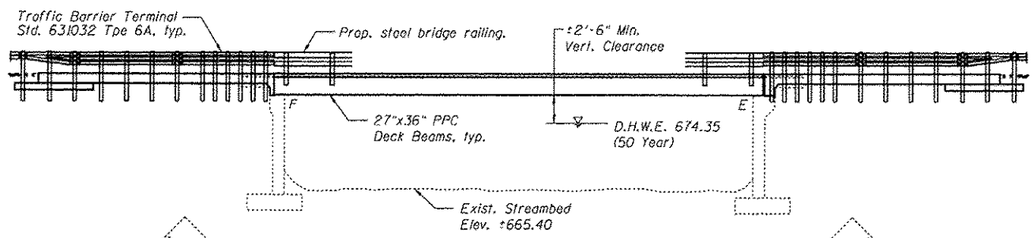
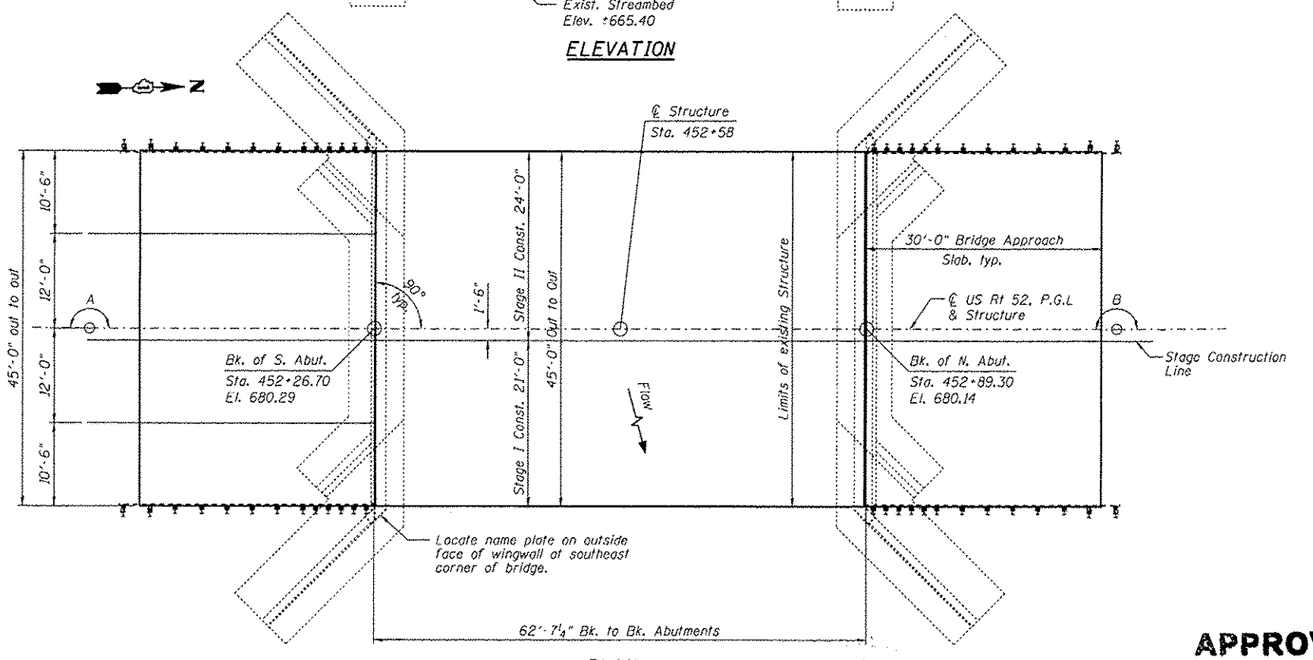
Benchmark : Benchmark #1 - Brass Tablet at northwest corner of bridge. Sta = 452+89, 24' left, Elevation = 679.46'

Existing Structure: S.N. 099-0130 built in 1916 and widened and complete superstructure replacement in 1980 as a single span 27"x36" PPC Deck Beam bridge with 2½" bituminous wearing surface on closed abutments on spread footings. The structure measures 62'-7¼" back to back abutments and 45'-0" out to out. Wingwalls were added in the 1980 widening to accommodate the new superstructure. Traffic is to be maintained utilizing stage construction. One lane of alternating two-way traffic is to be maintained using traffic signals.

