ORIGINATION FORM

Proposed Revisions to a Standard Plans Index

(Please provide all information — Incomplete forms will be returned)

Contact Information:

Date: March 24, 2023

Originator: Joshua Turley

Phone: (850) 414-4475

Email: joshua.turley@dot.state.fl.us

Standard Plans:

Index Number: 521-510

Sheet Number (s): 1 to 5 of 5

Index Title: CONCRETE BARRIER/NOISE WALL (8'-0")

Summary of the changes:

Sheet 4: Corrected reinforcing steel estimated quantities.

Sheet 6: Added new sheet for precast version.

Sheet 7: Added new sheet for precast version.

Sheet 8: Added new sheet for precast version.

Commentary / Background:

The estimate for reinforcing steel was slightly off for the CIP version. We updated the estimate.

Added a precast version to the Index.

Other Affected Offices / Documents: **(Provide name of person contacted)**

Yes	No	
☐	☑	Other Standard Plans –
☐	☑	FDOT Design Manual –
☐	☑	Basis of Estimates Manual –
☑	☐	Standard Specifications – 521-723
☐	☑	Approved Product List –
☐	☑	Construction –
☐	☑	Maintenance –

Origination Package Includes: (Submit package to Rick Jenkins)

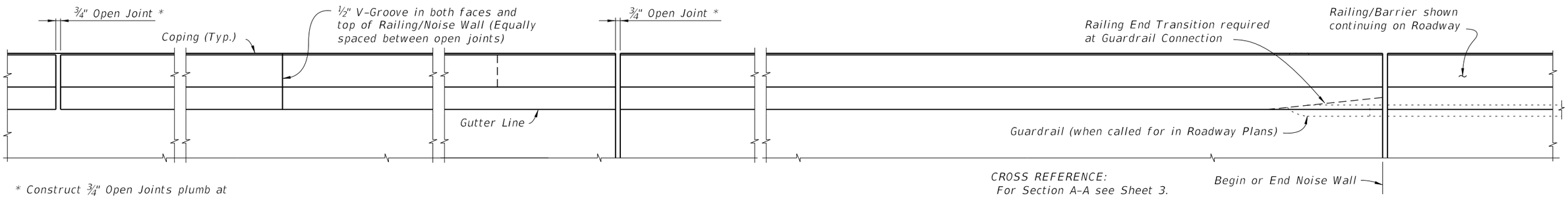
Yes	N/A	
☑	☐	Redline Mark-ups
☑	☐	Revised or Proposed Standard Plan Instruction (SPI)
☐	☑	Other Support Documents

Implementation:

- ☐ Design Bulletin (Interim)
- ☐ DCE Memo
- ☐ Program Mgmt. Bulletin
- ☑ FY-Standard Plans (Next Release)

Contact the Roadway Design Office for assistance in completing this form

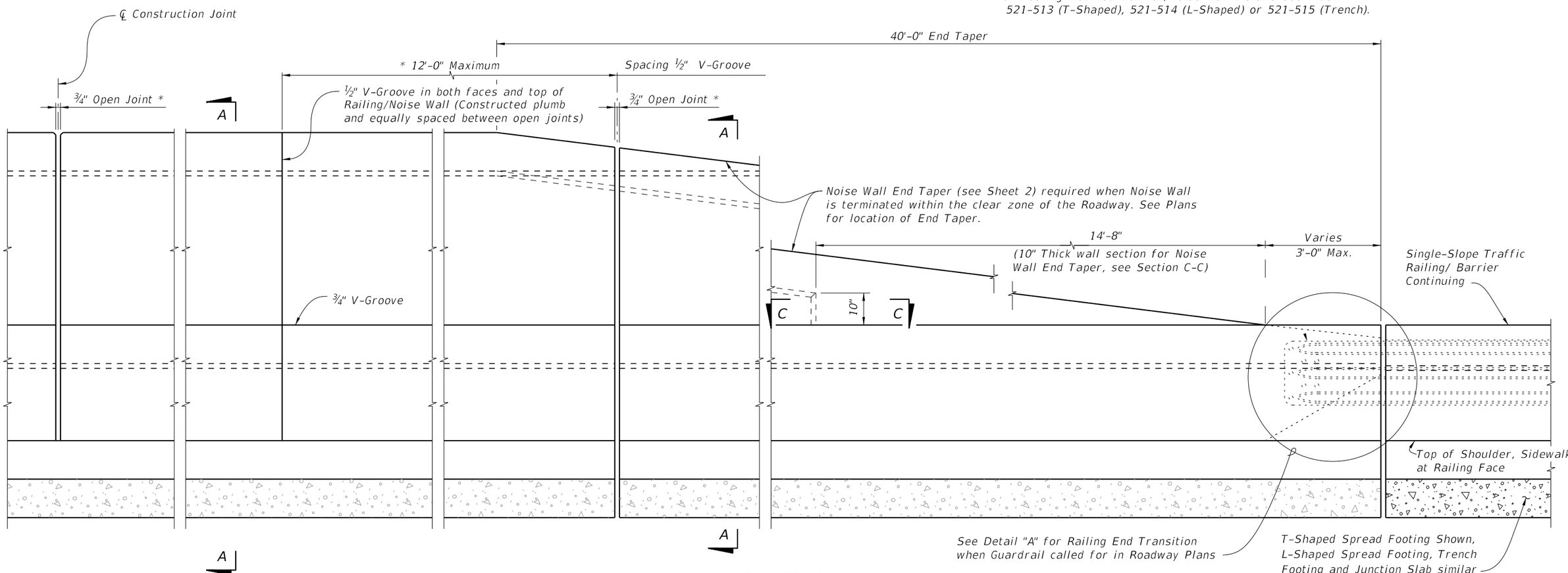
Email to: Rick Jenkins rick.jenkins@dot.state.fl.us and Darren Martin darren.martin@dot.state.fl.us



* Construct ¾" Open Joints plumb at Construction Joints in Junction Slabs or Footings.

CROSS REFERENCE:
For Section A-A see Sheet 3.
For Section C-C and Detail "A" see Sheet 5.
For Wall mounted Barrier/Noise Wall Details see Index 521-512.
For Footing mounted Barrier/Noise Wall Details see Index 521-513 (T-Shaped), 521-514 (L-Shaped) or 521-515 (Trench).

PLAN
(Reinforcing Steel not shown for clarity)



ELEVATION
(INSIDE FACE OF CONCRETE BARRIER/NOISE WALL WITH T-SHAPED FOOTING SHOWN,
(Other footings similar, Reinforcing steel not shown for clarity)

NOTES:
1. Work this Index with Indexes 521-512 through 521-515.
2. The Concrete Barrier/Noise Wall and joints shall be constructed plumb.
3. Concrete:
   A. Class II for slightly aggressive environments.
   B. Class IV for moderately or extremely aggressive environments.
4. Provide ¾" Open Joints spaced between 30 feet minimum to 90 feet maximum. Align Open Joints with construction joints in the Junction Slab or Footing. Provide additional reinforcing (see Sheet 2) at each open joint.
5. Install Barrier Delineators 2'-4" above the riding surface in accordance with Specification Section 705. Match the Barrier Delineators color (White or Yellow) to the near edgeline.
6. Slip forming of the barrier portion is permitted.
   A. Stem walls may be widened, at no additional cost, to accommodate slip forming.

