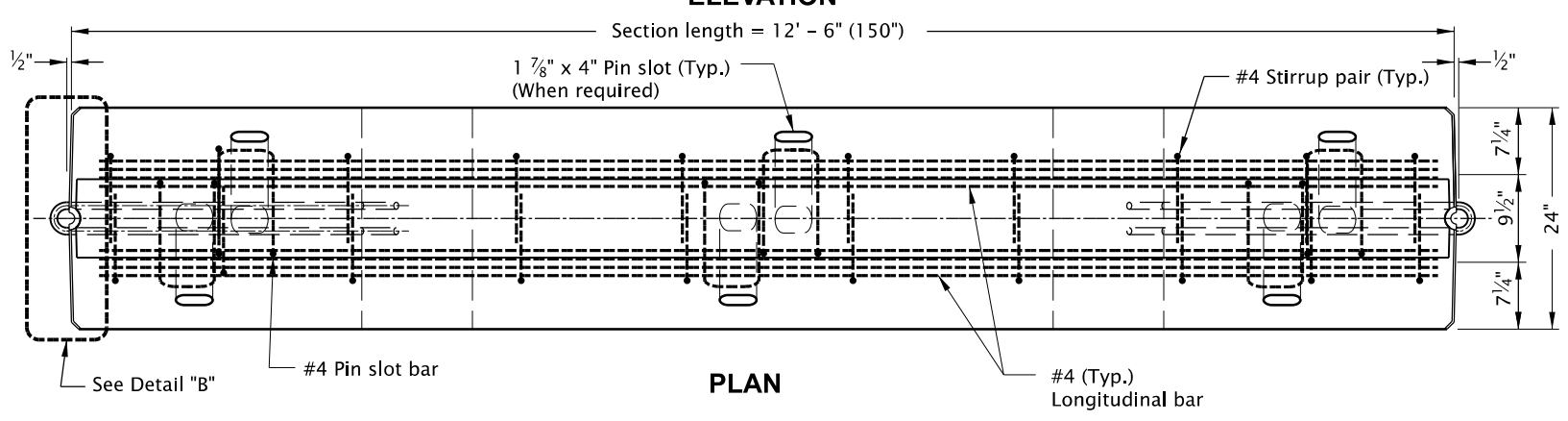
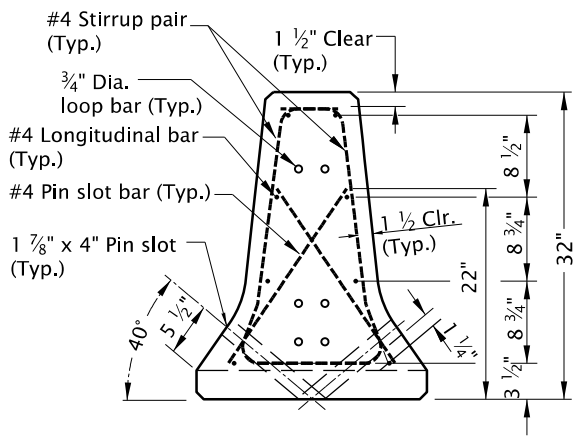
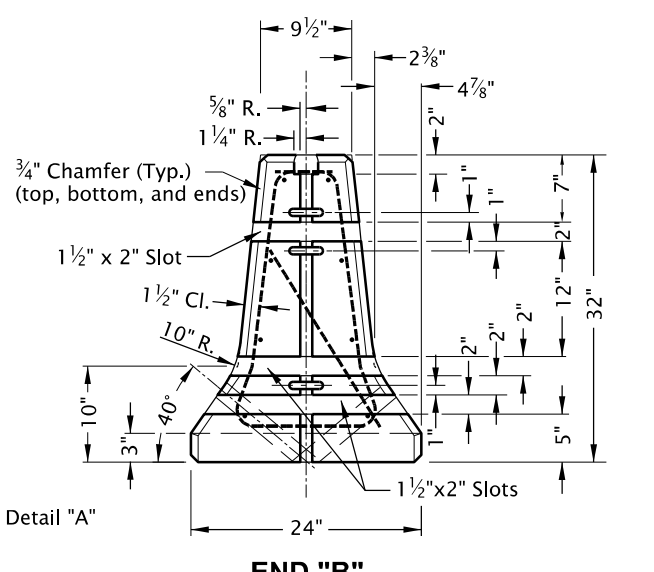
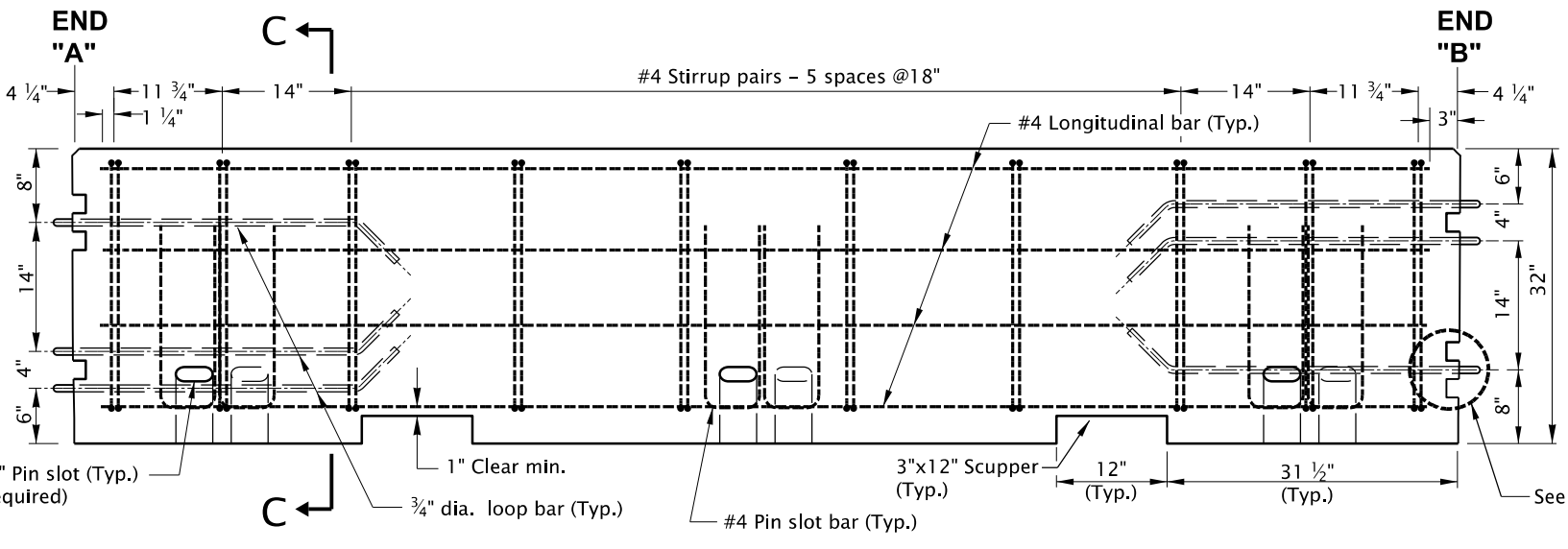
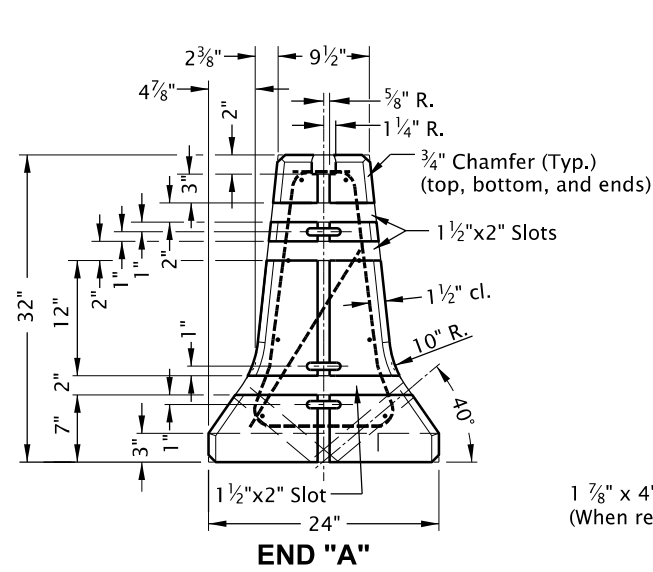


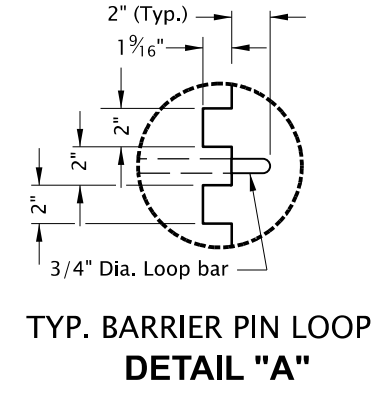
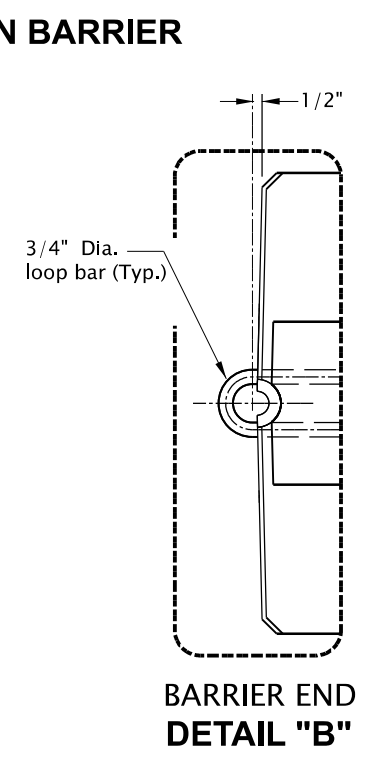
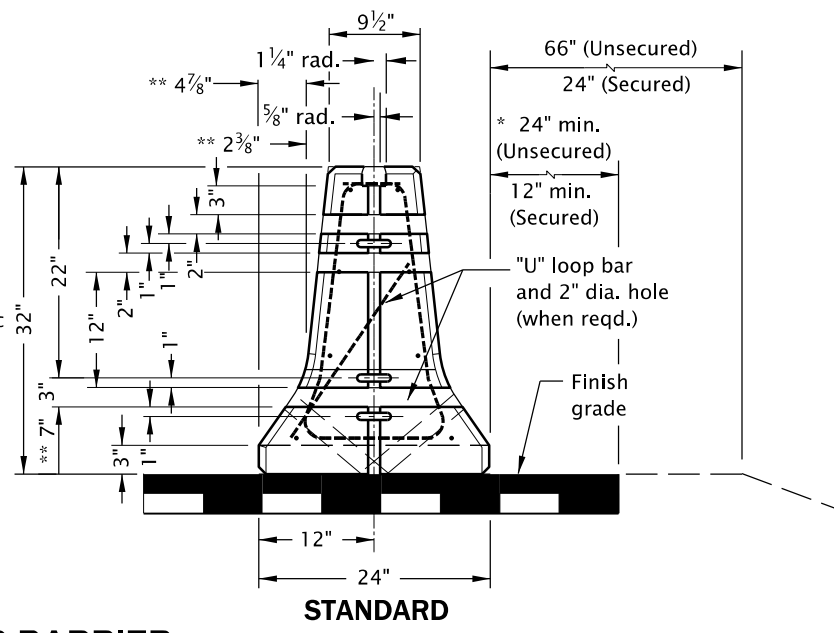
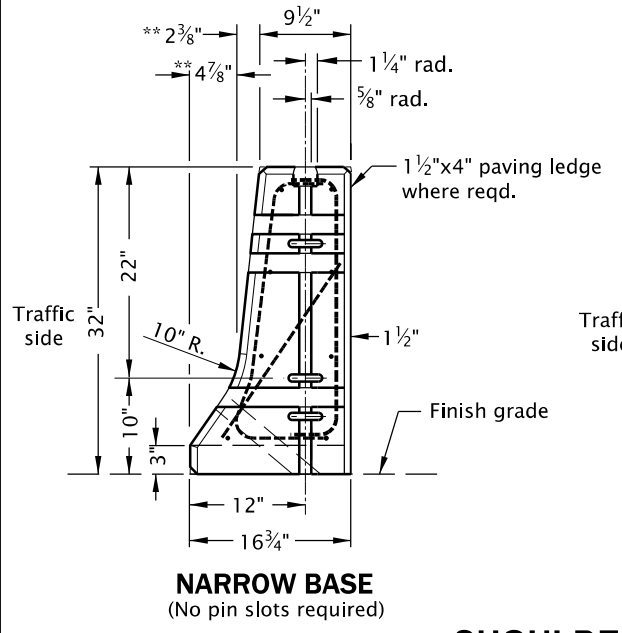
14-JAN-2022

RD500.dgn



- GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:
- All reinforcement shall be full length as shown and shall be 2" clear of nearest face of conc., unless otherwise shown.
 - Max. chord length for curves with a 1425' radius or less shall be 12.5'. Max. chord length for curves with radii exceeding 1425' shall be 25'.
 - Normal use of precast barrier units is restricted to curvatures with radii greater than 770'.
 - Narrow base shldr. barrier to be used only at locations with backfill behind barrier as shown on plans.
 - Temp. conc. barrier to be precast conc. median barrier with pin and loop assembly (See Std. Drg. RD502).
 - When scuppers are not required, plug them with a minimum 2" of grout, as directed.
 - Conc. grout for grouting over pins, pinning holes or grouting of scuppers shall be portland cement grout, weak in strength and of thick consistency, as directed.
 - Precast concrete barrier used in medians less than 8' in width shall be secured to roadway. See Std. Dwgs. RD515 & RD516 for details.
 - See Std. Dwg. RD501 for details not shown. See Std. Dwg. RD502 for securing concrete barrier to roadway.
 - All pins, bolts, dowels, loop bars, and connectors shall be hot-dip galvanized after fabrication.
 - For temporary installations, provide a minimum of 18" of clear space behind the barrier if secured or 5.5' of clear space behind unsecured barrier. Place temporary barrier on smooth, solid surfacing. Maintain smooth, solid surfacing for the clear area behind temporary barrier.

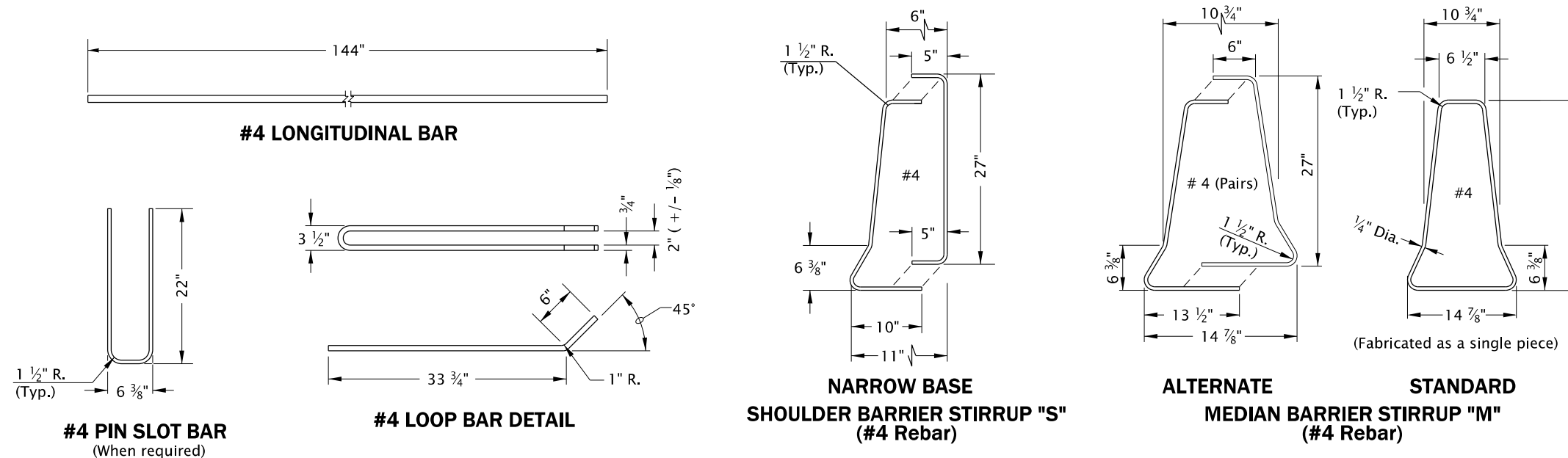
* Barrier used as shoulder barrier and placed in areas where these dimensions cannot be obtained shall be secured to roadway.
 ** Dimensions marked thus are to the intersection point of the barrier slopes. Construct the 10" radius to provide a smooth transition between the slopes.



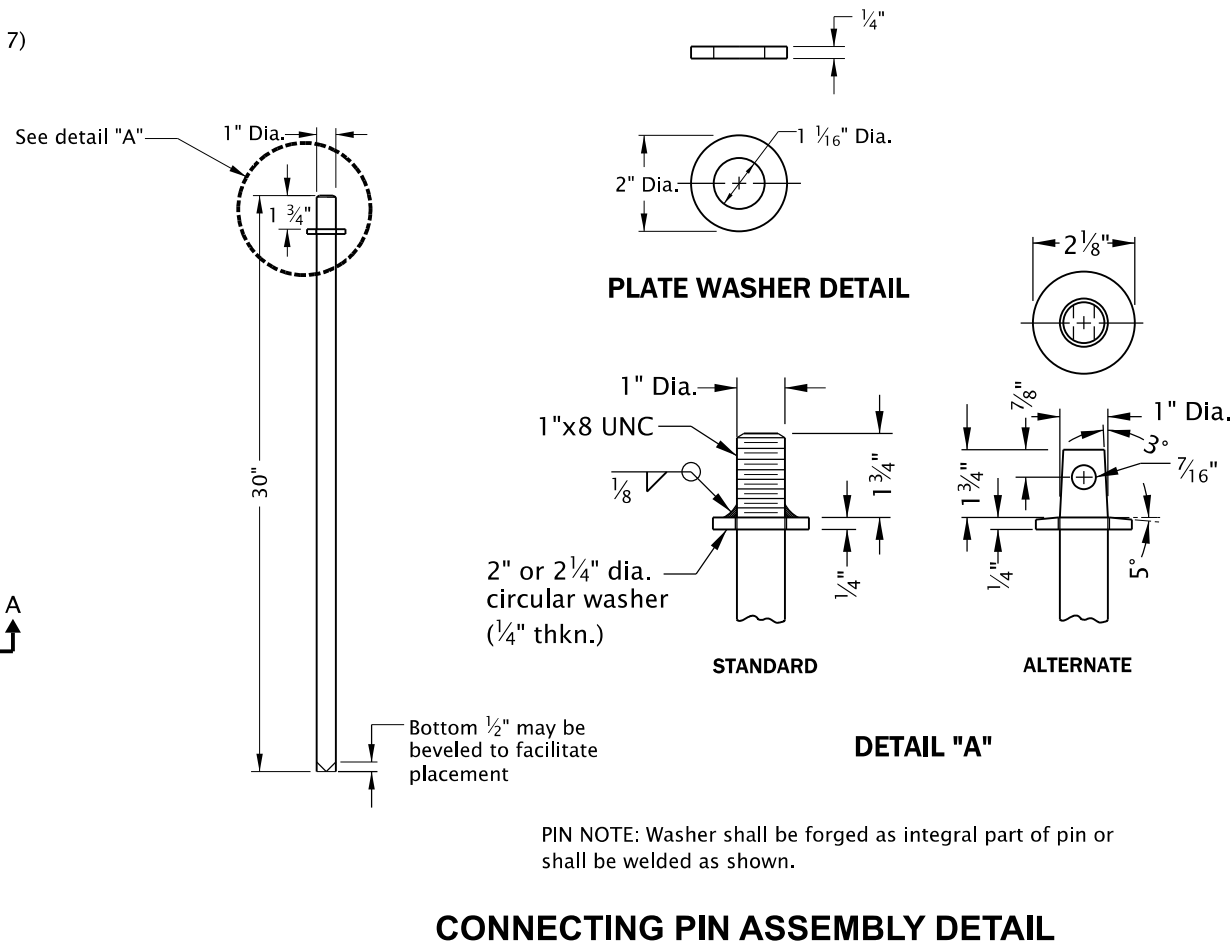
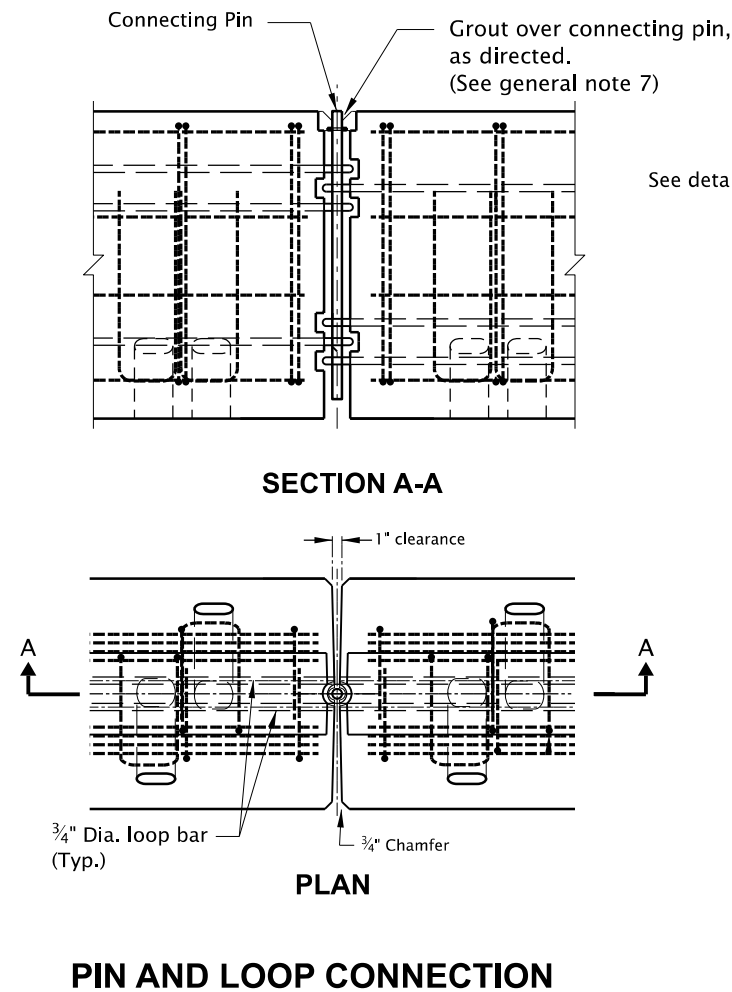
The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.			
OREGON STANDARD DRAWINGS			
32" CONCRETE BARRIER TYPE "F" PRECAST			
2021			
DATE	REVISION	DESCRIPTION	
01-2021	TITLE CHANGED	REVISED DETAILS AND NOTES	
04-2021	REVISED	DETAILS AND NOTES	
12-2021	REVISED	NOTES	
CALC. BOOK NO.	N/A	SDR DATE	14-JAN-2022
			RD500

Effective Date: June 1, 2023 – November 30, 2023



REINFORCING STEEL BENDING DIAGRAM



- GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:**
1. All reinforcement shall be full length as shown and shall be 2" clear of nearest face of concrete, unless otherwise shown.
 2. Narrow base shoulder barrier to be used only at locations with backfill behind barrier as shown on plans.
 3. Temporary concrete barrier to be precast concrete median barrier with pin and loop assembly (See Std. Dwg. RD502).
 4. Concrete grout for grouting over pins, pinning holes or grouting of scuppers shall be portland cement grout, weak in strength and of thick consistency, as directed.
 5. See Std. Dwg. RD516 for securing concrete barrier to roadway.
 6. All pins, bolts, dowels, loop bars, and connectors shall be hot-dip galvanized after fabrication.
 7. The reinforcing steel details for the "Narrow Base Shoulder Barrier" are the same as those shown for the 24 inch wide barrier except for the stirrup bars (see "Narrow Base Shoulder Barrier Stirrup" Detail).

