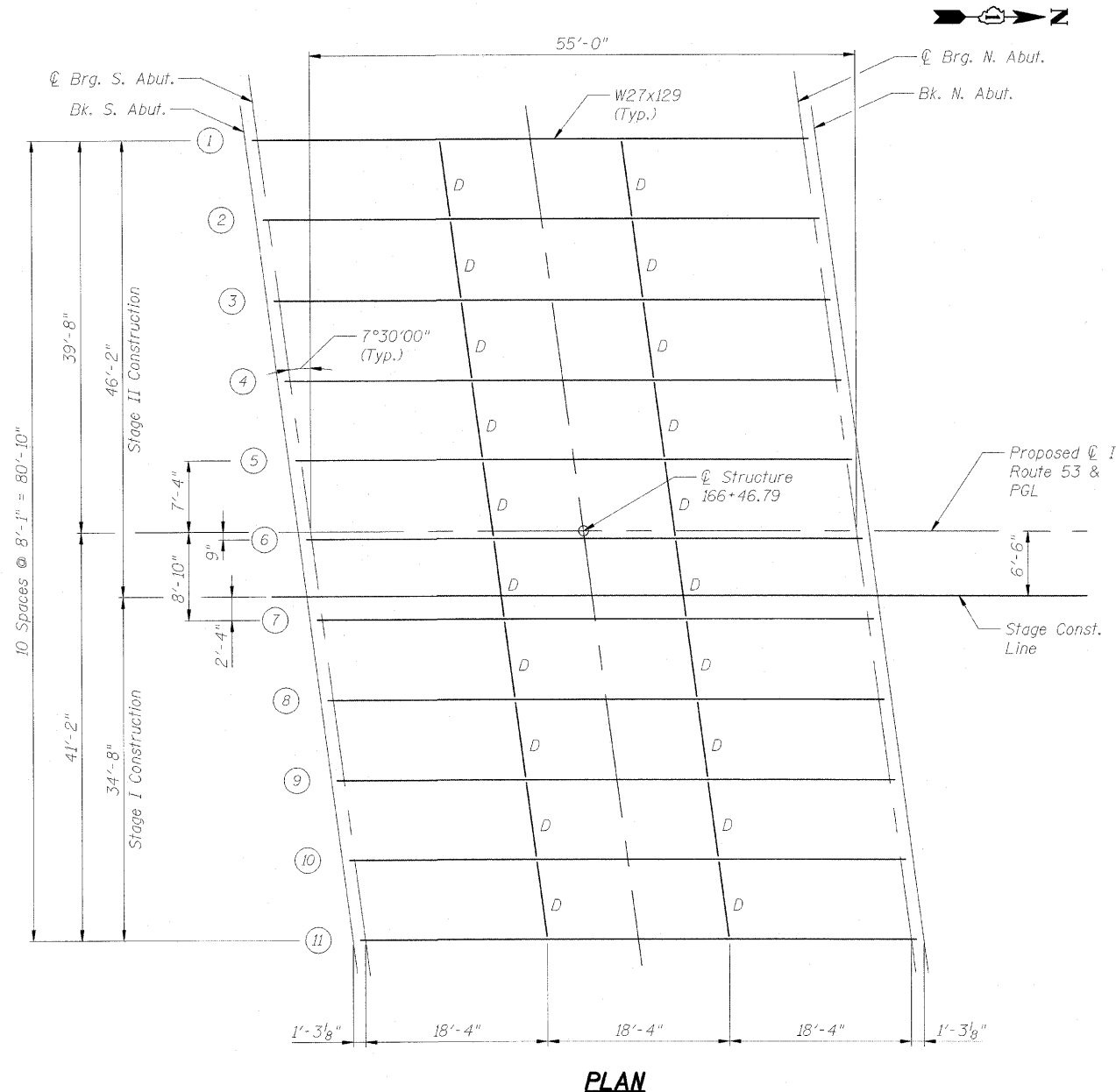
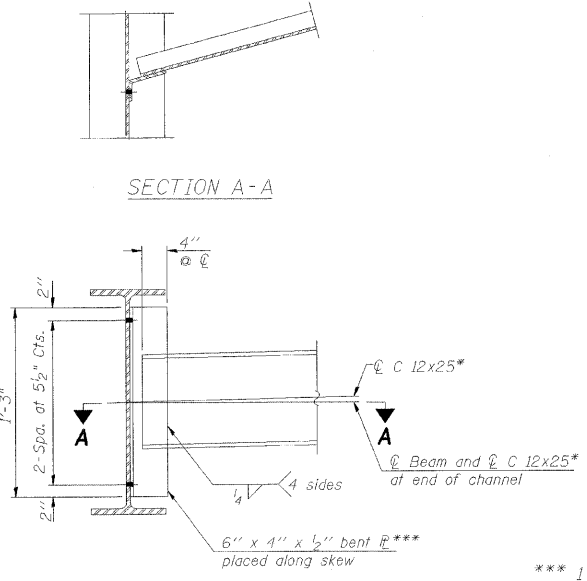