ADDED → CAST-IN-PLACE

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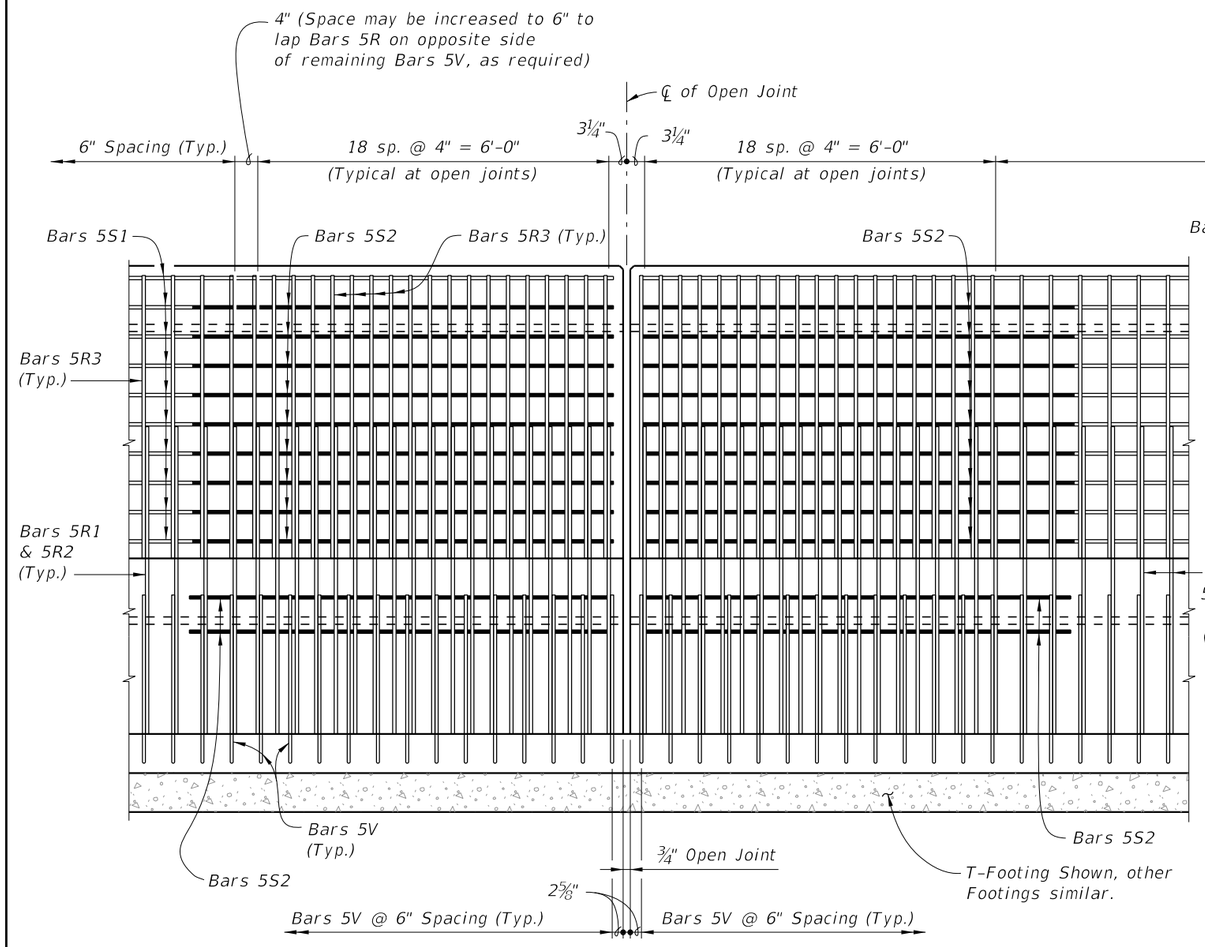
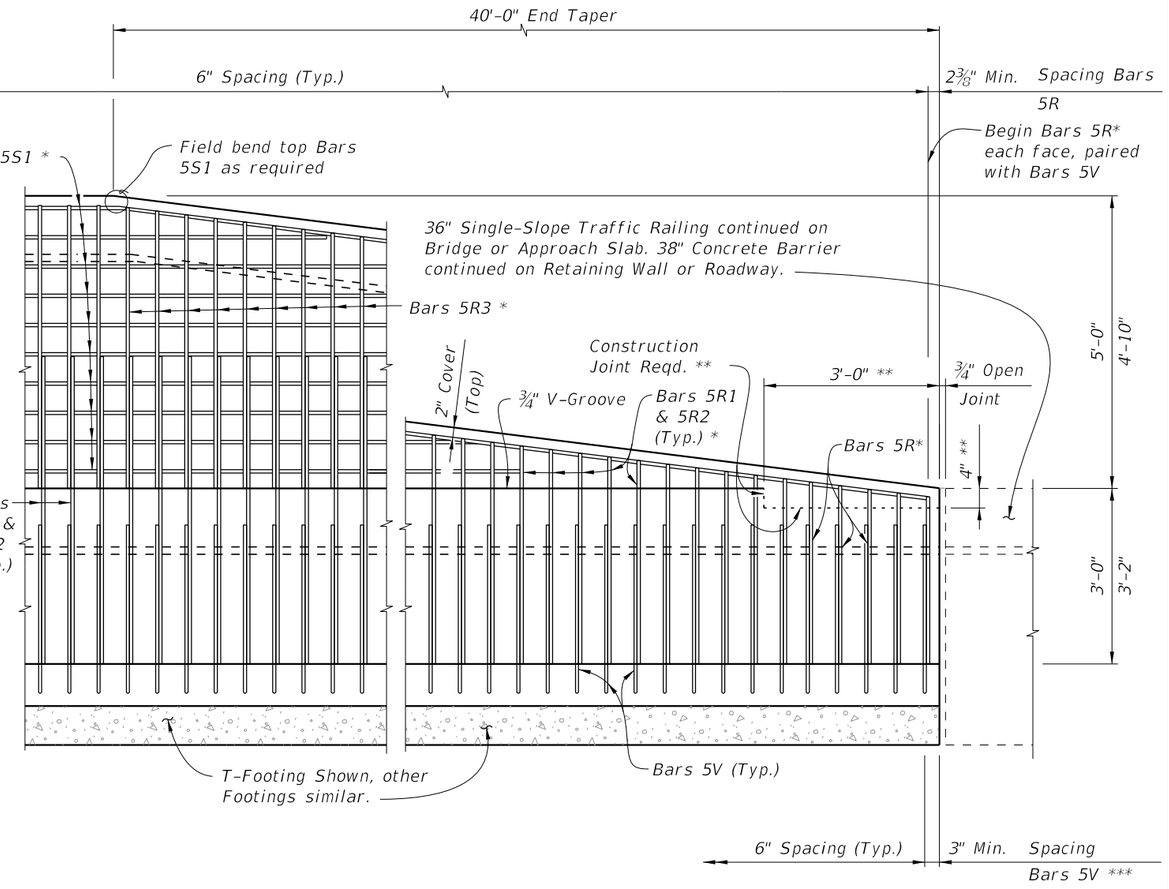
LAST REVISION 11/01/19	REVISION DESCRIPTION: 11/01/23	FDOT FY 2023-24 STANDARD PLANS	CONCRETE BARRIER/NOISE WALL (8'-0")	INDEX 521-510	SHEET 8 1 of 5



ELEVATION OF BARRIER/NOISE WALL REINFORCING STEEL AT OPEN JOINT
(Bars 5S1 in Barrier not shown for clarity)
(Footing or Junction Slab Details not shown)



ELEVATION OF BARRIER/NOISE WALL END TAPER (ADJACENT TO CONCRETE BARRIER SHOWN, GUARDRAIL ATTACHMENT SIMILAR SEE DETAIL "A", SHEET 5)
(Bars 5S1 in Railing not shown for clarity)
(Footing or Junction Slab Details not shown)

NOTES:
* Field Cut Bars 5R & 5S1 to maintain clearance.
** Terminate ¾" V-groove at construction joint & cast top of railing with End Taper.
*** Bar spacing shown for Bars 5V only applies when Single-Slope Concrete Barrier continues. For transition to guardrail see Sheet 5. Work Traffic/ Railing Noise Wall reinforcing with Index 521-512 (Junction Slab) or Index 521-513 through 521-515 (T, L or Trench Footings)

ADDED

CAST-IN-PLACE

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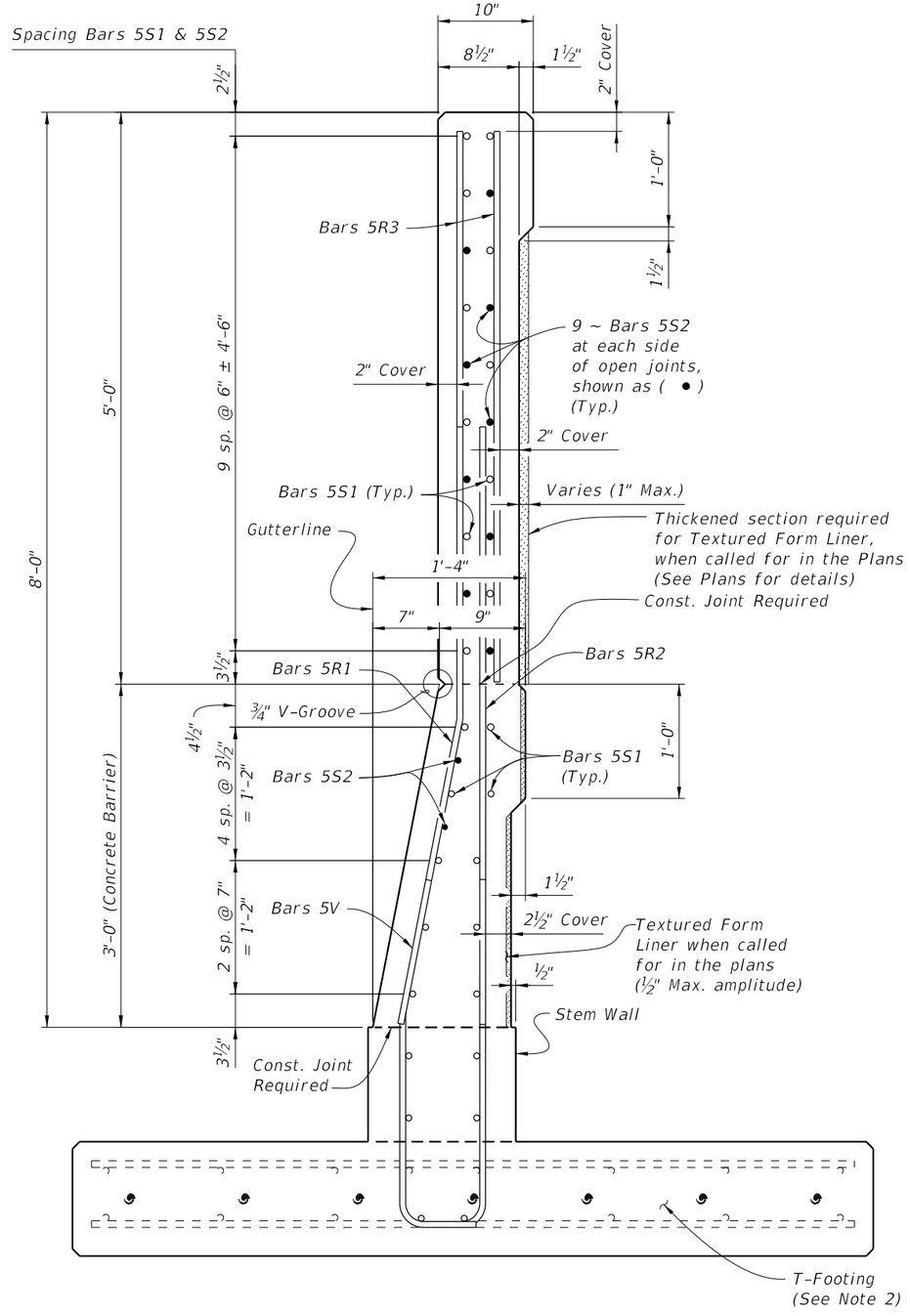
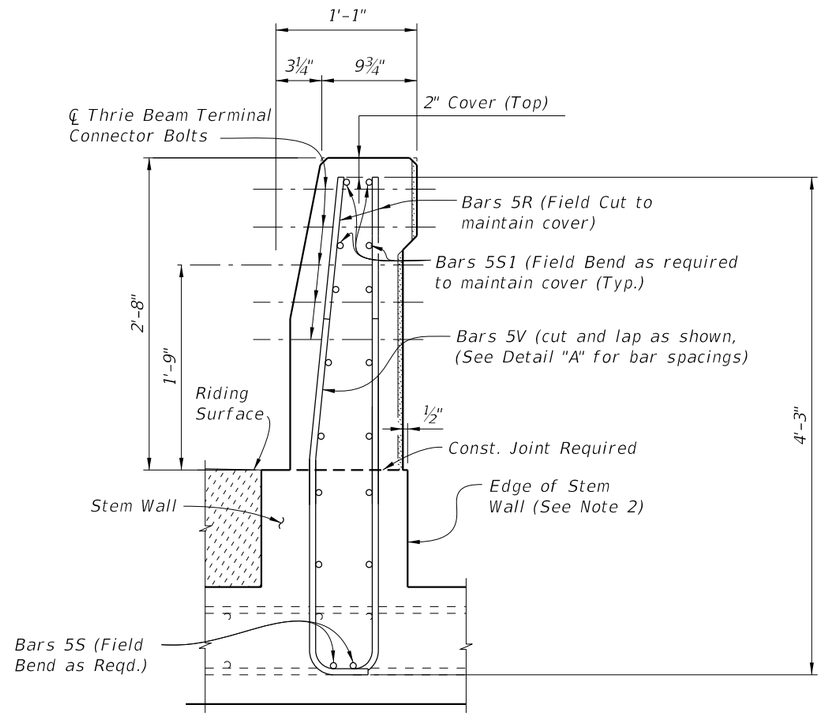
LAST REVISION 11/01/18	REVISION	DESCRIPTION: 11/01/23	FDOT FY 2023-24 STANDARD PLANS	CONCRETE BARRIER/NOISE WALL (8'-0")	INDEX 521-510	SHEET 8 2 of 5



