**REINFORCEMENT LIST**

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**NOTES:**
1. FOR 57" SINGLE SLOPE MEDIAN BRIDGE RAILING, INCLUDE PLAN VIEW, ELEVATION VIEW, SECTIONS, REINFORCEMENT MARKS, AND REINFORCING QUANTITIES IN THE PROJECT PLANS.
2. FOR THE ENTIRE LENGTH OF SINGLE SLOPE CONCRETE MEDIAN BRIDGE RAILINGS, SHOW THE LOCATION OF CONTRACTION JOINTS, SPACED AT 20'-0" MAX IN THE PROJECT PLANS. CONTRACTION JOINT IS NOT REQUIRED WITHIN THE APPROACH SLAB MEDIAN BARRIER.
3. PLACE 1/8" THICK EPOXY COATED DOWEL BARS (Y501 BARS), 1" LONG, SPACED AT 6" MAXIMUM, AT STAGGERED LOCATIONS WITHIN THE UNREINFORCED MEDIAN BARRIER.
4. SEE APPROPRIATE STANDARD BRIDGE SPACING FOR ABUTMENT DETAILS.
5. FOR ROADWAY SINGLE SLOPE BARRIERS, SEE ROADWAY CONSTR. DWG. RM-4.3 THROUGH RM-4.8.
6. REFER TO APPENDIX FOR APPROPRIATE DETAILS FOR APPROACH SLAB BARRIERS USED WITH SUM-INTEGRAL AND INTEGRAL ABUTMENTS.
7. GLASS FIBER REINFORCED FABRIC (QFR) MAY BE USED FOR THE HORIZONTAL BARS ON STIFFENING BARS AT NO ADDITIONAL COST TO THE DEPARTMENT.
8. FOR GENERAL NOTES, SEE SHEET 55.
MATERIAL REINFORCEMENT LIST

**BENDING DIAGRAMS**

**MARK**

**LENGTH**

**TYPE**

**MATERIAL**

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**NOTES:**

1. FOR 57" SINGLE SLOPE MEDIAN BRIDGE RAILING, INCLUDE PLAN VIEW, ELEVATION VIEW, SECTION, REINFORCING MARKS, REINFORCING BENDING DIAGRAMS, AND REINFORCING QUANTITIES IN THE PROJECT PLANS.
2. FOR THE ENTIRE LENGTH OF SINGLE SLOPE CONCRETE MEDIAN BRIDGE RAILINGS, SHOW THE LOCATION OF CONTRACTION JOINTS, SPACED AT 20'-0" MAX IN THE PROJECT PLANS. CONTRACTION JOINT IS NOT REQUIRED WITHIN THE APPROACH SLAB MEDIAN BARRIER SECTIONS.
3. PLACE #8 EPOXY COATED DOWEL BARS (Y801 BARS), 12" LONG, SPACED AT 45" MAXIMUM, AT STAGGERED LOCATIONS WITHIN THE UNREINFORCED MEDIAN BARRIER.
4. SEE APPROPRIATE STANDARD BRIDGE DRAWING FOR ABUTMENT DETAILS.
5. FOR ROADWAY SINGLE SLOPE BARRIER, SEE STD. ROADWAY CONST. DWG. RM-4.3 THROUGH RM-4.20.
6. GLASS FIBER REINFORCED POLYMER (GFRP) MAY BE USED FOR THE HORIZONTAL BARS OR STIFFENING BARS AT NO ADDITIONAL COST TO THE DEPARTMENT.
7. FOR GENERAL NOTES, SEE SHEET 5.
8. FOR ROADWAY SINGLE SLOPE CONCRETE MEDIAN BRIDGE RAILING, INCLUDE PLAN VIEW, ELEVATION VIEW, SECTION, REINFORCING MARKS, REINFORCING BENDING DIAGRAMS, AND REINFORCING QUANTITIES IN THE PROJECT PLANS.

