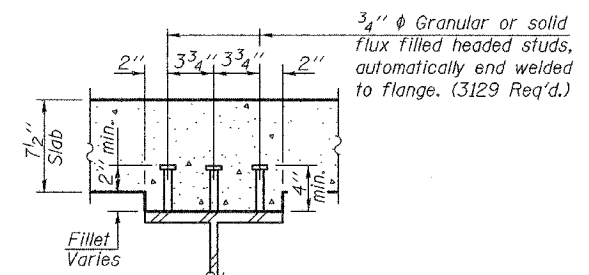
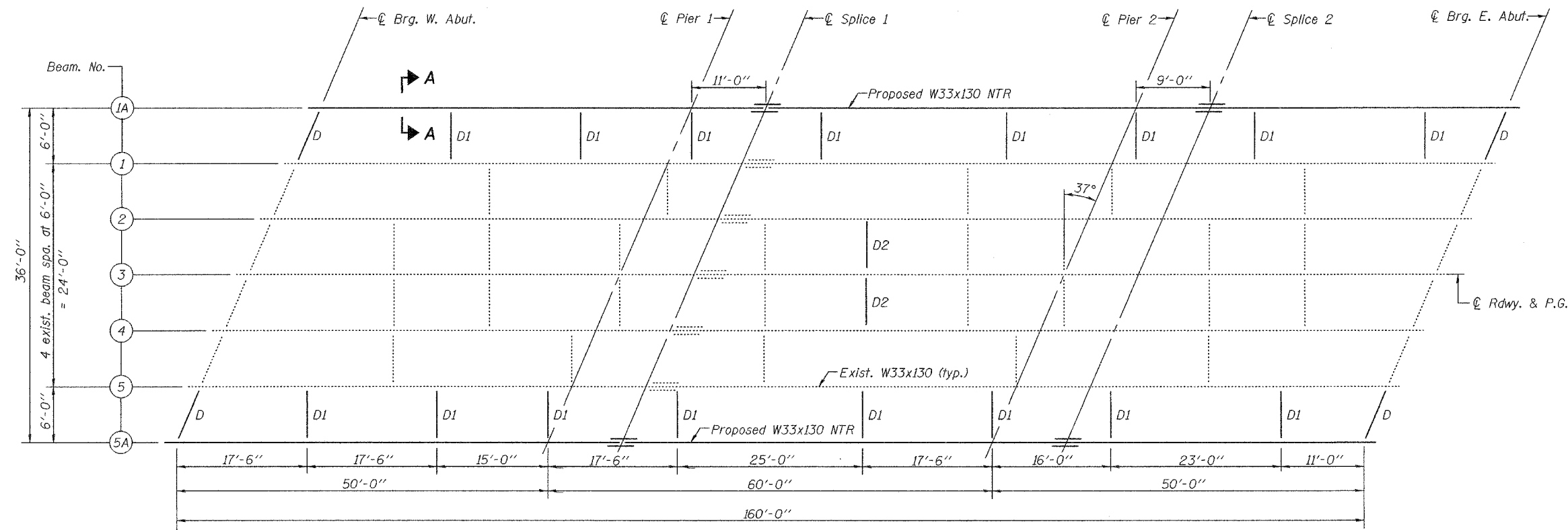


STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

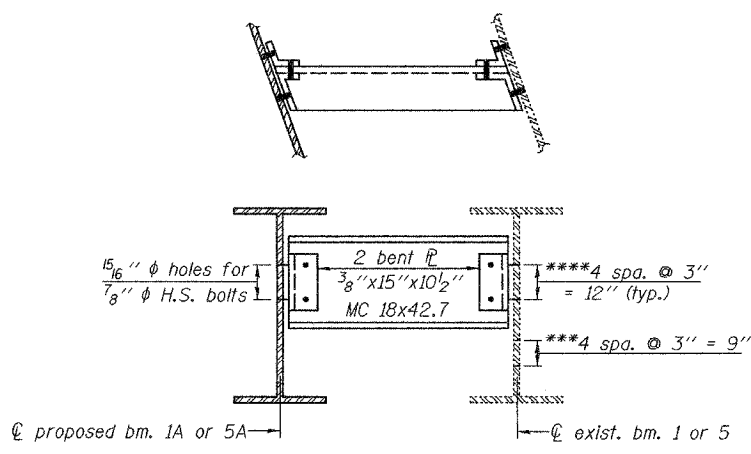
ROUTE NO.	SECTION	COUNTY	SHEET NO.	SHEET	SHEET NO. 8 22 SHEETS
F.A.P. 309	7VBR	WHITESIDE	14b	68	
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-			

Contract #84883



**PLAN**

For Structural Steel Removal, see sheet 19 of 22.