SECTION A-A
TYPICAL SECTION THRU CONCRETE BARRIER/NOISE WALL AT OPEN JOINT
(Section Thru T-Footing Shown, Section Thru
Junction Slab, L or Trench Footings similar)

NOTES:
1. Bars 5V shown are for T-Shape footings.
   5V for Junction Slab, L-Shape and Trench footings are similar.
2. Foundation Details:
   Index 521-512 (Junction Slab)
   Index 521-513 (T-Shape)
   Index 521-514 (L-Shape)
   Index 521-515 (Trench)

CROSS REFERENCE:
For locations of Section A-A see Sheet 1.
For location of View B-B, see Sheet 5.
For Detail "A", see Sheet 5



VIEW B-B
END VIEW OF RAILING END TRANSITION FOR
GUARDRAIL ATTACHMENT
(T-Footing shown, Junction Slab, L or Trench Footings similar)

ADDED → CAST-IN-PLACE

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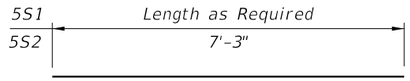
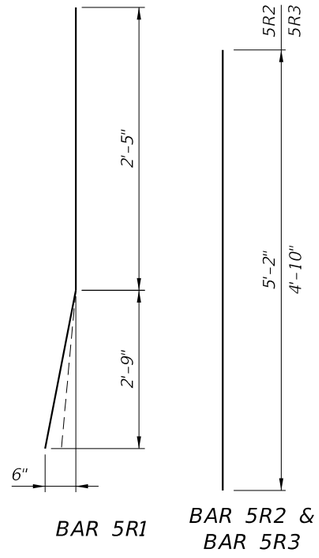
LAST REVISION	REVISION	DESCRIPTION:	FDOT			
11/01/18		11/01/23	FY 2023-24 STANDARD PLANS	CONCRETE BARRIER/NOISE WALL (8'-0")	INDEX 521-510	SHEET 8 3 of 5

REINFORCING STEEL BENDING DIAGRAMS

BILL OF REINFORCING STEEL		
MARK	SIZE	LENGTH
R1	5	5'-2"
R2	5	5'-2½"
R3	5	4'-10"
S1	5	As Reqd.
S2	5	7'-3"
V (Wall)	5	6'-6½"
V (T-Footing)	5	7'-8½"



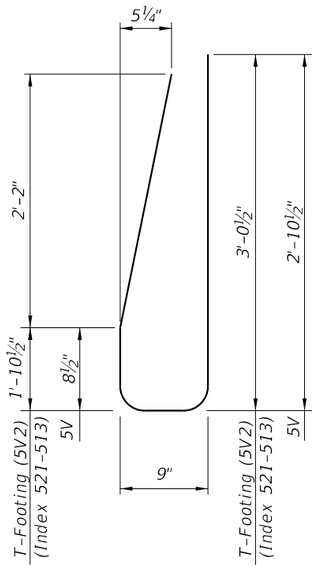
BARS 5S1 & 5S2



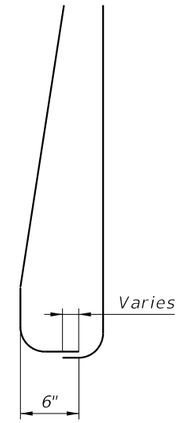
BAR 5R1

BAR 5R2 & BAR 5R3

(Field Cut and Bend for Railing End Transition)



STIRRUP BAR 5V



END STIRRUP BAR 5V
To Be Field Cut
(Railing End Transition)

REINFORCING STEEL NOTES:

1. All bar dimensions in the bending diagrams are out to out.
2. All reinforcing steel at the open joints shall have a 2" minimum cover.
3. Bars 5R shall be one continuous or lap spliced bar. No mechanical couplers are permitted.
4. Bars 5S1 may be continuous or spliced at the construction joints. Lap splices for Bars 5R, 5S1 and 5W shall be a minimum of 2'-2".
5. The Contractor may use Welded Wire Reinforcement (WWR) when approved by the Engineer. WWR must consist of deformed wire meeting the requirements of Specification Section 931.
6. See Index 521-514 and 521-515 for L-shaped and Trench footing vertical reinforcing.

ESTIMATED TRAFFIC RAILING/NOISE WALL QUANTITIES		
ITEM	UNIT	QUANTITY
Concrete (Railing)	CY/LF	0.107
Concrete (Noise Wall)	CY/LF	0.136
Reinforcing Steel (Typical)	LB/LF	~~69.36~~
Additional Reinf. @ Open Joint	LB	~~226.85~~

CHANGED TO:
81.55
241.58

(The above quantities are based on the Concrete Barrier/ Noise wall typical section, (excluding junction slab or footing)

ADDED

CROSS REFERENCE:
See Index 521-512 for Junction Slab Details and Indexes 521-513 thru 521-515 for additional footing details.

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LAST REVISION	REVISION	DESCRIPTION:	FDOT	FY 2023-24 STANDARD PLANS	CONCRETE BARRIER/NOISE WALL (8'-0")	INDEX	SHEET
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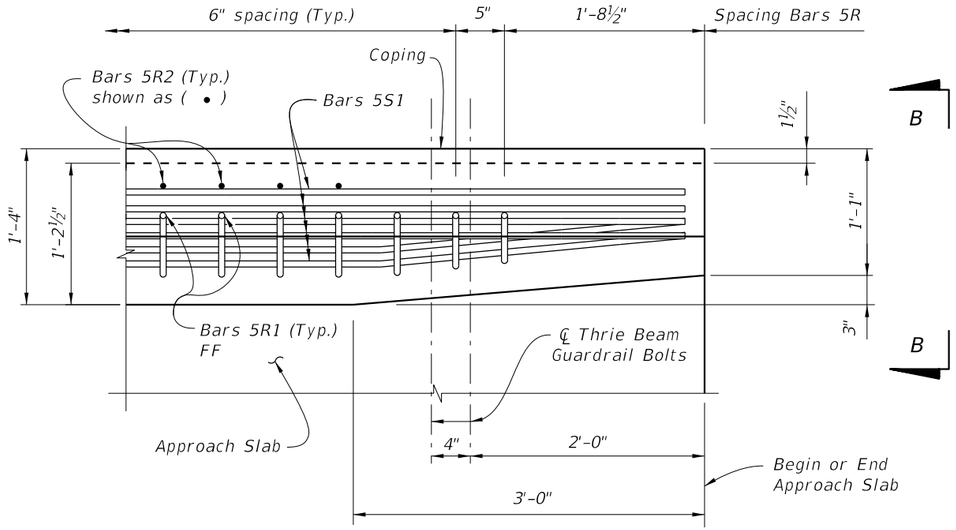
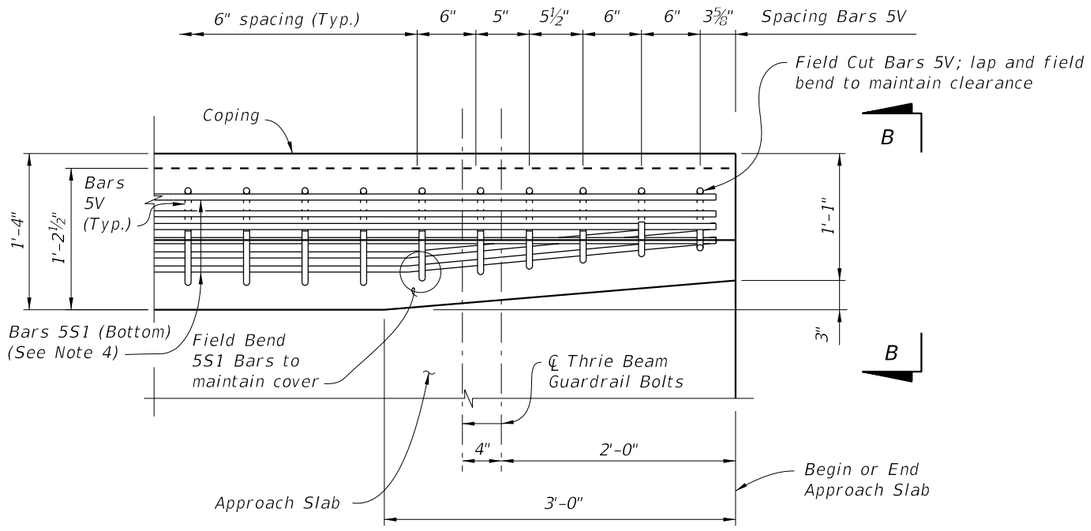