**SECTION E-E**

**REINFORCEMENT LIST**

**NOTES:**

1. FOR 57" SINGLE SLOPE CONCRETE MEDIAN BRIDGE RAILING, INCLUDE PLAN VIEW, ELEVATION VIEW, SECTION, REINFORCING MARKS, REINFORCING BENDING DIAGRAMS, AND REINFORCING QUANTITIES IN THE PROJECT PLANS.
2. FOR THE ENTIRE LENGTH OF SINGLE SLOPE CONCRETE MEDIAN BRIDGE RAILINGS, SHOW THE LOCATION OF CONTRACTION JOINTS, SPACED AT 20'-0" MAX IN THE PROJECT PLANS. CONTRACTION JOINT IS NOT REQUIRED WITHIN THE APPROACH SLAB MEDIAN BARRIER SECTIONS.
3. PLACE #8 EPOXY COATED DOWEL BARS (Y801 BARS), 12" LONG, SPACED AT 45" MAXIMUM, AT STAGGERED LOCATIONS WITHIN THE UNREINFORCED MEDIAN BARRIER.
4. SEE APPROPRIATE STANDARD BRIDGE DRAWING FOR ABUTMENT DETAILS.
5. FOR ROADWAY SINGLE SLOPE BARRIER, SEE STD. ROADWAY CONST. DWG. RM-4.3 THROUGH RM-4.20.
6. GLASS FIBER REINFORCED POLYMER (GFRP) MAY BE USED FOR THE HORIZONTAL BARS OR STIFFENING BARS AT NO ADDITIONAL COST TO THE DEPARTMENT.
7. FOR GENERAL NOTES, SEE SHEET 5.
For 57" single slope concrete median bridge railings, include plan view, elevation view, sections, reinforcing marks, reinforcing bending diagrams, and reinforcing quantities in the project plans.

For single slope barrier beyond the structure roadway barriers, see standard bridge drawings for applicable details for approach slab joints used with semi-integral and integral abutments.

Use glass fiber reinforced polymer (GFRP) for horizontal bars (G6__) and precast concrete I-beams/panches (G6__GFRP) for integral abutments.

Refer to As-2-15 for applicable details for approach slab joints used with roadway constr. DWG. RM-4.3 through RM-4.5.

For single slope barrier beyond the structure roadway barriers, see standard bridge drawing for abutment details.

Glass fiber reinforced polymer (GFRP) may be used for the horizontal bars or stiffening bars for the approach slab barrier at no additional cost to the department.

Joint is not required within the approach slab median barrier sections.

Show the locations of deflection joints in the project plans. Deflection joint is not required within the approach slab median barrier sections.
NOTES:

1. FOR 57° SINGLE SLOPE CONCRETE MEDIAN BRIDGE RAILING, INCLUDE PLAN VIEW, ELEVATION VIEW, SECTIONS, REINFORCING MARKS, REINFORCING BENDING DIAGRAMS, AND REINFORCING QUANTITIES IN THE PROJECT PLANS.

2. FOR THE ENTIRE LENGTH OF SINGLE SLOPE CONCRETE MEDIAN BRIDGE RAILINGS, SHOW THE LOCATIONS OF DEFLECTION JOINTS IN THE PROJECT PLANS. DEFLECTION JOINT IS NOT REQUIRED IN THE APPROACH SLAB MEDIAN BARRIER SECTIONS.

3. SEE APPROPRIATE STANDARD BRIDGE DRAWING FOR ASSEMBLY DETAILS.

4. FOR SINGLE SLOPE BARRELS BEYOND THE STRUCTURE (ROADWAY BARRIERS), SEE THE PROJECT PLANS.

5. USE GLASS FIBER REINFORCED POLYMER (GFRP) FOR HORIZONTAL BARS AND STIFFENING BARS (G601 & G602).

6. GLASS FIBER REINFORCED POLYMER (GFRP) MAY BE USED FOR THE HORIZONTAL BARS AND STIFFENING BARS.

7. FOR DEFLECTION JOINT DETAILS AND ADDITIONAL NOTES, SEE SHEET 55.
NOTES:

1. FOR THE ENTIRE LENGTH OF SINGLE SLOPE CONCRETE MEDIAN BRIDGE RAILINGS, PROJECT PLANS SHALL SHOW THE LOCATIONS OF DEFLECTION JOINTS.