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

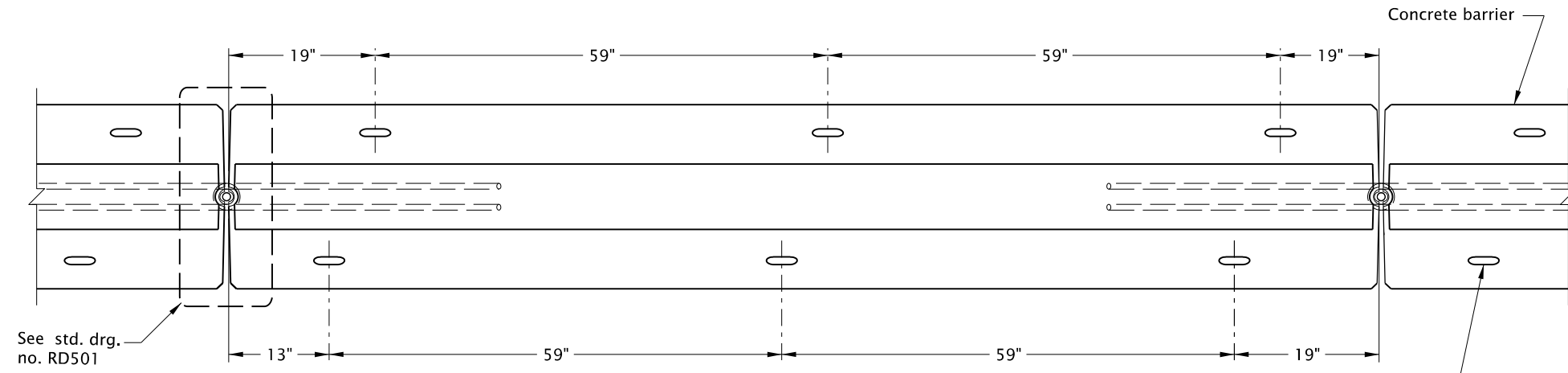
OREGON STANDARD DRAWINGS
32" CONCRETE BARRIER
TYPE "F" PRECAST REINFORCING
2021

DATE	REVISION	DESCRIPTION
01-2021	NEW DRAWING CREATED	
07-2021	GENERAL ANNOTATION CLEANUP	

CALC. BOOK NO. ---	N/A ---	SDR DATE- 19-JUL-2021	RD501
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20-JAN-2023

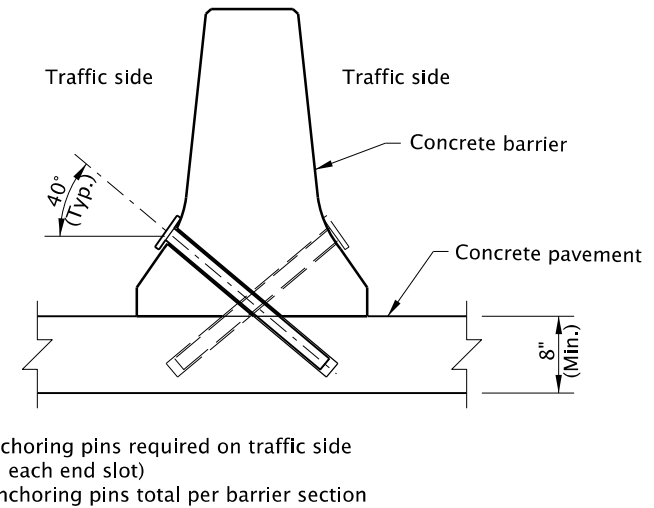
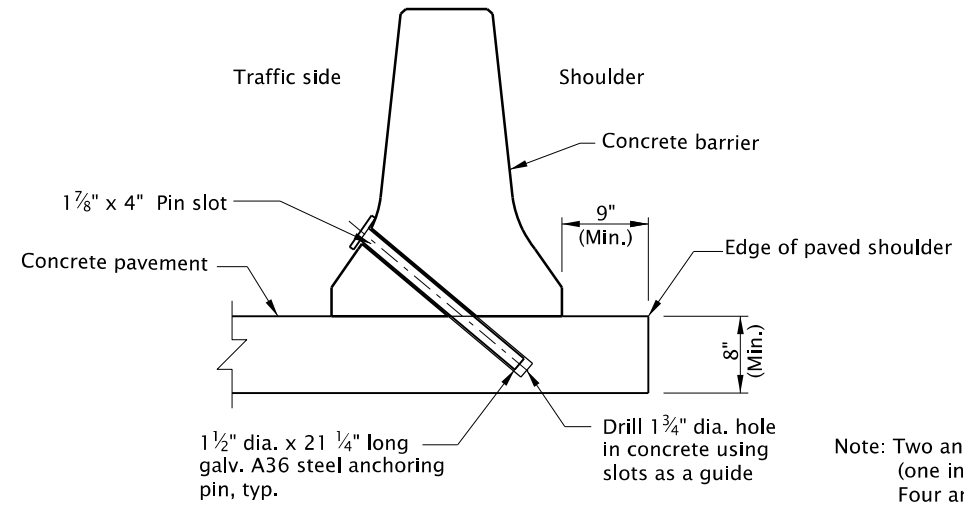
RD502.dgn



CONCRETE BARRIER ANCHORING PIN LOCATIONS

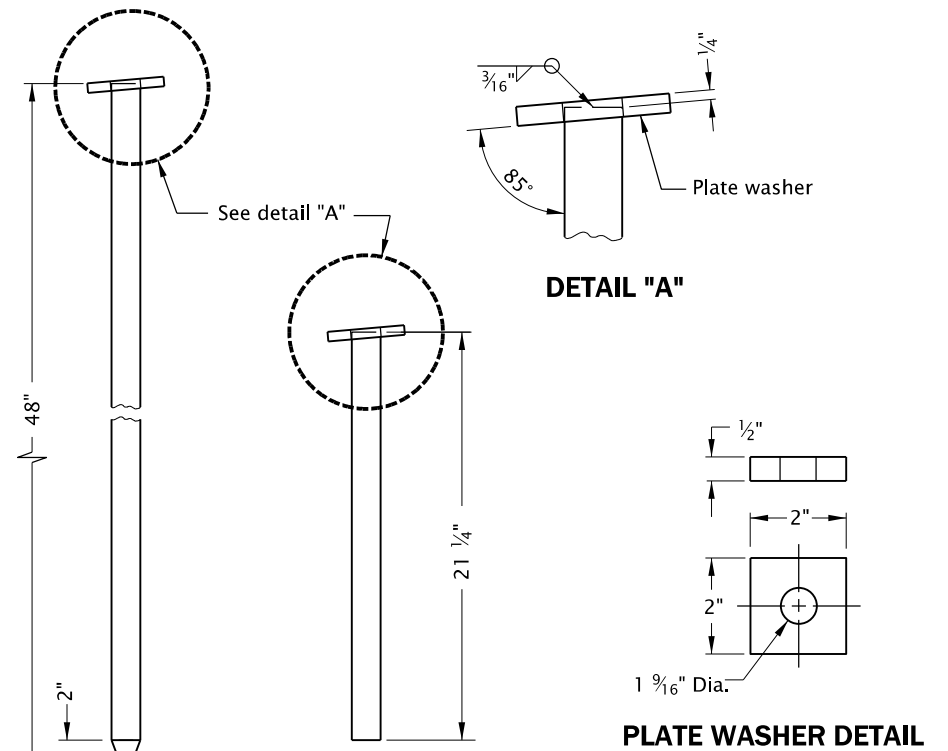
1 7#8" x 4" Slot (typ.) - only required on traffic side(s) of barrier

- GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:
1. See Std. Dwgs. RD500 and RD501 for details not shown.
 2. Conc. grout for grouting over pins, pinning holes or grouting of scuppers shall be portland cement grout, weak in strength and of thick consistency, as directed.
 3. All pins, bolts, dowels, loop bars, and connectors shall be hot-dip galvanized after fabrication.



Note: Two anchoring pins required on traffic side (one in each end slot)
Four anchoring pins total per barrier section

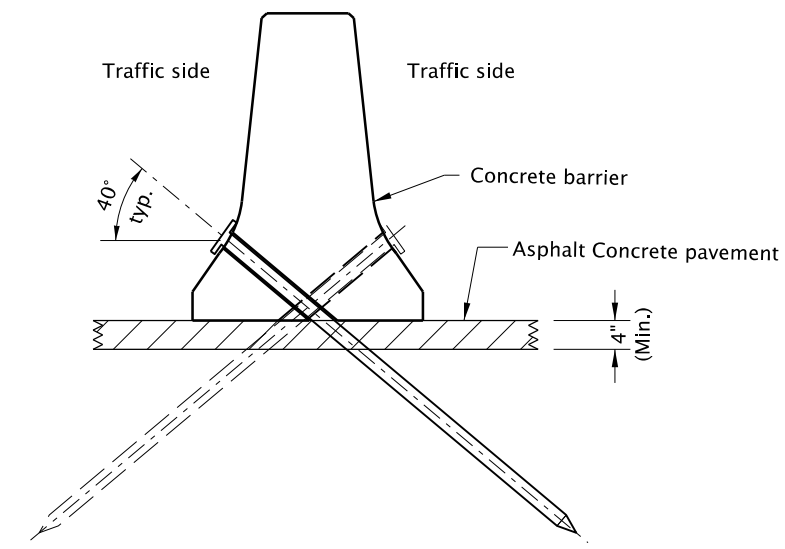
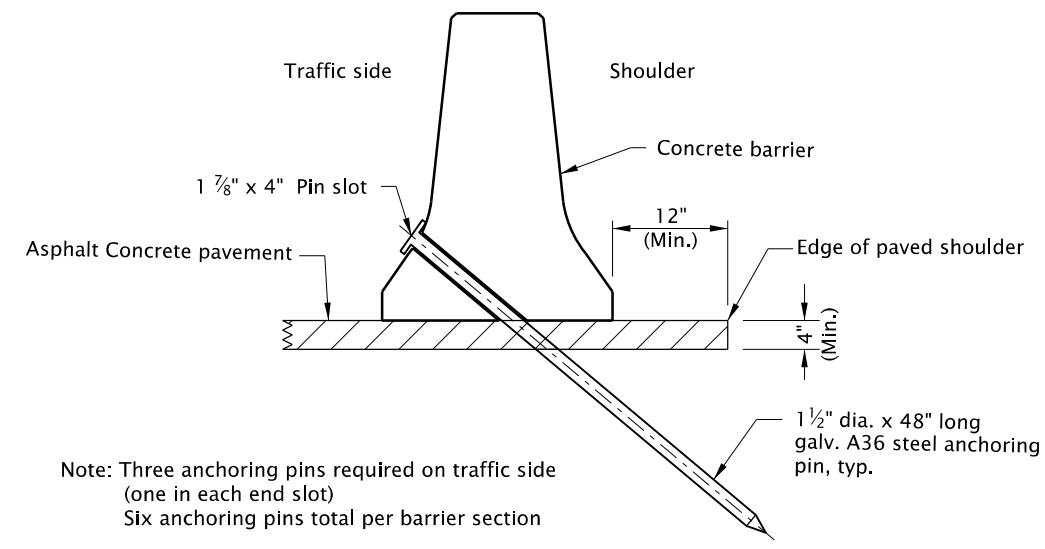
CONCRETE ANCHORING PIN DETAILS



FOR CONCRETE SURFACE

FOR ASPHALT SURFACE

ANCHORING PIN ASSEMBLY DETAIL



Note: Three anchoring pins required on traffic side (one in each end slot)
Six anchoring pins total per barrier section

ASPHALT ANCHORING PIN DETAILS

METHODS OF SECURING CONCRETE BARRIER TO ROADWAY

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

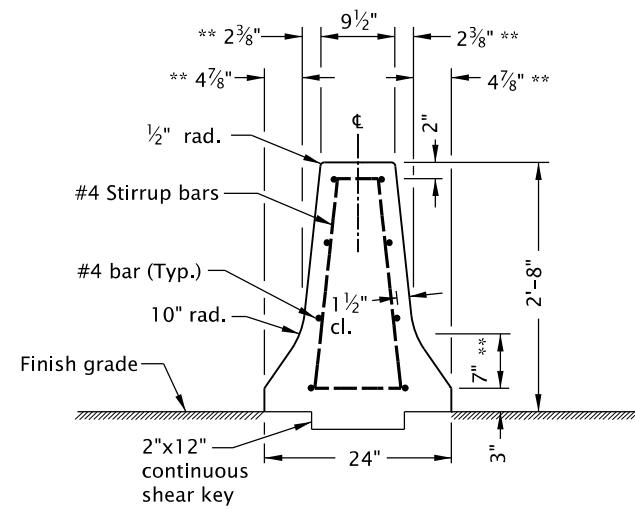
All materials shall be in accordance with the current Oregon Standard Specifications.		
OREGON STANDARD DRAWINGS		
SECURING 32" TYPE "F" AND TALL 42" PRECAST CONCRETE BARRIER TO THE ROADWAY		
2021		
DATE	REVISION	DESCRIPTION
10-2020	NEW DRAWING CREATED	
01-2022	REVISED NOTES	
01-2023	TITLE CHANGE	
CALC. BOOK NO.	N/A	SDR DATE
		20-JAN-2023
		RD502

Effective Date: June 1, 2023 – November 30, 2023

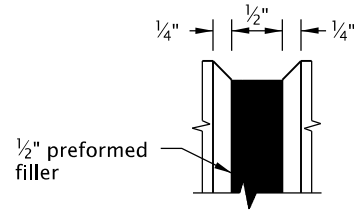
20-JUL-2020

RD505.dgn

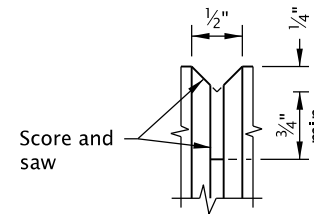
** Dimensions marked thus are to the intersection point of the barrier slopes. Const. the 10" radius to provide a smooth transition between the slopes.



SECTION G-G

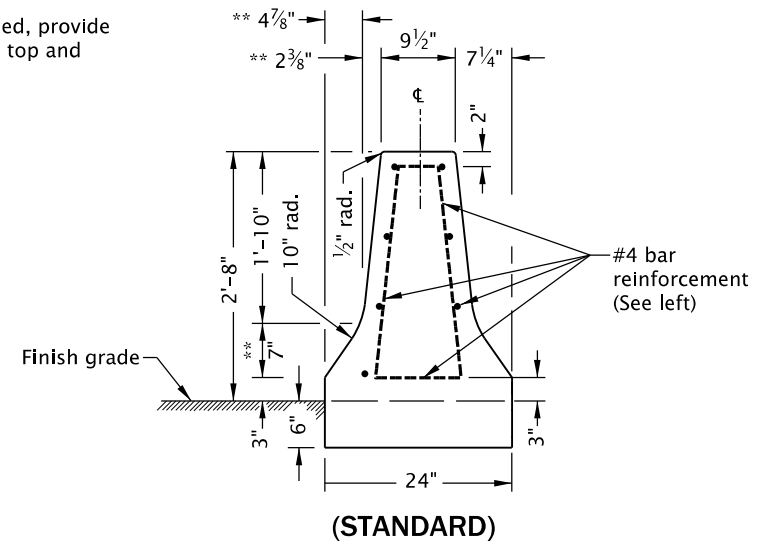


DETAIL "S"
(EXPANSION JOINT)

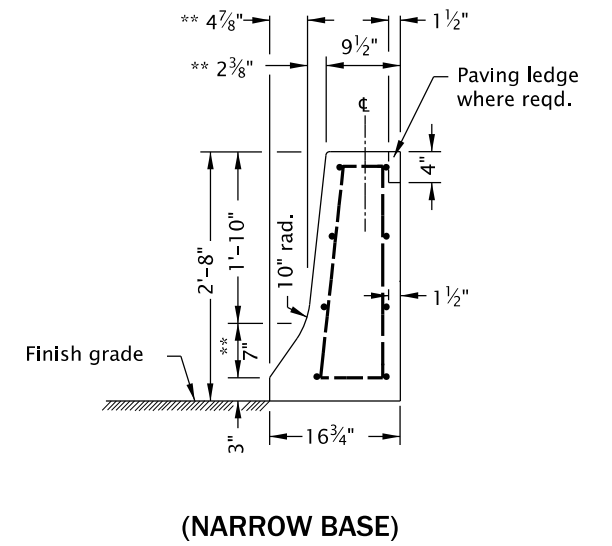


DETAIL "T"
(CONTRACTION JOINT)

NOTE:
Where shldr. barrier is backfilled, provide contraction joint on front face top and down 1' of back face.

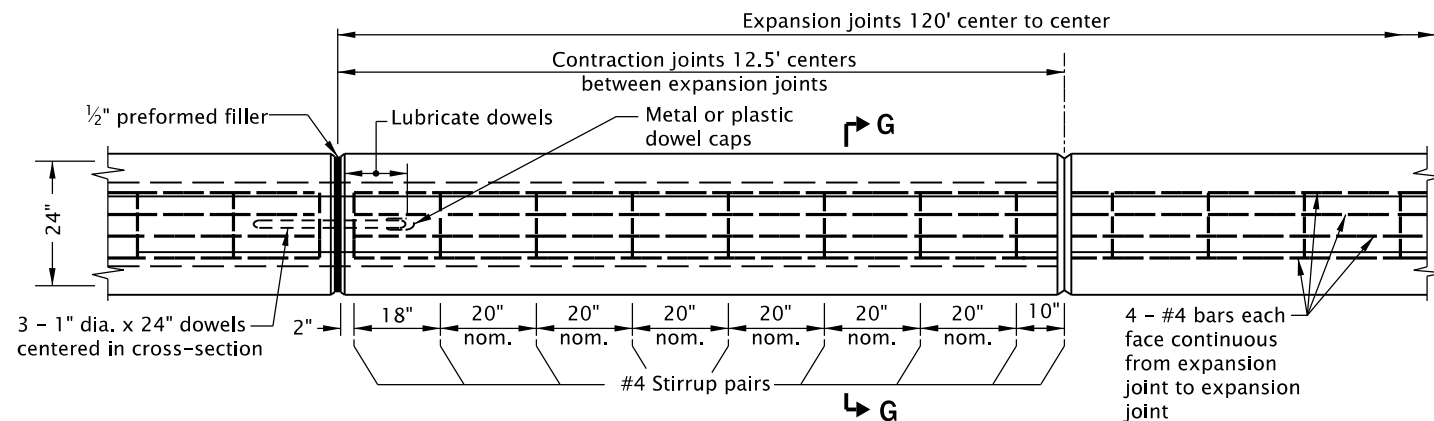


(STANDARD)

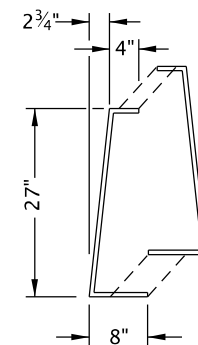


(NARROW BASE)

SHOULDER BARRIER

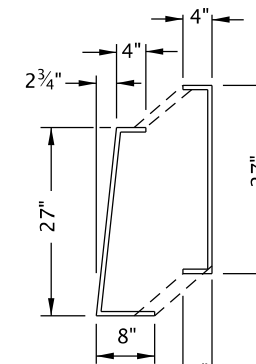


PLAN



STIRRUP "M"

MEDIAN BARRIER
#4 Rebar

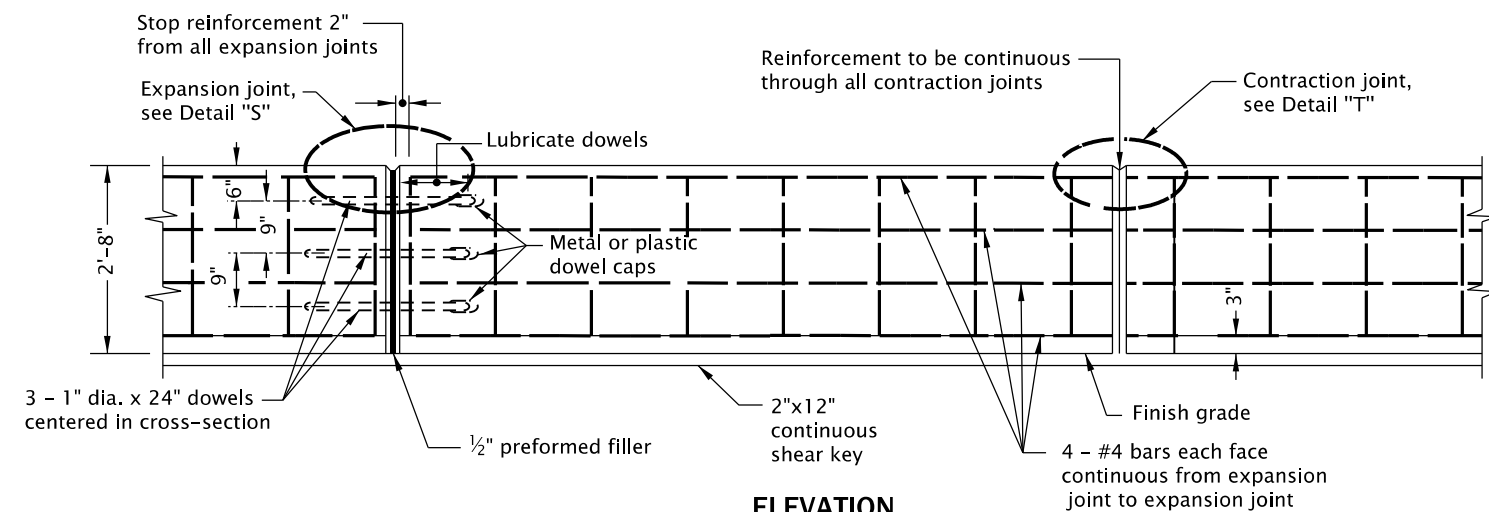


STIRRUP "S"

SHOULDER BARRIER
#4 Rebar

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. All reinforcement shall be 2" clear of nearest face of conc. unless otherwise shown.
2. Narrow base shldr. barrier to be used only at locations with backfill behind barrier as shown on plans.
3. Reinforcement shown is the min. reqd. for all barriers in final position.
4. See Std. Dwg. RD516 for securing concrete barrier to roadway.
5. All pins, bolts, dowels, loop bars, and connectors when present shall be hot-dip galvanized after fabrication.



ELEVATION
MEDIAN BARRIER

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.	
OREGON STANDARD DRAWINGS	
CONCRETE BARRIER CAST-IN-PLACE	
2021	
DATE	REVISION DESCRIPTION
CALC. BOOK NO. --- N/A ---	SDR DATE-- 16-JAN-2019 -- RD505

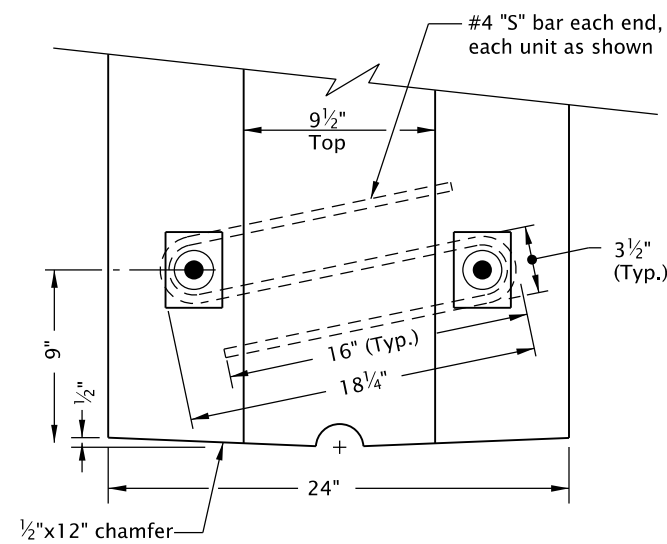
Effective Date: June 1, 2023 – November 30, 2023

20-JAN-2023

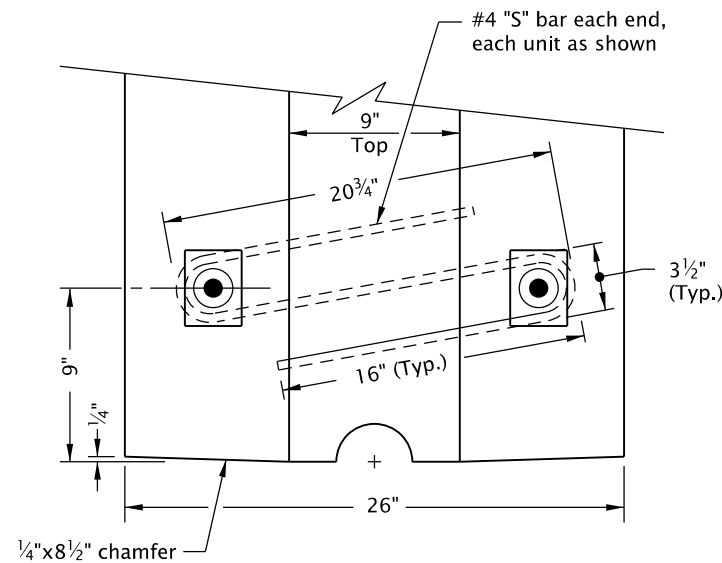
RD515.dgn

MEDIAN CONCRETE BARRIER ANCHORING DETAILS

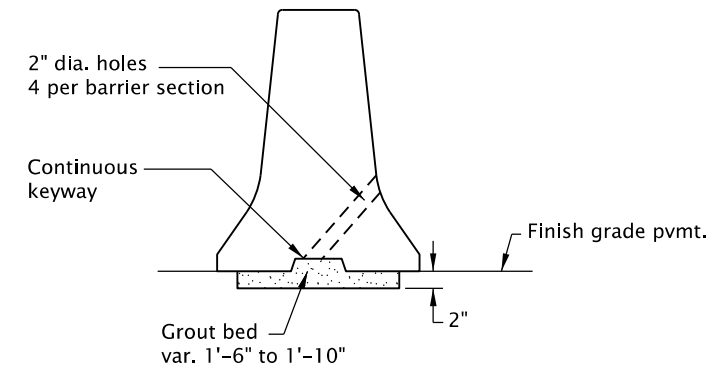
(See general note 1)



PLAN VIEW AT S BAR
STANDARD BARRIER



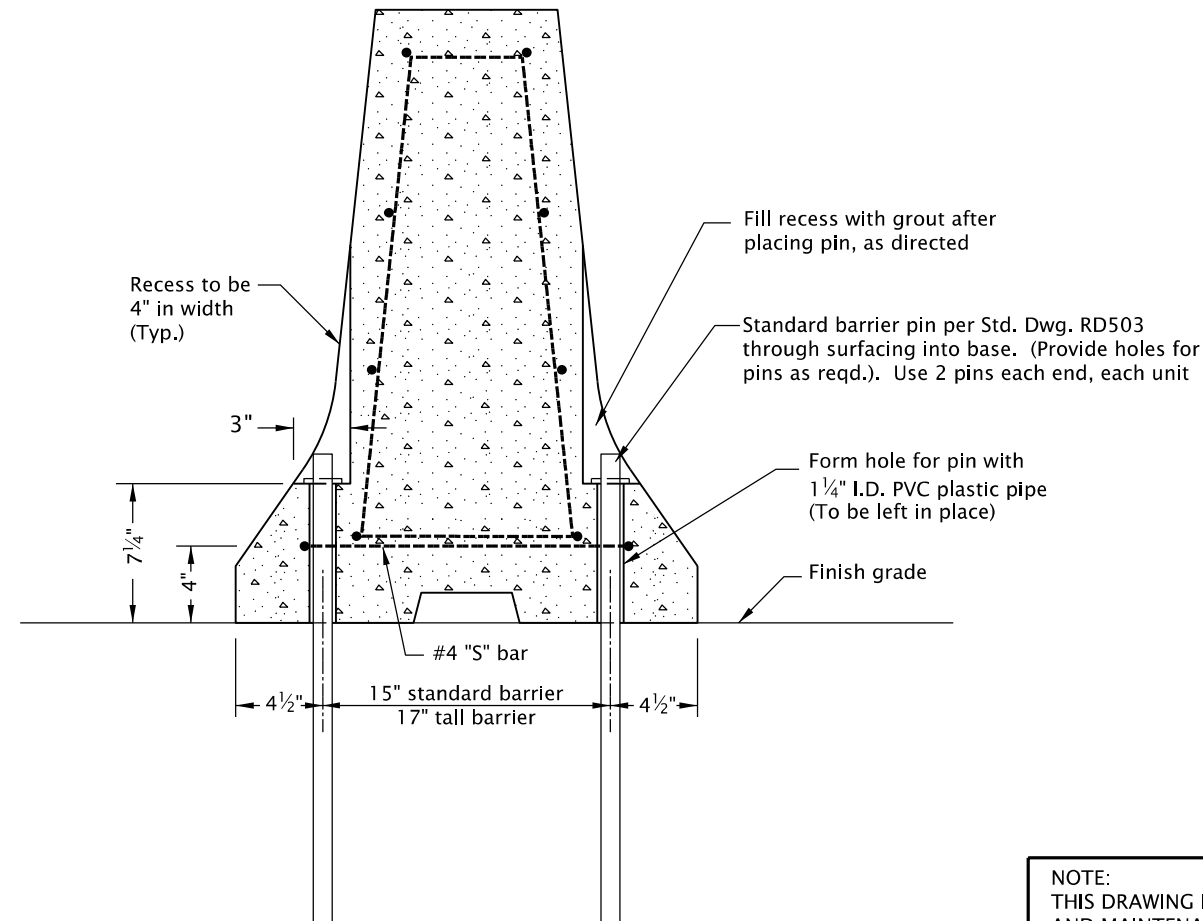
PLAN VIEW AT S BAR
TALL BARRIER



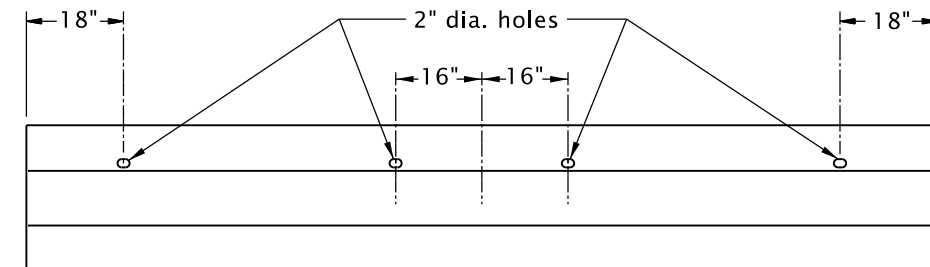
GROUT DETAIL
FOR PRECAST CONCRETE BARRIER

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. For use in medians with width less than 8' (as measured between nearest fog lines). THIS STANDARD DRAWING IS RETAINED FOR TEMPORARY INSTALLATION AND MAINTENANCE PURPOSES ONLY.
2. See Std. Dwgs. RD503 and RD546 for reinforcement and other details not shown.
3. See Std. Dwg. RD516 for securing concrete barrier to roadway.
4. All pins, bolts, dowels, loop bars, and connectors shall be hot-dip galvanized after fabrication.
5. S bars to be full length as shown.



