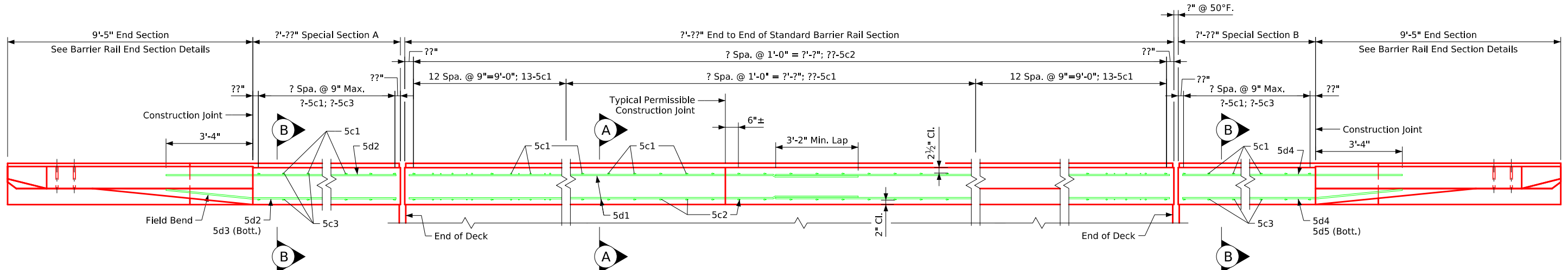
Barrier Rail (TL-4)-Integral Abut.

DeckRailBridges.dgn - 1020A-2 - This Sheet Issued 05-2024. Additional Sheet for Clarity. (Sheet Number was Originally 1020A).

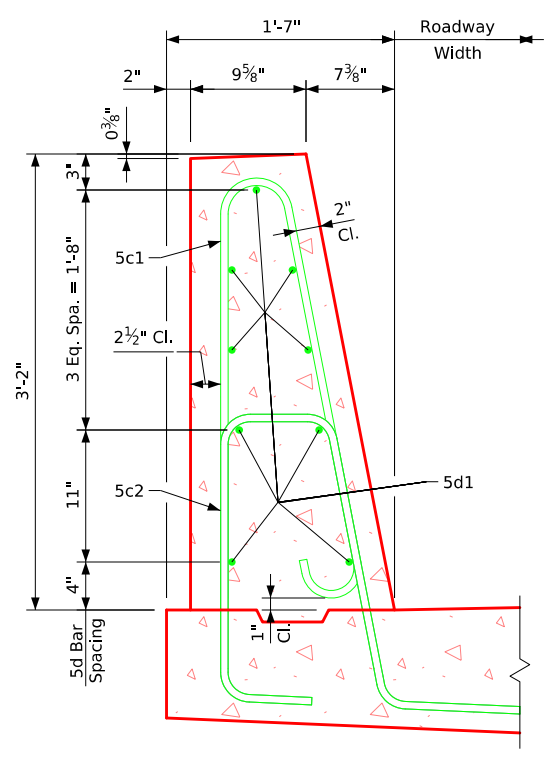
Correction 04-14: Added Note to Include Reinforcing Steel to the Summary Quantity Sheet. Removed End Section Quantity from Bar List and Concrete Placement Summary. Issued 02-00. DeckRailBridges.dgn - 1020B-1 - This Sheet Re-Issued 05-2024. Sheet Format Update. (Sheet Number was Originally 1020B).



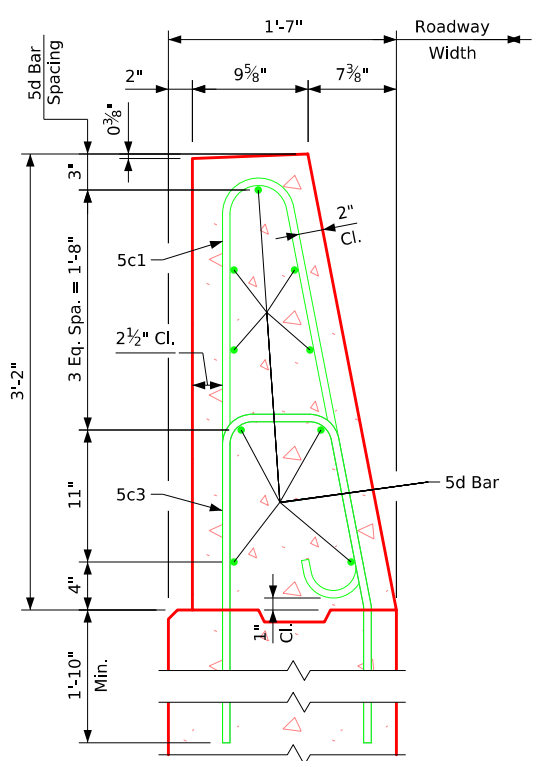
Elevation of Barrier Rail



Part Section of Barrier Rail



Part Section A-A



Part Section B-B

See Barrier Rail Details on Design Sheet No. ?? for notes, reinforcing steel details, and quantities.

Barrier Rail (TL-4)-Stub Abut.

FILE NO.	ENGLISH	DESIGN TEAM	Barrier Rail (TSS TL-4) - Stub Abut. w/Wing Ext. (1 of 2)	Standard Sheet 1020B-1	COUNTY	PROJECT NUMBER	SHEET NUMBER
9:18:34 PM	5/8/2024	bkloss	pw:\NTP\wint1.dot.int.lan:PWWMain\Documents\Highway\Bridge\Standards\Bridges\DeckRailBridges.dgn				

Barrier Rail Notes:

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.

The permissible construction joints are to be placed between vertical bars at a minimum spacing of 20 feet. Construction joint contact surfaces are to be coated with an approved bond breaker.

Cost of the joint sealer and bond breaker shall be considered incidental to other construction.

All barrier rail reinforcing steel is to be epoxy coated as shown.

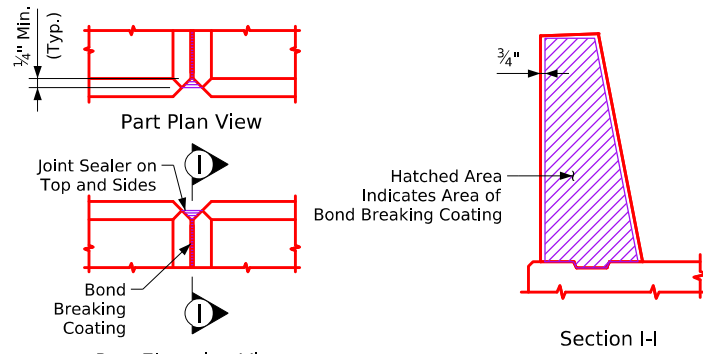
The concrete barrier rail is to be bid on a lineal foot basis. The number of linear feet of barrier rail installed will be paid for at the contract price per lineal foot based on plan quantities. Price bid for concrete barrier railing shall be full compensation for furnishing all material, excluding reinforcing steel, and all of the equipment and labor required to erect the rail in accordance with these plans and current specifications. If conduit is required in this plan the rigid steel conduit, junction boxes and fittings including labor and any additional work to do the installation is considered incidental to the cost of the railing.

The joint sealer shall be light gray nonsag latex caulking sealer marketed for outdoor use. No testing or certification is required.

Top of the barrier rail is to be parallel to the theoretical \bar{C} grade.

All exposed corners on the top of the barrier and all other corners 90° or sharper to be filleted with a $\frac{3}{4}$ " dressed and beveled strip.

Cross sectional area of the Standard and Special Sections of the barrier rail = 3.50 square feet.



Barrier Rail Joint Details

Epoxy Coated Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c1	Rail, Vertical		?	6'-8"	?
	5c2	Rail, Vertical		?	7'-3"	?
	5d1	Rail, Longitudinal		?	?'-??"	?
Special Section A	5c1	Rail, Vertical		?	6'-8"	?
	5c3	Rail, Vertical		?	7'-2"	?
	5d2	Rail, Longitudinal		?	?'-??"	?
Special Section B	5d3	Rail, Longitudinal, Traffic Face, Bott.		?	?'-??"	?
	5c1	Rail, Vertical		?	6'-8"	?
	5c3	Rail, Vertical		?	7'-2"	?
Special Section B	5d4	Rail, Longitudinal		?	?'-??"	?
	5d5	Rail, Longitudinal, Traffic Face, Bott.		?	?'-??"	?
	Epoxy Reinf. Total Weight (lbs.)					

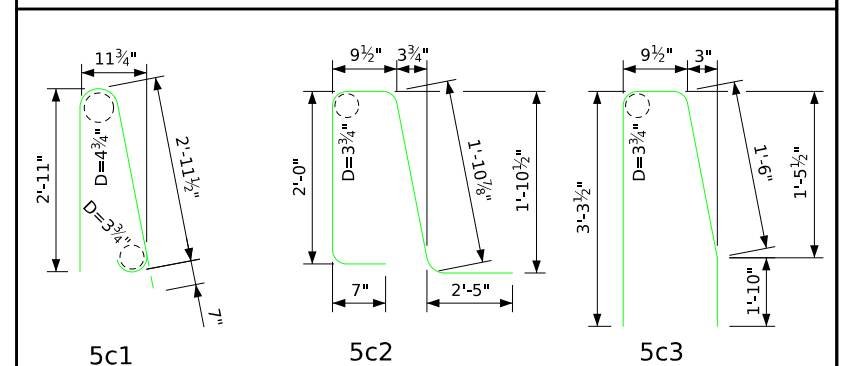
Concrete Placement Summary

Section	Total
Standard Section ?'-??" at 0.130 cu. yd. per ft.	??
Special Section A ?'-??" at 0.130 cu. yd. per ft.	??
Special Section B ?'-??" at 0.130 cu. yd. per ft.	??
Total (cu. yd.)	??

Concrete Barrier Rail Quantities

Item	Unit	Quantity
Concrete Barrier Railing	L.F.	??

Bent Bar Details



Note: All dimensions are out to out. D = Pin Diameter

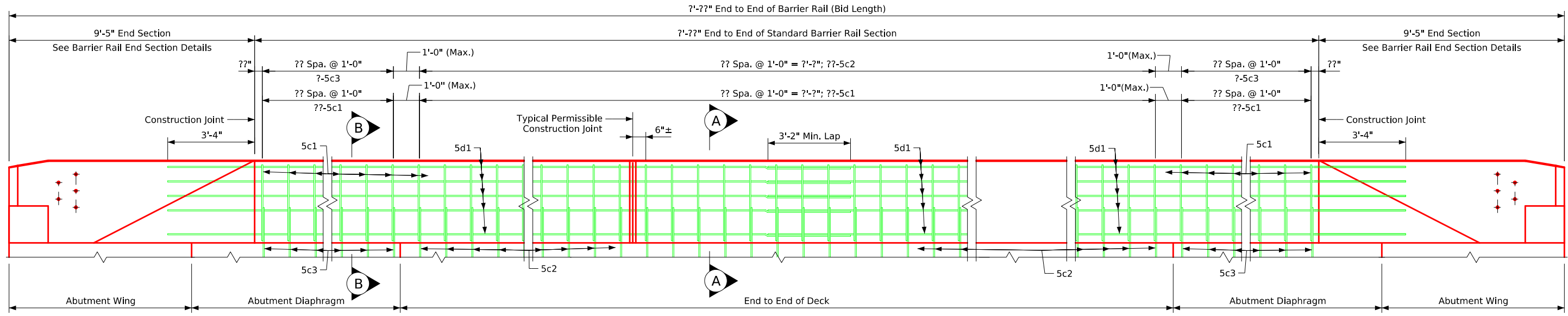
Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

See Barrier Rail Details on Design Sheet No. ?? for details and sections.

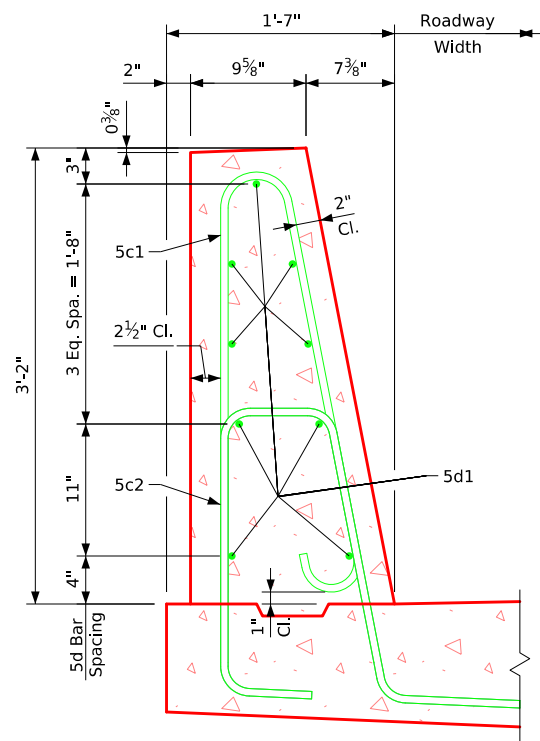
Barrier Rail (TL-4)-Stub Abut.

DeckRailBridges.dgn - 1020B-2 - This Sheet Issued 05-2024. Additional Sheet for Clarity. (Sheet Number was Originally 1020B).

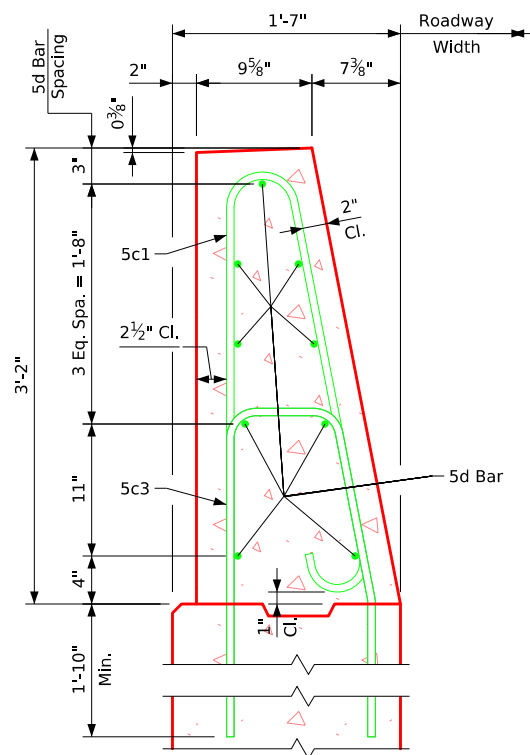
Correction 04-14: Added Note to Include Reinforcing Steel to the Summary Quantity Sheet. Removed End Section Quantity from Bar List and Concrete Placement Summary. Issued 02-00. DeckRailBridges.dgn - 1020C-1 - This Sheet Re-Issued 05-2024. Sheet Format Update. (Sheet Number was Originally 1020C).



Elevation of Barrier Rail



Part Section A-A



Part Section B-B

See Barrier Rail Details on Design Sheet No. ?? for notes, reinforcing steel details, and quantities.

Barrier Rail (TL-4)-Integral Abut.

FILE NO.	ENGLISH	DESIGN TEAM	Barrier Rail (TSS TL-4) - Integral Abut. w/Wing Ext. (1 of 2)	Standard Sheet 1020C-1	COUNTY	PROJECT NUMBER	SHEET NUMBER
9:18:35 PM	5/8/2024	bkloss	pw:\NTPwint1.dot.int.lan:PWMain\Documents\Highway\Bridges\Standards\Bridges\DeckRailBridges.dgn				

Barrier Rail Notes:

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.

The permissible construction joints are to be placed between vertical bars at a minimum spacing of 20 feet. Construction joint contact surfaces are to be coated with an approved bond breaker.

Cost of the joint sealer and bond breaker shall be considered incidental to other construction.

All barrier rail reinforcing steel is to be epoxy coated as shown.

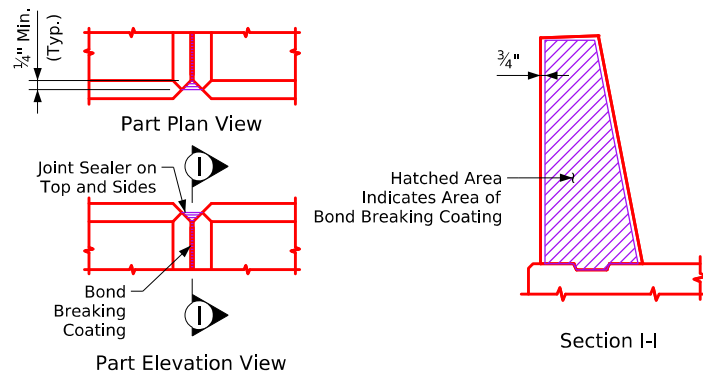
The concrete barrier rail is to be bid on a lineal foot basis. The number of linear feet of barrier rail installed will be paid for at the contract price per lineal foot based on plan quantities. Price bid for concrete barrier railing shall be full compensation for furnishing all material, excluding reinforcing steel, and all of the equipment and labor required to erect the rail in accordance with these plans and current specifications. If conduit is required in this plan the rigid steel conduit, junction boxes and fittings including labor and any additional work to do the installation is considered incidental to the cost of the railing.

The joint sealer shall be light gray nonsag latex caulking sealer marketed for outdoor use. No testing or certification is required.

Top of the barrier rail is to be parallel to the theoretical \bar{C} grade.

All exposed corners on the top of the barrier and all other corners 90° or sharper to be filleted with a $\frac{3}{4}$ " dressed and beveled strip.

Cross sectional area of the Standard and Special Sections of the barrier rail = 3.50 square feet.



Barrier Rail Joint Details

Epoxy Coated Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c1	Rail, Vertical		?	6'-8"	?
	5c2	Rail, Vertical		?	7'-3"	?
	5c3	Rail, Vertical		?	7'-2"	?
	5d1	Rail, Longitudinal		?	7'-??"	?
Epoxy Reinf. Total Weight (lbs.)						?

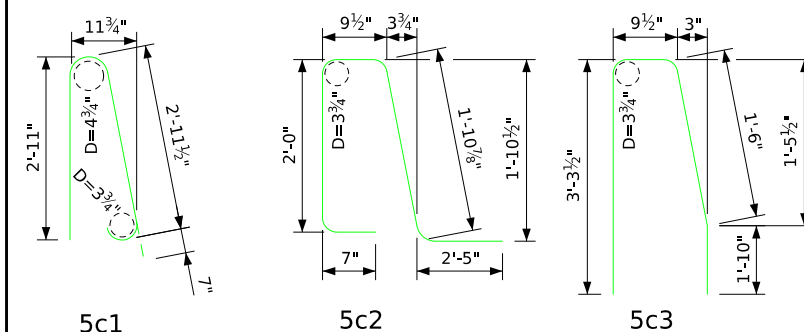
Concrete Placement Summary

Section	Total	
Standard Section 7'-??" at 0.130 cu. yd. per ft.	?.?	
Total (cu. yd.)		?.?

Concrete Barrier Rail Quantities

Item	Unit	Quantity
Concrete Barrier Railing	L.F.	?.?

Bent Bar Details



Note: All dimensions are out to out. D = Pin Diameter

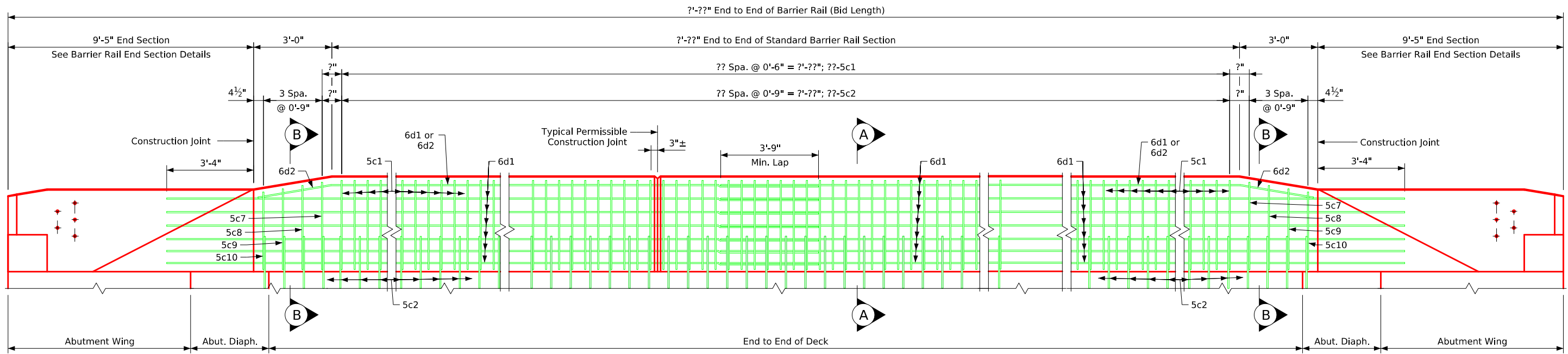
Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

See Barrier Rail Details on Design Sheet No. ?? for details and sections.

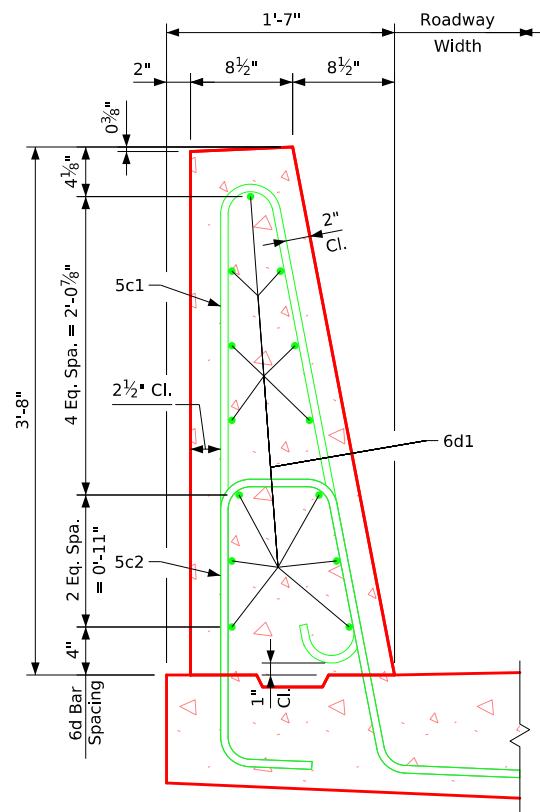
Barrier Rail (TL-4)-Integral Abut.

DeckRailBridges.dgn - 1020C-2 - This Sheet Issued 05-2024. Additional Sheet for Clarity. (Sheet Number was Originally 1020C).

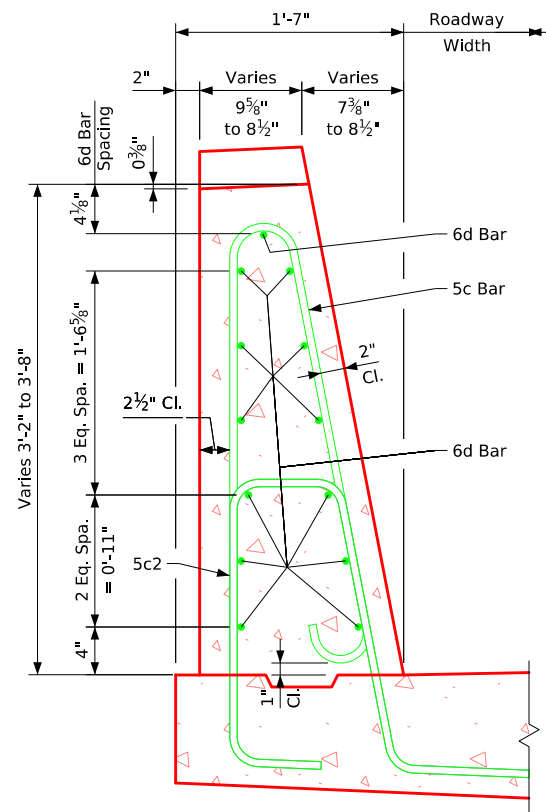
Correction 04-14: Added Note to Include Reinforcing Steel to the Summary Quantity Sheet. Removed End Section Quantity from Bar List and Concrete Placement Summary. Issued 11-07. DeckRailBridges.dgn - 1020D-1 - This Sheet Re-Issued 05-2024. Sheet Format Update. (Sheet Number was Originally 1020D).



Elevation of Barrier Rail



Part Section A-A



Part Section B-B

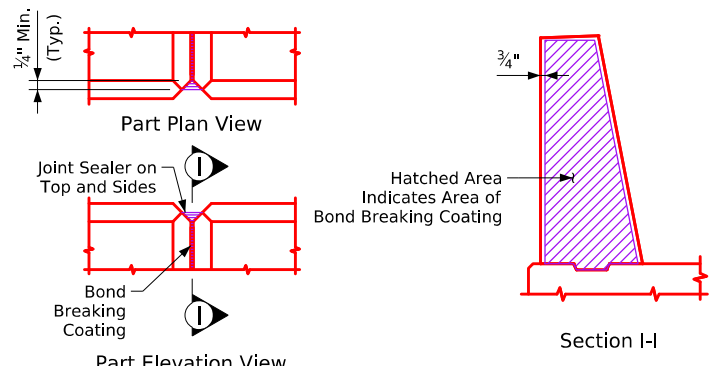
See Barrier Rail Details on Design Sheet ?? for notes, reinforcing steel details, and quantities.

Barrier Rail (TL-5)-Integral Abut.

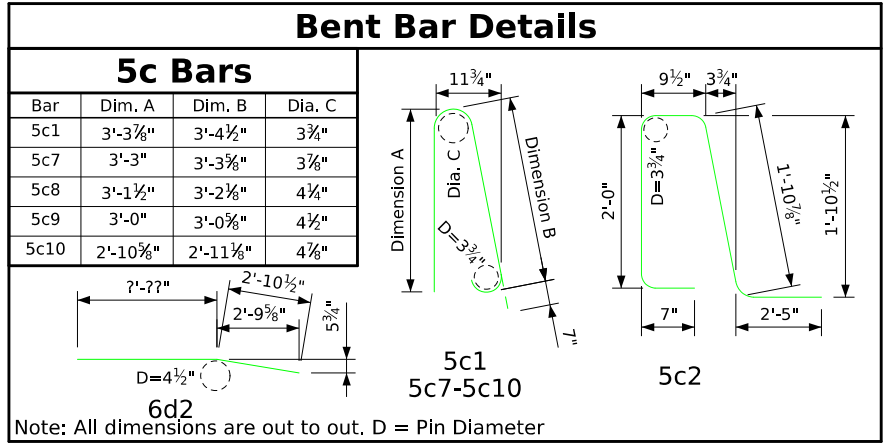
FILE NO.	ENGLISH	DESIGN TEAM	Barrier Rail (TSS TL-5) - Integral Abut. (1 of 2)	Standard Sheet 1020D-1	COUNTY	PROJECT NUMBER	SHEET NUMBER
9:18:37 PM	5/8/2024	bkloss	pw:\NTPwint1.dot.int.lan:PWWMain\Documents\Highway\Bridge\Standards\Bridges\DeckRailBridges.dgn				

Barrier Rail Notes:

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.
 The permissible construction joints are to be placed between vertical bars at a minimum spacing of 20 feet. Construction joint contact surfaces are to be coated with an approved bond breaker.
 Cost of the joint sealer and bond breaker shall be considered incidental to other construction.
 All barrier rail reinforcing steel is to be epoxy coated as shown.
 The concrete barrier rail is to be bid on a lineal foot basis. The number of linear feet of barrier rail installed will be paid for at the contract price per lineal foot based on plan quantities. Price bid for concrete barrier railing shall be full compensation for furnishing all material, excluding reinforcing steel, and all of the equipment and labor required to erect the rail in accordance with these plans and current specifications. If conduit is required in this plan the rigid steel conduit, junction boxes and fittings including labor and any additional work to do the installation is considered incidental to the cost of the railing.
 The joint sealer shall be light gray nonsag latex caulking sealer marketed for outdoor use. No testing or certification is required.
 Top of the barrier rail is to be parallel to the theoretical \bar{C} grade.
 All exposed corners on the top of the barrier and all other corners 90° or sharper to be filleted with a $\frac{3}{4}$ " dressed and beveled strip.
 Cross sectional area of the Standard and Special Sections of the barrier rail = 3.90 square feet, except the 3'-0" sloped ends at the end sections.



Barrier Rail Joint Details



Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

Epoxy Coated Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c1	Rail, Vertical		?	7'-6"	?
	5c2	Rail, Vertical		?	7'-3"	?
	5c7	Rail, Vertical, Sloped Ends		4	7'-4"	31
	5c8	Rail, Vertical, Sloped Ends		4	7'-1"	30
	5c9	Rail, Vertical, Sloped Ends		4	6'-10"	29
5c10	Rail, Vertical, Sloped Ends		4	6'-7"	28	
6d1	Rail, Longitudinal		?	?'-??"	?	
6d2	Rail, Longitudinal, Top		4	?'-??"	?	
Epoxy Reinf. Total Weight (lbs.)						?

Concrete Placement Summary

Section	Total
Δ Standard Section ?'-??" at 0.144 cu. yd. per ft.	?.?
	?.?
	?.?
Total (cu. yd.)	?.?

Note: Δ Deduct 0.021 cu. yd. for one sloped end.

Concrete Barrier Rail Quantities

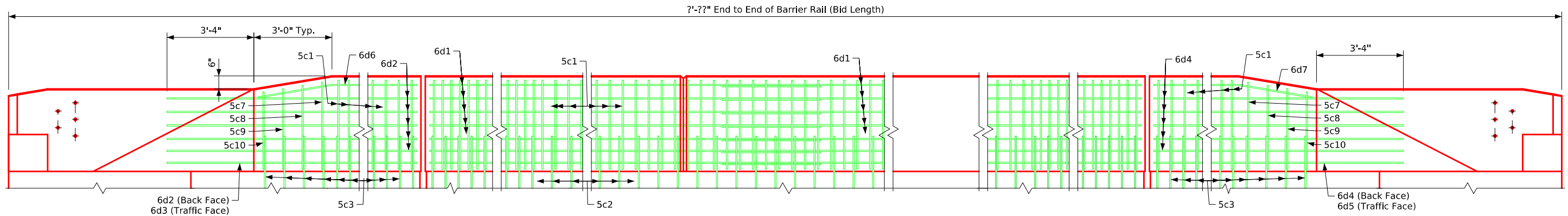
Item	Unit	Quantity
Concrete Barrier Railing, 3'-8"	L.F.	?.?

See Barrier Rail Details on Design Sheet No. ?? for details and sections.