2. DEFLECTION JOINT SPACING SHALL BE 10'-0" ON CENTERS EXCEPT FOR THE FIRST AND LAST BARRIER PANELS WITHIN THE BRIDGE LIMITS. THE FIRST AND LAST PANELS SHALL BE 10'-0" MINIMUM, 15'-0" MAXIMUM.

3. PAYMENT FOR GLASS FIBER REINFORCED PLASTIC (GFRP) STIFFENING REINFORCEMENT SHALL BE INCLUDED WITH CONTRACT PRICE FOR ITEM 509 - NO. Y601 DEFORMED BARS.

4. LIMITS OF SAWCUT IS SHOWN IN DETAIL A. THE 4" SAWCUT IS THE MINIMUM REQUIRED. HOWEVER, THE CONTRACTOR HAS AN OPTION TO PERFORM FULL DEPTH SAWCUT.

SECTION K-K
REINFORCEMENT SHOULD BE FOR ONE SIDE OF THE BACK-TO-BACK MEDIAN BARRIERS. REINFORCED CONCRETE DECK ON STEEL OR PRECASTED CONCRETE BEAMS/BEAMS/BEAMS/BEAMS NOT SHOWN

SECTION L-L
DEFLECTION JOINTS FOR 57" SINGLE SLOPE BACK-TO-BACK REINFORCED CONCRETE MEDIAN BRIDGE RAILINGS SHEETS

OPTIONAL REINFORCING STEEL
SHOW A SINGLE VERTICAL IN THE PROJECT PLANS. IN LIEU OF THE SINGLE VERTICAL, THE CONTRACTOR MAY USE THE OPTIONAL VERTICAL REINFORCEMENT SHOWN ABOVE IN THE FORM OF LAPPED BARS AT THE VERTICAL BAR SPACING AND SIZE SHOWN IN THIS DRAWING.

THE DEPARTMENT WILL NOT ADJUST THE TOTAL QUANTITY OF REINFORCEMENT TO ACCOMMODATE THIS OPTIONAL REINFORCEMENT. THE DEPARTMENT WILL CONSIDER DELAYS RESULTING FROM THIS OPTIONAL REINFORCEMENT AS NON-EXCUSABLE DELAYS.

CONTRACTION JOINTS FOR 57" SINGLE SLOPE UNREINFORCED CONCRETE MEDIAN BRIDGE RAILINGS TYPE B (SHEETS 128 AND 129)
SEE Std. Highway Constr. Exp. RM-4.3 Through RM-4.5 FOR NOTES

MINIMUM EMBEDMENT OF VERTICAL REINFORCING BARS
THE MINIMUM EMBEDMENT IS 1' IF THE MINIMUM EMBEDMENT SHOWN FOR THE VERTICAL REINFORCING BARS INTO THE BRIDGE DECK IS NOT MET, THEN THE DESIGNER SHALL CALCULATE THE REQUIRED REINFORCEMENT ACCORDING TO SECTION 15 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

OPTIONAL REINFORCING STEEL
SHOW A SINGLE VERTICAL IN THE PROJECT PLANS. IN LIEU OF THE SINGLE VERTICAL, THE CONTRACTOR MAY USE THE OPTIONAL VERTICAL REINFORCEMENT SHOWN ABOVE IN THE FORM OF LAPPED BARS AT THE VERTICAL BAR SPACING AND SIZE SHOWN IN THIS DRAWING.

THE DEPARTMENT WILL NOT ADJUST THE TOTAL QUANTITY OF REINFORCEMENT TO ACCOMMODATE THIS OPTIONAL REINFORCEMENT. THE DEPARTMENT WILL CONSIDER DELAYS RESULTING FROM THIS OPTIONAL REINFORCEMENT AS NON-EXCUSABLE DELAYS.