ELEVATION VIEW AT ANCHOR RODS
SECURING TO PAVEMENT OPTION



GROUTING HOLES PLAN

GROUTING OPTION

(Dimensions between 2" dia. holes are nominal)

This detail is retained for maintenance purposes.
Do not use for new construction.

NOTE:
THIS DRAWING IS RETAINED FOR TEMPORARY INSTALLATION
AND MAINTENANCE PURPOSES ONLY.
DO NOT USE FOR NEW PERMANENT INSTALLATIONS.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

MEDIAN BARRIER ANCHORING DETAILS

2021

DATE	REVISION	DESCRIPTION
07-2022	REVISOR	REVISOR
01-2023	REVISOR	REVISOR

CALC. BOOK NO.	N/A	SDR DATE	20-JAN-2023	RD515
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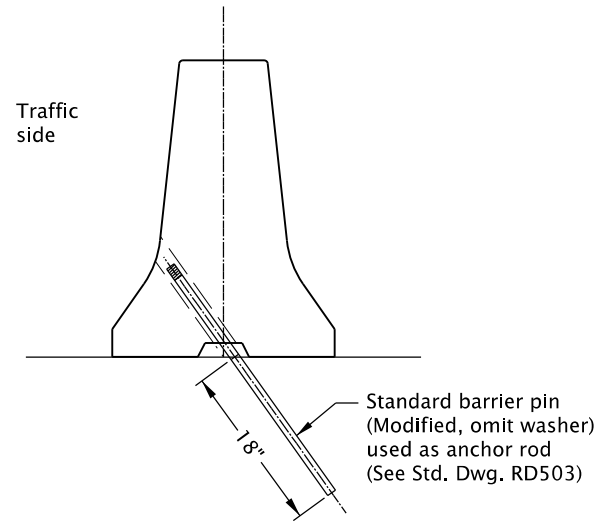
Effective Date: June 1, 2023 – November 30, 2023

20-JAN-2023

RD516.dgn

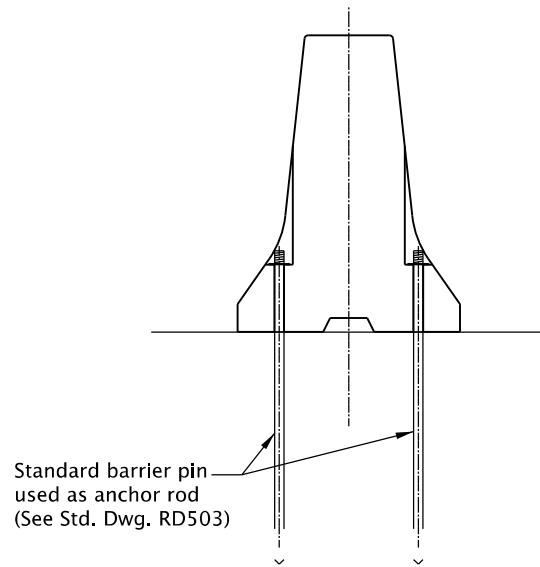
METHODS OF SECURING PRECAST CONCRETE BARRIER TO ROADWAY

(See general note 1)



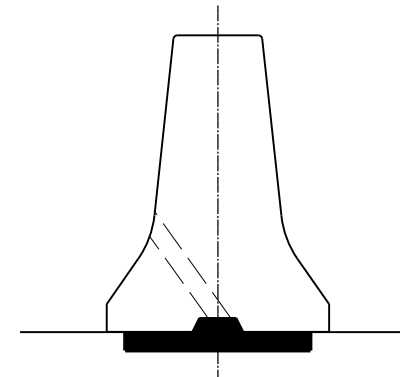
SHOULDER INSTALLATION
Secured using anchor rods (Angled)
Not allowed in narrow medians, see general notes 1 and 6

PRECAST CONCRETE BARRIER
(See Std. Dwg. RD503)



MEDIAN INSTALLATION
Secured using anchor rods (Vertical)
(See general note 1)

PRECAST CONCRETE BARRIER
(See Std. Dwg. RD503 & RD515)



THIS DETAIL IS RETAINED FOR MAINTENANCE PURPOSES.

SHOULDER OR MEDIAN INSTALLATION
Secured using grout
(See general note 1)

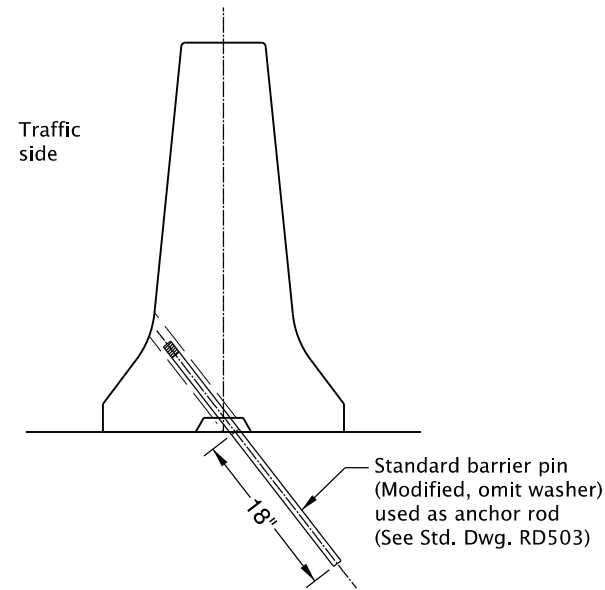
PRECAST CONCRETE BARRIER
(See Std. Dwg. RD503)

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. This standard drawing is intended to show acceptable methods of securing concrete barrier to roadway and is **RETAINED FOR TEMPORARY INSTALLATION AND MAINTENANCE PURPOSES**.
2. Secure concrete barrier to roadway when any of the following conditions exist:
 - a) Barrier deflection requirements per Std. Dwg. RD503 cannot be obtained, or
 - b) When required by plans, or
 - c) As directed by the Engineer.
3. Select one of the securing methods shown.
For details not shown, see the standard drawing(s) referenced for the selected method.
4. Securing concrete barrier to roadway is in addition to connections between adjacent concrete barrier sections, bridge rails, retaining walls, and similar existing or constructed objects.
5. Temporary concrete barrier to be precast concrete median barrier with pin and loop assembly.
6. Precast concrete barrier used in medians less than 8 feet in width (as measured between nearest fog lines) shall be secured to roadway to resist impacts from both sides.
7. Anchor rods are standard barrier pins, modified for shoulder installation, as shown.
8. Normal permanent installation of concrete barrier is on top of finish grade, to provide 3 inch vertical reveal. Modify placement when required by plans, or as directed.
9. All pins, bolts, dowels, loop bars, and connectors shall be hot-dip galvanized after fabrication.

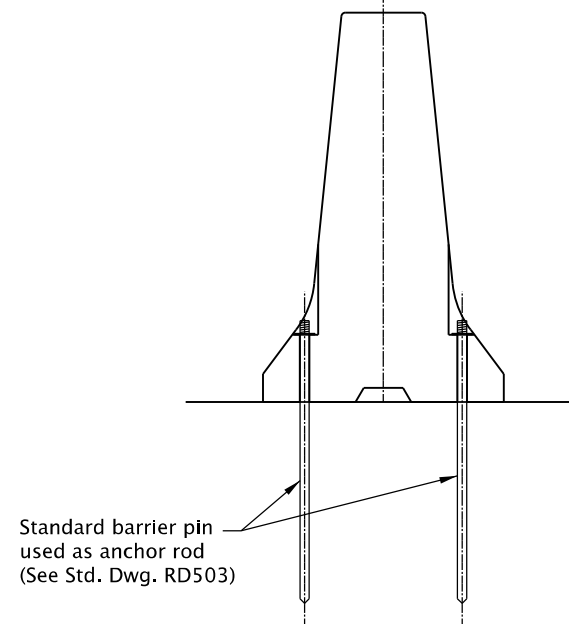
METHODS OF SECURING PRECAST TALL (42") CONCRETE BARRIER TO ROADWAY

(See general note 1)



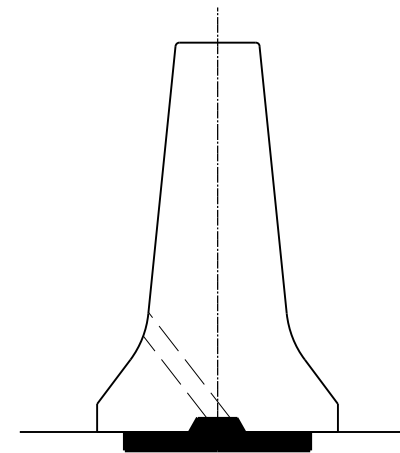
SHOULDER INSTALLATION
Secured using anchor rods (Angled) not allowed in narrow medians, see general notes 1 and 6

PRECAST TALL (42") CONCRETE BARRIER
(See Std. Dwg. RD545 and RD546)



MEDIAN INSTALLATION
Secured using anchor rods (Vertical)
(See general note 1)

PRECAST TALL (42") CONCRETE BARRIER
(See Std. Dwg. RD545 and RD515)

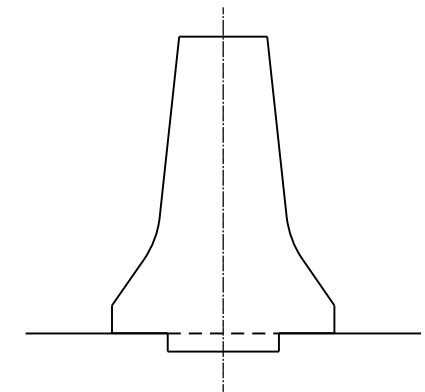


THIS DETAIL IS RETAINED FOR MAINTENANCE PURPOSES.

SHOULDER OR MEDIAN INSTALLATION
Secured using grout
(See general note 1)

PRECAST TALL (42") CONCRETE BARRIER
(See Std. Dwg. RD545 and RD546)

NOTE:
THIS DRAWING IS RETAINED FOR TEMPORARY INSTALLATION AND MAINTENANCE PURPOSES ONLY.
DO NOT USE FOR NEW PERMANENT INSTALLATIONS.



SHOULDER OR MEDIAN INSTALLATION
Secured by continuous shear key
(See general note 1)

METHODS OF SECURING CAST-IN-PLACE CONCRETE BARRIER TO ROADWAY

(See Std. Dwg. RD505)

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

SECURING CONCRETE BARRIER TO ROADWAY

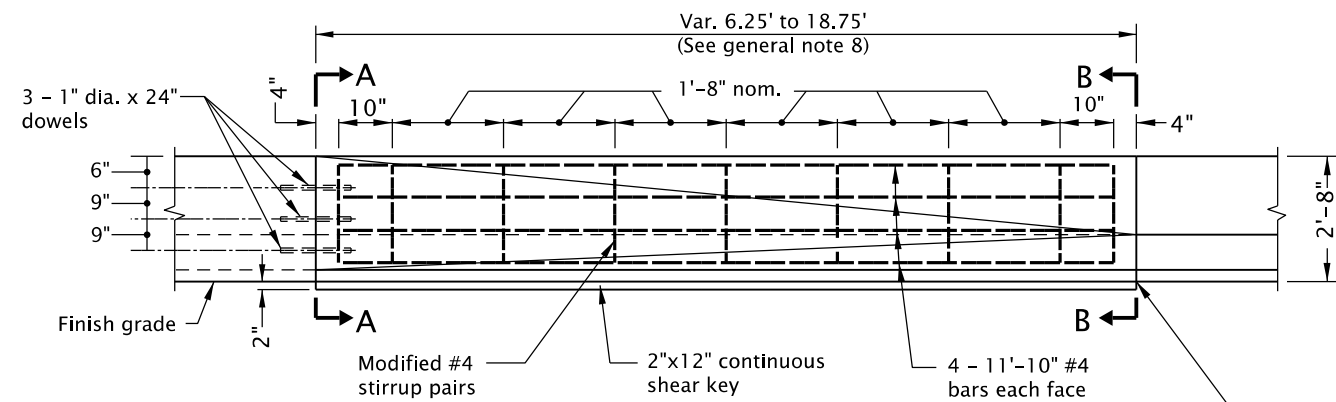
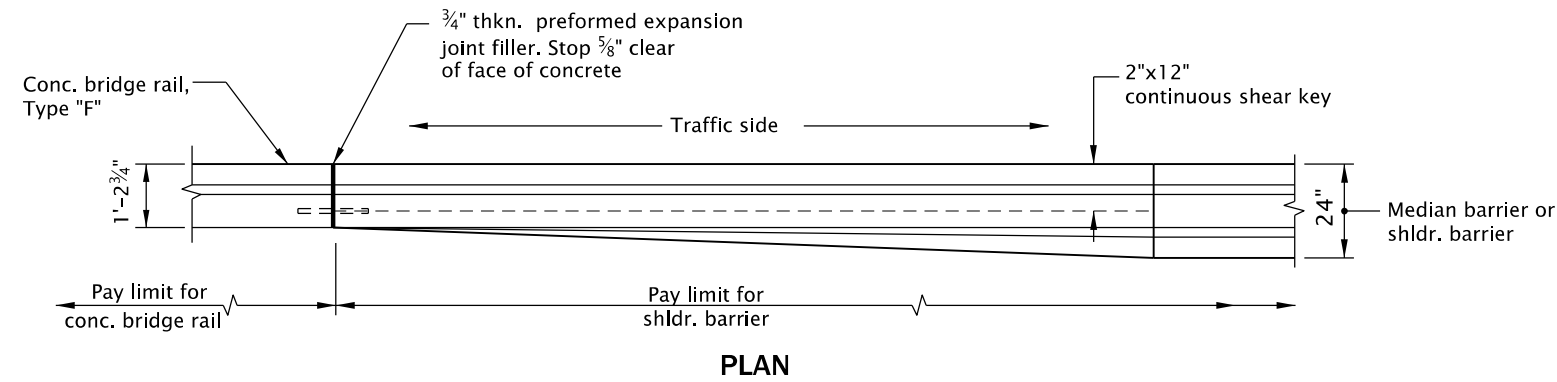
2021

DATE	REVISION	DESCRIPTION
01-2023	REVISED NOTES	

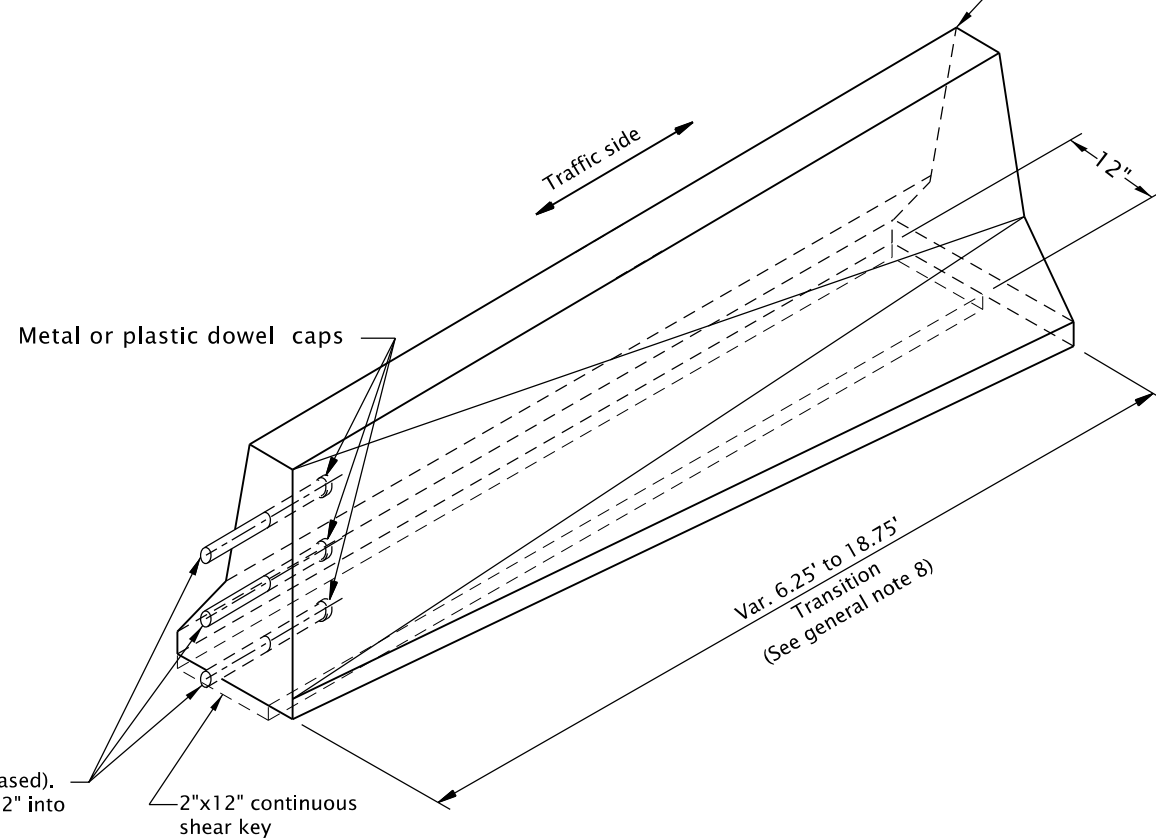
CALC. BOOK NO. ---	N/A ---	SDR DATE: 20-JAN-2023	RD516
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20-JUL-2020

RD520.dgn



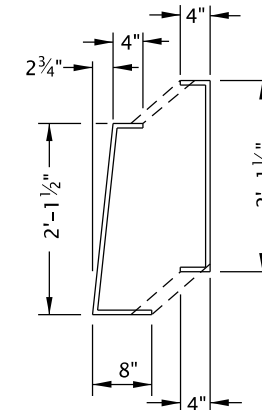
NOTE:
End configuration and connection details shall be as detailed for the barrier specified. (See general note 7)



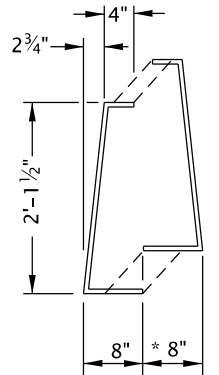
3 - 1" dia. x 24" dowels (greased).
Dowels shall be embedded 12" into conc. bridge rail

CAST IN PLACE TRANSITION
(Looking at side away from traffic)

* Dimension variable through transition section.



SECTION A-A
#4 Rebar
MODIFIED
STIRRUP PAIR



SECTION B-B
#4 Rebar
MODIFIED
STIRRUP PAIR

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. All reinf. shall be full length as shown and shall be 2" clear of nearest face of conc., unless otherwise shown.
2. See Std. Dwgs. RD500 & RD505 for additional details.
3. See Std. Dwgs. RD505 & RD516 for securing concrete barrier to roadway.
4. See Std. Dwg. BR200 for Concrete Bridge Rail, Type "F".
5. All pins, bolts, dowels, loop bars, and connectors shall be hot-dip galvanized after fabrication.
6. Not for use on bridge end panel.
7. Field verify end configurations of connecting barriers prior to forming connections at transitions. Dowelled connection is an acceptable alternative. See Std. Dwg. RD505 for details not shown.
8. Normal length for cast-in-place transition is 12'-6". Site conditions may require varying lengths between 6'-3" and 18"-9". Field verify transition length and end configurations of connecting barriers.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS
CAST-IN-PLACE
CONCRETE BARRIER TRANSITION
TO CONCRETE BRIDGE RAIL TYPE "F"

2021

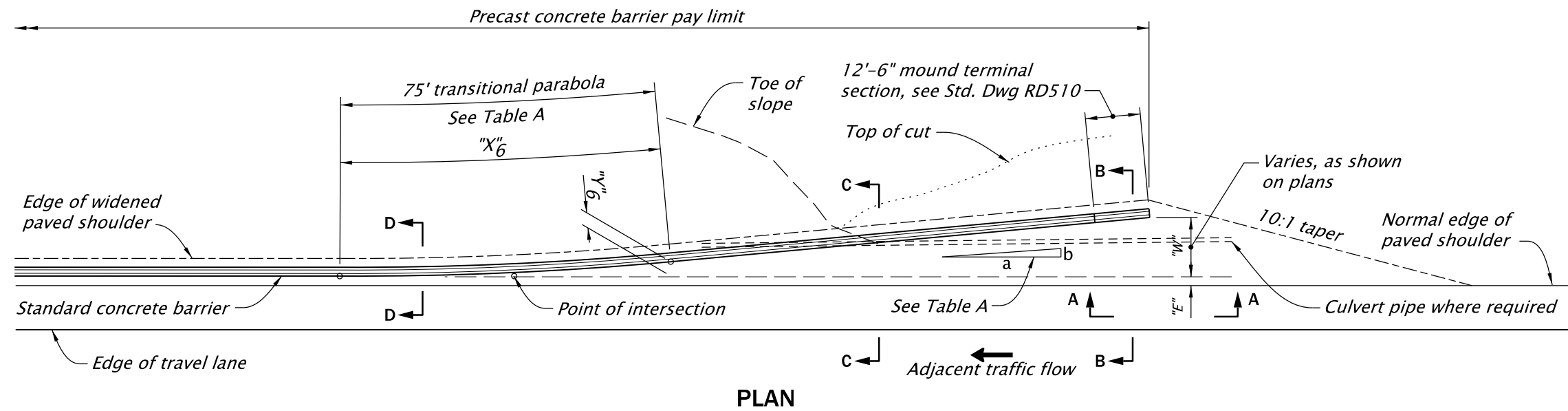
DATE	REVISION	DESCRIPTION

CALC. BOOK NO. - - - N/A - - - SDR DATE - 12-JAN-2010 - **RD520**

Effective Date: June 1, 2023 - November 30, 2023

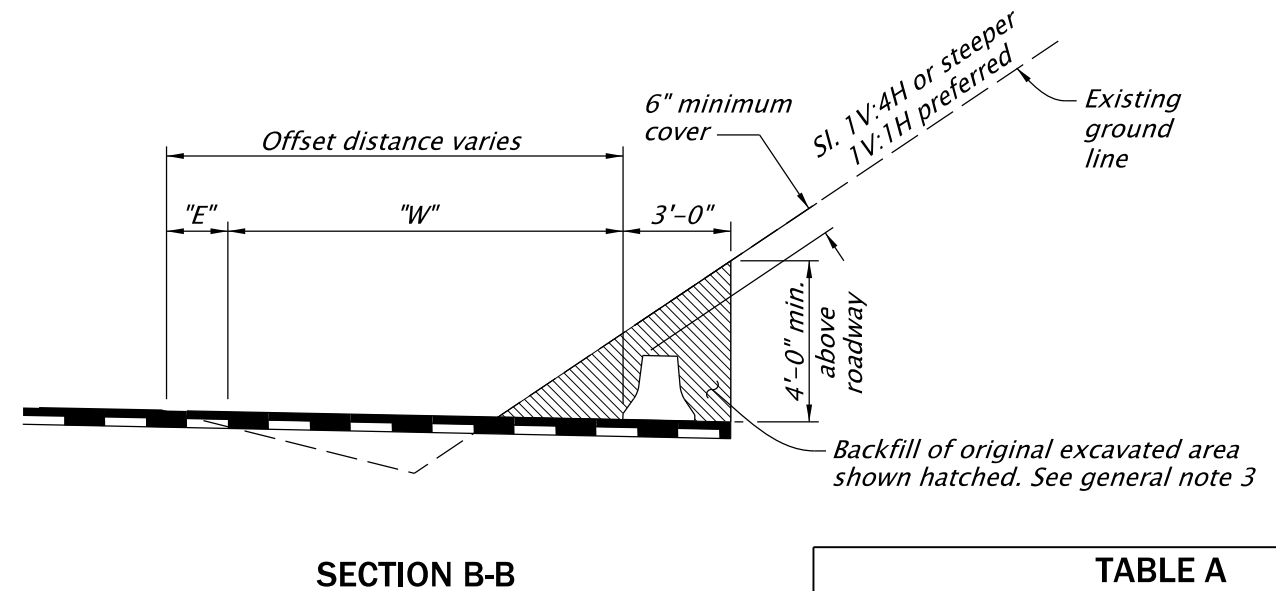
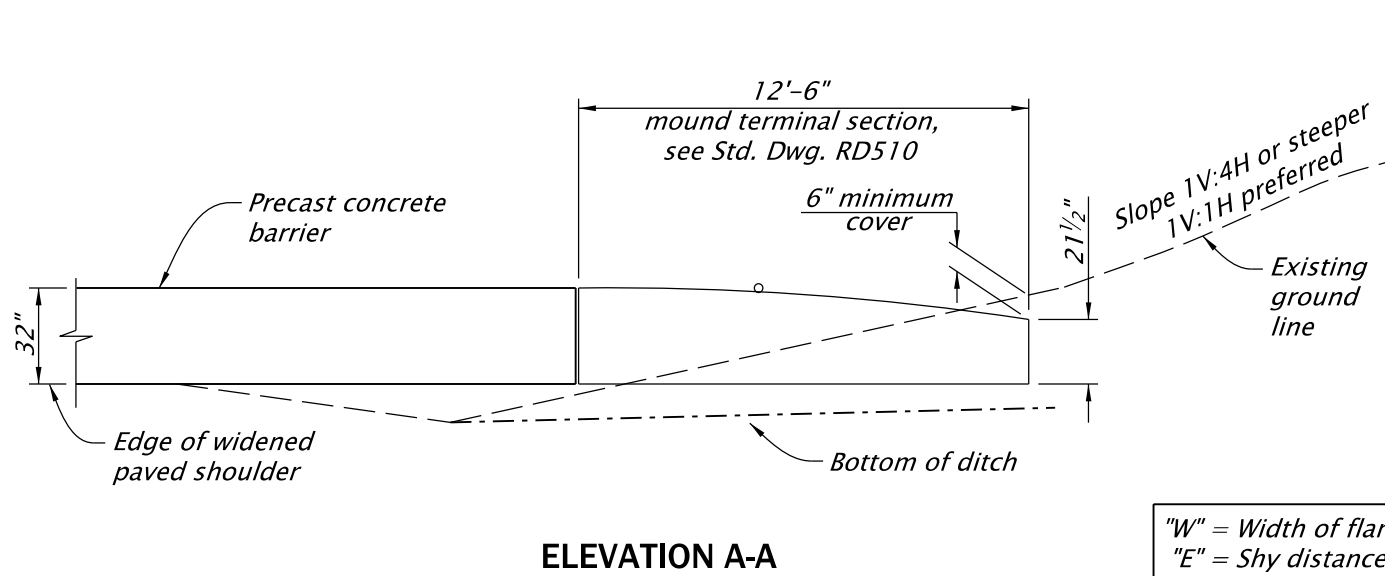
15-JUL-2022