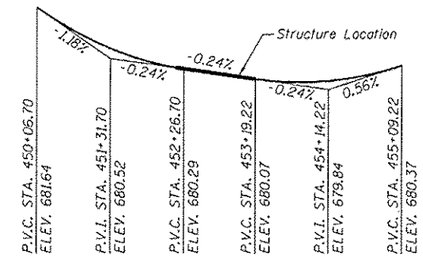
Salvage: Existing Steel Bridge Rail



ELEVATION



PLAN



PROFILE GRADE

LOADING HL-93

DESIGN SPECIFICATIONS (NEW CONST.)

2010 AASHTO LRFD Bridge Design Specifications, 5th Edition, with 2010 Interims

DESIGN STRESSES

FIELD UNITS (NEW CONST.)

$f'c$ = 3,500 psi
$f'c$ = 5000 psi (Concrete Wearing Surface)
fy = 60000 psi (Reinforcement)

FIELD UNITS (EXISTING)

$f'c$ = 3,500 psi
$f'c$ = 5000 psi (Concrete Wearing Surface)

PRECAST PRESTRESSED UNITS

$f'c$ = 6000 psi
$f'ci$ = 5000 psi
f_{pu} = 270,000 psi (1/2" ϕ low lax. strands)
f_{pbt} = 201,960 psi (1/2" ϕ low lax. strands)

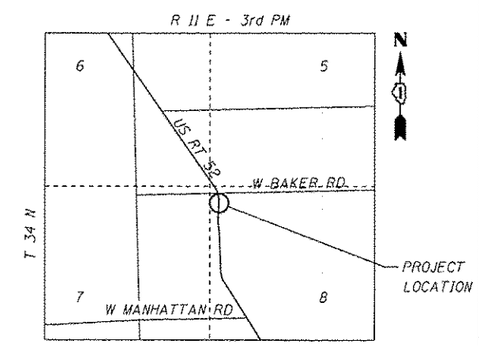
SEISMIC DATA (EXISTING)

Seismic Performance Category (SPC) = A
Bedrock acceleration coefficient (A) = .04g
Site Coefficient (S) = 1.2

STATION 452+58
REBUILT 20_ _ BY
STATE OF ILLINOIS
F.A.P. ROUTE 852 SEC 18-B-4-R-2
LOADING HL-93
STRUCTURE NO. 099-0130

NAME PLATE
See Std. 515001

NOTE:
Existing Name Plate shall be cleaned and relocated next to new Name Plate. Cost included with Name Plates.



LOCATION SKETCH

NOTE:
The roadway on the bridge is built on a straight chord between kinks A & B.

KINK	DIMENSION	STATION
A	179°13'08"	451+90.48
B	179°40'40"	453+21.18

WATERWAY INFORMATION

Drainage Area = 14.1 mi²

Exist. Low Grade Elev. = 679.32 ft. @ Sta. 452+98
Prop. Low Grade Elev. = 679.56 ft. @ Sta. 452+98

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
	10	1510	432	432	673.37	0.07	0.07	673.44	673.44
Design	50	2400	492	492	674.35	0.25	0.25	674.60	674.60
Base	100	2960	530	530	674.99	0.44	0.44	675.43	675.43
Overtopping	>500								
Max. Calc.	500	4220	596	596	676.09	0.73	0.73	676.82	676.82

10-Yr Velocity through Existing Bridge = 3.5 fps
10-Yr Velocity through Proposed Bridge = 3.5 fps

APPROVED
For Structural Adequacy Only
Engineer of Bridges & Structures

STATE OF ILLINOIS
WILLIAM H. EPP
081-005150
PROFESSIONAL STRUCTURAL ENGINEER

WILLIAM H. EPP, S.E.
IL. LIC. NO. 081-005150
EXP 11·30·14
DATE 1-9-13

SCOUR ELEVATION TABLE

Scour Elevation (Ft.)	S. Abut	N. Abut
	662.75	662.67

NOTE:
Elevations are the assumed bottom of footing elevations

GENERAL PLAN AND ELEVATION
US 52 OVER JACKSON CREEK
F.A.P RT. 852
SECTION 18-B-4-R-2
WILL COUNTY
STA. 452+58
STRUCTURE NO. 099-0130

benesch
engineers - scientists - planners
Alfred Benesch & Company
1560 Wall St. Suite 222
Naperville, Illinois 60563
630-577-0100 Job No. 10259.00

DESIGNED - SLV	REVISED -	
CHECKED - MJM	REVISED -	
DRAWN - SLV	REVISED -	
CHECKED - MJM	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURE NO. 099-0130
SHEET NO. 51 OF 516 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
852	18-B-4-R-2	WILL	44	18
		CONTRACT NO. 60N20		
		ILLINOIS FED. AID PROJECT		