

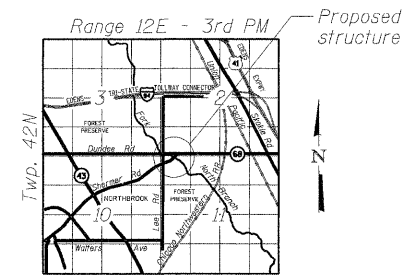
Benchmark - Spike found in south face of power pole at southwest corner of Illinois Rte. 68 and Shermer Road. Elev = 647.74.

Existing Structure - S.N. 016-0814 originally built in 1959 as S.A. Route 106, Sec. 106-0203-MFT. The existing structure consists of a single span of 27"x36" PPC deck beams with closed abutments supported on 12" diameter timber piles. The back to back of abutments measures 50'-0" and the out to out of deck is 40'-0". In 1979, the original HMA overlay was removed and replaced with a variable thickness reinforced concrete wearing surface. In 2002, the concrete wearing surface was removed and replaced. The superstructure is to be removed and replaced. Traffic is to be detoured.

No salvage.

**Scope of Work**

1. Remove and replace PPC deck beam superstructure
2. Construct concrete wearing surface
3. Perform substructure repairs
4. Remove and replace HMA overlay on approach slabs
5. Remove and replace approach sidewalks and guardrail



LOCATION SKETCH

**DESIGN SPECIFICATIONS**  
(New Construction)  
AASHTO LRFD Bridge Design Specifications, 5th Edition, with 2010 Interim Revisions

**LOADING HL-93**

Allow 50#/sq. ft. for future wearing surface.

**DESIGN STRESSES**

**FIELD UNITS (New Construction)**

$f'_c = 3,500$  psi  
 $f_y = 60,000$  psi (Reinforcement)

**FIELD UNITS (Existing Construction)**

$f'_c = 3,000$  psi  
 $f_y = 40,000$  psi (Reinforcement)

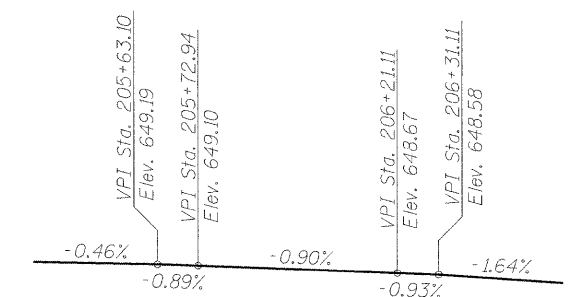
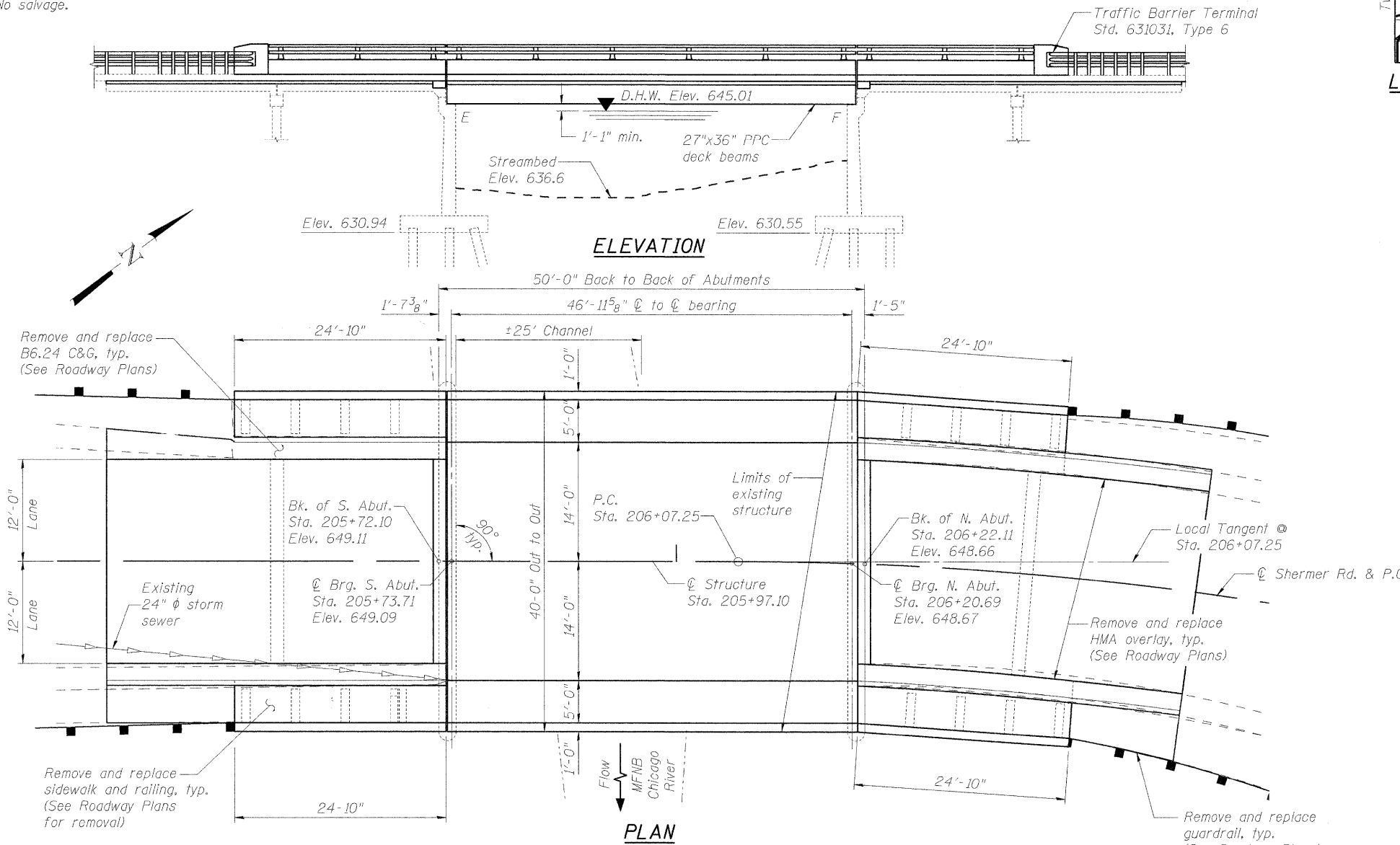
**PRECAST PRESTRESSED UNITS**