RD526.dgn



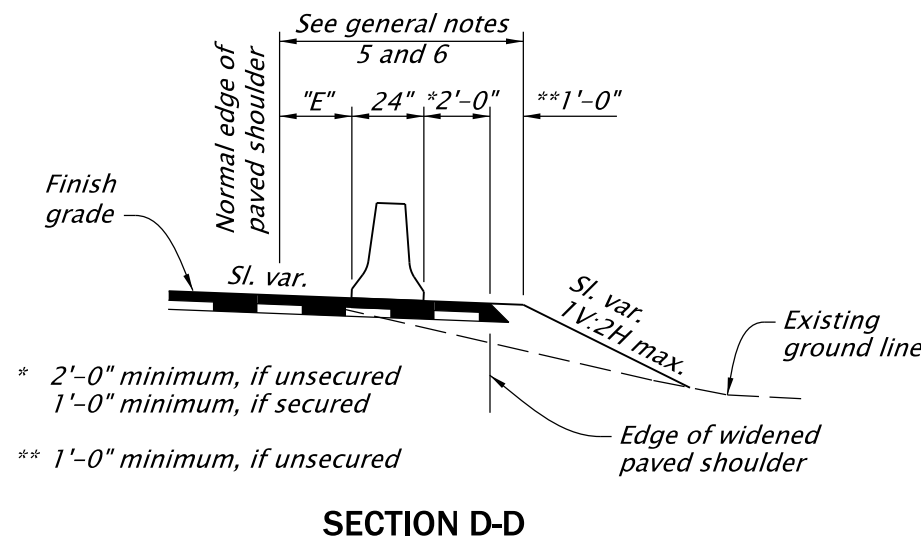
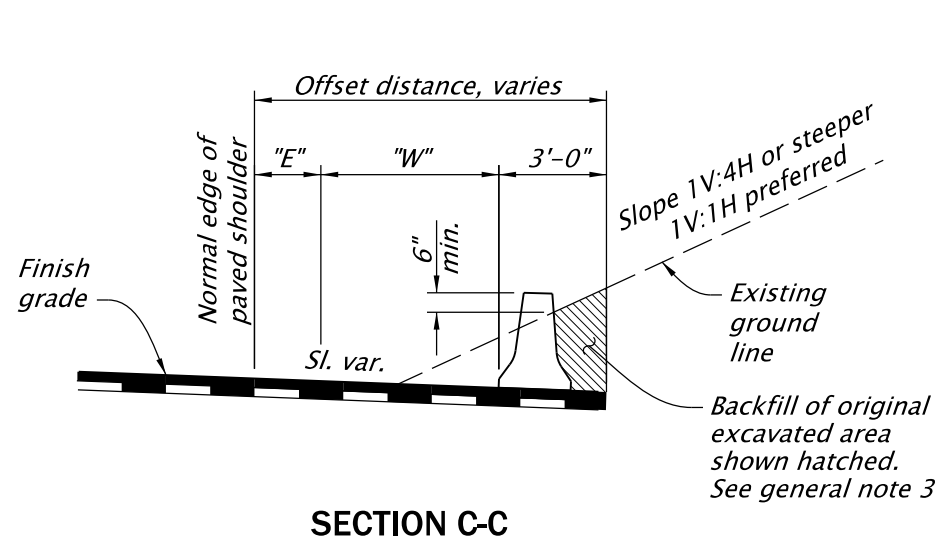
GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Normal use assumes an existing established slope. This detail is not intended for construction of new slope steeper than a slope of 1V:2H.
2. If the slope is flatter than 1V:1H ensure that there is a clear recovery area behind the barrier, with no funneling effect to the back of the obstruction.
3. Provide drainage as required.
4. See Std. Dwgs. RD500, RD510 and RD516 for details not shown.
5. Surfacing details same as adjacent shoulder.
6. Barrier sections, connections and appurtenances that retain backslope require stability design calculations stamped by an engineer.



"W" = Width of flare
"E" = Shy distance

		TABLE A FLARE RATES AND TRANSITION PARABOLA					
FLARE RATE a:b		CONCRETE BARRIER SEGMENT					
		1	2	3	4	5	6
20:1	X (ft)	12.5	25	37.5	50	62.5	75
	Y (ft)	0.10	0.20	0.50	0.80	1.30	1.90

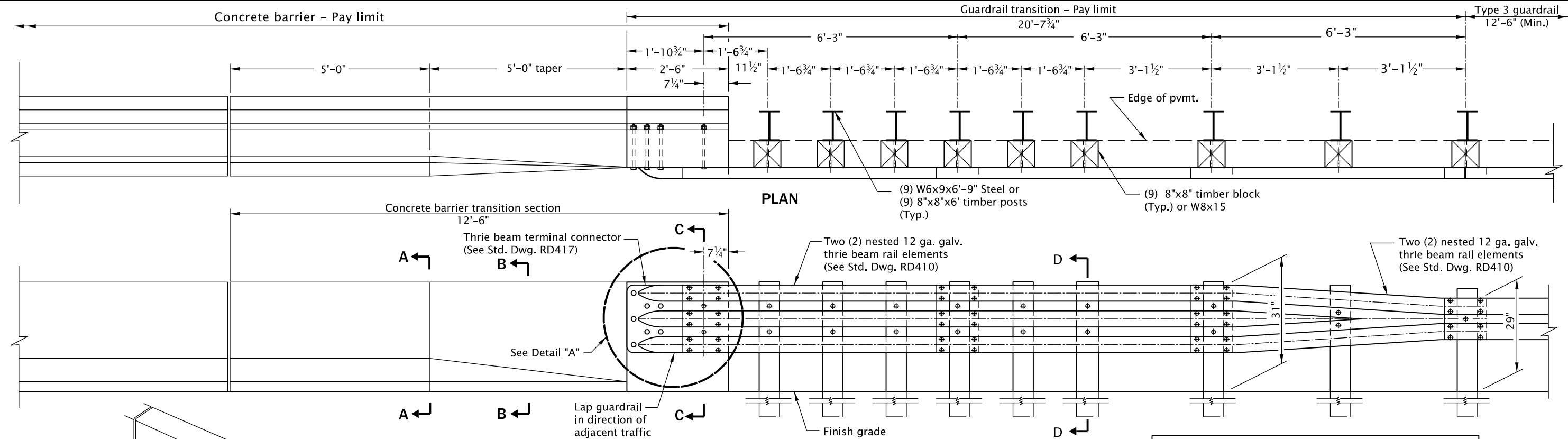


The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.			
OREGON STANDARD DRAWINGS			
STANDARD CONCRETE BARRIER BURIED IN SLOPE			
2021			
DATE	REVISION	DESCRIPTION	
07-2022	REVISED DETAILS AND NOTES		
CALC. BOOK NO.	N/A	SDR DATE	15-JUL-2022
			RD526

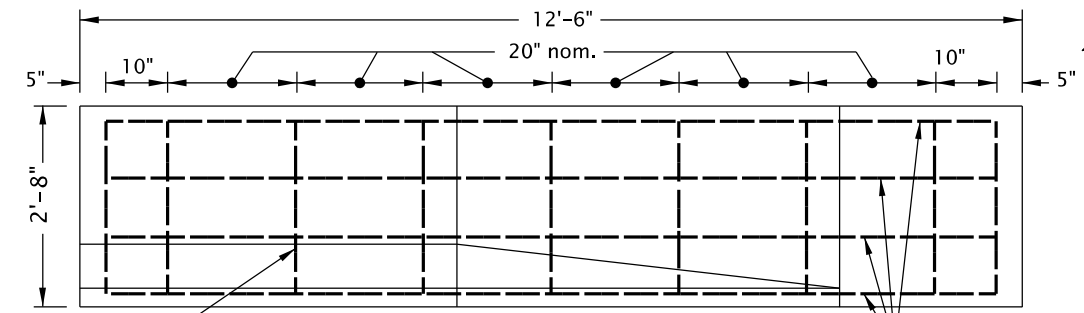
Effective Date: June 1, 2023 – November 30, 2023

14-JAN-2022
RD530.dgn

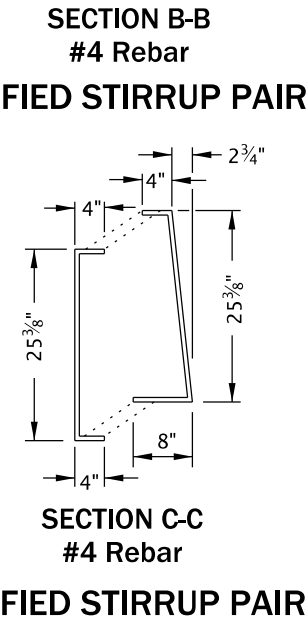
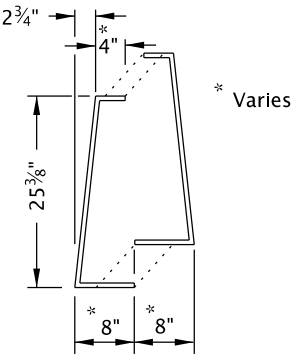
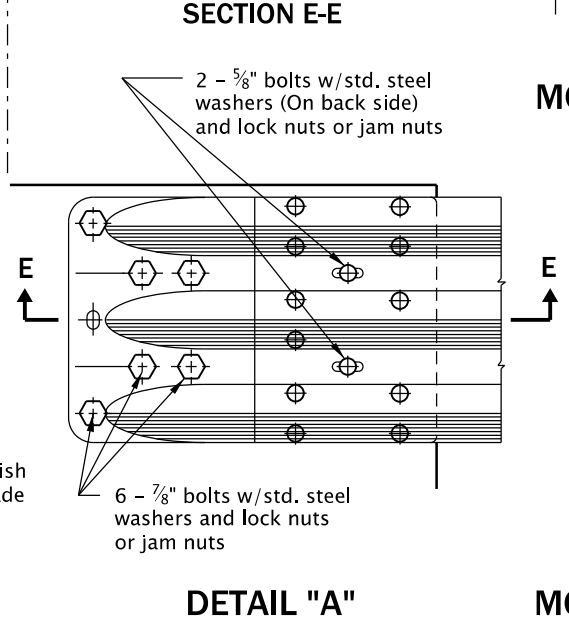
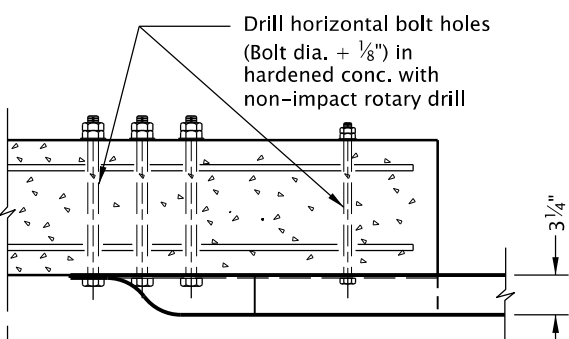
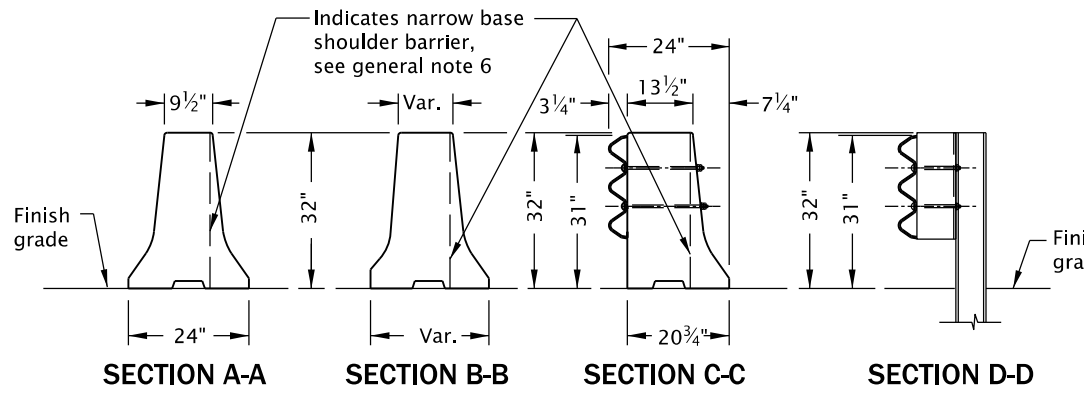


NOTE:
THIS DRAWING IS RETAINED FOR TEMPORARY INSTALLATION
AND MAINTENANCE PURPOSES ONLY.
DO NOT USE FOR NEW PERMANENT INSTALLATIONS.

CONCRETE BARRIER TRANSITION SECTION



CONCRETE BARRIER TRANSITION SECTION REBAR PLACEMENT

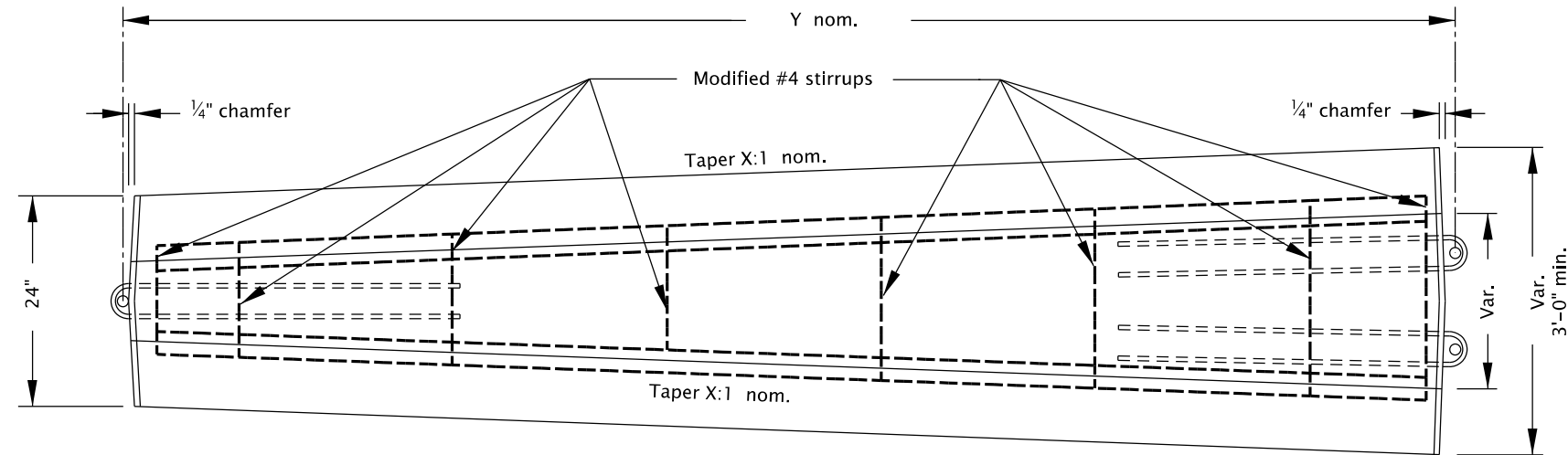


GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. All reinforcing bars shall be full length as shown and shall be 2" clear of the nearest face of concrete unless shown otherwise.
2. See Std. Dwgs. RD400, RD405, RD410, RD415, RD417, RD500, RD505 & BR203, for details not shown.
3. For trailing end guardrail connection see Std. Dwg. BR236, Detail A.
4. If trench method is used to install posts, ensure compaction according to 00810.41, 2nd paragraph.
5. See Std. Dwg. RD516 for securing concrete barrier to roadway.
6. Narrow base shoulder barrier to be used only at locations with backfill behind barrier as shown on plans.
7. All pins, bolts, dowels, loop bars, and connectors shall be hot-dip galvanized after fabrication.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

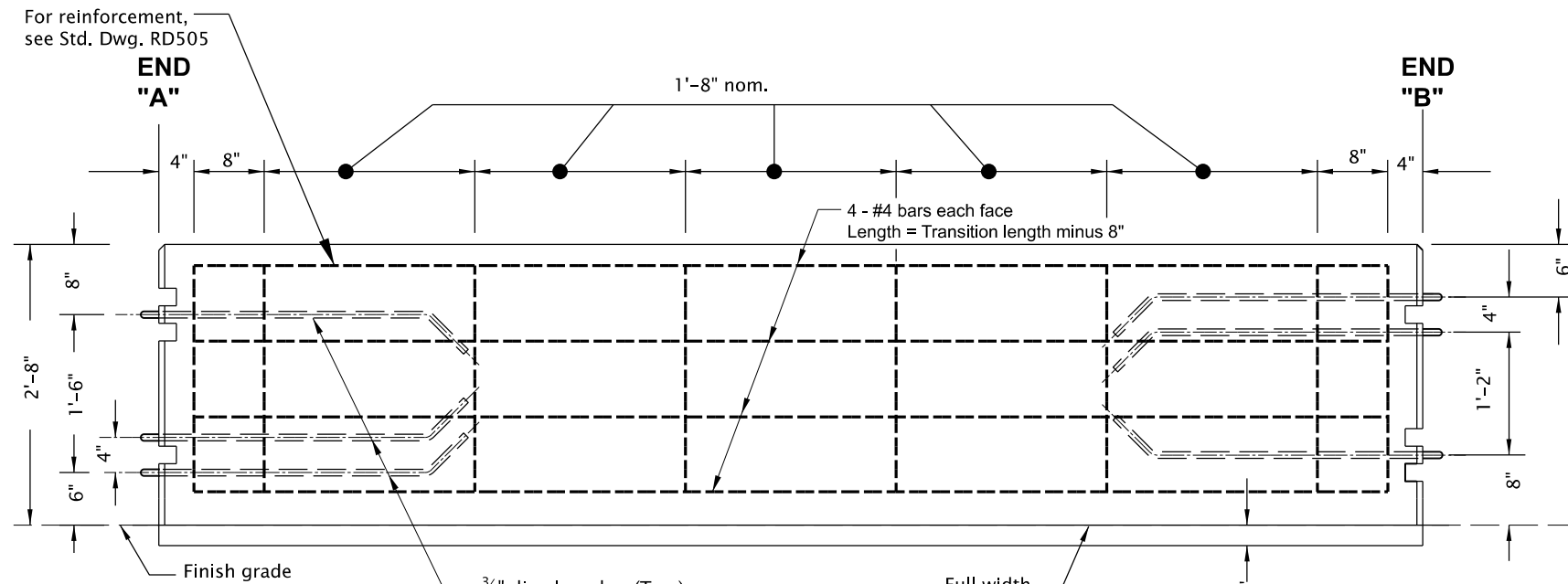
All materials shall be in accordance with the current Oregon Standard Specifications.	
OREGON STANDARD DRAWINGS	
GUARDRAIL TRANSITION TO CONCRETE BARRIER	
2021	
DATE	REVISION DESCRIPTION
12-2021	REVISED NOTES
CALC. BOOK NO.	SDR DATE
N/A	14-JAN-2022
	RD530



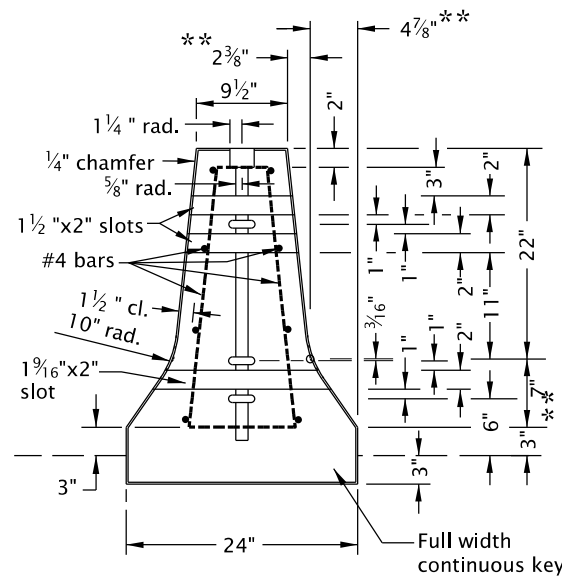
PLAN

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Field verify end configurations of connecting barriers prior to forming connections at transitions.
2. All reinforcing bars shall be full length as shown and shall be placed 1 1/2" clear of the nearest face of concrete unless shown otherwise.
3. See Std. Dwgs. RD500, RD501 & RD502 for details not shown.
4. Secure precast concrete barrier to roadway, see Std. Dwg. RD516.
5. All pins, bolts, dowels, loop bars, and connectors shall be hot-dip galvanized after fabrication.
6. This barrier is not for use with bridge railing.

