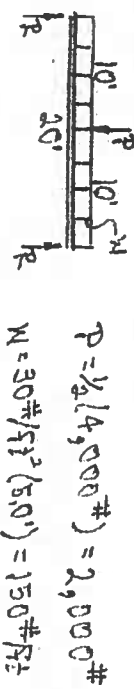


PLAN

VEHICLE WEIGHT = 4,000 #

BRIDGE DECKING & FRAMING = 50 #/sq ft



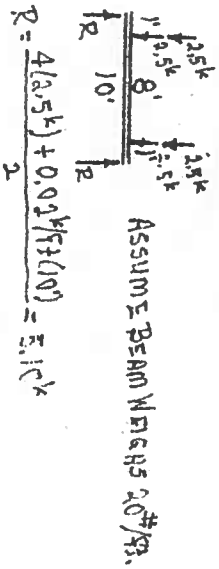
$$P = \frac{2.0k + 0.15k/ft(20')}{2} = 2.5k$$

$$M_{max} = \frac{PL}{4} + \frac{wL^2}{8} = \frac{2.0k(20')}{4} + \frac{0.15k/ft(20')^2}{8} = 17.5k$$

$$F_{bx} = 0.66F_y = 0.66(36.0k/ft^2) = 23.76k/ft^2$$

$$S_{req'd} = \frac{M_x}{F_{bx}} = \frac{17.5k(12)}{23.76k/ft^2} = 8.84 in^3$$

SELECT: W10x15  $S_x = 13.4 in^3$



$$R = \frac{4(2.5k) + 0.02k/ft(10')}{2} = 5.1k$$

$$M_{max} @ C = 5.10k(5.0') - 2(4.5k)(4) - 0.02k/ft(5)(2.5') = 5.25k$$

TRY W10x15:  $S_x = 13.8 in^3$ ,  $L_c = 4.2 ft$ ,  $L_e = 5.0 ft$ ,  $d/A_g = 9.25$

$$F_{bx} = \frac{12 \times 10^3 C_b - 12,000(1.0)}{2.0(13.8) - 9.25(5)} = 13.31 ksi$$

$$F_{bx} = \frac{M_x}{S_x} = \frac{5.25k(12)}{13.8 in^3} = 4.57 ksi < F_{bx} = 13.31 ksi$$

$$A_x = \frac{M_x}{F_{bx}} = \frac{5.25k(12)}{13.31 ksi} = 4.7 in^2$$

USE: W10x15



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no.	date	revision

BRIDGE STEEL  
CALCULATIONS

KAYCLIFF CENTER at Boone Lake  
THE KAYCLIFF FOUNDATION  
BOONE LAKE WASHINGTON COUNTY, TN

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