CONTRACTION JOINTS FOR 57" SINGLE SLOPE UNREINFORCED CONCRETE MEDIAN BRIDGE RAILINGS TYPE B (SHEETS 128 AND 129)
SEE Std. Highway Constr. Exp. RM-4.3 Through RM-4.5 FOR NOTES

DEFLECTION JOINTS FOR 57" SINGLE SLOPE BACK-TO-BACK REINFORCED CONCRETE MEDIAN BRIDGE RAILINGS SHEETS

FOR SLIPFORMED CONSTRUCTION:
AS SOON AS CUTTING OPERATIONS CAN BEGIN WITHOUT DAMAGING THE CONCRETE, SAWCUT 1 1/2 INCH DEEP DEFLECTION CONTROL JOINTS ALONG THE PERIMETER OF THE MEDIAN BRIDGE RAILING.

AFTER THE CURING PERIOD AND BEFORE APPLYING LOAD TO THE MEDIAN BRIDGE RAILING, PERFORM 4 INCH SAWCUT AS SHOWN IN DETAIL A. APPLIED BRIDGE RAILING LOAD INCLUDING CONSTRUCTION LOADS ON THE DECK (EXCLUDING PERSONNEL, HAND OPERATED EQUIPMENT AND MANUALLY POWERED VEHICLES), VEHICLE TRAFFIC IN THE LANE IMMEDIATELY ADJACENT TO MEDIAN BRIDGE RAILING AFTER REMOVAL OF TRAFFIC CONTROL DEVICES.

SEAL THE PERIMETER OF THE DEFLECTION JOINTS TO A MINIMUM DEPTH OF ONE INCH WITH A POLYURETHANE OR POLYMERIC MATERIAL CONFORMING TO ASTM C920. TYPE S LEAVE THE BOTTOM 1/2 INCH OF BOTH FRONT FACES OF THE MEDIAN BRIDGE RAILING UNSEALED TO ALLOW ANY WATER WHICH MAY ENTER THE JOINT TO ESCAPE.

DEFLECTION JOINT IS NOT REQUIRED WITHIN THE APPROACH SLAB MEDIAN BARRIER SECTIONS.

USE AN ENSO GUIDE, FRAME, OR U-JOINT TO ENSURE THAT THE CUT JOINT IS STRAIGHT TRUE, AND ALIGNED ON ALL FACES OF THE MEDIAN BRIDGE RAILING. THE JOINT WIDTH SHALL BE THE WIDTH OF THE SAW BLADE, A NOMINAL WIDTH OF 1/4 INCH.

SEAL THE PERIMETER OF THE DEFLECTION JOINTS TO A MINIMUM DEPTH OF ONE INCH WITH A POLYURETHANE OR POLYMERIC MATERIAL CONFORMING TO ASTM C920, TYPE S. LEAVE THE BOTTOM 1/2 INCH OF BOTH FRONT FACES OF THE MEDIAN BRIDGE RAILING UNSEALED TO ALLOW ANY WATER WHICH MAY ENTER THE JOINT TO ESCAPE.

DEFLECTION JOINT IS NOT REQUIRED WITHIN THE APPROACH SLAB MEDIAN BARRIER SECTIONS.

SEAL THE PERIMETER OF THE DEFLECTION JOINTS TO A MINIMUM DEPTH OF ONE INCH WITH A POLYURETHANE OR POLYMERIC MATERIAL CONFORMING TO ASTM C920, TYPE S. LEAVE THE BOTTOM 1/2 INCH OF BOTH FRONT FACES OF THE MEDIAN BRIDGE RAILING UNSEALED TO ALLOW ANY WATER WHICH MAY ENTER THE JOINT TO ESCAPE.

DEFLECTION JOINT IS NOT REQUIRED WITHIN THE APPROACH SLAB MEDIAN BARRIER SECTIONS.

SEAL THE PERIMETER OF THE DEFLECTION JOINTS TO A MINIMUM DEPTH OF ONE INCH WITH A POLYURETHANE OR POLYMERIC MATERIAL CONFORMING TO ASTM C920, TYPE S. LEAVE THE BOTTOM 1/2 INCH OF BOTH FRONT FACES OF THE MEDIAN BRIDGE RAILING UNSEALED TO ALLOW ANY WATER WHICH MAY ENTER THE JOINT TO ESCAPE.

DEFLECTION JOINT IS NOT REQUIRED WITHIN THE APPROACH SLAB MEDIAN BARRIER SECTIONS.