PLAN - RAILING END TRANSITION
(Showing Bars 5R, and Bars 5S1)
(Bars 5V not shown for Clarity)

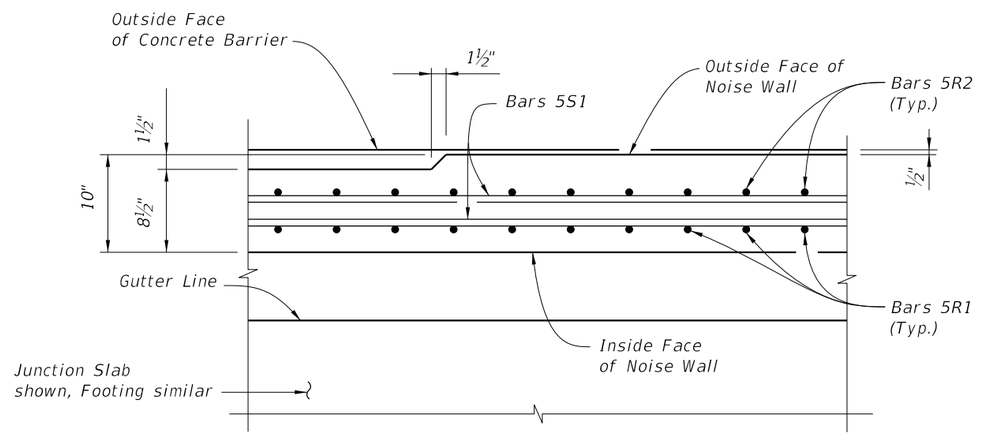


PLAN - RAILING END TRANSITION
(Showing Bars 5V and Bars 5S1)
(Bars 5R not shown for Clarity)

DETAIL "A"

DETAIL "A" NOTES:

1. *Begin placing Railing Bars 5V at the railing end and proceed toward the guardrail (thrie beam) terminal connector to ensure placement of guardrail bolt holes. Pair Bars 5R with Bars 5V as shown. Clearance of Bars 5R & 5V to guardrail bolt holes shall be checked to prevent cutting of bars if bolt holes are to be drilled. Shift bars locally where conflicts occur.*
2. *For Guardrail connection details see Index 536-001.*
3. *Omit Railing End Transition if a Single-Slope Concrete Barrier/ Barrier continues beyond the End Taper. See the Plan Sheets.*
4. *Field cut Bars 5R2 to maintain cover. Field cut Bars 5V and lap as necessary to maintain cover; field cut & bend Bars 5R1 front leg (more plumb) to maintain cover and tie to S1 Bars. (See Sheet 1 Notes 1 and 2)*



SECTION C-C
THRU NOISE WALL END TAPER

CROSS REFERENCE:
For location of Detail "A" see Sheet 1.
For location of Section C-C see Sheet 1.
For View B-B see Sheet 3.

ADDED → CAST-IN-PLACE

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LAST REVISION 11/01/18	REVISION DESCRIPTION: 11/01/23	FY 2023-24 STANDARD PLANS	CONCRETE BARRIER/NOISE WALL (8'-0")	INDEX 521-510	SHEET 8 5 of 5

NEW SHEET 6

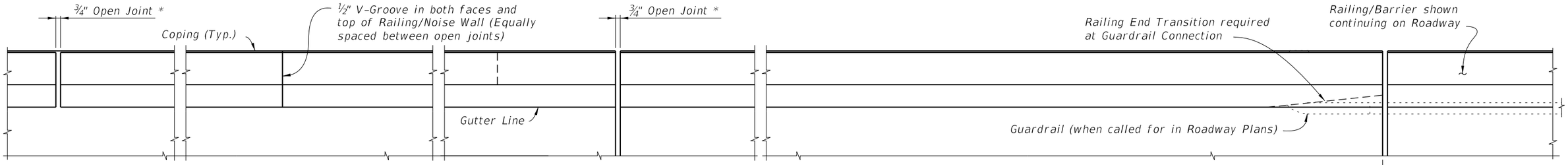
PRECAST - GENERAL NOTES AND OVERVIEW

NEW SHEET 7

FRONT FACE ELEVATION AND SECTION

NEW SHEET 8

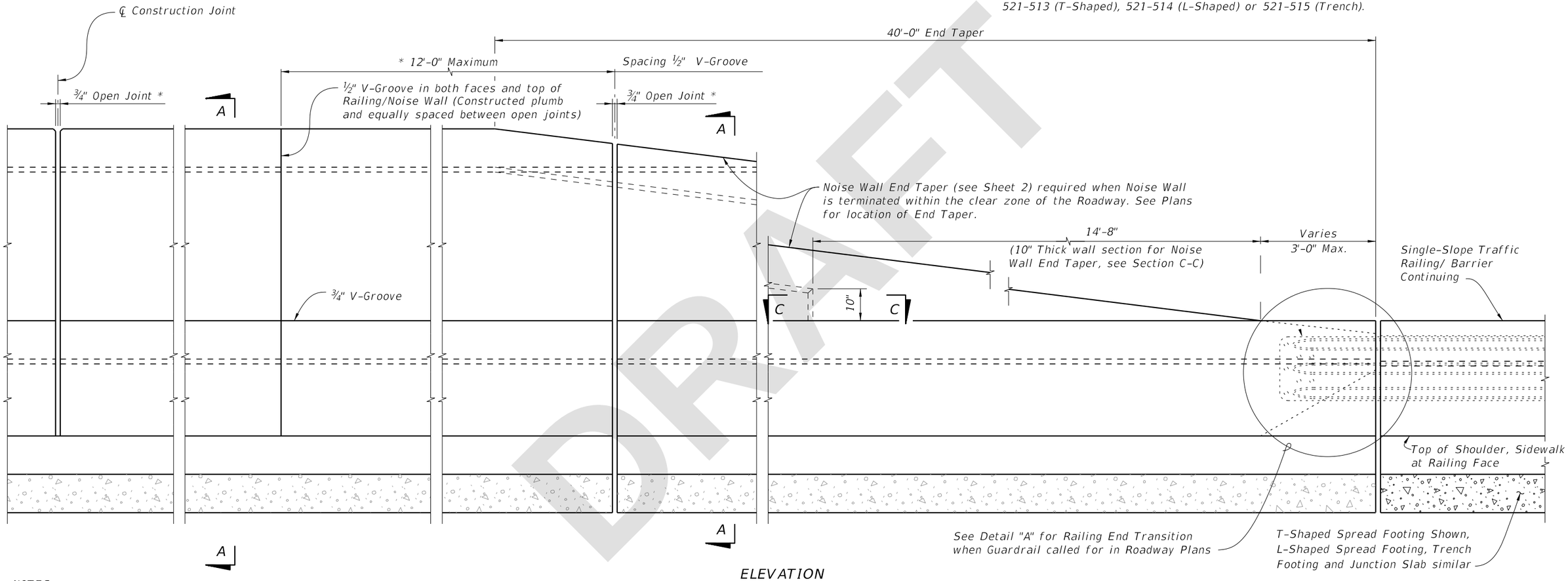
PRECAST - TONGUE AND GROOVE & REINFORCING



* Construct ¾" Open Joints plumb at Construction Joints in Junction Slabs or Footings.

CROSS REFERENCE:
For Section A-A see Sheet 3.
For Section C-C and Detail "A" see Sheet 5.
For Wall mounted Barrier/Noise Wall Details see Index 521-512.
For Footing mounted Barrier/Noise Wall Details see Index 521-513 (T-Shaped), 521-514 (L-Shaped) or 521-515 (Trench).

PLAN
(Reinforcing Steel not shown for clarity)



ELEVATION
(INSIDE FACE OF CONCRETE BARRIER/NOISE WALL WITH T-SHAPED FOOTING SHOWN,
(Other footings similar, Reinforcing steel not shown for clarity)

NOTES:
1. Work this Index with Indexes 521-512 through 521-515.
2. The Concrete Barrier/Noise Wall and joints shall be constructed plumb.
3. Concrete:
   A. Class II for slightly aggressive environments.
   B. Class IV for moderately or extremely aggressive environments.
4. Provide ¾" Open Joints spaced between 30 feet minimum to 90 feet maximum. Align Open Joints with construction joints in the Junction Slab or Footing. Provide additional reinforcing (see Sheet 2) at each open joint.
5. Install Barrier Delineators 2'-4" above the riding surface in accordance with Specification Section 705. Match the Barrier Delineators color (White or Yellow) to the near edgeline.
6. Slip forming of the barrier portion is permitted.
   A. Stem walls may be widened, at no additional cost, to accommodate slip forming.

