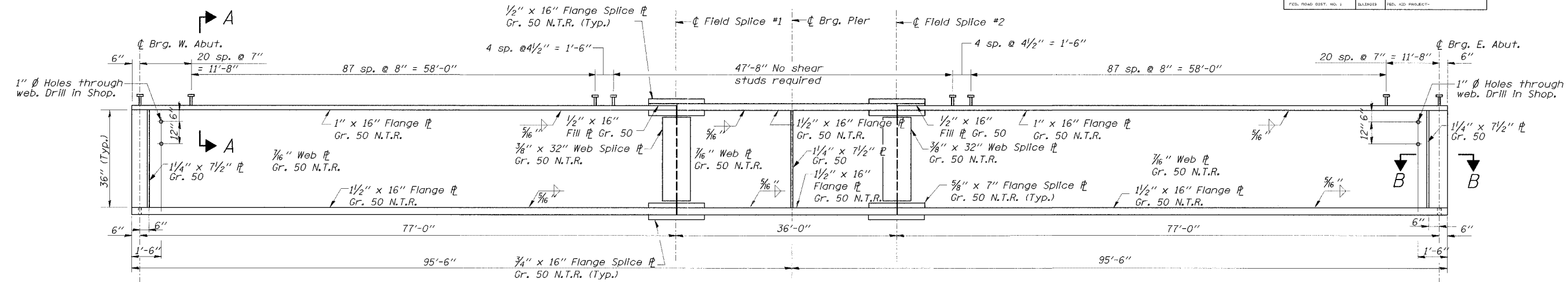
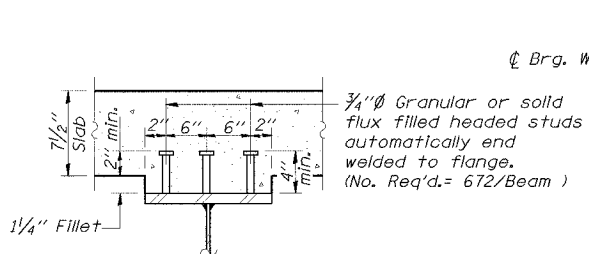


STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

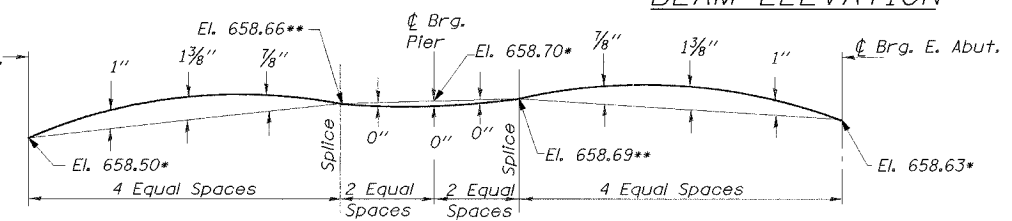
CONTRACT 62829	F.A.P. RTE. NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. SA-12
	305	2004-088B	COOK	145	65	OF SHEETS SA-30
	FED. ROAD DIST. NO. 1	SA13003	FED. AID PROJECT			



BEAM ELEVATION



SECTION A-A

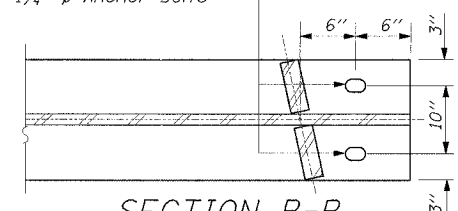


CAMBER DIAGRAM

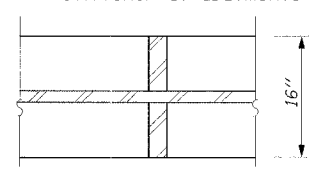
Beam 1 (Typ. all girders except elevations)***

- Top of web elevations
- ** Theoretical top of web elevations before Dead Load Deflection
- *** For other girders' top of web elevations, see Top of Web Elevations Table

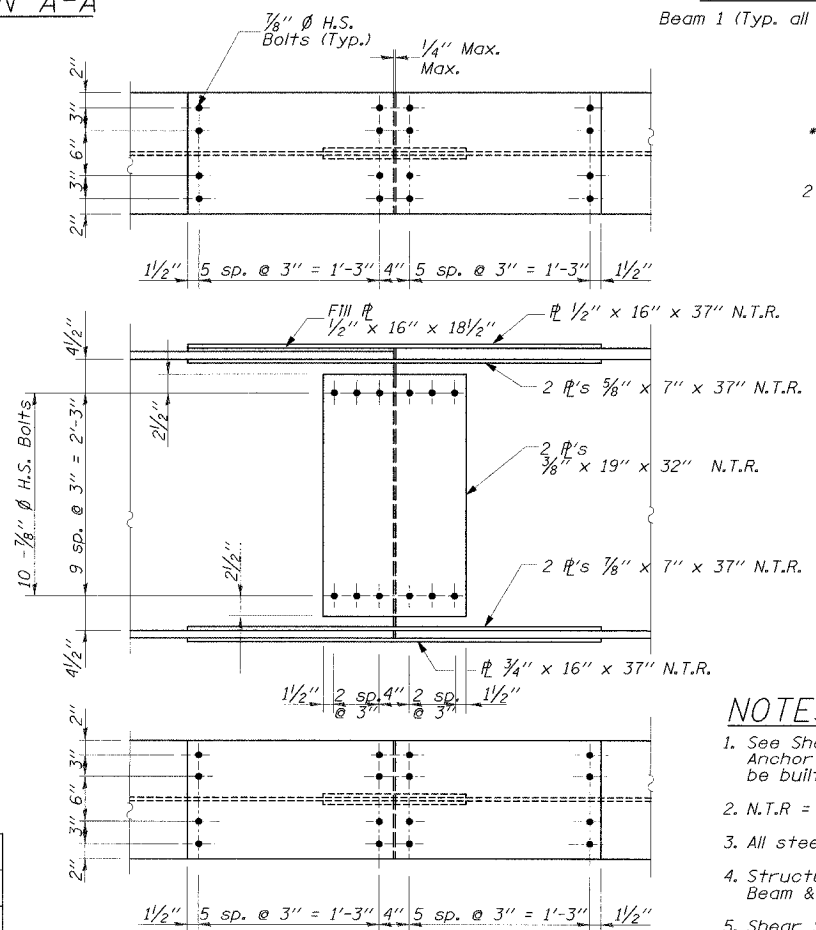
2 - 1 1/8" x 2 1/2" Slotted Holes For 1 1/4" Anchor Bolts