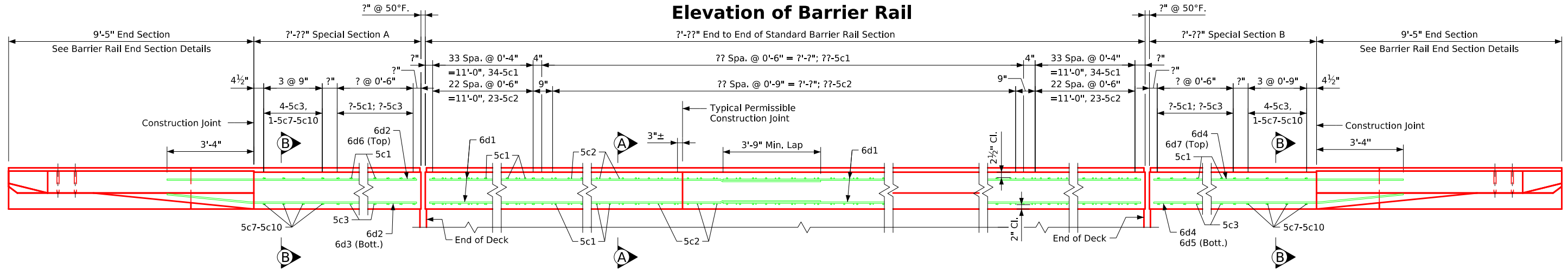
Barrier Rail (TL-5)-Integral Abut.

DeckRailBridges.dgn - 1020D-2 - This Sheet Issued 05-2024. Additional Sheet for Clarity. (Sheet Number was Originally 1020D).

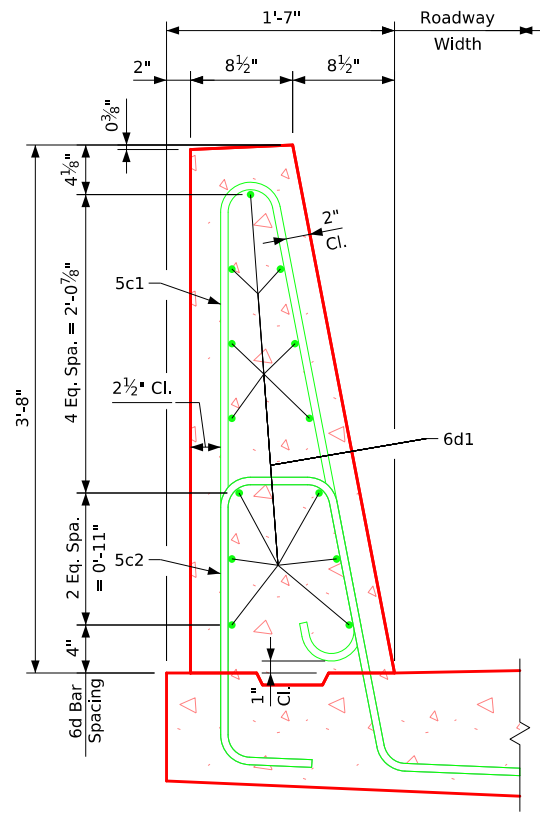
Correction 04-14: Added Note to Include Reinforcing Steel to the Summary Quantity Sheet. Removed End Section Quantity from Bar List and Concrete Placement Summary. Issued 11-07. DeckRailBridges.dgn - 1020E-1 - This Sheet Re-Issued 05-2024. Sheet Format Update. (Sheet Number was Originally 1020E).



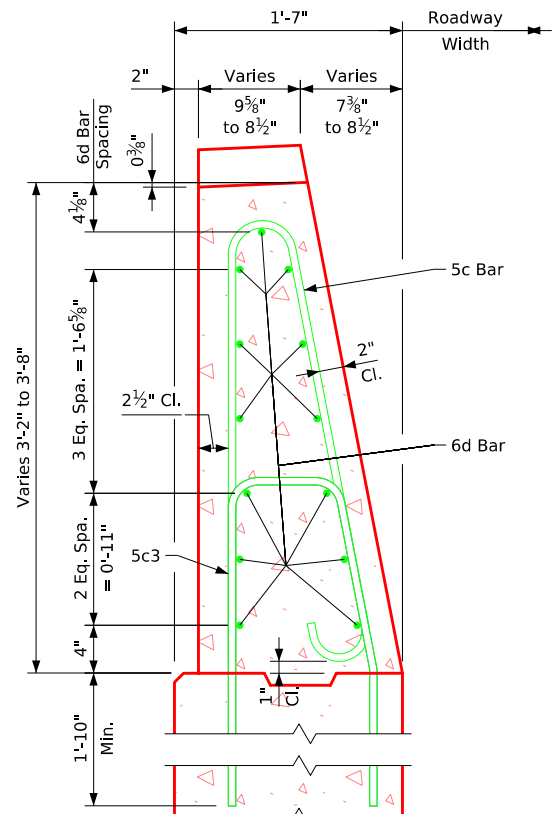
Elevation of Barrier Rail



Part Section of Barrier Rail



Part Section A-A



Part Section B-B

See Barrier Rail Details on Design Sheet No. ?? for notes, reinforcing steel details, and quantities.

Barrier Rail (TL-5)-Stub Abut.

FILE NO.	ENGLISH	DESIGN TEAM	Barrier Rail (TSS TL-5) - Stub Abut. w/Wing Ext. (1 of 2)	Standard Sheet 1020E-1	COUNTY	PROJECT NUMBER	SHEET NUMBER
9:18:38 PM	5/8/2024	bkloss	pw:\NTP\int1.dot.int.lan:PWMain\Documents\Highway\Bridge\Standards\Bridges\DeckRailBridges.dgn				

Barrier Rail Notes:

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.

The permissible construction joints are to be placed between vertical bars at a minimum spacing of 20 feet. Construction joint contact surfaces are to be coated with an approved bond breaker.

Cost of the joint sealer and bond breaker shall be considered incidental to other construction.

All barrier rail reinforcing steel is to be epoxy coated as shown.

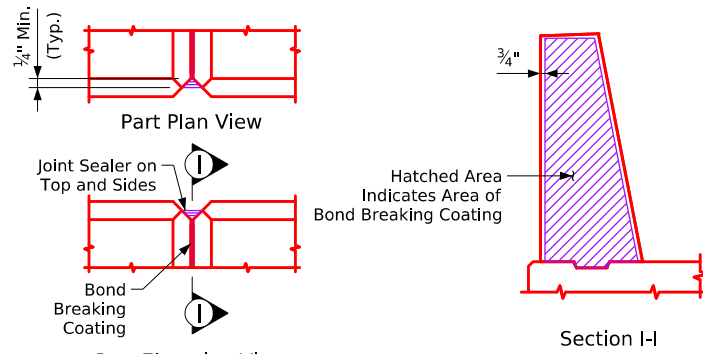
The concrete barrier rail is to be bid on a lineal foot basis. The number of linear feet of barrier rail installed will be paid for at the contract price per lineal foot based on plan quantities. Price bid for concrete barrier railing shall be full compensation for furnishing all material, excluding reinforcing steel, and all of the equipment and labor required to erect the rail in accordance with these plans and current specifications. If conduit is required in this plan the rigid steel conduit, junction boxes and fittings including labor and any additional work to do the installation is considered incidental to the cost of the railing.

The joint sealer shall be light gray nonsag latex caulking sealer marketed for outdoor use. No testing or certification is required.

Top of the barrier rail is to be parallel to the theoretical C grade.

All exposed corners on the top of the barrier and all other corners 90° or sharper to be filleted with a 3/4" dressed and beveled strip.

Cross sectional area of the Standard and Special Sections of the barrier rail = 3.90 square feet, except the 3'-0" sloped ends at the end sections.



Barrier Rail Joint Details

Epoxy Coated Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c1	Rail, Vertical		?	7'-6"	?
	5c2	Rail, Vertical		?	7'-3"	?
	6d1	Rail, Longitudinal		?	7'-??"	?
Special Section A	5c1	Rail, Vertical		?	7'-6"	?
	5c3	Rail, Vertical		?	7'-2"	?
	5c7	Rail, Vertical, Sloped Ends		2	7'-4"	15
	5c8	Rail, Vertical, Sloped Ends		2	7'-1"	15
	5c9	Rail, Vertical, Sloped Ends		2	6'-10"	14
	5c10	Rail, Vertical, Sloped Ends		2	6'-7"	14
		6d2	Rail, Longitudinal		22	7'-??"
	6d3	Rail, Longitudinal, Traffic Face, Bott.		2	7'-??"	?
	6d6	Rail, Longitudinal, Top		2	7'-??"	?
Special Section B	5c1	Rail, Vertical		?	7'-6"	?
	5c3	Rail, Vertical		?	7'-2"	?
	5c7	Rail, Vertical, Sloped Ends		2	7'-4"	15
	5c8	Rail, Vertical, Sloped Ends		2	7'-1"	15
	5c9	Rail, Vertical, Sloped Ends		2	6'-10"	14
	5c10	Rail, Vertical, Sloped Ends		2	6'-7"	14
		6d4	Rail, Longitudinal		22	7'-??"
	6d5	Rail, Longitudinal, Traffic Face, Bott.		2	7'-??"	?
	6d7	Rail, Longitudinal, Top		2	7'-??"	?
Epoxy Reinf. Total Weight (lbs.)						?

Concrete Placement Summary

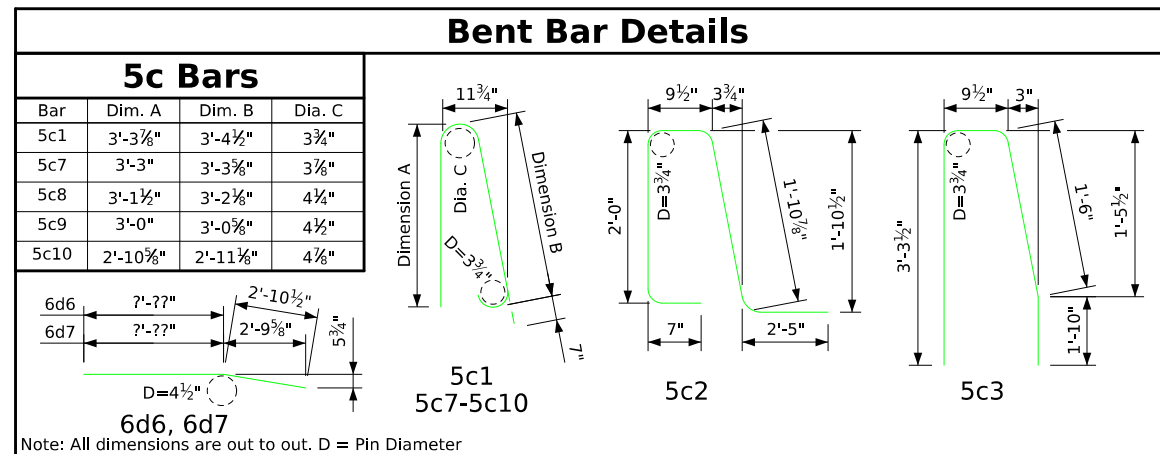
Section	Total
Standard Section 7'-??" at 0.144 cu. yd. per ft.	??
Δ Special Section A 7'-??" at 0.144 cu. yd. per ft.	??
Δ Special Section B 7'-??" at 0.144 cu. yd. per ft.	??
Total (cu. yd.)	??

Note: Δ Deduct 0.021 cu. yd. for one sloped end.

Concrete Barrier Rail Quantities

Item	Unit	Quantity
Concrete Barrier Railing, 3'-8"	L.F.	??

Bent Bar Details



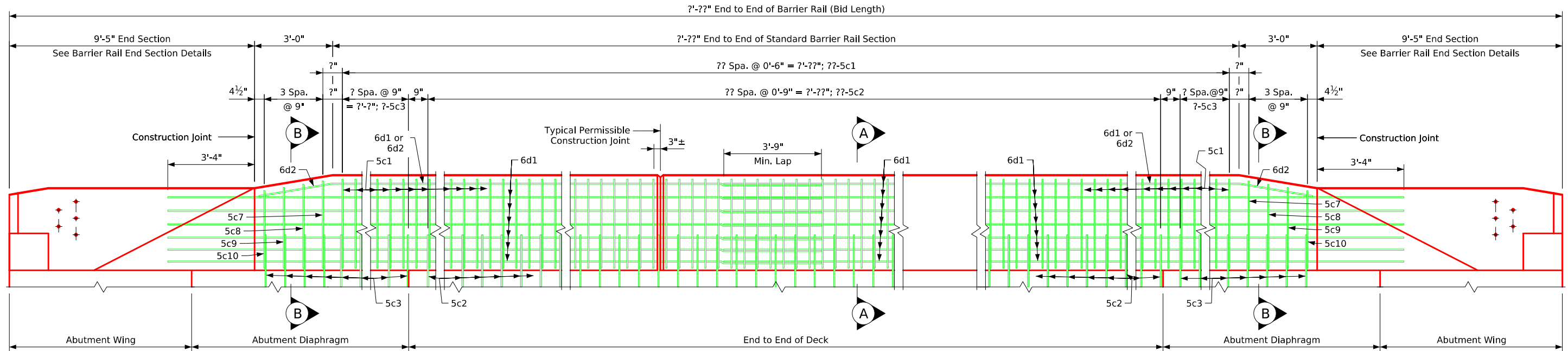
Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

See Barrier Rail Details on Design Sheet No. ?? for details and sections.

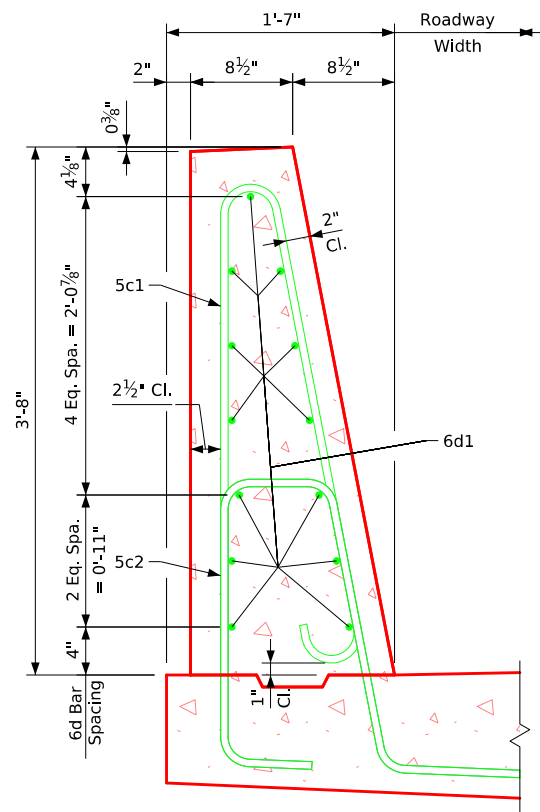
Barrier Rail (TL-5)-Stub Abut.

DeckRailBridges.dgn - 1020E-2 -This Sheet Issued 05-2024. Additional Sheet for Clarity. (Sheet Number was Originally 1020E).

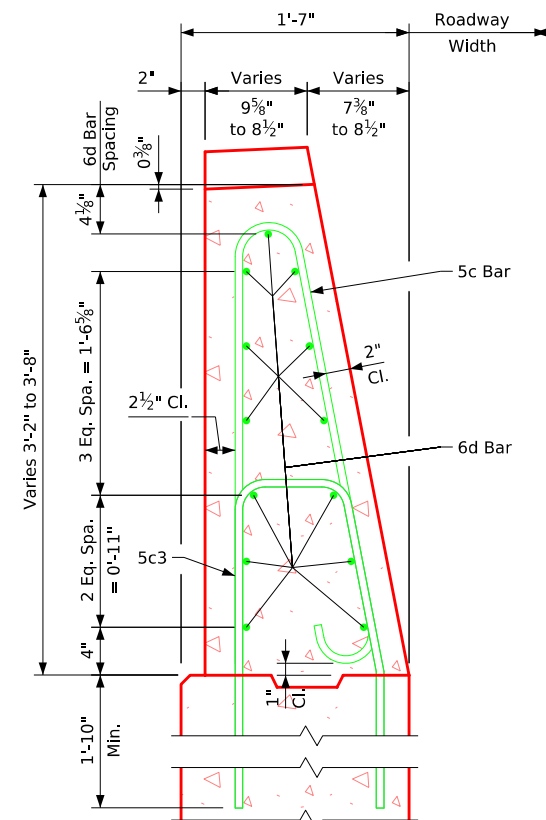
Correction 04-14: Added Note to Include Reinforcing Steel to the Summary Quantity Sheet. Removed End Section Quantity from Bar List and Concrete Placement Summary. Issued 11-07. DeckRailBridges.dgn - 1020F-1 - This Sheet Re-Issued 05-2024. Sheet Format Update. (Sheet Number was Originally 1020F).



Elevation of Barrier Rail



Part Section A-A



Part Section B-B

See Barrier Rail Details on Design Sheet ?? for notes, reinforcing steel details, and quantities.

Barrier Rail (TL-5)-Integral Abut.

FILE NO.	ENGLISH	DESIGN TEAM	Barrier Rail (TSS TL-5) - Integral Abut. w/Wing Ext. (1 of 2)	Standard Sheet 1020F-1	COUNTY	PROJECT NUMBER	SHEET NUMBER
9:18:39 PM	5/8/2024	bkloss	pw:\NTP\int1.dot.int.lan:PWWMain\Documents\Highway\Bridges\Standards\Bridges\DeckRailBridges.dgn				

Barrier Rail Notes:

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.

The permissible construction joints are to be placed between vertical bars at a minimum spacing of 20 feet. Construction joint contact surfaces are to be coated with an approved bond breaker.

Cost of the joint sealer and bond breaker shall be considered incidental to other construction.

All barrier rail reinforcing steel is to be epoxy coated as shown.

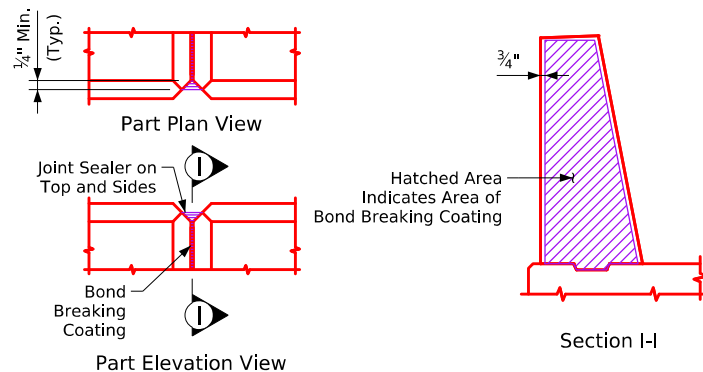
The concrete barrier rail is to be bid on a lineal foot basis. The number of linear feet of barrier rail installed will be paid for at the contract price per lineal foot based on plan quantities. Price bid for concrete barrier railing shall be full compensation for furnishing all material, excluding reinforcing steel, and all of the equipment and labor required to erect the rail in accordance with these plans and current specifications. If conduit is required in this plan the rigid steel conduit, junction boxes and fittings including labor and any additional work to do the installation is considered incidental to the cost of the railing.

The joint sealer shall be light gray nonsag latex caulking sealer marketed for outdoor use. No testing or certification is required.

Top of the barrier rail is to be parallel to the theoretical \bar{C} grade.

All exposed corners on the top of the barrier and all other corners 90° or sharper to be filleted with a 3/4" dressed and beveled strip.

Cross sectional area of the Standard and Special Sections of the barrier rail = 3.90 square feet, except the 3'-0" sloped ends at the end sections.



Barrier Rail Joint Details

Epoxy Coated Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c1	Rail, Vertical		?	7'-6"	?
	5c2	Rail, Vertical		?	7'-3"	?
	5c3	Rail, Vertical		?	7'-2"	?
	5c7	Rail, Vertical, Sloped Ends		4	7'-4"	31
	5c8	Rail, Vertical, Sloped Ends		4	7'-1"	30
	5c9	Rail, Vertical, Sloped Ends		4	6'-10"	29
	5c10	Rail, Vertical, Sloped Ends		4	6'-7"	28
	6d1	Rail, Longitudinal		?	7'-??"	?
	6d2	Rail, Longitudinal, Top		4	7'-??"	?
	Epoxy Reinf. Total Weight (lbs.)					

Concrete Placement Summary

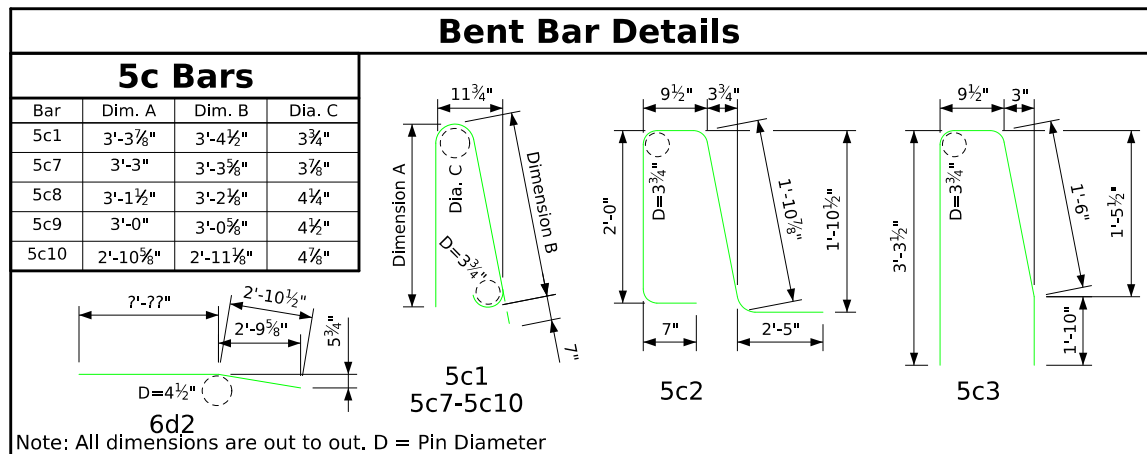
Section	Total
Δ Standard Section 7'-??" at 0.144 cu. yd. per ft.	??
	??
	??
	??
	??
Total (cu. yd.)	??

Note: Δ Deduct 0.021 cu. yd. for one sloped end.

Concrete Barrier Rail Quantities

Item	Unit	Quantity
Concrete Barrier Railing, 3'-8"	L.F.	??

Bent Bar Details



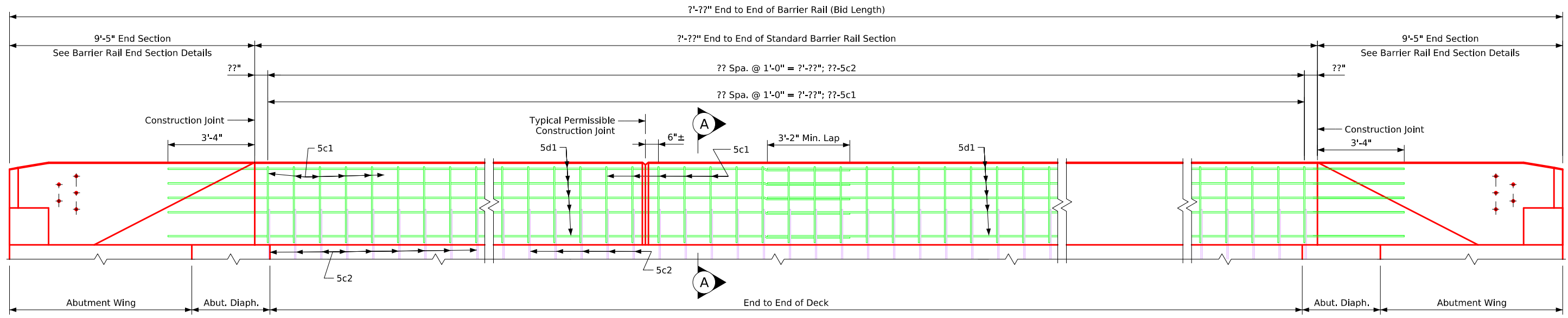
Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

See Barrier Rail Details on Design Sheet No. ?? for details and sections.

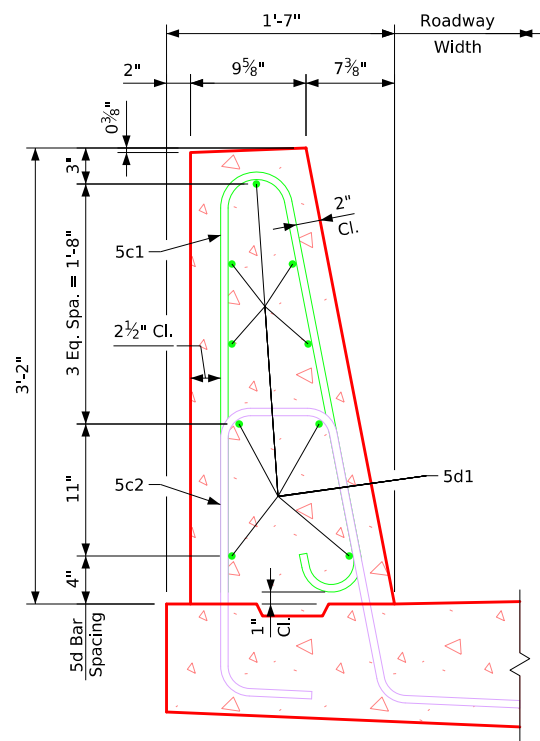
Barrier Rail (TL-5)-Integral Abut.

DeckRailBridges.dgn - 1020F-2 - This Sheet Issued 05-2024. Additional Sheet for Clarity. (Sheet Number was Originally 1020F).

Issued 04-14. Added Stainless Steel Reinforcing Bar List and Changed 5c2 Bars to Stainless Steel. DeckRailBridges.dgn - 10205A-1 - This Sheet Re-issued 05-2024. Revised to Single Slope Barrier Shape. Sheet Format Update. (Sheet Number was Originally 10205A).



Elevation of Barrier Rail



Part Section A-A

See Barrier Rail Details on Design Sheet No. ?? for notes, reinforcing steel details, and quantities.

Barrier Rail (TL-4) (Stainless)-Integral Abut.

FILE NO.	ENGLISH	DESIGN TEAM	Barrier Rail (TSS TL-4) (Stainless) - Integral Abut. (1 of 2)	Standard Sheet 10205A-1	COUNTY	PROJECT NUMBER	SHEET NUMBER
9:18:40 PM	5/8/2024	bkloss	pw:\NTP\wint1.dot.int.lan:PWWMain\Documents\Highway\Bridge\Standards\Bridges\DeckRailBridges.dgn				

Barrier Rail Notes:

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.

The permissible construction joints are to be placed between vertical bars at a minimum spacing of 20 feet. Construction joint contact surfaces are to be coated with an approved bond breaker.

Cost of the joint sealer and bond breaker shall be considered incidental to other construction.

All barrier rail reinforcing steel is to be either epoxy coated or stainless steel as shown. The stainless steel reinforcing steel shall be deformed bar grade 60 meeting the requirements of Construction and Materials I.M. 452.

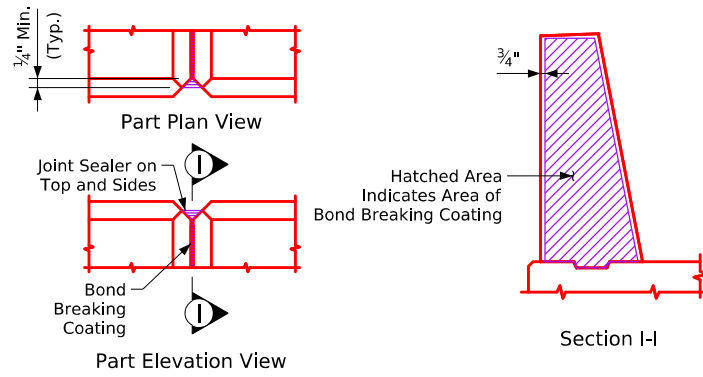
The concrete barrier rail is to be bid on a lineal foot basis. The number of linear feet of barrier rail installed will be paid for at the contract price per lineal foot based on plan quantities. Price bid for concrete barrier railing shall be full compensation for furnishing all material, excluding reinforcing steel, and all of the equipment and labor required to erect the rail in accordance with these plans and current specifications. If conduit is required in this plan the rigid steel conduit, junction boxes and fittings including labor and any additional work to do the installation is considered incidental to the cost of the railing.

The joint sealer shall be light gray nonsag latex caulking sealer marketed for outdoor use. No testing or certification is required.

Top of the barrier rail is to be parallel to the theoretical \bar{C} grade.

All exposed corners on the top of the barrier and all other corners 90° or sharper to be filleted with a $\frac{3}{4}$ " dressed and beveled strip.

Cross sectional area of the Standard Sections of the barrier rail = 3.50 square feet.



Barrier Rail Joint Details

Epoxy Coated Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c1	Rail, Vertical		?	6'-8"	?
	5d2	Rail, Longitudinal		?	?'-??"	?
Epoxy Reinf. Total Weight (lbs.)						?

Stainless Steel Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c2	Rail, Vertical		?	7'-3"	?
Stainless Steel Reinf. Total Weight (lbs.)						?

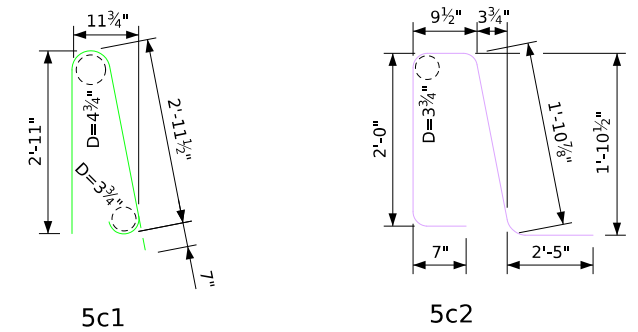
Concrete Placement Summary

Section	Total
Standard Section ?'-??" at 0.130 cu. yd. per ft.	??
Total (cu. yd.)	??

Concrete Barrier Rail Quantities

Item	Unit	Quantity
Concrete Barrier Railing	L.F.	??

Bent Bar Details



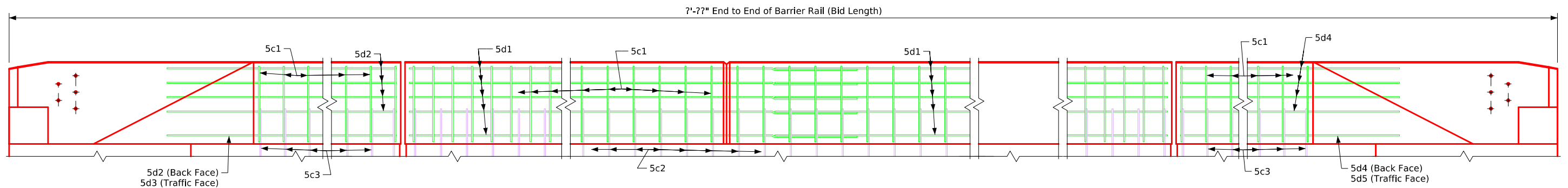
Note: All dimensions are out to out. D = Pin Diameter
 Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

See Barrier Rail Details on Design Sheet No. ?? for details and sections.

