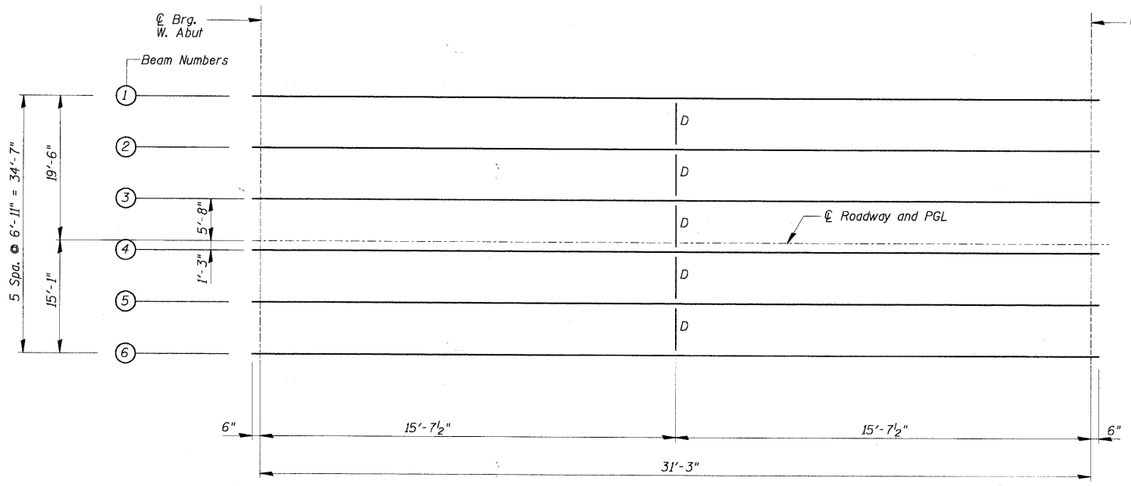
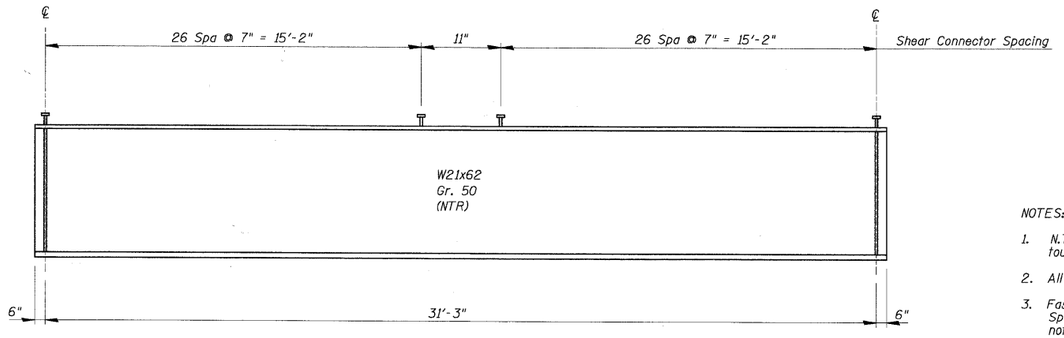
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



FRAMING PLAN



GIRDER ELEVATION

INTERIOR GIRDER MOMENT TABLE		
		0.5 Sp.
Is	(in^4)	1330
Ic (n)	(in^4)	4964.8
Ic (3n)	(in^4)	3781.6
Ss	(in^3)	126.8
Sc (n)	(in^3)	221.4
Sc (3n)	(in^3)	198.9
$\frac{D}{\ell}$	(k/ft.)	0.765
$M\frac{D}{\ell}$	('k)	93.5
$s\frac{D}{\ell}$	(k/ft.)	0.37
$Ms\frac{D}{\ell}$	('k)	44.5
M_{ℓ}	('k)	189.1
M (Imp)	('k)	56.7
$S_3[M_{\ell}+M(Imp)]$	('k)	409.8
Ma	('k)	712.1
* Mu	('k)	1,239.8
$fs\frac{D}{\ell}$ non-comp	(k.s.i.)	8.84
$fs\frac{D}{\ell}$ (comp)	(k.s.i.)	2.69
$fs\,S_3(\ell+Imp)$	(k.s.i.)	22.20
fs (Overload)	(k.s.i.)	33.73
* fs (Total)	(k.s.i.)	43.85
VR	(k)	47.0