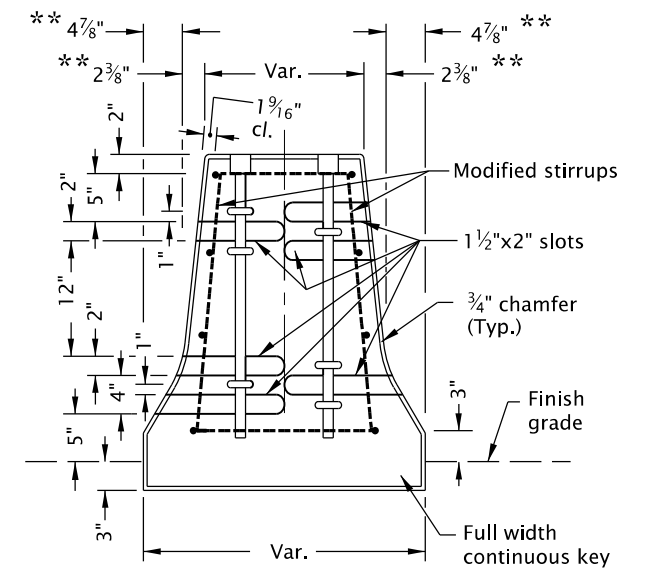


ELEVATION



END VIEW A

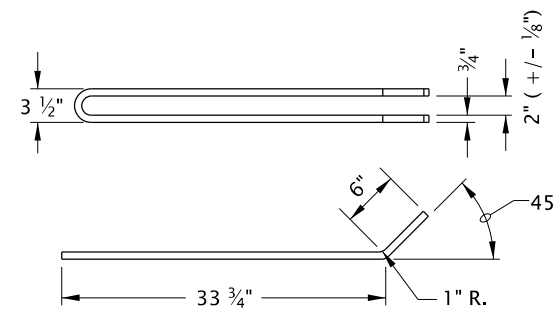
(See general note 2)



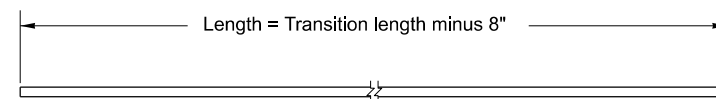
END VIEW B

(See general note 2)

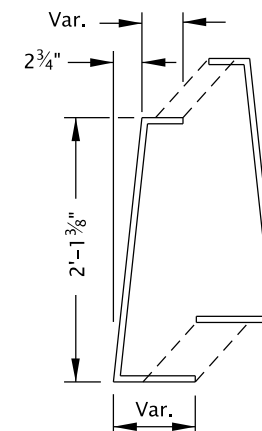
CAST-IN-PLACE TRANSITION



#4 LOOP BAR DETAIL



#4 LONGITUDINAL BAR



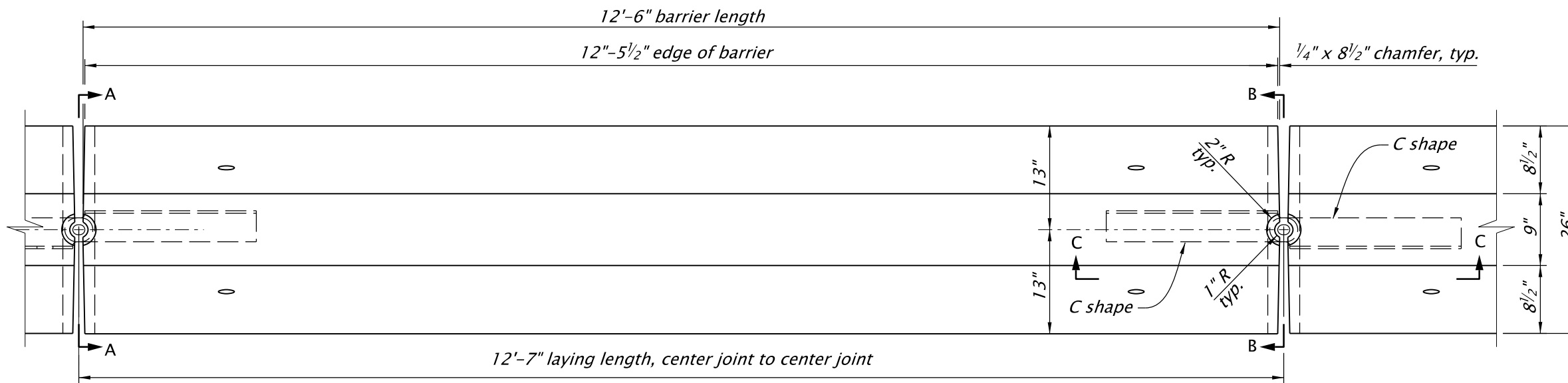
MODIFIED STIRRUP PAIRS
#4 Rebar

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

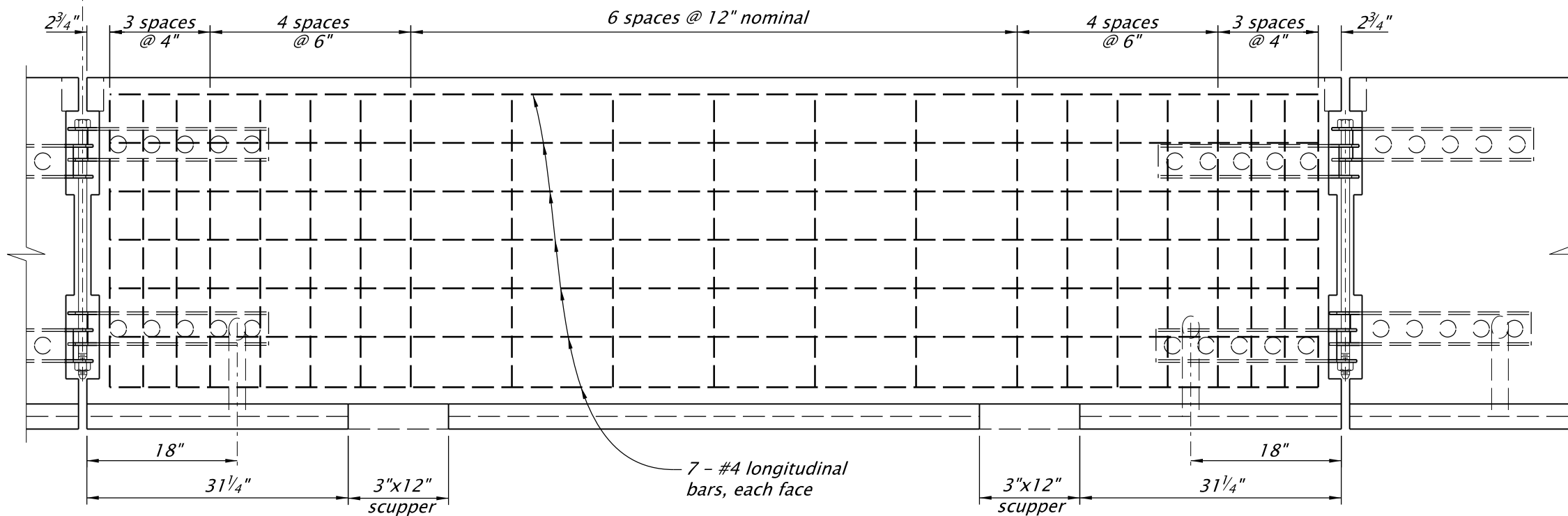
All materials shall be in accordance with the current Oregon Standard Specifications.			
OREGON STANDARD DRAWINGS			
CONCRETE BARRIER (MODIFIED) AROUND MEDIAN OBSTACLE			
2021			
DATE	REVISION	DESCRIPTION	
07-2022	NEW DRAWING CREATED		
CALC. BOOK NO.	N/A	SDR DATE	15-JUL-2022
			RD536

20-JAN-2023

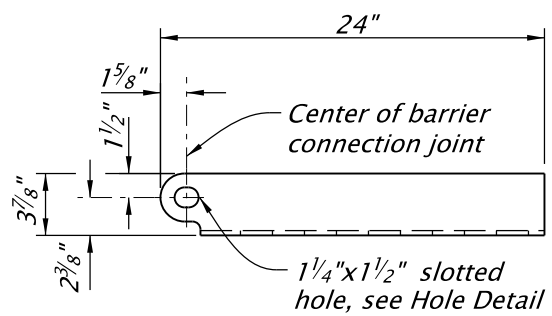
RD545.dgn



PLAN

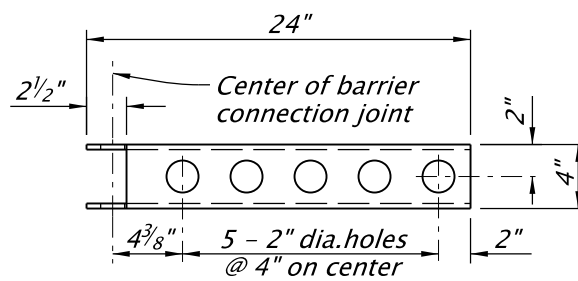


ELEVATION



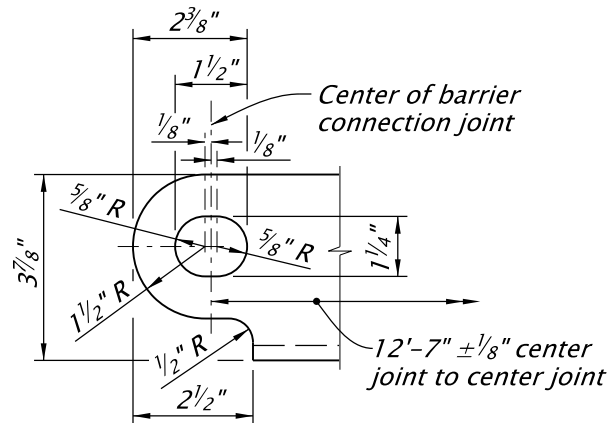
PLAN

Cut from 5/16" thick steel plate
(See note 5 for casting instructions)



ELEVATION

Perforated C-shape



HOLE DETAIL

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. All reinforcing bars shall be full length as shown and shall be 2 inches clear of the nearest face of concrete unless shown otherwise.
2. All pins, bolts, dowels, loop bars, and connectors shall be hot-dip galvanized after fabrication.
3. Normal use of precast tall median barrier is restricted to curves with radii greater than 770'.
4. Chamfer all edges 3/4 inch, typical.
5. Perforated C-shape shall be placed in location shown to a tolerance of 3/32 inch.
6. Estimated barrier weight is 8070 pounds per 12.5 foot unit length, estimated narrow base barrier weight is 6550 pounds.
7. To anchor median barrier see Std. Dwg. RD502.
8. Narrow base shoulder barrier to be used only at locations with backfill behind barrier as shown on plans.
9. For barrier location details, see Std. Dwg. RD500.
10. When scuppers are not required, plug them with a minimum 2" of grout, as directed.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

PRECAST TALL (42")
CONCRETE BARRIER

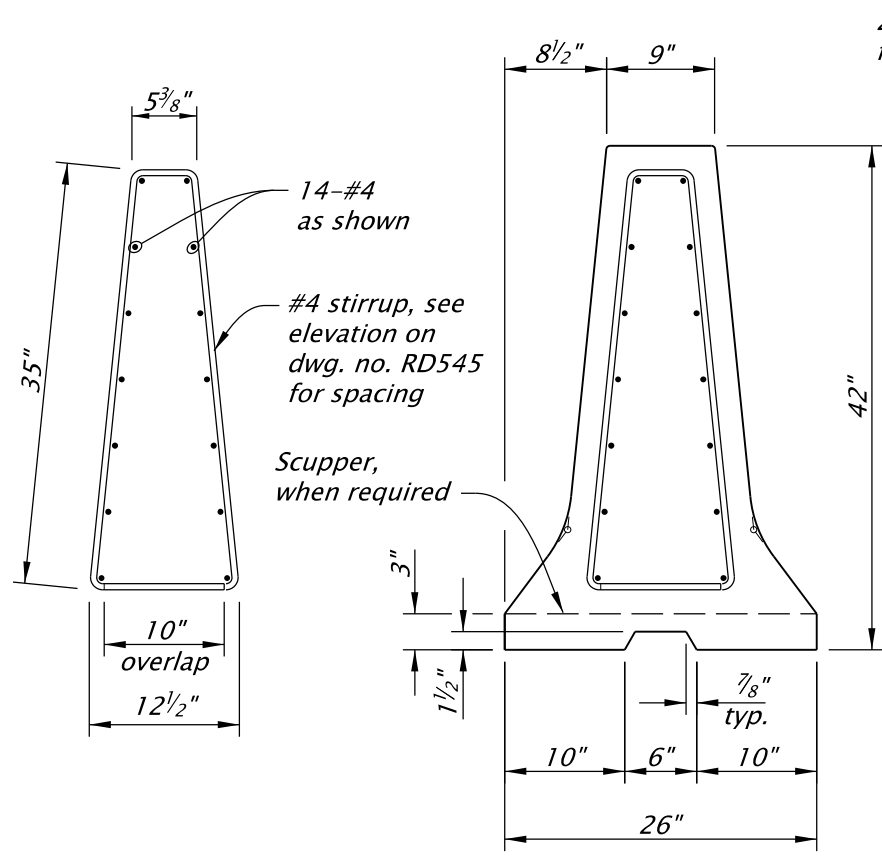
2021

DATE	REVISION	DESCRIPTION
07-2022	UPDATED DRAWING TO CONNECT	
01-2023	REVISED NOTES	
CALC. BOOK NO. ---	N/A ---	SDR DATE 20-JAN-2023

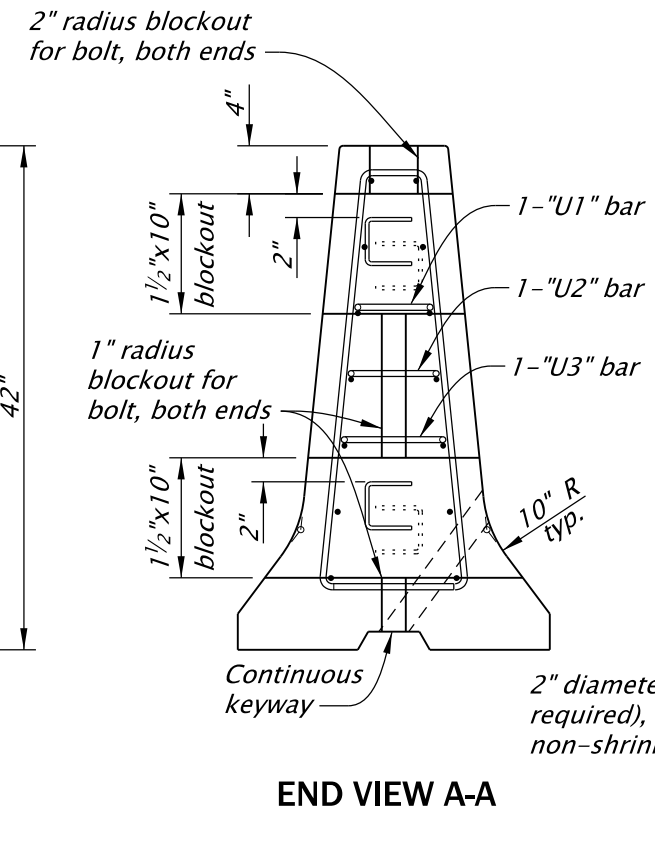
RD545

Effective Date: June 1, 2023 - November 30, 2023

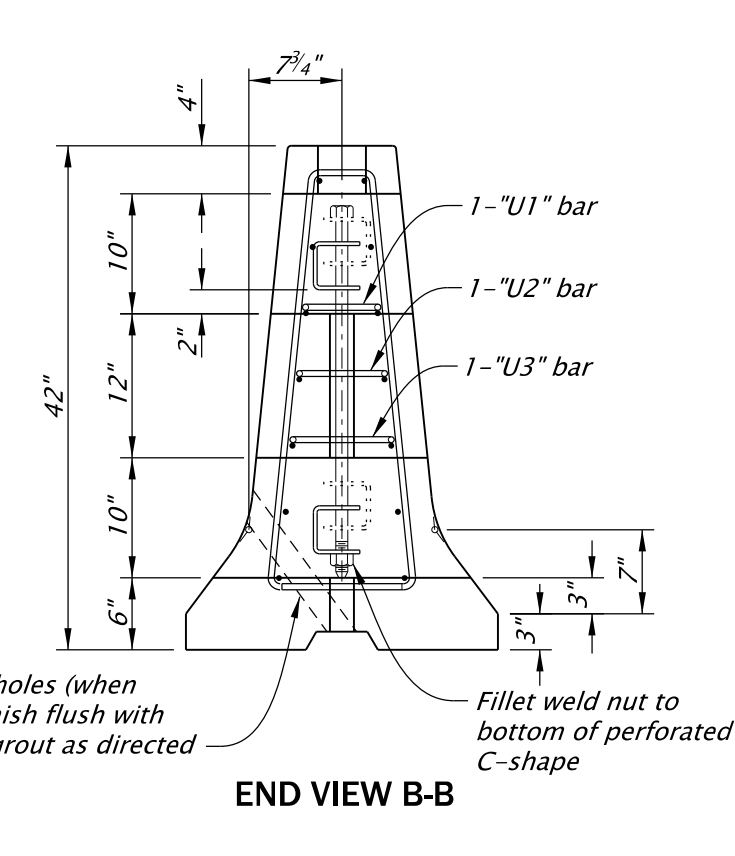
RD546.dgn 20-JAN-2023



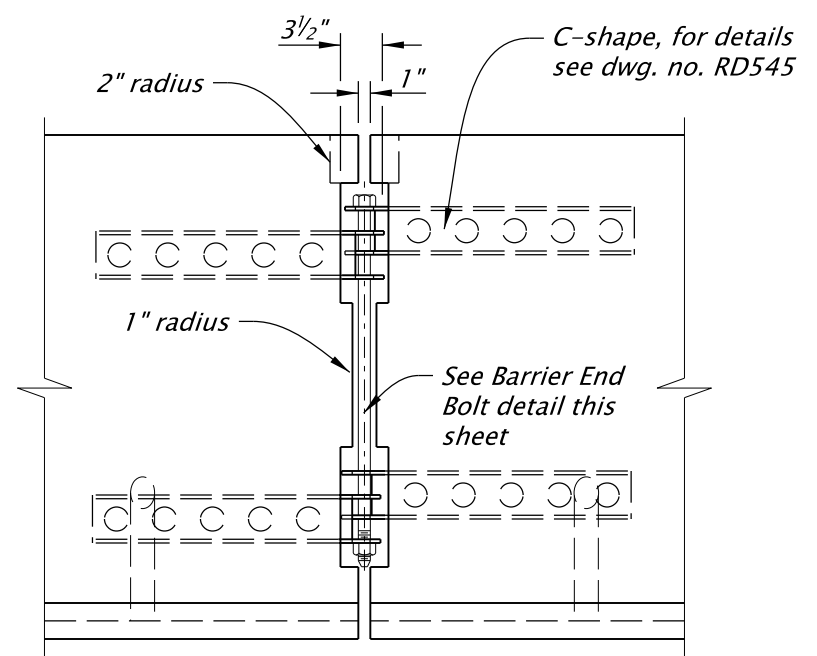
TYPICAL SECTION



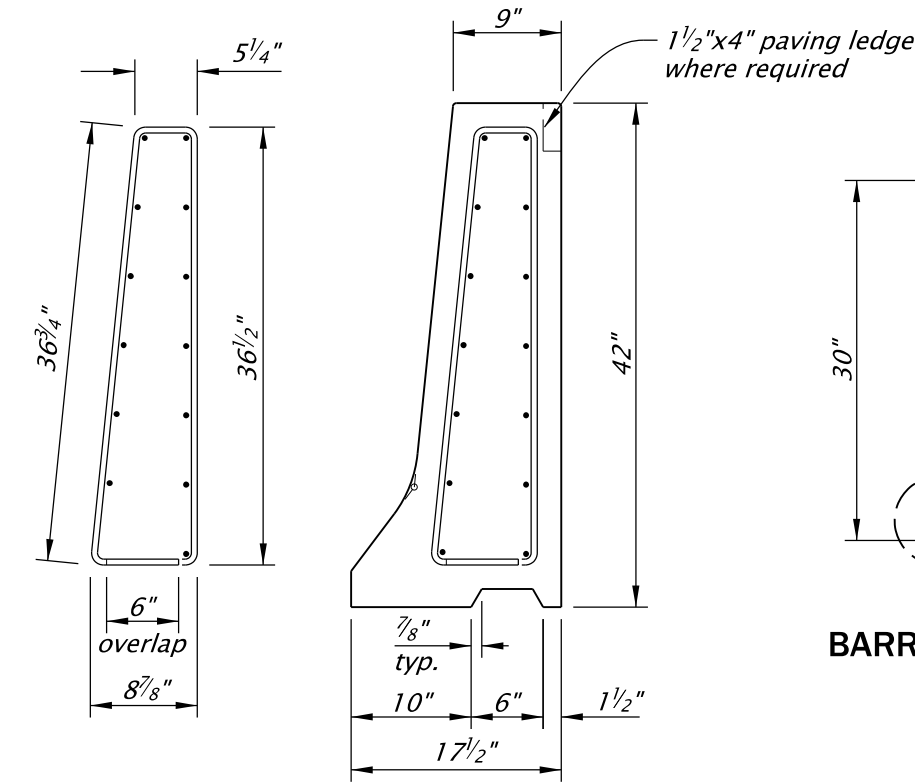
END VIEW A-A



END VIEW B-B

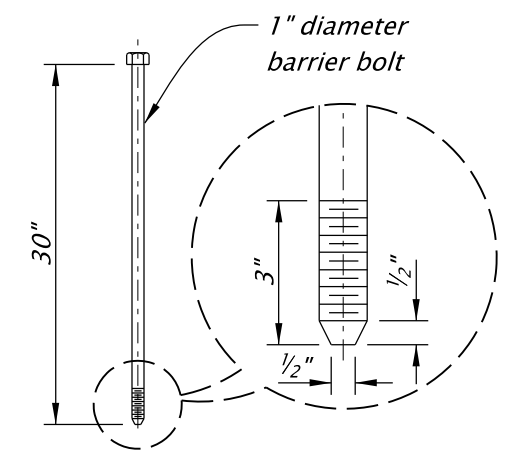


SECTION C-C

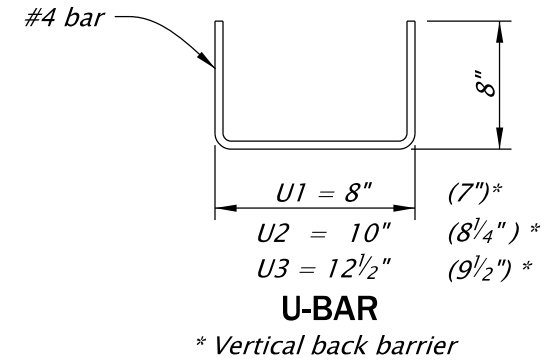


TALL NARROW BASE SHOULDER BARRIER

Only use against retaining walls or as directed. For details not shown, see other barrier details on this drawing and on *dwg. no. RD545*.



BARRIER END BOLT



U-BAR
* Vertical back barrier

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

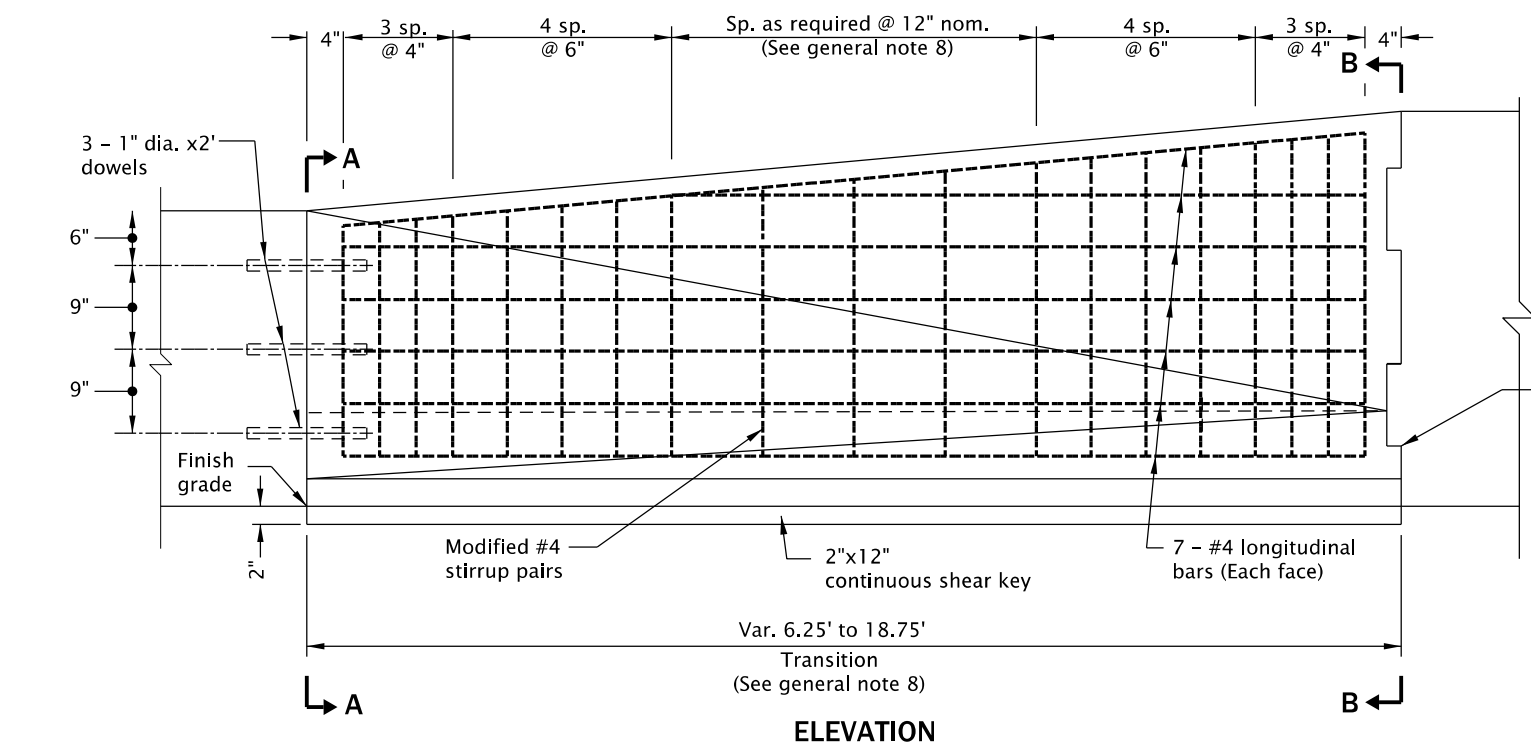
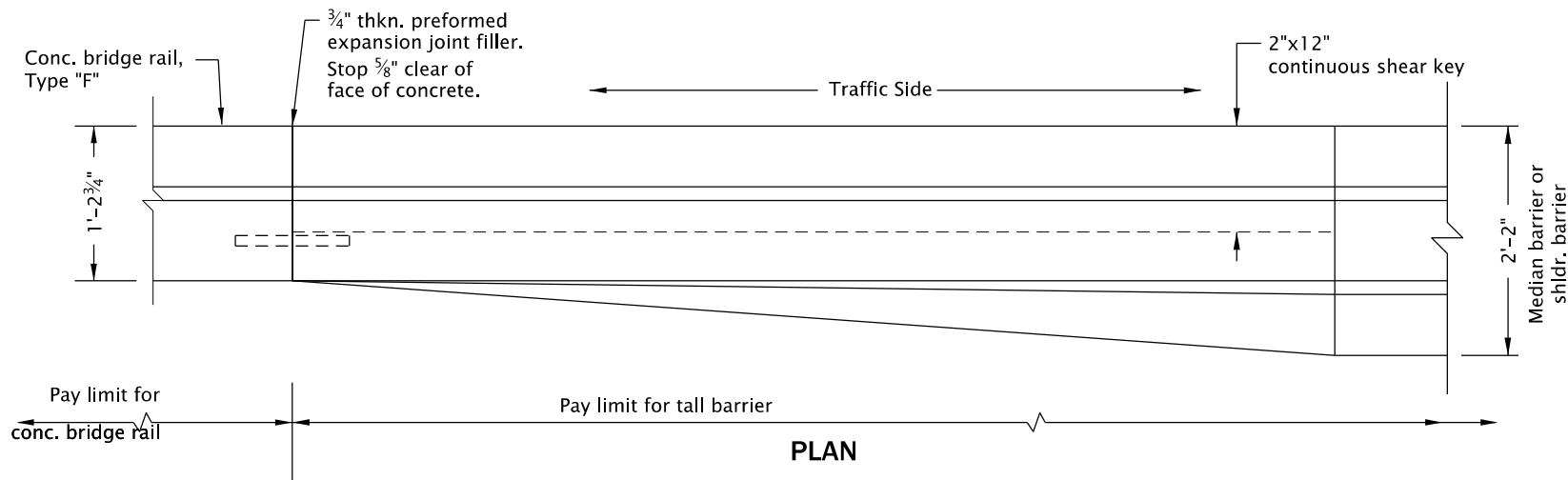
1. All reinforcing bars shall be full length as shown and shall be 2" clear of the nearest face of concrete unless shown otherwise.
2. All pins, bolts, dowels, loop bars, and connectors shall be hot-dip galvanized after fabrication.
3. Normal use of precast tall median barrier is restricted to curves with radii greater than 770'.
4. Chamfer all edges 3/4 inch, typical.
5. Perforated C-shape shall be placed in location shown to a tolerance of 3/32 inch.
6. Estimated barrier weight is 8070 pounds per 12.5 foot unit length, estimated narrow base barrier weight is 6,550 pounds.
7. To anchor median barrier see *Std. Dwg. RD502*.
8. Narrow base shoulder barrier to be used only at locations with backfill behind barrier as shown on plans.
9. For barrier location details, see *Std. Dwg. RD500*.
10. When scuppers are not required, plug them with a minimum 2" of grout, as directed.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

