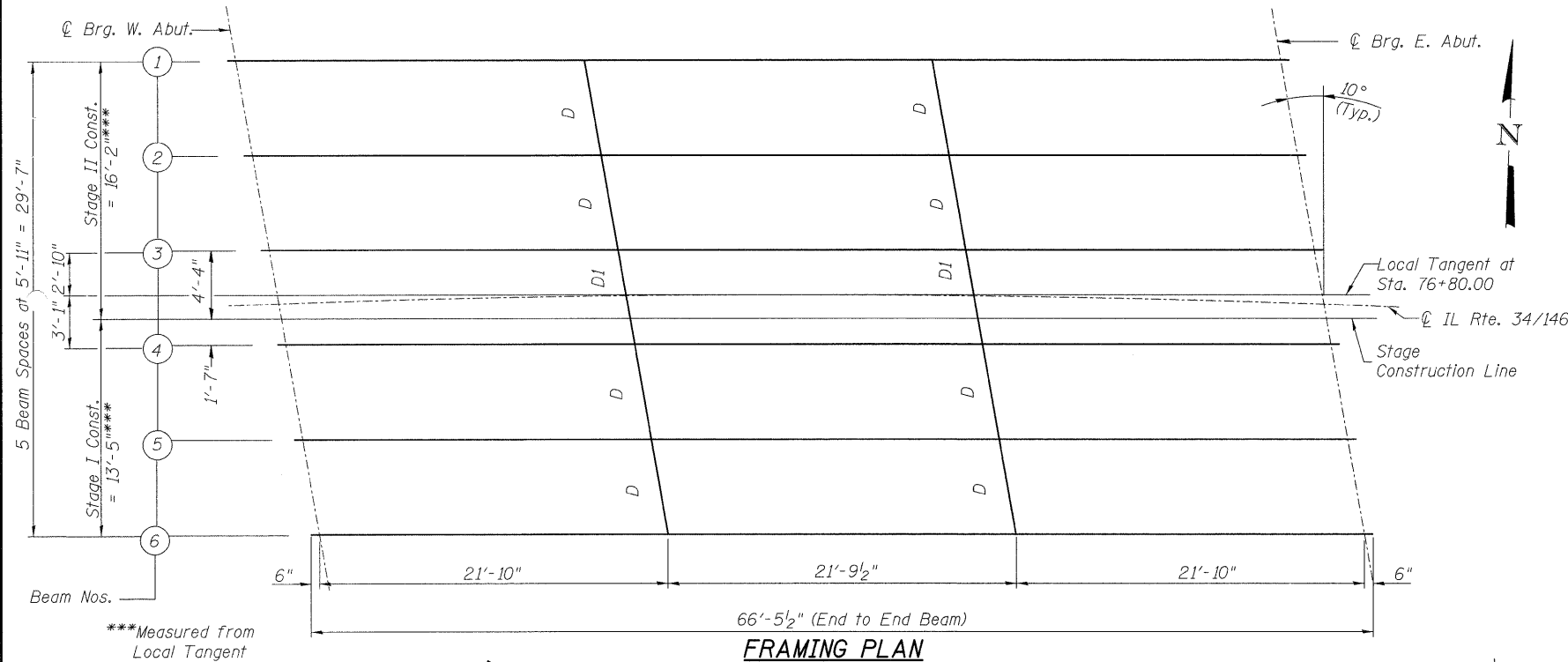


STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



		0.5 Span
I_s	(in ⁴)	5770
$I_c(n)$	(in ⁴)	15637
$I_c(3n)$	(in ⁴)	11289
S_s	(in ³)	381
$S_c(n)$	(in ³)	569
$S_c(3n)$	(in ³)	510
DC1	(k/ft)	0.749
M _{DC1}	(k)	401
DC2	(k/ft)	0.150
M _{DC2}	(k)	80
DW	(k/ft)	0.269
M _{DW}	(k)	144
$M_k + IM$	(k)	846
M_u (Strength I)	(k)	2298
$\phi_f M_n$	(k)	2810
f_s DC1	(ksi)	12.63
f_s DC2	(ksi)	1.88
f_s DW	(ksi)	3.39
f_s 1.3(I+IM)	(ksi)	23.19
f_s (Service II)	(ksi)	41.09
V_f	(k)	25.4