**DIAPHRAGM D**  
(4 Required)

\*\*\*Existing holes in existing beam 1 & 5 shall be filled with 7/8"  $\phi$  H.S. bolts. Cost included with F&E Structural Steel.  
\*\*\*Use holes in web of existing W33x130 as template to drill 15/16"  $\phi$  holes in bent  $\bar{P}$ . Cost included with F&E Structural Steel.

INTERIOR GIRDER MOMENT TABLE				
		0.4 Sp. 1 & 3	Piers 1 & 2	0.5 Sp. 2
$I_s$	(in <sup>4</sup> )	6710	6710	6710
$I_c$ (n)	(in <sup>4</sup> )	17116	---	17116
$I_c$ (sn)	(in <sup>4</sup> )	12508	---	12508
$S_s$	(in <sup>3</sup> )	406	406	406
$S_c$ (n)	(in <sup>3</sup> )	585	---	585
$S_c$ (sn)	(in <sup>3</sup> )	527	---	527
$\bar{Q}$	(k/ft.)	0.725	1.162	0.725
$M\bar{Q}$	(k)	129.2	325.8	105.5
$s\bar{Q}$	(k/ft.)	0.437	---	0.437
$M_s\bar{Q}$	(k)	89.1	---	91.5
$M\bar{k}$	(k)	291.8	163.3	310.3
$M$ (Imp)	(k)	83.4	45.4	83.8
$5_s[M\bar{k} + M(Imp)]$	(k)	625.5	347.9	656.9
$M_a$	(k)	1096.9	875.8	1110.2
$M_u$	(k)	1536	---	1536
$f_s\bar{Q}$ non-comp	(k.s.i.)	3.8	9.6	3.1
$f_s\bar{Q}$ (comp)	(k.s.i.)	2.0	---	2.1
$f_s 5_s(\bar{k} + Imp)$	(k.s.i.)	12.8	10.3	13.5
$f_s$ (Overload)	(k.s.i.)	18.6	19.9	18.7
$f_s$ (Total)	(k.s.i.)	---	25.8	---
$VR$	(k)	43.3	---	35.6

INTERIOR GIRDER REACTION TABLE			
	Abuts.	Piers	
$R\bar{Q}$	(k)	22.5	44.3
$R\bar{k}$	(k)	30.9	36.9
$Imp.$	(k)	8.6	10.3
$R$ (Total)	(k)	62.0	91.5

\*Compact Section  
\*\*Unbraced section. Strength = 33ksi

Notes:  
 $I_s$  and  $S_s$  are the moment of inertia and section modulus of the steel section used in computing  $f_s$  (Total & Overload).  
 $I_c(n)$  and  $S_c(n)$  are the moment of inertia and section modulus of the composite section used in computing stresses due to Live Load.  
 $I_c(sn)$  and  $S_c(sn)$  are the moment of inertia and section modulus of the composite section used in computing stresses due to superimposed dead loads. (see AASHTO 10.38)  
 $VR$  is the maximum Live Load + Impact shear range in span.  
 $M_a$  (Applied Moment) =  $1.3[M\bar{Q} + M_s\bar{Q} + 5_s(M\bar{k} + M(Imp))]$ .  
The Plastic Moment capacity ( $M_u$ ) is computed according to AASHTO 10.48.1 and 10.50.1.1.  
 $f_s$  (Overload) is the sum of the stresses due to  $M\bar{Q} + M_s\bar{Q} + 5_s(M\bar{k} + M(Imp))$ .  
 $f_s$  (Total) (Non-compact section) is the sum of the stresses due to  $1.3[M\bar{Q} + M_s\bar{Q} + 5_s(M\bar{k} + M(Imp))]$ .

DESIGNED	Patrick M. Petrone
CHECKED	Stephen M. Ryan
DRAWN	R. Sommer
CHECKED	P.M.P./S.M.R.

October 11, 2005  
EXAMINED *Thomas J. Domagala*  
ENGINEER OF BRIDGE DESIGN  
PASSED *Ralph E. Anderson*  
ENGINEER OF BRIDGES AND STRUCTURES

**STRUCTURAL STEEL**  
**F.A.P. RT. 309 SEC. 7VBR**  
**WHITESIDE COUNTY**  
**STATION 47+18.53**  
**STRUCTURE No. 098-6001**