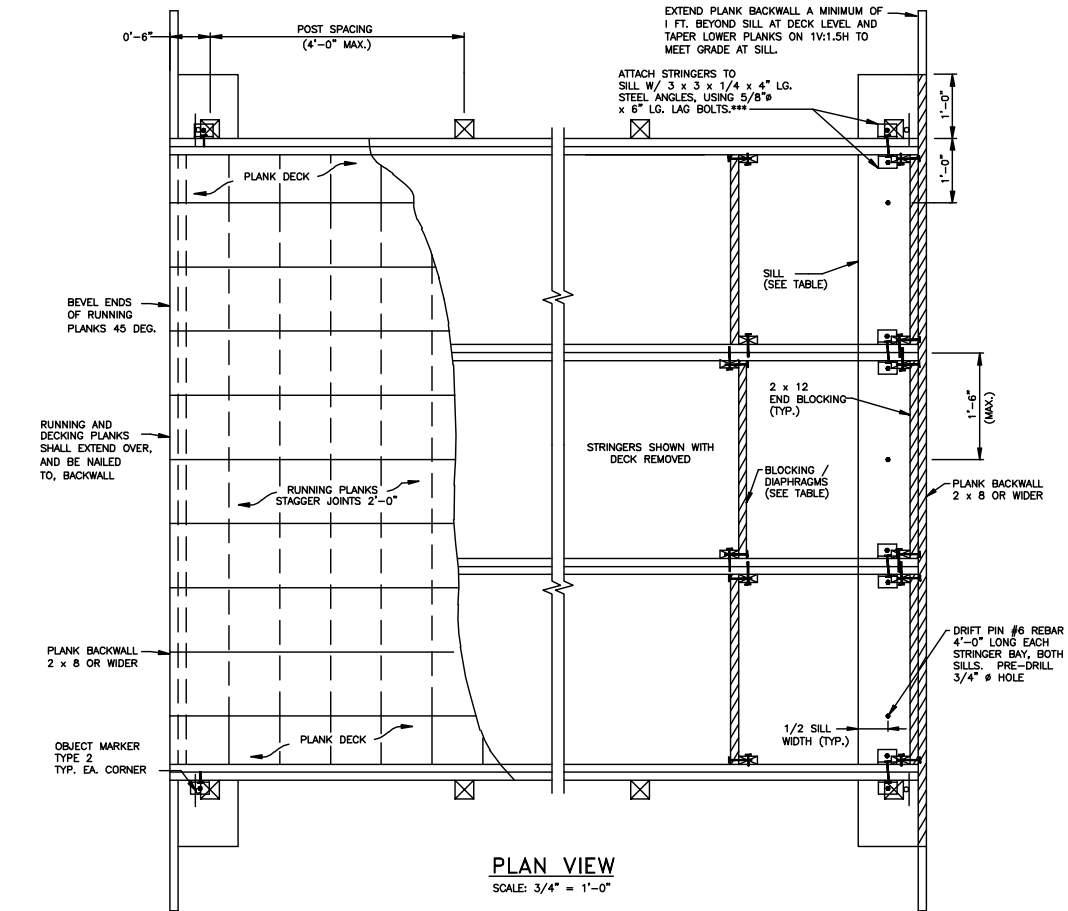


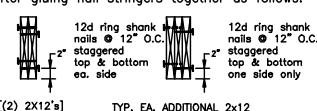
ELEVATION OF STRUCTURE
SCALE: 3/4" = 1'-0"



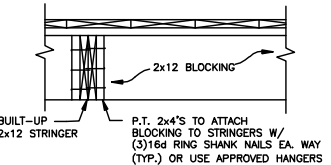
PLAN VIEW
SCALE: 3/4" = 1'-0"

*** FOR STEEL STRINGERS DRILL BOTTOM FLANGE FOR 5/8" LAG BOLTING TO SILLS IN LIEU OF USING 3X3X1/4 ANGLES. SLOT HOLES IN FLANGES TO ALLOW FOR TEMPERATURE MOVEMENT.