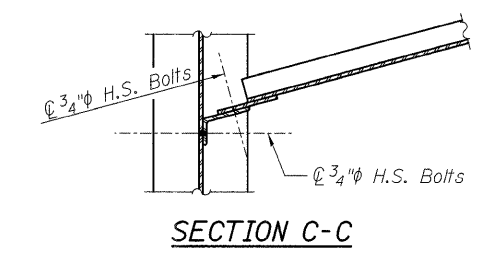
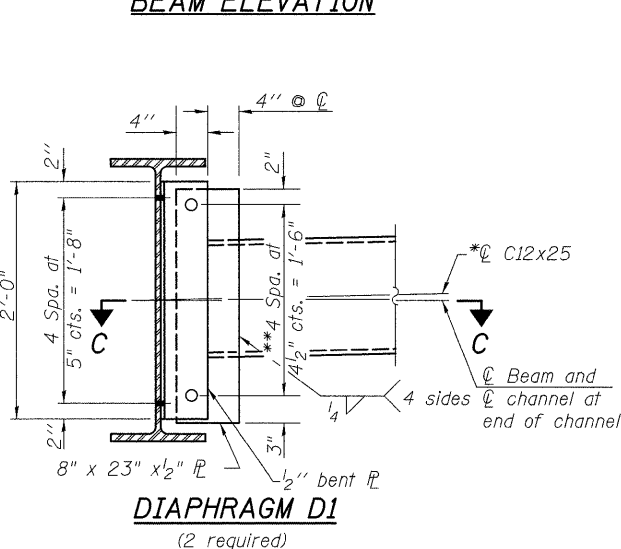
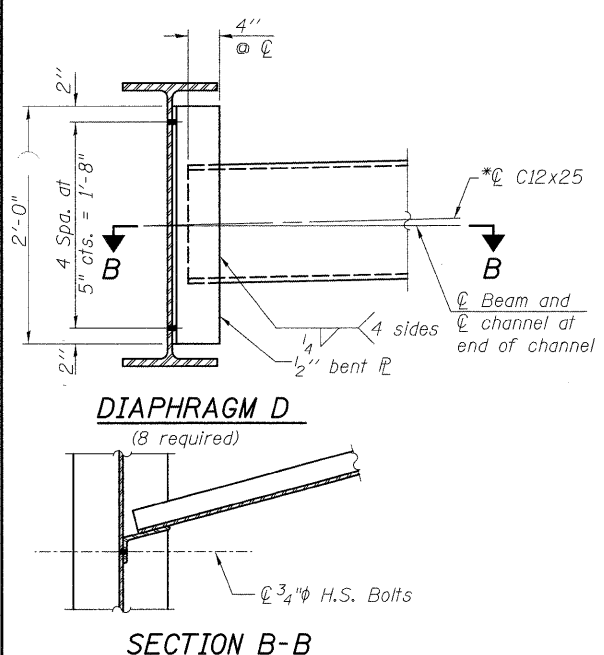
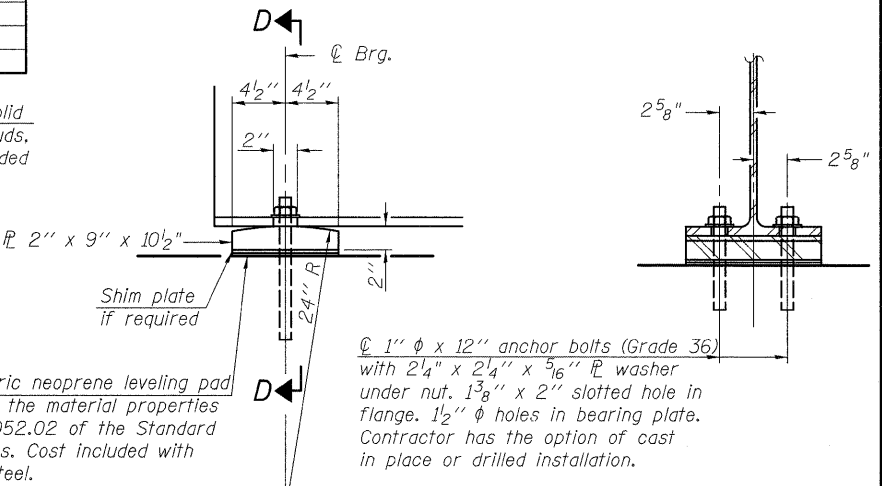
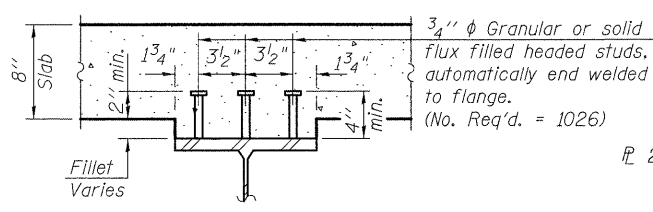
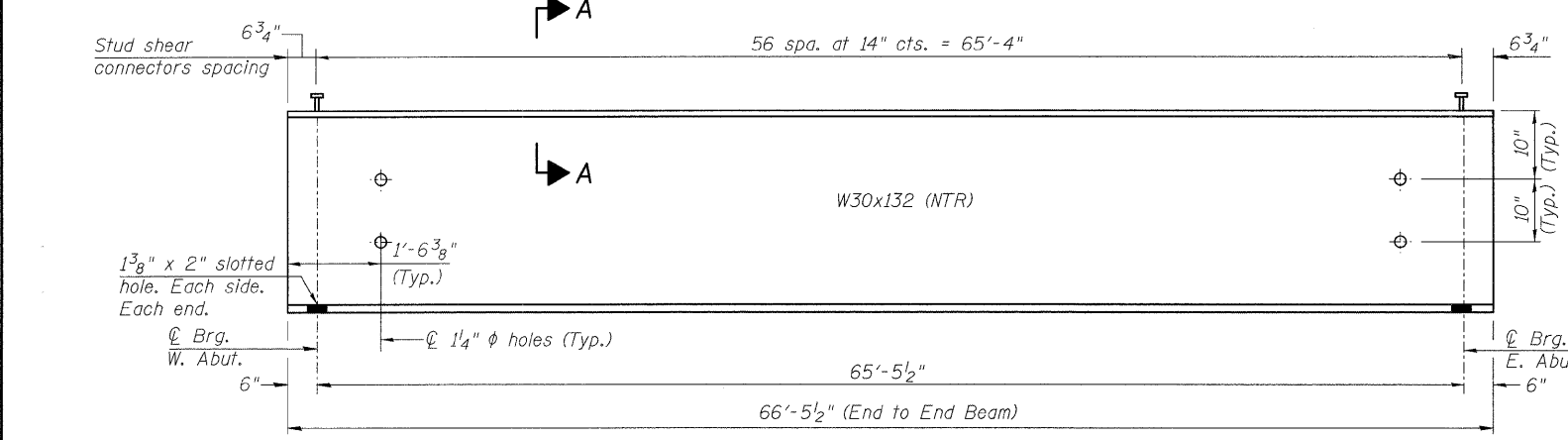
		Abut.
R _{DC1}	(k)	24.5
R _{DC2}	(k)	4.9
R _{DW}	(k)	8.8
R _{k + IM}	(k)	70.9
R _{Total}	(k)	109.1