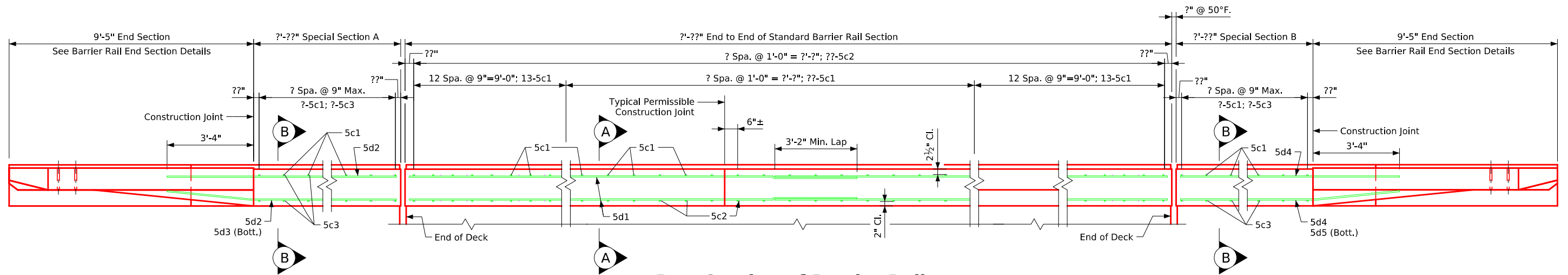
Barrier Rail (TL-4) (Stainless)-Integral Abut.

DeckRailBridges.dgn - 10205A-2 - This Sheet issued 05-2024. Additional Sheet for Clarity. (Sheet Number was Originally 10205A).

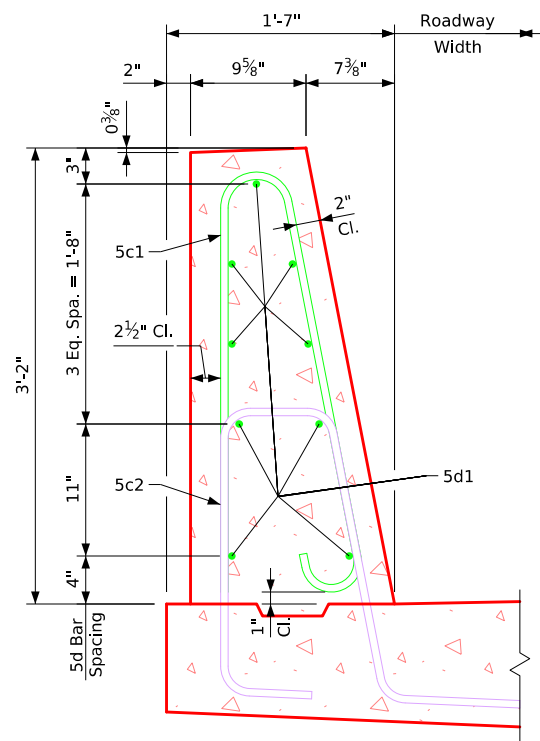
Issued 04-14. Added Stainless Steel Reinforcing Bar List and Changed 5c2, 5c3, 5c14 Bars to Stainless Steel. DeckRailBridges.dgn - 10205B-1 - This Sheet Re-issued 05-2024. Revised to Single Slope Barrier Shape. Sheet Format Update. (Sheet Number was Originally 10205B).



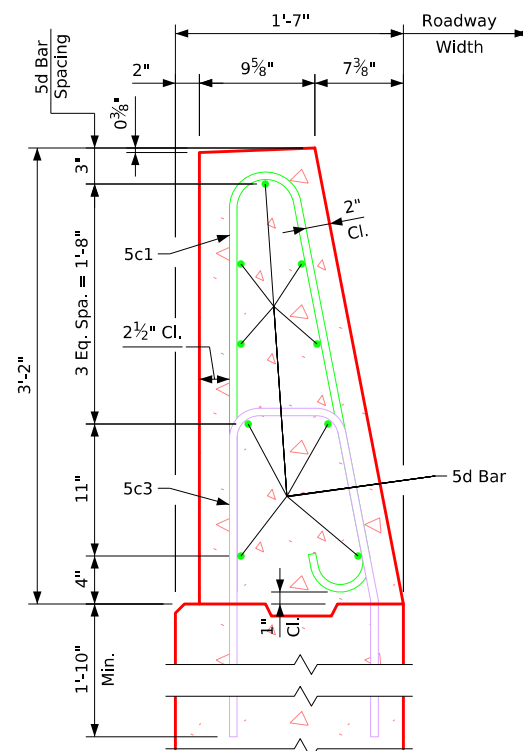
Elevation of Barrier Rail



Part Section of Barrier Rail



Part Section A-A



Part Section B-B

See Barrier Rail Details on Design Sheet No. ?? for notes, reinforcing steel details, and quantities.

Barrier Rail (TL-4) (Stainless)-Stub Abut.

FILE NO.	ENGLISH	DESIGN TEAM	Barrier Rail (TSS TL-4) (Stainless) - Stub Abut. w/Wing Ext. (1 of 2)	Standard Sheet 10205B-1	COUNTY	PROJECT NUMBER	SHEET NUMBER
9:18:42 PM	5/8/2024	bkloss	pw:\NTP\wint1.dot.int.lan:PWMain\Documents\Highway\Bridges\Standards\Bridges\DeckRailBridges.dgn				

Barrier Rail Notes:

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.

The permissible construction joints are to be placed between vertical bars at a minimum spacing of 20 feet. Construction joint contact surfaces are to be coated with an approved bond breaker.

Cost of the joint sealer and bond breaker shall be considered incidental to other construction.

All barrier rail reinforcing steel is to be either epoxy coated or stainless steel as shown. The stainless steel reinforcing steel shall be deformed bar grade 60 meeting the requirements of Construction and Materials I.M. 452.

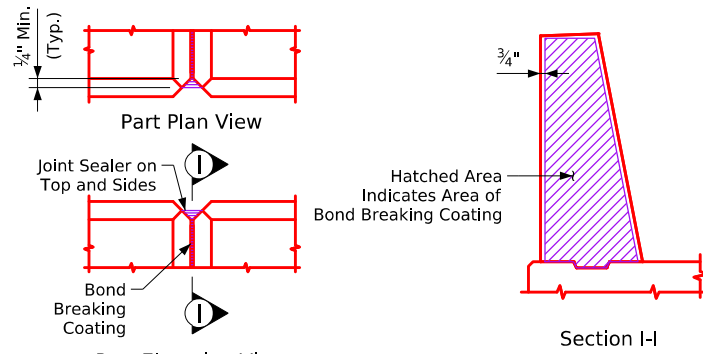
The concrete barrier rail is to be bid on a lineal foot basis. The number of linear feet of barrier rail installed will be paid for at the contract price per lineal foot based on plan quantities. Price bid for concrete barrier railing shall be full compensation for furnishing all material, excluding reinforcing steel, and all of the equipment and labor required to erect the rail in accordance with these plans and current specifications. If conduit is required in this plan the rigid steel conduit, junction boxes and fittings including labor and any additional work to do the installation is considered incidental to the cost of the railing.

The joint sealer shall be light gray nonsag latex caulking sealer marketed for outdoor use. No testing or certification is required.

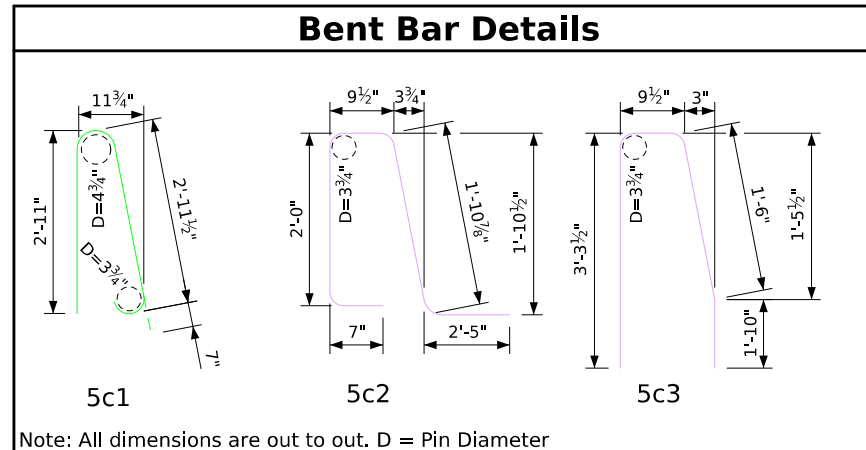
Top of the barrier rail is to be parallel to the theoretical C grade.

All exposed corners on the top of the barrier and all other corners 90° or sharper to be filleted with a 3/4" dressed and beveled strip.

Cross sectional area of the Standard Sections of the barrier rail = 3.50 square feet.



Barrier Rail Joint Details



Note: All dimensions are out to out. D = Pin Diameter

Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

Epoxy Coated Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c1	Rail, Vertical		?	6'-8"	?
	5d1	Rail, Longitudinal		?	?'-??"	?
Special Section A	5c1	Rail, Vertical		?	6'-8"	?
	5d2	Rail, Longitudinal		?	?'-??"	?
	5d3	Rail, Longitudinal, Traffic Face, Bott.		?	?'-??"	?
Special Section B	5c1	Rail, Vertical		?	6'-8"	?
	5d2	Rail, Longitudinal		?	?'-??"	?
	5d3	Rail, Longitudinal, Traffic Face, Bott.		?	?'-??"	?

Epoxy Reinf. Total Weight (lbs.) ?

Stainless Steel Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c2	Rail, Vertical		?	7'-3"	?
Special Section A	5c3	Rail, Vertical		?	7'-2"	?
Special Section B	5c3	Rail, Vertical		?	7'-2"	?

Stainless Steel Reinf. Total Weight (lbs.) ?

Concrete Placement Summary

Section	Total
Standard Section ?'-??" at 0.130 cu. yd. per ft.	??
Special Section A ?'-??" at 0.130 cu. yd. per ft.	??
Special Section B ?'-??" at 0.130 cu. yd. per ft.	??
Total (cu. yd.)	??

Concrete Barrier Rail Quantities

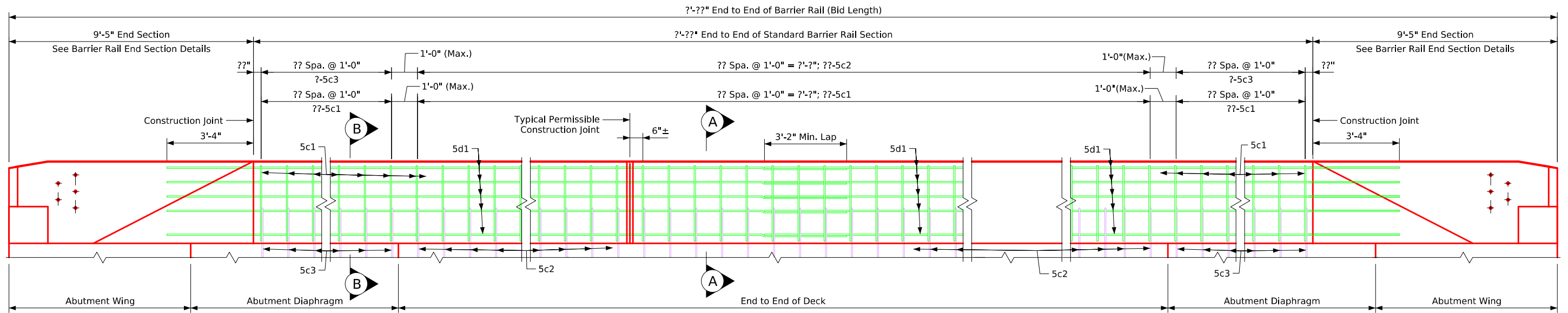
Item	Unit	Quantity
Concrete Barrier Railing	L.F.	??

See Barrier Rail Details on Design Sheet No. ?? for details and sections.

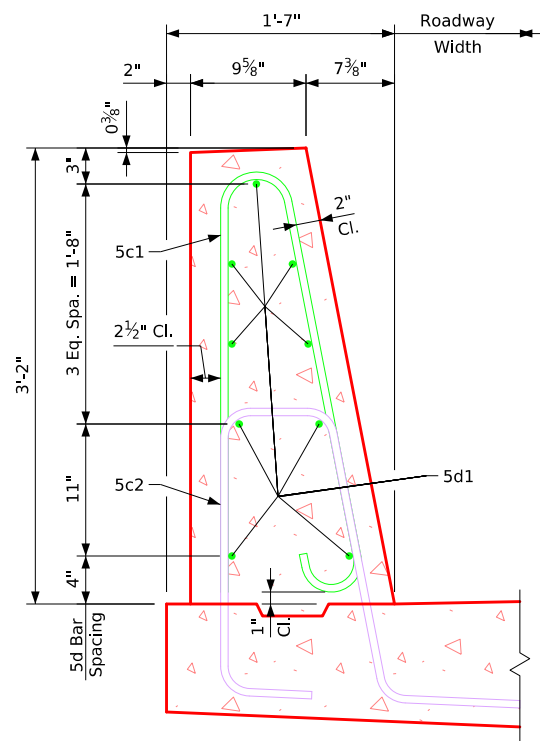
Barrier Rail (TL-4) (Stainless)-Stub Abut.

DeckRailBridges.dgn - 1020SB-2 - This Sheet issued 05-2024. Additional Sheet for Clarity. (Sheet Number was Originally 1020SB).

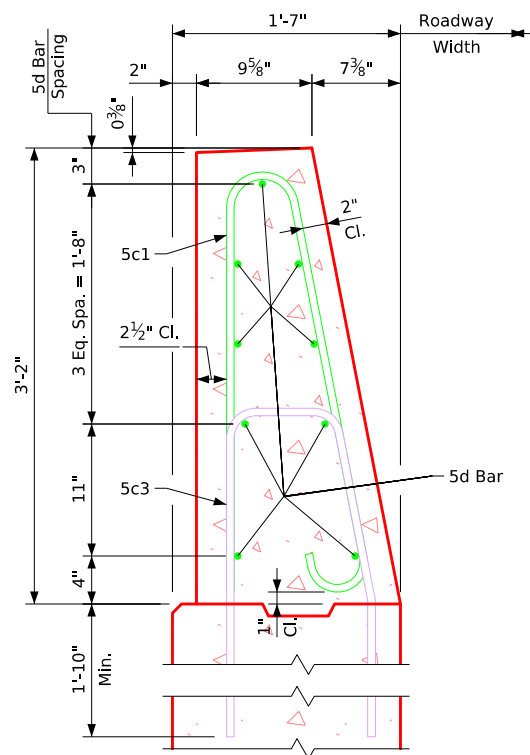
Issued 04-14. Added Stainless Steel Reinforcing Bar List and Changed 5c2, 5c3, 5c14 Bars to Stainless Steel. DeckRailBridges.dgn - 10205C-1 - This Sheet Re-issued 05-2024. Revised to Single Slope Barrier Shape. Sheet Format Update. (Sheet Number was Originally 10205C).



Elevation of Barrier Rail



Part Section A-A



Part Section B-B

See Barrier Rail Details on Design Sheet No. ?? for notes, reinforcing steel details, and quantities.

Barrier Rail (TL-4) (Stainless)-Integral Abut.

FILE NO.	ENGLISH	DESIGN TEAM	Barrier Rail (TSS TL-4) (Stainless) - Integral Abut. w/Wing Ext. (1 of 2)	Standard Sheet 10205C-1	COUNTY	PROJECT NUMBER	SHEET NUMBER
9:18:43 PM	5/8/2024	bkloss	pw:\NTP\int1.dot.int.lan:PWMain\Documents\Highway\Bridge\Standards\Bridges\DeckRailBridges.dgn				

Barrier Rail Notes:

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.

The permissible construction joints are to be placed between vertical bars at a minimum spacing of 20 feet. Construction joint contact surfaces are to be coated with an approved bond breaker.

Cost of the joint sealer and bond breaker shall be considered incidental to other construction.

All barrier rail reinforcing steel is to be either epoxy coated or stainless steel as shown. The stainless steel reinforcing steel shall be deformed bar grade 60 meeting the requirements of Construction and Materials I.M. 452.

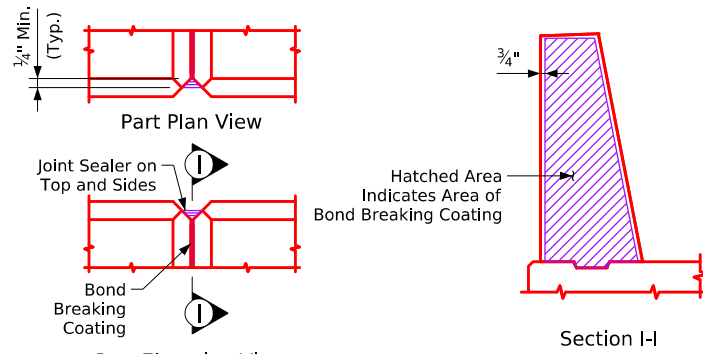
The concrete barrier rail is to be bid on a lineal foot basis. The number of linear feet of barrier rail installed will be paid for at the contract price per lineal foot based on plan quantities. Price bid for concrete barrier railing shall be full compensation for furnishing all material, excluding reinforcing steel, and all of the equipment and labor required to erect the rail in accordance with these plans and current specifications. If conduit is required in this plan the rigid steel conduit, junction boxes and fittings including labor and any additional work to do the installation is considered incidental to the cost of the railing.

The joint sealer shall be light gray nonsag latex caulking sealer marketed for outdoor use. No testing or certification is required.

Top of the barrier rail is to be parallel to the theoretical C grade.

All exposed corners on the top of the barrier and all other corners 90° or sharper to be filleted with a 3/4" dressed and beveled strip.

Cross sectional area of the Standard Sections of the barrier rail = 3.50 square feet.



Barrier Rail Joint Details

Epoxy Coated Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c1	Rail, Vertical		?	6'-8"	?
	5d1	Rail, Longitudinal		?	?'-??"	?
Epoxy Reinf. Total Weight (lbs.)						?

Stainless Steel Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c2	Rail, Vertical		?	7'-3"	?
	5c3	Rail, Vertical		?	7'-2"	?
Stainless Steel Reinf. Total Weight (lbs.)						?

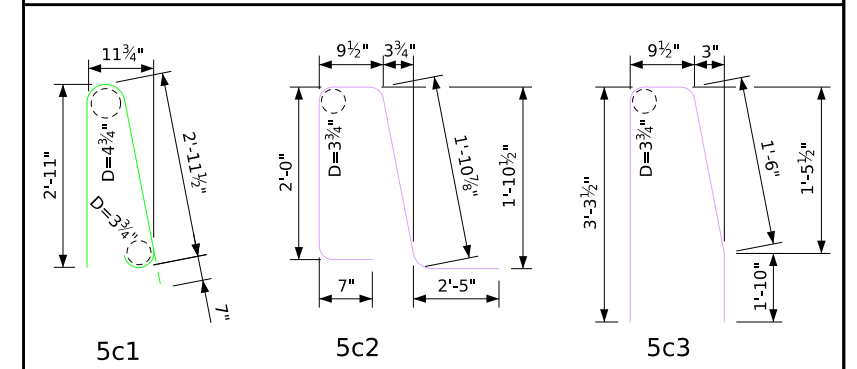
Concrete Placement Summary

Section	Total	
Standard Section ?'-??" at 0.130 cu. yd. per ft.	??	
Total (cu. yd.)		??

Concrete Barrier Rail Quantities

Item	Unit	Quantity
Concrete Barrier Railing	L.F.	??

Bent Bar Details



Note: All dimensions are out to out. D = Pin Diameter

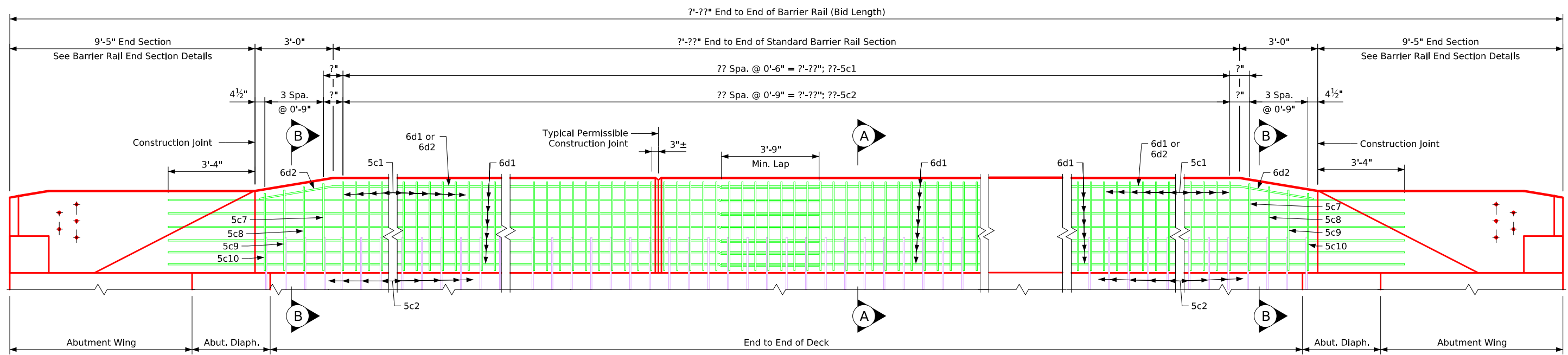
Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

See Barrier Rail Details on Design Sheet No. ?? for details and sections.

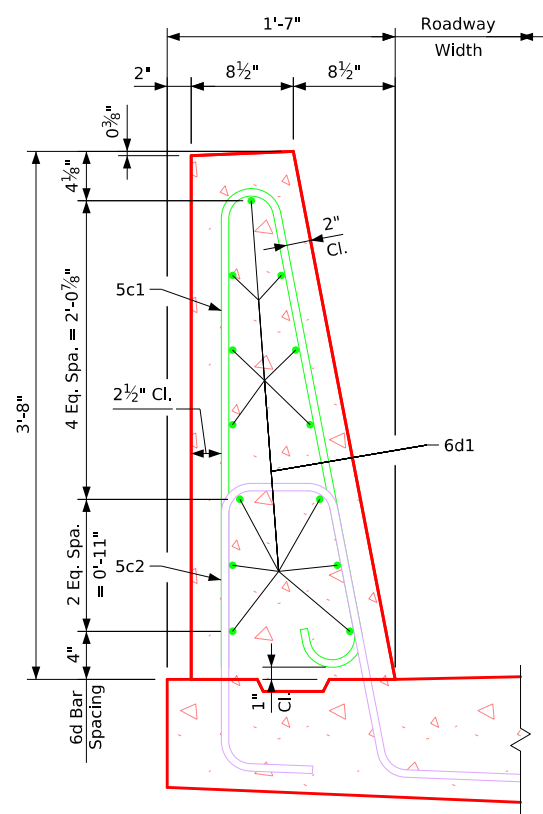
Barrier Rail (TL-4) (Stainless)-Integral Abut.

DeckRailBridges.dgn - 10205C-2 -This Sheet issued 05-2024. Additional Sheet for Clarity. (Sheet Number was Originally 10205C).

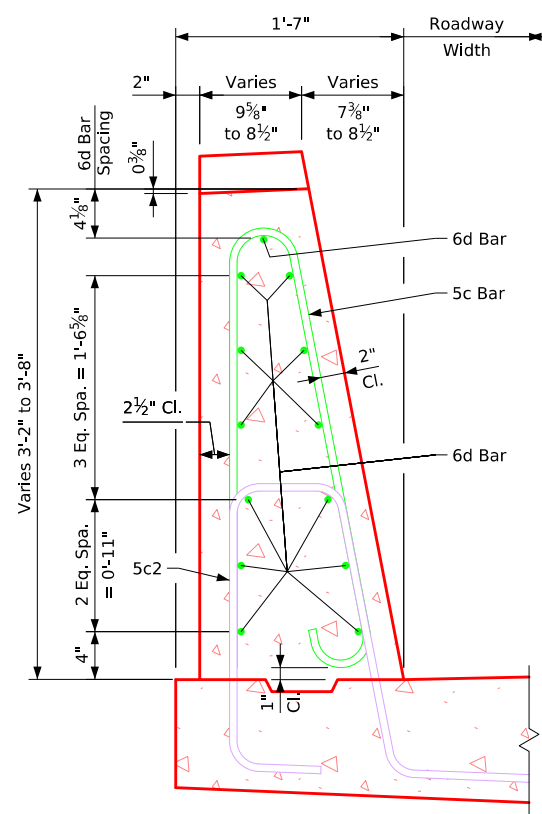
Correction 04-14: Added Stainless Steel Reinforcing Bar List and Changed 5c2 Bars to Stainless Steel. Issued 11-07. DeckRailBridges.dgn - 1020SD-1 - This Sheet Re-Issued 05-2024. Revised to Single Slope Barrier Shape. Sheet Format Update. (Sheet Number was Originally 1020SD).



Elevation of Barrier Rail



Part Section A-A



Part Section B-B

See Barrier Rail Details on Design Sheet ?? for notes, reinforcing steel details, and quantities.

Barrier Rail (TL-5) (Stainless)-Integral Abut.

FILE NO.	ENGLISH	DESIGN TEAM	Barrier Rail (TSS TL-5) (Stainless) - Integral Abut. (1 of 2)	Standard Sheet 1020SD-1	COUNTY	PROJECT NUMBER	SHEET NUMBER
9:18:44 PM	5/8/2024	bkloss	pw:\NTPwint1.dot.int.lan:PWMMain\Documents\Highway\Bridge\Standards\Bridges\DeckRailBridges.dgn				

Barrier Rail Notes:

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.

The permissible construction joints are to be placed between vertical bars at a minimum spacing of 20 feet. Construction joint contact surfaces are to be coated with an approved bond breaker.

Cost of the joint sealer and bond breaker shall be considered incidental to other construction.

All barrier rail reinforcing steel is to be either epoxy coated or stainless steel as shown. The stainless steel reinforcing steel shall be deformed bar grade 60 meeting the requirements of Construction and Materials I.M. 452.

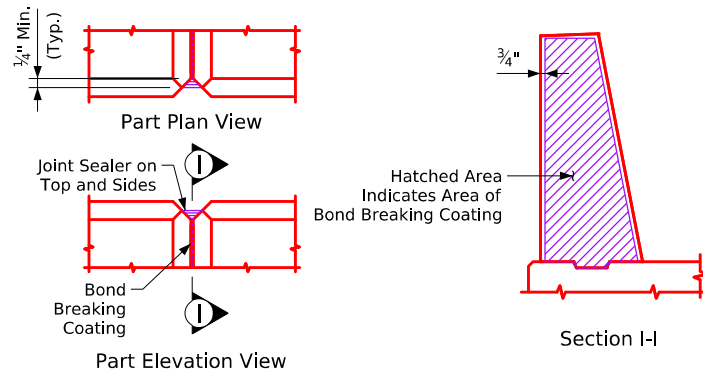
The concrete barrier rail is to be bid on a lineal foot basis. The number of linear feet of barrier rail installed will be paid for at the contract price per lineal foot based on plan quantities. Price bid for concrete barrier railing shall be full compensation for furnishing all material, excluding reinforcing steel, and all of the equipment and labor required to erect the rail in accordance with these plans and current specifications. If conduit is required in this plan the rigid steel conduit, junction boxes and fittings including labor and any additional work to do the installation is considered incidental to the cost of the railing.

The joint sealer shall be light gray nonsag latex caulking sealer marketed for outdoor use. No testing or certification is required.

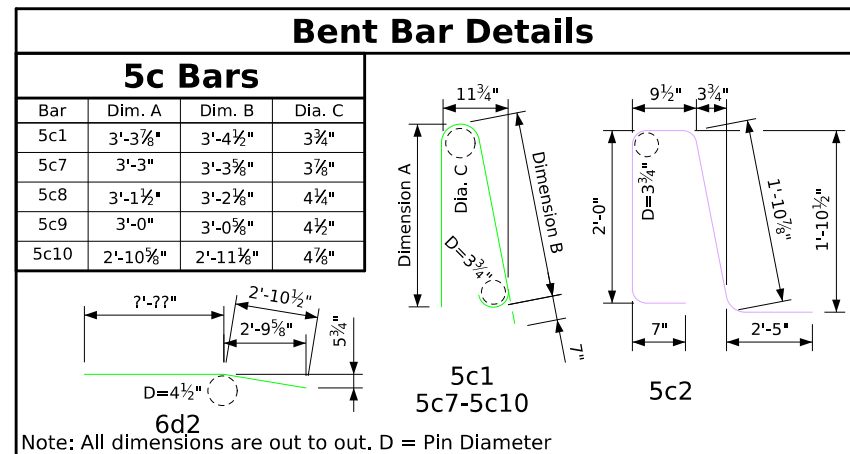
Top of the barrier rail is to be parallel to the theoretical \bar{C} grade.

All exposed corners on the top of the barrier and all other corners 90° or sharper to be filleted with a $\frac{3}{4}$ " dressed and beveled strip.

Cross sectional area of the Standard Sections of the barrier rail = 3.90 square feet, except the 3'-0" sloped ends at the end sections.



Barrier Rail Joint Details



Note: All dimensions are out to out, D = Pin Diameter

Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

Epoxy Coated Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c1	Rail, Vertical		?	7'-6"	?
	5c7	Rail, Vertical, Sloped Ends		4	7'-4"	31
	5c8	Rail, Vertical, Sloped Ends		4	7'-1"	30
	5c9	Rail, Vertical, Sloped Ends		4	6'-10"	29
	5c10	Rail, Vertical, Sloped Ends		4	6'-7"	28
	6d1	Rail, Longitudinal		?	7'-7 $\frac{1}{2}$ "	?
6d2	Rail, Longitudinal, Top		4	7'-7 $\frac{1}{2}$ "	?	
Epoxy Reinf. Total Weight (lbs.)						?

Stainless Steel Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c2	Rail, Vertical		?	7'-3"	?
Stainless Steel Reinf. Total Weight (lbs.)						?

Concrete Placement Summary

Section	Total
Δ Standard Section 7'-7 $\frac{1}{2}$ " at 0.144 cu. yd. per ft.	?.?
Total (cu. yd.)	?.?

Note: Δ Deduct 0.021 cu. yd. for one sloped end.

Concrete Barrier Rail Quantities

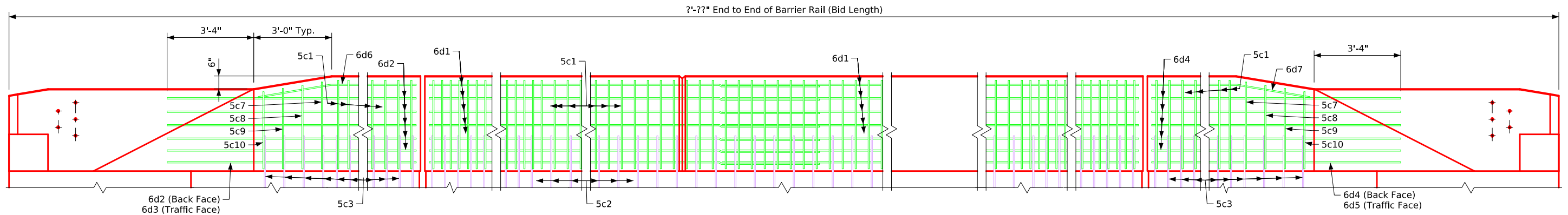
Item	Unit	Quantity
Concrete Barrier Railing, 3'-8"	L.F.	?.?