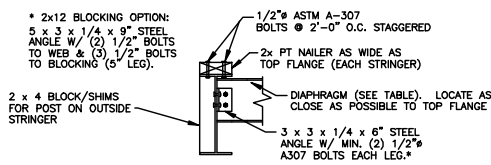
After gluing nail stringers together as follows:



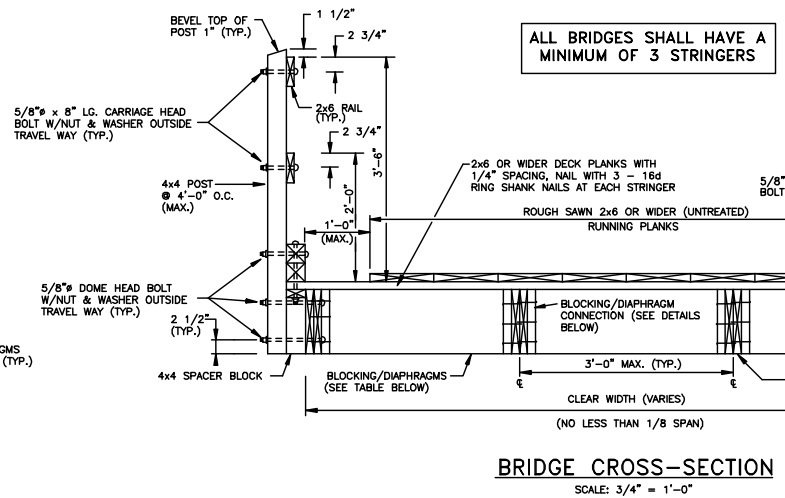
[[2] 2x12's] TYP. EA. ADDITIONAL 2x12



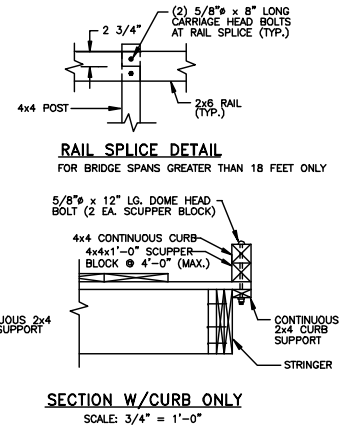
2 X 12 STRINGER / BLOCKING DETAILS
NTS



STEEL STRINGER/NAILER & DIAPHRAGM DETAIL
NTS



BRIDGE CROSS-SECTION
SCALE: 3/4" = 1'-0"



RAIL SPLICE DETAIL
FOR BRIDGE SPANS GREATER THAN 18 FEET ONLY
SCALE: 3/4" = 1'-0"

GENERAL NOTES & SPECIFICATIONS

- Loading & Design Criteria**
- USE OF THIS PLAN, DETERMINATION OF STRINGER LENGTH AND TYPE, RAILING REQUIREMENTS, AND STRUCTURE HEIGHT ABOVE STREAM BED, SHALL BE AS APPROVED BY THE FOREST ENGINEER. ANY MODIFICATIONS TO THIS PLAN MUST BE APPROVED BY THE REGIONAL BRIDGE ENGINEER.
 - Ground Snow Load - $P_g = 70$ PSF (reduced to 50 PSF w/ Trail Groomer load).
 - Deck Live Load - Pedestrian (AASHTO) = 85 PSF.
Trail groomer = 7,600 LBS on two 9'-0" x 2'-8" tracks.
 - Posts & Rails - Post & Rails were designed for AASHTO Pedestrian Load only. RAIL IS NOT A GUARD FOR VEHICULAR TRAFFIC.
 - Stringer Live Load Deflection Limits - Steel = $L/500$, Lumber = $L/360$.
 - Structure shall have a level cross slope with no more than a 5% grade along its length unless otherwise approved by the Forest Engineer.

- Specifications**
- AASHTO Standard Specification for Highway Bridges, 1996, 16th Edition.
 - IBC 2000 International Building Code, 2000 Edition.
 - National Design Specification for Wood Construction, 1997 Edition, by National Forest Products Assoc.
 - American Wood Preservers Association Standards, Waterborne Preservative Standard P5 Type A, Standard C2, and Standard C14.
- Lumber**
- Lumber for solid sawn stringers, deck, backwall, rail, posts, curbs, and mud sill shall be No. 2 or better Southern Yellow Pine pressure treated per AWPA Standards. Running planks may be untreated.
 - Drawings are prepared using S4S finished dimensions unless noted otherwise. If rough sawn lumber is used adjust dimensions as required.
 - All lumber shall be sawn and fabricated prior to pressure treatment with respective preservative.

- Steel**
- Steel for stringers, and other structural sections, shall conform to ASTM A572 Grade 50. Steel angles shall meet ASTM A36. Shop prime with two coats of zinc oxide primer, after fabrication.
 - Once steel is situated in field, apply zinc oxide primer to all areas where primer had been removed due to placement.
- Hardware**
- All bolts, washers, nuts and miscellaneous metal hardware shall be ASTM A307 hot dipped galvanized.
 - Fasteners shall be hot dipped galvanized ring shank nails or wood screws. Drift pins for sill shall be deformed No. 6 reinforcing bars meeting ASTM A615.