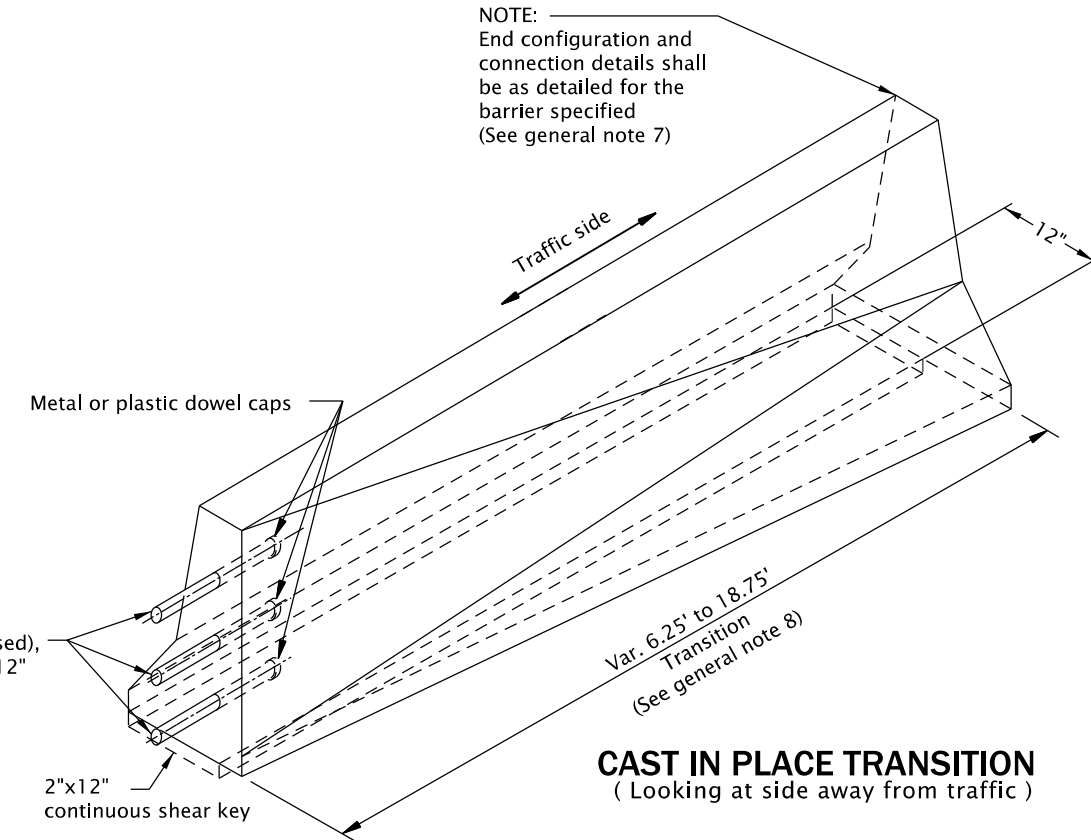
All materials shall be in accordance with the current Oregon Standard Specifications.			
OREGON STANDARD DRAWINGS			
PRECAST TALL (42") CONCRETE BARRIER			
2021			
DATE	REVISION	DESCRIPTION	
07-2022	CREATED	NEW DRAWING	
01-2023	REVISED	NOTES	
CALC. BOOK NO.	N/A	SDR DATE	20-JAN-2023
			RD546

20-JUL-2020

RD550.dgn



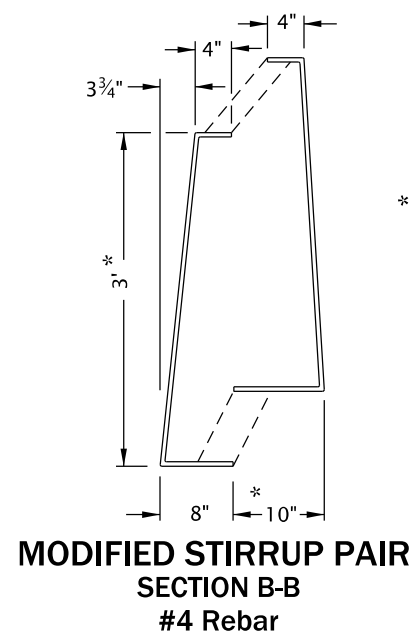
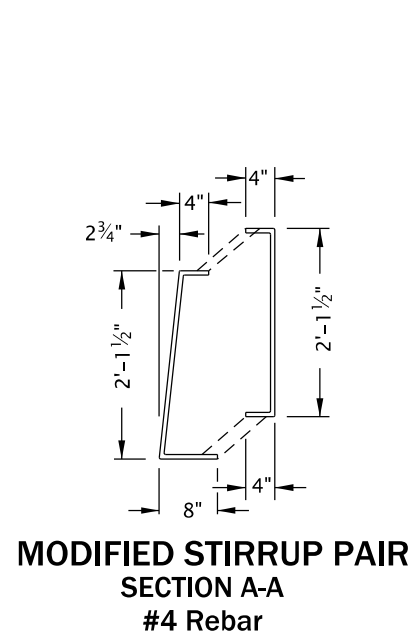
NOTE:
End configuration and connection details shall be as detailed for the barrier specified (See general note 7)



NOTE:
End configuration and connection details shall be as detailed for the barrier specified (See general note 7)

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. All reinf. shall be full length as shown and shall be 1/2" clear of nearest face of concrete, unless otherwise shown.
2. See Std. Dwg. RD545 for additional details.
3. See Std. Dwgs. RD516 & RD545 for securing concrete barrier to roadway.
4. See Std. Dwg. BR200 for Conc. Bridge Rail, Type "F".
5. All pins, bolts, dowels, loop bars, and connectors shall be hot-dip galvanized after fabrication.
6. Not for use on bridge end panel.
7. Field verify end configurations of connecting barriers prior to forming connections at transitions. Dowelled connection is an acceptable alternative. See Std. Dwg. RD505 for details not shown.
8. Normal length for cast-in-place transition is 12'-6". Site conditions may require varying lengths between 6'-3" and 18'-9". Field verify transition length and end configurations of connecting barriers.



* Dimension variable through transition section.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

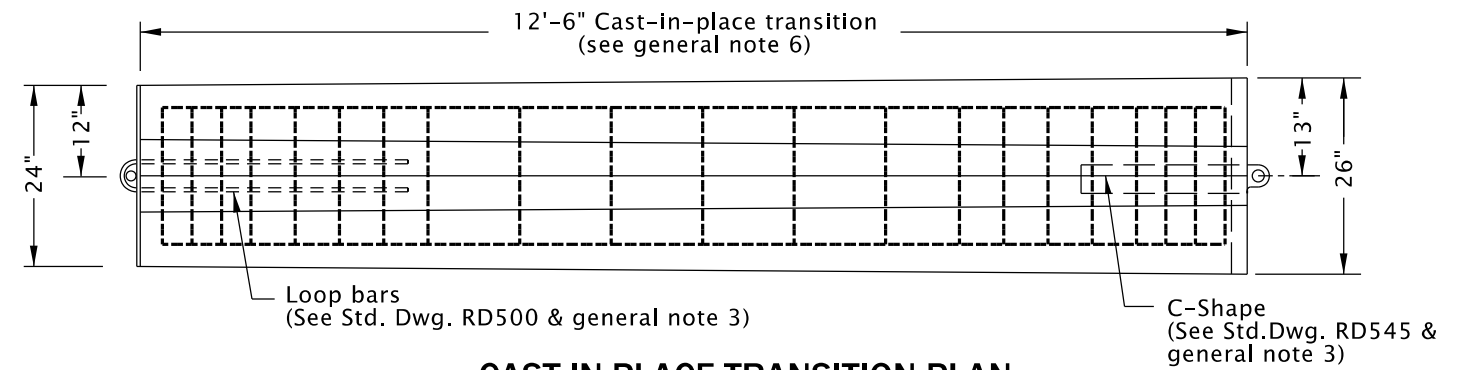
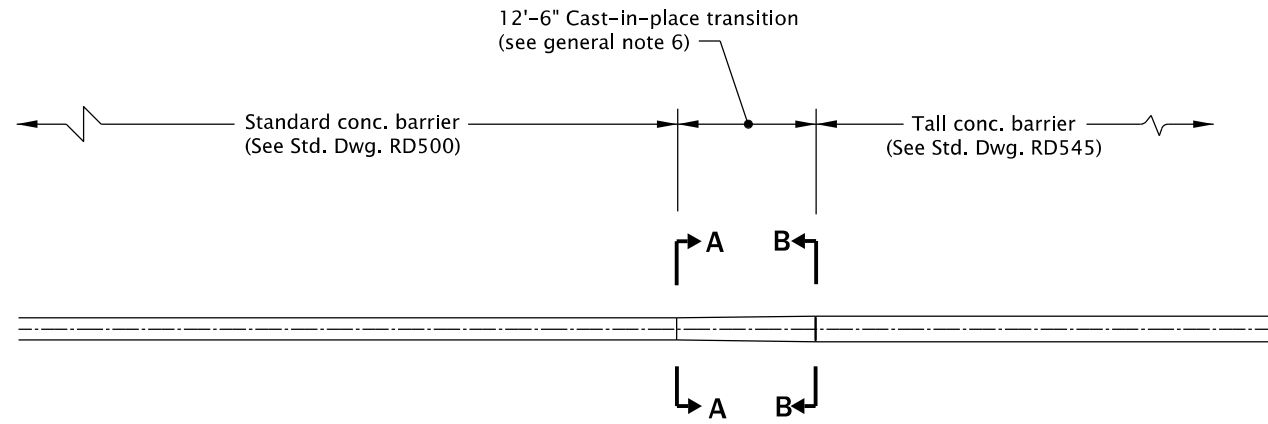
All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS
CAST-IN-PLACE TALL CONCRETE BARRIER TRANSITION TO CONCRETE BRIDGE RAIL TYPE "F"
2021

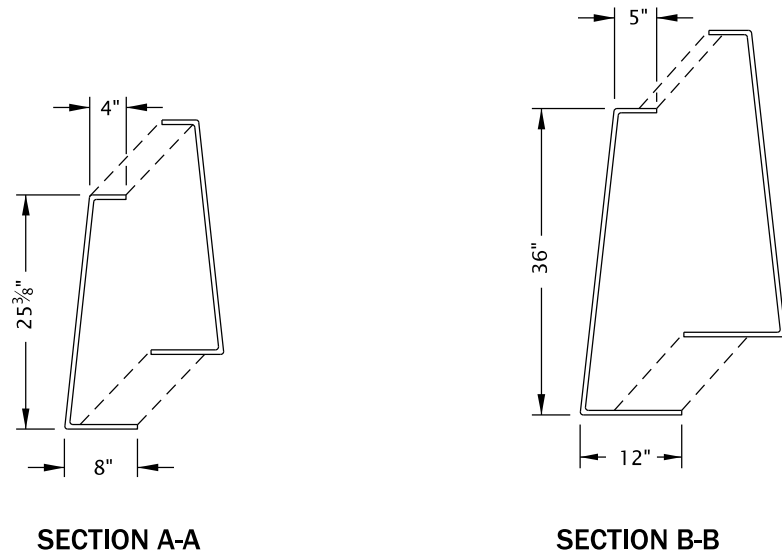
DATE	REVISION	DESCRIPTION

CALC. BOOK NO. - - -	N/A - - -	SDR DATE - 15-JUL-2022 -	RD550
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Effective Date: June 1, 2023 - November 30, 2023

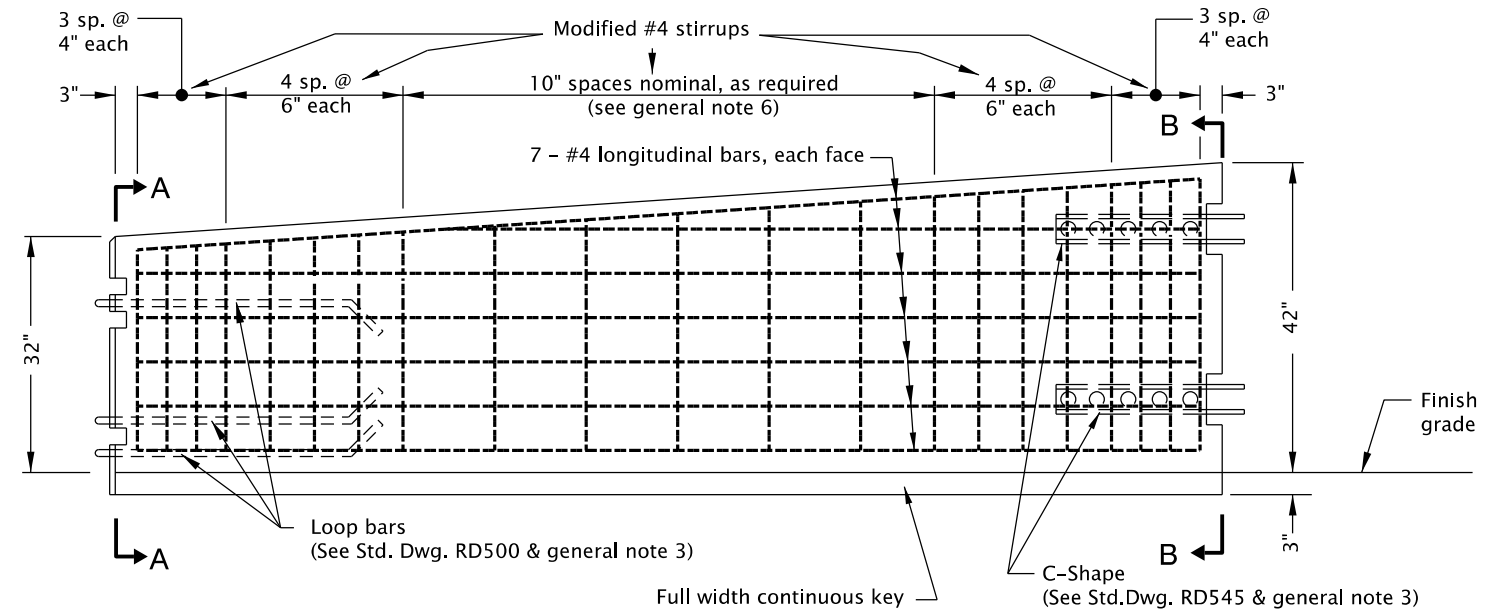


CAST-IN-PLACE TRANSITION PLAN

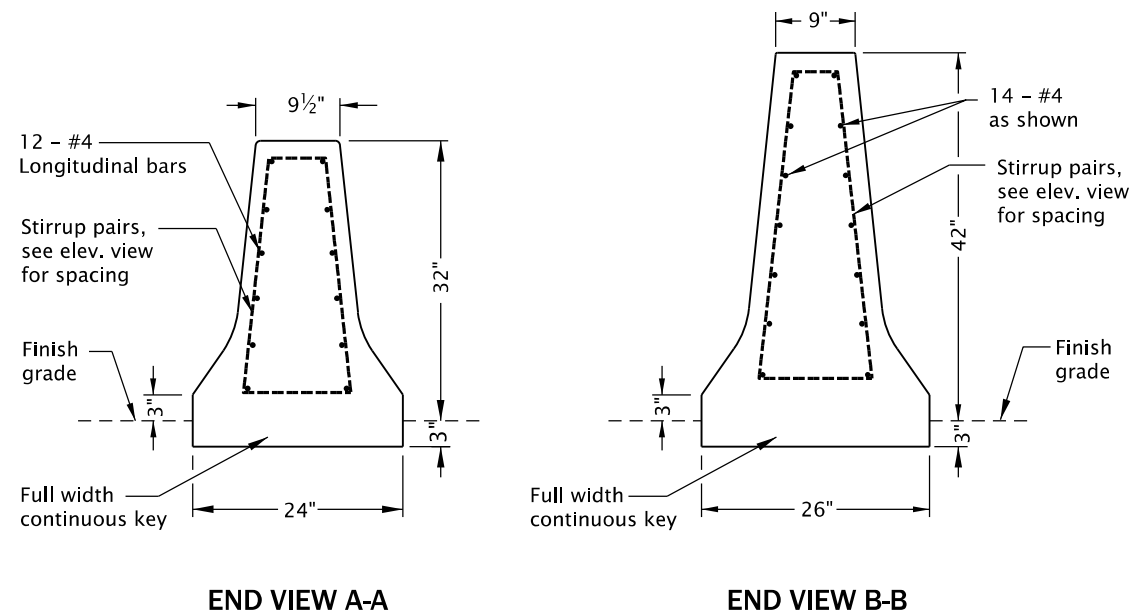


MODIFIED #4 STIRRUPS

(Dimensions shown will be variable throughout transition from A-A to B-B. See general note 6)



CAST-IN-PLACE TRANSITION ELEVATION



GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. All reinforcing bars shall be full length as shown and shall be placed 1 1/2" clear of the nearest face of concrete unless shown otherwise.
2. Chamfer all edges 3/4".
3. Field verify end configurations of connecting barriers prior to forming connections at transitions. Dowelled connection is an acceptable alternative. See Std. Dwg. RD505 for details not shown.
4. See Std. Dwg. RD500, RD505 & RD545 for details not shown.
5. All pins, bolts, dowels, loop bars, and connectors shall be hot-dip galvanized after fabrication.
6. Normal length for cast-in-place transition is 12'-6". Site conditions may require varying lengths between 6'-3" and 18'-9". Field verify transition length and end configurations of connecting barriers.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

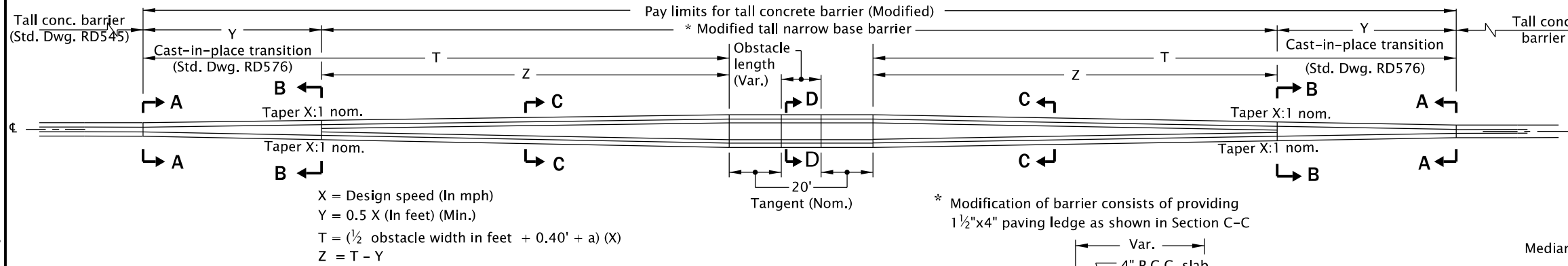
All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS
CAST-IN-PLACE TALL CONCRETE BARRIER TRANSITION TO STANDARD CONCRETE BARRIER
 2021

DATE	REVISION	DESCRIPTION
12-2021	REVISED NOTES	
CALC. BOOK NO. ---	N/A ---	SDR DATE- 15-JUL-2022 ---

RD560

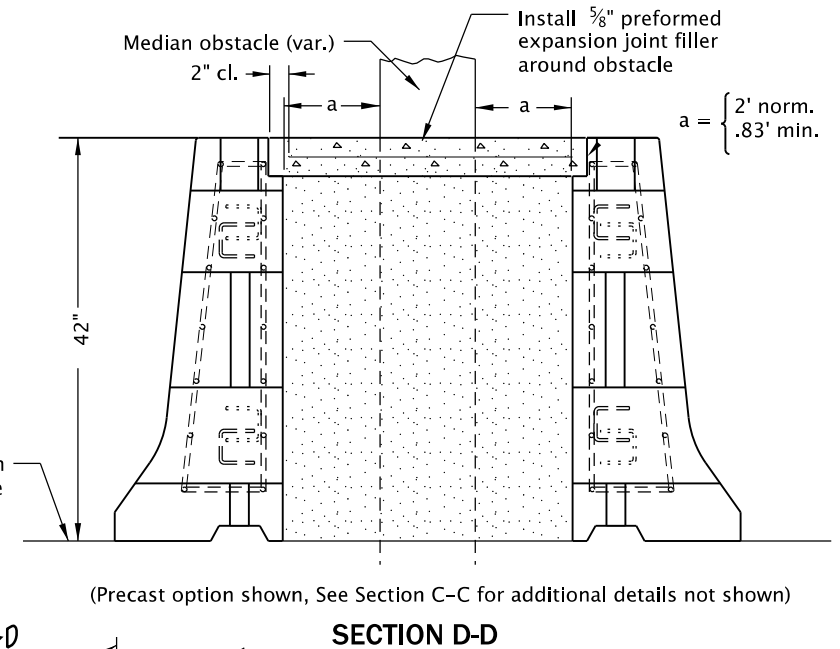
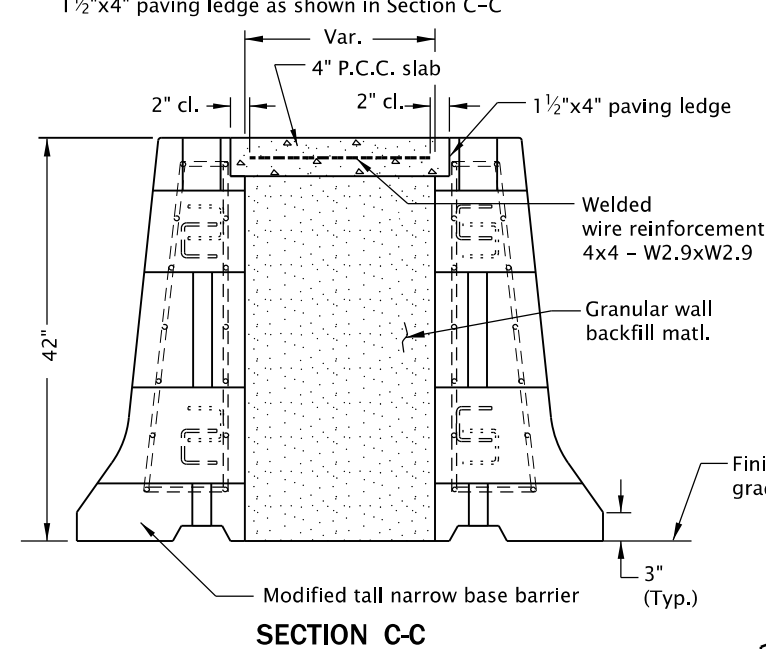
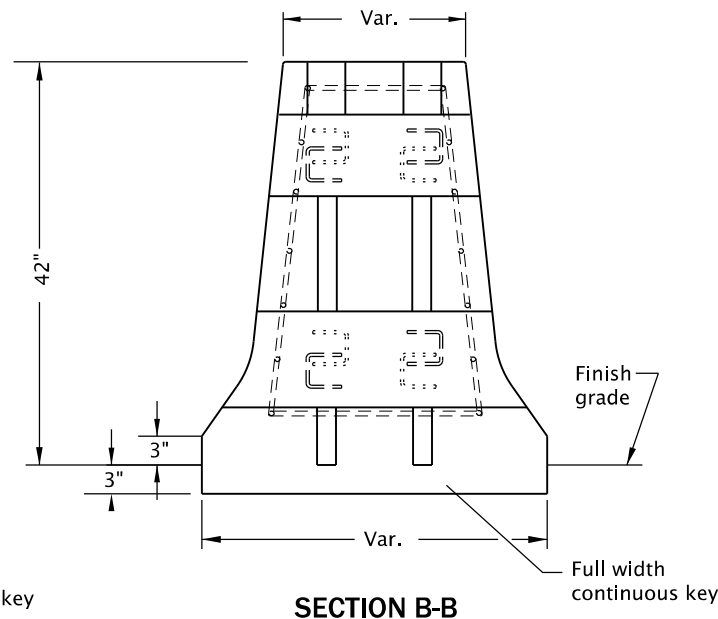
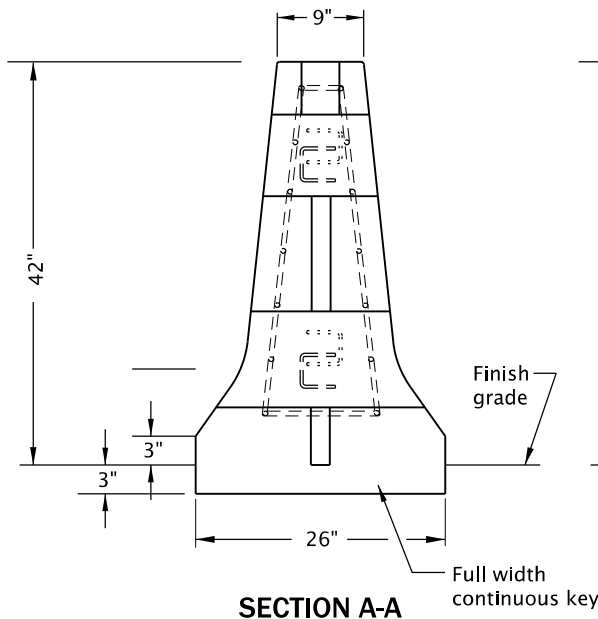
15-JUL-2022
RD575.dgn



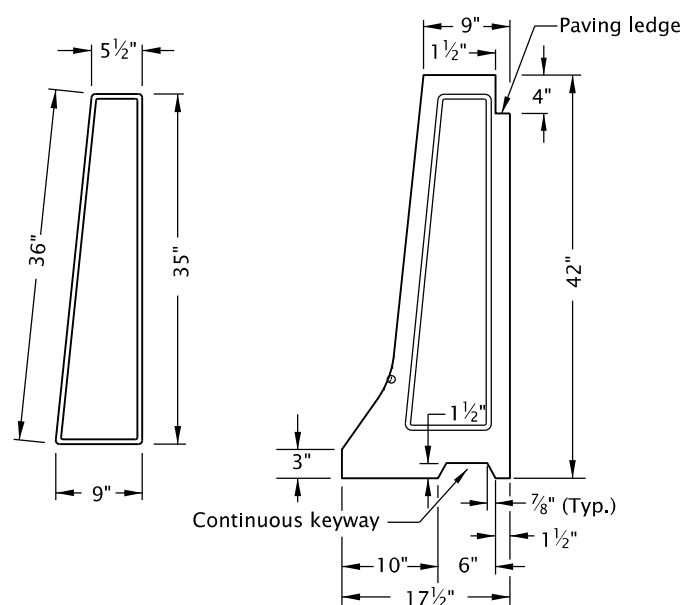
X = Design speed (In mph)
Y = 0.5 X (In feet) (Min.)
T = (1/2 obstacle width in feet + 0.40' + a) (X)
Z = T - Y

* Modification of barrier consists of providing 1 1/2"x4" paving ledge as shown in Section C-C

- GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:
1. Field verify end configurations of connecting barriers prior to forming connections at transitions.
 2. All reinforcing bars shall be full length as shown and shall be placed 1 1/2" clear of the nearest face of concrete unless shown otherwise.
 3. See Std. Dwg. RD545 for details not shown.
 4. Secure precast concrete barrier to roadway, see Std. Dwg. RD516.
 5. All pins, bolts, dowels, loop bars, and connectors shall be hot-dip galvanized after fabrication.