F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2578	532B-1	DUPAGE	117	56
FED. ROAD DIST. NO. 7 ILLINOIS			FED. AID PROJECT	



PLAN



DIAPHRAGM D
(20 Required)

*** 17/8" long-slotted vertical holes on connecting bent plates of adjacent beams along the stage construction line. See Notes 1 and 5.

		0.5 Span
I_s	(in ⁴)	4,760
$I_c (n)$	(in ⁴)	12,772
$I_c (3n)$	(in ⁴)	9,462
S_s	(in ³)	345
$S_c (n)$	(in ³)	503
$S_c (3n)$	(in ³)	456
M_D	(k')	0.92
M_Q	(k)	348
s_D	(k')	0.54
$M_s Q$	(k)	203
M_L	(k)	522
$M (Imp)$	(k)	145
$S_3 [M_L + M (Imp)]$	(k)	1,111
M_a	(k)	2,161
M_u	(k)	2,497
$f_s Q$ non-comp	(ksi)	12.1
$f_s Q$ (comp)	(ksi)	5.3
$f_s S_3 [M_L + M (Imp)]$	(ksi)	26.5
f_s (Overload)	(ksi)	44.0
f_s (Total)	(ksi)	
VR	(k)	62

		Abutments
R_D	(k)	73.1 **
R_L	(k)	48.6
Imp.	(k)	13.5
R (Total)	(k)	135.3

** - Includes weight of concrete Diaphragms and Approach Slab

BILL OF MATERIAL

ITEM	UNIT	TOTAL
Furnishing and Erecting Structural Steel	L. Sum	1

NOTES:

- Two hardened washers shall be required over all oversized holes for diaphragms.
- *Alternate channels C12x30 are permitted to facilitate material acquisition. Calculated weight of structural steel is based on the lighter section. The alternate, if utilized, shall be provided at no additional cost to the Department. 3-3/4" ϕ HS bolts, 15/16" ϕ holes
- Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.
- All diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as noted otherwise.
- Bolts for slotted holes shall only be finger tightened prior to pouring of deck slab and shall be fully tightened after completion of deck pour.

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.
 $I_c(3n)$ and $S_c(3n)$ are the moment of inertia and section modulus of the composite section used in computing stresses due to superimposed dead loads.
 VR is the maximum Live Load + Impact Shear range in span.
 M_a (Applied Moment) = $1.3[M_D + 5/3 (M_L + M_{Imp})]$.
 The Plastic Moment capacity (M_u) is computed according to AASHTO 10.48.1 & 10.50.1.1.
 f_s (Overload) is the sum of the stresses due to $M_D + M_s Q + 5/3 (M_L + M_{Imp})$.
 f_s (Total) is the sum of the stresses due to $1.3[M_D + M_s Q + 5/3 (M_L + M_{Imp})]$.
 M_D - Moment due to dead loads on non-composite section.
 $M_s Q$ - Moment due to dead loads on composite section.
 M_L - Moment due to live load on composite section.
 M_{Imp} - Moment due to live load impact on composite section.

NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

FRAMING PLAN

ILLINOIS ROUTE 53 OVER
 SPRING BROOK CREEK
 FAU 2578 SECTION 532B-1
 STRUCTURE NO. 022-0189
 DUPAGE COUNTY STATION 166+46.79

SCALE: NONE DRAWN BY: E. MROCEK
 DATE: 6/12/09 CHECKED BY: G. HATLESTAD



06/12/09 10:51:11 AM
 06/ND01A3566.A0.DL531SpringBrookCreekStructure09-FramingPlan.dgn
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