* Non-Compact Section

INTERIOR GIRDER REACTION TABLE		
		Abut.
$R\frac{D}{\ell}$	(k)	17.7
R_{ℓ}	(k)	36.5
Imp.	(k)	10.9
R (Total)	(k)	65.1

I_s, S_s: Non-composite moment of inertia and section modulus of the steel section used for computing f_s (Total and Overload) due to non-composite dead loads ($in.^4$ and $in.^3$).

$I_c(n)$, $S_c(n)$: Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing f_s (Total and Overload) due to short-term composite live loads ($in.^4$ and $in.^3$).

$I_c(3n)$, $S_c(3n)$: 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 and Overload) due to long-term composite (superimposed) dead loads ($in.^4$ and $in.^3$).

$\frac{D}{\ell}$: Un-factored non-composite dead load (kips/ft.).

$M\frac{D}{\ell}$: Un-factored moment due to non-composite dead load (kip-ft.).

$s\frac{D}{\ell}$: Un-factored long-term composite (superimposed) dead load (kips/ft.)

$Ms\frac{D}{\ell}$: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).

M_{ℓ}: Un-factored live load moment (kip-ft.).

M_{Imp}: Un-factored moment due to impact (kip-ft.).

M_a: Factored design moment (kip-ft.).
$1.3\,[\,M\frac{D}{\ell} + Ms\frac{D}{\ell} + \frac{5}{3}\,(M_{\ell} + M_{Imp})\,]$

M_u: Compact composite moment capacity according to AASHTO LFD 10.50.1.1. or compact non-composite moment capacity according to AASHTO LFD 10.48.1 (kip-ft.).

f_s (Overload): Sum of stresses as computed from the moments below (ksi).
$M\frac{D}{\ell} + Ms\frac{D}{\ell} + \frac{5}{3}\,(M_{\ell} + M_{Imp})$

f_s (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).
$1.3\,[M\frac{D}{\ell} + Ms\frac{D}{\ell} + \frac{5}{3}\,(M_{\ell} + M_{Imp})]$

VR: Maximum $_{\ell}$ + impact horizontal shear range within the composite portion of the span for stud shear connector design (kips).

NOTES:

1. N.T.R. designates members subject to the supplemental requirements for notch toughness (Zone 2).
2. All structural steel for beams shall be AASHTO M270 Grade 50.
3. Fasteners shall be high strength bolts, conforming to AASHTO M-164 Specification (ASTM A 325). Bolts $\frac{7}{8}$"ϕ, open holes $\frac{15}{16}$"ϕ, unless noted otherwise.
4. Two hardened washers are required over all oversized holes.
5. Number of shear connectors required, 108 beams x 6 = 648.

TOP OF BEAM ELEVATIONS-BEFORE DEFLECTION

(For Fabrication use only)

LOCATION	BEAM 1	BEAM 2	BEAM 3	BEAM 4	BEAM 5	BEAM 6
℄ Brg. E. Abut.	646.03	646.10	646.24	646.33	646.19	646.05
℄ Brg. W. Abut.	646.26	646.34	646.48	646.56	646.43	646.29

FRAMING PLAN DETAILS
WHITEHALL AVENUE OVER ADDISON CREEK
F.A. RTE. 4025
SECTION 09-00071-00-BR
COOK COUNTY
STATION 30+67.04
STRUCTURE No. 016-7618

DESIGNED	-
CHECKED	-
DRAWN	-
CHECKED	-

- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

SHEET NO. S-10 SHEETS	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	4025	09-00071-00-BR	COOK	31	22
			CONTRACT NO. 63437		
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

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