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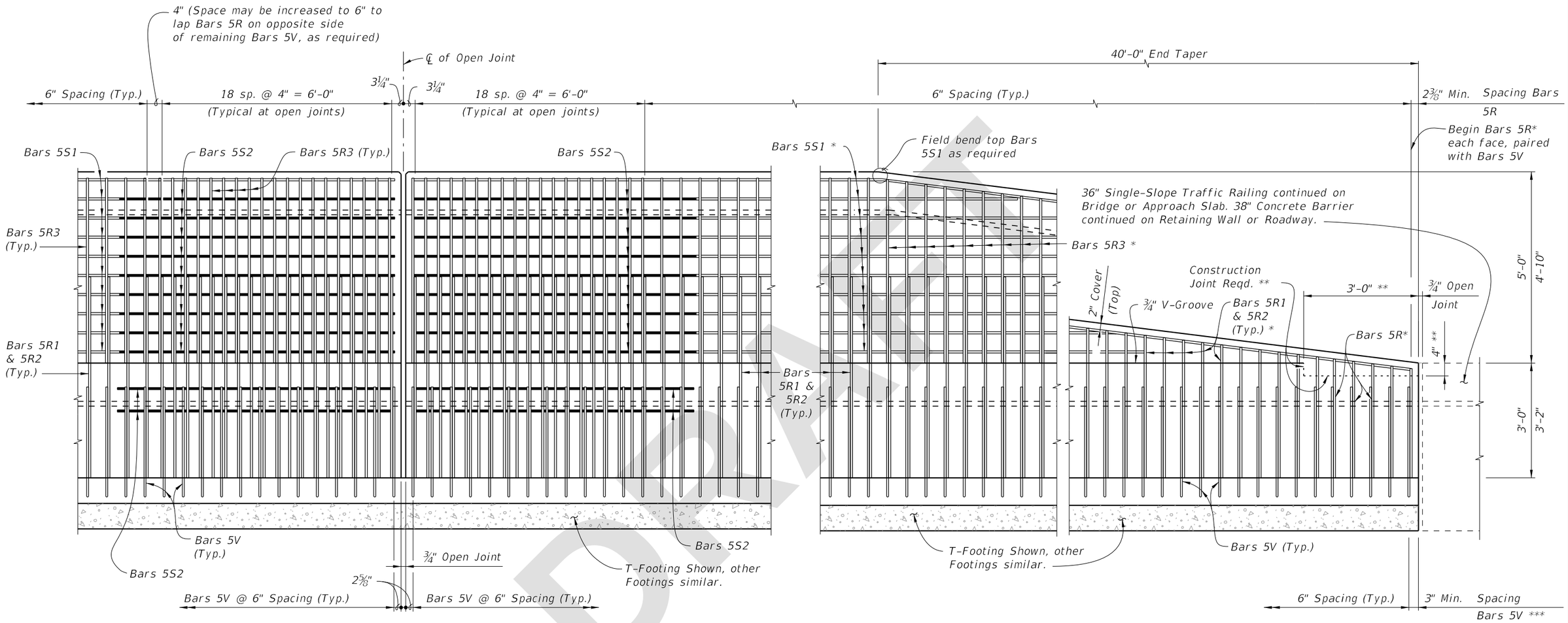
LAST REVISION	REVISION	DESCRIPTION:				
11/01/23			FDOT FY 2024-25 STANDARD PLANS	CONCRETE BARRIER/NOISE WALL (8'-0")	INDEX 521-510	SHEET 1 of 8



ELEVATION OF BARRIER/NOISE WALL REINFORCING STEEL AT OPEN JOINT
(Bars 5S1 in Barrier not shown for clarity)
(Footing or Junction Slab Details not shown)

ELEVATION OF BARRIER/NOISE WALL END TAPER (ADJACENT TO CONCRETE BARRIER SHOWN, GUARDRAIL ATTACHMENT SIMILAR SEE DETAIL "A", SHEET 5)
(Bars 5S1 in Railing not shown for clarity)
(Footing or Junction Slab Details not shown)

NOTES:
* Field Cut Bars 5R & 5S1 to maintain clearance.
** Terminate ¾" V-groove at construction joint & cast top of railing with End Taper.
*** Bar spacing shown for Bars 5V only applies when Single-Slope Concrete Barrier continues. For transition to guardrail see Sheet 5. Work Traffic/ Railing Noise Wall reinforcing with Index 521-512 (Junction Slab) or Index 521-513 through 521-515 (T, L or Trench Footings)

CAST-IN-PLACE

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LAST REVISION	REVISION	DESCRIPTION:	FDOT	FY 2024-25 STANDARD PLANS	CONCRETE BARRIER/NOISE WALL (8'-0")	INDEX	SHEET
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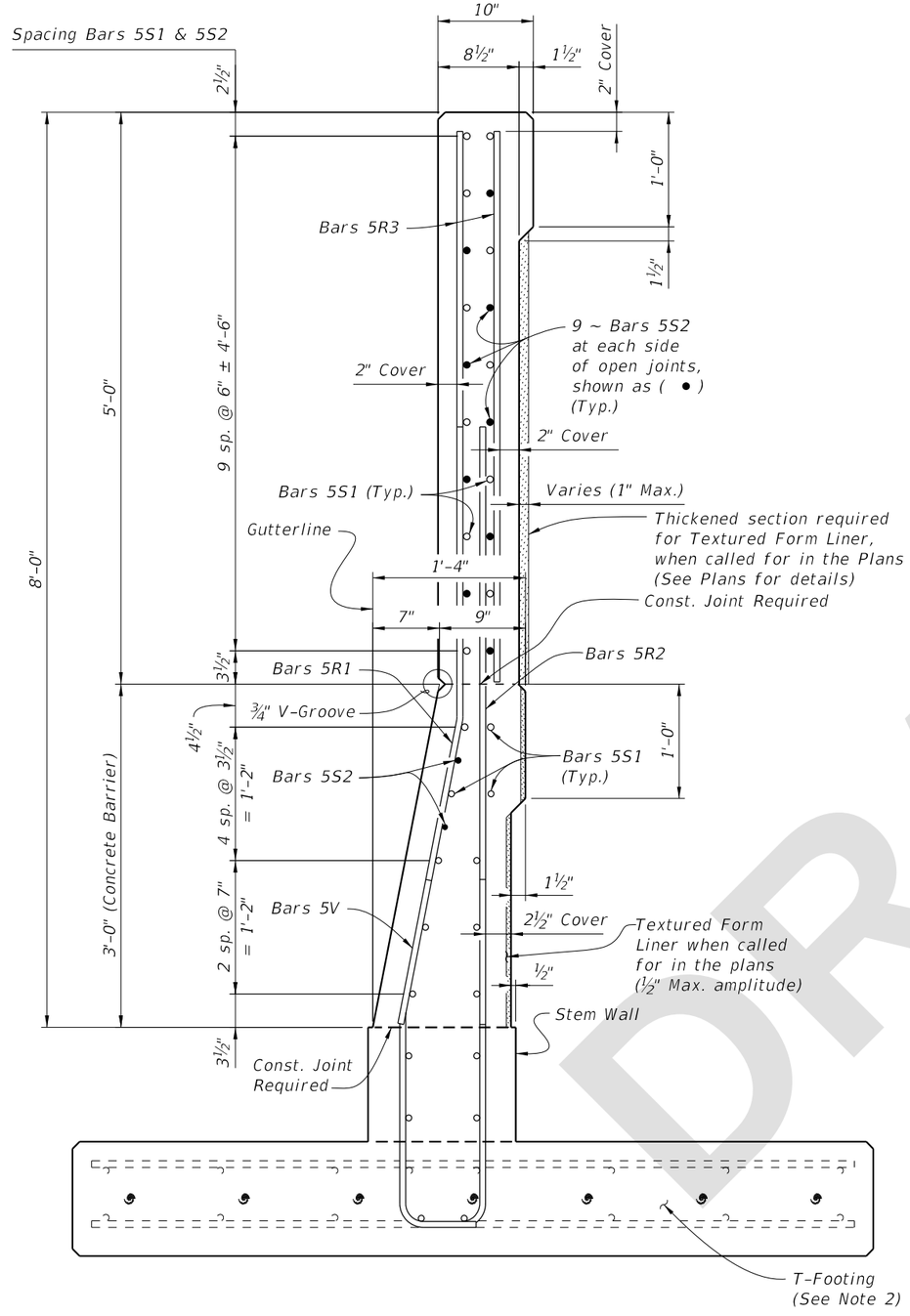
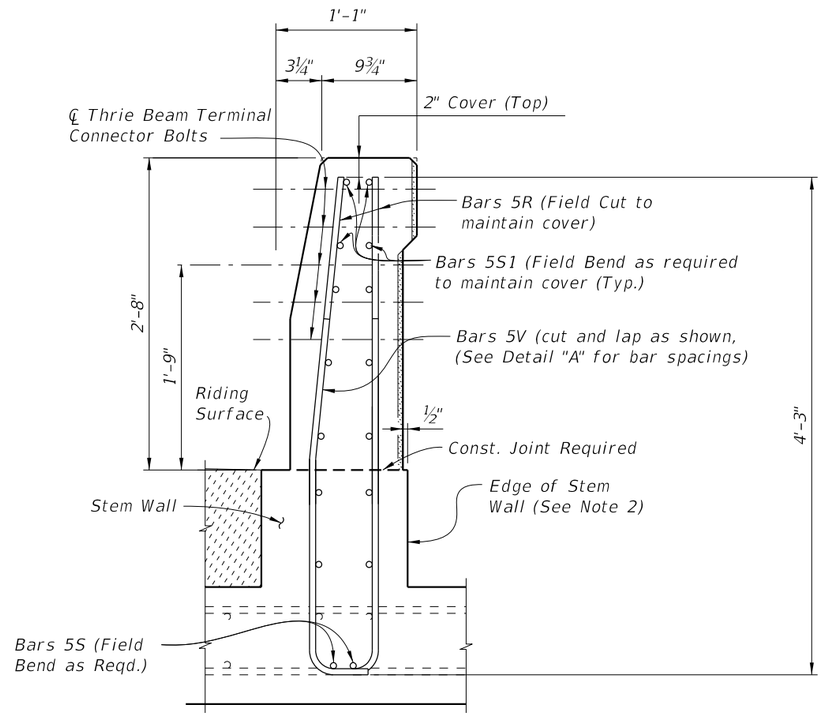


SECTION A-A
TYPICAL SECTION THRU CONCRETE BARRIER/NOISE WALL AT OPEN JOINT
(Section Thru T-Footing Shown, Section Thru
Junction Slab, L or Trench Footings similar)