See Barrier Rail Details on Design Sheet No. ?? for details and sections.

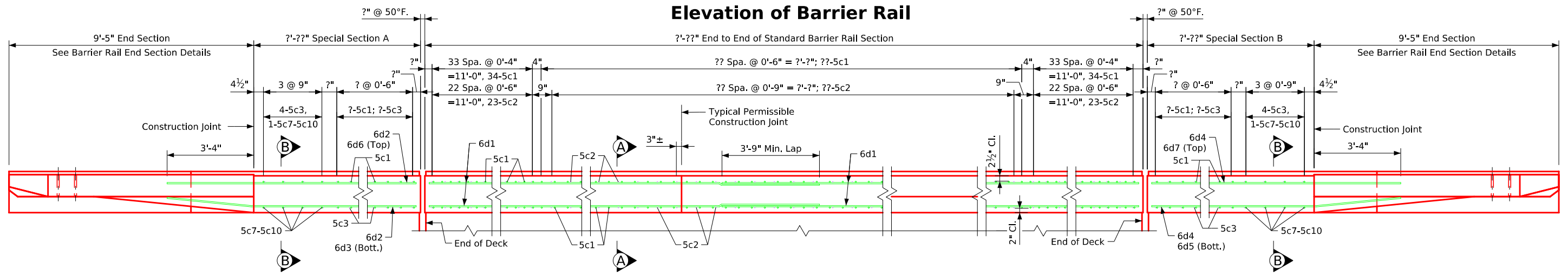
Barrier Rail (TL-5) (Stainless)-Integral Abut.

Deckrailbridges.dgn - 10205D-2 - This Sheet Issued 05-2024. Additional Sheet For Clarity. (Sheet Number Was Originally 10205D).

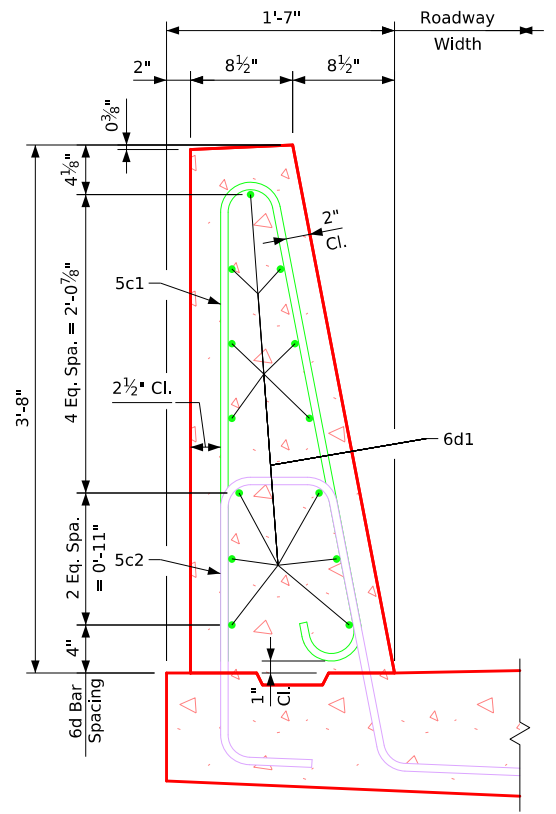
Correction 04-14: Added Stainless Steel Reinforcing Bar List and Changed 5c2 Bars to Stainless Steel. Issued 11-07. DeckRailBridges.dgn - 10205E-1 - This Sheet Re-Issued 05-2024. - Revised to Single Slope Barrier Shape. Sheet Format Update. (Sheet Number was Originally 10205E).



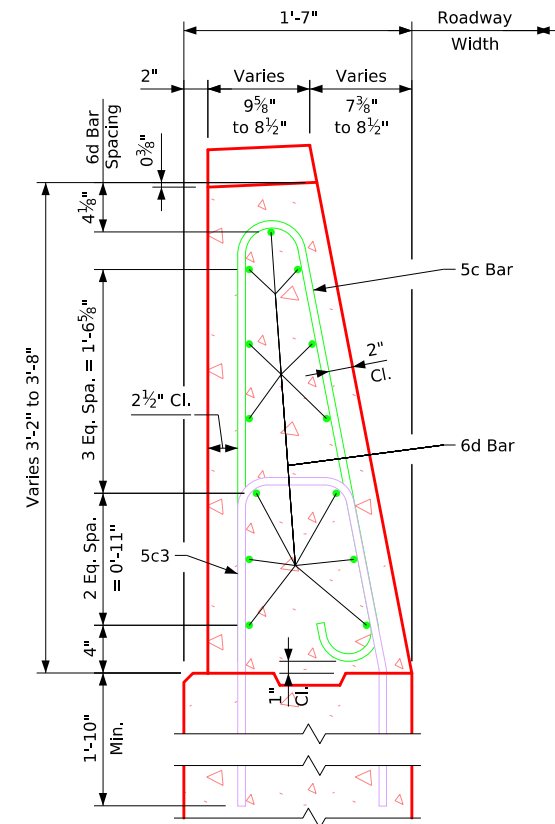
Elevation of Barrier Rail



Part Section of Barrier Rail



Part Section A-A



Part Section B-B

See Barrier Rail Details on Design Sheet No. ?? for notes, reinforcing steel details, and quantities.

Barrier Rail (TL-5) (Stainless)-Stub Abut.

FILE NO.	ENGLISH	DESIGN TEAM	Barrier Rail (TSS TL-5) (Stainless) - Stub Abut. w/Wing Ext. (1 of 2)	Standard Sheet 10205E-1	COUNTY	PROJECT NUMBER	SHEET NUMBER
9:18:45 PM	5/8/2024	bkloss	pw:\NTP\wint1.dot.int.lan:PWWMain\Documents\Highway\Bridge\Standards\Bridges\DeckRailBridges.dgn				

Barrier Rail Notes:

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.

The permissible construction joints are to be placed between vertical bars at a minimum spacing of 20 feet. Construction joint contact surfaces are to be coated with an approved bond breaker.

Cost of the joint sealer and bond breaker shall be considered incidental to other construction.

All barrier rail reinforcing steel is to be either epoxy coated or stainless steel as shown. The stainless steel reinforcing steel shall be deformed bar grade 60 meeting the requirements of Construction and Materials I.M. 452.

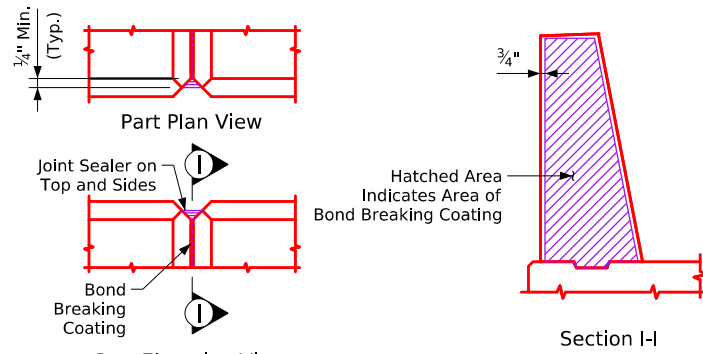
The concrete barrier rail is to be bid on a lineal foot basis. The number of linear feet of barrier rail installed will be paid for at the contract price per lineal foot based on plan quantities. Price bid for concrete barrier railing shall be full compensation for furnishing all material, excluding reinforcing steel, and all of the equipment and labor required to erect the rail in accordance with these plans and current specifications. If conduit is required in this plan the rigid steel conduit, junction boxes and fittings including labor and any additional work to do the installation is considered incidental to the cost of the railing.

The joint sealer shall be light gray nonsag latex caulking sealer marketed for outdoor use. No testing or certification is required.

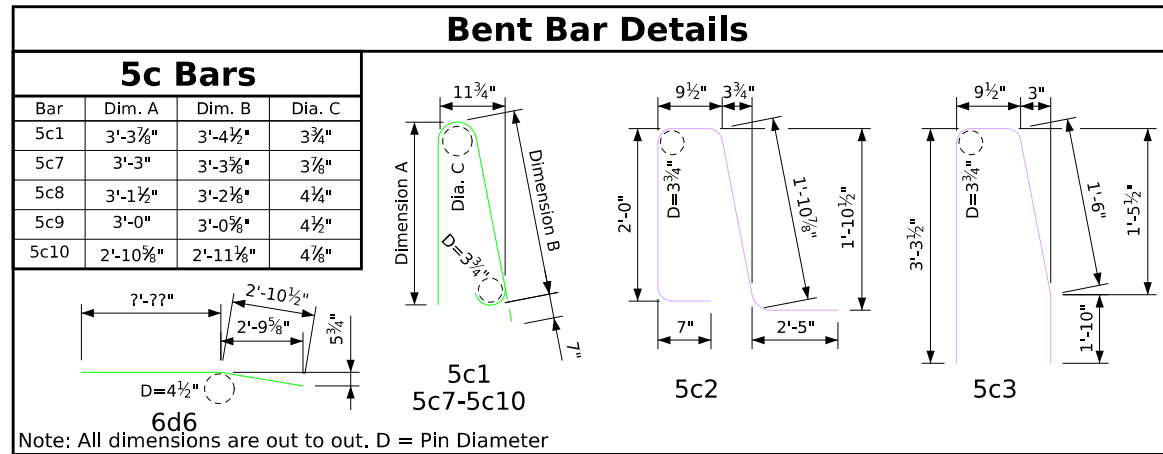
Top of the barrier rail is to be parallel to the theoretical C grade.

All exposed corners on the top of the barrier and all other corners 90° or sharper to be filleted with a 3/4" dressed and beveled strip.

Cross sectional area of the Standard Sections of the barrier rail = 3.90 square feet, except the 3'-0" sloped ends at the end sections.



Barrier Rail Joint Details



Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

Epoxy Coated Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight	
Standard Sections	5c1	Rail, Vertical	U	?	7'-6"	?	
	6d1	Rail, Longitudinal	—	?	7'-??"	?	
Special Section A	5c1	Rail, Vertical	U	?	7'-6"	?	
	5c7	Rail, Vertical, Sloped Ends	U	2	7'-4"	15	
	5c8	Rail, Vertical, Sloped Ends	U	2	7'-1"	15	
	5c9	Rail, Vertical, Sloped Ends	U	2	6'-10"	14	
	5c10	Rail, Vertical, Sloped Ends	U	2	6'-7"	14	
	6d2	Rail, Longitudinal	—	22	7'-??"	?	
	6d3	Rail, Longitudinal, Traffic Face, Bott.	—	2	7'-??"	?	
	6d6	Rail, Longitudinal, Top	—	2	7'-??"	?	
	Special Section B	5c1	Rail, Vertical	U	?	7'-6"	?
		5c7	Rail, Vertical, Sloped Ends	U	2	7'-4"	15
5c8		Rail, Vertical, Sloped Ends	U	2	7'-1"	15	
5c9		Rail, Vertical, Sloped Ends	U	2	6'-10"	14	
5c10		Rail, Vertical, Sloped Ends	U	2	6'-7"	14	
6d4		Rail, Longitudinal	—	22	7'-??"	?	
6d5		Rail, Longitudinal, Traffic Face, Bott.	—	2	7'-??"	?	
6d7		Rail, Longitudinal, Top	—	2	7'-??"	?	
Epoxy Reinf. Total Weight (lbs.)						?	

Stainless Steel Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c2	Rail, Vertical	U	?	7'-3"	?
	5c3	Rail, Vertical	U	?	7'-2"	?
Special Section A	5c3	Rail, Vertical	U	?	7'-2"	?
	5c3	Rail, Vertical	U	?	7'-2"	?
Special Section B	5c3	Rail, Vertical	U	?	7'-2"	?
	5c3	Rail, Vertical	U	?	7'-2"	?
Stainless Steel Reinf. Total Weight (lbs.)						?

Concrete Placement Summary

Section	Total
Standard Section 7'-??" at 0.144 cu. yd. per ft.	??
Δ Special Section A 7'-??" at 0.144 cu. yd. per ft.	??
Δ Special Section B 7'-??" at 0.144 cu. yd. per ft.	??
Total (cu. yd.)	??

Note: Δ Deduct 0.021 cu. yd. for one sloped end.

Concrete Barrier Rail Quantities

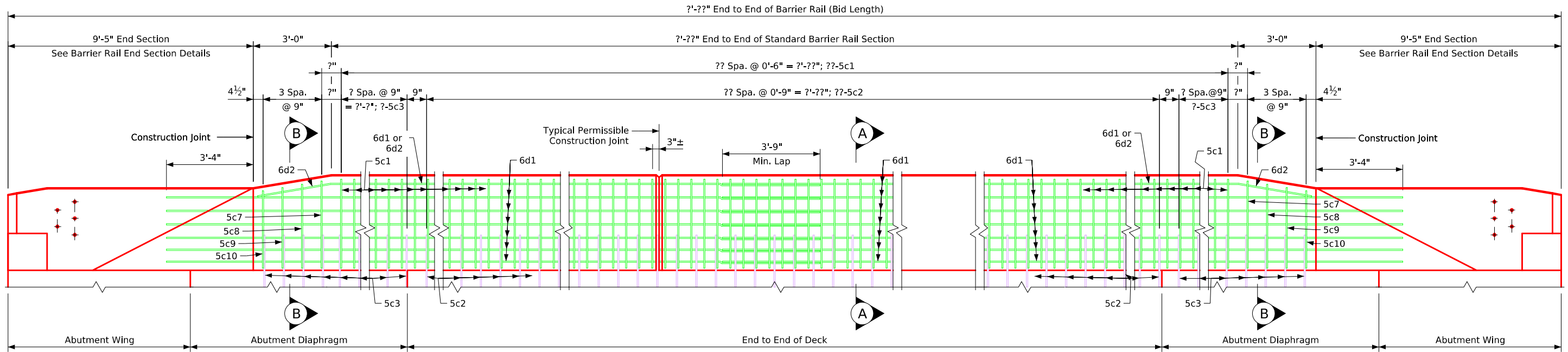
Item	Unit	Quantity
Concrete Barrier Railing, 3'-8"	L.F.	??

See Barrier Rail Details on Design Sheet No. ?? for details and sections.

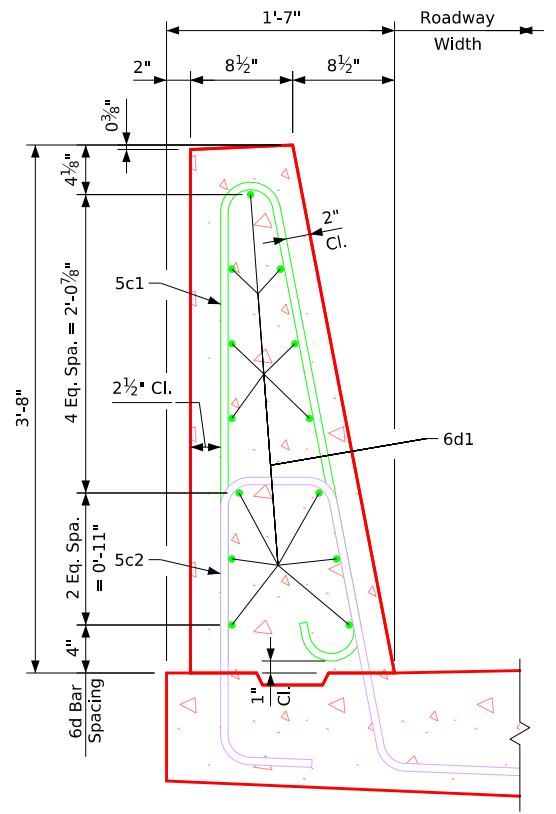
Barrier Rail (TL-5) (Stainless)-Stub Abut.

DeckRailBridges.dgn - 1020SE-2 - This Sheet Issued 05-2024. Additional Sheet for Clarity. (Sheet Number was Originally 1020SE).

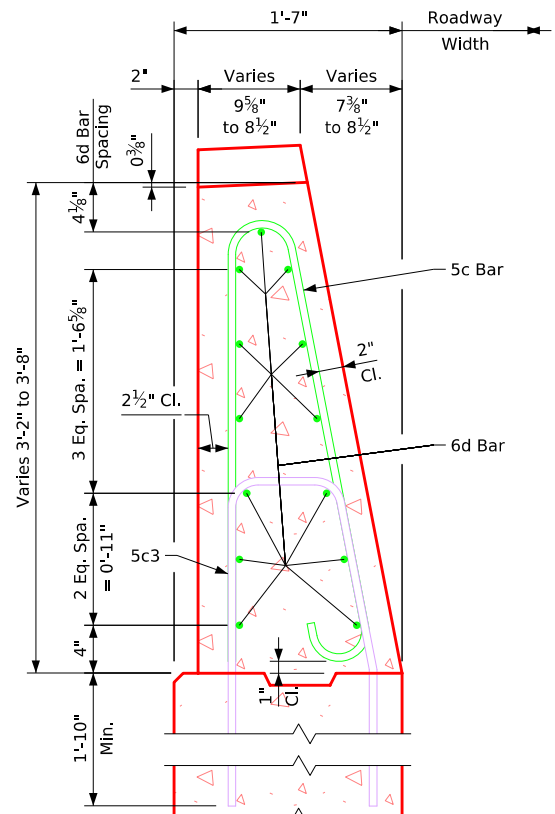
Revised 09-16: Changed 5c1 Bar Length to 7'-5" (It was 5'-11" in Error).
 Issued 04-14: Added Stainless Steel Reinforcing Bar List and Changed 5c2, 5c3, 5c14 Bars to Stainless Steel.
 DeckRailBridges.dgn - 10205F-1 - This Sheet Re-Issued 05-2024. Revised to Single Slope Barrier Shape. Sheet Format Update. (Sheet Number was Originally 10205F).



Elevation of Barrier Rail



Part Section A-A



Part Section B-B

See Barrier Rail Details on Design Sheet ?? for notes, reinforcing steel details, and quantities.

Barrier Rail (TL-5) (Stainless)-Integral Abut.

FILE NO.	ENGLISH	DESIGN TEAM	Barrier Rail (TSS TL-5) (Stainless) - Integral Abut. w/Wing Ext. (1 of 2)	Standard Sheet 10205F-1	COUNTY	PROJECT NUMBER	SHEET NUMBER
9:18:47 PM	5/8/2024	bkloss	pw:\NTP\int1.dot.int.lan:PWWMain\Documents\Highway\Bridge\Standards\Bridges\DeckRailBridges.dgn				

Barrier Rail Notes:

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.

The permissible construction joints are to be placed between vertical bars at a minimum spacing of 20 feet. Construction joint contact surfaces are to be coated with an approved bond breaker.

Cost of the joint sealer and bond breaker shall be considered incidental to other construction.

All barrier rail reinforcing steel is to be either epoxy coated or stainless steel as shown. The stainless steel reinforcing steel shall be deformed bar grade 60 meeting the requirements of Construction and Materials I.M. 452.

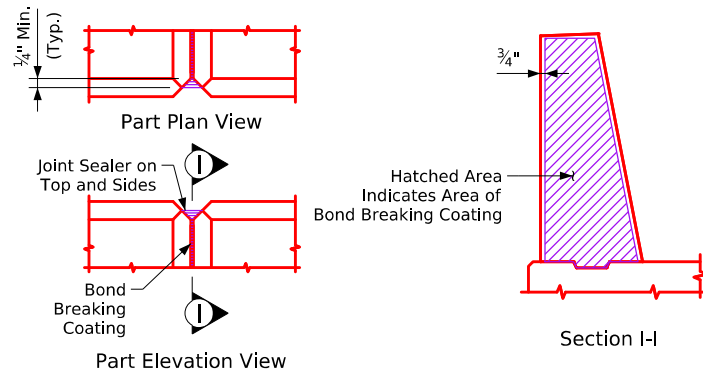
The concrete barrier rail is to be bid on a lineal foot basis. The number of linear feet of barrier rail installed will be paid for at the contract price per lineal foot based on plan quantities. Price bid for concrete barrier railing shall be full compensation for furnishing all material, excluding reinforcing steel, and all of the equipment and labor required to erect the rail in accordance with these plans and current specifications. If conduit is required in this plan the rigid steel conduit, junction boxes and fittings including labor and any additional work to do the installation is considered incidental to the cost of the railing.

The joint sealer shall be light gray nonsag latex caulking sealer marketed for outdoor use. No testing or certification is required.

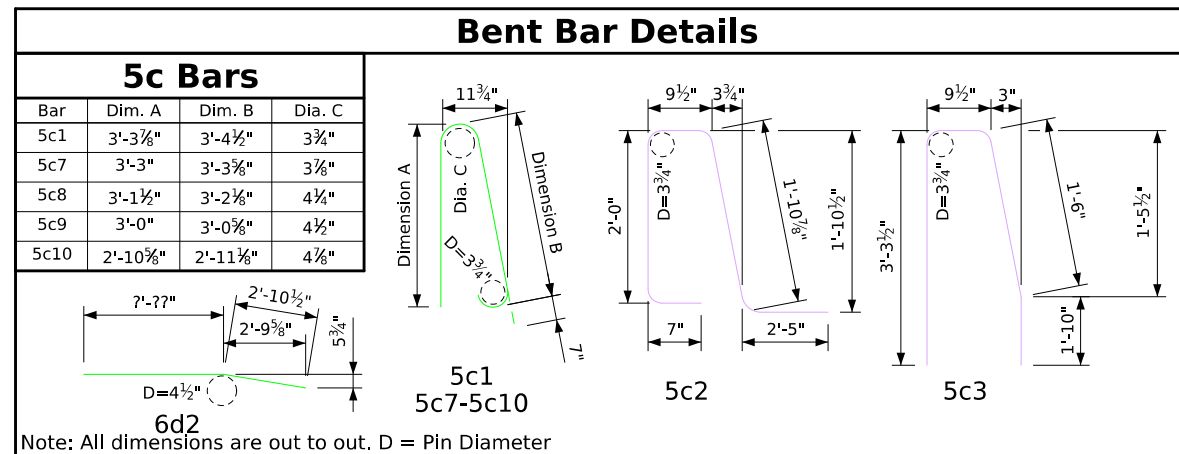
Top of the barrier rail is to be parallel to the theoretical \bar{C} grade.

All exposed corners on the top of the barrier and all other corners 90° or sharper to be filleted with a $\frac{3}{4}$ " dressed and beveled strip.

Cross sectional area of the Standard Sections of the barrier rail = 3.90 square feet, except the 3'-0" sloped ends at the end sections.



Barrier Rail Joint Details



Note: All dimensions are out to out. D = Pin Diameter

Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

Epoxy Coated Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c1	Rail, Vertical		?	7'-6"	?
	5c7	Rail, Vertical, Sloped Ends		4	7'-4"	31
	5c8	Rail, Vertical, Sloped Ends		4	7'-1"	30
	5c9	Rail, Vertical, Sloped Ends		4	6'-10"	29
	5c10	Rail, Vertical, Sloped Ends		4	6'-7"	28
	6d1	Rail, Longitudinal		?	??-??"	?
6d2	Rail, Longitudinal, Top		4	??-??"	?	
Epoxy Reinf. Total Weight (lbs.)						?

Stainless Steel Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c2	Rail, Vertical		?	7'-3"	?
	5c3	Rail, Vertical		?	7'-2"	?
Stainless Steel Reinf. Total Weight (lbs.)						?

Concrete Placement Summary

Section	Total	
Δ Standard Section ??-??" at 0.144 cu. yd. per ft.	?.?	
Total (cu. yd.)		?.?

Note: Δ Deduct 0.021 cu. yd. for one sloped end.

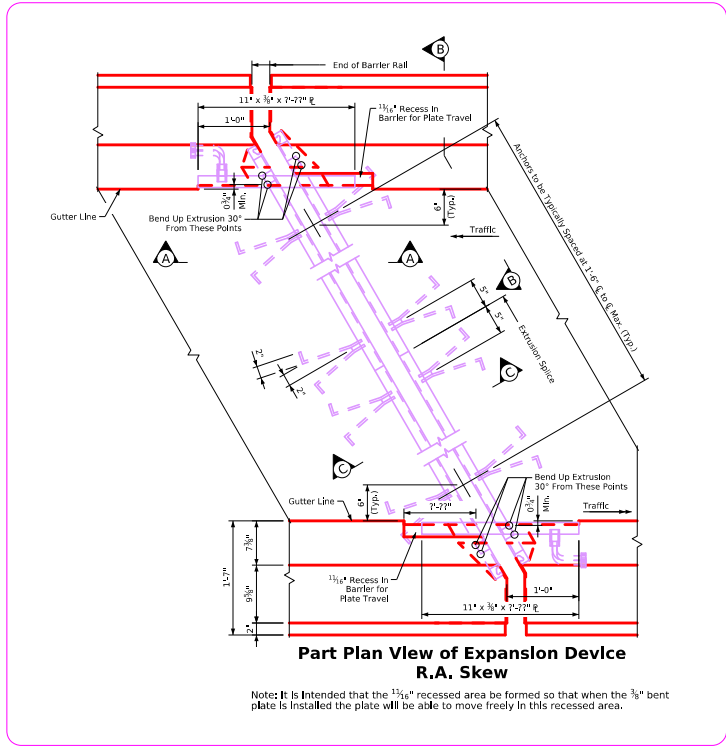
Concrete Barrier Rail Quantities

Item	Unit	Quantity
Concrete Barrier Railing, 3'-8"	L.F.	?.?

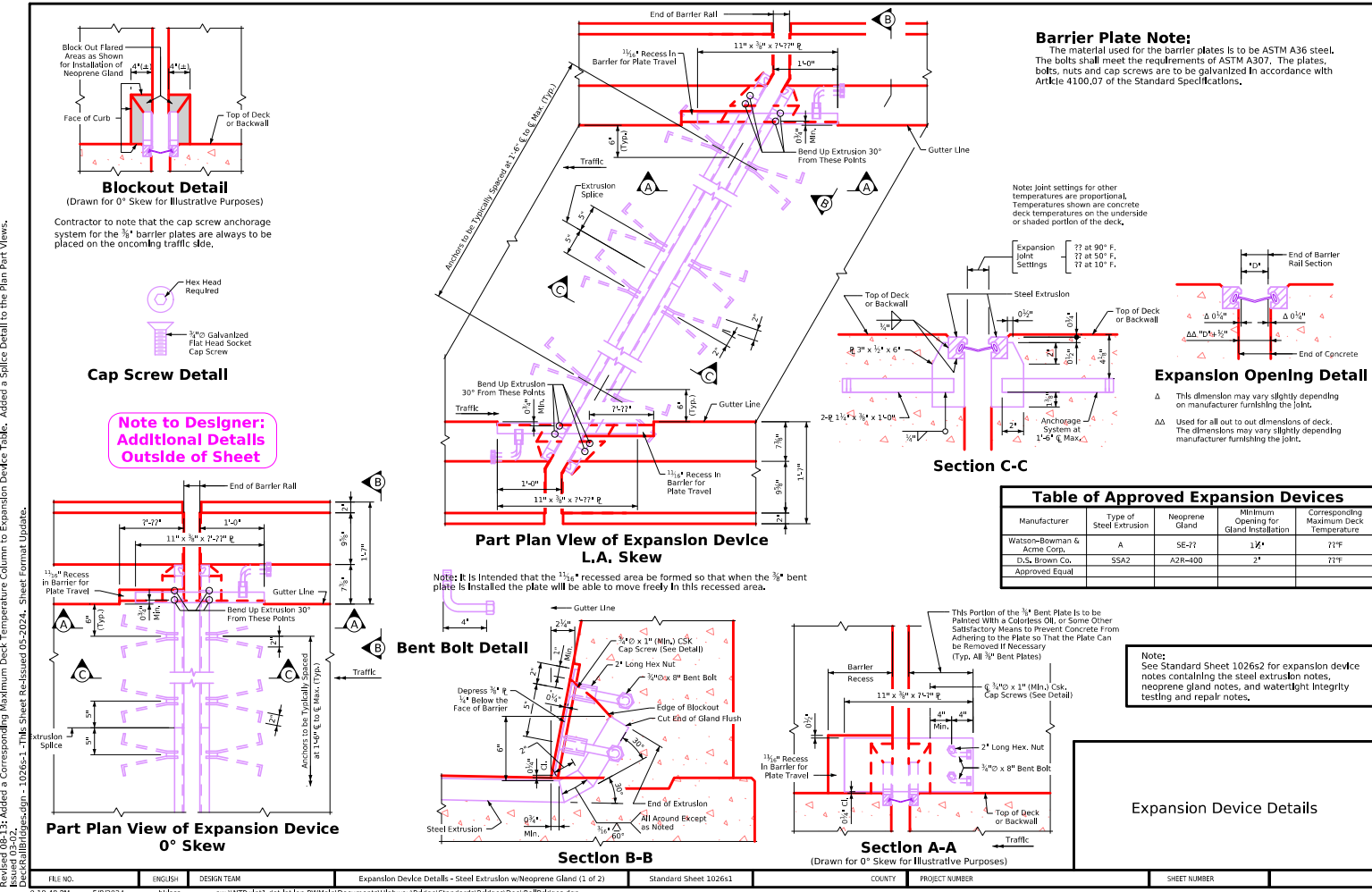
See Barrier Rail Details on Design Sheet No. ?? for details and sections.

Barrier Rail (TL-5) (Stainless)-Integral Abut.

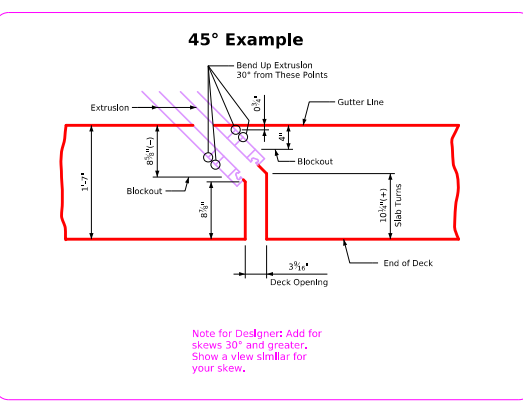
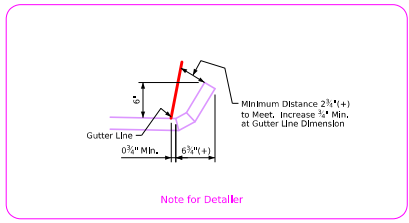
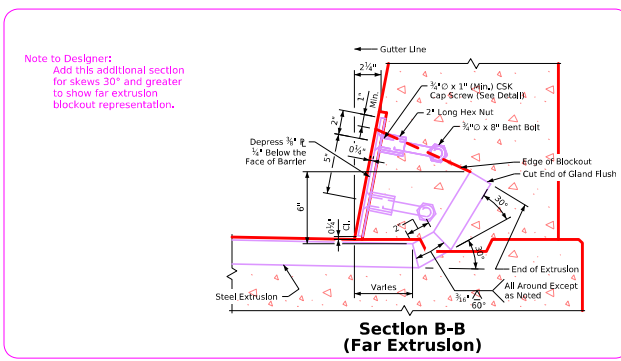
DeckRailBridges.dgn - 1020SF-2 - This Sheet Issued 05-2024. Additional Sheet for Clarity. (Sheet Number was Originally 1020SF).