$f'_c = 6,000$  psi  
 $f_{ci} = 5,000$  psi  
 $f_{pu} = 270,000$  psi ( $\frac{1}{2}$ "  $\phi$  low relax. strands)  
 $f_{pbl} = 201,960$  psi ( $\frac{1}{2}$ "  $\phi$  low relax. strands)

**SEISMIC DATA**

(Existing Construction)

Seismic Performance Zone (SPC) = A  
Bedrock Acceleration Coefficient (A) = 0.04g  
Site Coefficient (S) = 1.0



**PROFILE GRADE**

(Along  $\phi$  Shermer Rd.)

**APPROVED**  
FOR STRUCTURAL ADEQUACY ONLY  
*Brad H. Sayers*  
ENGINEER OF BRIDGES AND STRUCTURES

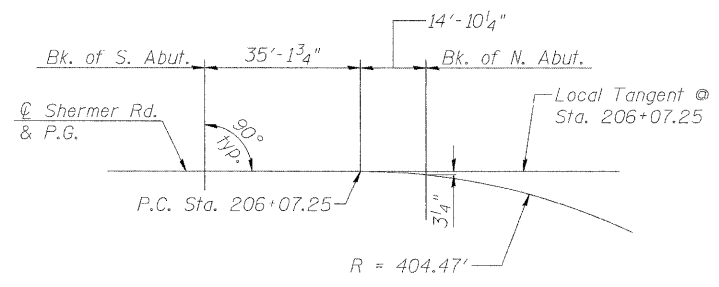


*Brad H. Sayers*  
BRAD H. SAYERS, S.E.  
IL. LIC. NO. 081-006267  
EXP 11/30/12  
DATE 10/12/11

**WATERWAY INFORMATION**

Drainage Area = 21.54 sq. mi. Low Grade Elev. 647.60 ft. @ Sta. 206+75

Flood Yr.	Freq.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.
			Exist.	Prop.		Exist.	Prop.	
Design	50	734.0	331.4	331.4	645.01	0.08	0.08	645.09
Base	100	870.0	331.4	331.4	645.32	0.12	0.12	645.44
Max. Calc.	500	1743.0	331.4	331.4	646.34	0.34	0.34	646.68



OFFSET SKETCH

**CURVE DATA**

$\Delta = 53^\circ 49' 00''$  (RT)  
 $D = 14^\circ 09' 56''$   
 $T = 205.27'$   
 $L = 379.91'$   
 $E = 49.11'$   
 $R = 404.47'$   
 $S.E. = n/a$   
 $P.C. = Sta. 206+07.25$   
 $P.T. = Sta. 209+87.16$   
 $P.I. = Sta. 208+12.53$

**DESIGN SCOUR ELEVATION TABLE**

Design Scour Elevation (ft.)	S. Abut.	N. Abut.
	626.12	630.08



USER NAME = zsaarb	DESIGNED - BPS	REVISED -
PLOT SCALE = N/A	CHECKED - BHS	REVISED -
PLOT DATE = 10/6/2011	DRAWN - BPS	REVISED -
	CHECKED - GSP	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN & ELEVATION  
S.N. 016-0814

SHEET NO. 51 OF 14 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2760	100-B-1	COOK	28	11

CONTRACT NO. 60M80  
ILLINOIS FED. AID PROJECT