REINFORCING STEEL FOR 42° SBR-1 TRANSITION MOUNTED ON BRIDGE

<table>
<thead>
<tr>
<th>MARK</th>
<th>LENGTH</th>
<th>TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y501</td>
<td>7'-4&quot;</td>
<td>BENT</td>
</tr>
<tr>
<td>Y502</td>
<td>5'-4&quot;</td>
<td>BENT</td>
</tr>
<tr>
<td>Y503</td>
<td>5'-4&quot;</td>
<td>STR</td>
</tr>
<tr>
<td>Y504</td>
<td>4&quot;</td>
<td>STR</td>
</tr>
<tr>
<td>Y505</td>
<td>4&quot;</td>
<td>STR</td>
</tr>
<tr>
<td>Y602</td>
<td>8&quot;</td>
<td>STR</td>
</tr>
<tr>
<td>Y603</td>
<td>A + B - 6&quot;</td>
<td>BENT</td>
</tr>
<tr>
<td>Y604</td>
<td>A + B - 6&quot;</td>
<td>BENT</td>
</tr>
<tr>
<td>Y605</td>
<td>A + B - 6&quot;</td>
<td>BENT</td>
</tr>
<tr>
<td>Y606</td>
<td>A + B - 6&quot;</td>
<td>BENT</td>
</tr>
<tr>
<td>Y607</td>
<td>A + B - 6&quot;</td>
<td>BENT</td>
</tr>
<tr>
<td>Y608</td>
<td>A + B - 6&quot;</td>
<td>BENT</td>
</tr>
<tr>
<td>Y609</td>
<td>A + B - 6&quot;</td>
<td>BENT</td>
</tr>
<tr>
<td>Y610</td>
<td>A + B - 6&quot;</td>
<td>BENT</td>
</tr>
<tr>
<td>Y611</td>
<td>A + B - 6&quot;</td>
<td>BENT</td>
</tr>
<tr>
<td>Y612</td>
<td>A + B - 6&quot;</td>
<td>BENT</td>
</tr>
<tr>
<td>Y613</td>
<td>A + B - 6&quot;</td>
<td>BENT</td>
</tr>
</tbody>
</table>

BENDING DIAGRAMS

LEGEND:
- E.S. = EACH SIDE
- F.S. = FAR SIDE
- N.S. = NEAR SIDE
- * = SEE PROJECT PLANS.
- # = FIELD BEND BARS WHERE NECESSARY.

NOTES:
1. FOR ALL SINGLE SLOPE CONCRETE BRIDGE Railings INCLUDING THE 14°-0" TRANSITIONS, PROJECT PLANS SHALL INCLUDE PLAN VIEW, ELEVATION VIEW, SECTIONS, REINFORCING MARKS, REINFORCING BENDING DIAGRAMS, AND REINFORCING WEIGHTS.
2. SEE APPROPRIATE STANDARD BRIDGE DRAWING FOR ABUTMENT DETAILS.
3. FOR BRIDGE TERMINAL ASSEMBLY, SEE STD. CONSTR. DWGS. MGS-3.1 AND MGS-3.2.
4. FOR SAWCUT PERIMETER LENGTH, SEE DETAIL A ON SHEET 45.
5. FOR DEFLECTION JOINT DETAILS AND ADDITIONAL NOTES, SEE SHEET 55.
BENDING DIAGRAMS

R E I N F O R C I N G  S T E E L  F O R  4 2" S B R -1  T R A N S I T I O N  M O U N T E D  O N  W I N G W A L L

TOE OF PARAPET

4" SAWCUT

FACE OF CURB AND GUARDRAIL

APPROACH SLAB

PLAN VIEW

DRAWING

STANDARD BRIDGE

EXPANSION JOINT

SEE APPROPRIATE

10" = 2'-6"

SECTION B-B

SECTION D-D

SECTION C-C

SECTION E-E

SECTION A-A

SECTION D-D

SECTION E-E

REINFORCING STEEL FOR 42" SBR-1 TRANSITION MOUNTED ON WINGWALL

NOTES:
1. FOR ALL SINGLE SLOPE CONCRETE BRIDGE RAILINGS INCLUDING THE 42'-0" TRANSITIONS, PROJECT PLANS SHALL INCLUDE PLAN VIEW, ELEVATION VIEW, SECTIONS, REINFORCING MARKS, REINFORCING BENDING DIAGRAMS, AND REINFORCING WEIGHTS.
2. SEE APPROPRIATE STANDARD BRIDGE DRAWING FOR ABUTMENT DETAILS.
3. FOR BRIDGE TERMINAL ASSEMBLY, SEE STD. CONST. DWGS. MGS-3.1 AND MGS-3.2.
4. FOR DEFLECTION JOINT DETAILS AND ADDITIONAL NOTES, SEE SHEET 55.