Revised 09-23: Additional Details for Higher Skews Added Outside of Sheet.
 Correction 09-23: Blockout Detail Added Outside of Sheet. Hex Head Countersink Screw Detail Added.
 Revised 11-08: Standard Number Changed to 1026s1. Notes Moved to Standard 1026s1.
 Revised 11-11: Stage Construction Note Outside Barrier Changed for Repairing Galvanizing Damage Due to Field Welding.
 Revised 11-22: Added a Note Showing Min. Temperature to Install the Gland. Removed the Stage Construction Note Outside of the Barrier. Added Gland Installation Min. Opening.



FILE NO.	ENGLISH	DESIGN TEAM	Expansion Device Details - Steel Extrusion w/Neoprene Gland (1 of 2)	COUNTY	PROJECT NUMBER	SHEET NUMBER
9:18:48 PM	5/8/2024	tbloss	p:\NTP\ent1_dot_brd\Jan.PW\M\Documents\Highway\Bridges\Standards\Bridges\DecRail\Bridges.dgn			



Revised 08-13- Steel Extrusion Note was Added to Show a Weld Detail on the Shop Drawings for Splices. Issued 11-08. An Additional Neoprene Gland Note About The Corresponding Maximum Deck Temperature was Added. DeckRailBridges.dgn - 10265-2 - This Sheet Re-issued 05-2024. - Sheet Format Update.

Steel Extrusion Notes:

The Contractor shall submit for approval shop drawings of the expansion devices showing layout, material to be used, and provisions for the holding device during placement of concrete.
 The expansion device shall be galvanized after welding. All curb plates including their anchorages shall be galvanized.
 The expansion device is to be parallel to grade.
 Cap screws shall be countersunk 1/8" below top of the plate. The minimum grade of structural steel for the expansion device shall be ASTM A36.
 Blockout details may be altered from those shown provided the gland may be installed and removed if necessary and the curb area remains watertight.
 Shop splices of the steel extrusion will be permitted. Prior to making shop splices steel extrusion pieces shall have a minimum length of 15 feet. The individual length of pieces shall be chosen so that a minimum number of splices is required. All pieces shall be joined with a prequalified partial penetration single groove weld detailed on the shop drawing. All surfaces not in contact with concrete are to be ground flush. No weld shall be permitted in the internal section of the extrusion where the neoprene gland is to be installed.
 The number of feet of steel extrusion installed shall be paid for at the contract price per foot based on plan quantities. The price bid for "Steel Extrusion Joint w/Neoprene" shall include the cost of furnishing but not the cost of installing the neoprene gland. The contract price bid for "Steel Extrusion Joint w/Neoprene" shall be full compensation for furnishing and installing steel extrusions. This work will consist of furnishing all required materials, (including the 3/8" plates at the curbs and their anchorage systems), and the installation and adjustment of the expansion joints in accordance with the details shown on the plans and as directed by the Engineer. The furnishing and installation of all necessary hardware and accessories as supplied by the Expansion Joint Manufacturer are to be included in this work, including the anchorage system and any temporary erection material. All work and materials for the installation of the expansion joints are to comply with the written recommendations of the Expansion Joint Manufacturer.

Neoprene Gland Notes:

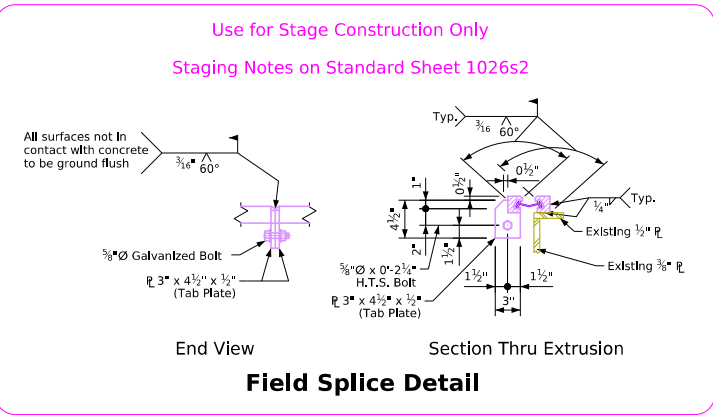
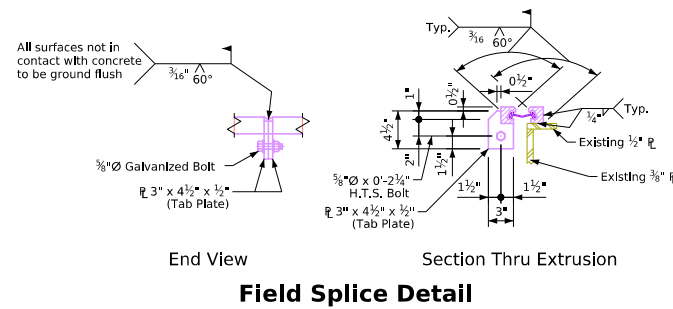
The neoprene gland is to be placed as one continuous piece from end to end of the steel extrusion.
 The neoprene gland shall conform to ASTM-2628 modified to exclude recover test and compression set.
 The Contractor shall install the gland above the minimum temperature of 45° and the minimum joint opening and corresponding maximum deck temperature shown in these plans. The deck temperature shall be measured by recording the surface temperatures on the underside of the deck adjacent to the joints. If the deck temperature does not fall within the specified temperature range before the Contractor has completed all other required work, it will be necessary for the Contractor to return to the project site to complete installation and testing of the neoprene gland. If the Contractor is required to return to the project site after all other required work has been completed, the Contractor shall complete installation and testing of neoprene gland at no extra charge to the State.
 The number of feet of neoprene gland installed shall be paid for at the contract price per foot based on plan quantities. The price for "Neoprene Gland Installation and Testing" shall be full compensation for installing and testing of the new neoprene gland. This work will consist of cleaning the extrusion, installation of the neoprene gland and water tight testing of the expansion joint system. All work and materials necessary for the installation of the neoprene gland shall comply with the recommendations of the Expansion Joint Manufacturer. The price bid for "Neoprene Gland Installation and Testing" shall include all watertight integrity testing, leak repairs as directed by the Engineer, and subsequent watertight testing until a leak free installation is achieved.

Watertight Integrity Testing And Repair Notes:

After installation of each neoprene gland, the Contractor shall perform watertight integrity tests at the deck level to detect any leakage. The tests are to check for leakage at the upturned ends of the expansion device and for leakage along the expansion device across the deck and any medians or sidewalks. The Contractor may conduct a single test of the entire device including upturned ends or may conduct separate tests of upturned ends and one or more tests of overlapping lengths between the upturned ends.
 At each upturned end of the expansion device, the Contractor shall block out on the deck at least 3 feet of the expansion device leading to the upturned end and flood the area. A minimum water depth of 3" shall be maintained at the gutter line for at least 30 minutes. During the test, the Inspector shall observe for any overflow at the upturned end. At the conclusion of the test the Inspector will examine the underside of the joint for leakage. The expansion device is considered watertight if the Inspector observes no overflow during the test and if no dripping water or water droplets are visible in the under deck areas near the upturned end.
 The Contractor shall test the expansion device between upturned ends by blocking out and covering the device with ponded or flowing water to a depth of at least 1" at all points, for at least 30 minutes. Vertical curb surfaces may be tested with an unnozzled hose delivering approximately one gallon per minute directed to flow over the entire curb height for 30 minutes. At the conclusion of the test, the inspector will examine the underside of the joint for leakage. The expansion device is considered watertight if no dripping water or water droplets are visible in the under deck areas along the full length of the expansion joint. Damp concrete that does not show dripping water or water droplets is not considered a sign of leakage.
 If the expansion device leaks at an upturned end or along its length, the Contractor shall locate the leak(s) and take repair measures to stop the leakage. The repair measures shall be as recommended by the Manufacturer and approved by the Engineer prior to beginning corrective work.
 If measures to eliminate leakage are taken, the Contractor shall perform subsequent watertight integrity tests subject to the same conditions as the original test.

Field Construction Notes:

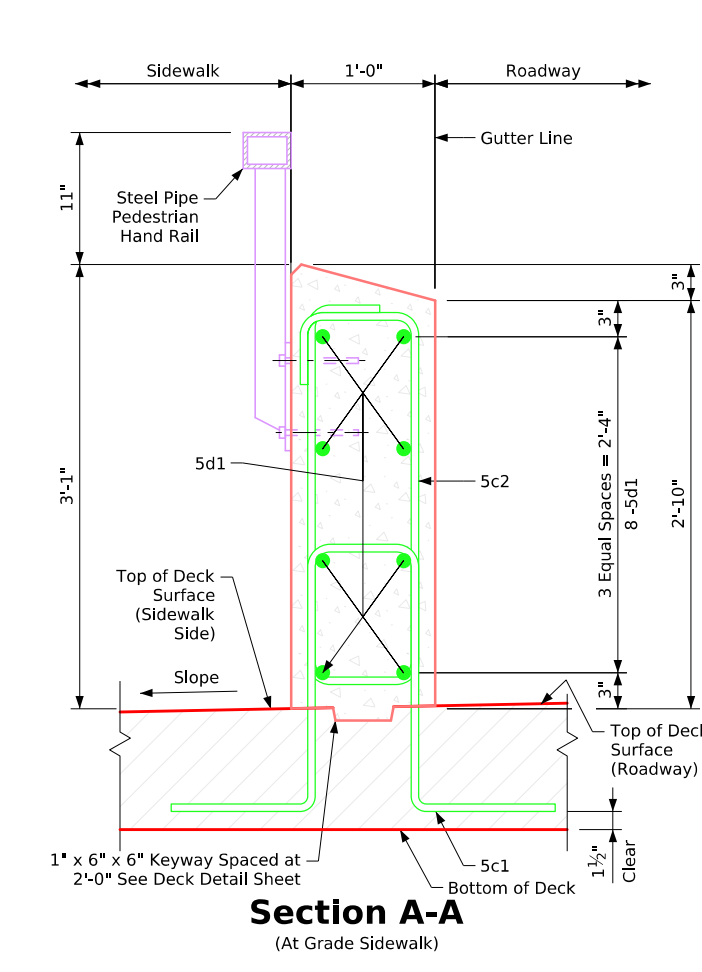
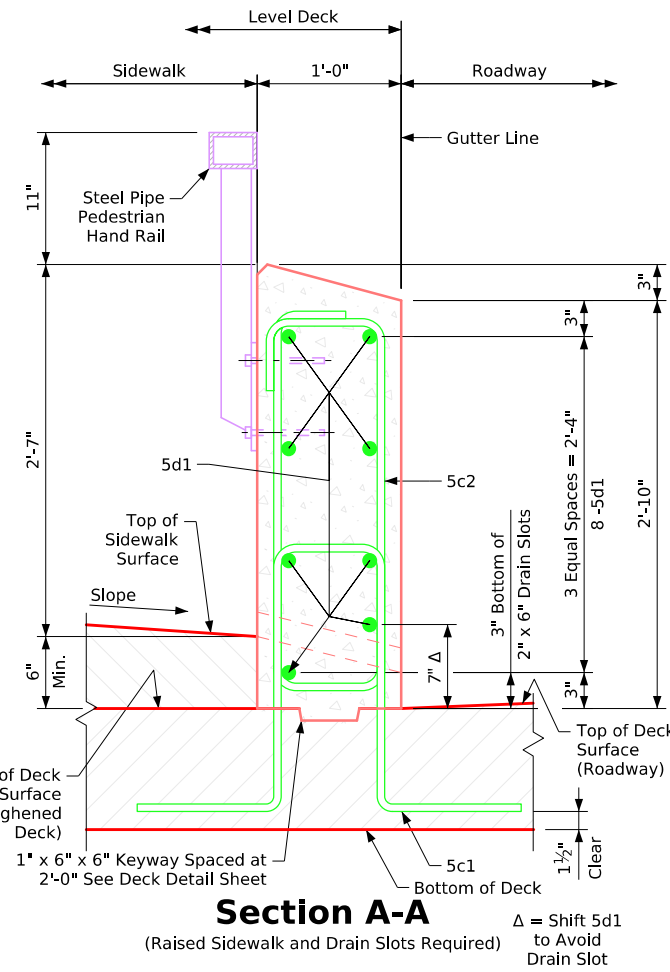
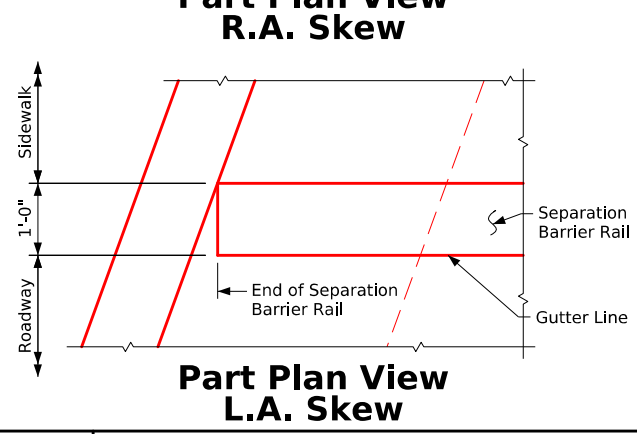
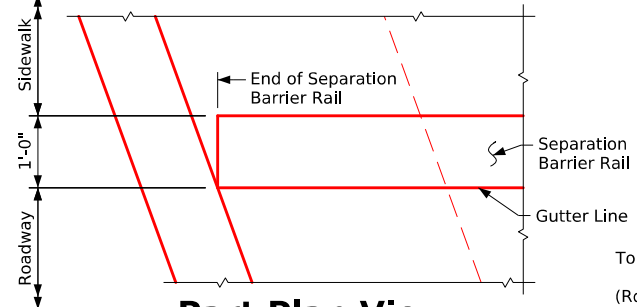
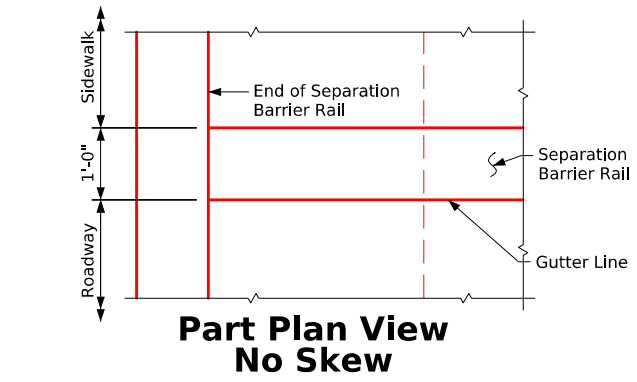
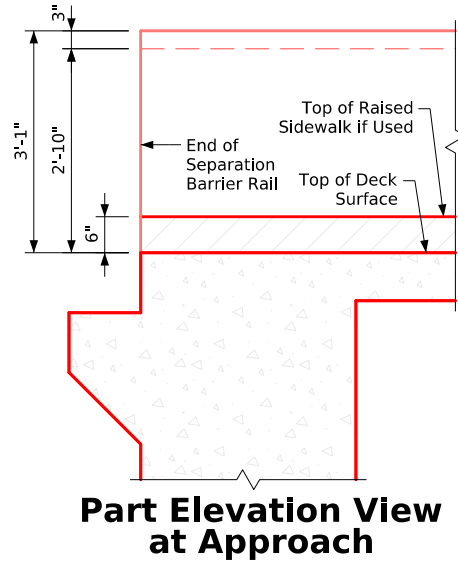
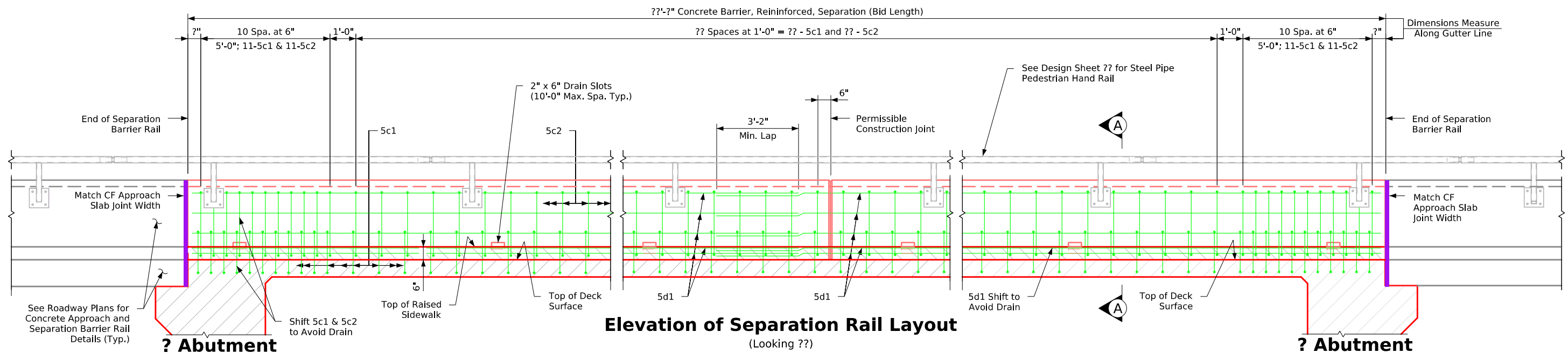
If the steel extrusion is spliced in the field, the splice location shall be detailed on the shop drawings. The connection details shall include tab plates and prepared ends to accommodate the necessary welding. See details in these plans.
 Galvanized coating damage by field welding shall be repaired in accordance with Construction and Materials I.M. 410.



Expansion Device Notes

FILE NO.	ENGLISH	DESIGN TEAM	Expansion Device Details - Steel Extrusion Notes (2 of 2)	Standard Sheet 102652	COUNTY	PROJECT NUMBER	SHEET NUMBER
9:18:49 PM	5/8/2024	bkloss	pw:\NTP\wnt1.dot\ntlan:PWMain\Documents\Highway\Bridges\Standards\Bridges\DeckRailBridges.dgn				

Revised 10-14: Moved the Outlet of the Drain Slot 2 Inches Above the Bridge Deck Surface. Issued 02-00. DeckRailBridges.dgn - 1028A-1 - This Sheet Re-Issued 05-2024. Sheet Format Update. (Sheet Number was Originally 1028A).






Note to Detailer:
Remove or Cross Out
Unused Part Plan View
Details

Separation Barrier Rail - Integral Abut.

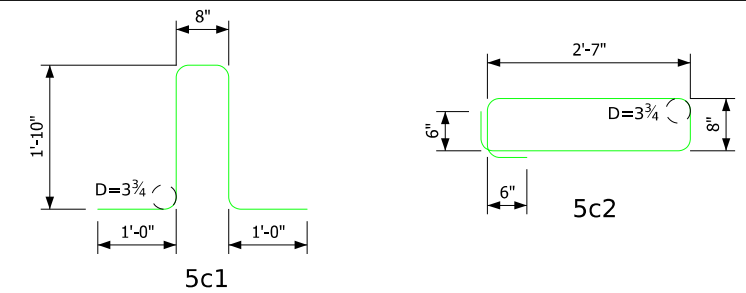
FILE NO.	ENGLISH	DESIGN TEAM	Separation Barrier Rail Details - Integral Abutment (1 of 2)	Standard Sheet 1028A-1	COUNTY	PROJECT NUMBER	SHEET NUMBER
9:18:50 PM	5/8/2024	bkloss	pw:\NTP\int1.dot.int.lan:PWMain\Documents\Highway\Bridges\Standards\Bridges\DeckRailBridges.dgn				

DeckRailBridges.dgn - 1028A-2 - This Sheet Issued 05-2024. Additional Sheet for Clarity. (Sheet Number was Originally 1028A).

Epoxy-Coated Reinforcing Steel One Separation Barrier

Bar	Location	Shape	No.	Length	Weight
5c1	Separation Barrier, Vertical		??	6'-4"	??
5c2	Separation Barrier, Vertical		??	7'-6"	??
5d1	Separation Barrier, Longitudinal		??	??'-??"	??
Epoxy-Coated Reinforcing Steel Total (lbs)					??

Bent Bar Details



Note: All dimensions are out to out. D = Pin Diameter

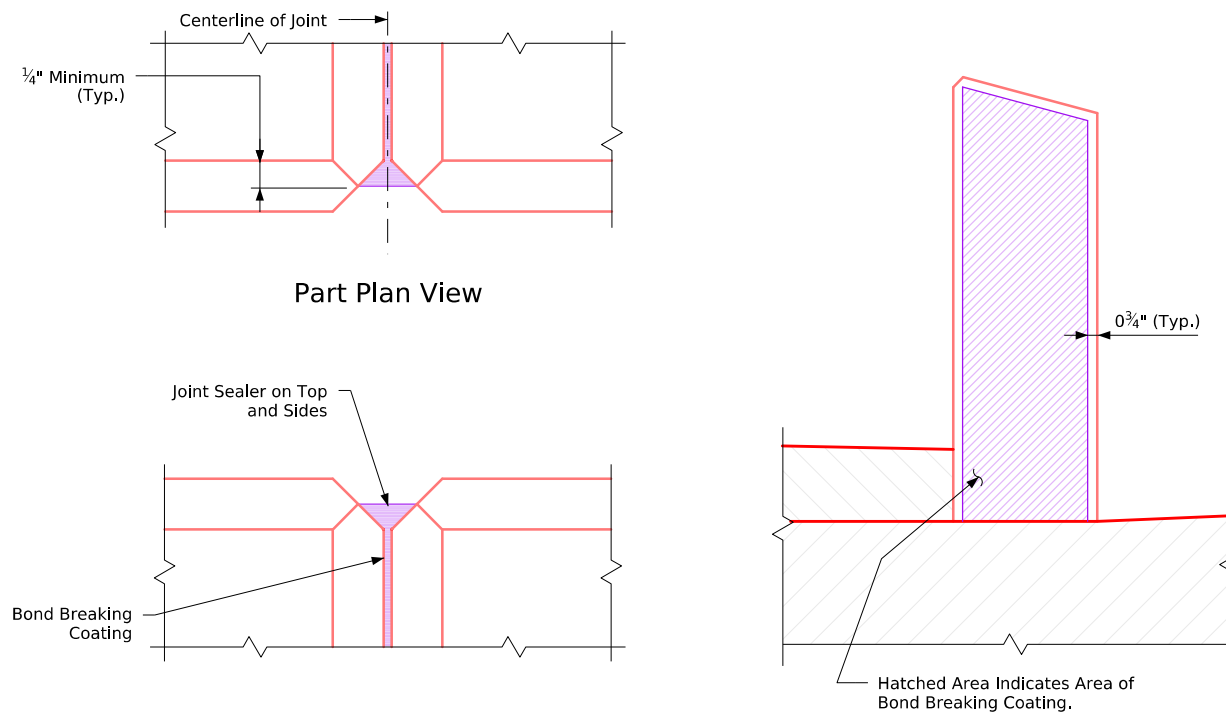
Concrete Placement Summary

Section	Total
Standard Section	??' @ 0.110 cu. yd. per ft.
	??

Concrete Separation Barrier Quantity

Section	Unit	Total
Concrete Barrier, Reinforced, Separation	L.F.	??

Note to Detailer :
1'-10" vertical dimension for 5c1 bar is based on a 8 1/2" deck and 1 1/2" clearance from the bottom of the deck. For continuous concrete slab bridges this dimension will need to be recalculated.



Separation Barrier Rail Joint Details
(Permissible Construction Joint)

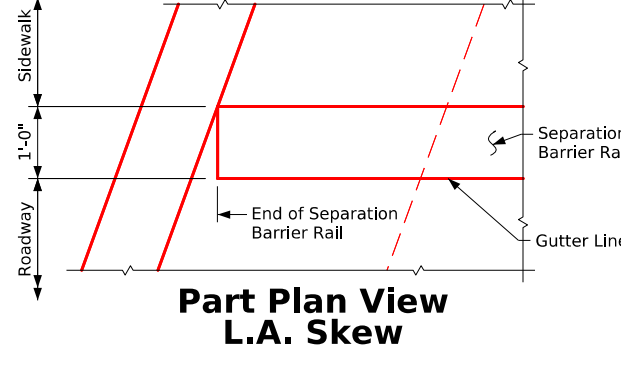
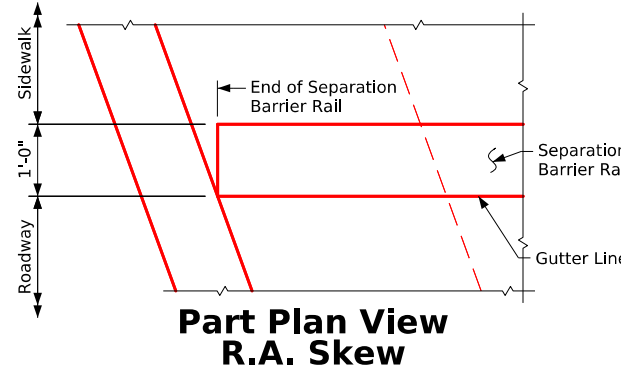
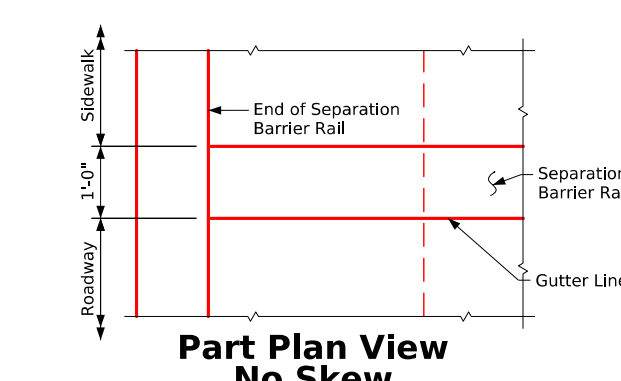
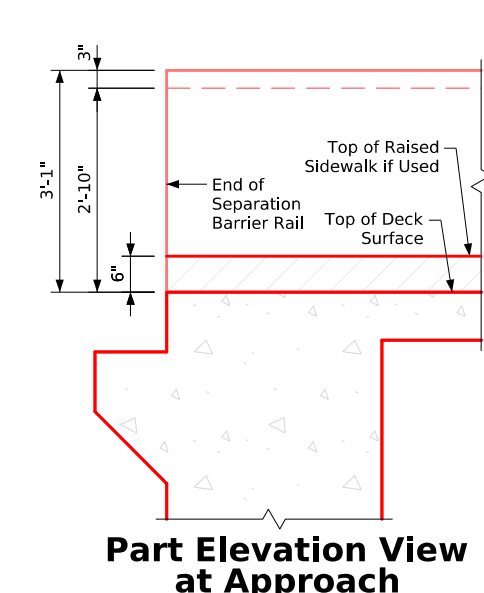
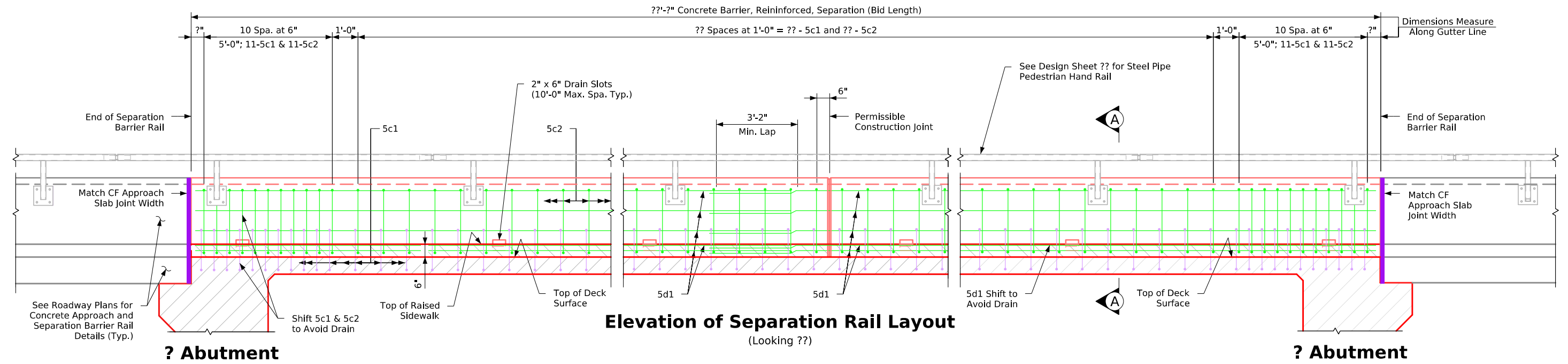
Separation Barrier Notes:

- Maintain a minimum clear distance of 2" from the concrete face to the nearest reinforcing bar, unless otherwise specified.
- Construct permissible construction joints between vertical bars with a minimum spacing of 20 feet, ensuring a minimum distance of 1'-0" from the centerline of any handrail post. Apply an approved bond breaker on construction joint contact surfaces.
- The cost of joint sealer and bond breaker is considered incidental to overall construction expenses.
- All barrier rail reinforcing steel to be epoxy coated or stainless steel as shown.
- Bid for Concrete Barrier, Reinforced, Separation on a lineal foot basis. Payment will be made at the contract priced per linear foot based on plan quantities. The bid includes all material, equipment, and labor for concrete rail construction, including conduit if shown in these plans. Reinforcing steel quantity not included and bid separately.
- Use a light gray nonsag latex caulking sealer designed for outdoor use as the joint sealer. No testing or certification is required.
- Ensure the top of the barrier rail aligns parallel to the theoretical centerline grade.
- Fillet all exposed corners with a 3/4" dressed and beveled strip for corners with a 90 degree or sharper angle.
- The cross-sectional area of the separation barrier is 2.96 square feet.