SECTION B-B
Stiffener at abutments



SECTION B-B
Stiffener at pier



FIELD SPLICE DETAIL

24 Required

		0.4 Sp. #1	Pier
I _s	(in ⁴)	15195	18585
I _c	(in ⁴)	37687	
I _c (3n)	(in ⁴)	27158	
S _s	(in ³)	908	953
S _c	(in ³)	1188	
S _c (3n)	(in ³)	1097	
Z	(in ³)	878	878
Q	(k/ft)	0.915	1.450
M _Q	(k*ft)	556	1571
s _Q	(k/ft)	0.505	
M _{sQ}	(k*ft)	345	
M _L	(k*ft)	803	551
M(Imp)	(k*ft)	182	125
5/3 [M _L +M(Imp)]	(k*ft)	1642	1127
M _a	(k*ft)	3306	3507
M _u	(k*ft)	5382	4340
f _{sQ} (non-comp)	(ksi)	7.35	19.8
f _{sQ} (comp)	(ksi)	3.77	
f _s 5/3 [M _L +M(Imp)]	(ksi)	16.58	14.2
f _s (Overload)	(ksi)	27.70	34.0
f _s (Total)	(ksi)		
VR	(k)	47.6	

* Compact, Braced Section

	Abut	Pier
R _Q (k)	50.5	167.6
R _{LL} (k)	46.8	65.3
Imp. (k)	10.7	10.4
R(Total) (k)	108.0	243.3

I_s and S_s are the moment of inertia and section modulus of the steel section used in computing f_s (Total and 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 LL + impact shear range in span.

Z is the plastic section modulus used to determine the Fully Plastic Moments in the non-composite areas.

M_a (Applied Moment) = 1.3 [M DL + M sDL + 5/3 (M LL + M (Imp))]

M_u (Plastic Moment Capacity) is computed according to AASHTO 10.48.1 and 10.50.1.1.

f_s (Total) is the sum of the stresses due to 1.3 [M DL + M sDL + 5/3 (M LL + M (Imp))]

f_s (Overload) is the sum of the stresses due to [M DL + M sDL + 5/3 (M LL + M (Imp))]

BILL OF MATERIAL

Item	Unit	Quantity
Stud Shear Connector	Each	8,064

TOP OF WEB ELEVATIONS
(For Fabrication Only)

Beam	Q Brg. W Abut	Q Field Splice 1	Q Pier 1	Q Field Splice 2	Q Brg. E Abut
1	658.50	658.64	658.66	658.67	658.63
2	658.84	658.96	658.98	658.99	658.95
3	659.17	659.30	659.31	659.32	659.27
4	659.50	659.62	659.64	659.65	659.60
5	659.84	659.95	659.97	659.98	659.92
6	660.17	660.27	660.29	660.30	660.25
7	660.50	660.61	660.62	660.63	660.57
8	660.83	660.94	660.95	660.96	660.89
9	661.16	661.26	661.27	661.28	661.21
10	661.50	661.59	661.60	661.60	661.54
11	661.83	661.91	661.92	661.93	661.86
12	662.15	662.25	662.25	662.25	662.19

(Top of web elevations before dead load deflection).

NOTES:

- See Sheet SA-23 for anchor bolt installation. Anchor bolts at fixed bearings may be built into the masonry.
- N.T.R. = Notch Toughness Requirement
- All steel is Grade 50 U.N.O.
- Structural Steel already furnished under Beam & Bearing Fabrication Contract 62851.
- Shear Studs to be furnished under this contract.

DESIGNED	AJN
CHECKED	JAP
DRAWN	ABW
CHECKED	EL

STRUCTURAL STEEL-GIRDER ELEVATION
WILLOW ROAD OVER MILWAUKEE AVENUE (IL RTE. 21/U.S. 45)
F.A.P. RTE. 305
SECTION 2004-088B
COOK COUNTY
STA. 391+71.02 Q WILLOW RD.
STR. NO. 016-2786

EDWARDS AND KELCEY