

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

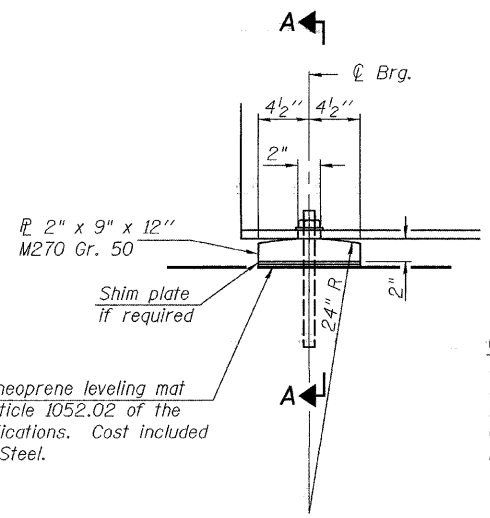
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 13 20 SHEETS
F.A.P. 322	12-1, BR	UNION	36	29	
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT			

Contract #98886

0.5 Sp. 1		
I_s	(in ⁴)	2370
$I_c(n)$	(in ⁴)	7966
$I_c(3n)$	(in ⁴)	6027
S_s	(in ³)	196
$S_c(n)$	(in ³)	323
$S_c(3n)$	(in ³)	292
DC1	(k/')	0.897
MDC1	(k)	165.0
DC2	(k/')	0.152
MDC2	(k)	27.9
DW	(k/')	0.375
MDW	(k)	68.9
$M_k + Imp$	(k)	423.9
M_u (Strength I)	(k)	1086.1
$\phi_r M_n$	(k)	1759.0
f_s DC1	(ksi)	10.1
f_s DC2	(ksi)	1.2
f_s DW	(ksi)	2.8
f_s 1.3(4+I)	(ksi)	20.7
f_s (Service II)	(ksi)	34.8
f_s (Total)(Strength I)	(ksi)	-
V_r	(k)	21.4

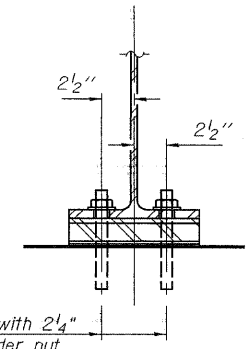
HL93 Loading Service I		Abutment
R_{DC1}	(k)	17.2
R_{DC2}	(k)	2.9
R_{DW}	(k)	7.2
$R_k + Imp$	(k)	76.4
R_{Total}	(k)	103.7

- I_s, S_s : Non-composite moment of inertia and section modulus of the steel section used for computing f_s (Total-Strength I, and Service II) due to non-composite dead loads (in⁴ and in³).
- $I_c(n), S_c(n)$: Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing f_s (Total-Strength I, and Service II) due to short-term composite live loads (in⁴ and in³).
- $I_c(3n), S_c(3n)$: Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing f_s (Total-Strength I, and Service II) due to long-term composite (superimposed) dead loads (in⁴ and in³).
- DC1: Un-factored non-composite dead load (kips/ft.).
- MDC1: Un-factored moment due to non-composite dead load (kip-ft.).
- DC2: Un-factored long-term composite (superimposed excluding future wearing surface) dead load (kips/ft.).
- MDC2: Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load (kip-ft.).
- DW: Un-factored long-term composite (superimposed future wearing surface only) dead load (kips/ft.).
- MDW: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).
- $M_k + Imp$: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).
- M_u (Strength I): Factored design moment (kip-ft.).
 $1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_k + Imp$
- $\phi_r M_n$: Compact composite positive moment capacity computed according to Article 6.10.7.1 (kip-ft.).
- f_s (Service II): Sum of stresses as computed from the moments below (ksi).
 $M_{DC1} + M_{DC2} + M_{DW} + 1.3 M_k + Imp$
- f_s (Total)(Strength I): Sum of stresses as computed from the moments below on non-compact section (ksi).
 $1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_k + Imp$
- V_r : Factored shear range computed according to Article 6.10.10.



ELEVATION AT ABUTMENT

FIXED BEARING



SECTION A-A

Note:
A 1/8" x 9" x 12" Fill ρ is required at Beam 4 North Abutment and Beam 3 South Abutment.

BILL OF MATERIAL

Item	Unit	Total
Anchor Bolts 1" ϕ	Each	24

DESIGNED Patrick M. Petrone
 CHECKED Jay D. Edwards
 DRAWN BECKY M. LEACH
 CHECKED PMP/JDE

EXAMINED Thomas J. Domagalaki
 PASSED Ralph E. Anderson

July 22, 2008

STRUCTURAL STEEL DETAILS
 F.A.P. ROUTE 322 - SECTION 12-1, BR
 UNION CO.
 STATION 801+60.00
 STRUCTURE NO. 091-0022