NOTES:
1. Bars 5V shown are for T-Shape footings.
   5V for Junction Slab, L-Shape and Trench footings are similar.
2. Foundation Details:
   Index 521-512 (Junction Slab)
   Index 521-513 (T-Shape)
   Index 521-514 (L-Shape)
   Index 521-515 (Trench)

CROSS REFERENCE:
For locations of Section A-A see Sheet 1.
For location of View B-B, see Sheet 5.
For Detail "A", see Sheet 5



VIEW B-B
END VIEW OF RAILING END TRANSITION FOR
GUARDRAIL ATTACHMENT
(T-Footing shown, Junction Slab, L or Trench Footings similar)

CAST-IN-PLACE

LAST REVISION	REVISION	DESCRIPTION:	FDOT	FY 2024-25 STANDARD PLANS	CONCRETE BARRIER/NOISE WALL (8'-0")	INDEX	SHEET
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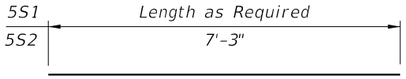
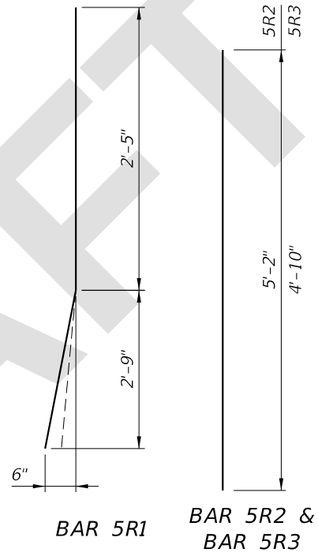
REINFORCING STEEL BENDING DIAGRAMS

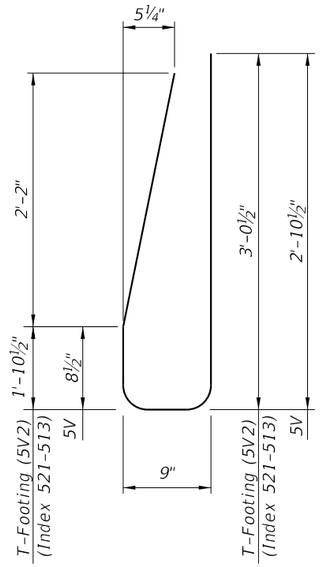
BILL OF REINFORCING STEEL		
MARK	SIZE	LENGTH
R1	5	5'-2"
R2	5	5'-2½"
R3	5	4'-10"
S1	5	As Reqd.
S2	5	7'-3"
V (Wall)	5	6'-6½"
V (T-Footing)	5	7'-8½"



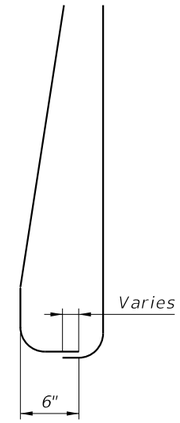
BARS 5S1 & 5S2



BAR 5R1 BAR 5R2 & BAR 5R3



STIRRUP BAR 5V



END STIRRUP BAR 5V
To Be Field Cut
(Railing End Transition)

(Field Cut and Bend
for Railing End Transition)

REINFORCING STEEL NOTES:

1. All bar dimensions in the bending diagrams are out to out.
2. All reinforcing steel at the open joints shall have a 2" minimum cover.
3. Bars 5R shall be one continuous or lap spliced bar. No mechanical couplers are permitted.
4. Bars 5S1 may be continuous or spliced at the construction joints. Lap splices for Bars 5R, 5S1 and 5W shall be a minimum of 2'-2".
5. The Contractor may use Welded Wire Reinforcement (WWR) when approved by the Engineer. WWR must consist of deformed wire meeting the requirements of Specification Section 931.
6. See Index 521-514 and 521-515 for L-shaped and Trench footing vertical reinforcing.

CROSS REFERENCE:
See Index 521-512 for
Junction Slab Details and
Indexes 521-513 thru 521-515
for additional footing details.

ESTIMATED TRAFFIC RAILING/NOISE WALL QUANTITIES		
ITEM	UNIT	QUANTITY
Concrete (Railing)	CY/LF	0.107
Concrete (Noise Wall)	CY/LF	0.136
Reinforcing Steel (Typical)	LB/LF	81.55
Additional Reinf. @ Open Joint	LB	241.59

(The above quantities are based on the Concrete Barrier/ Noise wall typical section, (excluding junction slab or footing)

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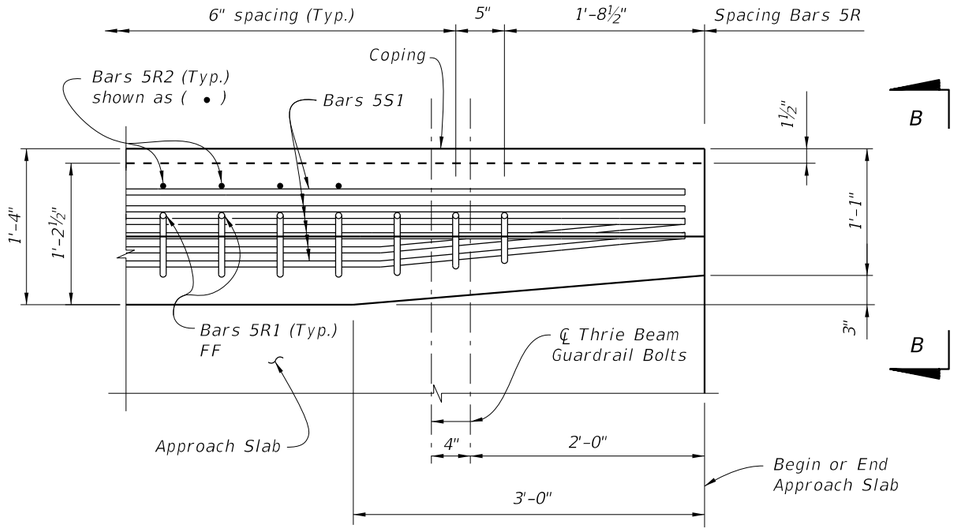
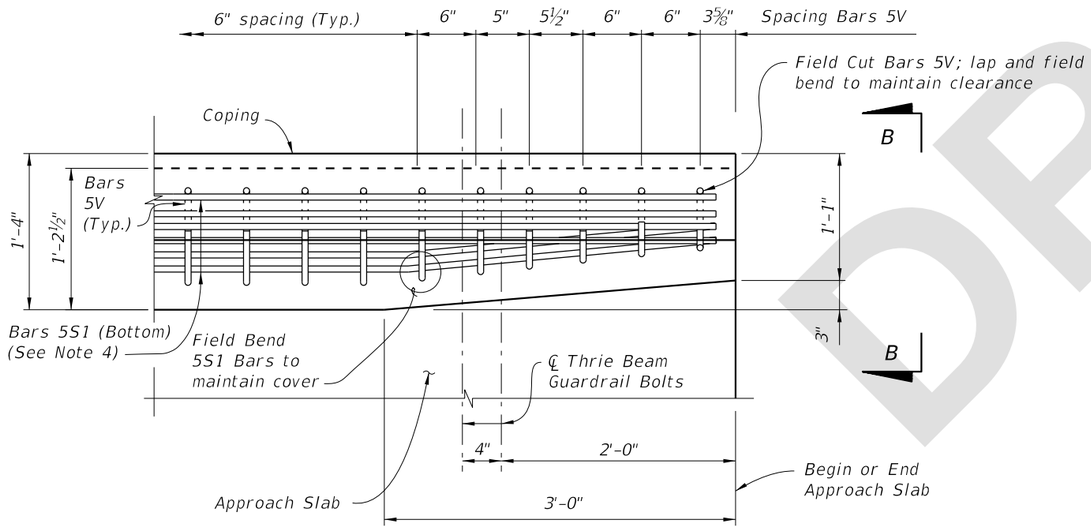
CAST-IN-PLACE

LAST REVISION	REVISION	DESCRIPTION:	FY 2024-25 STANDARD PLANS	CONCRETE BARRIER/NOISE WALL (8'-0")	INDEX	SHEET
11/01/23					521-510	4 of 8



PLAN - RAILING END TRANSITION
(Showing Bars 5R, and Bars 5S1)
(Bars 5V not shown for Clarity)

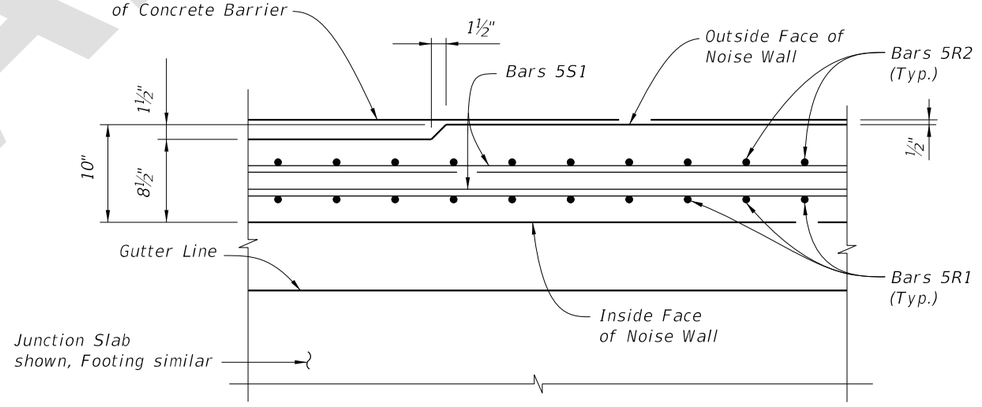


PLAN - RAILING END TRANSITION
(Showing Bars 5V and Bars 5S1)
(Bars 5R not shown for Clarity)

DETAIL "A"

DETAIL "A" NOTES:

1. *Begin placing Railing Bars 5V at the railing end and proceed toward the guardrail (thrie beam) terminal connector to ensure placement of guardrail bolt holes. Pair Bars 5R with Bars 5V as shown. Clearance of Bars 5R & 5V to guardrail bolt holes shall be checked to prevent cutting of bars if bolt holes are to be drilled. Shift bars locally where conflicts occur.*
2. *For Guardrail connection details see Index 536-001.*
3. *Omit Railing End Transition if a Single-Slope Concrete Barrier/ Barrier continues beyond the End Taper. See the Plan Sheets.*
4. *Field cut Bars 5R2 to maintain cover. Field cut Bars 5V and lap as necessary to maintain cover; field cut & bend Bars 5R1 front leg (more plumb) to maintain cover and tie to S1 Bars. (See Sheet 1 Notes 1 and 2)*



SECTION C-C
THRU NOISE WALL END TAPER

CROSS REFERENCE:
For location of Detail "A" see Sheet 1.
For location of Section C-C see Sheet 1.
For View B-B see Sheet 3.