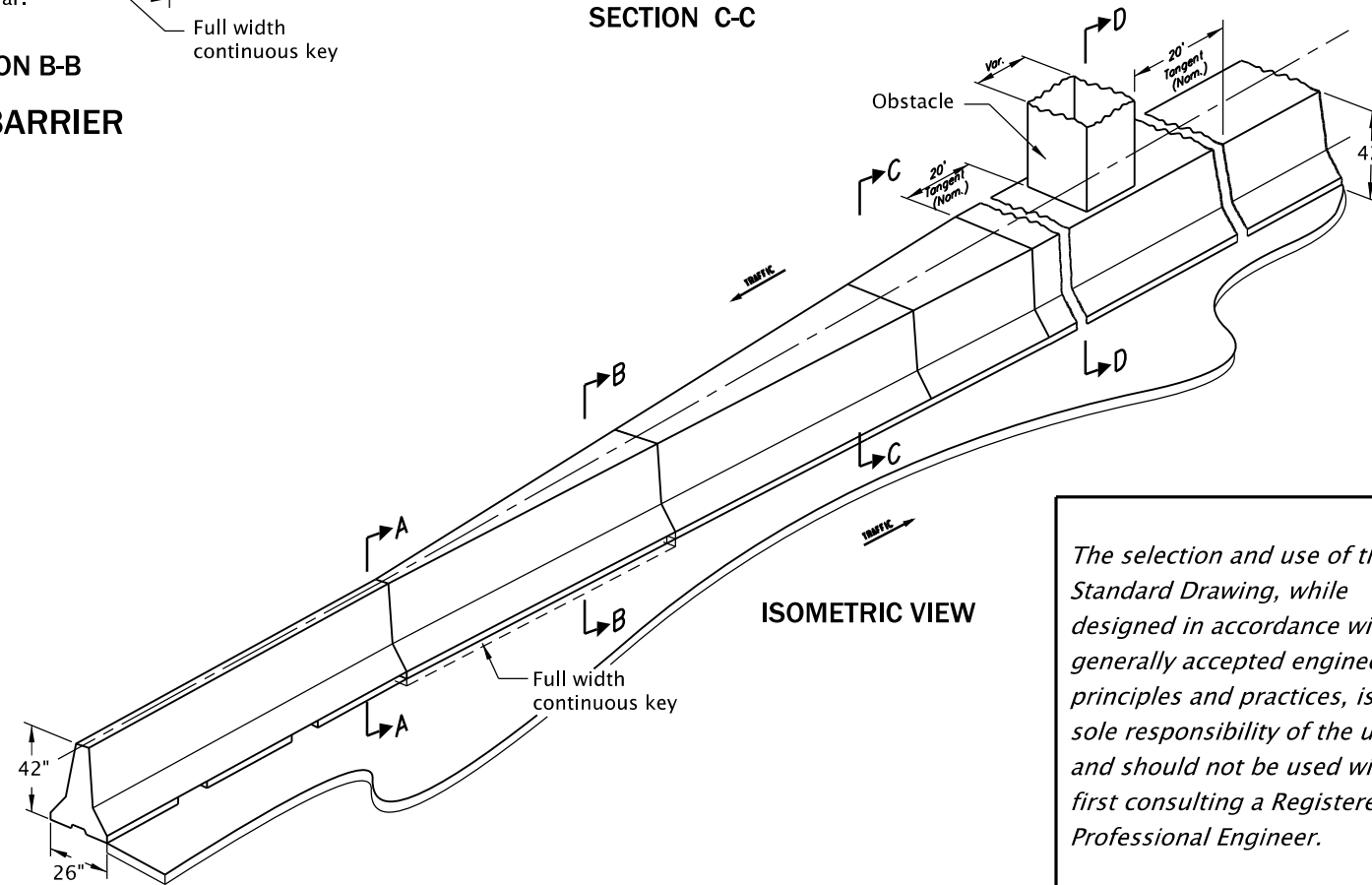


DETAIL WHEN CONNECTING TO PRECAST BARRIER
(See general note 1)



MOD. TALL NARROW BASE SHLDR. BARRIER

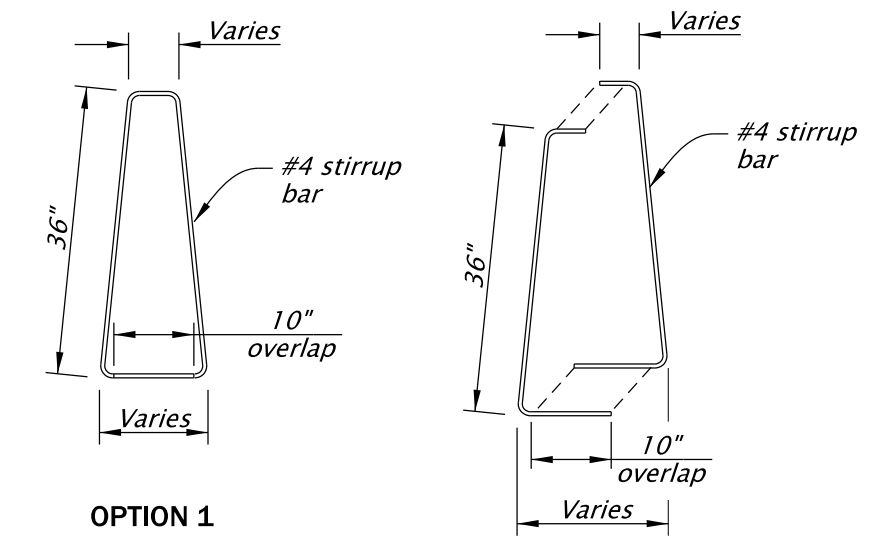
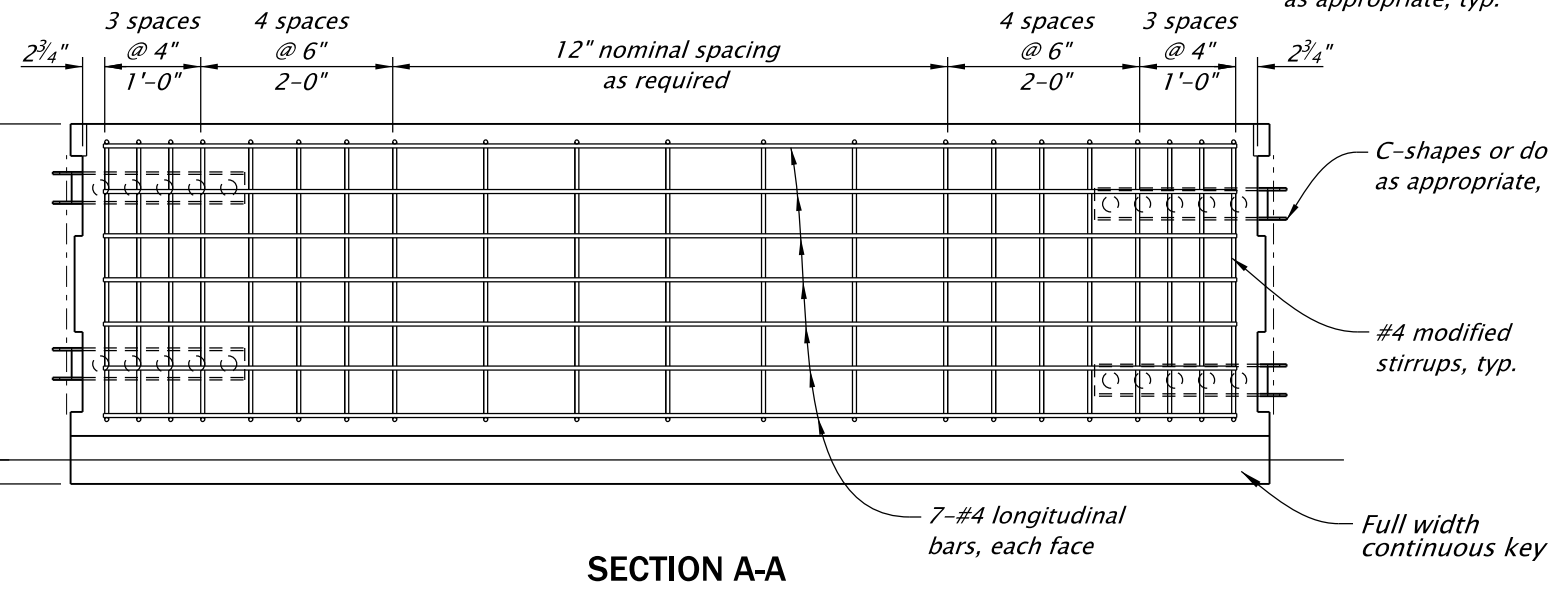
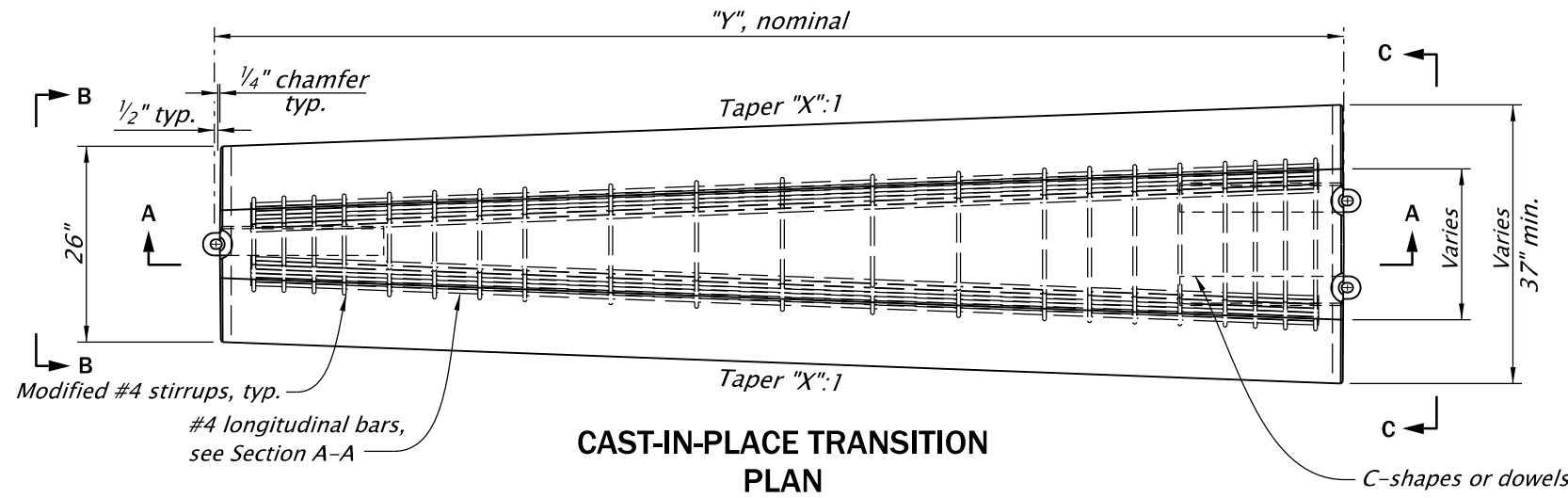
NOTE: Only use against retaining walls or as directed.
(For details not shown, see Std. Dwg. No. RD545)



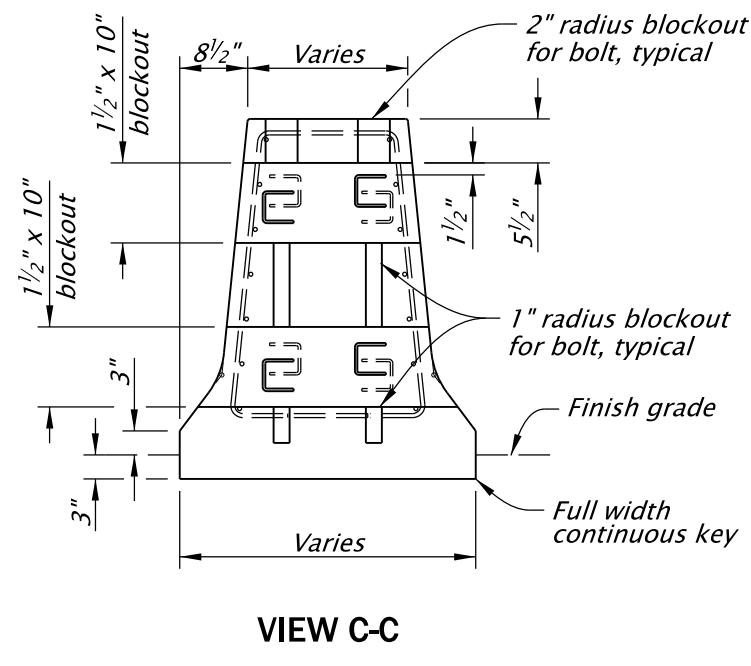
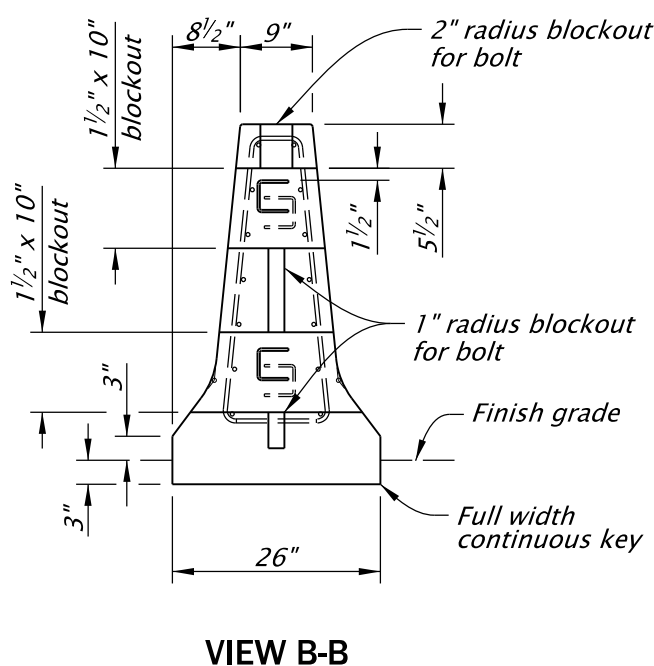
The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.		
OREGON STANDARD DRAWINGS		
TALL CONCRETE BARRIER (MODIFIED)		
AROUND MEDIAN OBSTACLE		
2021		
DATE	REVISION	DESCRIPTION
07-2022	REVISED DETAILS AND NOTES	
CALC. BOOK NO.	N/A	SDR DATE: 15-JUL-2022
		RD575

Effective Date: June 1, 2023 - November 30, 2023



- GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:**
1. Field verify end configurations of connecting barriers prior to forming connections at transitions.
 2. All reinforcing bars shall be full length as shown and shall be placed 1 1/2" clear of the nearest face of concrete unless shown otherwise.
 3. See Std. Dwg. RD545 for details not shown.
 4. Secure precast concrete barrier to roadway, see Std. Dwg. RD516.
 5. All pins, bolts, dowels, loop bars, and connectors shall be hot-dip galvanized after fabrication.



The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

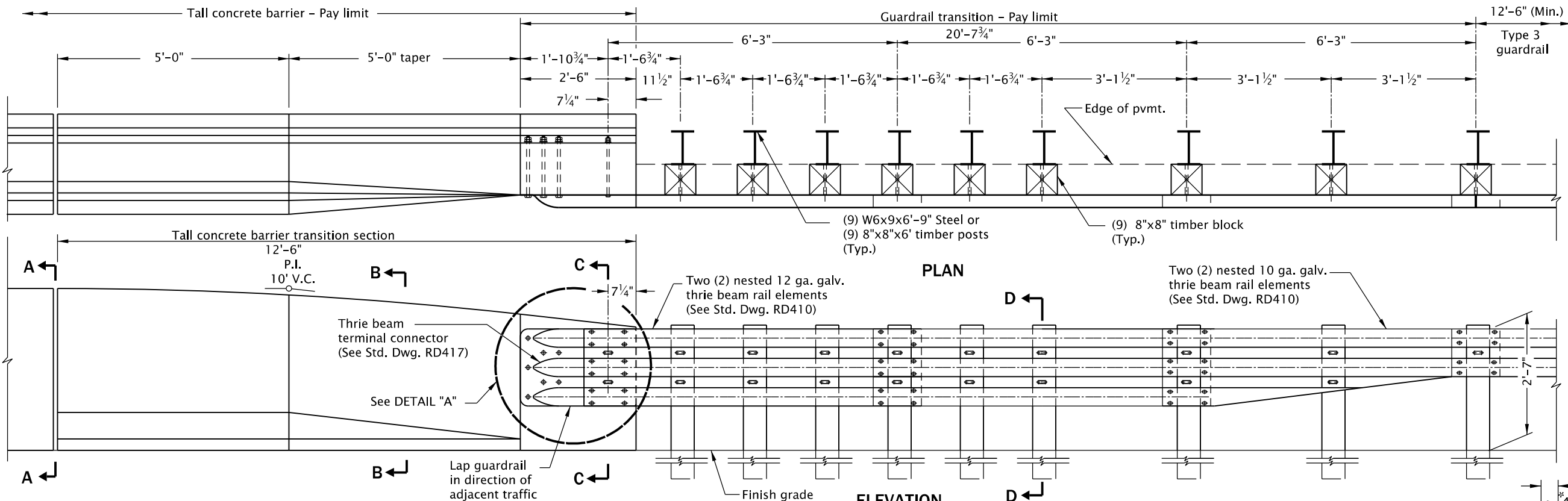
OREGON STANDARD DRAWINGS
TALL CONCRETE BARRIER (MODIFIED)
AROUND MEDIAN OBSTACLE
 2021

DATE	REVISION	DESCRIPTION
07-2022	CREATED	NEW DRAWING

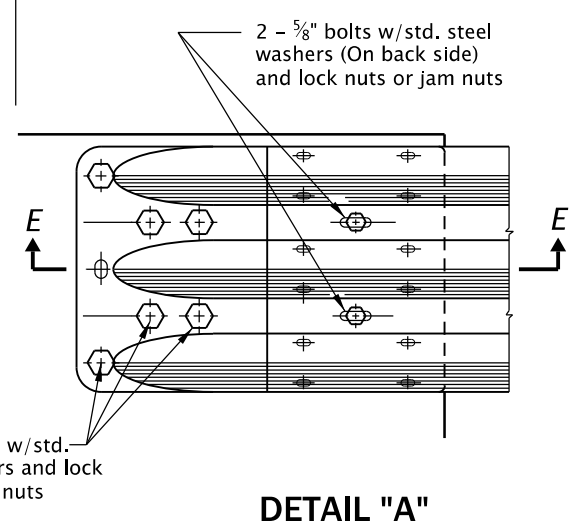
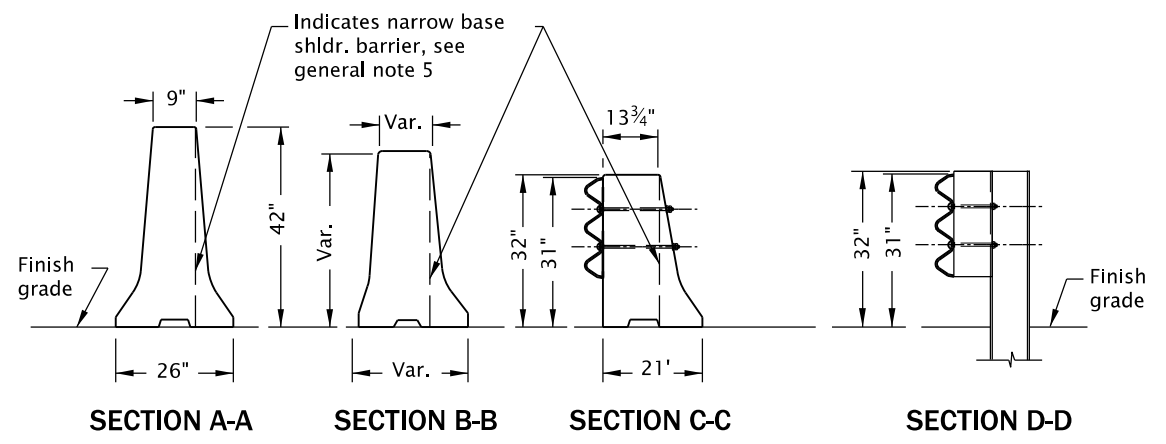
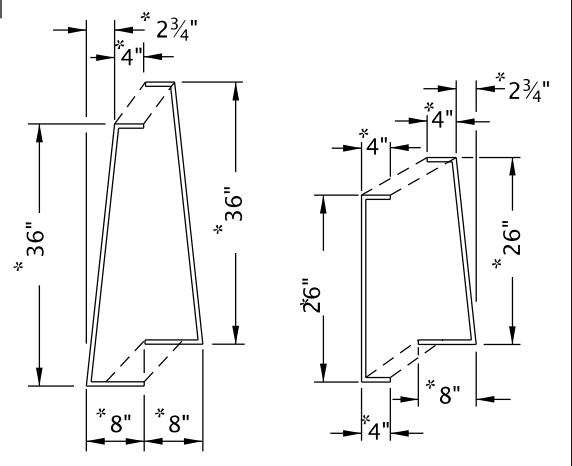
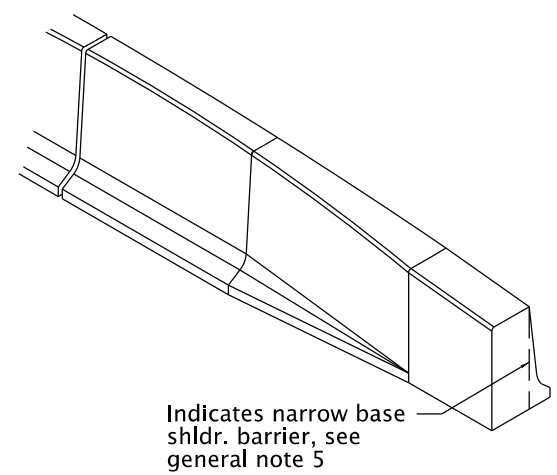
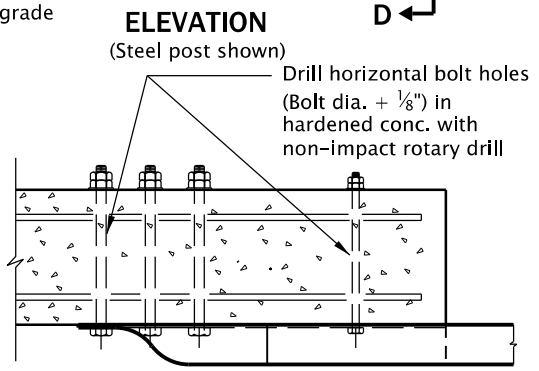
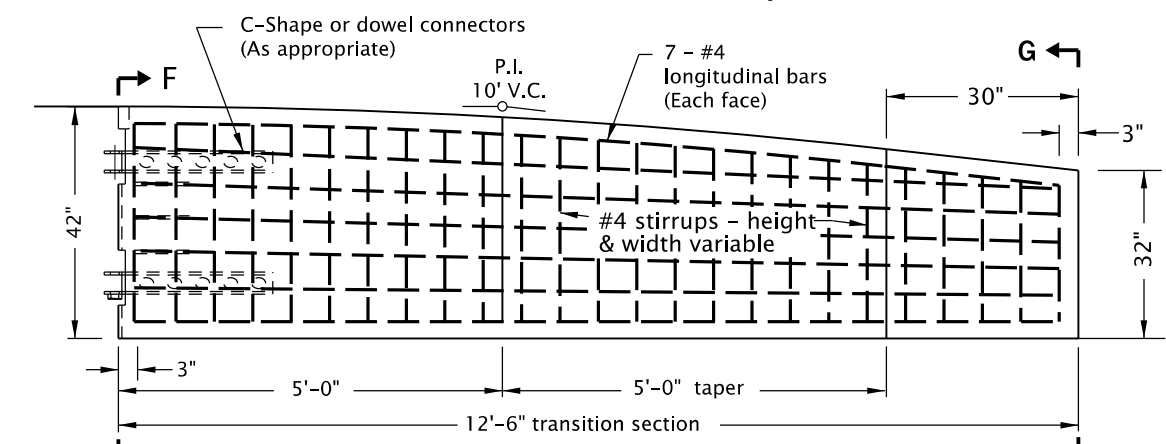
CALC. BOOK NO.	N/A	SDR DATE- 15-JUL-2022	RD576
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20-JUL-2020

RD581.dgn



- GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:**
1. All reinforcing bars shall be full length as shown and shall be 2" clear of the nearest face of conc. unless shown otherwise.
 2. See Std. Dwgs. RD405, RD410, RD415, RD417, RD480, RD481, RD482 & RD545 for details not shown.
 3. If trench method is used to install posts, ensure compaction according to 00810.41, 2nd paragraph.
 4. See Std. Dwg. RD516 for securing concrete barrier to roadway.
 5. Narrow base shldr. barrier to be used only at locations with backfill behind barrier as shown on plans.
 6. All pins, bolts, dowels, loop bars, and connectors shall be hot-dip galvanized after fabrication.