LEGEND:
F. N. = EACH SIDE
F. S. = FAR SIDE
N. S. = NEAR SIDE
P. E. J. F. = PREFORMED EXPANSION JOINT FILLER

LEGEND:
JOINT FILLER
PREFORMED EXPANSION
NEAR SIDE
FAR SIDE
EACH SIDE

SEE APPROPRIATE EXPANSION JOINT STANDARD BRIDGE DRAWING
SAWCUT PERIMETER = 5'-9"
SECTION THROUGH SAWCUT
EDGE OF BRIDGE DECK

GLASS FIBER REINFORCED POLYMER (GFRP), SEE NOTE 4 (TYP.)
NOTES:
1. FOR THE ENTIRE LENGTH OF SINGLE SLOPE CONCRETE BRIDGE RAILINGS, PROJECT PLANS SHALL SHOW THE LOCATIONS OF DEFLECTION JOINTS.
2. DEFLECTION JOINT SPACING SHALL NOT EXCEED M-4'-0" ON CENTERS. FOR CONTINUOUS STRUCTURES, THE DEFLECTION JOINTS WITHIN THE DEAD LOAD CONTRAFLEXURE NEGATIVE MOMENT REGIONS OVER PIER LOCATIONS SHALL BE SPACED NOT LESS THAN 0'-6" NOR MORE THAN 1'-6" ON CENTERS.
3. PAYMENT FOR 5'-0" GLASS FIBER REINFORCED POLYMER (GFRP) STIFFENING REINFORCEMENT SHALL BE INCLUDED WITH CONTRACT PRICE FOR ITEM 509 - EPOXY COATED REINFORCING STEEL.
4. LIMITS OF SAWCUT IS SHOWN IN DETAIL A, SHEET 45. THE 4'-0" SAWCUT DEPTH SHOWN IN DETAIL A IS THE MINIMUM REQUIRED. HOWEVER, THE CONTRACTOR HAS AN OPTION TO PERFORM FULL DEPTH SAWCUT.

THE CONTRACTOR HAS AN OPTION TO PERFORM FULL DEPTH SAWCUT. HOWEVER, THE SAWCUT SHALL NOT BE LESS THAN 1'-0" FROM THE TOP OF THE CONCRETE DECK SLAB.

USE AN EDGE GUIDE, FENCE, OR JIG TO ENSURE THAT THE CUT JOINT IS STRAIGHT, TRUE, AND ALIGNED ON ALL FACES OF THE PARAPET. 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" INCH DEPTH OF THE JOURNEY UNSEALED TO ALLOW ANY WATER WHICH MAY ENTER THE JOINT TO ESCAPE.

AT EACH DEFLECTION JOINT LOCATION, USE GLASS FIBER REINFORCED POLYMER (GFRP) REBAR STIFFENING TO MAINTAIN THE RIGIDITY OF THE CAGE ACROSS THE PROPOSED JOINTS AT THOSE LOCATIONS.

MAXIMUM SPACING OF VERTICAL REINFORCING BARS FOR STANDARD 42" SBR-1 CONCRETE PARAPETS:
THE MAXIMUM SPACING OF VERTICAL REINFORCING BARS FOR THE STANDARD 42" SBR-1 CONCRETE PARAPET SHALL BE 1'-0", LESS NOTED OTHERWISE.

MAXIMUM SPACING OF VERTICAL REINFORCING BARS FOR 42" SBR-1 TRANSITIONS:
THE MAXIMUM SPACING OF VERTICAL REINFORCING BARS FOR THE 42" SBR-1 TRANSITION SECTION SHALL BE AS SHOWN ON SHEETS 45, 46, OR 47.

MINIMUM EMBEDMENT OF VERTICAL REINFORCING BARS:
IF THE MINIMUM EMBEDMENT SHOWN FOR THE VERTICAL REINFORCING BARS INTO THE BRIDGE DECK, APPROACH SLAB, OR WINGWALL IS NOT MET, THEN THE DESIGNER SHALL CALCULATE THE REQUIRED EMBEDMENT ACCORDING TO SECTION 13 OF THE "AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS.

MAXIMUM SPACING OF VERTICAL REINFORCING BARS FOR SINGLE SLOPE CONCRETE BRIDGE RAILINGS:

FOR SINGLE SLOPE CONCRETE BRIDGE RAILINGS, THE MAXIMUM SPACING OF VERTICAL REINFORCING BARS SHALL BE 1'-0", LESS NOTED OTHERWISE.