CAST-IN-PLACE

PRECAST GENERAL NOTES:

1. Construct the Concrete Barrier/Noise Wall and joints plumb; do not construct the Concrete Barrier/Noise Wall perpendicular to the roadway surface.

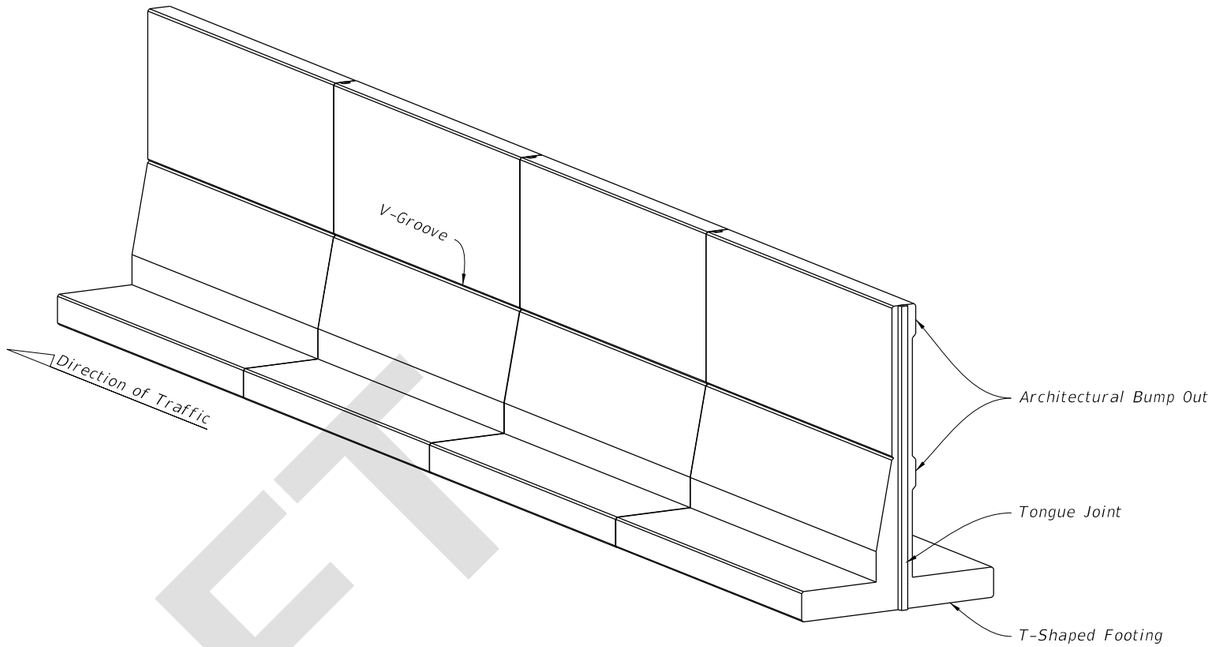
2. Concrete:
   A. Concrete will be in accordance with Specification 346.
   B. Concrete will be Class IV.
   C. Concrete will be constructed in accordance Specification 400.
   D. Concrete repair or rejection will be in accordance with Specification 450-12 and 450-13.

3. Reinforcing:
   A. Reinforcing will be in accordance with Specification 415.
   B. All reinforcing steel will have a 2" minimum cover.
   C. Field cut bars in Noise Wall End Taper as required to maintain minimum cover.
4. Work this Index with Index 521-513-Concrete Barrier/Noise Wall T-Shapeed Spread Footing.

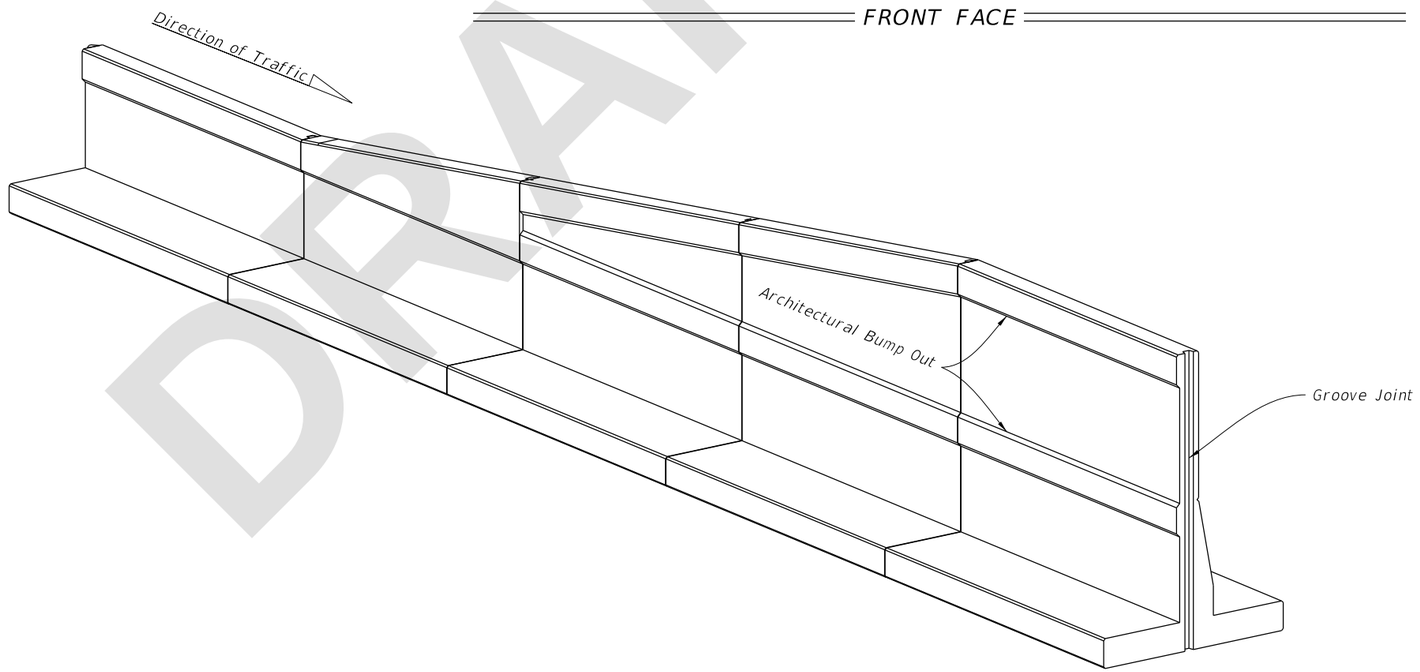
5. Front Face indicates roadway side of wall. Back Face indicates non-roadway side of wall.

6. Noise wall end taper is required when transitioning to different height barrier noise walls or single slope barriers. See Plans for Concrete Barrier/Noise wall End Treatment.

7. The last full height segment in the direction traffic must be a minimum or 24 feet in length for stability.



FRONT FACE



BACK FACE

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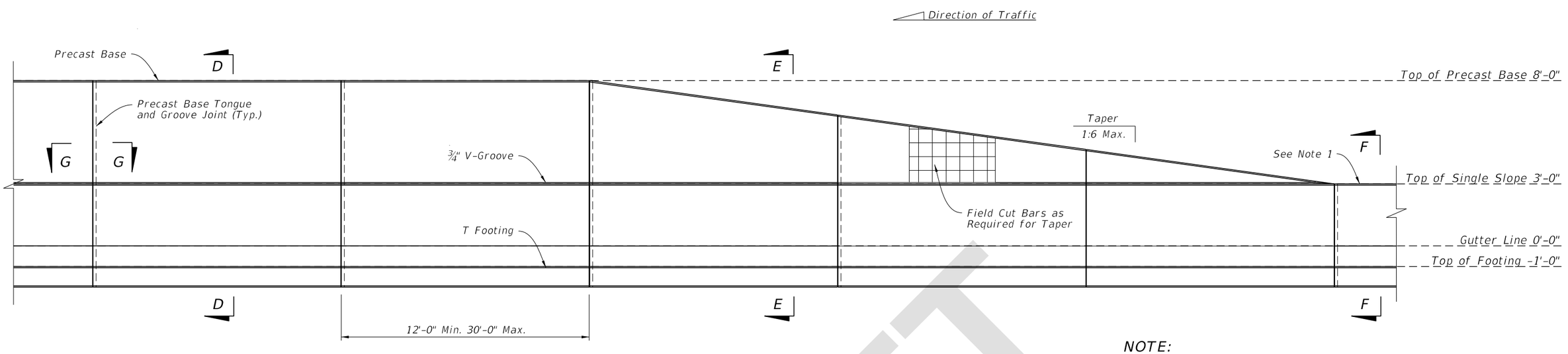
PRECAST

LAST REVISION	REVISION	DESCRIPTION:				
11/01/23			FY 2024-25 STANDARD PLANS	CONCRETE BARRIER/NOISE WALL (8'-0")	INDEX 521-510	SHEET 6 of 8