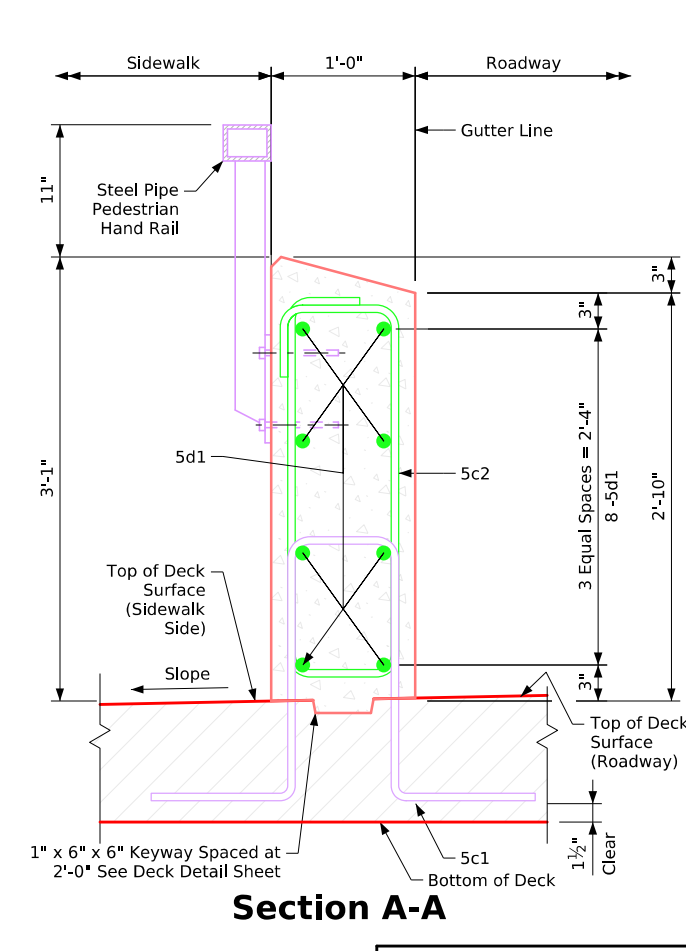
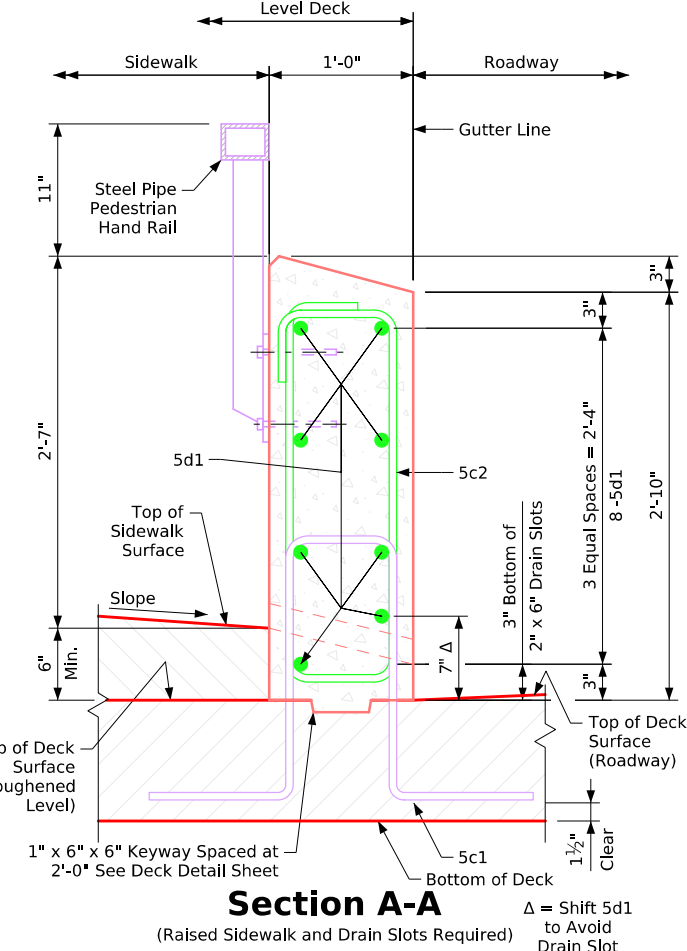
Note:
Reinforcing Steel quantities are included on the "Summary Quantities Sheet"

Separation Barrier Rail - Integral Abut.

Revised 10-14: Moved the Outlet of the Drain Slot 2 Inches Above the Bridge Deck Surface. Issued 04-14: Added Stainless Steel Reinforcing Bar List and Changed 5c2 Bars to Stainless Steel. DeckRailBridges.dgn - 1028SA-1 - This Sheet Re-Issued 05-2024. Sheet Number was Originally 1028SA.

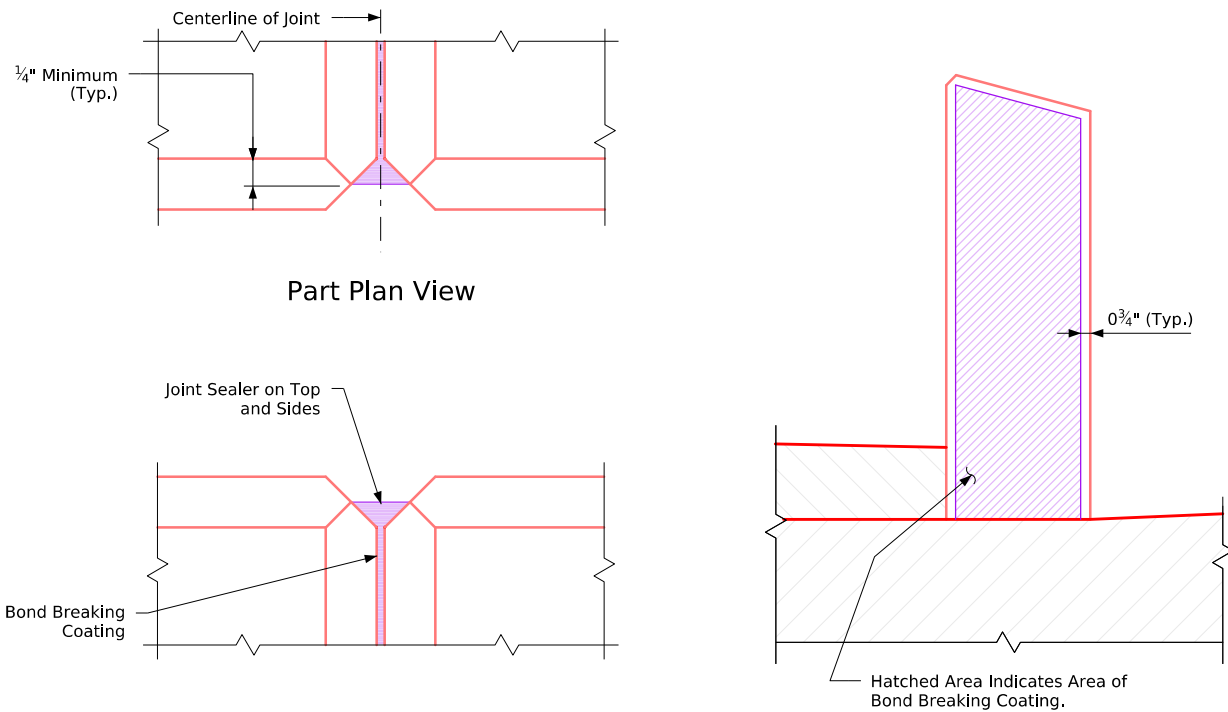


Note to Detailer:
Remove or Cross Out
Unused Part Plan View
Details



Separation Barrier Rail (Stainless)-Integral Abut.

DeckRailBridges.dgn - 1028SA-2 - This Sheet issued 05-2024. Additional Sheet for Clarity. (Sheet Number was Originally 1028SA).



Separation Barrier Rail Joint Details
(Permissible Construction Joint)

Note to Detailer :
1'-10" vertical dimension for 5c1 bar is based on a 8 1/2" deck and 1 1/2" clearance from the bottom of the deck. For continuous concrete slab bridges this dimension will need to be recalculated.

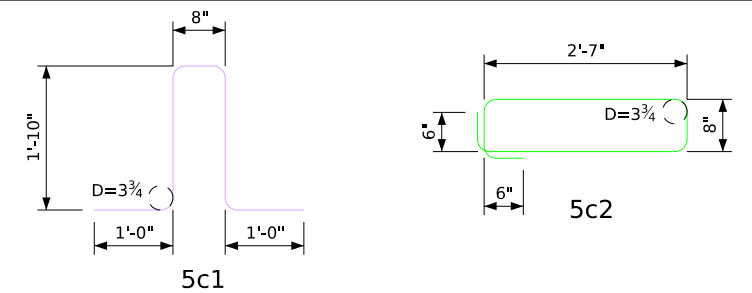
**Epoxy-Coated Reinforcing Steel
One Separation Barrier**

Bar	Location	Shape	No.	Length	Weight
5c2	Separation Barrier, Vertical		??	7'-6"	??
5d1	Separation Barrier, Longitudinal		??	??'-??"	??
Epoxy-Coated Reinforcing Steel Total (lbs)					??

**Stainless Steel Reinforcing
One Separation Barrier**

Bar	Location	Shape	No.	Length	Weight
5c1	Separation Barrier, Vertical		??	6'-4"	??
Stainless Steel Reinforcing Total (lbs)					??

Bent Bar Details



Note: All dimensions are out to out. D = Pin Diameter

Concrete Placement Summary

Section	Total
Standard Section	7.??' @ 0.110 cu. yd. per ft. ??

Concrete Separation Barrier Quantity

Section	Unit	Total
Concrete Barrier, Reinforced, Separation	L.F.	??

Separation Barrier Notes:

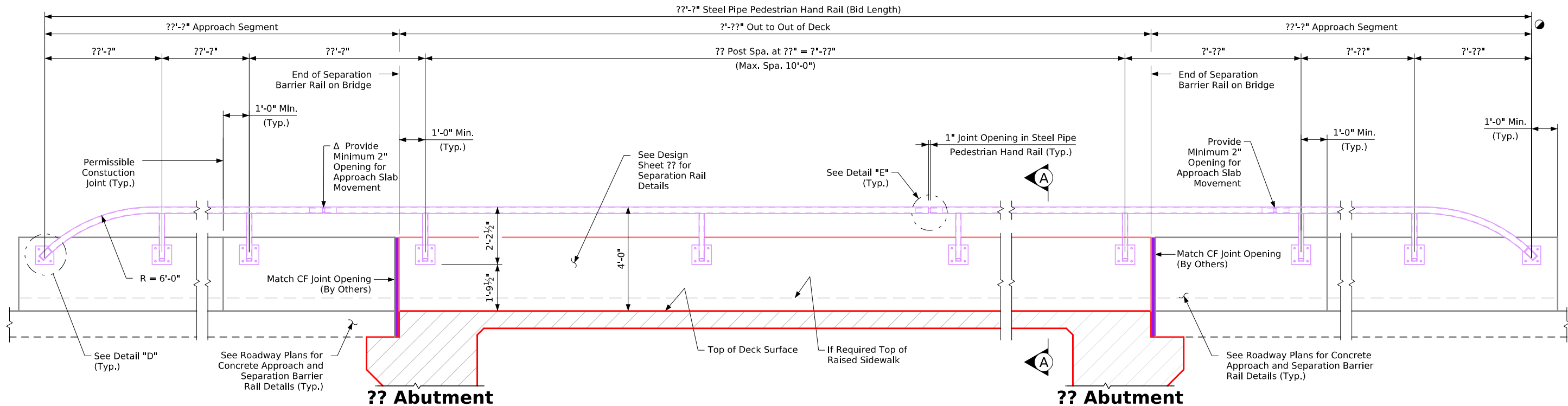
- Maintain a minimum clear distance of 2" from the concrete face to the nearest reinforcing bar, unless otherwise specified.
- Construct permissible construction joints between vertical bars with a minimum spacing of 20 feet, ensuring a minimum distance of 1'-0" from the centerline of any handrail post. Apply an approved bond breaker on construction joint contact surfaces.
- The cost of joint sealer and bond breaker is considered incidental to overall construction expenses.
- All barrier rail reinforcing steel to be epoxy coated or stainless steel as shown.
- Bid for Concrete Barrier, Reinforced, Separation on a lineal foot basis. Payment will be made at the contract priced per linear foot based on plan quantities. The bid includes all material, equipment, and labor for concrete rail construction, including conduit if shown in these plans. Reinforcing steel quantity not included and bid separately.
- Use a light gray nonsag latex caulking sealer designed for outdoor use as the joint sealer. No testing or certification is required.
- Ensure the top of the barrier rail aligns parallel to the theoretical centerline grade.
- Fillet all exposed corners with a 3/4" dressed and beveled strip for corners with a 90 degree or sharper angle.
- The cross-sectional area of the separation barrier is 2.96 square feet.

Note:
Reinforcing Steel quantities are included on the "Summary Quantities Sheet"

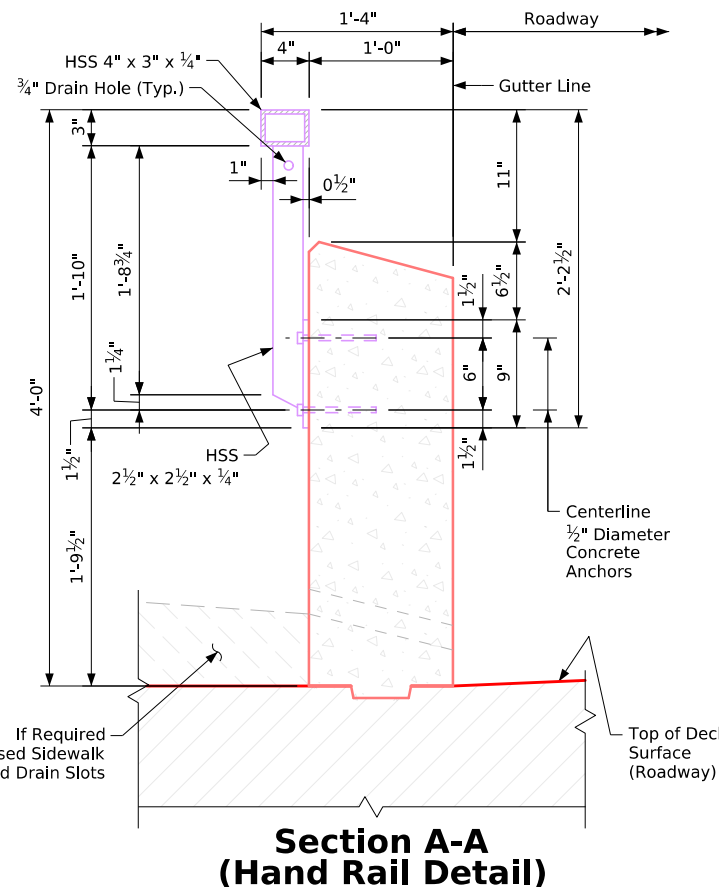
Separation Barrier Rail (Stainless)-Integral Abut.

Pedestrian Handrail Placement Quantity

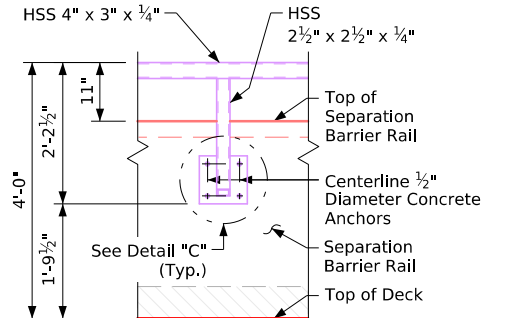
Item	Unit	Total
Steel Pipe Pedestrian Hand Rail	L.F.	??



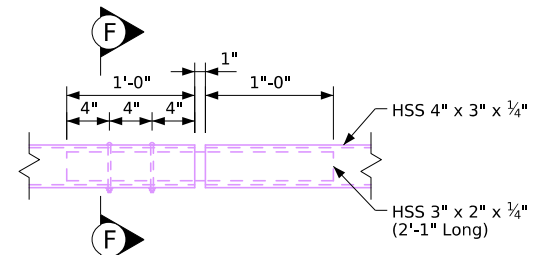
Elevation of Steel Pipe Pedestrian Hand Rail Layout
Looking ??



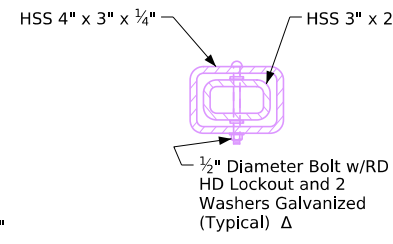
Section A-A (Hand Rail Detail)



Part Elevation

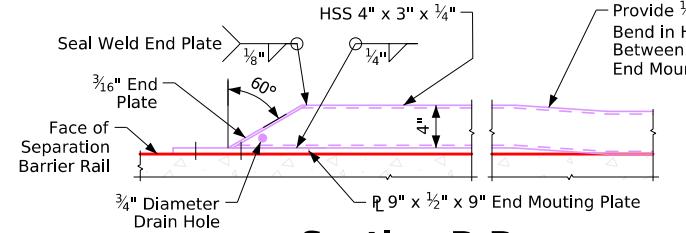


Detail "E"

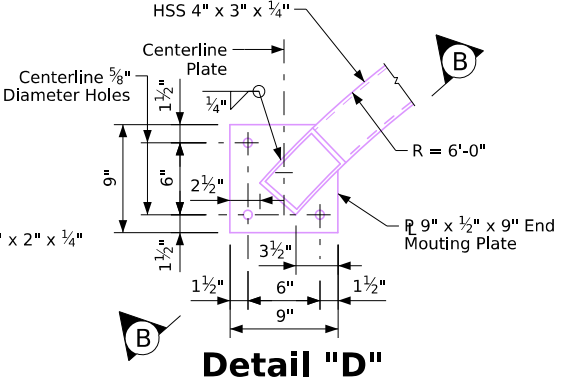


Section F-F

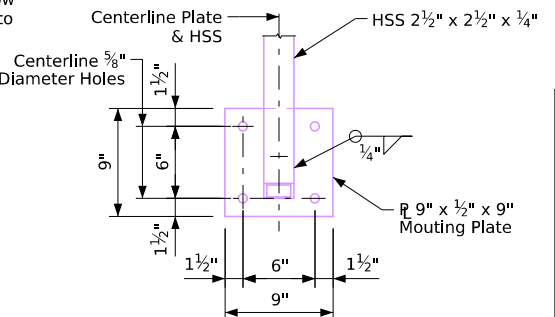
Note:
Δ Space inner sleeve from outer tube with tack weld standard washer above and below sleeve at each bolt. Holes in inner sleeve to be 3/4" diameter oversized holes.



Section B-B



Detail "D"



Detail "C"

Steel Pipe Pedestrian Hand Rail Notes

The Steel Pipe Pedestrian Hand Rail is to be bid on a lineal foot basis measured end to end of rail. The price bid for Steel Pipe Pedestrian Hand Rail shall be full compensation for furnishing all material, including anchor bolts and shims, and all of the equipment and labor required to erect the rail in accordance with these plans and specifications.

Hollow structural sections must meet the requirements of ASTM A500 Grade B. Steel plates and shims must meet ASTM A-36. Panels, splice sections, and end sections are to be galvanized after fabrication in accordance with ASTM A123 specifications.

Ends of rail sections are to be sawed or milled. All cut ends are to be true, smooth, and free of burrs or ragged edges.

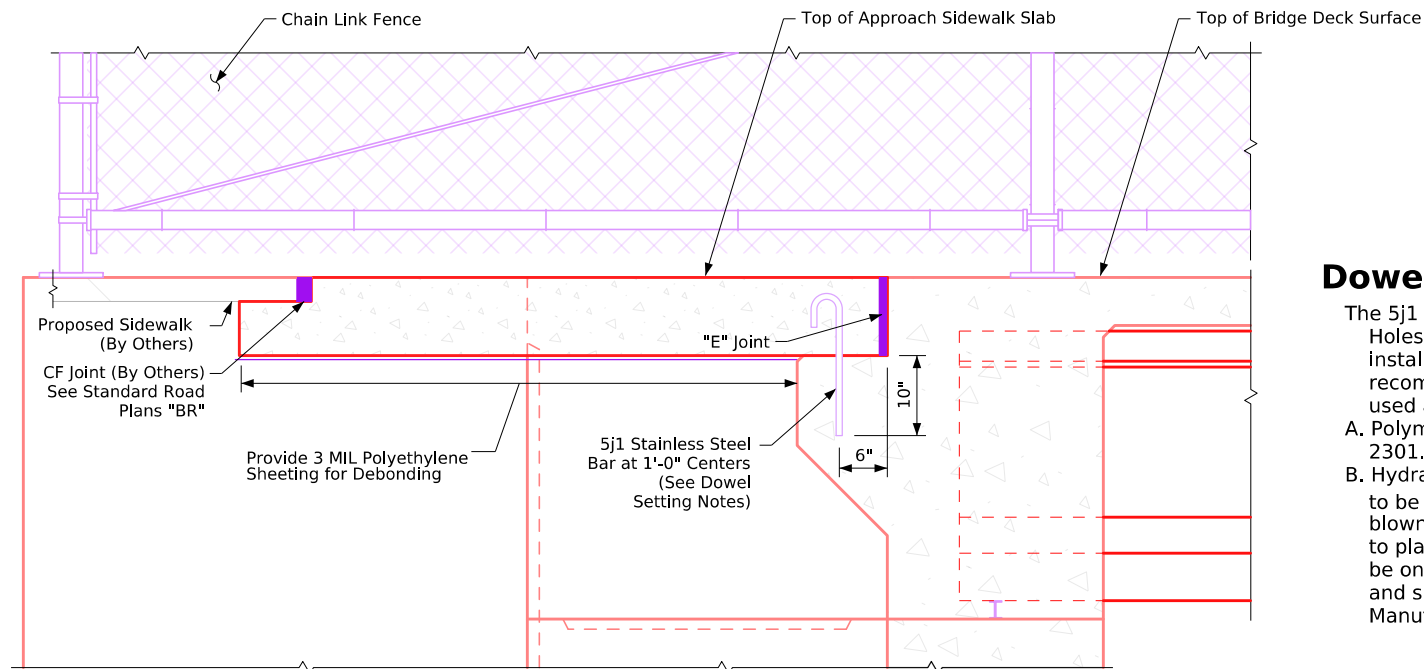
No painting will be required.

The stud concrete anchors shall be galvanized and have a minimum pull out strength of 8000 pounds based on 4000 psi concrete.

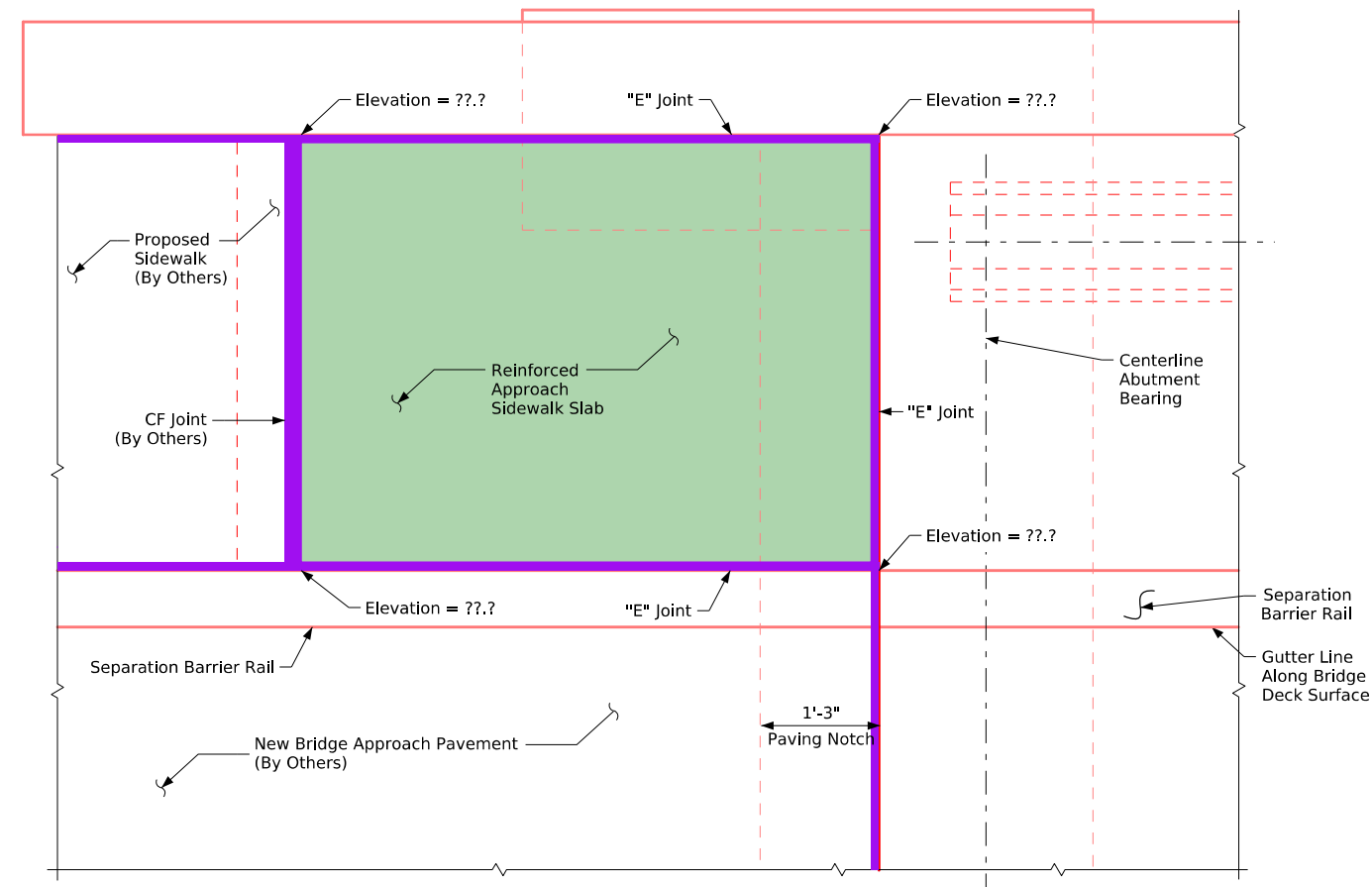
Dimensions provided are along the back face of the separation barrier rail (Sidewalk Side) and are in the horizontal plane only. The Contractor must adjust for slope and vertical curve to align with the horizontal and vertical alignment of the bridge. Posts shall be set normal to the bridge grade.

Back Mounted Ped. Hand Rail-Integral Abut.

DeckRailBridges.dgn - 1029-BHR - This Sheet Issued 05-2024.



Part Longitudinal Section Thru Approach Sidewalk Slab



Plan View Approach Sidewalk Slab
(Chain Link Fence and Steel Pipe Hand Rail NOT shown)

Dowel Setting Notes:

The 5j1 bars shall be set as dowels in drilled holes. Holes are to be 10" deep. The dowels shall be installed in accordance with the Manufacturer's recommendations. The following systems shall be used as a bonding agent for the dowels:
 A. Polymer grout system in accordance with Article 2301.03, E, of the Standard Specifications.
 B. Hydraulic cement grout systems. Drilled holes are to be 2½ times the dowel diameter and are to be blown clean with compressed air immediately prior to placing grout. The hydraulic cement grout shall be one of those approved in Materials I.M. 491.13 and shall be used in accordance with the Manufacturer's recommendations.

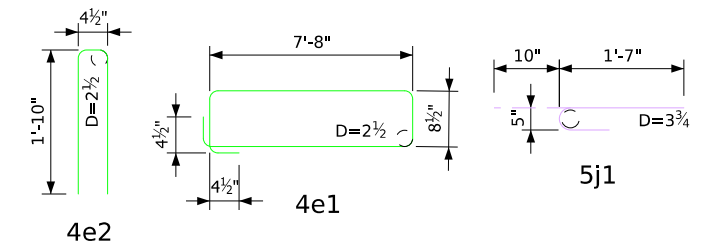
Epoxy-Coated Reinforcing Steel - One Sidewalk Slab

Bar	Location	Shape	No.	Length	Weight
4e1	Sidewalk Slab Hoop		??	17'-6"	??
4e2	Sidewalk Slab Hoop, at Sidewalk Lip		??	4'-1"	??
4m1	Sidewalk Slab transv. Top & Bottom		21	??	??
Epoxy-Coated Reinforcing Steel Total (lbs)					??

Stainless Steel Reinforcing - One Sidewalk Slab

Bar	Location	Shape	No.	Length	Weight
5j1	Sidewalk Slab Dowel		??	2'-5"	??
Stainless Steel Reinforcing Total (lbs)					??

Bent Bar Details

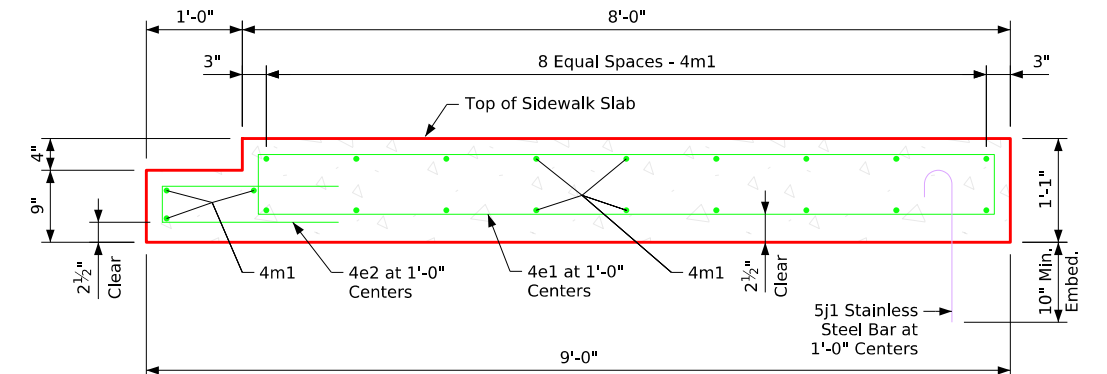


Note: All dimensions are out to out. D = Pin Diameter

Concrete Placement Quantity

Item	Unit	Total
Structural Concrete (Bridge)	cu. yd.	??

5j1 dowels shall be deformed bar Grade 60, Type 316 LN in accordance with Standard Specifications 4151.03.E.