DESIGN CRITERIA:
42" SINGLE SLOPE CONCRETE BRIDGE RAILINGS MUST MEET THE REQUIREMENTS OF NCHRP 350 TEST LEVEL 5 AND "AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS", 2012.

DESIGN DATA:
CONCRETE - COMPRESSIVE STRENGTH = 4.5 KSI
REINFORCING STEEL - MINIMUM YIELD STRENGTH = 60 KSI
AREA OF STANDARD 42" SBR-1 CROSS SECTION = 588.0 SQ. IN.
VOLUME OF 42" SBR-1 TRANSITION SECTION = 1.82 CU. YD.

DEFLECTION JOINTS FOR CONCRETE PARAPETS:
FOR SLIPFORMED CONSTRUCTION:
DEFLECTION JOINTS FOR CONCRETE PARAPETS:
VOLUME OF 42" SBR-1 TRANSITION SECTION = 1.82 CU. YD.
AREA OF STANDARD 42" SBR-1 CROSS SECTION = 588.0 SQ. IN.
REINFORCING STEEL - MINIMUM YIELD STRENGTH = 60 KSI
CONCRETE - COMPRESSIVE STRENGTH = 4.5 KSI

DESIGN CRITERIA:
42" SINGLE SLOPE CONCRETE BRIDGE RAILINGS MUST MEET THE REQUIREMENTS OF NCHRP 350 TEST LEVEL 5 AND "AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS", 2012.

DESIGN DATA:
CONCRETE - COMPRESSIVE STRENGTH = 4.5 KSI
REINFORCING STEEL - MINIMUM YIELD STRENGTH = 60 KSI
AREA OF STANDARD 42" SBR-1 CROSS SECTION = 588.0 SQ. IN.
VOLUME OF 42" SBR-1 TRANSITION SECTION = 1.82 CU. YD.

DEFLECTION JOINTS FOR CONCRETE PARAPETS:
FOR SLIPFORMED CONSTRUCTION:
DEFLECTION JOINTS FOR CONCRETE PARAPETS:
VOLUME OF 42" SBR-1 TRANSITION SECTION = 1.82 CU. YD.
AREA OF STANDARD 42" SBR-1 CROSS SECTION = 588.0 SQ. IN.
REINFORCING STEEL - MINIMUM YIELD STRENGTH = 60 KSI
CONCRETE - COMPRESSIVE STRENGTH = 4.5 KSI

DESIGN CRITERIA:
42" SINGLE SLOPE CONCRETE BRIDGE RAILINGS MUST MEET THE REQUIREMENTS OF NCHRP 350 TEST LEVEL 5 AND "AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS", 2012.

DESIGN DATA:
CONCRETE - COMPRESSIVE STRENGTH = 4.5 KSI
REINFORCING STEEL - MINIMUM YIELD STRENGTH = 60 KSI
AREA OF STANDARD 42" SBR-1 CROSS SECTION = 588.0 SQ. IN.
VOLUME OF 42" SBR-1 TRANSITION SECTION = 1.82 CU. YD.

DEFLECTION JOINTS FOR CONCRETE PARAPETS:
FOR SLIPFORMED CONSTRUCTION:
DEFLECTION JOINTS FOR CONCRETE PARAPETS:
VOLUME OF 42" SBR-1 TRANSITION SECTION = 1.82 CU. YD.
AREA OF STANDARD 42" SBR-1 CROSS SECTION = 588.0 SQ. IN.
REINFORCING STEEL - MINIMUM YIELD STRENGTH = 60 KSI
CONCRETE - COMPRESSIVE STRENGTH = 4.5 KSI

DESIGN CRITERIA:
42" SINGLE SLOPE CONCRETE BRIDGE RAILINGS MUST MEET THE REQUIREMENTS OF NCHRP 350 TEST LEVEL 5 AND "AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS", 2012.

DESIGN DATA:
CONCRETE - COMPRESSIVE STRENGTH = 4.5 KSI
REINFORCING STEEL - MINIMUM YIELD STRENGTH = 60 KSI
AREA OF STANDARD 42" SBR-1 CROSS SECTION = 588.0 SQ. IN.
VOLUME OF 42" SBR-1 TRANSITION SECTION = 1.82 CU. YD.

DEFLECTION JOINTS FOR CONCRETE PARAPETS:
FOR SLIPFORMED CONSTRUCTION:
DEFLECTION JOINTS FOR CONCRETE PARAPETS:
VOLUME OF 42" SBR-1 TRANSITION SECTION = 1.82 CU. YD.
AREA OF STANDARD 42" SBR-1 CROSS SECTION = 588.0 SQ. IN.
REINFORCING STEEL - MINIMUM YIELD STRENGTH = 60 KSI
CONCRETE - COMPRESSIVE STRENGTH = 4.5 KSI