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.).
M_{DC1}: 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.).
M_{DC2}: 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.).
M_{DW}: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).
M_{k + IM}: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).
M_u (Strength I): Factored design moment (kip-ft.).
 $1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_{k + IM}$
 $\phi_f M_n$: 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 + IM}
V_f: Maximum factored shear range in composite portion of span computed according to Article 6.10.10.



Notes:
3/4" ϕ H.S. Bolts 1 5/16" ϕ Holes, unless otherwise noted.
Two hardened washers required for each set of oversized holes and 5/16" plate washer over slotted holes.
*C12x30 is permitted to facilitate material acquisition. Calculated weight of structural steel is based on C12x25. The alternate, if utilized, shall be provided at no additional cost to the Department.
**3/4" ϕ HS bolts, 1 3/16" x 1 7/8" vertical slotted holes in 8" x 23" x 1/2" plate and 1/2" bent \bar{L} . Slots shall be positioned such that the bolts start at one end with no concrete load and finish near the opposite end after the deck pour. Bolts in slotted holes shall be finger tightened and then fully tightened after second stage deck pour.

NOTES:

- All beams shall be W30x132 AASHTO M270 Grade 50 (NTR). All diaphragms and connecting plates shall be AASHTO M270 Grade 36. All bearing plates shall be AASHTO M270 Grade 50.
- All diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted.
- Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.
- Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. ASTM A307 Grade C anchor bolts may be used in lieu of ASTM F1554 Grade 36 (F_y=36ksi). The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
- Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.

TOP OF BEAM ELEVATIONS
(For Fabrication Only)

Location	Beam 1	Beam 2	Beam 3	Beam 4	Beam 5	Beam 6
\bar{C} Brg. W. Abut.	386.48	386.25	386.02	385.80	385.57	385.34
\bar{C} Brg. E. Abut.	386.82	386.59	386.36	386.14	385.91	385.68

FRAMING PLAN &
STEEL DETAILS
IL 34/146 OVER
THREE MILE CREEK
STATION 76+80.00

<p>LIN ENGINEERING, LTD. Consulting Engineers Chatham, Illinois</p>	SHEET NO. 9	F.A.P. RTE. 885	SECTION 5B-1	COUNTY Hardin	TOTAL SHEETS 48	SHEET NO. 22
	18 SHEETS	S.N. 035-0015		CONTRACT NO. 98949		
	FED. ROAD DIST. NO. - ILLINOIS		FED. AID PROJECT			