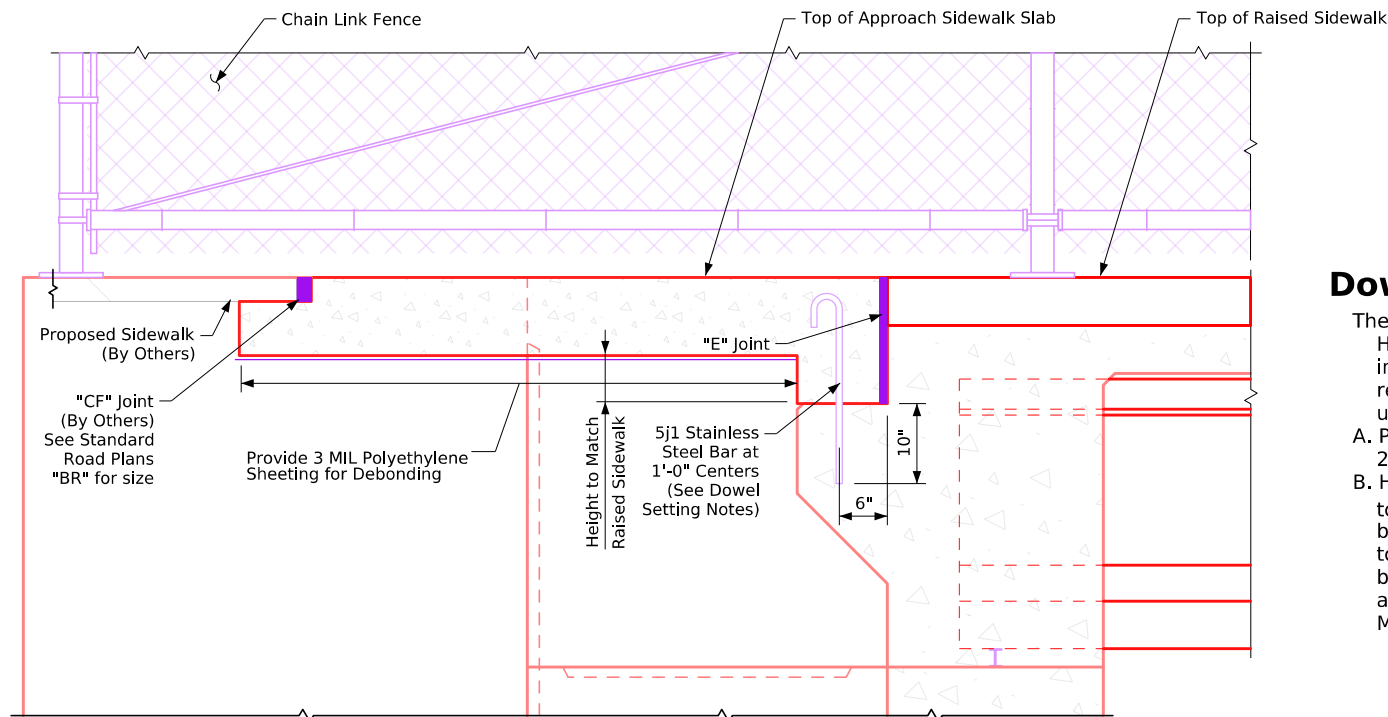
Longitudinal Section of Approach Sidewalk Slab

Note:
Reinforcing Steel and Structural Concrete (Bridge) quantities are included on the "Summary Quantities Sheet"

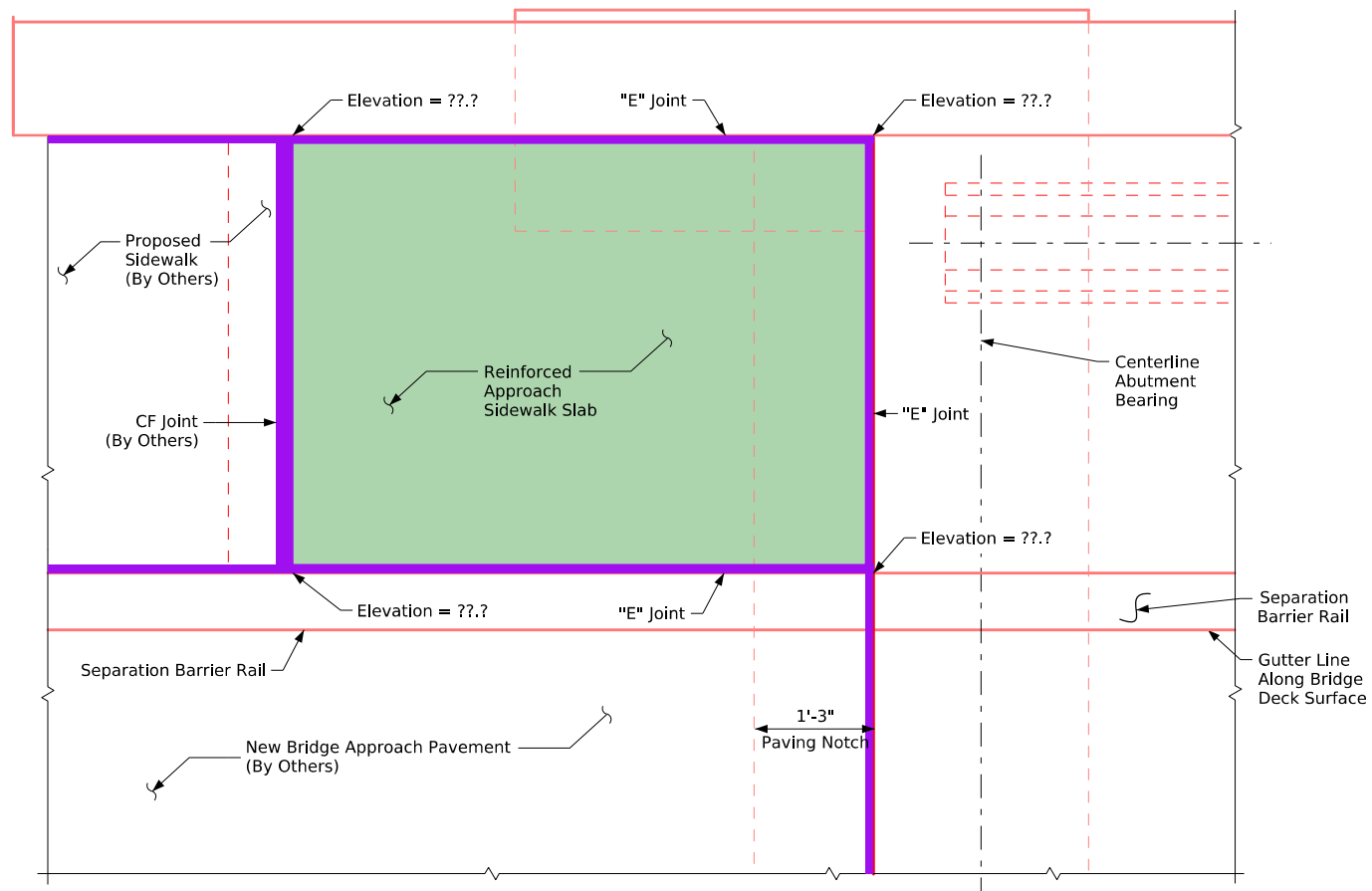
Reinf. Appr. Sdwk. Slab -At Grade- Integral Abut.

Revised 09-16: Changed the Bridge Approach Standard to "BR" (was "RK-20") and Corrected Typos. Issued 09-07. DeckRailBridges.dgn - 1029E - This Sheet Re-Issued 05-2024. Sheet Format Update.

Revised 09-16: Changed the Bridge Approach Standard to "BR" (was "RK-20") and Corrected Typos. Issued 09-07. DeckRailBridges.dgn - 1029F - This Sheet Re-Issued 05-2024 - Sheet Format Update.



Part Longitudinal Section Thru Approach Sidewalk Slab



Plan View Approach Sidewalk Slab
(Chain Link Fence and Steel Pipe Hand Rail NOT shown)

Dowel Setting Notes:

The 5j1 bars shall be set as dowels in drilled holes. Holes are to be 10" deep. The dowels shall be installed in accordance with the Manufacturer's recommendations. The following systems shall be used as a bonding agent for the dowels:
 A. Polymer grout system in accordance with Article 2301.03, E, of the Standard Specifications.
 B. Hydraulic cement grout systems. Drilled holes are to be 2½ times the dowel diameter and are to be blown clean with compressed air immediately prior to placing grout. The hydraulic cement grout shall be one of those approved in Materials I.M. 491.13 and shall be used in accordance with the Manufacturer's recommendations.

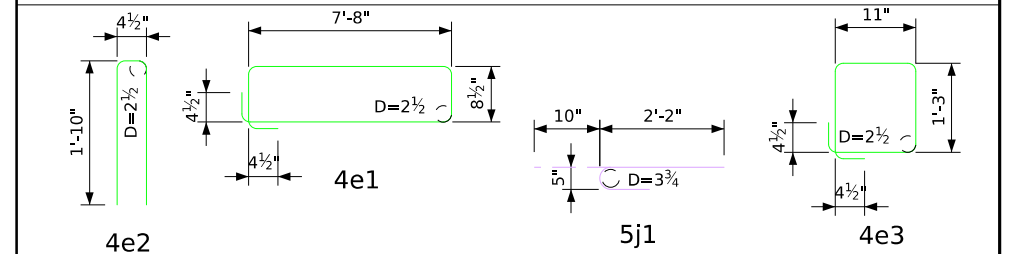
Epoxy-Coated Reinforcing Steel - One Sidewalk Slab

Bar	Location	Shape	No.	Length	Weight
4e1	Sidewalk Slab Hoop		??	17'-6"	??
4e2	Sidewalk Slab Hoop, at Sidewalk Lip		??	4'-1"	??
4e3	Sidewalk Slab Hoop, at Paving Notch		??	5'-1"	??
4m1	Sidewalk Slab transv. Top & Bottom		23	??	??
Epoxy-Coated Reinforcing Steel Total (lbs)					??

Stainless Steel Reinforcing - One Sidewalk Slab

Bar	Location	Shape	No.	Length	Weight
5j1	Sidewalk Slab Dowel		??	2'-5"	??
Stainless Steel Reinforcing Total (lbs)					??

Bent Bar Details

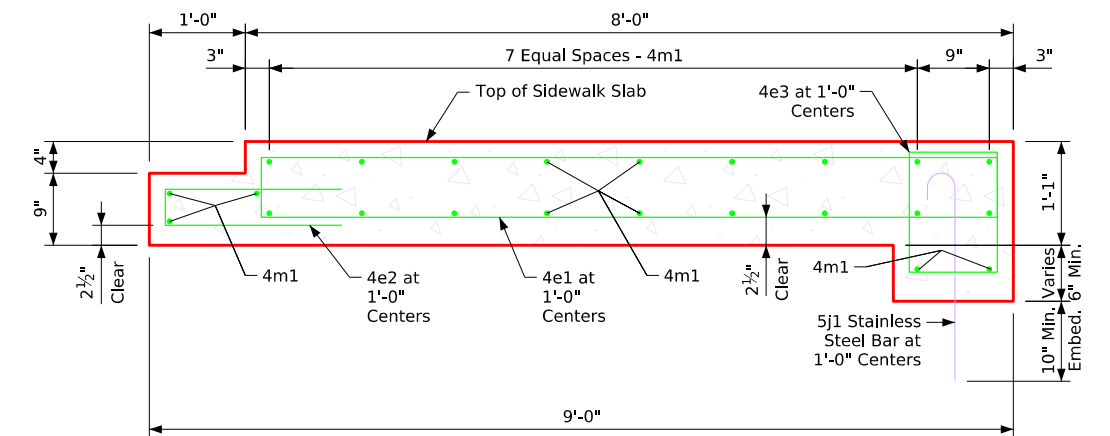


Note: All dimensions are out to out. D = Pin Diameter

Concrete Placement Quantity

Item	Unit	Total
Structural Concrete (Bridge)	cu. yd.	??

5j1 dowels shall be deformed bar Grade 60, Type 316 LN in accordance with Standard Specifications 4151.03.E.



Longitudinal Section of Approach Sidewalk Slab

Note:
Reinforcing Steel and Structural Concrete (Bridge) quantities are included on the "Summary Quantities Sheet"

Reinf. Appr. Sdwk. Slab -Raised- Integral Abut.

Fence Placement Quantity

Item	Unit	Total
Fence, Chain Link, 72in. Height	L.F.	??

Chain Link Fence Notes:

The chain link fence is to be bid on a linear foot basis measured from centerline to centerline of end posts. The price bid for "FENCE, CHAIN LINK, 72IN. HEIGHT" shall be full compensation for furnishing all material, including concrete anchors and shims, and all of the equipment and labor required to erect the fence in accordance with these Plans and Specifications.

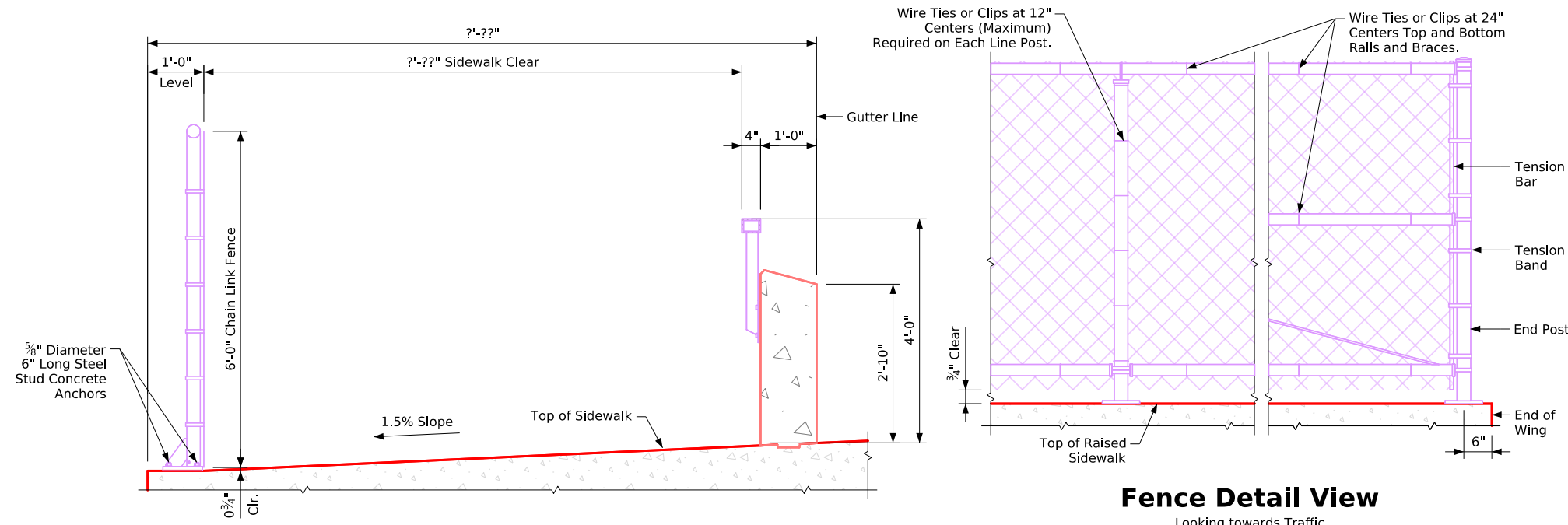
The chain link fence shall be either zinc or aluminum coated fabric, 2" mesh, no. 9 wires, 72" height with knuckled selvages top and bottom.

The stud concrete anchors shall be galvanized and have a minimum pullout strength of 8000 pounds based on 4000 psi concrete.

The material for posts, braces and rails shall be steel pipe in accordance with Article 4154.10, A, of the Standards Specifications. As an alternate, ASTM A500 Grade B pipe material may be substituted for the posts. Base plates and shims shall meet the requirements of ASTM A36. Posts and base plates shall be galvanized, after fabrication, in accordance with the requirements of ASTM A123. Special fittings shall be in accordance with Article 4154.11, of the Standard Specifications, unless otherwise noted.

The fence shall be true to line, taut, and comply with the best practice for fence construction of this type. All ends of wires shall be turned so that they extend away from the sidewalk side of the fence.

Do not attach signs, company advertising, or other insignia to the completed fence.

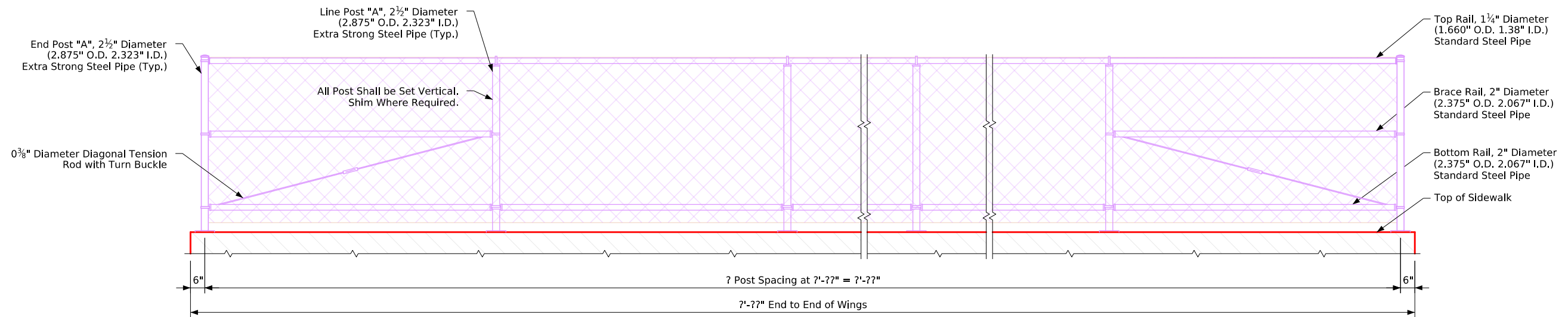


Typical Section

Looking ?

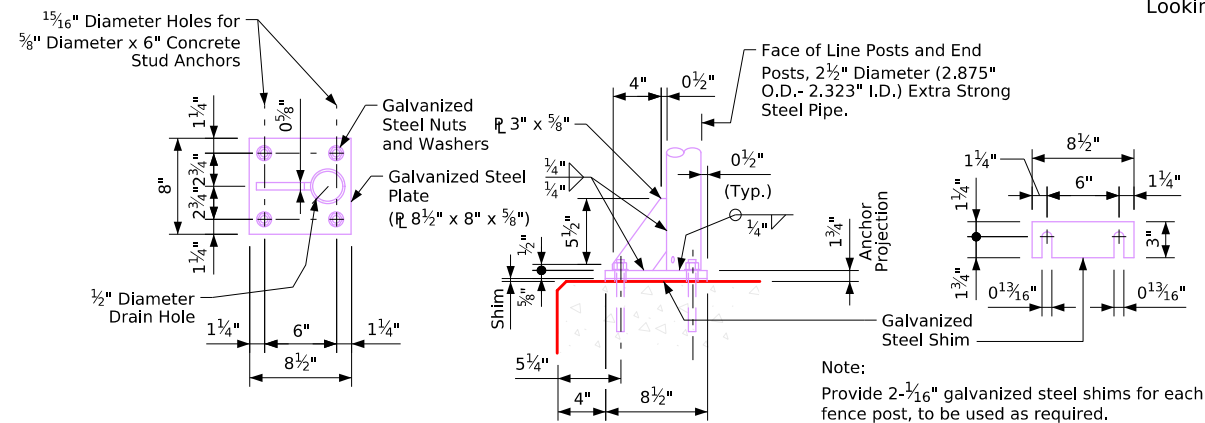
Fence Detail View

Looking towards Traffic



Elevation of Fence

Looking Towards Traffic (Maximum Post Spacing 10'-0")



Base Plate Details for End Posts and Line Posts

Post and base plates shall be galvanized, after fabrication, in accordance with the requirements of ASTM A123.

Fence Details -At Grade Sidewalk- Integral Abut.

DeckRailBridges.dgn - 1029-F1 - This Sheet Issued 05-2024.

FILE NO.	ENGLISH	DESIGN TEAM	Steel Chain Link Fence - At Grade Sidewalk - Integral Abutment	Standard Sheet 1029-F1	COUNTY	PROJECT NUMBER	SHEET NUMBER
9:18:54 PM	5/8/2024	bkloss	pw:\NTPwint1.dot.int.lan:PWMain\Documents\Highway\Bridge\Standards\Bridges\DeckRailBridges.dgn				

Fence Placement Quantity

Item	Unit	Total
Fence, Chain Link, 72in. Height	L.F.	??

Chain Link Fence Notes:

The chain link fence is to be bid on a linear foot basis measured from centerline to centerline of end posts. The price bid for "FENCE, CHAIN LINK, 72IN. HEIGHT" shall be full compensation for furnishing all material, including concrete anchors and shims, and all of the equipment and labor required to erect the fence in accordance with these Plans and Specifications.

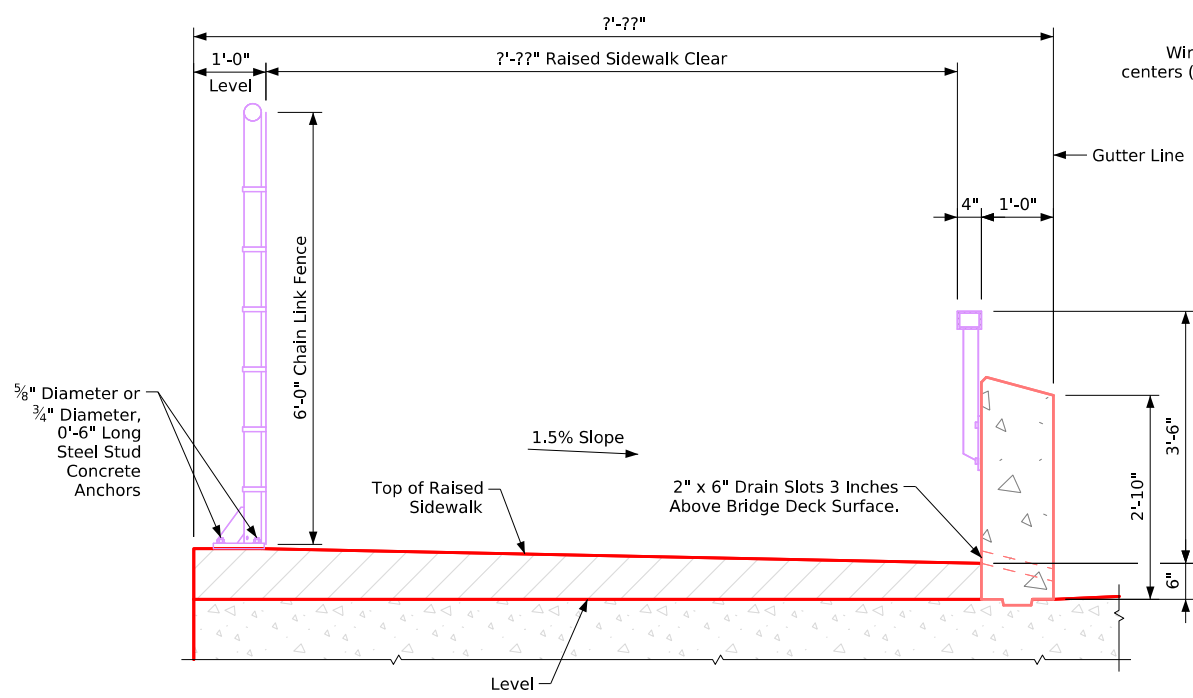
The chain link fence shall be either zinc or aluminum coated fabric, 2" mesh, no. 9 wires, 72" height with knuckled selvages top and bottom.

The stud concrete anchors shall be galvanized and have a minimum pullout strength of 8000 pounds based on 4000 psi concrete.

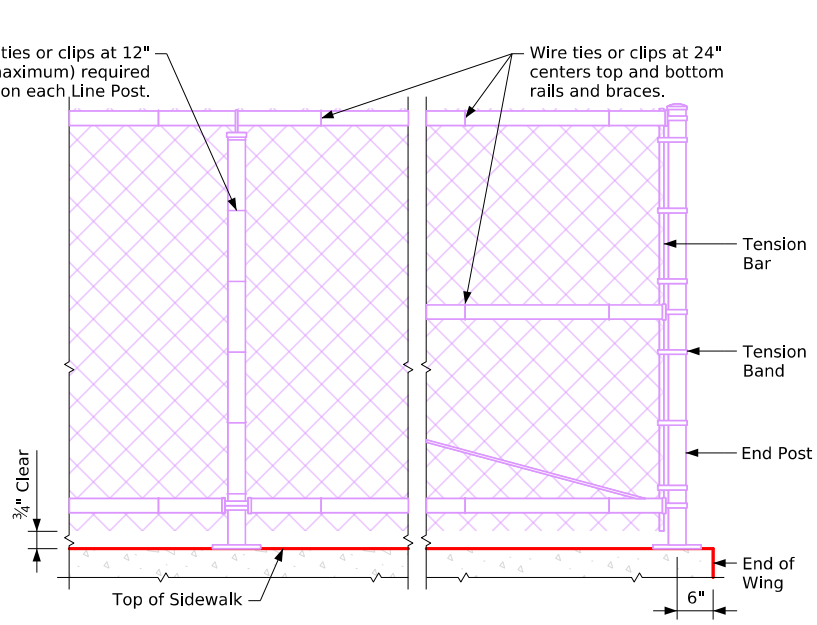
The material for posts, braces and rails shall be steel pipe in accordance with Article 4154.10, A, of the Standards Specifications. As an alternate, ASTM A500 Grade B pipe material may be substituted for the posts. Base plates and shims shall meet the requirements of ASTM A36. Posts and base plates shall be galvanized, after fabrication, in accordance with the requirements of ASTM A123. Special fittings shall be in accordance with Article 4154.11, of the Standard Specifications, unless otherwise noted.

The fence shall be true to line, taut, and comply with the best practice for fence construction of this type. All ends of wires shall be turned so that they extend away from the sidewalk side of the fence.

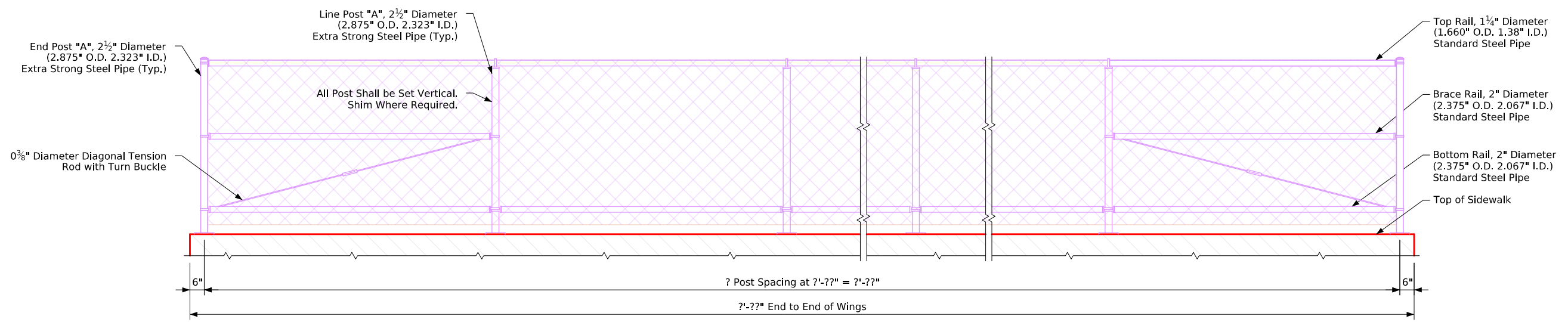
Do not attach signs, company advertising, or other insignia to the completed fence.



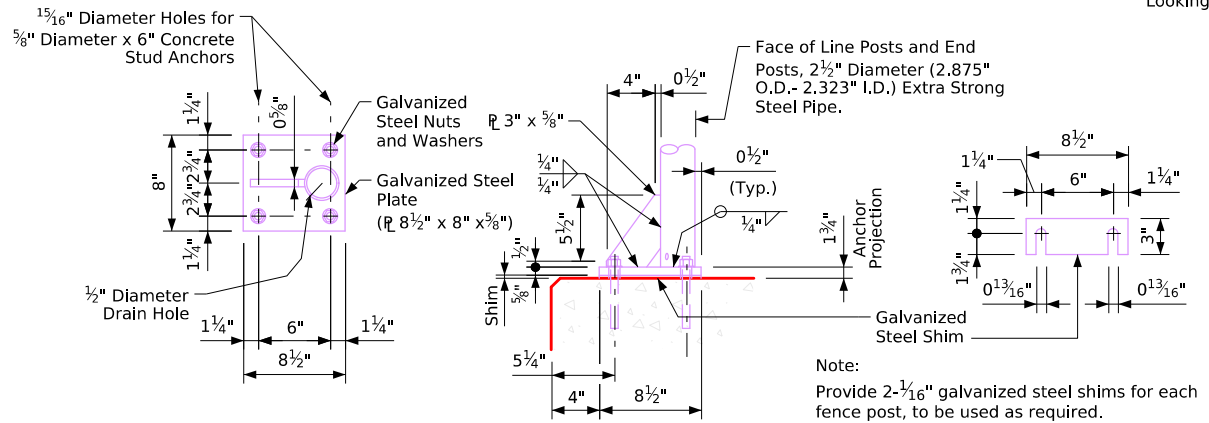
Typical Section
Looking ?



Fence Detail View
Looking towards Traffic



Elevation of Fence
Looking towards Traffic (Maximum Post Spacing 10'-0")



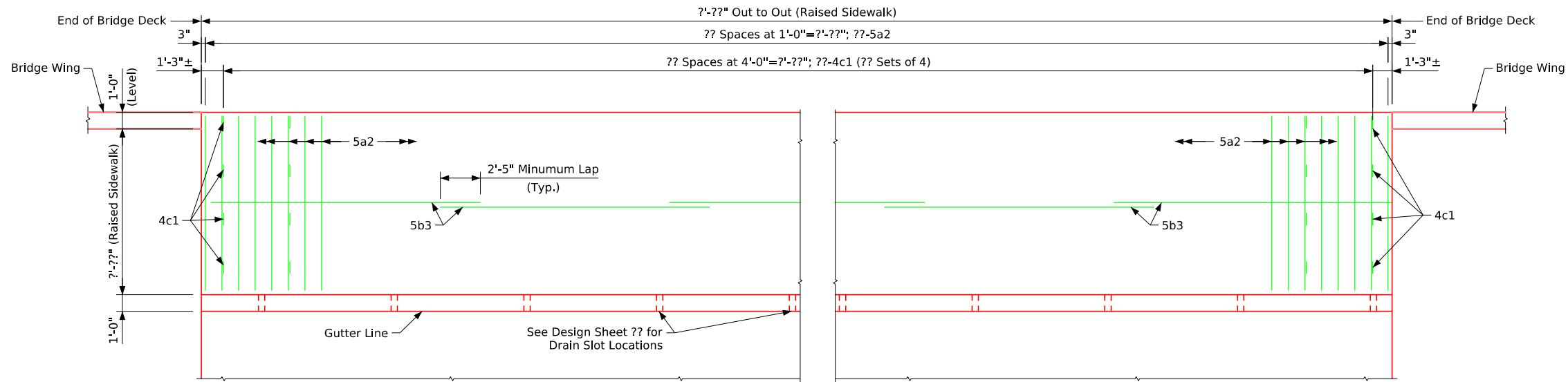
Base Plate Details for End Posts and Line Posts

Post and base plates shall be galvanized, after fabrication, in accordance with the requirements of ASTM A123.

Fence Details -Raised Sidewalk- Integral Abut.