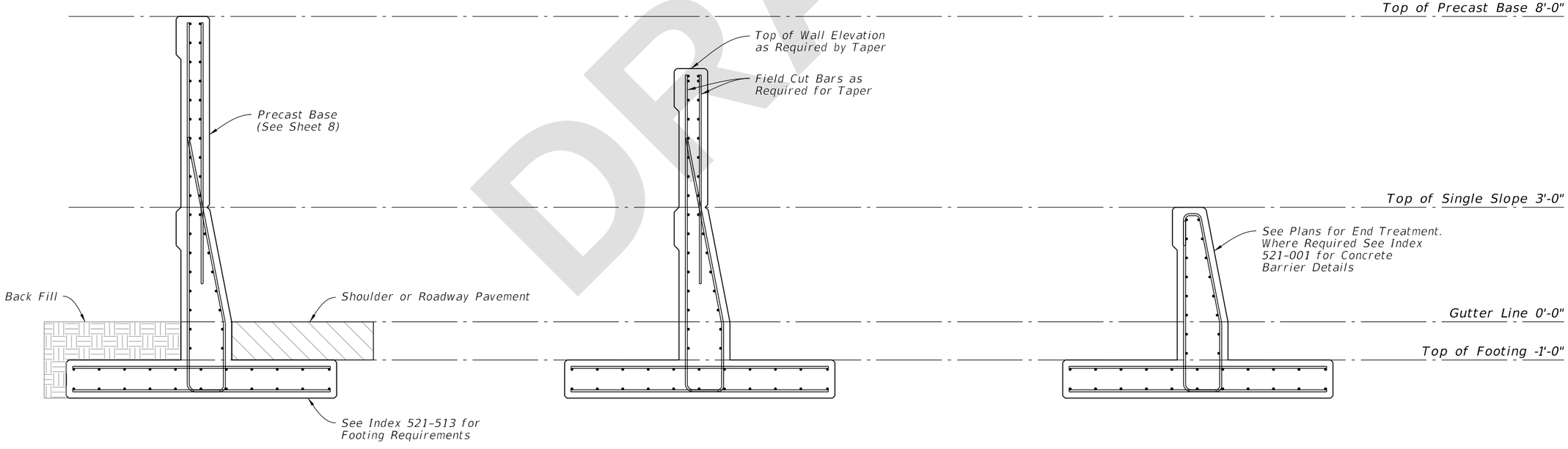


NOTE:

1. See Plans for end treatment. The single slope barrier shown, is an example of an end treatment using the doweled join per Index 521-001.

2. See Section G-G on Sheet 8.

FRONT FACE ELEVATION



SECTION D-D

SECTION E-E

SECTION F-F

PRECAST

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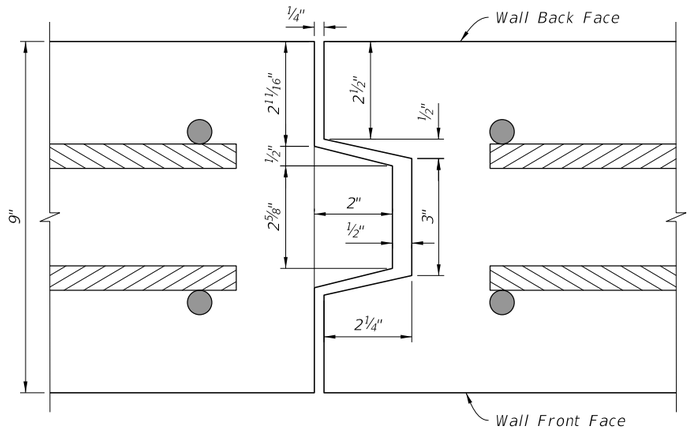
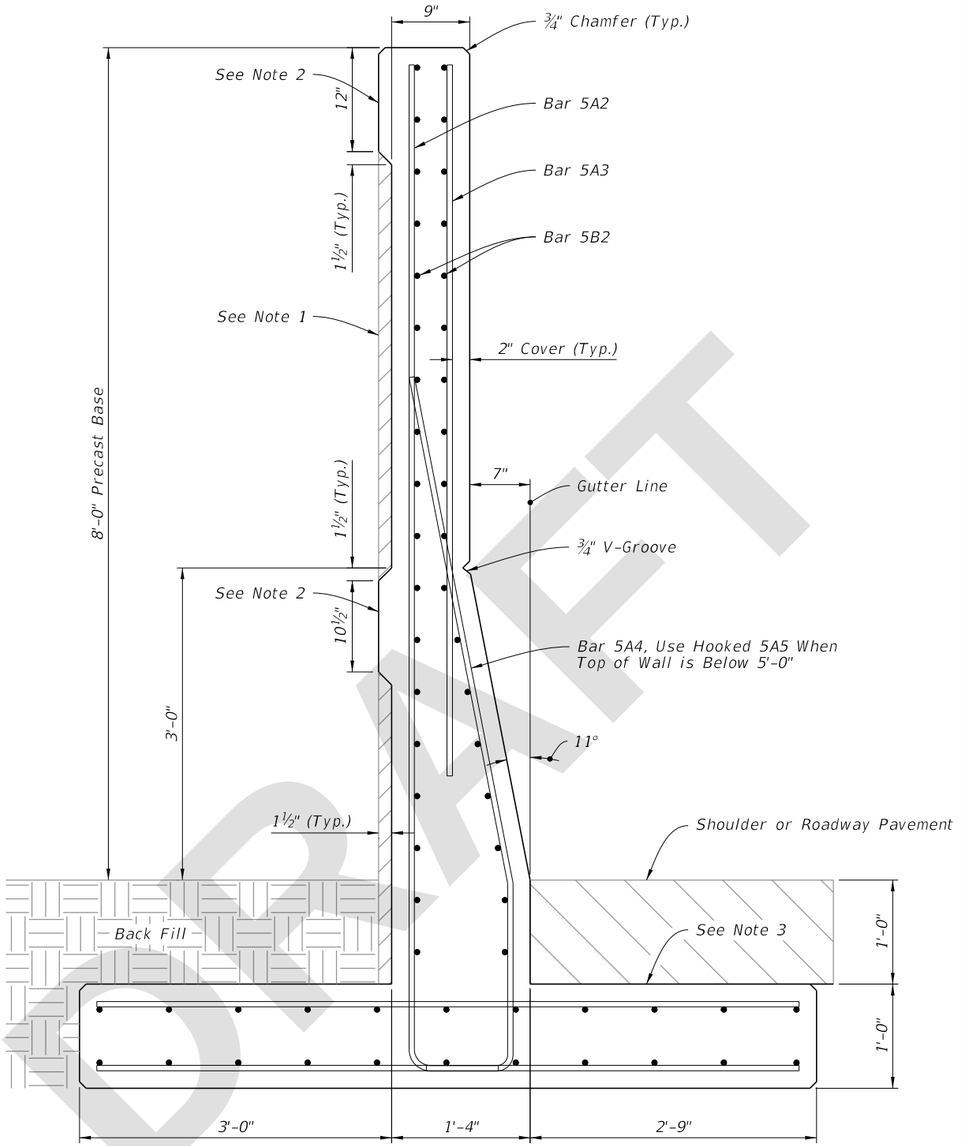
LAST REVISION	REVISION	DESCRIPTION:	FDOT	FY 2024-25 STANDARD PLANS	CONCRETE BARRIER/NOISE WALL (8'-0")	INDEX	SHEET
11/01/23						521-510	7 of 8



SECTION G-G
TYPICAL TONGUE AND GROOVE JOINT



SECTION A-A
FULL HEIGHT SECTION REINFORCING

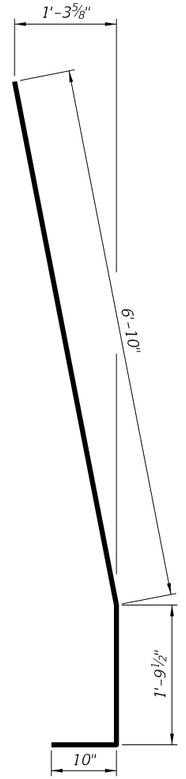
BILL OF REINFORCING STEEL

MARK	SIZE	LENGTH	SPACING
5A2	#5	10'-5"	6"
5A3	#5	6'-10"	6"
5A4	#5	7'-6"	6"
5A5	#5	6'-7"	6"
5B2	#5	Varies	6"

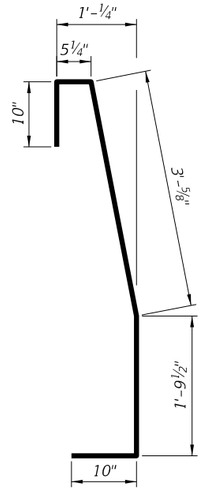
REINFORCING STEEL NOTES:

1. All bar dimensions in the bending diagrams are out to out.
2. Length of horizontal bars vary depending on the length of each segment.
3. Length of vertical bars vary in tapered segments.
4. The Contractor may use Welded Wire Reinforcement (WWR) when approved by the Engineer. WWR must consist of deformed wire meeting the requirements of Specification 931.

REINFORCING STEEL BENDING DIAGRAMS



BAR 5A4



BAR 5A5

ESTIMATED CONCRETE PRECAST BARRIER/NOISE WALL TYPICAL FULL HEIGHT SECTION

ITEM	UNIT	QUANTITY
Concrete (Precast Base)	CY/FT	0.574
Reinforcing Steel (Precast Base)	LB/FT	132.37

NOTES:

1. Optional Architectural detail. See Plans for requirements.
2. Bump outs are optional when using architectural details. See Plans for requirements.
3. For T-Shaped Footing details see Index 521-513. Dowels in Index 521-513 are not required at expansion joints.

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8/1/2023

PRECAST

LAST REVISION	REVISION	DESCRIPTION:				
11/01/23			FY 2024-25 STANDARD PLANS	CONCRETE BARRIER/NOISE WALL (8'-0")	INDEX 521-510	SHEET 8 of 8