The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

MIDWEST GUARDRAIL SYSTEM

TRANSITION TO

TALL CONCRETE BARRIER

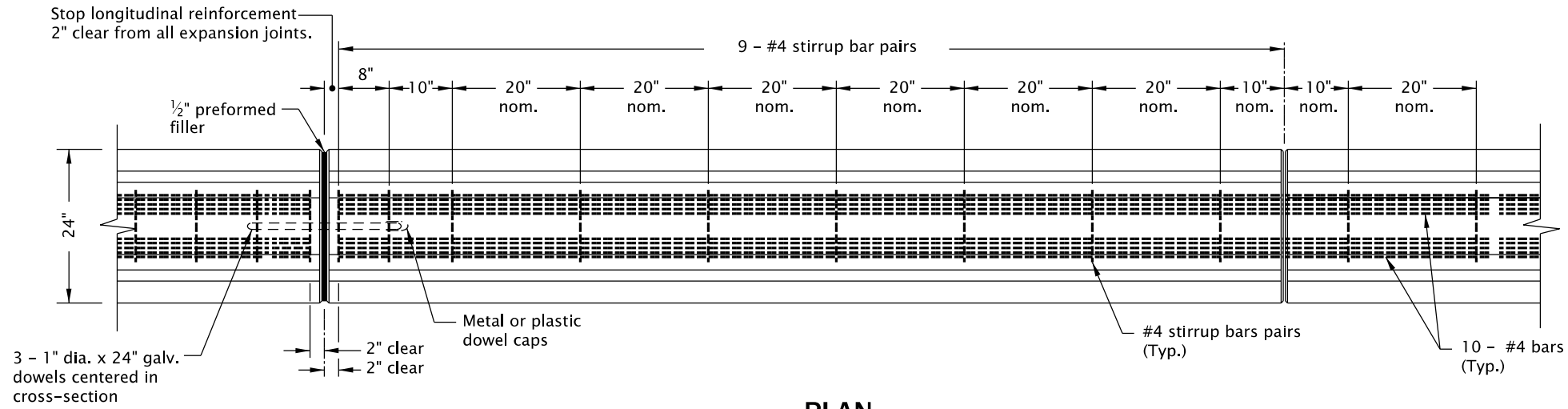
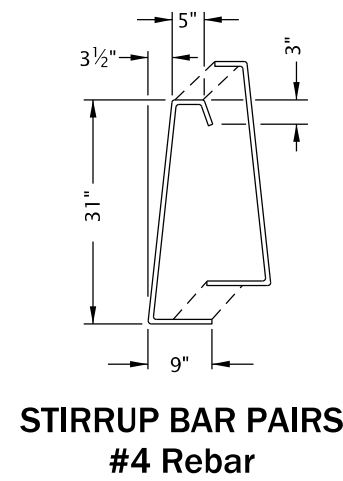
2021

DATE	REVISION	DESCRIPTION

CALC. BOOK NO. - - -	N/A - - -	SDR DATE - 13-JAN-2020 -	RD581
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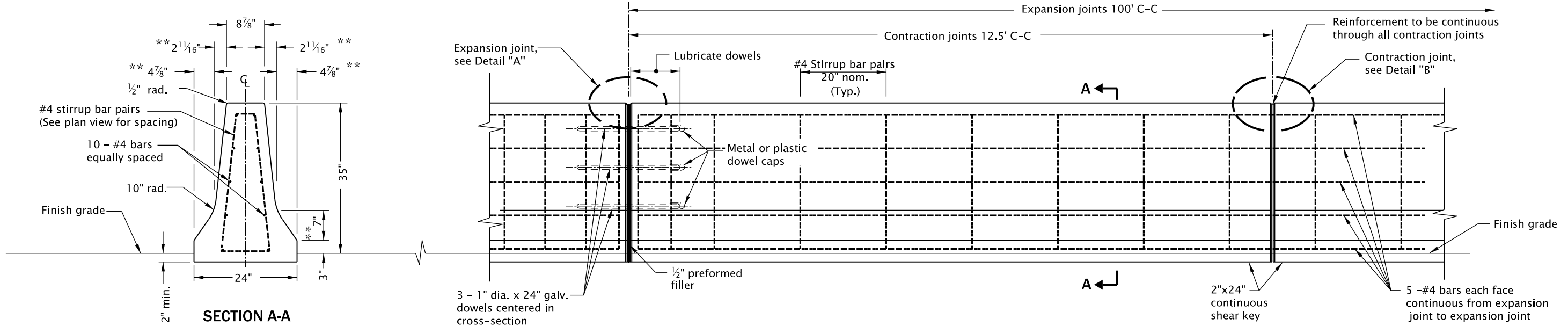
20-JUL-2020

RD590.dgn

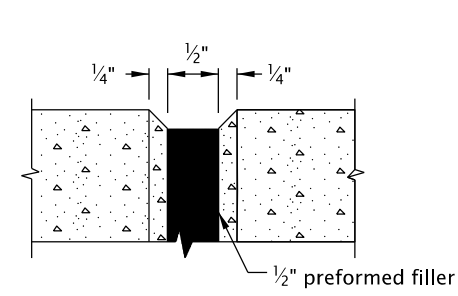


PLAN

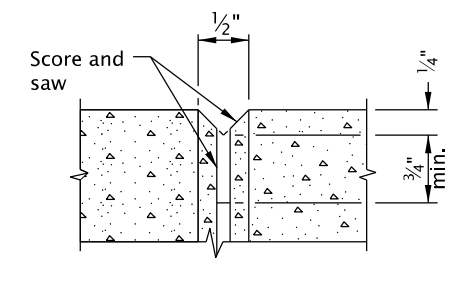
** Dimensions marked thus are to the intersection point of the barrier slopes. Const. the 10" radius to provide a smooth transition between the slopes.



ELEVATION



**DETAIL "A"
(EXPANSION JOINT)**



**DETAIL "B"
(CONTRACTION JOINT)**

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

- All reinforcement shall be 2" clear of nearest face of conc., unless otherwise shown.
- Reinforcement shown is the min. reqd. for all barriers in final position.
- Use of this barrier on ODOT facilities requires approval by the State Roadway Engineer.
- For slip-formed process:
In addition to the reinforcement shown herein add cross-bracing both longitudinally and transversely, to keep the cage from moving during concrete placement.

Tie all intersections of reinforcing bars.

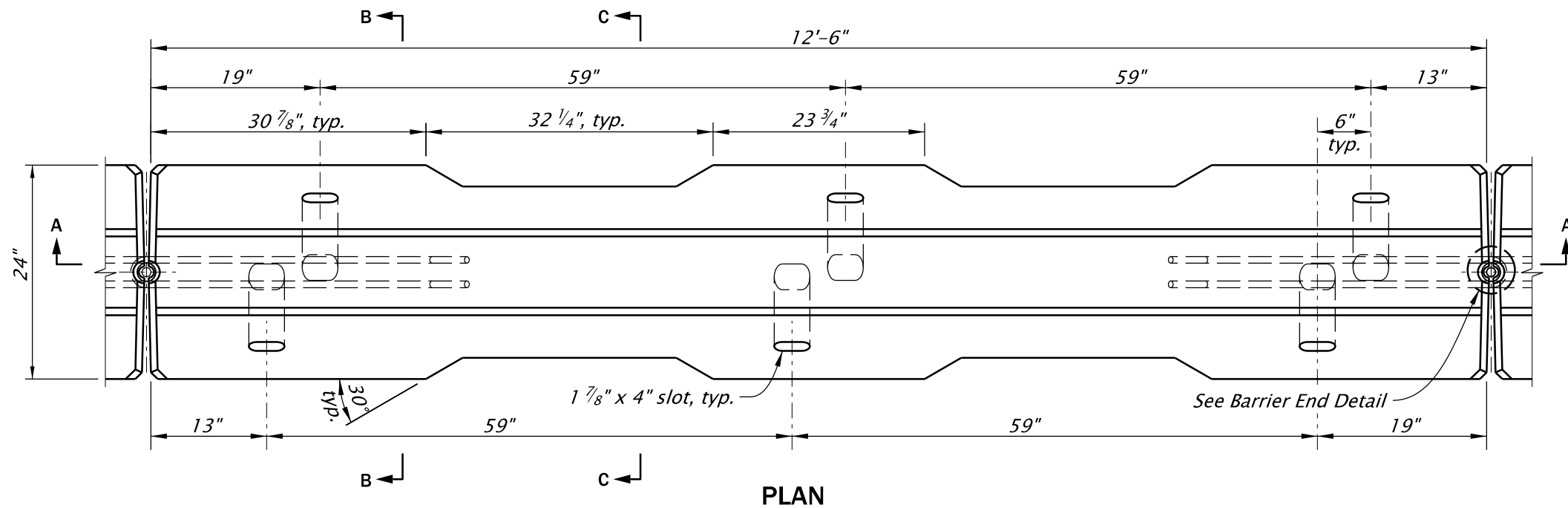
To aid in holding the steel reinforcing bars in place, prior to slip-forming, place small amounts of concrete, each 2-cubic feet maximum, at 10-foot maximum intervals into the center of the reinforcing cage.
Maintain the required 2-inches of reinforcement to the slip-form clearance.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

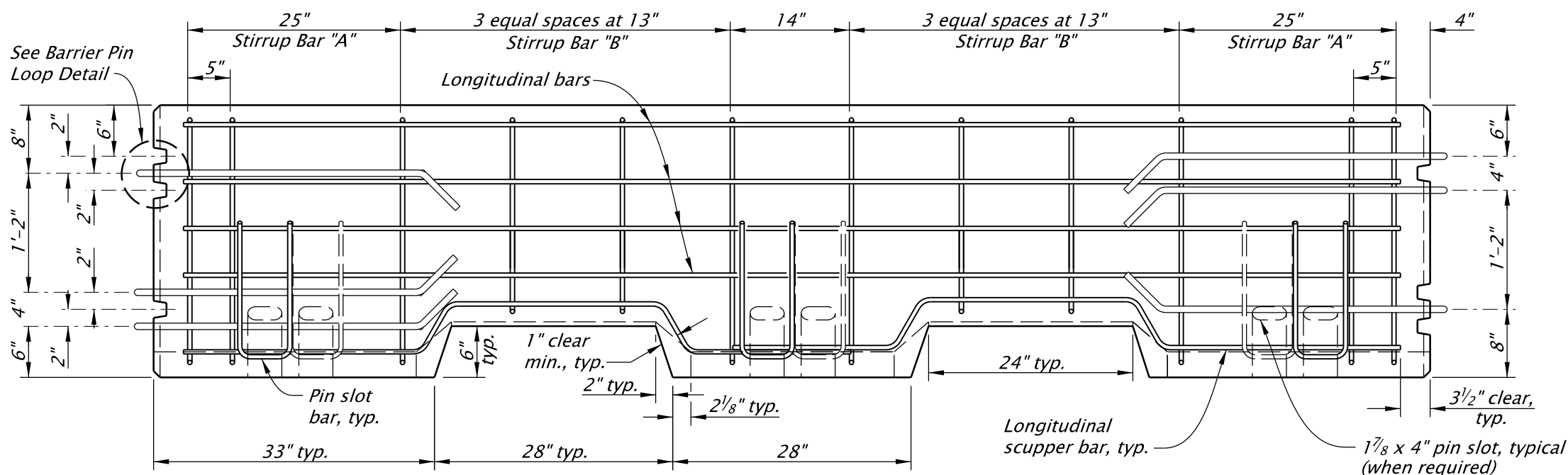
All materials shall be in accordance with the current Oregon Standard Specifications.			
OREGON STANDARD DRAWINGS			
35" CONCRETE MEDIAN BARRIER CAST-IN-PLACE			
2021			
DATE	REVISION DESCRIPTION		
CALC. BOOK NO.	N/A	SDR DATE	19-JAN-2010
			RD590

15-JUL-2022

RD595.dgn



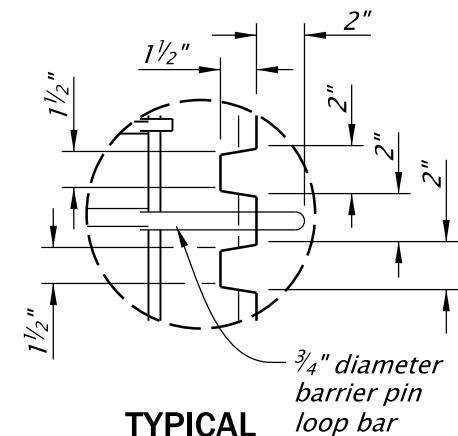
PLAN



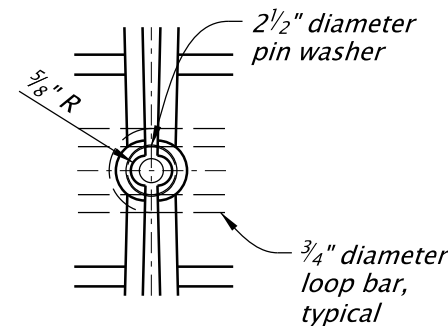
SECTION A-A

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. All reinforcement shall be full length as shown and shall be 2" clear of nearest face of concrete, unless otherwise shown.
2. Maximum chord length for curves with a 1425' radius or less shall be 12.5'. Maximum chord length for curves with radii exceeding 1425' shall be 25'.
3. Normal use of precast barrier units is restricted to curvatures with radii greater than 770'.
4. Concrete grout for grouting over pins, pinning holes or grouting of scuppers shall be Portland cement grout, weak in strength and of thick consistency, as directed.
5. Precast concrete barrier used in medians less than 8' in width shall be secured to roadway. See Std. Dwgs. RD515 and RD516 for details.
6. See Std. Dwg. RD501 for details not shown. See Std. Dwg. RD502 for securing concrete barrier to roadway.
7. All pins, bolts, dowels, loop bars, and connectors shall be hot-dip galvanized after fabrication.



TYPICAL BARRIER PIN LOOP



BARRIER END

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS
32" PRECAST TYPE "F" CONCRETE BARRIER WITH SCUPPERS
 2021

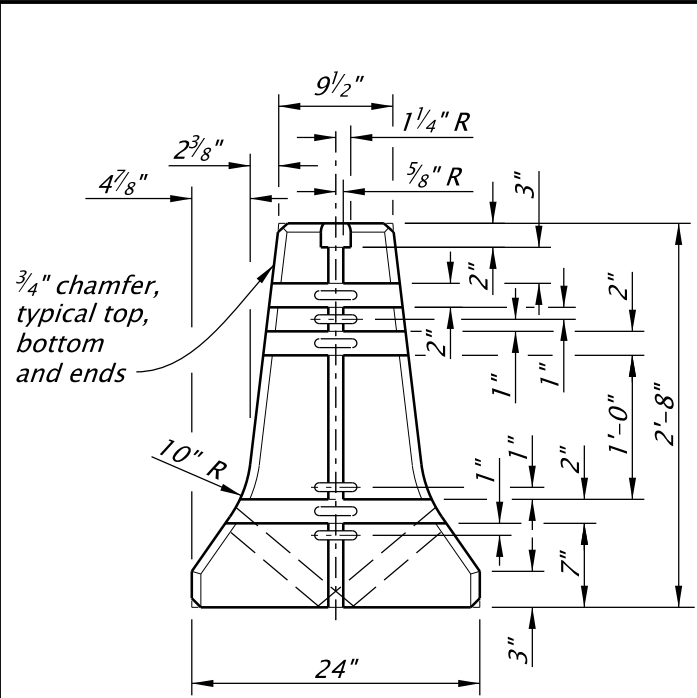
DATE	REVISION	DESCRIPTION
07-2022	REVISED DETAILS AND NOTES	
CALC. BOOK NO.	N/A	SDR DATE: 15-JUL-2022

RD595

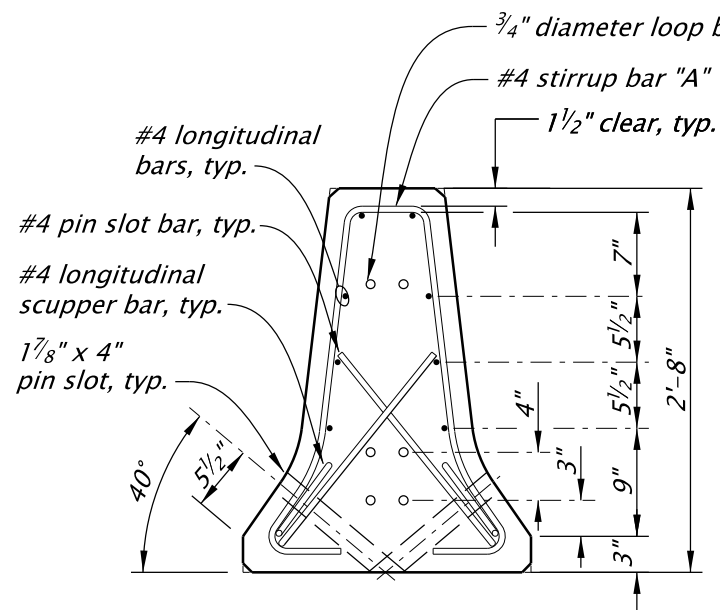
Effective Date: June 1, 2023 – November 30, 2023

15-JUL-2022

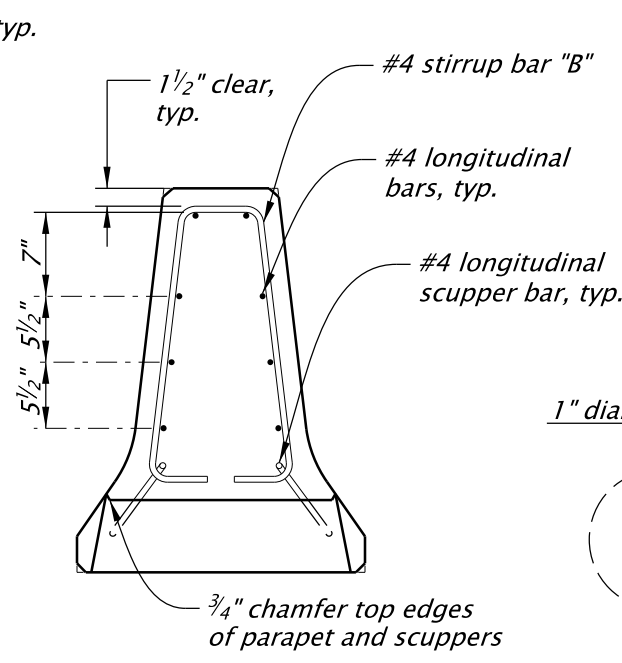
RD596.dgn



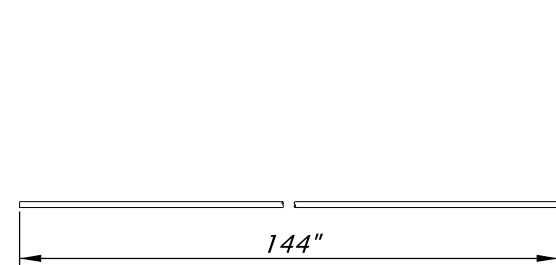
END VIEW



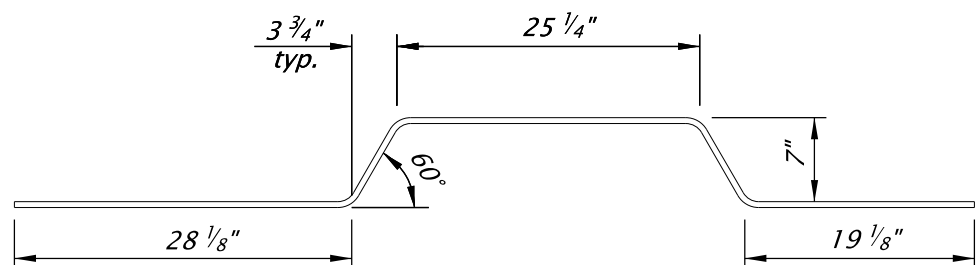
SECTION B-B



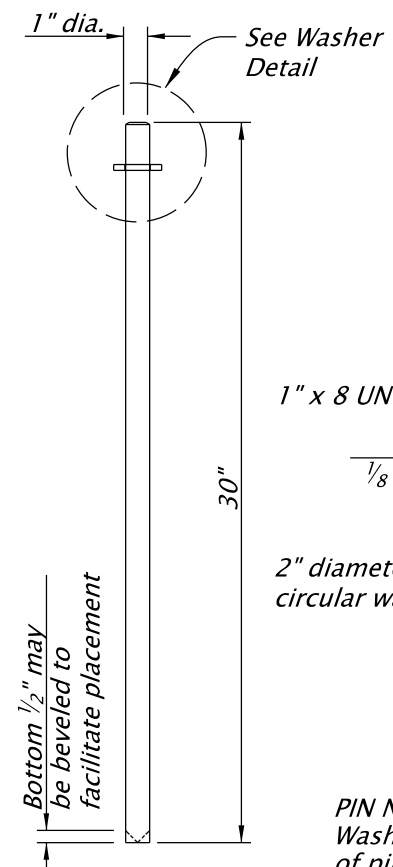
SECTION C-C



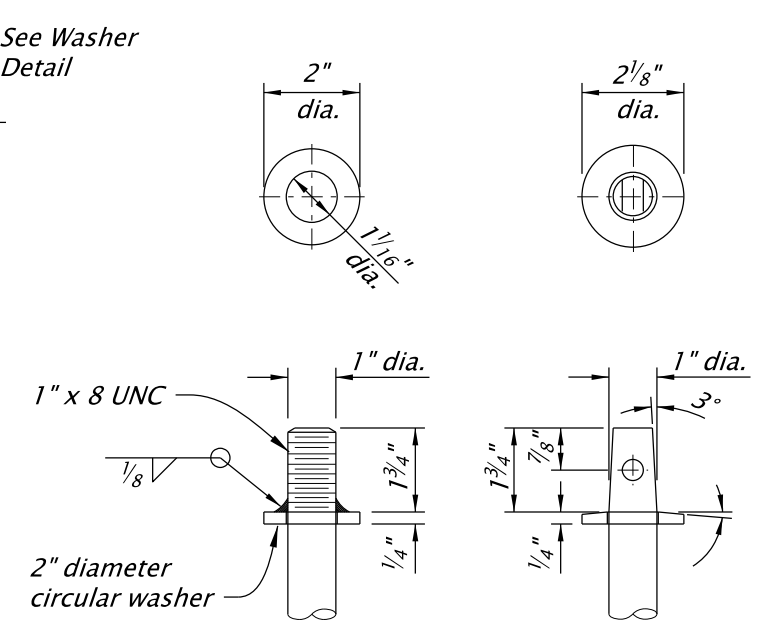
LONGITUDINAL BAR



LONGITUDINAL SCUPPER BAR

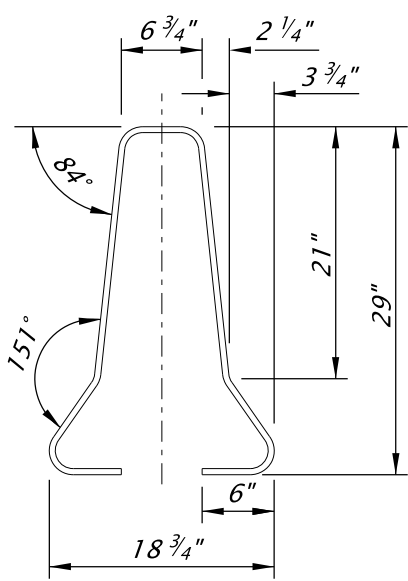


PIN DETAIL

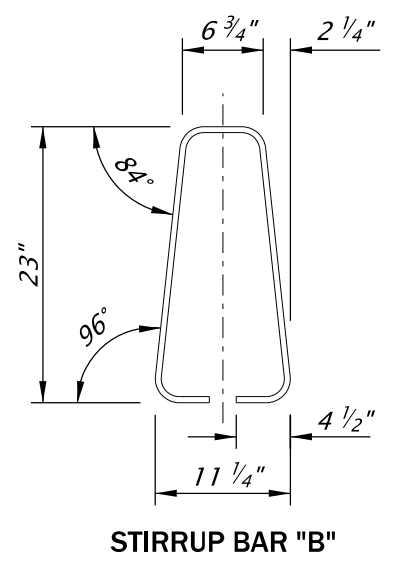


STANDARD ALTERNATE WASHER DETAIL

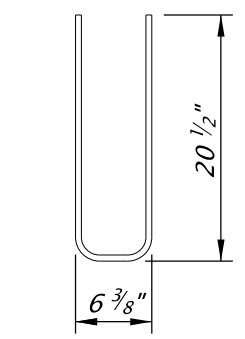
PIN NOTE: Washer shall be forged as integral part of pin or shall be welded as shown.



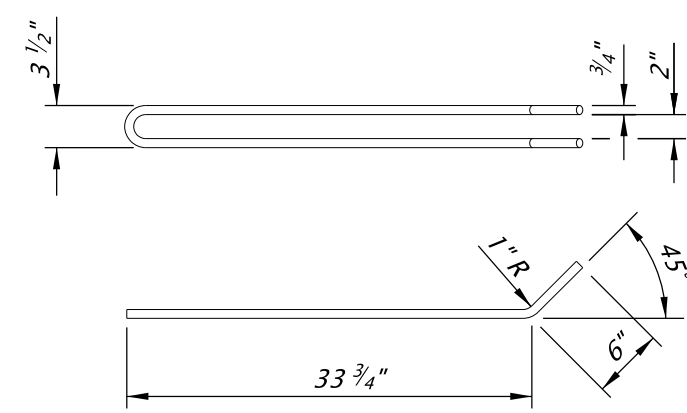
STIRRUP BAR "A"



STIRRUP BAR "B"



PIN SLOT BAR (When required)



LOOP BAR

REINFORCING STEEL BENDING DIAGRAM

- GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:**
- All reinforcement shall be full length as shown and shall be 2" clear of nearest face of concrete, unless otherwise shown.
 - Concrete grout for grouting over pins, pinning holes or grouting of scuppers shall be portland cement grout, weak in strength and of thick consistency, as directed.
 - See Std. Dwg. RD516 for securing concrete barrier to roadway.
 - All pins, bolts, dowels, loop bars, and connectors shall be hot-dip galvanized after fabrication.

<p>The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.</p>		<p>All materials shall be in accordance with the current Oregon Standard Specifications.</p>	
		<p>OREGON STANDARD DRAWINGS 32" PRECAST TYPE "F" CONCRETE BARRIER WITH SCUPPERS REINFORCING 2021</p>	
DATE	07-2022	REVISION	DESCRIPTION
			NEW DRAWING CREATED
CALC. BOOK NO.	N/A	SDR DATE	15-JUL-2022
			RD596

Effective Date: June 1, 2023 – November 30, 2023