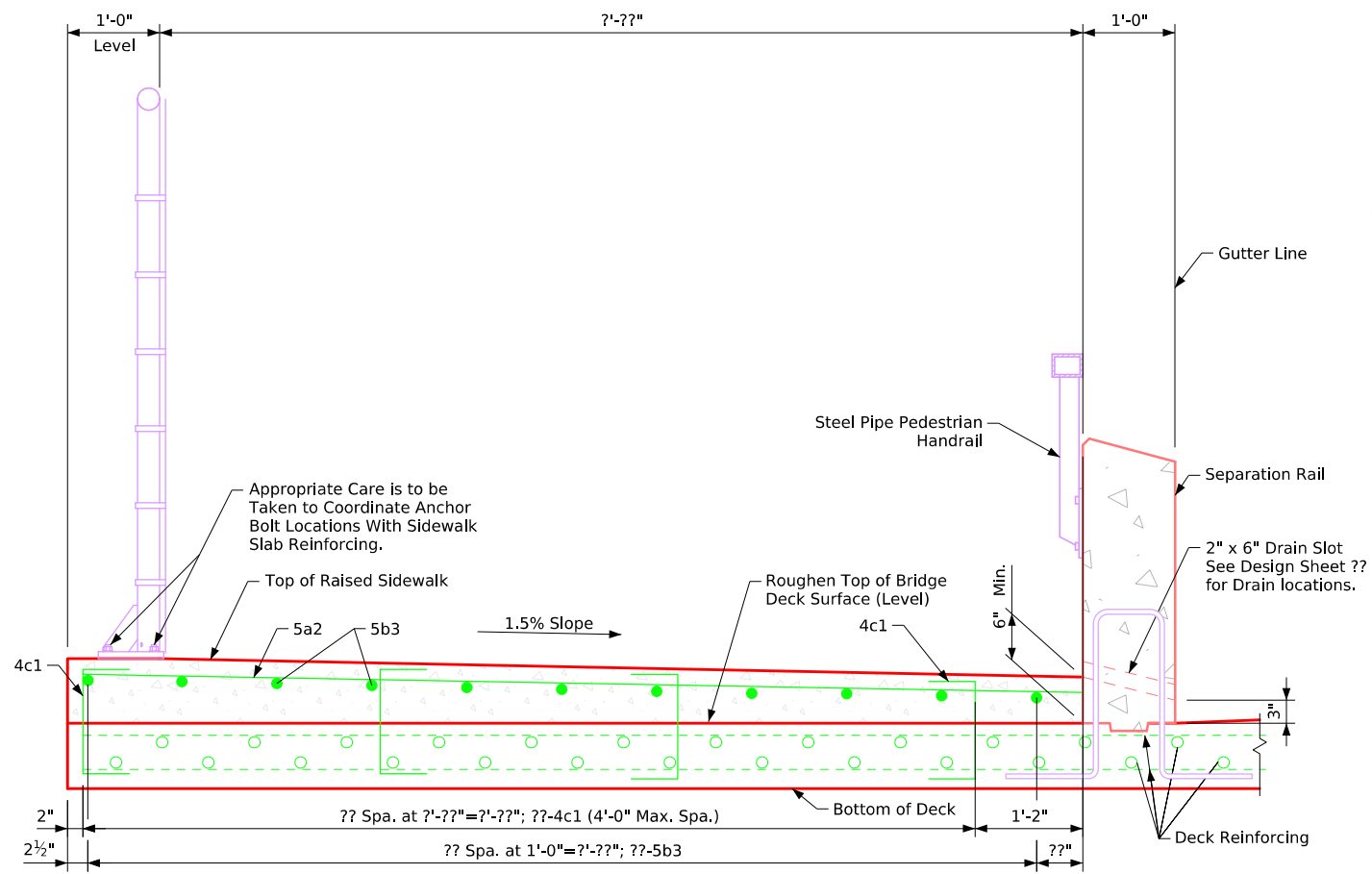
DeckRailBridges.dgn - 1029-F2 - This Sheet Issued 05-2024.

FILE NO.	ENGLISH	DESIGN TEAM	Steel Chain Link Fence - Raised Sidewalk - Integral Abutment	Standard Sheet 1029-F2	COUNTY	PROJECT NUMBER	SHEET NUMBER
9:18:55 PM	5/8/2024	bkloss	pw:\NTPwint1.dot.int.lan:PWMain\Documents\Highway\Bridges\Standards\Bridges\DeckRailBridges.dgn				



Note to Detailer:
 Properly orient the
 "NorthArrow" cell from the
 BridgeGeneralUseCells.cel
 library.

Raised Sidewalk Reinforcing Plan View



Typical Section thru Raised Sidewalk

Sidewalk Concrete Placement and Finishing Notes:

Position screed, and finish the sidewalk concrete to match the cross slope figure(s) specified in the plans. The maximum allowable cross slope on the sidewalk shall not exceed 2%.

After broom finishing the sidewalk surface, administer a white-pigmented liquid curing compound to the sidewalk as per Section 2301.03, K, 2 of the Standard Specifications. Avoid additional curing methods involving fabric, plastic, or other covers during the initial curing period. Coverings shall be applied only after the surface has adequately set to prevent damage to the broom finish.

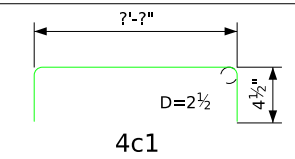
The Contractor is responsible for all costs associated with correcting sidewalk surface cross slope or any damage to the surface finish, and shall be made at no additional cost to the project.

The reinforcing for the sidewalk slab is included with the deck reinforcing.

Epoxy-Coated Reinforcing Steel One Separation Barrier

Bar	Location	Shape	No.	Length	Weight
5a1	Sidewalk Transverse		??	??	??
5b3	Sidewalk Longitudinal		??	??	??
4c1	Sidewalk Tie		??	??	??
Epoxy-Coated Reinforcing Steel Total (lbs)					??

Bent Bar Details



Note: All dimensions are out to out. D = Pin Diameter

Concrete Placement Quantity

Item	Unit	Total
Structural Concrete (Bridge)	cu. yd.	??

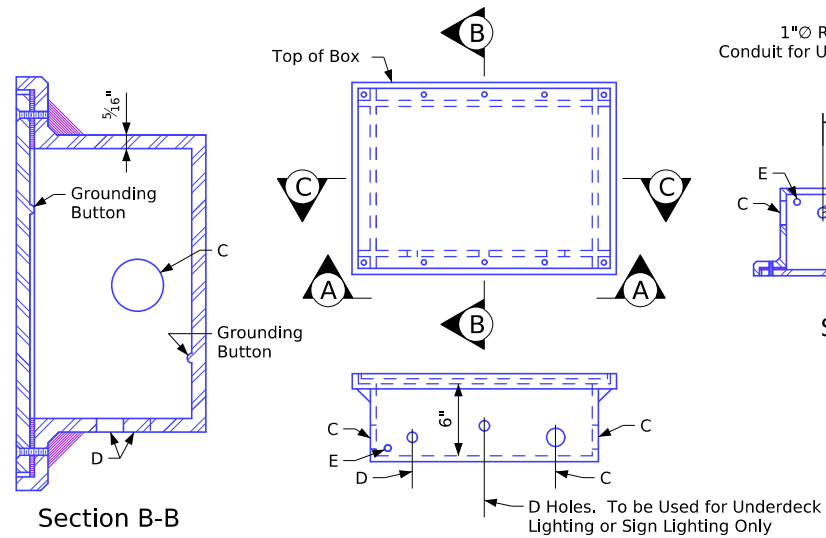
Separation Barrier Rail-Raised Sdwk.-Intgrl. Abut.

DeckRailBridges.dgn - 1029-S - This Sheet Issued 05-2024.

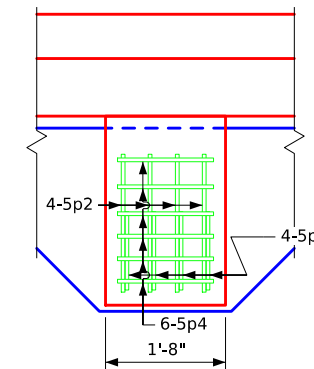
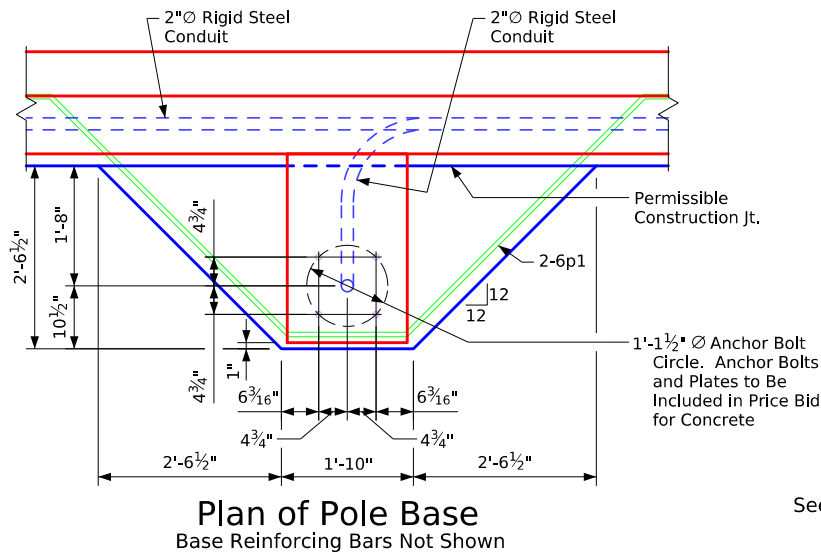
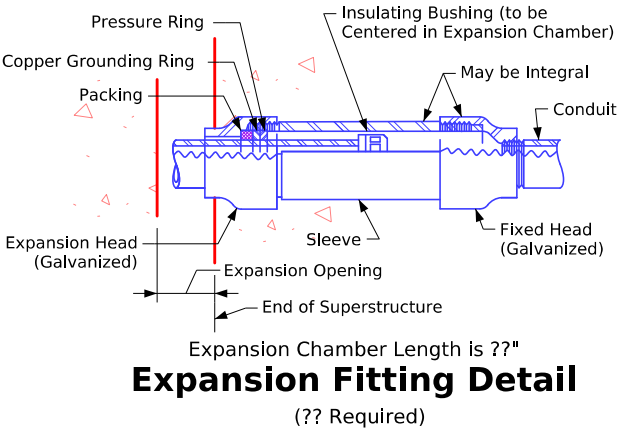
Revised 09-16: Added Standard Specifications 4185.02,B,2 in Lighting Notes. Changed Bar Mark from "x" to "p". Redrawn 09-08-88. DeckRailBridges.dgn - 1030As1 - This Sheet Re-issued 05-2024. Sheet Format Update.

Bossed For	Hole	For Conduit Size
5 Threads	C	2" Ø Rigid Steel
None	D	1" Ø Rigid Steel
None	E	½" Ø Rigid Steel

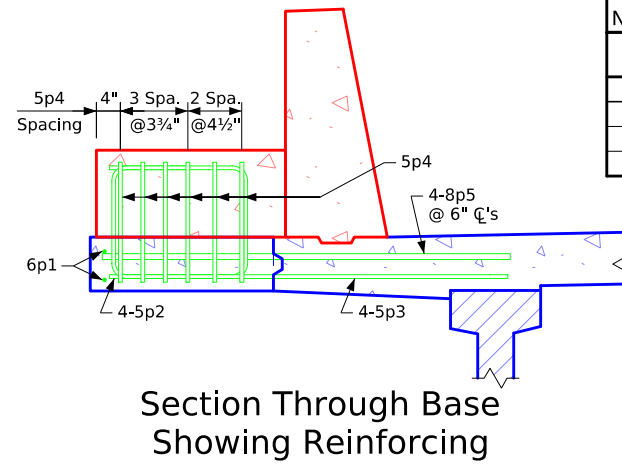
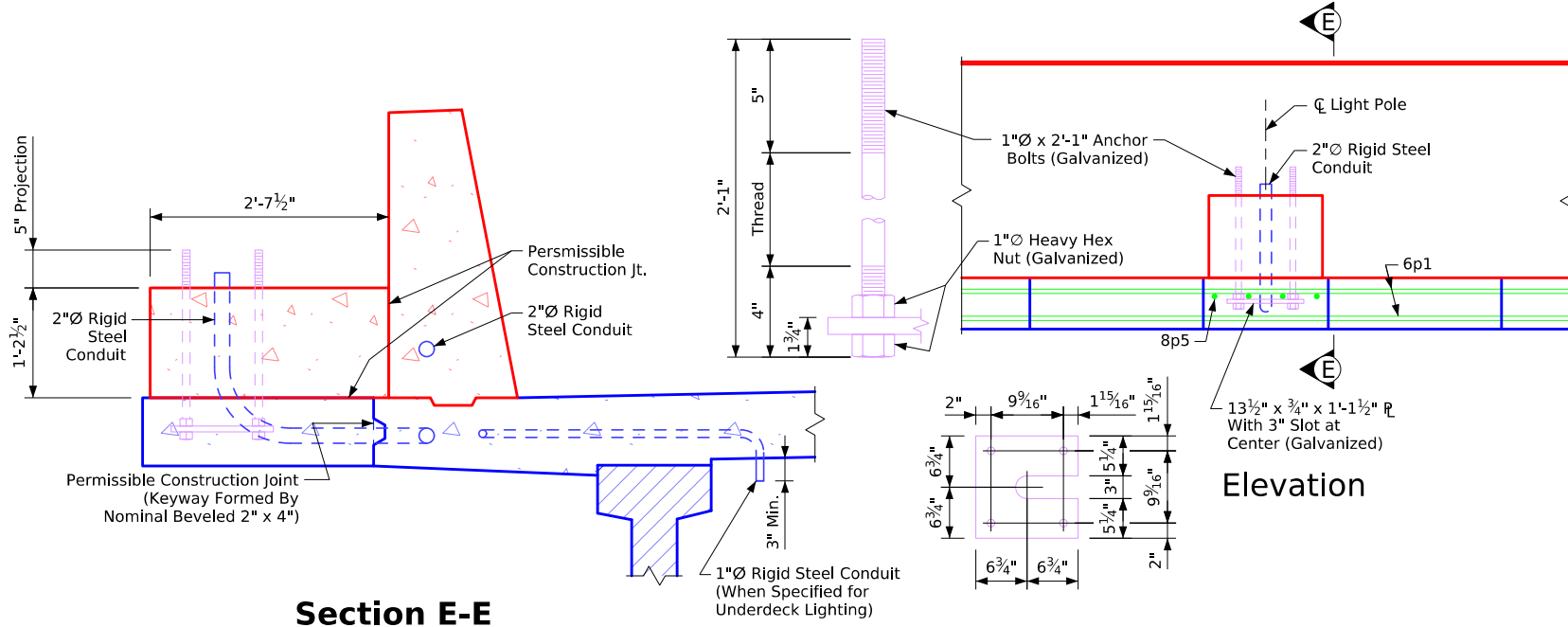
Note: The grounding buttons are to be blind drilled and tapped for ⅜"Ø x 0'-0¾" bolts.



LI-104 Junction Box
Watertight, Cast Iron - Flush Mount



Note: For location of conduits, see lighting layout details in these plans. Lighting quantities for concrete and reinforcing steel for pole bases are included on the Summary Quantities Sheet.



Lighting Notes:

See LI-104 Standard Road Plan for additional information on junction boxes.
Construction shall conform to the current Iowa D.O.T. Standard and Supplemental Specifications and Special Provisions.
Conduit installation shall be in accordance with Article 2523.03, N, of the Standard Specifications.
All "C" entrance holes in junction boxes shall be drilled and tapped for the specified conduit size. All other holes shall have a concrete - tight slip fit. Conduit ends shall not protrude into junction box more than ¼". Drain pipe end shall be flush with inside surface of box. Grounding buttons shall be located approximately 3" from the inside surface of the box wall, and not closer than 3" to the edge of any hole in the box floor. Holes for drain pipe shall be placed in the low corner of the box, with a minimum clearance of 1" between the edge of the hole and the inside surface of the box wall. Typical details are shown on this sheet.

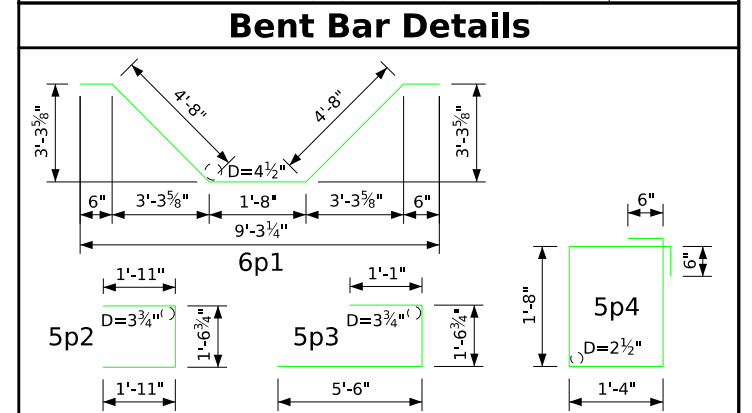
The rigid steel conduit, junction boxes and fittings including labor and any additional work to do the installation is considered incidental to the cost of the railing.
Cost of furnishing and installing poles, lights, and lighting conductor is not a part of this contract.

Expansion fitting shall be as specified or as approved by the Engineer. Typical details are shown on this sheet.
All anchor bolt material shall comply with the requirements of Iowa DOT Construction and Materials I.M. 453.08 and Standard Specifications 4185.02,B,2.

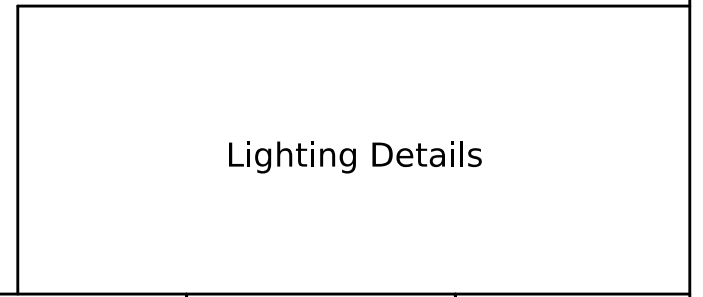
Welding of anchor bolts shall not be allowed. The Contractor shall obtain a template from the Manufacturer / Fabricator for proper placement of the anchor bolts.

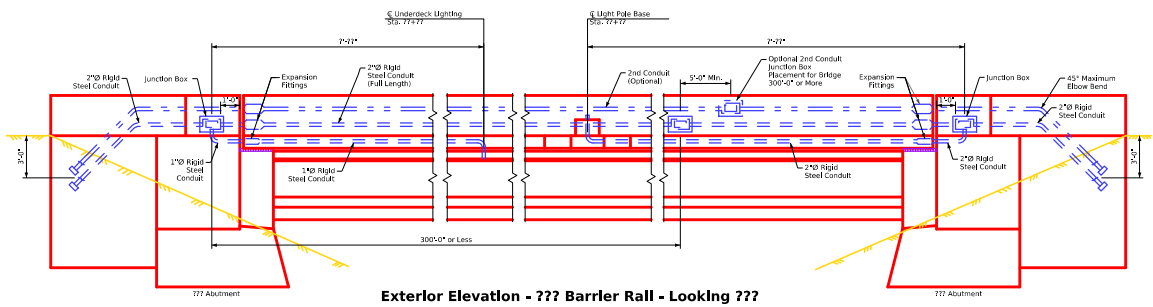
All reinforcing steel is to be epoxy coated and grade 60.
Stainless-steel reinforcement shall not be allowed to be in contact with the uncoated reinforcement, bare metal forming hardware, or to galvanized attachments or galvanized conduit.

Epoxy Coated Reinf. Steel - One Base					
Bar	Location	Shape	No.	Length	Weight
6p1	Deck Anchors		2	12'-0"	36
5p2	Pole Base to Deck		4	5'-5"	23
5p3	Pole Base to Deck		4	8'-2"	34
5p4	Pole Base Hoop		6	7'-0"	44
8p5	Deck Transverse		4	5'-8"	61
Epoxy Reinforcing Total Weight (lbs.)					198



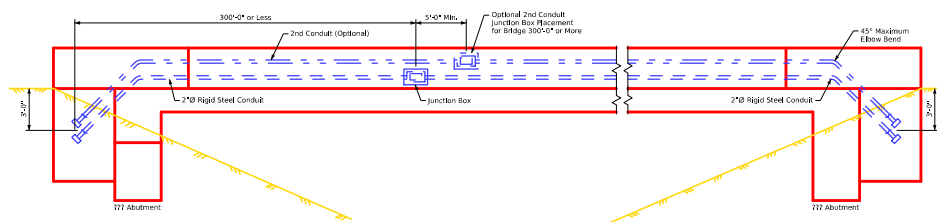
Lighting Quantities	
Section	Total
Structural Concrete (Bridge)	?? cu. yd.
Reinforcing Steel - Epoxy Coated	?? lbs.





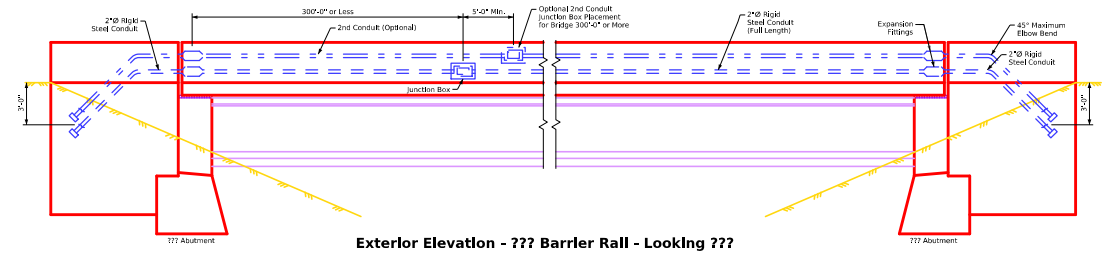
Exterior Elevation - ??? Barrier Rail - Looking ???

Note to Detailer: Details for Bilsters and Underdeck Lighting - Prestressed w/ Stub Abutments & Maskwall



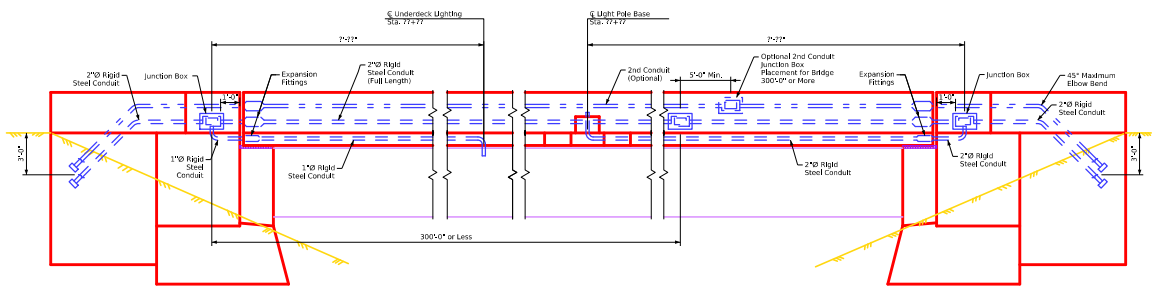
Exterior Elevation - ??? Barrier Rail - Looking ???

Note to Detailer: Conduit Only, Continuous Concrete Slab Bridge



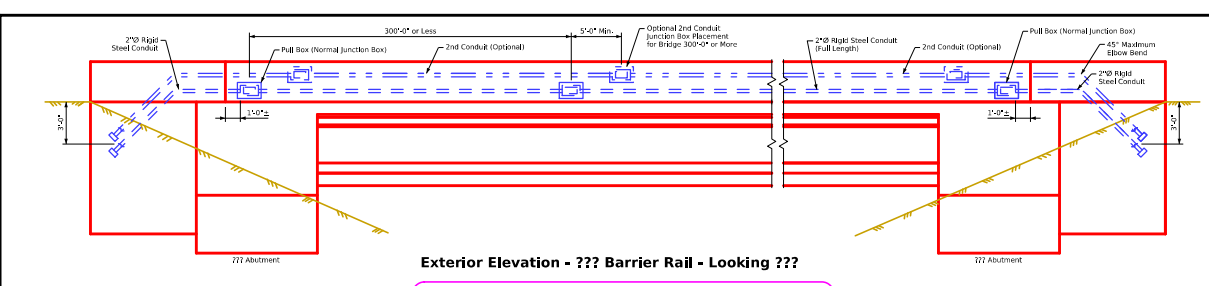
Exterior Elevation - ??? Barrier Rail - Looking ???

Note to Detailer: Conduit Only, Steel Bridge w/ Stub Abutment



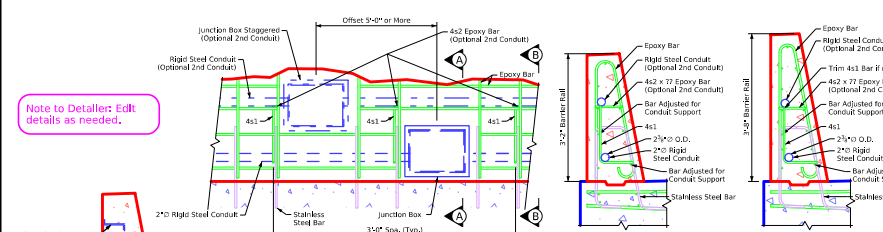
Exterior Elevation - ??? Barrier Rail - Looking ???

Note to Detailer: Details for Bilsters and Underdeck Lighting - Steel Bridge w/ Stub Abutments & Maskwall



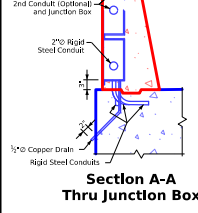
Exterior Elevation - ??? Barrier Rail - Looking ???

Note to Detailer: Conduit Only, Prestressed w/ Integral Abutment Example Shown - See Other Examples Outside Border Sheet for Specific Bridge



Conduit Support - Rail Elev. Detail

Two Junction Box Details - Adjust reinforcing to these junction box. Junction boxes are to be placed no further than 300'-0" apart.



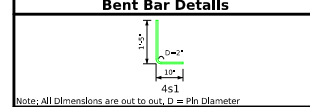
Section A-A Thru Junction Box

Section B-B - Conduit Support

Only used in rail with conduit, use 3'-0" spacing. Galvanized conduit shall not come into contact with the stainless steel reinforcing. Lower conduit can only be 2" diameter.

Note to Detailer: Select proper rail height detail for project. Lower conduit can be 2" diameter. Optional upper 2nd conduit can be 2" or 3" diameter.

Bar	Location	Sheet No.	Length	Weight
4x4	Rail Conduit	7	25'-0"	12
4x4	Rail Conduit (Optional)	7	??	??
Epoxy Reinforcing Steel Weight (lb.)				

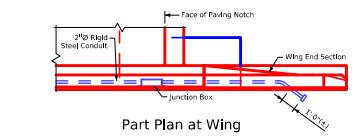


Bent Bar Details

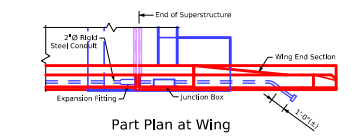
Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

Lighting Details

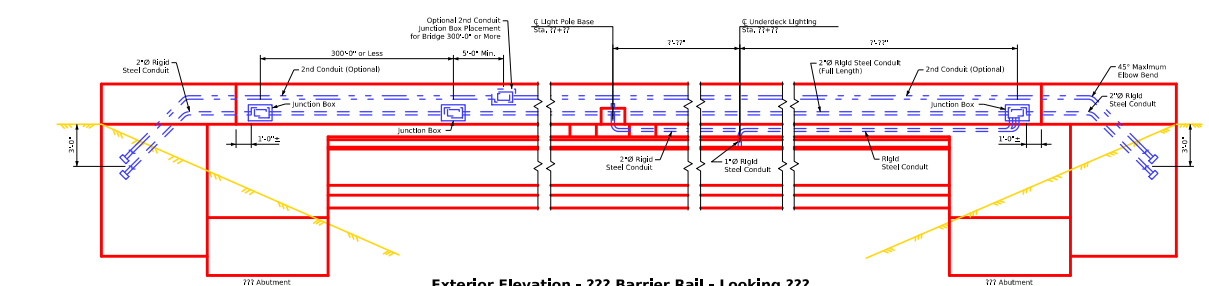
FILE NO.	ENGINEER	DESIGN TEAM	PROJECT NUMBER	SHEET NUMBER
1030As2	bliss	Lighting Details (2 of 2)	Standard Sheet 1030As2	1030As2



Part Plan at Wing

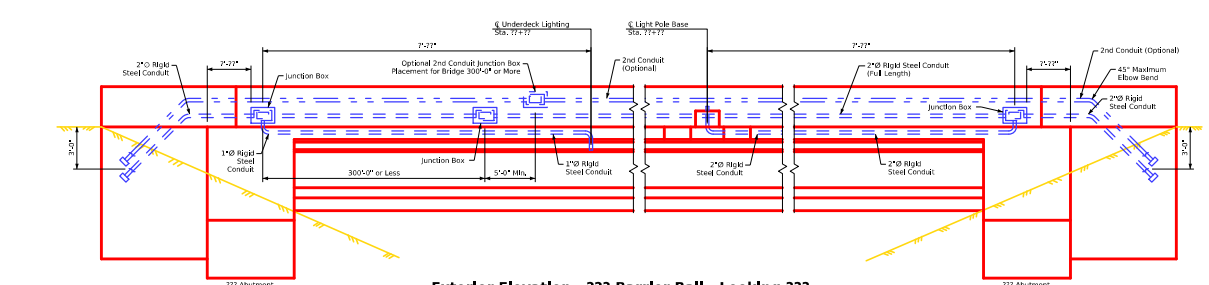


Part Plan at Wing



Exterior Elevation - ??? Barrier Rail - Looking ???

Note to Detailer: Conduit, Bilster, Underdeck, Locate Junction Box, Prestressed w/ Integral Abutment



Exterior Elevation - ??? Barrier Rail - Looking ???

Note to Detailer: Conduit, Bilster, Underdeck, Locate Junction Box, Prestressed w/ Integral Abutment

Note to Detailer: Add L.T.S. conduit note to sheet as needed.

L.T.S. Conduit Notes:
 L.T.S. conduit shall be limited to six 45° elbow bends for a cable pull from handle to handle.
 Right steel conduit for L.T.S. applications shall be installed and prepared to facilitate installation of fiber optic cable.
 The minimum inside bend radius for rigid steel conduit used for L.T.S. applications shall be 18".
 Right steel conduit for L.T.S. applications shall be cut and threaded to eliminate exposed threads after completing the connections. All couplings shall be tightened until the conduit ends need to allow a continuous inner surface throughout the entire length of the conduit run. Nipples should be used to eliminate cutting and threading short lengths of conduit.
 All bars and roughened surfaces shall be removed from conduits and fittings. All conduit runs shall be reamed, cleaned and swabbed for installation of fiber optic cable.
 Only galvanized fittings shall be used with rigid steel conduit. Damaged galvanized surfaces of rigid steel conduit or fittings shall be painted with an acceptable zinc-rich paint.
 L.T.S. conduit shall include a polypropylene pull rope between handles with a minimum 600 pound tensile strength.
 L.T.S. right steel conduit, pull ropes and fittings. Including labor and any additional work for installation is considered incidental to the cost of the railing.