- Glue**
- Apply glue between each lamination using a waterproof exterior adhesive compatible with preservative treatment such as PL-500 by Contech or approved equal. Apply 3/8" continuous bead @ 1 1/2" o.c.
- Sign Requirements**
- Install (4) Type 2 Object Markers (6"x12"). Place one at each corner of bridge as indicated on plan.

- Construction**
- Clear opening of bridge above the steam bed shall be determined by the Forest Engineer and approved by the governing Federal and State agencies as required.
 - Mud sills shall bear on native soil or ledge rock free from compressible organic material and capable of supporting the bridge under full load. Provide uniform bearing under entire length of sill. Other foundation conditions require approval by a Forest Engineer.
 - Stringers with camber shall be positioned so that camber is up and knots near near the edge will be in the top half of the stringers.
 - Deck planks shall be laid heart side down.
 - Railing shall be required on all structures unless waived by Forest Engineer. All structures shall have 4x4 continuous curbing.
 - Use minimum splicing of curbing. Locate splices midway between post centerline and curb scupper block centerline.

STRINGER OPTION TABLE									
SPAN (FT.)	FULL LENGTH ** DIMENSION LUMBER	WEIGHT (LBS.)	BLK. PTS.	SILL REQ'D	A572 GRADE 50 STEEL BEAMS	WEIGHT (LBS.)	DIA. PTS.	SILL REQ'D	
8	(1) 2 x 12 interior	38	1/2	8 x 8					
or less	(1) 2 x 12 exterior	38	1/2	8 x 8					
10	(2) 2 x 12 interior	94	1/2	8 x 8	W 8 x 10	100	1/2	8 x 8	
12	(3) 2 x 12 interior	169	1/2	8 x 8	W 12 x 14	168	1/2	8 x 8	
	(2) 2 x 12 exterior	113	1/2	8 x 8					
14	(3) 2 x 12 interior	197	1/2	8 x 8	W 12 x 14	196	1/2	8 x 8	
	(2) 2 x 12 exterior	137	1/2	8 x 8					
16	(4) 2 x 12 interior	300	1/2	8 x 8	W 12 x 19	304	1/2	8 x 8	
	(3) 2 x 12 exterior	225	1/2	8 x 8					
18	(5) 2 x 12 interior	422	1/3	8 x 8	W 12 x 19	342	1/2	8 x 8	
	(3) 2 x 12 exterior	254	1/3	8 x 8					
20					W 12 x 19	380	1/2	10 x 10	
22					W 16 x 26	572	1/2	10 x 10	
24					W 16 x 26	624	1/2	10 x 10	
26					W 16 x 31	806	1/3	10 x 10	
28					W 16 x 31	868	1/3	10 x 10	
30					W 16 x 31	930	1/3	10 x 10	
32					W 18 x 40	1280	1/3	10 x 10	
34					W 18 x 40	1360	1/3	10 x 10	
36					W 21 x 44	1584	1/3	10 x 10	
38					W 21 x 44	1672	1/3	10 x 10	
40					W 21 x 44	1760	1/4	12 x 12*	
42					W 24 x 55	2310	1/4	12 x 12*	
44					W 24 x 55	2420	1/4	12 x 12*	
46					W 24 x 62	2852	1/4	12 x 12*	
48					W 24 x 62	2976	1/4	12 x 12*	
50					W 24 x 62	3100	1/4	12 x 12*	

* Sills and bridge foundation require design by Forest Engineer
** Use full length stringers, no splices allowed.

BLOCKING / DIAPHRAGM TABLE		
All 2x12 Stringers	Steel Stringers	Diaphragm Required
Use 2x12 Blocking (all spans)	W 8 x	C 4 x 7.25 or 2x12
	W 12 x	C 6 x 10.5 or 2x12
	W 16 x	C 8 x 11.5 or 2x12
	W 18 x	C 9 x 13.4 or 2x12
	W 21 x	C 10 x 15.3 or 2x12
	W 24 x	C 12 x 20.7 or 2x12

Project Name

**U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE**

**R-9
EASTERN REGION**

Project Name

STANDARD SNOWMOBILE & TRAIL GROOMER BRIDGE

GOR / PROJECT LEADER

Drawing Title

STRUCTURAL PLAN & DETAILS

Drawn	J. W. KAMB	Project	STANDARD
Checked	J. S. GROENIER	Drawing No.	
CAD File No.	RSTDSNOWBRD.dwg		
Date	APRIL 17, 2003		
Scale	AS NOTED		

S-1